

ABRA
CRANE

Product Catalogue

Overhead, gantry, process and Ex-Proof cranes, designed and built in İzmir.
250 kg – 160 t as standard; larger capacities per project.

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ABRA Crane

ABRA was founded in İzmir in 2004 to build cranes for explosive atmospheres and special process lines. Today it designs and builds overhead, gantry, process and explosion-protected cranes, with the engineering of the whole system in one place.



ABRA has been on the same site since 2004, and the plant has grown to 16,000 m². More than seventy people design and build cranes from 250 kg to 160 t as a standard selection; above that, cranes are engineered per project. Hoist units, end carriages and wheel groups, steel structures and operator cabins are made in the plant.

Maintenance contracts, technical service and spare parts sit under one roof, with on-site response within 48 hours anywhere in Türkiye. Cranes are designed to the harmonised EN standards and can be supplied with CE marking and an EU declaration of conformity under the Machinery Directive, as the project requires. ABRA cranes are in service across Europe, the Gulf, Africa, Central Asia and Latin America.

2004
founded, same site since

16,000 m²
plant, Torbalı, İzmir

70+
people

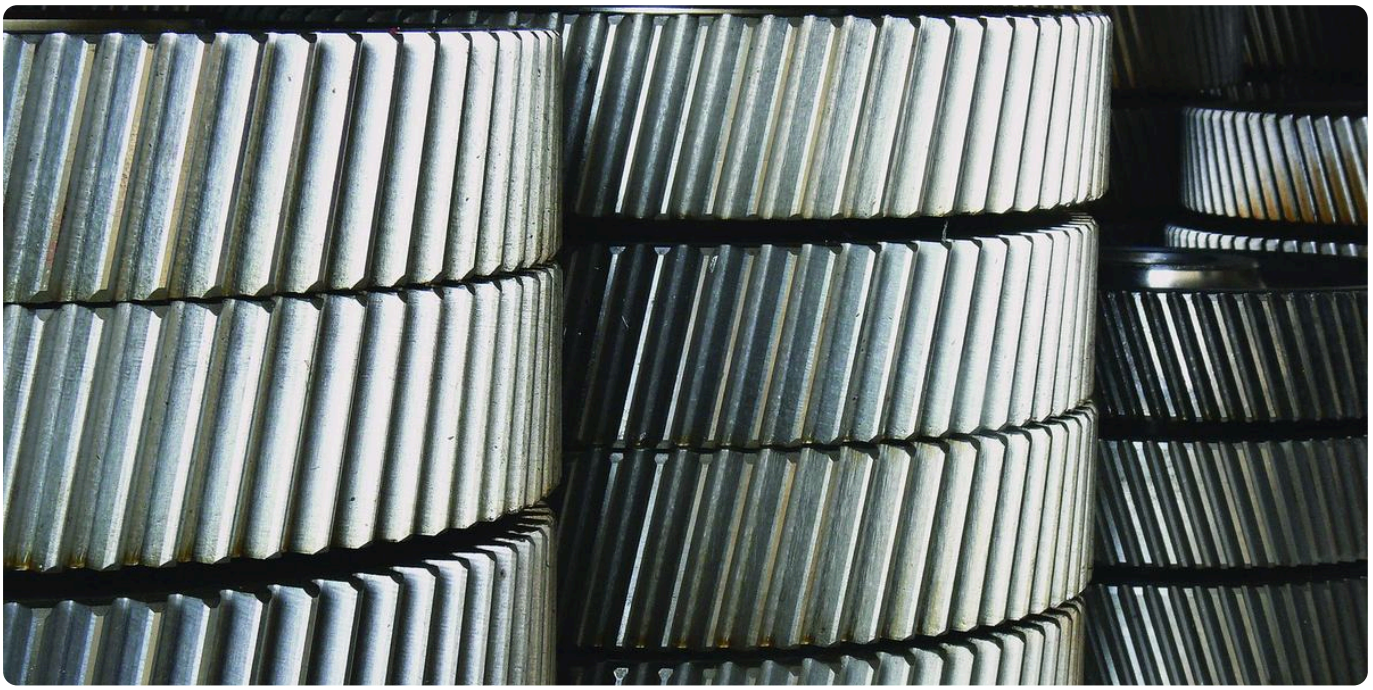
2,500+
cranes installed

250 kg – 160 t
standard selection · above 160 t engineered per project

ISO M3 – M8
duty classes built to

Built in İzmir

The assemblies that carry the load are designed and manufactured in the ABRA plant, so the lifting machine and the structure carrying it come out of one engineering office.



