

Rexroth IAC-R High-response Valves in Action: Positioning Systems for Sawing Technology



Saw blade adjustment and log positioning with IAC-R valves





Compact Drive System for Sawing Technology

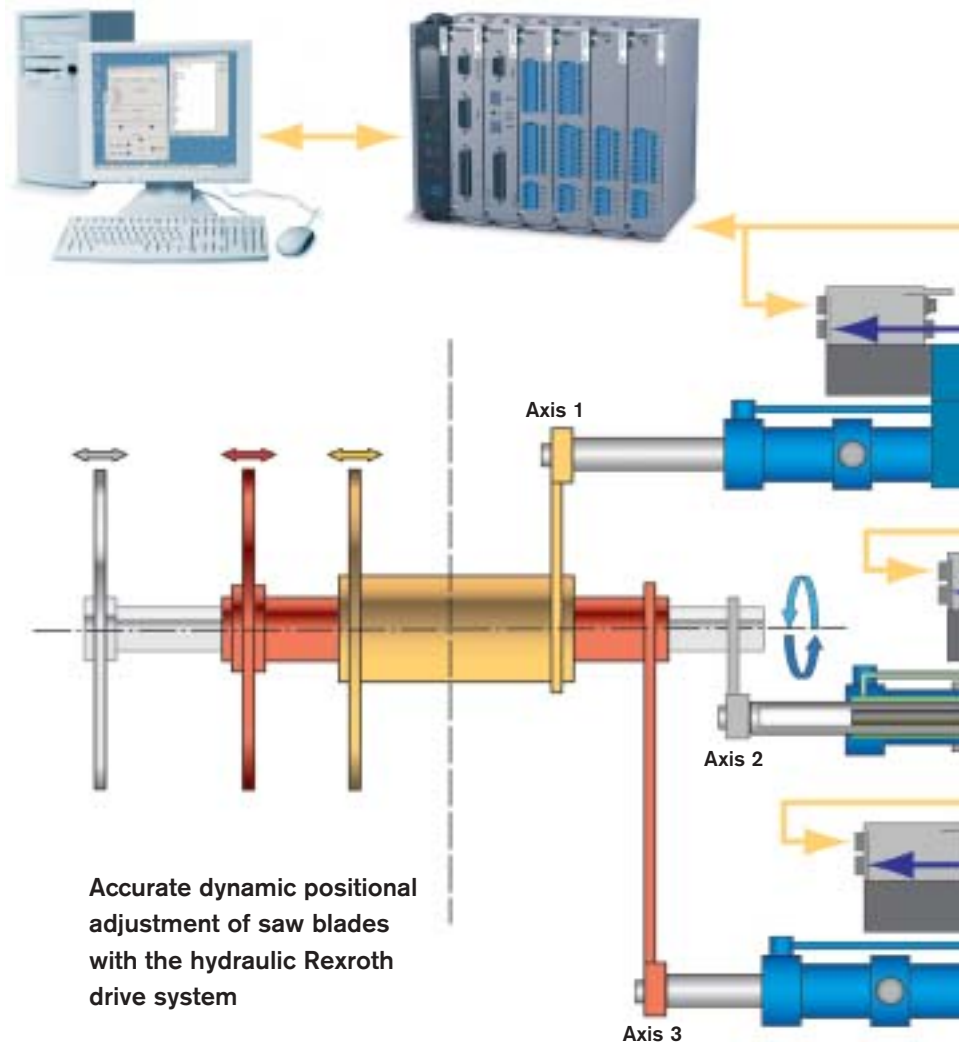
Rexroth Integrated Axis Controller-R controls position

Rexroth offers a very compact drive system specifically for the dynamic cutting width adjustment of circular saws and high-precision log positioning on log carriages. This system consists of a cylinder with integrated position measuring system and a directly mounted IAC-R – a high-response valve with digital axis

controller and field bus interface. The use of the IAC-R allows a high material throughput. Thanks to its dynamics and precision, optimum positions of the saw blades or the log can be achieved and fast adjustment times realized. The drive system communicates with the higher-level control via a field bus interface. Changed product parameters can therefore be easily downloaded to the IAC-R via the bus

