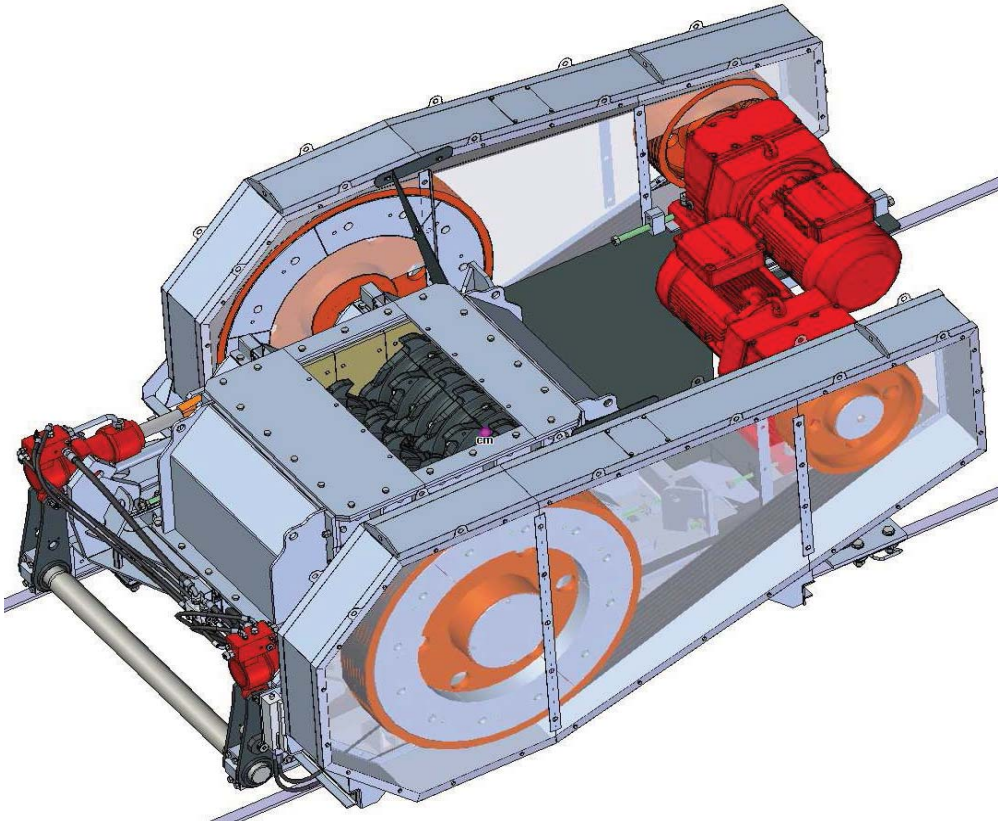


Hybrid CR810/08-10

1. General Design Criteria

Feed material strength:	UCS ≤ 200 MPa
Feed material abrasiveness:	AI ≤ 0,1 g
Ambient temperature:	-20 to +40 ℃
Altitude of site:	≤ 1000 m

Machine design is according to the current european standards for mechanical design, industrial electric of heavy-duty working machines and safety regulations.

2. General Machine Data

Machine type:	CR810/08-10
Similar to drawing:	00124300 - CR810/08-10
Design:	standard
Moving unit:	as option
Roll diameter:	820 mm
Roll width:	1000 mm
Drive motor:	~~2 x 90 kW~~ 2x 75 kW
Roll tip speed:	3,43 m/s
Roll rotation speed:	79,78 rpm

3. Machine Dimensions

Inlet length:	1080 mm
Inlet width:	640 mm
Outlet length:	1090 mm
Outlet width:	1710 mm
Overall length:	4860 mm
Overall width:	3000 mm
Overall height:	1870 mm

4. Machine Weights

Crusher housing:	1300 kg
Crusher base frame:	2100 kg
Each roll incl. bearings:	2900 kg
Each roll complete:	5700 kg
Each crushing segment:	100 kg
E-motor:	1500 kg (incl. gear box)
Gear box:	N/A
Fluid coupling:	N/A
Total weight incl. drive and frame:	2182 kg

5. Transport dimensions

Frame part (with hydraulic cylinder):	2750 mm x 1100 mm x 1200 mm
Frame middle part:	40 mm x 250 mm x 250 mm
Housing side part:	1300 mm x 850 mm x 500 mm
Housing middle part:	1450 mm x 450 mm x 150 mm

Drive frame:	2250 mm x 2150 mm x 800 mm
Pivoting motor base:	110 mm x 900 mm x 700 mm
Drive complete (Loose roll):	1600 mm x 750 mm x 850 mm
Drive complete (Fix roll):	1600 mm x 750 mm x 850 mm
Fix roll:	2500 mm x 850 mm x 850 mm
Loose roll:	2550 mm x 850 mm x 850 mm
V-belt pulley:	1650 mm x 350 mm x 1650 mm
Protecting cover (Loose roll):	3950 mm x 600 mm x 1850 mm
Protecting cover (Fix roll):	3950 mm x 600 mm x 1850 mm
Synchronisation:	3550 mm x 2150 mm x 650 mm
Scraper:	1550 mm x 700 mm x 350 mm

