

BEHIND THE STEEL SERIES

36" to 60" Alignment-Free Combination Drive / Take-Up Unit

WEST RIVER CONVEYORS | BEHIND THE STEEL SERIES #1

The **Alignment-Free Combination Drive/Take-Up Unit** combines two key components into a single, compact structure. The drive, which includes the motor, reducer, and pulley, moves the conveyor belt while the take-up unit provides proper belt tension. Proper belt tension is critical for smooth operation to prevent belt slippage or misalignment. In this arrangement, the drive and tensioning mechanisms are centralized often at the tail or head of the conveyor system.

This type of drive/take-up unit uses a rigid low speed coupling and fluid coupling with a tunnel instead of traditional belts and sheaves. By eliminating the use of belts and sheaves, the need to align the drive is completely eradicated.

HIGH SPEED COUPLING
The high-speed coupling is installed between the motor shaft and the input shaft of the gearbox. Its purpose is to compensate for minor misalignments, allow easy disconnection of the motor for service, and to transmit power efficiently while staying dynamically balanced. A high-speed coupling can either be a fluid, grid, or gear coupling, and is fully dependent upon customer preference.

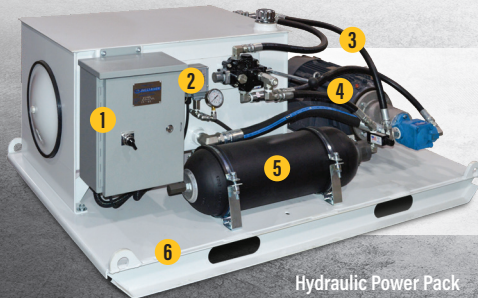
RATCHET JACKS
Two ratchet jacks allow the attached discharge boom to be lowered or raised depending on the height of the operation.

MOTOR
A totally enclosed fan cooled motor is used on this unit. A 445TD frame size with a standard shaft is used here. The motor can be started with an across-the-line starter used with a fluid coupling or a VFD starter to create a more controlled start.

REDUCER
This combo drive is fitted with a right-angle gearbox and equipped with a lantern for alignment-free design. Depending on HP needed, different models of the Uniminer may be used.

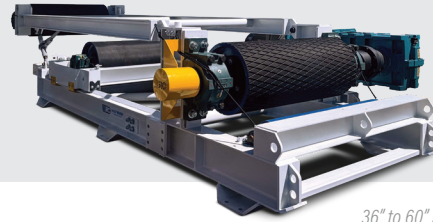
TAKE-UP
The take-up unit installed on this drive makes it unique, as most are on a separate base. This type of design allows for movability and ease of installation. The take-up on this particular unit is designed for short runs. It assists in a smooth start-up of the unit by decreasing belt slippage and allows for ease of belt splicing if needed.

RIGID LOW SPEED COUPLING
Used when a rigid connection is required between the low speed shaft of a gearbox and the head shaft of a conveyor pulley. When sized properly, a low speed rigid coupling will carry the application torque and weight of the gearbox. A rigid coupling consists of male and female hubs in a bolt-together design that is user-friendly to the operator.



1. Fuses, Contactor Overload
2. Pressure Gauge
3. Hoses/Fittings
4. Electric Motor
5. Reservoir Tank
6. Power Pack Frame

BEARINGS + PULLEYS
Conveyor drive pulleys are mounted in heavy-duty bearing assemblies that support the shaft and allow rotation with minimal friction. Pulleys transmit torque from the gearbox output shaft to the conveyor belt and are made from steel, typically with rubber or ceramic lagging to prevent slippage. A combination drive/take-up unit is equipped with drive, discharge, and take-up pulleys.



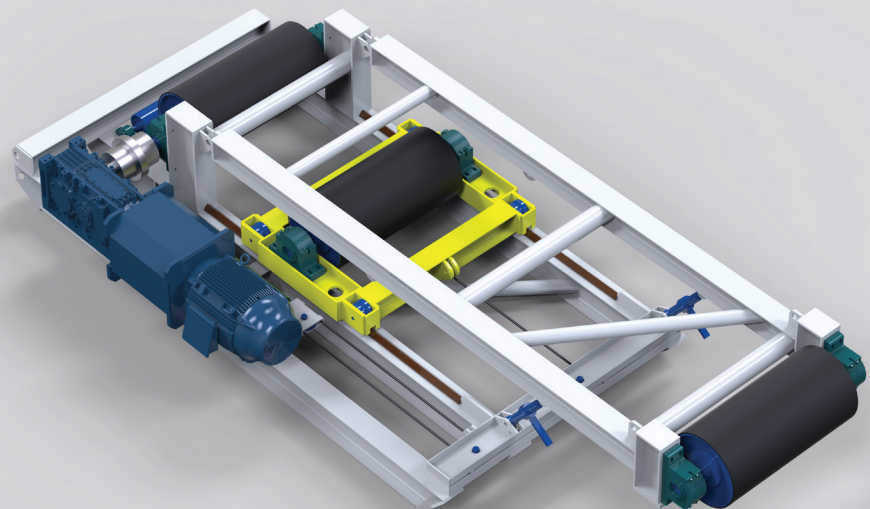
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Key Differences:

FEATURE	COMBINATION UNIT	SEPARATE UNITS
SPACE EFFICIENCY	High — compact design	Lower — requires more installation space
INSTALLATION TIME	Reduced — fewer components	Longer — more components to install
MAINTENANCE	Simplified — centralized access	Potentially more complex
FLEXIBILITY	Ideal for mobile/modular systems	Better for permanent, extensive setups

COMBINATION DRIVE BENEFITS:

- Quick and simplified installation
- Integrates drive and take-up unit into a single, compact unit
- Quick transport from one location to another
- Readily available, less expensive components
- Need for alignment is eradicated
- Components can be used to match other 150HP and 200HP drives
- Improved reliability as tension is applied directly at the drive pulley, improving belt traction
- Easier access to all components in one place — bearings, couplings, gearbox, and takeup cylinders
- Reduced maintenance
- Better response to load changes as hydraulics can adjust belt tension quickly if loads, temperature and belt length vary



Conceptual rendering of a combination drive



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