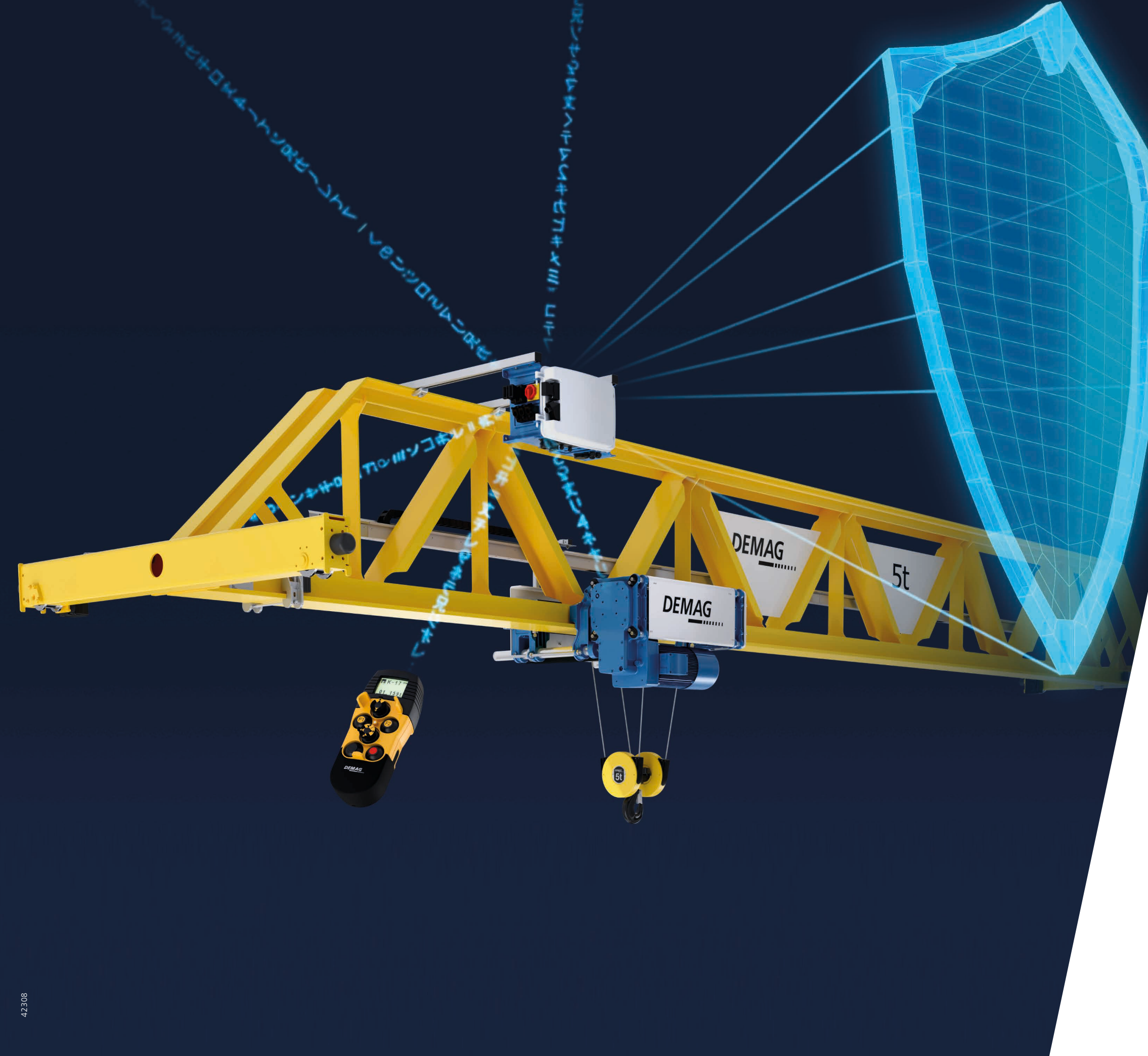


Demag SafeControl Safe, by Demag

DEMAG



Safe and precise control of cranes

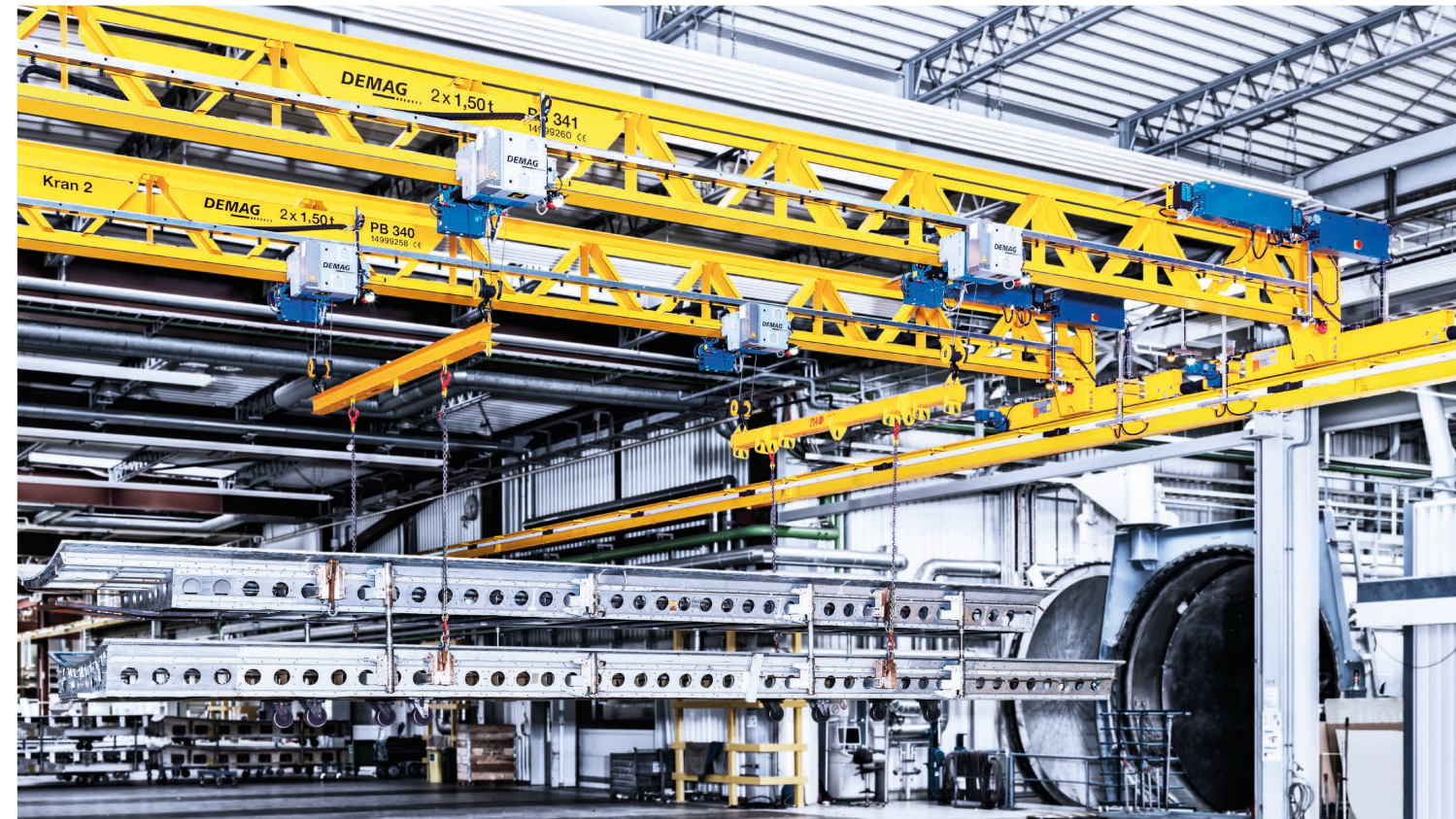
The Demag smart SafeControl system can independently and continuously monitor a crane. On the basis of a largely redundant control concept, SafeControl can independently bring the crane system to a standstill if any irregularities occur. Furthermore, dangerous conditions can be identified and prevented in advance.

The crane operator can concentrate fully on his/her work at all times thanks to the safety control system. A crane can be conveniently and intuitively controlled by radio, which is also very efficient. The safety control system combined with radio control can ensure gentle handling and precise positioning of loads. This meets our high demands for safe and reliable crane control.