6. Transport weights

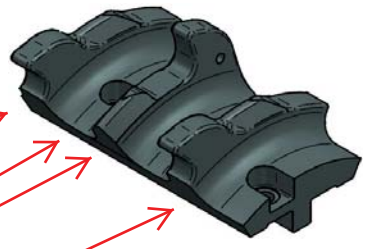
Frame part (with hydraulic cylinder):	1125 kg
Frame middle part:	14 kg
Housing side part:	310 kg
Housing middle part:	170 kg
Drive frame:	650 kg
Pivoting motor base:	350 kg
Drive complete (Loose roll):	1800 kg
Drive complete (Fix roll):	1800 kg
Fix roll:	2700 kg
Loose roll:	2815 kg
V-belt pulley:	2700 kg
Protecting cover (Loose roll):	265 kg
Protecting cover (Fix roll):	250 kg
Synchronisation:	400 kg
Scraper:	120 kg

7. Machine Materials

Crusher housing:	S355 J2+N or eq.
Crusher base frame:	S355 J2+N or eq.
Crusher shaft:	34 CrNiMo6 +QT or eq.
Wear plates:	Hardox 450 or eq.
Crushing segment:	GX 120 Mn 12 or eq.
Crushing teeth:	N/A

8. Crushing Rolls

Quantity of rolls:	2
Nominal center distance:	805 / 785 / 690 / 730 mm
Segments per roll:	12
Segment length:	500 mm
Segment type:	K31,5 / K50-80 / K100 / K120-150
Crushing tooth height:	25 / 45 / 90 / 100 mm
Teeth characteristics:	with tooth back
Axial teeth number:	16 / 10 / 6 / 4



Circumference teeth number:	24 / 12 / 6 / 6
Total teeth number:	384 / 12 / 36 / 24
Roll bearings:	4 x spherical roller bearing, D213 mm

9. Drive Unit

Drive system:	gear motor

E-motor

Rated power:	2 x 90 kW
Rated voltage:	400 / 690 V
Operation mode:	delta / star
Rated frequency:	50 Hz
Rated speed:	1485 rpm
Protection grade:	IP55
Insulation class:	F

Fluid coupling

Type:	N/A
Oil quantity:	N/A
Suitable up to:	N/A
Elastical connection to gear box:	N/A

Gear box

Type:	SEW R147 or eq.
Service factor:	≥ 2,5
Nominal output torque:	12,9 kN
Input speed:	1485 rpm
Output speed:	179,8 rpm
Thermal capacity (with fan):	120 kW
Transmission ratio:	8,26

V-belt transmission

Motor pulley diameter:	710 mm
Crusher pulley diameter:	1600 mm
Transmission ratio:	2,25
V-belts:	2x4 8V/25N

10. Hydraulic Unit

Hydraulic aggregate

Type:	Aros HK35-Z5.6 or eq.
Pump motor:	1,5 kW
Pump capacity:	5,6 ltr/min
Oil tank volume:	35 ltr
System pressure:	max. 150 bar

Hydraulic cylinder

Type:	Hydroservice 125/70-250 or eq.
Piston diameter:	125 mm

Plunger diameter:	70 mm
Stroke of loose roll:	250 mm
Hydraulic control block	
Type:	Teichert 500l - RTF-081023 or eq.

11. Automatic Lubrication System

Grease pump:	Lincoln P203 or eq. (with grease distributor)
Pump motor:	72 W (24 VDA, 3 A)
Tank volume:	8 ltr (with level monitoring)

12. Main Protection Devices

Local operator panel (LOP)	
Connection to crusher:	equipped with ≥ 20 m cable to crusher
Main operating elements:	emergency stop, local crusher start and stop, hydraulic pump on and of, gap adjustment
Motor current monitoring	
Setpoint:	> 180% of rated current
Evaluation device:	not in scope of Sandvik
Roll speed monitoring	
Speed sensor:	Turck, Telemecanique, ifm or eq.
Setpoint:	< 91% of rated speed
Flywheel slippage monitoring	
Speed sensor:	N/A
Setpoint:	N/A
Fluid coupling temperature	
Electronical device:	N/A
Mechanical device:	N/A
Gear box temperature	
Temperature sensor:	N/A
Setpoints:	N/A
Roll bearing temperature	
Temperature sensor:	double PT-100 (incl. 4-20 mA transmitter)
Setpoints:	> 95℃ and > 110℃
Monitoring relative gap	
Ultrasonic sensor:	P+F UC500-30GM-IUR2-V15 or eq.
Display:	Montwill digital panel meter 5-digit or eq.
Monitoring of hydraulic unit	
Level-switch:	response at low filling of oil tank
Temperature-switch:	response at high oil temperature > 70℃ and > 80℃

Pressure-switch:	response at low oil pressure < 90 bar
Filter monitoring:	response at high pressure difference
Monitoring of lubrication system	
Level sensor:	response at low filling of grease container
Distributor sensor:	monitoring of grease distribution to the roll bearings

13. Painting of Machine

After surface preparation according to grade SA 2.5 a 45 µm pre-coating and a 45 µm finish coating (Sandvik colors) is executed.