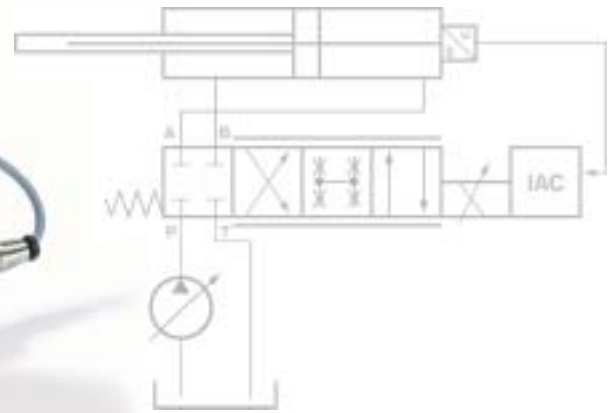
Advantages

- Fast adjustment times and high positioning accuracy thanks to the use of a dynamic high-response valve
- Robust and unsusceptible to faults under the extreme ambient conditions in a woodworking environment
- Reduction of downtimes due to direct fault signaling to the higher-level control via the bus system
- Cost savings due to shorter setup times
- Simple programming/parameterization with PC software
- Low servicing cost due to fully reproducible axis functions in the event of a failure
- Low maintenance cost thanks to the contact-free, absolute position measuring system integrated in the cylinder
- Shorter setup times between the sawing processes and increased productivity thanks to the use of a bus system





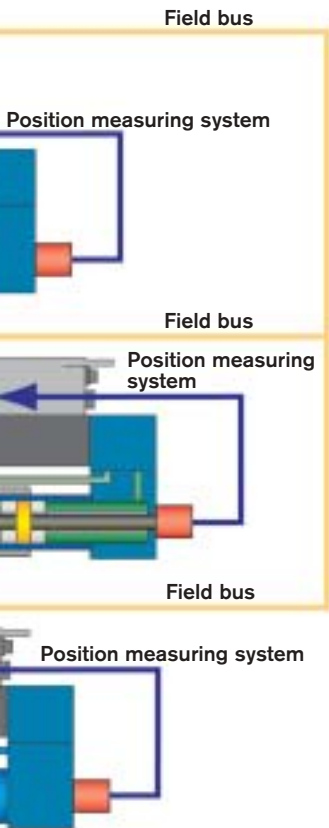
Hydraulic drive system with digital IAC-R axis controller as well as field bus interface and integrated position measuring system



system. Its programming or parameterization with the help of a clearly structured software guarantees short commissioning times. When the machine is set up, various NC programs can be

uploaded from the control via the bus system and user-specific motion profiles be generated. A failure of sensors that may be caused by a cable break or problems in the power supply is signaled via the bus to the higher-level control. In the event of a failure of the IAC-R, which requires its replacement, the user simply has to upload the saved axis parameters to the new valve. Moreover, the integrated closed-loop control electronics reduces the cabling effort and saves space in the control cabinet.

caused by wood dust. Even in the case of a supply voltage failure or a machine restart, the absolute position measuring system signals the current drive position to the axis controller – the referencing process that is usually required in conjunction with incremental position measuring systems is a thing of the past. Modern bearing systems and low-friction seals on the hydraulic cylinder ensure that manufacturers in the wood processing industry get a stick-slip-free drive system with a long service life. Together with the advantages of IAC-R technology, this results in a system that significantly increases your productivity.