The SafeControl system can reveal its full potential wherever a crane needs to meet complex operating and control requirements and enables safety-related control functions up to Performance Level d in accordance with EN ISO 13849 or SIL 2 in accordance with EN 61508.



Perfect interaction between all components



Smart tandem with up to four synchronised hoists and two cranes.

Tandem operation enables lifting and transport operations which cannot be performed with individual cranes or hoists: lifting long and bulky loads and lifting loads whose weight exceeds the maximum load capacity of the individual crane. Perfect interaction between the long and cross-travel motions, safety control system and radio control make it easier for the crane operator to concentrate fully on handling the load.

AT A GLANCE

- Tandem: several trolleys and/or cranes are controlled from a common control point
- Smart tandem: common control of two cranes with up to four hoists
- Demag smart SafeControl system for safe and precise load handling – specially for complex crane applications

Safe, by Demag
Smart tandem and tandem

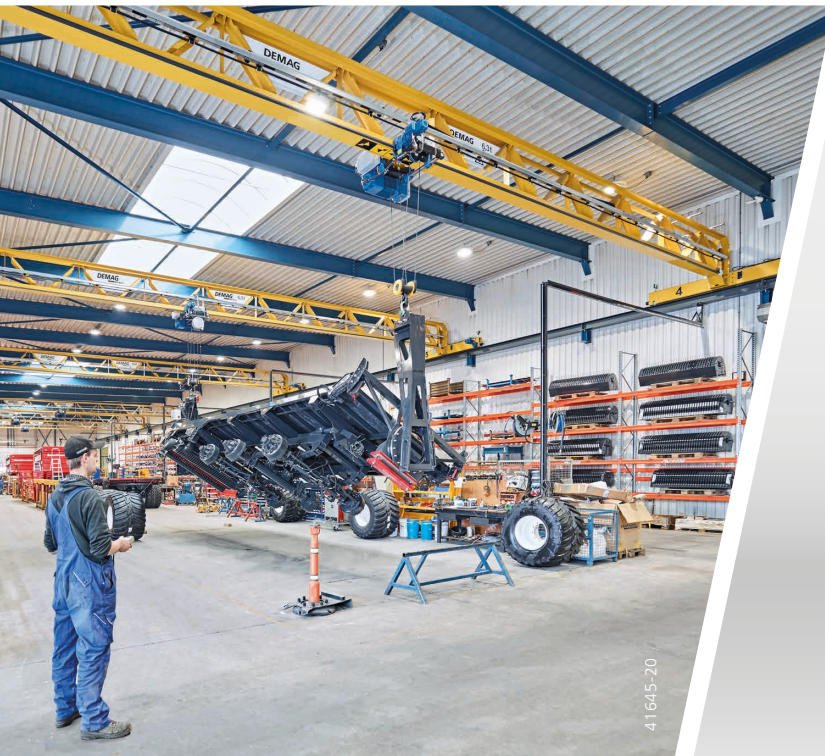
Easier crane operation

In tandem operating mode, both cranes and their hoists can be controlled together with one radio control system. Changing between separate and tandem operating modes is quick and easy by pressing a button or using the selector switch on the radio control. Switching between these operating modes is done in such a way that potentially hazardous conditions for individuals and the surrounding infrastructure can be identified and avoided.

