International Combustion (India) Limited

CONE CRUSHER TYPE OC

To crush large feed sizes with maximum reduction ratio



Manufactured under license from Omni Crushing & Screening Ltd, Brazil

1 Description



The cone series OC Crushers are robust equipments which ensure high productivity, low operation cost and longer useful life than other similar Crushers.

The body of the cone crusher is constructed of ASTM A216. It's crushing chamber consists of two basic elements; the concave linings and mantle (wear parts) - fabricated with austenitic manganese steel and mounted in a simple way keeping in mind easy replacement when required.

The overload system for non-crushable materials works through hydraulic cylinders and hydro-pneumatic pressure accumulators. Due to ample space within the chamber the cleaning of the equipment is simple (to remove obstructions) thus reducing stoppage time and increasing the productivity and dependability.

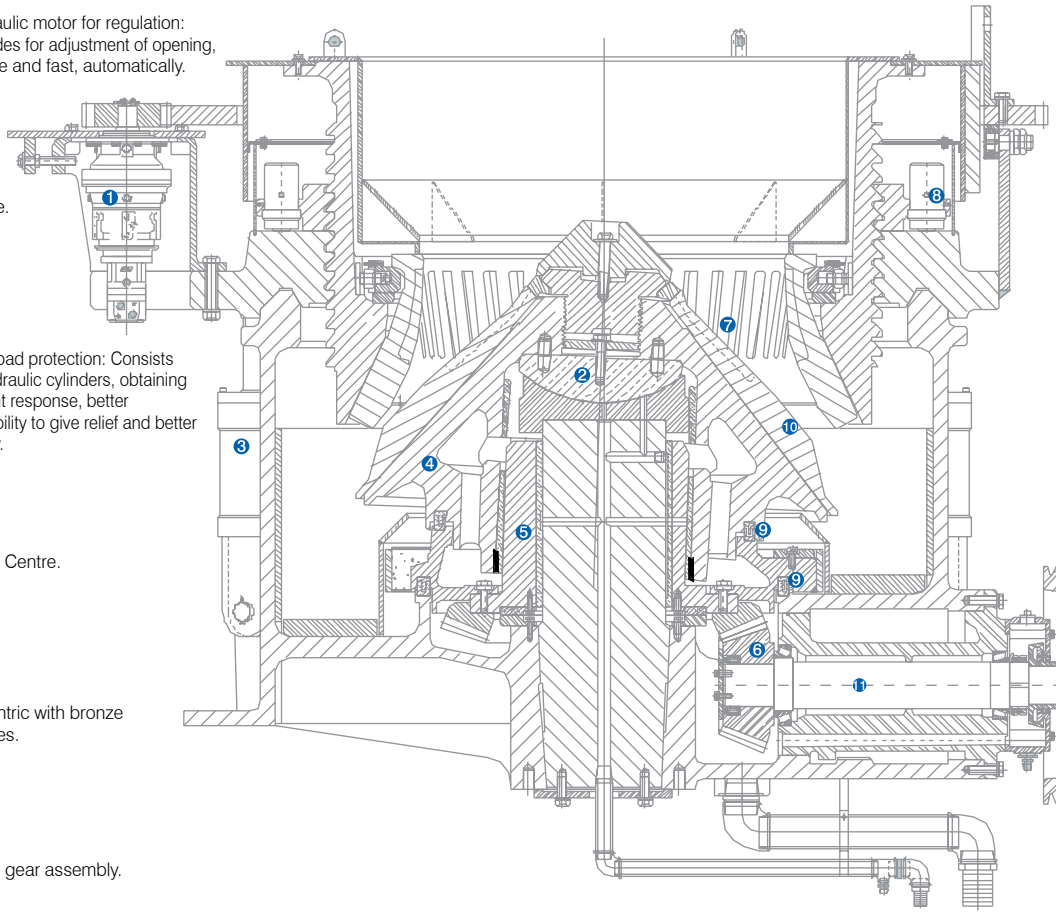
Regulation of opening of the equipment is done through an automatic hydraulic motor, making it possible to make fast regulation through electrical buttons in the control panel.

The crushers are provided with two hydraulic units, one for lubrication and the other for commands.

An electrical control panel operates the entire hydraulic system for lubrication and assures safety against abnormality of the system. Whenever there is some abnormality in the system, there is an alarm signal and the equipment is disconnected automatically.

