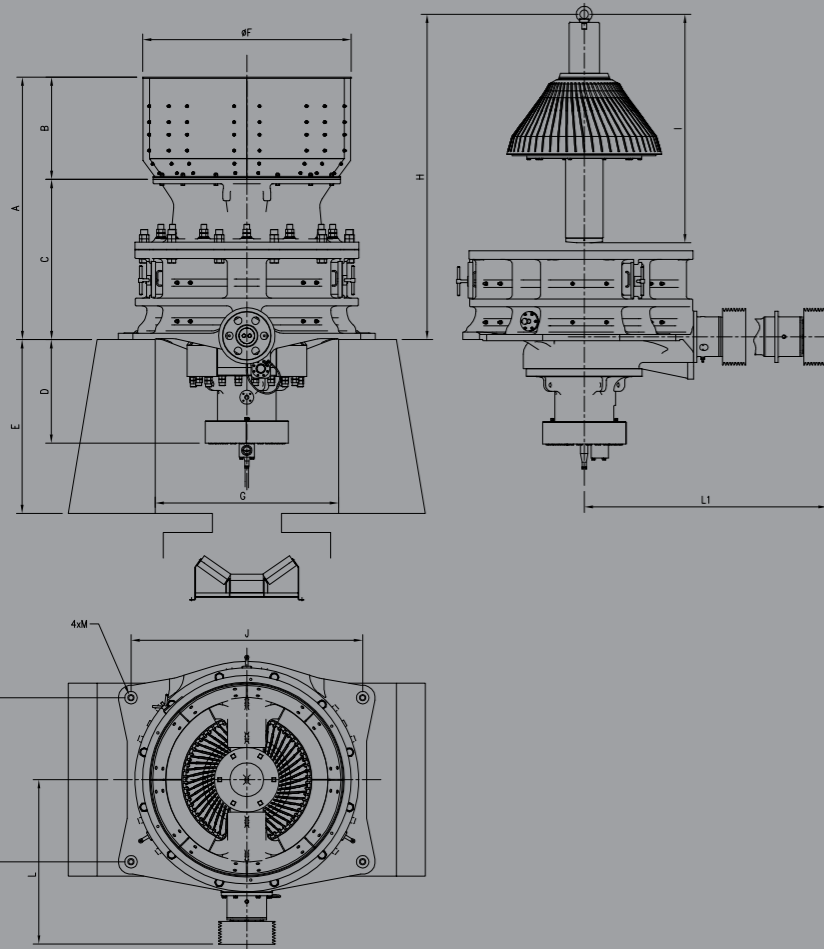




## CYBAS-i General Dimensions



	1000Z-i	1200Z-i	1350Z-i	1500Z-i	1650Z-i	1800Z-i	2100Z-i
A	1870	2113	2459	2719	2808	3079	3644
B	747	796	986	1059	1019	1100	1300
C	1124	1317	1473	1660	1789	1979	2344
D	724	876	982	1035	1199	1322	1540
E	1215	1338	1444	1705	1860	2050	2285
#F	1480	1776	1960	2160	2368	2220	3020
G	1350	1506	1710	1915	2250	2500	2880
H	2300	2860	3270	3585	4000	4900	5150
I	1576	1880	2110	2370	2620	2865	3450
J	1600	1920	2160	2400	2700	3000	3400
K	1100	1350	1530	1700	1950	2200	2500
L	1118	1322	1532	1707	2041	2235	2460
L1	1930	2000	2550	2550	3400	3400	3800
M	M36	M42	M48	M56	M64	M36	M80

Dimensions shown for reference purposes only  
Space required for lubrication units needs to be confirmed with supplier.

Heaviest lift for maintenance

	1000Z-i	1200Z-i	1350Z-i	1500Z-i	1650Z-i	1800Z-i	2100Z-i
kg	2800	4300	6600	8300	11300	14500	23400








## CYBAS-i Cone

High Performance Cone Crushers



**Legendary Robustness and Reliability**  
**Up to 50% More Installed Power and Capacity**  
**Optimised Chamber Configuration**  
**Improved Crushing Performance**  
**Optimised Component Design**

### IMS Engineering (Pty) Ltd

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-  Company e-mail: [imse@imgroup.co.za](mailto:imse@imgroup.co.za)
-  Company website: [www.imsengineering.co.za](http://www.imsengineering.co.za)

CYBAS-i Produced under licence from EarthTechnica Ltd, a Kawasaki Heavy Industries company.

