

INDUSTRIAL CRANES
NUCLEAR CRANES
PORT CRANES
HEAVY-DUTY LIFT TRUCKS
SERVICE
MACHINE TOOL SERVICE

FOR HAZARDOUS ENVIRONMENTS

KONECRANES®
Lifting Businesses™

**Products for hazardous environments
ENSURE A HIGH
LEVEL OF SAFETY**

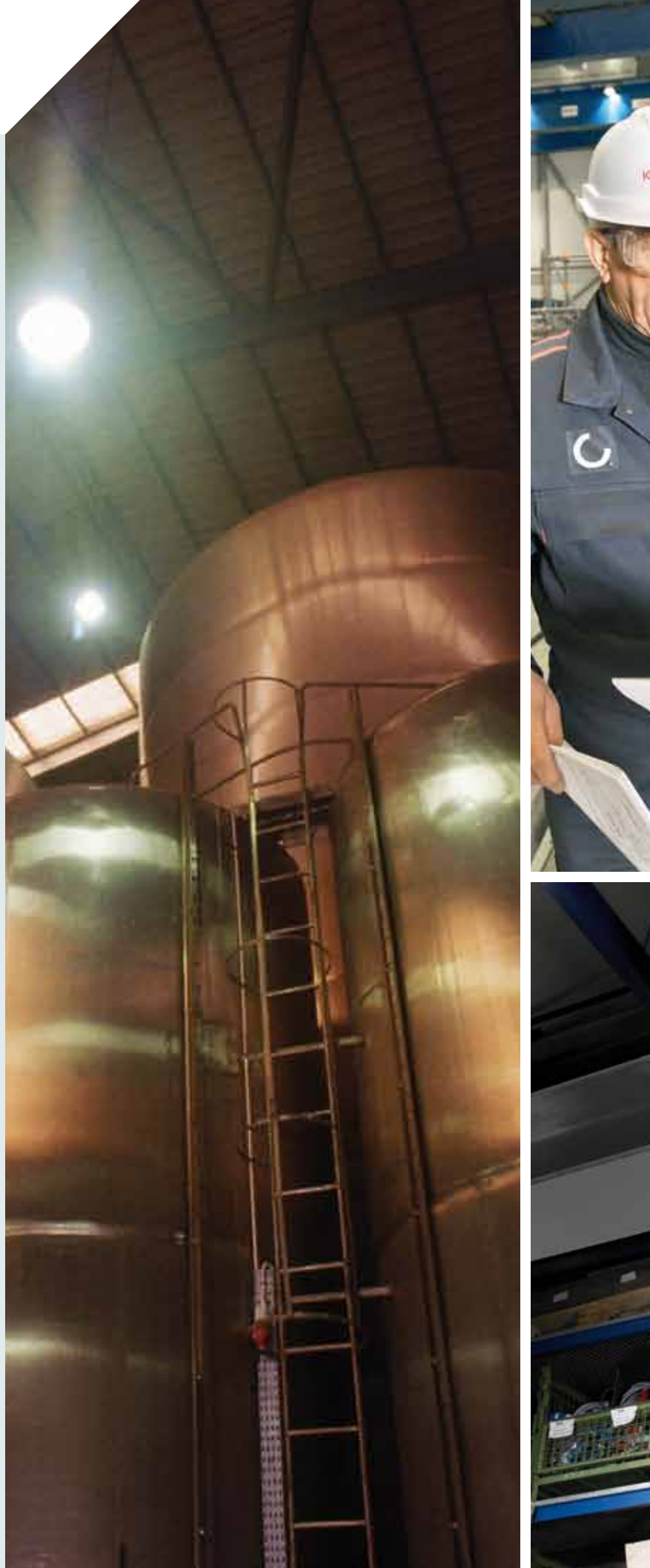




OUR RANGE OF PROVEN SOLUTIONS COMES FROM EXPERIENCE

In developing the product range for hazardous environments, Konecranes utilized its vast experience in explosion-proof applications and its extensive resources and innovation in crane and component technology. This has resulted in most competitive and comprehensive range of explosion-proof cranes and components. The range includes industrial cranes, jib cranes and manual cranes as well as electric and manual hoists with lifting capacities from 125 kg to 100 tons. All the components are designed and manufactured to ensure the high level of safety required for hazardous atmospheres in chemical and petrochemical plants, oil refineries, gas power plants, wastewater treatment plants, paint shops and other industrial sites.

