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 offer 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.

<table>
<thead>
<tr>
<th>KEY FEATURES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>New generation world-class Automation &amp; Connectivity System (ACS)</td>
<td>Automatically adapts the crusher to varying feed conditions ensuring maximum 24/7 performance</td>
</tr>
<tr>
<td>Hydroset™ system</td>
<td>Provides safety and setting adjustment functions</td>
</tr>
<tr>
<td>Mainframe is built as a unibody without moving parts</td>
<td>For optimal strength and less components requiring maintenance</td>
</tr>
<tr>
<td>Top serviceability</td>
<td>Lifting from above minimizes risks, and allows for quicker and safer maintenance</td>
</tr>
<tr>
<td>Adjustable eccentric throw</td>
<td>To exactly balance capacity to the process thus harmonizing the crushing stages</td>
</tr>
<tr>
<td>Constant liner profile</td>
<td>Maintains the feed opening and performance during the entire service life of the liners</td>
</tr>
<tr>
<td>Wide range of crushing chambers suited for all types of applications</td>
<td>Choose from extra coarse crushing chambers with the largest intake to extremely fine crushing chambers</td>
</tr>
<tr>
<td>Mechanical dump valve for tramp iron protection</td>
<td>Reduces pressure peaks and mechanical stress on the crusher, greatly improving reliability</td>
</tr>
<tr>
<td>Full lubrication monitoring and control</td>
<td>Real-time monitoring of the crusher lubrication system for increased uptime and reliability</td>
</tr>
</tbody>
</table>
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, +36, +40, +44, +48
Eccentric speed: 290 rpm (50Hz, SPC-belt) 295 rpm (60Hz, 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 (50Hz, SPC-belt) 1,320 rpm (50Hz, 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

CRUSHER 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
Radiator: 2,650 kg
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: Dust seal air pressure
Air mount: Blower
Air quality: Filtered
Air flow: >30 m³/h
Air pressure: >150 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

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 sheets: 2
Max. weight: 205 kg
Material: Manganese steel
Fastening method: Bolted

BOTTOM SHELL BODY LINERS

No. of liners: 10
Max. weight: 16-24 kg/7.6-7 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

GENERAL INFORMATION

SANDVIK CS840i

MOTOR CHARACTERISTICS

Manufacturer: WEG
Model: W22/HGF
Type: Three-phase, squirrel cage
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Rated power: 330 kW
Frequency: 50/60 Hz
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Fastening method: Bolted (welding*)

*No main frame welding
**AUTOMATION & CONNECTIVITY SYSTEM (ACS)**

**SETTING REGULATION**

**MONITORING FUNCTIONS (AVAILABLE WITH METRIC AND IMPERIAL UNITS)**
- Energy consumption
- Hydraulic oil pressure
- Main shaft position
- Calculated CSS (based on main shaft position)
- Lubrication 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

**OPERATIONAL FUNCTIONS**
- Oil heaters
- Main lubrication oil pump
- Pinion lubrication oil pump
- Over-pressure fan
- Monitor coolers
- Offline filter status

**OTHER FUNCTIONS & CABINET DIMENSIONS**
- Pushbutton box for manual setting of CSS
- Setting regulation cabinet (LxHxD): 1200x600x250 mm
- Connection box crusher (LxHxD): 600x350x155 mm
- Network repeater box (LxHxD): 300x300x210 mm
- (Recommended for distances over 100m)

**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

**SOFTWARE PACKAGE (OPTIONAL)**
- Communication gateway interface
  - Controller
  - DeviceNet
  - Ethernet/IP
  - Modbus TCP
  - Profinet
  - Profinet
  - Simultaneously control up to 9 different crushers with ACS from a PC via Ethernet network
- ACS Reporter
  - Export data from the Automation & Connectivity System to a PC for analysis and storage

**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

**GENERAL DATA**
- Oil tank reservoir capacity: 85 liters

**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

**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

**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

**ELECTRICAL HARDWARE**
- Setting regulation control
- Power measurement unit
- Customer interface gateway
- Connection box crusher
- Cable kit

