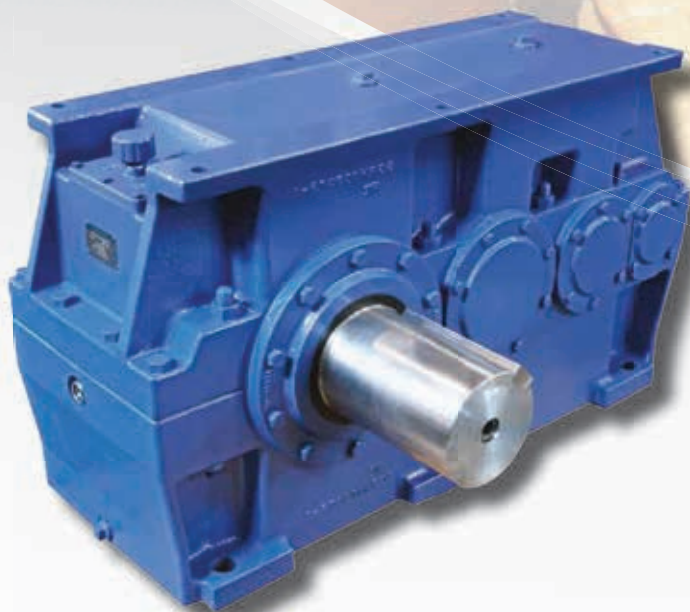


Palm Oil Industry

Reliable Power Transmission Solutions



*Innovative Products
High Performance
Engineering Excellence
Quality and Reliability
Global Support Network*

Sumitomo Drive Technologies: Reliable Power Transmission Solution for the Palm Oil Industry



Sumitomo Drive Technologies is the brand name for the Power Transmissions and Controls (PTC) Division of Sumitomo Heavy Industries Ltd.

With a history of over 80 years in the industry, Sumitomo Drive Technologies provides technology, solution, products and services related to power transmission and controls throughout the world.

We manufacture gearboxes and geared motors ranging from 6W to 60MW under three prominent brand names - "Sumitomo Drive Technologies", "Hansen" and "SEISA", providing solutions for an array of applications in industries including Palm Oil Processing, Mining, Mineral Processing, Bulk Material Handling, Conveying, Cement, Steel and Metals, Agriculture, Fertilizers, Chemicals, Rubber, Food and Beverages, Automobiles, Electronics, Packaging and many more.

Our twelve (12) manufacturing facilities are complemented by thirty-five (35) stock, assembly, engineering and service centers across the globe. From North and South America to Europe, Africa, Middle East, North Asia, South East Asia to Australia and New Zealand; we are guided by our philosophy to be closer to our customers in order to provide better service and quicker deliveries.

Sumitomo Drive Technologies offers products and services from three highly experienced companies as one Industrial Power Transmission Solutions provider.

The integration of -Sumitomo, SEISA and Hansen - each having leadership in different sectors of the industry, is part of our comprehensive strategy to strengthen the brand portfolio and create our group's profile as the leading industrial power transmission solutions provider in the world. Together, our companies offer the highest quality, innovative products and services for any power transmission needs.

 **Sumitomo Heavy Industries, Ltd.**

SEISA

 **Hansen**[®]
industrial gearboxes



We have been serving the Palm Oil Industry for almost 40 years. With a deep understanding of the needs of the industry, we have developed several products to provide highly reliable, efficient and most competitive solutions to our valued and satisfied customers.

It's no secret that the palm oil industry places heavy demands on power transmission drives. Dusty, oily and greasy environment, high shock loads, and tough operating conditions all combined, take a toll on any equipment.

Your power transmission drives must be durable, reliable and efficient. This isn't an option. Sumitomo Drive Technologies understands the challenges you face, which is why the solutions we offer are designed to withstand the harshest conditions while delivering the highest level of performance. Distinguished for their robust design, easy installation and low maintenance, our drives minimise your costs while maximising your mill uptime. Small wonder that so many industry leaders rely on Sumitomo Drive Technologies to meet their power transmission requirements.

A global company with local presence

Our philosophy is to be closer to our customers. We believe strongly in local presence for faster delivery and better support.