## The CYBAS-i Cone Crusher

The CYBAS-i Cone crusher is a modern high performance hydraulically adjusted (hydroset-type) cone crusher, an enhancement of the original legendary CYBAS Cone. It is the result of intensive research and development of the crushing chamber and mechanical design. This development was achieved by taking the experiences from a multitude of applications and combining this with the latest developments in materials and design know how.

The CYBAS-i Cone crusher boasts significantly improved performance, capacity and installed power, while at the same time retaining the reliability, excellent product shape and high set under that is an industry benchmark.

The hydroset design uses a heavy-duty hydraulic cylinder to support the main shaft – this feature combined with the significant flexibility of our automatic control system allows easy and automatic crusher setting, tramp relief and crusher utilization optimisation and monitoring during operation.

Ease of operation and maintenance coupled to the aforementioned features positions the CYBAS-i as a state of the art, cost efficient, modern cone crusher with advanced performance.



MAXIMUM FEED SIZE LxWxT (mm)	PRE-MACHINE CONDITION (mm)		
	JAW CRUSHER OSS	GRIZZLY BAR OPENING	SQUARE SCREEN
60 x 40 x 25	25	23	35
100 x 65 x 40	40	40	70
180 x 110 x 70	70	55	90
230 x 140 x 90	90	80	125
280 x 175 x 110	110	100	155
80 x 50 x 30	30	28	45
130 x 80 x 50	50	45	80
200 x 130 x 80	80	65	105
250 x 160 x 100	100	95	150
330 x 210 x 130	130	120	185
90 x 55 x 35	35	30	50
140 x 85 x 55	55	50	90
230 x 145 x 90	90	75	120
300 x 190 x 120	120	105	165
380 x 240 x 150	150	135	210
90 x 60 x 38	38	35	55
150 x 95 x 60	60	55	100
250 x 160 x 100	100	80	130
330 x 205 x 130	130	120	185
400 x 255 x 160	160	150	230
110 x 65 x 42.5	42.5	37.5	60
180 x 110 x 70	70	60	100
280 x 175 x 110	110	90	145
350 x 220 x 140	140	130	205
450 x 290 x 180	180	165	255
110 x 70 x 45	45	42.5	65
200 x 125 x 80	80	70	110
300 x 190 x 120	120	100	160
380 x 235 x 150	150	145	220
480 x 305 x 190	190	180	280
140 x 85 x 55	55	50	80
230 x 140 x 90	90	80	125
350 x 225 x 140	140	115	185
450 x 285 x 180	180	165	260
550 x 350 x 220	220	210	325

Table 1: Correction factor - hardness of stone

Compressive strength (kg/cm <sup>2</sup> )	K <sub>1</sub>
500 or less	1.2 - 1.5
500 - 1000	1.0 - 1.2
1000 - 1250	0.9 - 1.2
1250 - 1500	0.8 - 0.9
1500 - 2000	0.75 - 0.8
2000 - 2500	0.66 - 0.75
2500 - 3000	0.6 - 0.65

Table 2: Correction factor - moisture content

Moisture Content (% W/B)	K <sub>2</sub>
1.0 - less	1.0
1.0 - 2.0	0.8 - 1.0
2.0 - 5.0	0.4 - 0.8