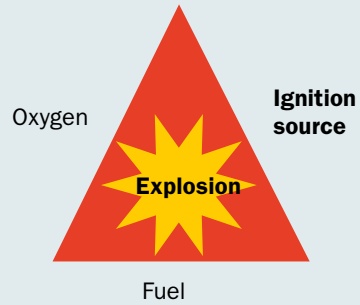
This publication is for general informational purposes only. Konecranes reserves the right at any time, without notice, to alter or discontinue the products and/or specifications referenced herein. This publication creates no warranty on the part of Konecranes, express or implied, including but not limited to any implied warranty or merchantability or fitness for a particular purpose.





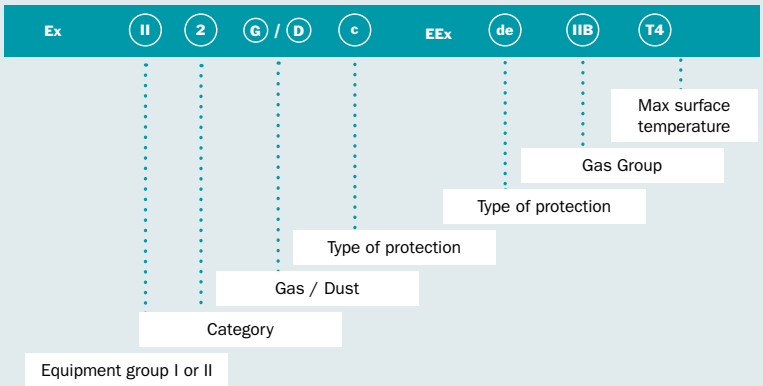
SAFETY COMES FIRST – REGULATIONS AND STANDARDS

Konecranes has designed its cranes and components to comply with the ATEX directive adopted by the European Union on July 1, 2003. Konecranes products also comply with the European explosion-proof standards, including EN60079- 0/-1 /-7/-11/-15. In addition, Konecranes products for hazardous environments are IECEx approved. Components are type tested by approved independent Notified Bodies and all products are provided with CE marking and documentation.



An explosion occurs if a fuel is present in mixtures with air (i.e. sufficient oxygen) within the explosion limits, together with an ignition source. Konecranes products for hazardous environments do not act as an ignition source in normal operating conditions due to their design; as such, they are a safe solution for hazardous environments.

Konecranes Exproof Product Marking



Markman selection value/

Typical EX marking for Konecranes EX-products:

Markman selection value	Typical EX marking	Similar, not Identical, to US marking:
Zone 1 IIB T4	Ex II 2 G c EEx de IIB T4	Class I Division 1 Groups C & D Temperature class T4
Zone 1 IIC T4	Ex II 2 G c EEx de IIC T4	Class I Division 1 Groups A, B, C & D Temperature class T4
Zone 2 IIB T3	Ex II 3 G c EEx denA IIB T3	Class I Division 2 Groups C & D Temperature class T3
Zone 2 IIC T3	Ex II 3 G c EEx denA IIC T3	Class I Division 2 Groups A, B, C & D Temperature class T3
Zone 21 IP65 T+135°C	Ex II 2 D c IP65 T+135°C	Class II & III Division 1 Groups E, F & G Temperature class T4
Zone 22 IP65 T+135°C	Ex II 3 D c IP65 T+135°C	Class II & III Division 2 Groups E, F & G Temperature class T4

WE UNDERSTAND THE DEMANDS OF YOUR ENVIRONMENT

Zoning of hazardous places

A hazardous place is a place in which an explosive atmosphere may occur in such quantities as to require special precautions to protect workers against explosion hazards. Such a quantity is termed a hazardous explosive atmosphere. As a basis for determining the extent of protective measures, any remaining hazardous places must be classified in terms of zones according to the likelihood of occurrence of such atmospheres.