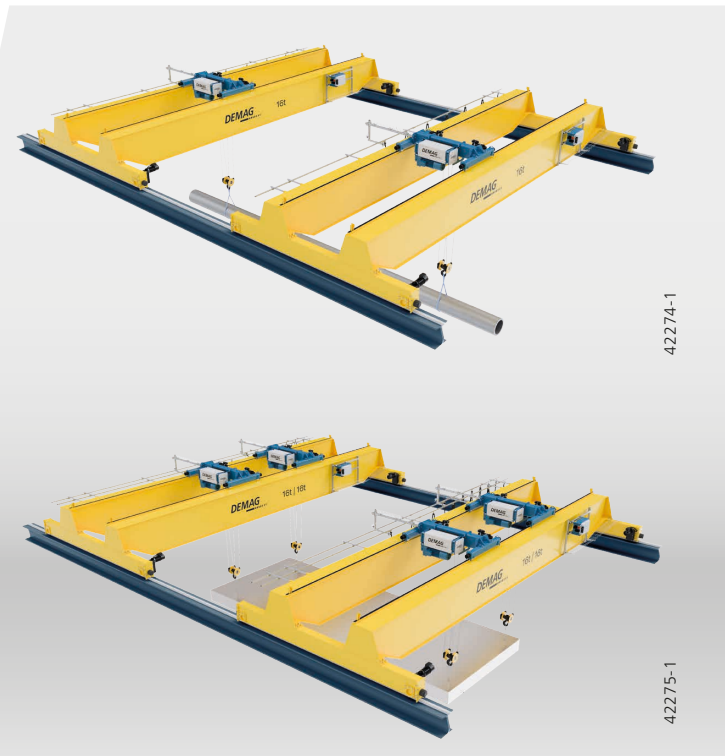
Demag radio controls make it easier for the operator to handle loads thanks to intuitive and ergonomic features. The control elements are arranged in such a way that the crane operator can always keep an eye on the load handling process. Assistance systems can be simply switched on at the press of a button. The SafeControl assistance systems can also be visualised via the LC display integrated in the control system.

BENEFITS WITH SMART TANDEM AND TANDEM

- Safe and reliable handling of heavy and bulky loads
- Safe and reliable switch-over between separate control and (smart) tandem
- Efficient load handling
- Precise position control thanks to Demag tandem control concept
- User-friendly radio controls



Control of two cranes with a common control system.



Safe and reliable handling of bulky and large-volume loads with up to four hoists.



Safe, by Demag
Turning loads

Safely exceeding limits

The process of turning loads requires perfect interaction between the long and cross-travel motions as well as the lifting motion. This safety-sensitive operation enables loads weighing up to 50 tonnes to be turned by up to 180 degrees.

Due to the inclined pull that occurs when loads are turned, the crane operator has to control the crane in a safety-critical situation for the hoists. During the turning process, the inclined pull is corrected by moving the individual trolleys and also by the lifting or lowering motion of one or both hoists. Uncontrolled slipping of one of the two trolleys is avoided to ensure safe operation.

Enormous forces act on the individual crane components when loads are turned. For this reason, the mechanical specifications of the components are increased to extend the service life of your crane. For safe control and monitoring of the load turning process, SafeControl uses its ability to monitor several motions simultaneously as a coordinated movement.

The smooth interplay between all components and continuous protection throughout load turning operations can be ensured by safety solutions from Demag.



BENEFITS WHEN TURNING LOADS

- Loads weighing up to 50 t can be turned
- Loads can be turned by up to 180 degrees
- Safe and reliable monitoring of the turning process by rope angle sensors
- Safe and reliable cut-off of lifting and travel motions if the maximum permissible rope angles are exceeded
- Demanding requirements for safe control systems according to standard EN ISO 13849-1 are fulfilled
 - Two-channel rope angle sensors prevent crane operating errors as required by safety category 3 of the Machinery Directive
 - Performance level d for lifting & lowering and Performance Level c for all travel motions

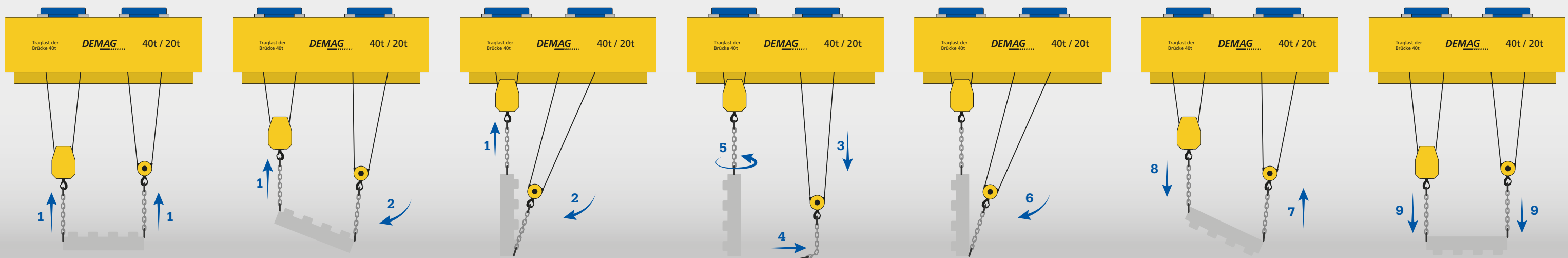
Continuous monitoring. At all times.