## Product Size Distribution

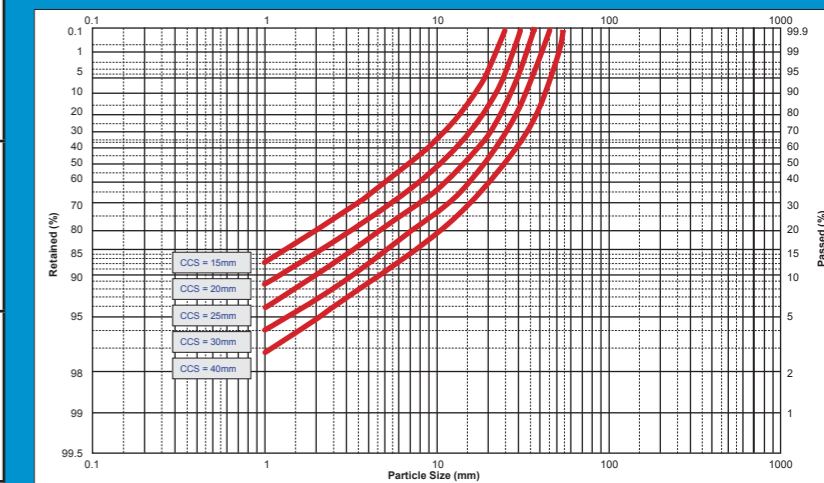
Set Under (Percentage Product Passing Setting First Pass) is in the range of 85-92%

### Product Size

Product size will vary. It is a fact with material type and reduction ratio

### Influence of water and mud content

Presence of water and mud in the feed may lower throughput and increase liner wear.



## Capacity Calculating Method

Crusher performance (capacity, reduction etc.) varies greatly with the properties of feed material like compressive strength, hardness, feed size and moisture content. In planning a plant, it is recommended that crushing parameters are determined at our test plant.

- Size of sample needed for one test  
 Open circuit: 0.5 ton  
 Closed circuit: 1.0 ton  
 For abrasion test: 30-15mm material  
 .03 ton
- Basic selection of machine model  
 Q : Estimated capacity (t/h)  
 Q<sub>0</sub> : Standard capacity (t/h)  
 (Value shown in capacity table)  
 K<sub>1</sub> : Correction factor  
 (Material strength)  
 Table 1  
 K<sub>2</sub> : Correction factor  
 (Moisture content)  
 Table 2  
 δ : Bulk density of material (t/m<sup>3</sup>)

$$Q = Q_0 \times K_1 \times K_2 \times \delta / 1.6$$



## Features and Benefits:

### High Crushing Capacity

The CYBAS-*i* has up to a 50% increase in installed power over the previous CYBAS generation. The higher installed power, together with the volumetrically optimised crushing chamber design, supports the remarkable increase in crusher capacity.

### Patented Insert Mantle and Concave Liners

More effective use of the installed power, which in turn leads to energy savings of up to 30%, is achieved through the use of patented high performance mantle and concave liners, with grooves produced through a special insert design – this facilitates compound crushing within the chamber. Compound crushing means not only compression crushing but also bending and shearing actions are introduced.

The liners have been proven to improve both the set under ratio and deliver a superior cubically shaped product that negates the need for any downstream shape correcting.

### Wet System Crushing

The CYBAS-*i* Cone crusher can be configured as a Wet System crusher for processing sticky or high moisture feed materials. The system requires correctly configured water addition and a water addition device integrated into the design with the specifically configured and selected machine.

## Simple Operation and Maintenance

### Easy Replacement of Crushing Liners

The use of a torch ring facilitates the quick and easy change of liners in the shortest time. The head nut for fixing the mantle is self-tightening and can be used repeatedly. Only the mantle requires the use of backing material.

### Easy Internal Inspection

The inside of the crusher can be easily viewed through large inspection hatches provided in the bottom frame.