**CABINET DIMENSIONS**
- Lubrication control cabinet (LxWxH): 1200x800x250 mm

**SOFTWARE PACKAGE (OPTIONAL)**
- Communication gateway interface
  - Controller
  - DeviceNet
  - Ethernet/IP
  - Modbus TCP
  - Profinet
  - Profinet
  - Simultaneously control up to 9 different crushers with ACS from a PC via Ethernet network
- ACS Reporter
  - Export data from the Automation & Connectivity System to a PC for analysis and storage

**Pinion Shaft Lubrication System**
- Oil filter
  - Filter type: Spin-on
  - Filter 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**
- Oil filter
  - Filter type: Spin-on
  - Filter grade: 10 µm
  - Filter material: Glass fiber
  - No. of filters: 1
- Pump motor
  - Type: Three-phase, squirrel cage
  - Power: 4 kW @50 Hz
  - 4.6 kW @60 Hz
  - Speed: 1,500 rpm @50 Hz
  - 1,800 rpm @60 Hz
  - Insulation class: F
  - Protection class: IP55

**Pinion Shaft Lubrication System**
- Oil filter
  - Filter type: Spin-on
  - Filter grade: 10 µm
  - Filter material: Glass fiber
  - No. of filters: 1
- Pump motor
  - Type: Three-phase, squirrel cage
  - Power: 0.12 kW @50 Hz
  - 0.16 kW @60 Hz
  - Speed: 1,500 rpm @50 Hz
  - 1,800 rpm @60 Hz
  - Insulation class: F
  - Protection class: IP55

**Main Crusher Lubrication System**
- Oil filter
  - Filter type: Filter element insert
  - Filter grade: 25 µm
  - Filter material: Glass fiber
  - No. of filters: 1

**Pinion Shaft Lubrication System**
- Oil filter
  - Filter type: Spin-on
  - Filter grade: 10 µm
  - Filter material: Glass fiber
  - No. of filters: 1
- Pump motor
  - Type: Three-phase, squirrel cage
  - Power: 4 kW @50 Hz
  - 4.6 kW @60 Hz
  - Speed: 1,500 rpm @50 Hz
  - 1,800 rpm @60 Hz
  - Insulation class: F
  - Protection class: IP55

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- Oil filter
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  - Filter material: Glass fiber
  - No. of filters: 1
- Pump motor
  - Type: Three-phase, squirrel cage
  - Power: 4 kW @50 Hz
  - 4.6 kW @60 Hz
  - Speed: 1,500 rpm @50 Hz
  - 1,800 rpm @60 Hz
  - Insulation class: F
  - Protection class: IP55
## 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)**
650x450x1,055 mm

**Weight**
100 kg

**Pump Design**
Gear wheel

**Oil Filter**
Filter type: Filter Insert
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

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### Manuals

<table>
<thead>
<tr>
<th>Operator's manual</th>
<th>Any language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation manual</td>
<td>Any language</td>
</tr>
<tr>
<td>Installation manual appendix</td>
<td>Any language</td>
</tr>
<tr>
<td>Maintenance manual</td>
<td>Any language</td>
</tr>
<tr>
<td>Spare parts catalogue</td>
<td>English only</td>
</tr>
</tbody>
</table>

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### Standards Air/Oil Coolers

<table>
<thead>
<tr>
<th>No. of units</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry weight incl. stand</td>
<td>240 kg</td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Volume</td>
<td>12.8 liters</td>
</tr>
<tr>
<td>Max. air flow</td>
<td>2.8 kg/s @50 Hz, 3.3 kg/s @60 Hz</td>
</tr>
</tbody>
</table>

---

### Air Cooler Fan Motor

<table>
<thead>
<tr>
<th>Type</th>
<th>Three-phase, squirrel cage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>2.2 kW @50 Hz, 3.6 kW @60 Hz</td>
</tr>
<tr>
<td>Speed</td>
<td>1,500 rpm @50 Hz, 1,800 rpm @60 Hz</td>
</tr>
</tbody>
</table>

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### Air Cooler Fan Motor

<table>
<thead>
<tr>
<th>Type</th>
<th>Three-phase, squirrel cage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>5.5 kW @50 Hz, 6.3 kW @60 Hz</td>
</tr>
<tr>
<td>Speed</td>
<td>1,500 rpm @50 Hz, 1,800 rpm @60 Hz</td>
</tr>
</tbody>
</table>