VARIANT 1: WARNING SIGNAL

An acoustic and/or visual warning is given as soon as the maximum deflection angle is reached. In this case, the crane operator himself is responsible for ensuring that no personal injuries or damage to the transported goods or the crane installation are caused during the turning operation.

VARIANT 2: SAFECONTROL SYSTEM

The control system actively utilises the combination of Demag smart SafeControl system with the two-channel, non-contact sensor system for precise measurement of the rope angles. The crane automatically stops all lifting and travel motions if any irregularities are detected. If the predefined maximum inclined angle of pull is reached or exceeded, only those functions that lead to a reduction of the angle are possible.





Safe, by Demag

Sensor-based load anti-sway system

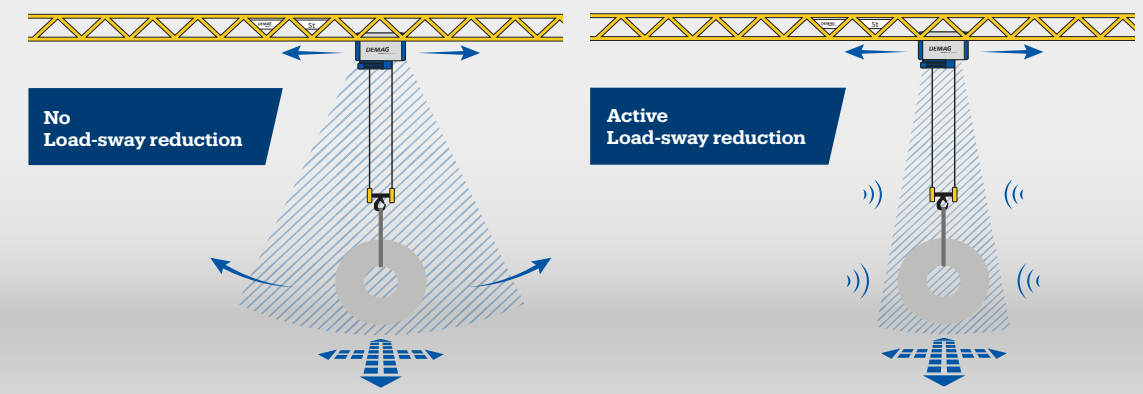
Precise and reliable control

Demag sensor-based load-sway reduction supports crane operators when handling loads by constantly monitoring operation of the crane with sensors. Loads can start to sway at any time when the crane or trolley is moving. The swaying motion can cause danger to life and limb and a risk of damage to the machinery. In addition, cycle times can take longer until the load has stopped swaying.

On the basis of the Demag smart SafeControl system, load sway motions can be detected by sensor-based load-sway reduction and compensated by dedicated correction of the travel motions. This also enables sensitive loads to be handled and positioned more carefully and, above all, more safely and reliably.

BENEFITS OF SENSOR-BASED LOAD-SWAY REDUCTION

- Faster and more precise positioning of the load
- Independent corrective action by the crane
- Improved handling safety: collisions with other machines and equipment can be avoided
- Improved safety



Without any load-sway reduction, the load will swing when the crane and/or trolley travel.

Demag sensor-based load-sway reduction independently corrects the long and cross-travel motions and, therefore, automatically minimises load sway.

Range-specific adjustments of long and cross-travel motions

BY-PASS CONTROL

Demag SafeControl makes it possible to bypass sections where the crane or trolley should not travel. Bypass control can block this area for the crane or trolley and avoid the risk of collisions.