Hoist Units

Wire rope hoists 250 kg – 160 t, series BR23 to BR68; drum, reeving and motor selected together against the load spectrum and the duty class

Steel Structure

Girders, legs, columns and jibs; EN 1090 execution class EXC3, EN ISO 3834-2 welding quality with approved WPS/WPQR, weld testing by VT, MT, PT and UT

End Carriages and Wheel Groups

Built to the span, the wheel load and the runway; wheel loads calculated to FEM 1.001

Operator Cabins

Fixed or travelling with the trolley, designed with the crane

For explosion-protected cranes, the gearbox of the hoist unit is also manufactured in the plant and certified with the crane.

Inverter drives, radio and pendant control, overload electronics and busbar and festoon supply are specified and integrated under ABRA engineering. Installation and load testing are undertaken by ABRA.

Product Range

ABRA product families and their standard selection ranges. Crane duty class FEM 1Bm – 5m (ISO M3 – M8), set per project.

PRODUCT FAMILY	STANDARD RANGE	PAGE
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Above 160 t, cranes are engineered per project. Standard selection values. Project values are issued with the quotation.

Double Girder Overhead Crane

Two main girders with a top-running trolley, for heavy capacities, long spans and continuous duty. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



250 kg – 160 t
standard selection range · above 160 t engineered per project

32 m
span as standard

30 m
hook height

FEM 1Bm – 5m
crane duty class · ISO M3 – M8, defined per project

Where a Double Girder Fits

The trolley runs on top of the two girders, so the hook goes higher and the crane carries more load in the same building. From 12.5 t the crane is built as double girder. Between 1 and 12 t either structure is possible, and a double girder is chosen when:

- a long span and a high capacity have to work together
- the crane runs heavy, multi-shift or continuous cycles
- an operator cabin or a maintenance walkway is mounted on the crane
- purpose-built lifting equipment works below the hook
- the building needs more hook height than one girder gives

Sized in Engineering

The duty class is set from the load spectrum and the running hours, and the girders are designed to that class. Materials, coating and protection follow the environment the crane works in. Capacity and span are paired per project, because a longer span lowers the load a girder carries at the same duty class.

Girders, end carriages, hoist units and operator cabins are built in the ABRA plant in İzmir.



Equipment and Options

- Two-speed drives on hoisting, cross travel and long travel as standard; inverter control with stepless speed on all motions as an option
- Soft start and stop on all motions
- Radio remote control, pendant or operator cabin; the cabin fixed or travelling with the trolley
- Anti-sway control and anti-collision
- Assisted automation: position memory and target positioning, run automatically under the operator's supervision
- ABRA Crane Tracking: running hours, load spectrum, overload events, brake operations and faults
- Redundant hoisting brake, auxiliary hoist, weighing, special hooks and lifting attachments

Ex Explosion-protected version for gas Zone 1 – 2 and dust Zone 21 – 22

Technical Summary

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU

Main Data

Capacity	Standard selection range 250 kg – 160 t; above 160 t engineered per project
Span	32 m as standard; longer spans are engineered as a special project
Hook height	30 m; standard hoist units 4 – 28 m
Crane duty class	FEM 1Bm – 5m (ISO M3 – M8), classified per ISO 4301-1 for the actual load spectrum and cycles
Hoist unit duty class	FEM 1Am (ISO M4) or FEM 2m (ISO M5) as standard; heavier classes per project
Rope reeving	2/1 · 4/1 · 6/1 · 8/1 · 12/2 depending on capacity
Drives	Two-speed hoisting, cross travel and long travel as standard; inverter control with stepless speed on all motions as an option
Control	Radio remote control, pendant, or operator cabin
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C standard; other ranges per project
Explosion-protected version	Available for gas Zone 1 – 2 and dust Zone 21 – 22 under 2014/34/EU; project data issued with the quotation