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### Air Cooler Fan Motor

<table>
<thead>
<tr>
<th>Type</th>
<th>Three-phase, squirrel cage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>5.5 kW @50 Hz, 6.3 kW @60 Hz</td>
</tr>
<tr>
<td>Speed</td>
<td>1,500 rpm @50 Hz, 1,800 rpm @60 Hz</td>
</tr>
</tbody>
</table>

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### Oil Cooling Systems (for Main Crushers Lubrication)

<table>
<thead>
<tr>
<th>Standard Air/Oil Coolers</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of units</td>
</tr>
<tr>
<td>Dry weight incl. stand</td>
</tr>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Volume</td>
</tr>
<tr>
<td>Max. air flow</td>
</tr>
</tbody>
</table>

---

### Hot Climate Air/Oil Coolers

<table>
<thead>
<tr>
<th>No. of units</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry weight incl. stand</td>
<td>390 kg</td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Volume</td>
<td>10.8 liters</td>
</tr>
<tr>
<td>Max. air flow</td>
<td>7.8 kg/s @50 Hz, 9.3 kg/s @60 Hz</td>
</tr>
</tbody>
</table>

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### Oil Coolers

<table>
<thead>
<tr>
<th>Model</th>
<th>CS840i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concave</td>
<td>165-190</td>
</tr>
<tr>
<td>EC</td>
<td>165-170</td>
</tr>
<tr>
<td>C</td>
<td>145-170</td>
</tr>
</tbody>
</table>

---

### Performance

<table>
<thead>
<tr>
<th>CS840i Connected – Nominal Capacity (m³/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. feed size (mm)</td>
</tr>
<tr>
<td>F90</td>
</tr>
<tr>
<td>F100</td>
</tr>
<tr>
<td>Max. motor power (kW)</td>
</tr>
</tbody>
</table>

---

### Weight (Kg)

<table>
<thead>
<tr>
<th>Top shell assembly</th>
<th>6,586</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom shell assembly</td>
<td>5,772</td>
</tr>
<tr>
<td>Main shaft assembly</td>
<td>5,498</td>
</tr>
<tr>
<td>Pinion shaft housing assembly</td>
<td>51</td>
</tr>
<tr>
<td>Hydraulic cylinder assembly</td>
<td>1,080</td>
</tr>
<tr>
<td>Feed hopper assembly</td>
<td>992</td>
</tr>
<tr>
<td>Eccentric assembly</td>
<td>767</td>
</tr>
<tr>
<td>Dust collar assembly</td>
<td>252</td>
</tr>
<tr>
<td>Hoses and protection assembly</td>
<td>276</td>
</tr>
<tr>
<td>Crusher weight</td>
<td>25,794</td>
</tr>
<tr>
<td>Subframe</td>
<td>1,384</td>
</tr>
<tr>
<td>Electric motor (max.)</td>
<td>2,050</td>
</tr>
<tr>
<td>Total weight (incl. subframe and drive)</td>
<td>30,784</td>
</tr>
</tbody>
</table>

---

### Kgs to Lbs

<table>
<thead>
<tr>
<th>Kg</th>
<th>Lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,586</td>
<td>14,517</td>
</tr>
<tr>
<td>5,772</td>
<td>12,725</td>
</tr>
<tr>
<td>5,498</td>
<td>12,121</td>
</tr>
<tr>
<td>51</td>
<td>112</td>
</tr>
<tr>
<td>1,080</td>
<td>2,381</td>
</tr>
<tr>
<td>992</td>
<td>2,187</td>
</tr>
<tr>
<td>767</td>
<td>1,691</td>
</tr>
<tr>
<td>252</td>
<td>556</td>
</tr>
<tr>
<td>276</td>
<td>602</td>
</tr>
<tr>
<td>25,794</td>
<td>56,866</td>
</tr>
<tr>
<td>1,384</td>
<td>3,001</td>
</tr>
<tr>
<td>2,050</td>
<td>4,484</td>
</tr>
<tr>
<td>30,784</td>
<td>67,867</td>
</tr>
</tbody>
</table>
DIMENSIONS*

* Always refer to the installation manuals

Sandvik Mining and Rock Technology reserves the right to make changes to the information on this data sheet without prior notification to users. Please contact a Sandvik representative for clarification on specifications and options.