

ABUS crane systems – targeted operation

Drive systems

Pole change systems – the fast way from A to B

Experienced crane operators are thoroughly conversant with the behaviour of ABUS pole change drive systems and are convinced by the tried and tested technology used. It is no wonder that more than 80 % of all ABUS cranes are now equipped with these simple, powerful drive systems designed for two travel speeds. This is the ideal drive system for customers with normal crane and cross travel acceleration and deceleration requirements.



Fast material handling

ABUS pole change systems ensure smooth, swift switching between fast and slow speed under all operating conditions. The systems used are specially designed for smooth start-up with excellent acceleration and deceleration characteristics.



Final assembly of machine tools



Assembly of machining centres

Cranes with pole change drive systems are used for the assembly of machining centres, for repair and maintenance work and for rapid material handling and assembly work in almost all sectors of industry.

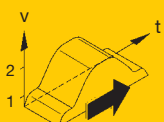
Practically oriented travel speeds between 20/5 m/min and 60/15 m/min, with a ratio of 4:1 between fast and slow speed are available.



Assembly and maintenance work on large construction machines

Benefits:

- sturdy, maintenance free motors
- main and creep speeds from 20/5 m/min to 60/15 m/min
- smooth start-up and switchover



Drive system 1

Low-swing systems – for smooth handling

ABUS pole change systems equipped with AZS smooth starting units and SU-2 smooth switching relays are the solution for customers who need to handle sensitive products or heavy loads. These electronic systems allow the crane operator to control crane and cross travel sensitively, with adjustable acceleration and improved deceleration characteristics. The entire crane system handles heavy or sensitive loads very smoothly.



Low-swing handling

This system can also be used separately for crane or cross travel, just as the customer requires. Sensitive loads can be handled with minimal swing.

Benefits:

- acceleration values adjustable on unit
- improved deceleration characteristics
- reduced switching surge

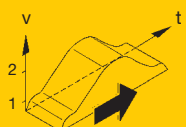


Low-swing assembly of large machines

The AZS smooth starting unit ensures smooth starting of the crane and cross travel motions using both the creep and main speeds. The SU-2 smooth switching relay features a patented system that automatically detects the right moment for intervention in switchover from high to low speed and from slow speed to stop in order to minimize load swing. This highly refined system allows the operator to handle, store and load very large machines with minimal swing. The smooth handling of sensitive goods is also a very welcome feature for crane operators in many applications.



Smooth handling of sensitive loads



Drive system 2

Frequency converter systems – for infinitely variable speed control

ABUliner frequency converter systems are the ideal solution when very sensitive control and extremely precise positioning are called for. The digital system with micro-processor control is in its element in the handling of highly sensitive goods, for example in the glass industry, or when working in measurement laboratories. The motor control system allows infinitely variable control of the cross and crane travel speed.



Precise positioning in a measurement laboratory



Sensitive handling of glass products

Whatever the load on the crane system, the ABUliner, with preset acceleration and deceleration values, minimizes load swing in the direction of crane or cross travel. The minimum speed is 1/20 of the maximum speed.

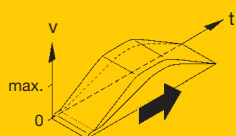
These cranes are mainly used in measurement laboratories or for the handling of highly sensitive loads, i.e. in conditions where load swing must be virtually eliminated.

Any speed which has been selected can be held using a two-stage push button.

ABUliners can also be used separately for crane or cross travel, just as the customer requires.

Benefits:

- infinitely variable speed control
- minimum speed 1/20 of maximum speed
- minimal load swing



Drive system 3

ABUS drive systems at a glance: crane and trolley travel – fast, smooth, infinitely variable

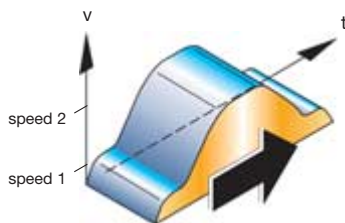
ABUS users have great confidence in our pole change cross and crane travel motion drives, designed for push-in installation and featuring permanently lubricated gear units. The quick plug-type connectors used make it easy to connect the units up following maintenance work.

This system solution is ideal for the vast majority of applications. However, customers handling highly sensitive goods or with precise positioning requirements can have smooth starting modules or ABUliner frequency converters fitted to their systems.