### Easy Adjustment of Discharge Setting

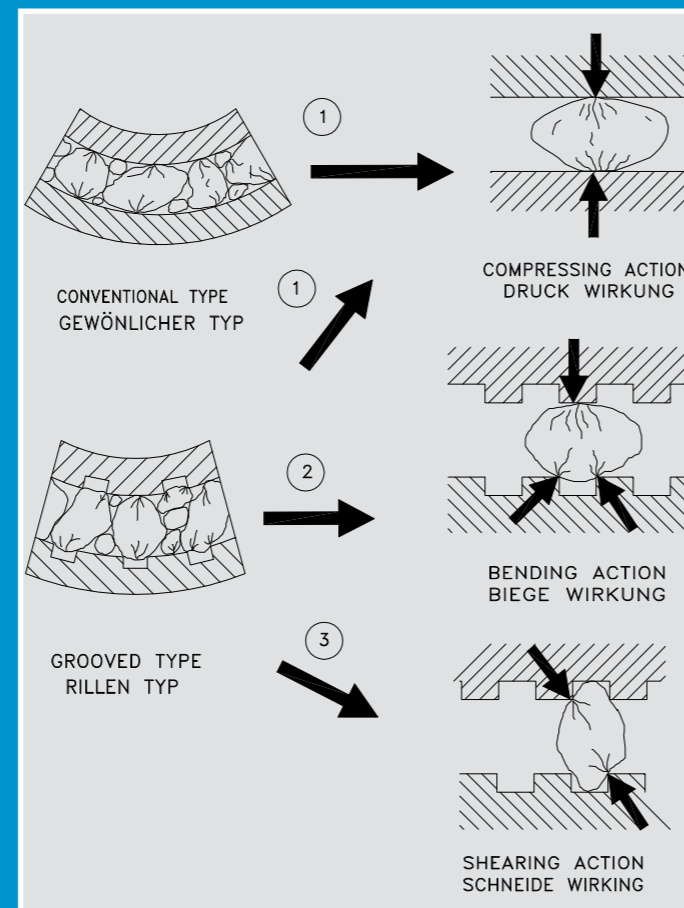
The hydroset design enables easy and accurate adjustment of the crusher discharge settings during operation at the push of a button, which is done at

the crusher control panel or remotely from a control centre.

### Operating Parameters of the Crusher can be determined at a glance

The crusher is equipped with a shaft position sensor and system for reading and recording gap setting and crusher liner wear, minimising the necessity to determine these by physical measurement inside the crusher other than for calibration. Hydraulic pressure monitoring and load sensing enables quick, easy and reliable monitoring of whether the crusher is being underutilised, overloaded or used at optimum level. These signals enable the control system to ensure the machines works at optimum levels all the time.

Patented Insert (MSI) Mantle and Concave Crusher Liners



### Automatic Control System

In line with the trend of increased automation the CYBAS-*i* control system is offered in a range of flexible configurations to allow selection of the most suitable system for each application.

With the primary objective of maximising production by offering protection to the crusher and optimising its performance the control system is instrumental in ensuring

- Highest possible reduction
- Protection against feed variations
- Better product shape
- Consistent product quality
- Push button gap calibration
- Wear compensation
- Easy monitoring of operation
- Easy interfacing with plant supervisory control system

Whatever the needs the CYBAS-*i* control system can be configured in a specific mode of operation to suit your requirements.

## Features and Benefits:

### Drive System

Spiral bevel helical gears are used for the eccentric gear and drive shaft pinion, which provide excellent transfer of power with highest efficiency and lowest noise. In addition, all drive system bearings have high quality surface finishes and generous oil film facilitation which reduces friction and prevents heat build-up. As a result power loss due to friction in the machine is minimised.

### Dust Sealing System

The most effective system for preventing the ingress of dust particles into the lubrication system from

within the operating crusher is by means of an air seal system. The pressurised air is provided by high quality high-duty air blower. Air seal piping is installed and protected within the main body of the crusher.

### Crusher Frame Wear Liners

All surfaces where material comes into contact with the main body within the crusher are lined with liner plates to ensure that the main body is kept free of wear.