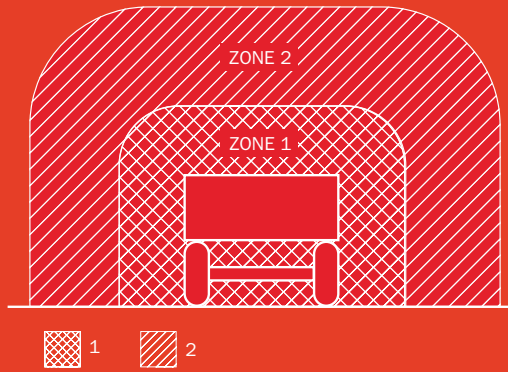
- Zone 0** A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapor or mist is present continuously or for long periods or frequently.
- Zone 20** A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.
- Zone 1** A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapor or mist is likely to occur in normal operation occasionally.
- Zone 21** A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.
- Zone 2** A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapor or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.
- Zone 22** A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

Note: Layers, deposits and heaps of combustible dust must be considered as any other source which can form a hazardous explosive atmosphere.

“Normal operation” means the situation when installations are used within their design parameters.



We have a typical environment evaluation of the paint-spray company working area. In the middle we can see the object to be painted. It is surrounded by Zone 1 EX environment within 1.5m radius. Zone 1 area is surrounded by Zone 2 EX environment within 1m radius.



For each zone, there are specific lifting equipments available:

Category 1 equipment may be used in zone 0, zone 1 or zone 2 areas.

Category 2 equipment may be used in zone 1 or zone 2 areas.

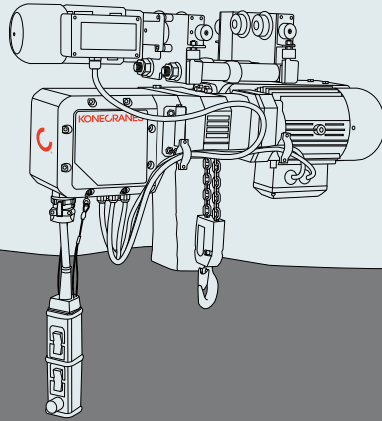
Category 3 equipment may only be used in zone 2 areas.

RIGHT EQUIPMENT FOR EX ENVIRONMENT:

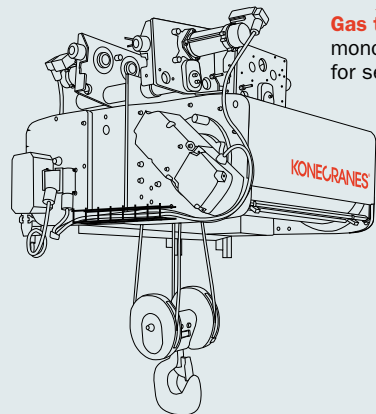
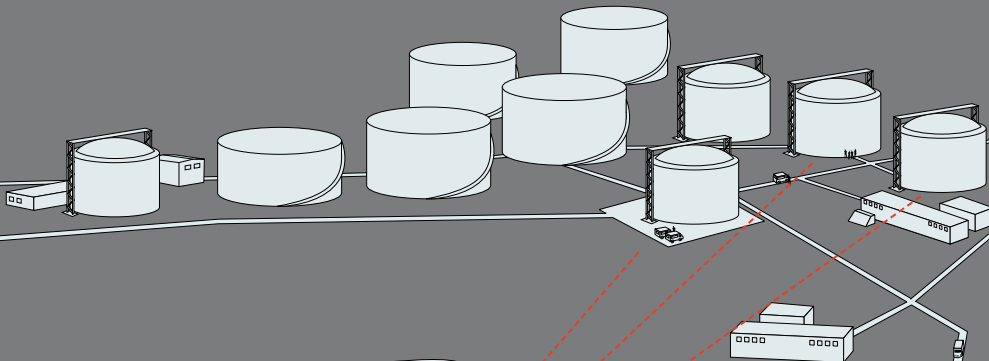
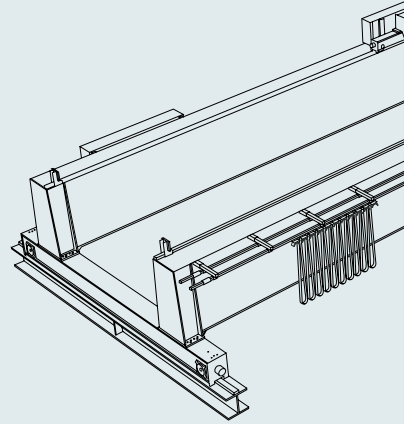
Environment	Equipment Category
Zone 0 or 20	1
Zone 1 or 21	1 or 2
Zone 2 or 22	1, 2 or 3



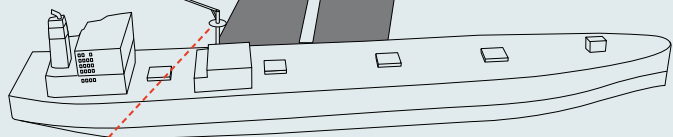
WHATEVER YOU LIFT...



