IntelliRamp®
Electronic control system

Description of product

IntelliRamp® is an electronic control system allowing for program-controlled, accurate braking processes. Being combined with IntelliRamp® our brakes are therefore suitable for the use in sophisticated applications:

- Ramp-supported braking process
  - Continuous deceleration operation
  - Continuous time operation
  - Continuous speed operation
- Excessive speed monitoring
- Reverse lock
- Joystick control
- Online remote operation

Operation and structure

The IntelliRamp® system controls the clamping force of the brake and the resulting braking force infinitely. This allows to control both hydraulic and electromechanical brakes sensitively complying with the operating instructions. The heart of the system is the control computer with its touchscreeen. It takes over all operations of calculation and monitoring that are necessary for controlling the brake systems. In addition IntelliRamp® controls and monitors the function of the power pack with a hydraulic brake system, too. For that purpose characteristic figures like oil level, oil temperature and hydraulic pressure are recorded by the system. The overall system, among others, has an uninterruptible power supply to allow for performing a full braking cycle in case of power failure. This will allow you to keep the full control of your brake system even with critical conditions of the machine while preventing damages from your machine.

Operation

The control system is operated via touch screen with menu navigation. Other relays are not necessary which increases the availability and reliability of IntelliRamp® considerably. It goes without saying that many standard bus systems (e. g. Profibus, EtherCAT, etc.) are available as options for your communication as well.

Ramp-supported braking process

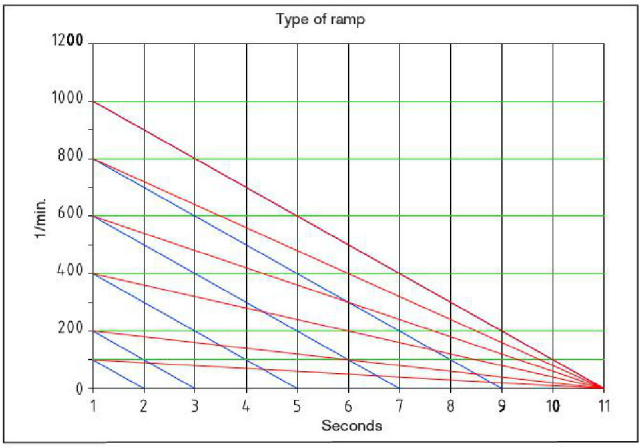
The ramp-supported braking process is activated by a signal safe from cable break. The process is performed via a closed control circuit covering speed versus time. Since a proportional control is not concerned here, the system is safe from power breakdown, i. e. it will work even if the power supply fails. The ramp is defined by a rated speed and a braking time taking this speed into account.

Since a speed which is almost zero cannot be measured accurately any longer, a braking process exists increasing the braking power to achieve the full figure from a certain speed within a period to be defined.

For the ramp a tolerance range is defined which a control is performed in. Falling below this range the brake unlocks, exceeding this range the brake locks fully. The tolerance range can be defined flexibly. The more precise the definition, the more accurate is the control , but at the same time the more nervous is the reaction.

In order to avoid impacts in the beginning of the braking process, the control automatically calculates the braking pressure that is theoretically necessary to reach the ramp required. This prevents too fierce braking.
IntelliRamp® allows to use three brake ramps which can each be programmed individually and which can be started irrespective of each other.

Scheme of the ramp-supported braking process



— Continuous deceleration:
With a higher speed the braking cycly takes longer, with a lower speed it takes shorter.
— Continuous time operation:
The same time is always kept which means that the brake engages further if the speed is higher.
— Continuous speed control:
An option to keep the device at a constant speed via the brake only.

Operation

Excessive speed monitoring:
The action of excessive speed reacts flexibly within defined excessive speed barriers. Two values can be defined by which either a message is given to the PLC, a brake ramp is activated or an emergency stop is activated immediately without performing any control of this braking process. The excessive speed control can be switched on and off.

Reverse lock:
It allows for controlling the speed. In case of an unauthorised rotational direction of the system a braking process is activated or the starting of the machine is prevented. A definition of the number of starts preventing a re-start if the number is exceeded is to prevent the device from reversing in case of a fracture of the drive.

Joystick control:
This is an option to use the brake, as an example, like a car brake. The more the joystick travels, the more the brake engages.

Online remote operation:
The online remote operation allows both to call the status of the control via a network and to interfere. There is the option to program the control from a place far away.