## Mechanical Features:

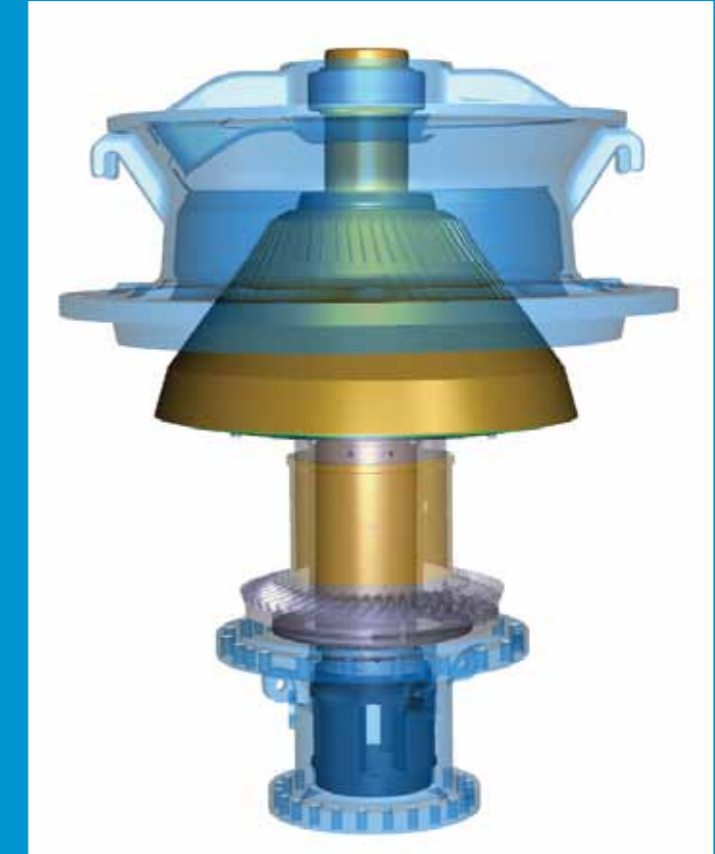