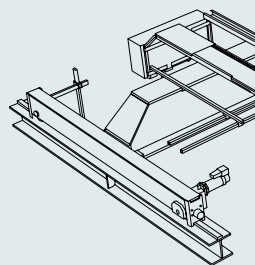
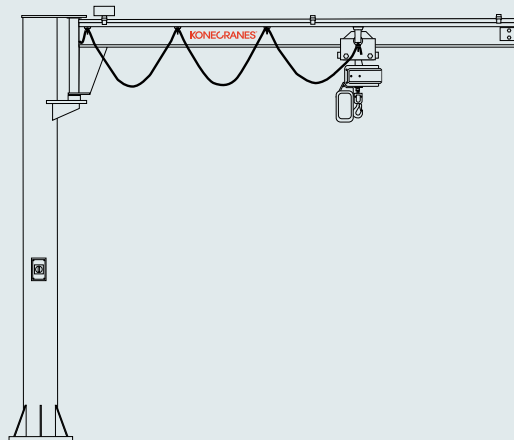
Lubricant warehouse,
2t load handling chain hoists
and 5t load handling crane for
outdoor use

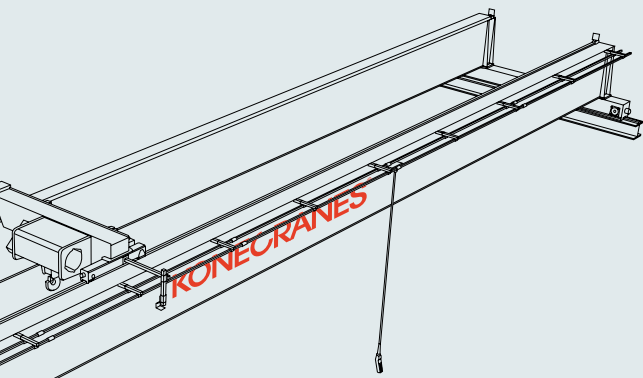


Gas tanks,
monorail hoists
for service use



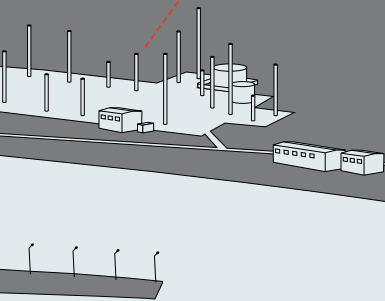
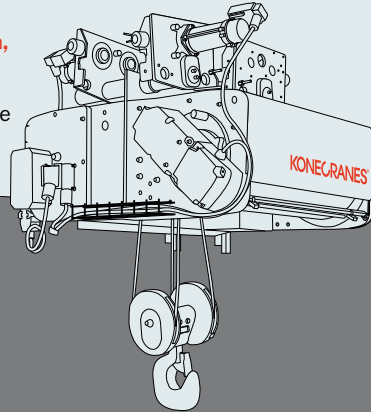
Pumping area,
hose handling
jib crane