Safety Equipment

Standard on Every Crane

- Emergency stop
- Upper and lower hoisting limit switches
- Cross travel and long travel limit switches
- Overload protection with load cell and rated capacity limiter (EN 14492-2, EN 15011, EN 12077-2)
- Buffers on trolley and end carriages
- Audible and visual warning

Options

- Anti-sway control
- Anti-collision with reflective photoelectric sensors: travel in that direction is cut when an object is detected
- Assisted automation: position memory, target positioning, ABRA Crane Tracking
- Operator cabin
- Auxiliary hoist, weighing, special hooks and lifting attachments

Functional Safety

A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1).

Standard Speeds · m/min

CAPACITY	HOISTING · CRANE	HOISTING · HOIST UNIT	CROSS TRAVEL	LONG TRAVEL
1 t	0 – 4	0 – 4	4 – 16	5 – 20
1.5 t	0 – 4	0 – 4	4 – 16	5 – 20
2 t	0 – 4	0 – 4	4 – 16	5 – 20
3.2 t	0 – 4	0 – 4 · 0 – 7	5 – 20	5 – 20
5 t	0 – 4	0 – 4 · 0 – 8	5 – 20	5 – 20
6.3 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
8 t	0 – 4	–	5 – 20	5 – 20
10 t	0 – 4	0 – 4	5 – 20	5 – 20
12 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
12.5 t	0 – 3.5	–	5 – 20	5 – 20
16 t	0 – 3.6	0 – 3.6	5 – 20	5 – 20
20 t	0 – 4	0 – 4	5 – 20	5 – 20
25 t	0 – 4	–	5 – 20 / 25	5 – 20 / 25 / 30
30 t	0 – 2.3	–	5 – 20 / 25	5 – 20 / 25 / 30
32 t	0 – 2.3	0 – 2.3	5 – 20 / 25	5 – 20 / 25 / 30
40 t	0 – 3.2	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
50 t	0 – 3.4	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
63 t	0 – 3	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
80 t	0 – 2	0 – 3.4	5 – 20 / 25 / 30	5 – 20 / 25 / 30
100 t	0 – 3.5	–	5 – 20 / 25 / 30	5 – 20 / 25 / 30
160 t	1 – 2.3	0 – 2.8	5 – 20 / 25 / 30	5 – 20 / 25 / 30

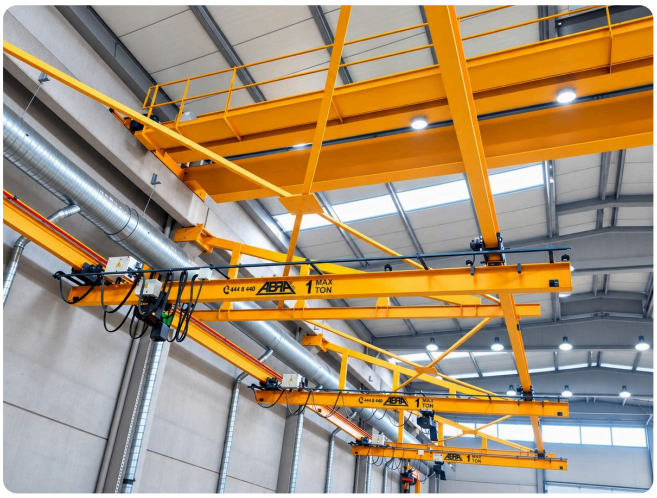
Hoisting · crane: standard crane speed. Hoisting · hoist unit: speed of the standard hoist units; two values where two reevings are listed, – where no standard hoist unit is listed for that capacity. Speed ranges are given for inverter control (option); the rated speeds of the standard two-speed drives are issued with the quotation. Other speeds are available on request and are fixed in the quotation. 1 – 12 t cranes are built as single or double girder; from 12.5 t upward as double girder.