Therefore, we have established Stock, Assembly, Engineering and Service centers in key Palm Oil Industry regions of Malaysia, Indonesia, Thailand and the Philippines.

With engineering, R&D capabilities enhanced by stock, assembly, service, repair and after-sales support, we aim to be your preferred choice of geared products solutions.

Our commitment to the Palm Oil Industry:

- Large stock of complete gearbox units and gearmotors in Malaysia, Indonesia, Singapore, Thailand, Philippines and Vietnam
- Large spare parts inventory
- Competent technical support teams in each countries
- After Sales Service teams available 24 Hours, 7 Days a week

Complete Solution for Palm Oil Industry

Sumitomo offers the toughest Gearmotors and Speed Reducers to meet the harsh demands of Palm Oil Industry



The palm oil extraction mill and kernel processing place heavy demands on power transmission drives. Our products are suitable for all applications in the process.

STERILIZATION STATION

- Loading Ramp
- FFB Elevator
- Capstan
- Auto Feeder
- Thresher Drum
- Under Thresher Conveyor
- Fruit Elevator
- Top Cross Conveyor
- Fruit Distribution Conveyor
- Recycling Fruit Conveyor

NUT PROCESSING STATION

- Nut Polishing Drum
- Wet Nut Elevator & Conveyor
- Dry Nut Elevator & Conveyor
- Air Lock Nut Winnowing System
- Grading Drum
- Ripple Mill /Nut Cracker
- Shaking Grate
- Cracker Mixture Conveyor
- Air Lock Cracker Mixture Separator
- Cracker Mixture Conveyor
- Hydro Cyclone
- Wet Kernel Conveyor & Elevator
- Kernel Silo
- Kernel Winnowing Fan
- Air Lock Kernel Winnowing
- Sludge Conveyor

PRESSING STATION

- Digester
- Screw Press
- Cake Breaker Conveyor

EFB PROCESSING STATION

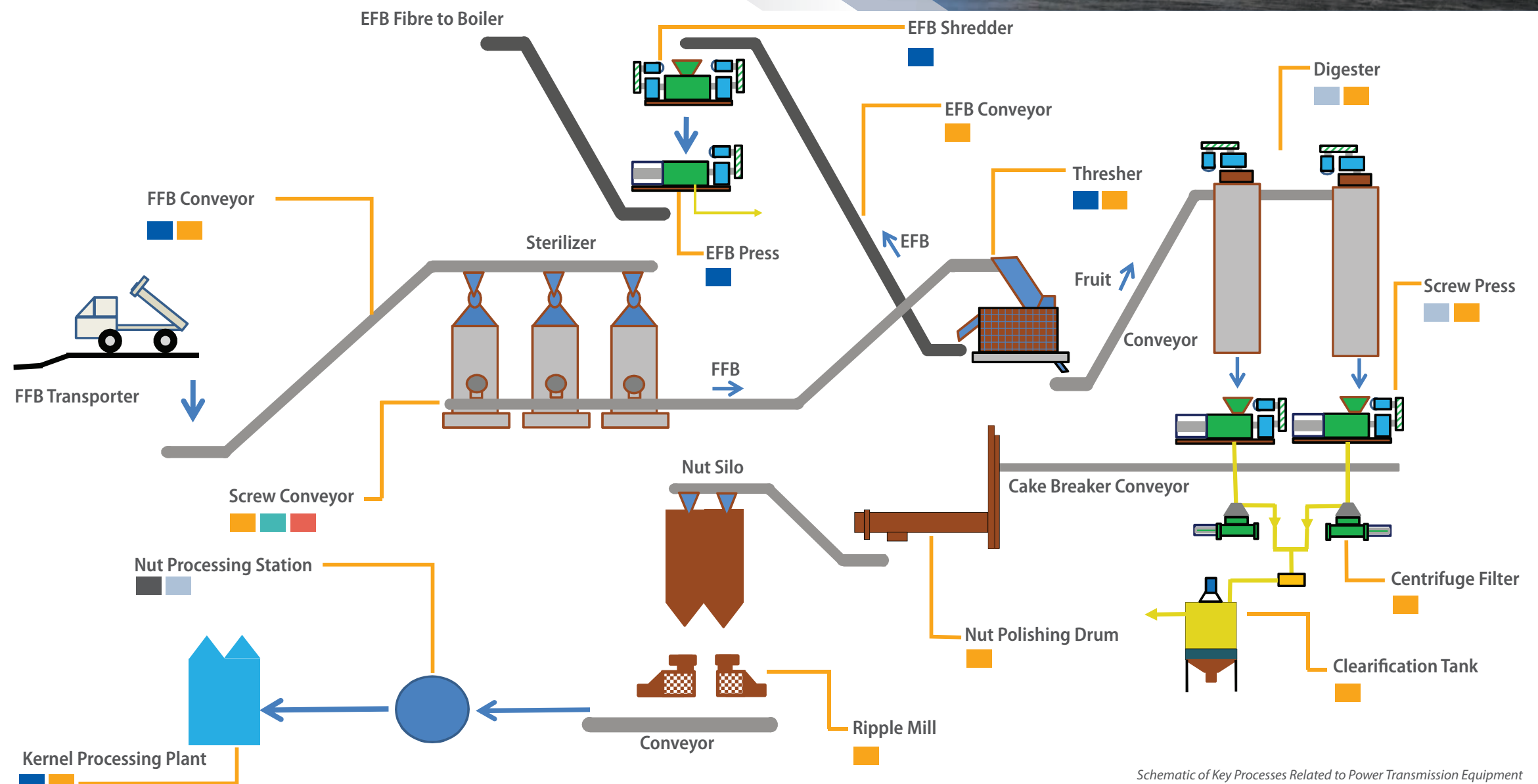
- Inclined Empty Bunch Conveyor
- EFB Shredder
- EFB Press
- EFB Fiber Conveyor