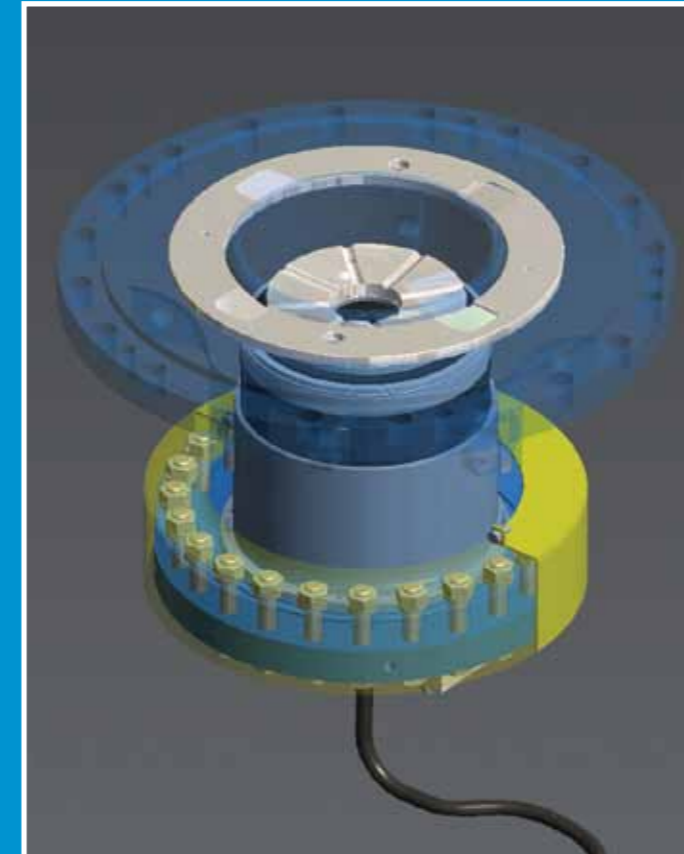
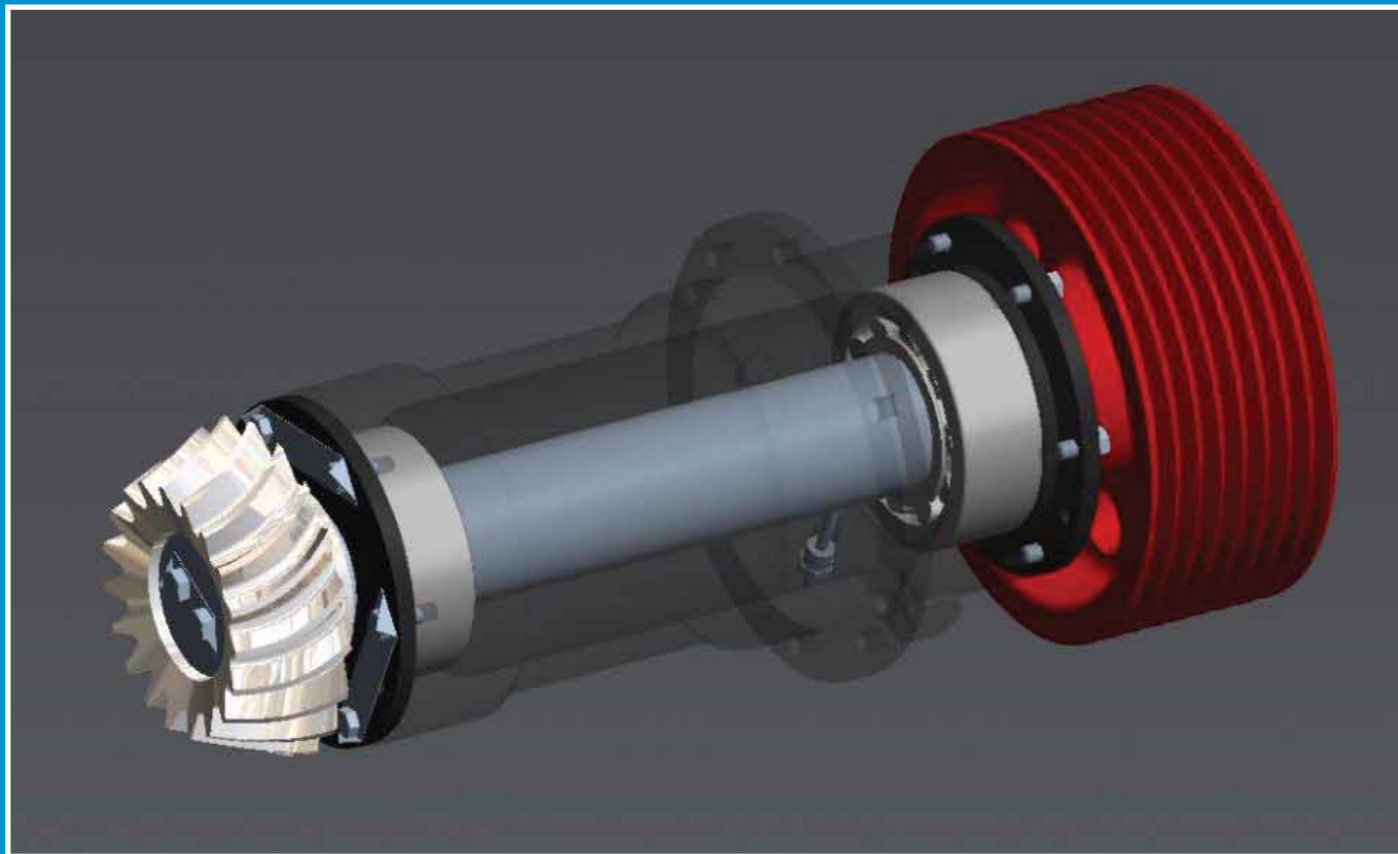
### Hydraulic System