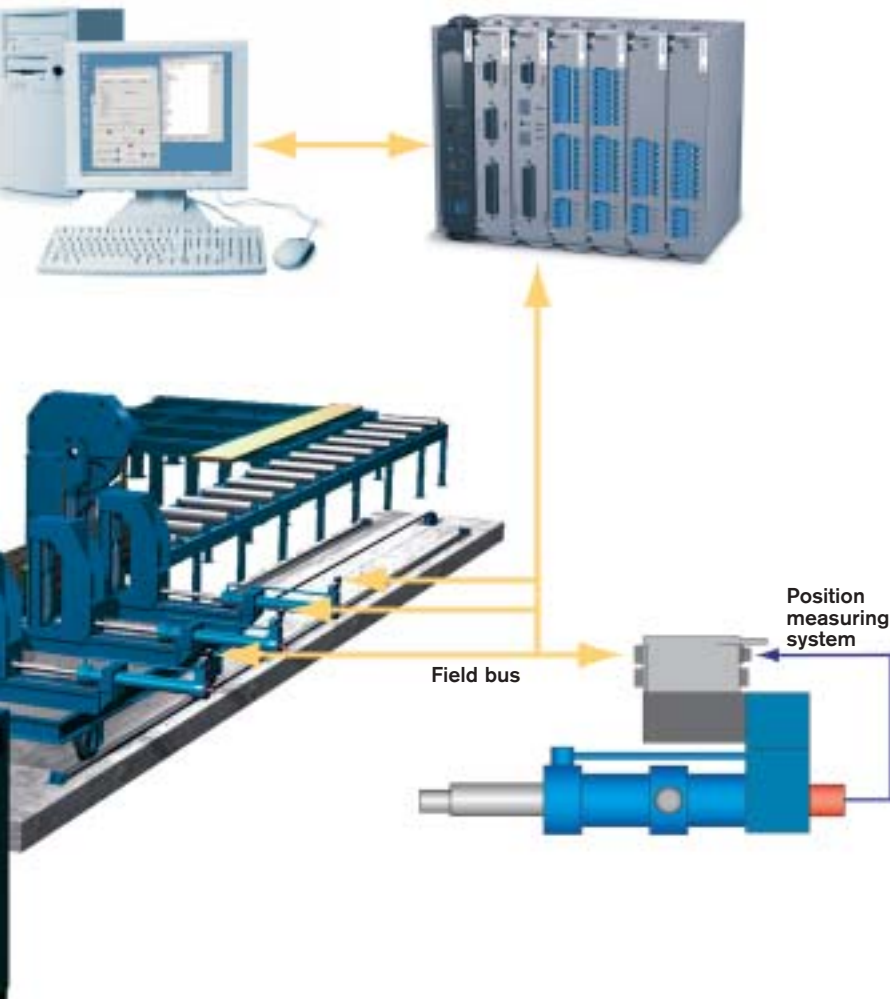


Direct mounting of the IAC-R on the cylinder results in a high load stiffness of the drive. In addition, the compact build simplifies the integration in the saw or the log carriage. The absolute position measuring system that operates contact free is integrated in the cylinder and is absolutely robust. Thus, it is optimally prepared for the harsh operating conditions in the wood processing industry such as shock loads and severe contamination





Communication via field bus interface ensures short setup times on the log carriage



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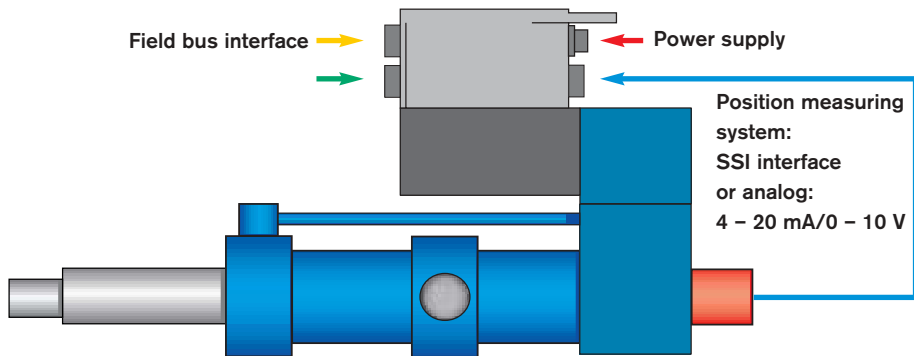
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Pin Assignment of IAC-R Interfaces



Field bus interface

Profibus DP

B-coded socket

1 = +5 V supply

2 = Profi A

3 = Profi GND

4 = Profi B

5 = shield CAN bus

A-coded plug

1 = shield

2 = n.c.

3 = CAN GND

4 = CAN H

5 = CAN L



Pin assignment of power supply

1 = +24 V output stage supply

2 = 0 V output stage supply

3 = enable

4 = input signal 1

5 = 0 V input signal

6 = actual value 1

7 = input signal 2

8 = actual value 2

9 = +24 V signal supply

10 = 0 V signal supply

11 = fault signal

⏏ = protective conductor



Pin assignment: X7 sensor interface configured as SSI measuring system interface

1 = 0 V

2 = data +

3 = clock +

4–8 = not assigned

9 = 24 V

10 = data –

11 = clock –

12 = not assigned



Pin assignment: X7 sensor interface configured as current/voltage interface

1 = +24 V_{DC} supply sensors are supplied by IAC-R

2 = signal input, sensor 4 (4 to 20 mA, –10 V to +10 V)

3 = zero 0 V

4 = signal input, sensor 2 (4 to 20 mA, –10 V to +10 V)

5 = shield

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