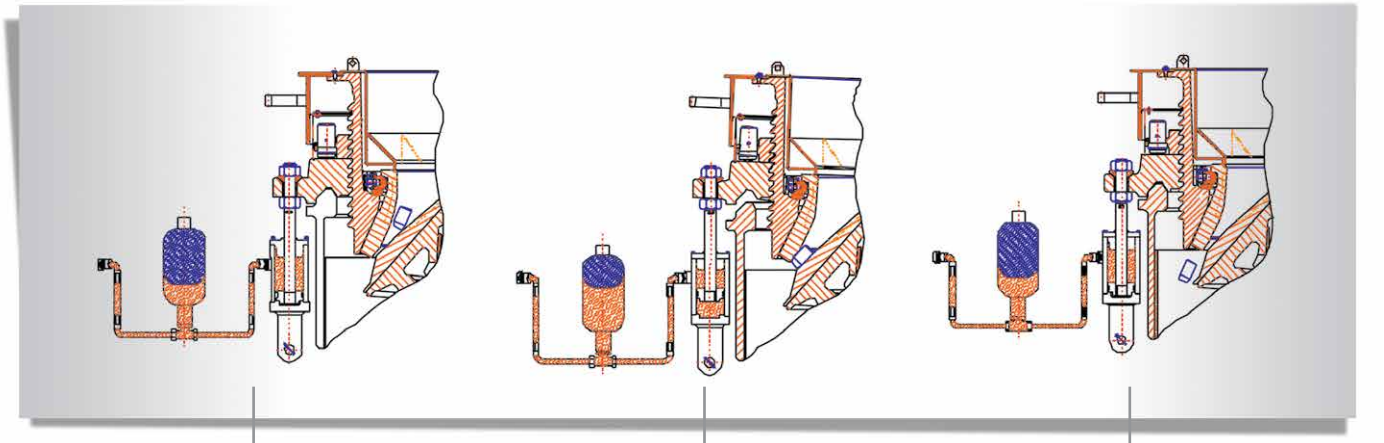
2 Principal Characteristics

- **Fixed Shaft Cone Crusher for better production and product quality.**
- Simple and compact design.
- Entry area totally free of obstruction.
- Capacity to accommodate larger sizes of feed material.
- High productive capacity.
- Easy access to internal components.
- Simple and rapid regulation through hydraulic system, minimizing stoppage time.
- Low operating cost.
- Ideal for production of material for VSI.



6 Overload system

The crusher is designed with a hydraulic system as an integral part of the machine. The hydraulic unit of the equipment incorporates lubrication function, regulation and safety against overload, the last being also used for cleaning and removing obstructions in the crushing chamber. The following series of illustrations explain the working principles of the system:

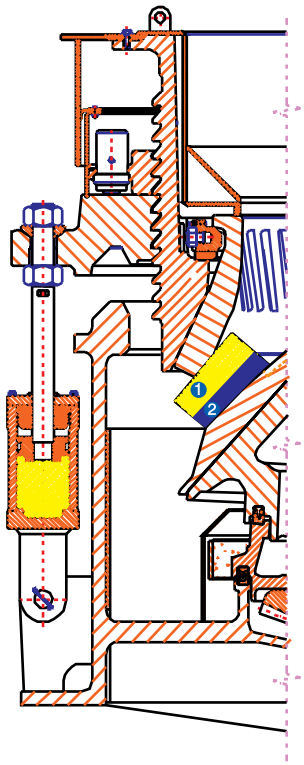


1st stage: When in normal condition, pressure of the oil in the cylinder is equal to the pressure of gas in the accumulator; the safety system against overload is totally balanced so that the adjusting ring sits perfectly on the principal shell of the equipment.

2nd stage: When there is presence of overload, the adjusting ring, along with the upper part of the shell and concave lining, are lifted and part of the hydraulic oil of the cylinder is transferred to the pressure accumulator, thus compressing the nitrogen balloon.

3rd stage: When the non-crushable material passes through the crushing chamber, the hydraulic oil, which was earlier transferred to the accumulator, instantly returns to the overload cylinder, leaving the equipment in correct operating position, with the system balanced again.

7 Cleaning and removal of obstruction in the crushing chamber



When excessive feed material is there or sudden power failure occurs, causing obstruction to the equipment, the problem can be corrected very conveniently as follows:

Through the command panel, it is possible with a simple touch of button, to lift the overload cylinders, which in turn, will lift the assembly of adjusting ring and upper shell so that removal of obstruction in the chamber will be achieved. After the chamber is empty, the cylinders will return to normal working position. This obstruction removal procedure does not require the opening of regulation equipment.

❶ Additional opening through the overload cylinders (for removal of obstruction).

❷ Normal opening of the equipment.

8 Technical Specifications

Product Size Distribution

% passing through square aperture as function of “CSS” (mm)

Size of the rock (mm)	Opening of the Crusher (closed side) - mm										
	10	12	15	20	22	25	32	38	45	50	55
100										100	100
75								100	100	98	97
63							100	99	95	90	84
51						100	98	93	83	68	48
38					100	98	92	78	61	50	39
32			100	100	94	92	70	52	44	36	28
25			96	93	86	75	48	41	32	28	24
22	100	100	94	87	74	63	42	35	28	24	20
19	98	96	90	82	70	56	38	30	26	23	17
16	96	90	82	70	54	47	30	24	20	18	16
13	90	76	67	57	42	36	22	17	16	13	10
10	80	65	54	45	33	30	19	16	13	12	9
8	68	55	44	37	27	24	16	14	10	10	8
6	52	40	35	30	20	18	14	10	8	8	7
4	37	30	25	20	15	15	10	7	5	4	3