The main shaft of the CYBAS-i Cone Crusher is supported and controlled by a hydraulic system during operation. This type of crusher design is referred to as a hydroset design and boasts the following benefits,

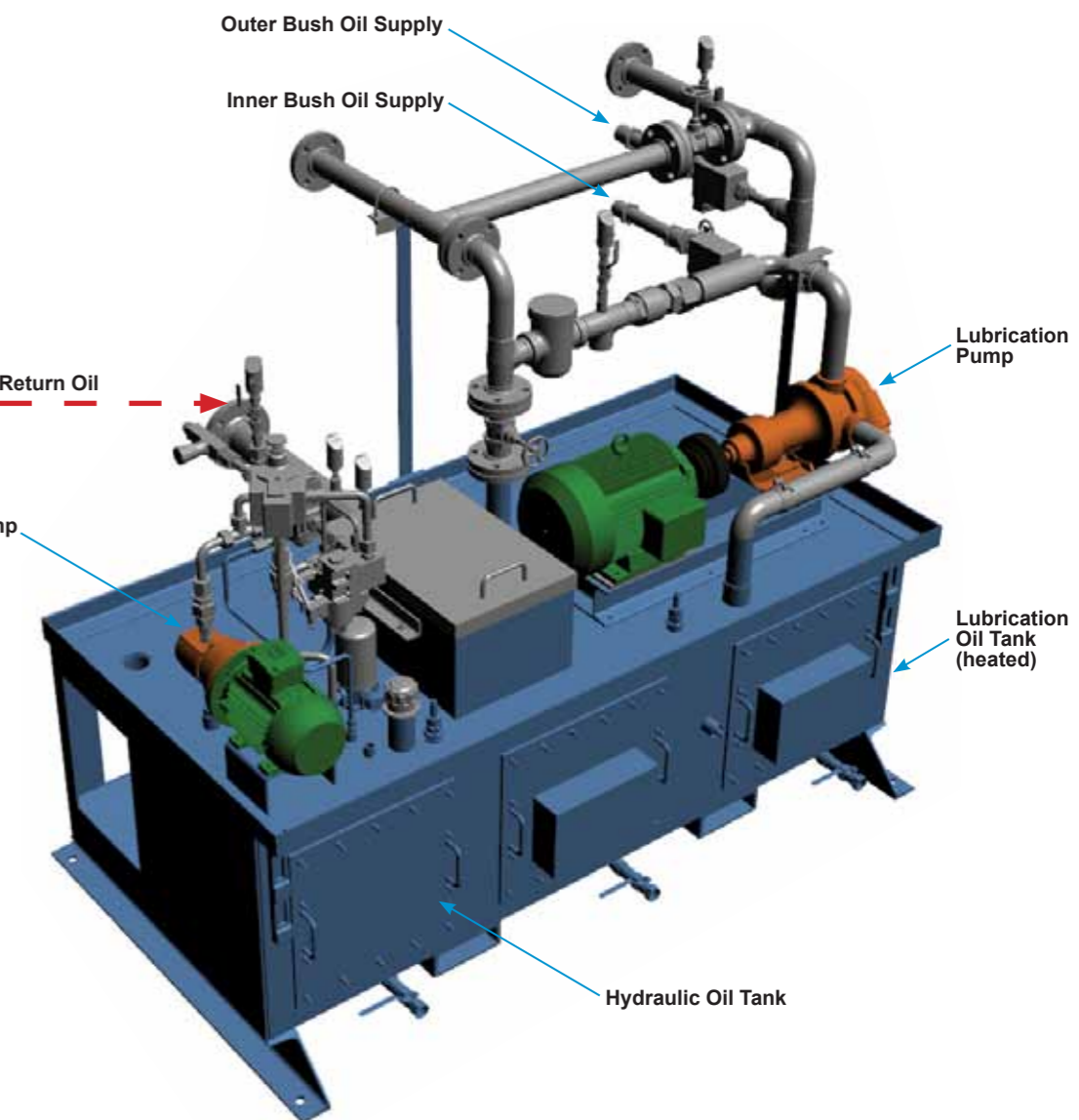
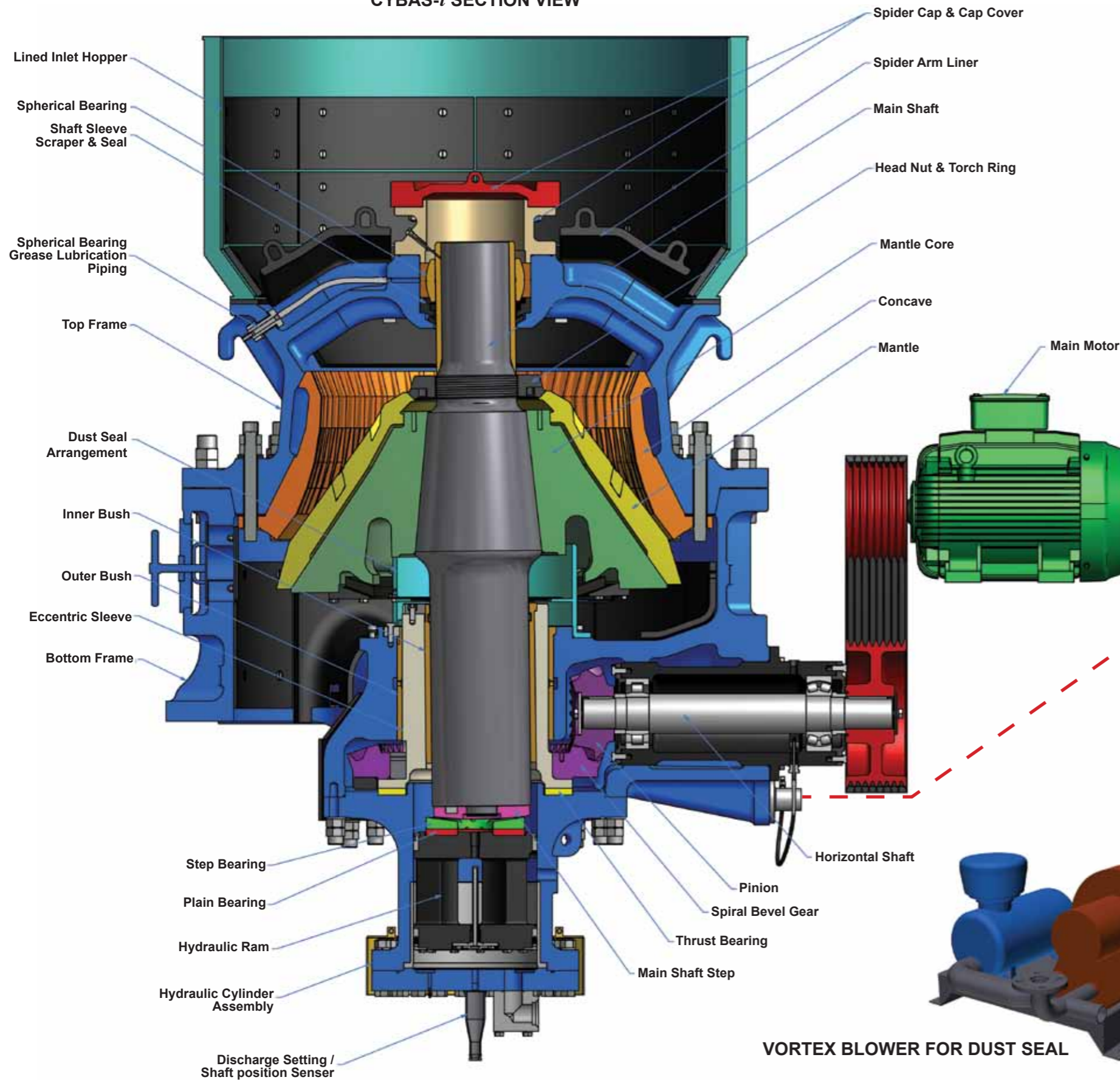
- Simple and easy crusher operating gap setting and re-adjustment.
- Fully remote setting and automated control of the crusher main shaft.
- Tramp relief and overload protection upon introduction of uncrushable foreign material into the crushing chamber. The elimination of such material is facilitated by the main shaft lowering automatically and releasing the material and then continuing with normal operation.

### Main Shaft Supporting Structure

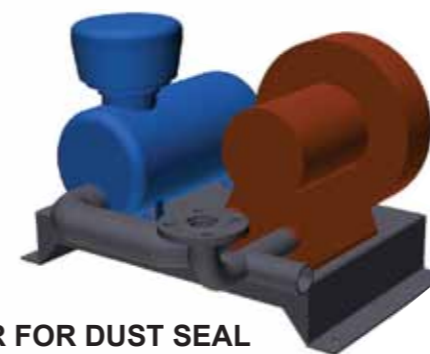
The main shaft has upper and lower support. This arrangement supports the crushing of very competent and large feed material without having to manage high loads applied to the main crusher body compared to cantilever loading designs. The upper support is by a heavy-duty spherical bearing. Over and above the metallurgical benefits offered by the spherical bearing system, this design reduces critical loading of the main shaft and results in longer fatigue life and lower power consumption.



**CYBAS-i SECTION VIEW**



**VORTEX BLOWER FOR DUST SEAL**



**DUAL\* LUBRICATION AND HYDRAULIC PUMP SYSTEM (\*OPTIONAL)**  
(TYPE TO SUIT APPLICATION)