POWER GENERATION STATION

- Fuel Distribution Conveyor
- Fuel Conveyor & Elevator
- Oil Clarifier Stirrer
- Air-lock Dust Cyclone
- Air-lock Shell Cyclone

CLARIFICATION STATION

- Oil Clarifier Stirrer
- Solid Conveyor
- Fuel Distribution Conveyor



Schematic of Key Processes Related to Power Transmission Equipment

Key Products

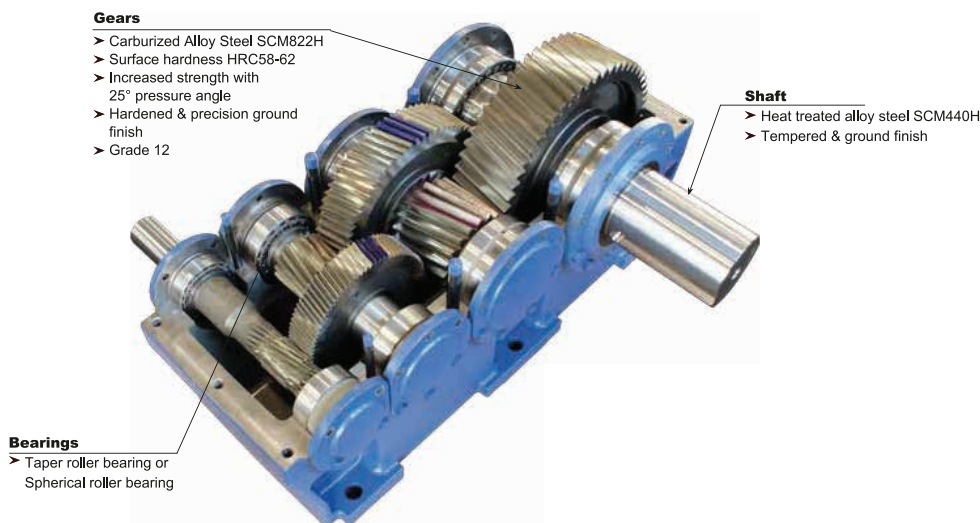


Key Applications Solution

Sumitomo's Paramax® YHD series is specially manufactured for the key applications such as Kernel Crushing Press, Screw Press, Empty Fruit Bunch Press, Digester, etc.