This brochure explains the advantages of the three systems.

Explanation of drive systems – with comparison graphs

Pole change operation



ABUS central drive systems with cylindrical-rotor induction motors require no maintenance and are easy to repair.

Pole change motors provide two speeds, with a ratio of 4:1 between fast and slow speed (the speeds available are 20/5; 30/7.5; 40/10; 50/12.5 and 60/15 m/min).

High-resistance rotors and optimized flywheels ensure smooth starting.

The ABUS SU-1 smooth switching relay selects the optimum timing for smooth switchover of all motors from main to creep speed.

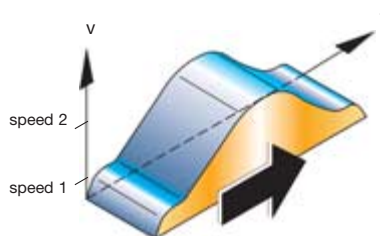
Soft, durable disc brakes make for smooth braking.

Depending on the load on the system, acceleration and deceleration values are between 0.08 and 0.25 m/s².

The central drive system is designed for push-in installation and the gear unit features permanent lubrication.

Quick plug-type connectors are used for electrical connection.

Pole change system with AZS and SU-2



The AZS electronic smooth starting unit operates on the principle of generalized phase control.

During start-up, the voltage rises over a two-stage time ramp, gradually increasing the motor torque until the full value is reached.

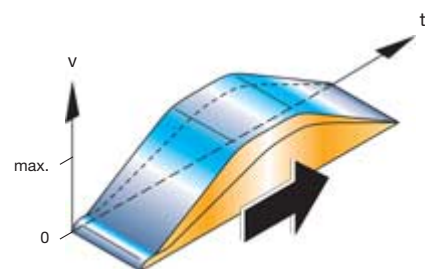
Start-up torque and the starting ramp can be adjusted separately to meet the requirements of individual applications.

When the motor is switched from fast to slow speed and from slow speed to stopping, the SU-2 smooth switching relay switches off one phase, cushioning the surge of regenerative braking.

A patented process is used, allowing the relay to detect the ideal timing for switching back to full torque.

No adjustment of the system is required.

ABUliner frequency converter



The ABUliner is a microprocessor-controlled voltage link converter of fully digital design.

This design ensures reproducible, reliable presetting and adjustment.

As a general principle, it is possible to set constant acceleration and deceleration ramps.

The motor is accelerated through a ramp of constant gradient.

Acceleration and deceleration are almost unaffected by the load on the system.

In addition, the ramp gradient can be set as a function of the load.

This control system allows the use of higher acceleration and deceleration values in part-load operation than with a full load.

Any speed which has been reached can be maintained.

The ABUS range at a glance

* Details of higher load capacities and wider spans on application.

Overhead travelling cranes:

- SWL: up to 120 t *
Span: up to 40 m * (SWL dependent)
Applications: area coverage
Features: comprehensive standard equipment and wide range of accessories to suit individual requirements



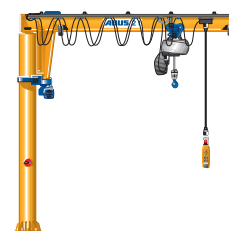
HB systems:

- SWL: up to 2 t
Crane girder length: up to 22 m (SWL dependent)
Applications: area coverage and linear handling
Features: highly versatile for adaptation to individual requirements, designed for modular extension, wide range of suspension hangers, low headroom options, comprehensive standard equipment and wide range of accessories



Jib cranes:

- SWL: up to 6.3 t
Jib length: up to 10 m (SWL dependent)
Applications: swept area coverage, mainly for use in loading or workbench applications
Features: slewing range up to 360° depending on model



Electric wire rope hoists:

- SWL: up to 120 t
Features: compact dimensions, two lifting and travel speeds as standard feature, comprehensive standard equipment and wide range of accessories



Electric chain hoists:

- SWL: up to 4 t
Features: low headroom configuration, two lifting speeds as standard feature, comprehensive standard equipment, ready for installation, wide range of accessories



Lightweight portal cranes:

- SWL: up to 2 t
Features: with four stop rollers, easy to move, height and width individually adaptable



SWL = Safe Working Load