Standard selection values. Project values are issued with the quotation.

Single Girder Overhead Crane

One main girder with an underhung or side-mounted wire rope hoist, for light to medium loads on moderate spans. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



250 kg – 12 t
standard selection table · higher single girder capacities engineered per project

30 m
span as standard

30 m
hook height

FEM 1Bm – 5m
crane duty class · ISO M3 – M8, defined per project

Where a Single Girder Fits

Up to 12 t, on 30 m spans and on light to medium cycles, one girder carries the work with less dead weight above the floor. A lighter crane also puts less load on the runway beams, the columns and the foundations. Where the load, the span, the duty or the hook height goes beyond this range, a double girder crane is the structure to compare.

Runway and Hoist Arrangement

Top-running. The end carriages run on rails on top of the runway beams, carried by brackets or columns. This arrangement covers the higher capacities and longer spans in the range.

Underslung. The crane runs on the lower flange of the runway beams, which can be carried by the roof structure. The floor beside the columns stays clear and the hook works closer to the wall. Designed per project, after the supporting steel is checked for the loads.

Underhung hoist. The trolley runs on the lower flange of the crane girder.

Side-mounted hoist. The trolley runs beside the girder and gives a higher hook position under the same runway.

Monorail Systems

A monorail carries the hoist along one fixed beam on a set route: along a production line, from a workstation to a dispatch area, or out through a wall opening. It suits repeat moves on a fixed path. The standard selection runs to 12 t, with underhung hoists from 250 kg to 6.3 t and side-mounted hoists from 1.6 to 12 t; above 12 t is engineered per project. The beam and its supports are calculated for the route.



Equipment and Options

- Two-speed drives on hoisting, cross travel and long travel as standard; inverter control with stepless speed on all motions as an option
- Soft start and stop on all motions
- Radio remote control, pendant or operator cabin
- Anti-sway control and anti-collision
- Assisted automation: position memory and target positioning, run automatically under the operator's supervision
- ABRA Crane Tracking: running hours, load spectrum, overload events, brake operations and faults
- Auxiliary hoist, weighing, special hooks and lifting attachments

Ex Explosion-protected version for gas Zone 1 – 2 and dust Zone 21 – 22

Technical Summary

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU

Main Data

Capacity	250 kg – 12 t in the standard selection table; 1 – 12 t is built as single or double girder, 12.5 t and above as double girder. Higher single girder capacities are engineered per project
Span	30 m as standard; longer spans are engineered as a special project
Hook height	30 m; standard hoist units 4 – 28 m
Hoist arrangement	Underhung trolley on the lower flange (series BR23, BR30) or side-mounted trolley beside the girder (series BR33, BR36)
Runway	Top-running end carriages on the customer runway; underslung (under-running) design per project
Crane duty class	FEM 1Bm – 5m (ISO M3 – M8), classified per ISO 4301-1 for the actual load spectrum and cycles
Hoist unit duty class	FEM 1Am (ISO M4) or FEM 2m (ISO M5) as standard; heavier classes per project
Rope reeving	2/1 · 4/1 depending on capacity and hoist unit
Drives	Two-speed hoisting, cross travel and long travel as standard; inverter control with stepless speed on all motions as an option
Control	Radio remote control, pendant, or operator cabin
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C standard; other ranges per project
Monorail systems	Standard selection to 12 t: underhung hoists 250 kg – 6.3 t, side-mounted hoists 1.6 – 12 t; above 12 t engineered per project. Beam and supports calculated for the route
Explosion-protected version	Available for gas Zone 1 – 2 and dust Zone 21 – 22 under 2014/34/EU; project data issued with the quotation

Safety Equipment

Standard on Every Crane

- Emergency stop
- Upper and lower hoisting limit switches
- Cross travel and long travel limit switches
- Overload protection with load cell and rated capacity limiter (EN 14492-2, EN 15011, EN 12077-2)
- Buffers on trolley and end carriages
- Audible and visual warning

Options

- Anti-sway control
- Anti-collision with reflective photoelectric sensors: travel in that direction is cut when an object is detected
- Assisted automation: position memory, target positioning, ABRA Crane Tracking
- Operator cabin
- Auxiliary hoist, weighing, special hooks and lifting attachments

Functional Safety

A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1). The scope of individual safety functions is fixed in the quotation.