BENEFITS OF BYPASS CONTROL

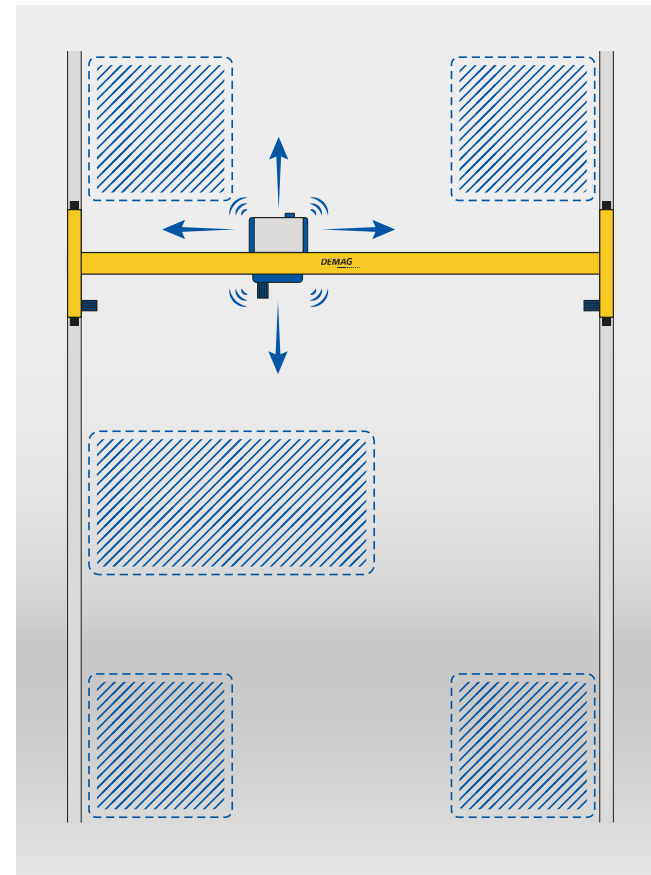
- Optimum adaptation of your crane to the requirements of the working environment
- Blocked zones can also be defined at a later date – without the need for any further conversion work
- Protection against collisions and damage
- Safety cut-off of the installation by Demag SafeControl

AREA-DEPENDENT LOAD REDUCTION

Load reduction on the crane can be necessary for certain parts of the building. If the building structure is already subjected to strong loads, these areas can be electronically protected to block operation with full loads; if required, travel in these areas can be permitted with a defined reduced load.

BENEFITS OF LOAD REDUCTION

- Optimum adaptation of your crane to the requirements of the working environment
- Protected areas can be defined at a later date without the need for any conversion work
- The building structure can be protected by means of defined maximum loads
- Continuous monitoring of the installation(s) by sensors



Parts of the building can be specified where the crane must not travel, e.g. where machinery, stairways or office areas are located.

Safe, by Demag

Smart long and cross-travel motions



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CRANE/TROLLEY ANTI-COLLISION SYSTEM

If several cranes operate on one crane runway – or two trolleys on one crane – the integrated crane or trolley anti-collision system can protect against collisions and damage. Sensors constantly measure positions and distances, which enables even safer operation of the cranes.

The smart SafeControl system monitors the status of the installation at all times and if there is any deviation from the pre-set parameters, it can autonomously ensure that the installation is in a safe condition.

Area-specific adjustments of long and/or cross-travel motions can be added at any time.

BENEFITS OF A CRANE/TROLLEY ANTI-COLLISION SYSTEM

- Protection against collisions and damage
- Continuous monitoring of the installation(s) by sensors
- Safety cut-off of the installation by Demag SafeControl



The current status of your crane – always at a glance

Demag SafeControl provides safety when cranes are operated. Sensors and smart interfaces enable data to be collected that reflect the condition of the crane. With the aid of Demag radio control, Demag SafeControl and Demag StatusBoard, these data can be displayed to the crane operator and owner.

Demag StatusBoard can visualise how much weight is actually transported on the hook of the crane. Current status reports, activated assistance and efficiency improvement functions as well as service data can be read quickly and easily from the StatusBoard by the crane operator and anyone else who can see the StatusBoard.

BENEFITS OF STATUSBOARD

- Display of the load weight on individual cranes or total loads
- Display for operating statuses
 - Selected crane and trolley
 - Activated assistance and efficiency improvement functions
 - Error messages
 - Information messages
 - Service data

Safe, by Demag StatusBoard



Demag StatusBoard visualises the operating status of the crane in colour and with clear symbols direct on the crane girder.



Diverse safety options for crane control

Demag SafeControl



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