Production Capacity Ton/h

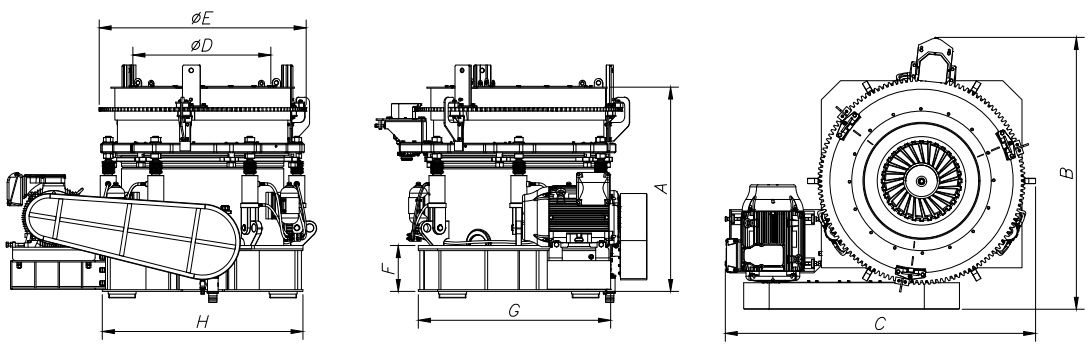
(Open circuit)

Model	Crushing Chamber	Max. Feed Opening	Minimum CSS	Estimated Capacity (tph) in relation to CSS							
		(mm)	(mm)	15 mm	20 mm	22 mm	25 mm	32 mm	38 mm	45 mm	55 mm
OC 1000	Coarse	270	25	-	-		180-230	200-245	215-265	230-290	-
	Medium	220	20	-	175-210	175-210	180-230	200-245	215-265	-	-
	Fine	180	15	145-190	165-200	175-210	180-230	200-245	215-265	-	-
OC 1350	Coarse	320	28	-	-	-	-	255-325	310-385	350-440	390-470
	Medium	280	25	-	-	-	230-290	255-325	310-385	350-440	-
	Fine	210	22	-	-	220-265	230-290	255-325	310-385	-	-
OC 1500	Coarse	400	32	-	-	-		460-610	510-715	580-790	650-860
	Medium	350	25	-	-		420-545	460-610	510-715	580-790	-
	Fine	235	22	-	-	350-445	380-475	420-545	460-610	510-715	580-790

Note: Apparent density considered: 1.6 t/m³. The established capacities are assisting tools for application of the equipment. For this, it is necessary to consult the manufacturer for correct application. Actual production depends on the physical characteristics and adequate analysis of the feed material.

Model	General dimensions of equipment (mm)								Power	Weight of Crusher in kg
	A	B	C	D	E	F	G	H		
OC 1000	1960	2545	2750	1075	1975	420	1980	1870	110 - 160 KW	15400
OC 1350	2340	3035	3280	1280	2355	500	2360	2230	187 - 225 KW	21300
OC 1500	2910	3775	4080	1594	2930	600	2940	2775	260 - 300 KW	36000

Note: The above dimensions are just for information. For study of layouts, establish contact with IC.



3 Crushing chamber

Up to date technology for concave lining was designed for this equipment, where ribs are there in the mantle and the concave lining for the entire available cavity for crushing. This shape of concave lining permits a better grip on the material to be crushed, this being possible with an opening for the feed material, different from that of our competitors, resulting in an equipment with better capacity in the size of feed material for the market, permitting that the same works in a comfortable condition as a secondary unit in a crusher installation, not being necessary that the primary crusher works in severe and very much closed condition.

Apart from the advantages described, this type of concave lining permits a better production capacity and there is a significant reduction in the forces of the crusher. In this way, the installed power is better utilized for increased production.





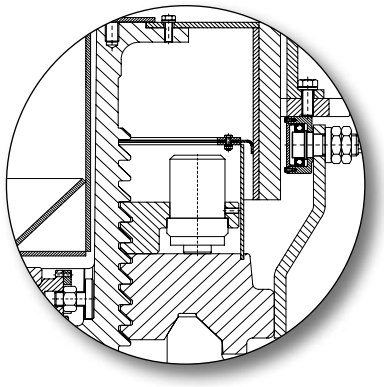
4 Hydraulic unit

The hydraulic unit has dual function - one being for lubrication and the other commands locking of the shell, regulating the opening and removing obstructions in the crushing chamber. It is operated by an electric panel which is responsible for monitoring of the safety of the equipment.



5 Hydraulic locking system

Whenever, due to any reason, there is a possibility for a drop in system pressure, a monitoring system automatically detects and maintains constant pressure during crushing, through pressure transmitters which activates an oil pump.



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