Paramax® YHD Series Gearboxes

Paramax® YHD series is highly customised and dedicated product for the Palm Oil Industry. Built on Paramax® technology to provide reliable and robust power transmission, it's key features include AGMA 12 quality gears with 25° pressure angle which provides increased strength and durability. With 14° Helix angle, the gears operate quieter. Other key features are illustrated below.



YHD080P3



Typical Applications:

- Kernel Expeller Drive
- Screw Press Drive (P20)
- Empty Fruit Bunch Drive

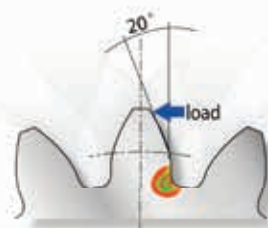
Torque Rating: 74,000 N.m

Ratio: 55.066:1

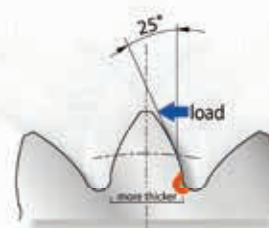
76.353:1

Housing: Horizontal Split Housing

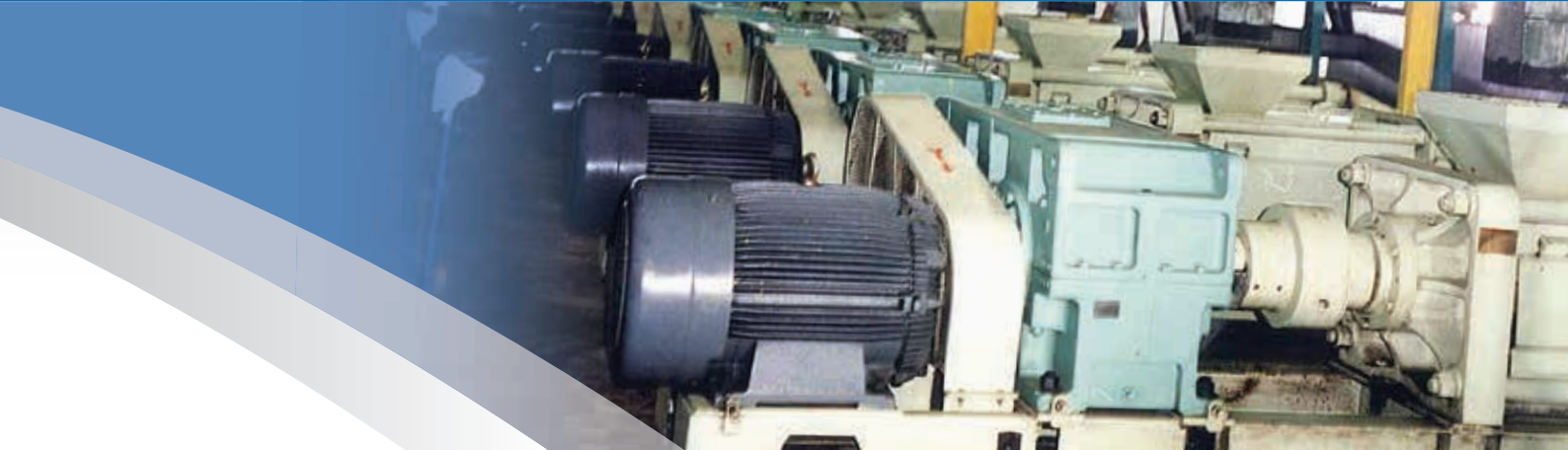
25° Pressure angle increases the strength and durability of gears.