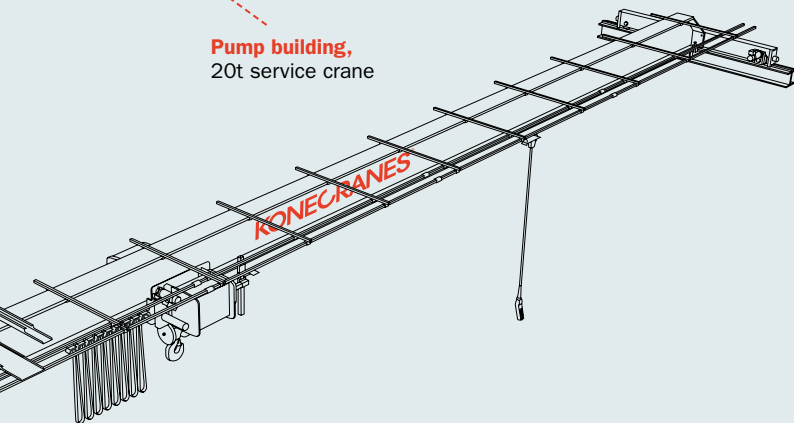


**Compressor building,
80/10t service crane**

**Cracking tower area,
5t catalyst handling
hoist and 3t chain
hoists for service use**



**Pump building,
20t service crane**



WE HAVE THE SOLUTION

Konecranes products for hazardous environments are designed to be used in customer applications where a hazardous environment is present. A few industries where this kind of environment is typically found include the petrochemical industry, refineries, power plants, the pharmaceutical and wood-working industry, warehousing of flammable liquids and gases, and printing and paint-spraying companies.

This illustration shows different types of lifting solutions in a typical refinery area. The lifting equipment is selected based on the actual lifting needs, like the load, the frequency of use and the nature of the lifting duty.

NO COMPROMISES ON PERFORMANCE



ELECTRIC WIRE ROPE HOIST

EXCXT electric wire rope hoists represent a totally new approach within the lifting equipment industry.

An innovative mechanical design combined with the latest motor technology have made the EXCXT hoist the industry benchmark. EXCXT hoists offer exceptional performance, easy load handling, superior safety, improved ergonomics and favorable dimensions. For industrial cranes, solo hoist or monorail applications, or for upgrading existing hoisting equipment, EXCXT wire rope hoists offer the best return on your investment.

Konecranes EXCXT wire rope hoists for gas hazardous environments meet the requirements of equipment Category 2 & 3. Konecranes can offer EXCXT for dust hazardous environments as well (Zones 21 & 22).

EXCXT hoists can also be equipped with strengthened safety features, such as bronze-coated hooks and bronze-travelling wheels upon customer request.



5t EXCXT low headroom trolley for zone 1.



10t EXCXT normal headroom trolley for zone 2 with optional radio control.



**ANY WAY YOU
WANT TO LIFT –
WE HAVE THE
SOLUTION**



LIGHT LIFTING EQUIPMENT

Konecranes offers a wide range of light lifting products for hazardous environments.

Products comply with the rules of European Federation for Material Handling (FEM) and are designed to meet the ATEX directive, which have been mandatory in Europe since 1 July 2003. Konecranes chain hoists and belt hoists for hazardous environments are tailored for gas hazardous environments Zone 1 & 2 and Zone 21 & 22 dust hazardous environments. Konecranes belt- and chain-hoist range covers products for loads up to 5t with different trolley models including the hook suspended, push and motorized trolley.



MANUAL LIFTING EQUIPMENT

Konecranes EKMII manual chain hoists and EKPT manual trolleys are an ideal, cost-effective solution for customers' non-frequent lifting needs.

The EKMII range covers manual chain hoists for loads up to 10 t with different trolley models including the hook suspended, push- or chain-travel trolley.

EKMII chain hoists and EKPT manual trolleys are ATEX certified and thus are marked with EX classification Ex II 2 GD c IIC T4 T+135°C. As such, they are suitable for use in gas hazardous environments Zone 1 & 2 and dust hazardous environments Zone 21 & 22.





INDUSTRIAL
CRANES



NUCLEAR
CRANES



PORT
CRANES



HEAVY-DUTY
LIFT TRUCKS



SERVICE



MACHINE
TOOL
SERVICE



Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Konecranes provides productivity-enhancing lifting solutions as well as services for lifting equipment and machine tools of all makes. In 2010, Group sales totaled EUR 1,546 million. The Group has 10,000 employees at 578 locations in 46 countries. Konecranes is listed on the NASDAQ OMX Helsinki (symbol: KCR1V).

© 2011 Konecranes. All rights reserved. 'Konecranes', 'Lifting Businesses' and  are registered trademarks of Konecranes.



Konecranes Ausió S.L.U. Crta. Sant Hipòlit, 16 08500 Vic (Barcelona)
Tel. (+34) 938 860 422 Fax. (+34) 938 860 878 www.konecranes.com/es