Pressure Angle 20°
(Conventional Gears):



Pressure Angle 25°
(Sumitomo PARAMAX® Series):



YHD060P3SP & YHD070P3SP



Typical Applications:

- Screw Press Drive (P15)
- Screw Press Drive (P20)

Torque Rating: 48,000Nm & 70,000 N.m

Ratio: 55.391:1

78.456:1

77.373:1

Housing: Horizontal Split

YVA040P3DG



Typical Application:

- Digester Drive (3000L)

Torque Rating: 18,000 N.m

Ratio: 57.962:1

Housing: Vertical Monoblock

YVD060P3DG



Typical Application:

- Digester Drive (6000L)

Torque Rating: 32,000 N.m

Ratio: 57.328:1

Housing: Horizontal Split

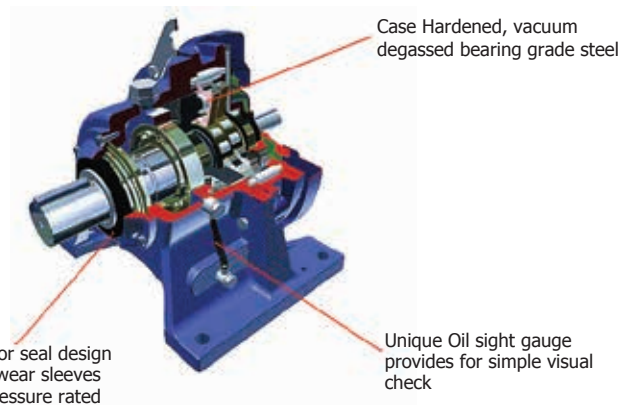


Cyclo® 6000

The versatility of Cyclo® 6000 gearmotors and speed reducers make them the most suitable product for every other applications such as Screw Conveyors, Elevators, Threshers, Drums and other equipment.

Why Cyclo® 6000?

Cyclo® 6000 is the latest and the most advanced in our range of Cyclo® products. With improved strength, durability and efficiency, they are capable of handling harsh, rugged, dusty and oily conditions of a palm oil mill. Sumitomo uses high-hardness, bearing grade steel for all ratio-sensitive components. These exceptionally high, inherent material specifications ensure long-life and reliable operation.

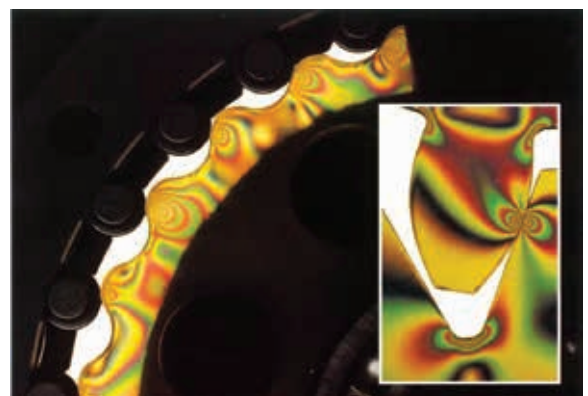


No Catastrophic Failure, Reduced Down-time

The Cycloidal smooth, progressive rolling action eliminates friction and pressure points of conventional gears. All of the Cyclo's torque transmitting components roll, and are symmetrically placed around the shafts for perfectly balanced, smooth, vibration free and quiet operation. Because the components are in compression, they do not shear off like traditional gears teeth.

500% Shock Load

Unlike gear teeth with limited contact points, a Cyclo® has 67% of its reduction components in contact at all times. This enables Cyclo® speed reducers and gearmotors to withstand shock loads exceeding 500% of their ratings, and provide exceptionally rugged, high shock resistant performance, reliability and long life in the most severe applications.





Cyclo® 6000 Series



Sumitomo's Cyclo® 6000 speed reducer and gearmotors provide quiet, efficient and reliable performance. With over 500% momentary shock load capacity, Cyclo® is ideal for any of your applications.

Sizes:	23 sizes
Torque Rating:	6.2 - 68,130 N.m
Power Rating:	1/10 to 235 HP (0.1 kW - 175 kW)
Ratio Range:	3:1 to 119:1 (single) 121:1 to 7,569:1 (double) 8041:1 to 658,503:1 (triple)
Housing:	Cast Iron

Cyclo® Bevel BuddyBox® 4 Series



The Cyclo® Bevel BuddyBox® (Cyclo® BBB) 4 Series combines the advantages of the Cyclo® drive with bevel gears to yield a high torque range in a right-angle shaft configuration. This yields an extremely robust design with high overload reserves.

Sizes:	6 sizes
Torque Rating:	225 - 13,400 N.m
Power Rating:	1/8 to 100 HP (0.1 kW - 75 kW)
Ratio Range:	11:1 to 26,000 and greater
Housing:	Ductile Iron

Cyclo® Helical BuddyBox®



Cyclo® Helical BuddyBox® (Cyclo® HBB) drives combine the advantages of the Cyclo® with helical gears to yield a high torque range in an offset parallel configuration.

Sizes:	6 sizes
Torque Rating:	104 - 11,600 N.m
Power Rating:	1/4 to 40 HP (0.2 kW - 30 kW)
Ratio Range:	11:1 to 26,000 and greater
Housing:	Cast Iron

Comprehensive Aftermarket Services

Our regional presence at major industrial cities in Asia-Pacific, (including Australia and India) is catered to your before-and-aftermarket services needs.



We offer the most comprehensive support system in the region for every aspect of the gear lifecycle, from installation to maintenance, diagnostics and repair.

Our Engineering Service Centers in the region offer a wide range of services including and not limited to:

- Factory certified repair centres located throughout Asia Pacific.
- 24 hours on-call service
- Field service and Expedited service
- Dedicated resources for customer support:
 - Service parts
 - Repair services
- Application upgrades, lube systems, sealing systems, etc.
- Technical support and maintenance recommendations
- Improved reliability of existing drives
 - Reduced down-time
 - Reduced Maintenance costs
 - Repair Hansen, Sumitomo and other brands
- Recommended service parts and parts management
 - Recommended maintenance intervals
- Custom "drop-in" replacements

Free Health Check!

We offer free health checks for all gearboxes and gearmotors at your Palm Oil Mill*

- Factory inspection
- Comprehensive reports
- Maintenance advices
- Consultation & technical presentation
- Training & seminars
- Speedy quotation & delivery

Talk to our representative now!

**Services limited to Malaysia and Indonesia only*



What our customers say?

"We value efficiency in our process because we are continuously looking to increase our throughput. We choose products that are highly efficient, reliable yet economical. We are happy with Sumitomo's products and services."

- Group Executive of a 120TPH Palm Oil Mill, Malaysia

"As a private mill, we do not enjoy the luxury of having any downtime. What I like about Sumitomo Cyclo® Drive is - there is no catastrophic failure – i.e. no sudden breakdown. It runs well even when there is wear and we don't need to stop the production immediately. This is not so for conventional gearbox - when gear tooth breaks, everything stops."

- Maintenance Manager, a 120TPH Palm Oil Mill, Malaysia

"We are impressed with Sumitomo's after-market service team. They not only repair the gearbox, but clean it and re-paint as well. After repair, the gearbox looks almost brand new! They guarantee service and the gearbox lasts longer. Inspection and repairs are done professionally and come with a comprehensive report. That helps us to keep track of the performance of the gearboxes."

- Maintenance Engineer, a 60TPH Palm Oil Mill, Malaysia

Our customers demand quality products and service. As a reputed OEM, we choose brands that are reliable and readily available. Sumitomo products are tried and tested - true to their Brand value, they are a testament of quality and reliability.

- Project Manager, Palm Oil Turnkey Project Contractor and OEM

"For any OEM, reliable product, competitive pricing and quick delivery are key to successful bids. Sumitomo products qualify on all three accounts. This helps us to win projects."

- Managing Director of KCP OEM

Applications

Our products are suitable for every power transmission application in your Palm Oil Mill.



Settling Tank



FFB Conveyor



Belt Conveyors



Screw Press



Screw Press



Thresher



Under Thresher Conveyor



Pressing Station

Applications

Our products are suitable for every power transmission application in your Palm Oil Mill.



Cake Breaker Conveyor



Kernel Crushing Press (KCP)



Thresher



Empty Fruit Bunch (EFB) Press



Nut Processing



Digester



Screw Conveyor



Empty Fruit Bunch (EFB) Elevator



Screw Press

Reliable Power Transmission Solutions for Palm Oil Industry

We aim to provide quick delivery and fast technical service to our valued customers from our nine (9) well established Engineering & Service Centers in the Asia Pacific region; each with comprehensive stock, assembly, before and after sales technical support capabilities.



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