Standard Speeds · m/min

CAPACITY	HOISTING · CRANE	HOISTING · HOIST UNIT	CROSS TRAVEL	LONG TRAVEL
0.25 t	0 – 4	0 – 4	4 – 16	5 – 20
0.5 t	0 – 4	0 – 4	4 – 16	5 – 20
1 t	0 – 4	0 – 4 · 0 – 5	4 – 16	5 – 20
1.5 t	0 – 4	0 – 4	4 – 16	5 – 20
2 t	0 – 4	0 – 4 · 0 – 5	4 – 16	5 – 20
3.2 t	0 – 4	0 – 4 · 0 – 7	5 – 20	5 – 20
5 t	0 – 4	0 – 4 · 0 – 8	5 – 20	5 – 20
6.3 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
8 t	0 – 4	–	5 – 20	5 – 20
10 t	0 – 4	0 – 4	5 – 20	5 – 20
12 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20

Hoisting · crane: standard crane speed. Hoisting · hoist unit: speed of the standard underhung and side-mounted hoist units; two values where two hoist units are listed for that capacity, – where no standard hoist unit is listed. Speed ranges are given for inverter control (option); the rated speeds of the standard two-speed drives are issued with the quotation. Other speeds are available on request and are fixed in the quotation.

Standard selection values. Project values are issued with the quotation.

Gantry Cranes

A bridge carried on two legs that run on ground-level rails, for yards and halls without a building runway. Single girder to 12 t, double girder for heavier capacities. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



12 t · 160 t
single girder to 12 t · double girder to 160 t in the standard selection table · above 160 t engineered per project

32 m
span as standard

4 – 28 m
hook height of standard hoist units · crane hook height per project

FEM 1Bm – 5m
crane duty class · ISO M3 – M8, defined per project

Where a Gantry Fits

The load runs down the legs into rails at ground level, so the building carries no crane runway. A gantry is chosen when:

- the work is outdoors, with no structure overhead
- the building steel was not designed for a crane runway, and legs cost less than reinforcing it
- a heavy load moves over a long span and a ground rail is the more economical load path

The legs travel in a corridor at floor level, and the rails sit on a foundation that carries the wheel loads. Where one side of the building can carry a runway and the other cannot, a semi-gantry crane is the structure to compare.



Rail and Foundation

Capacity, span and duty class are set from the load and the cycle. The wheel loads on the ground rails and the foundation loads are calculated and issued with the quotation; rail type, rail fixing and foundation design are agreed with the customer before manufacturing begins. For outdoor work, temperature, wind and ground conditions go into the calculation and the corrosion protection package is defined per project. Capacity and span are paired per project, because a longer span lowers the load a girder carries.

Girders, legs, end carriages, hoist units and operator cabins are built in the ABRA plant in İzmir.

Equipment and Options

- Two-speed drives on hoisting, cross travel and gantry travel as standard; inverter control with stepless speed on all motions as an option
- Soft start and stop on all motions
- Radio remote control, pendant or operator cabin; the cabin fixed or travelling with the trolley
- Anti-sway control and anti-collision
- Assisted automation: position memory and target positioning, run automatically under the operator's supervision
- ABRA Crane Tracking: running hours, load spectrum, overload events, brake operations and faults
- Redundant hoisting brake, auxiliary hoist, weighing, special hooks and lifting attachments
- Corrosion protection package for outdoor operation
- Explosion-protected version for gas Zone 1 – 2 and dust Zone 21 – 22

Technical Summary

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU

Main Data

Capacity	Single girder to 12 t; double girder from 1 t. Standard selection range 250 kg – 160 t; above 160 t engineered per project
Span	32 m as standard; longer spans are engineered as a special project
Hook height	Set per project from the site section; standard hoist units 4 – 28 m
Leg height and clearance	Per project
Crane duty class	FEM 1Bm – 5m (ISO M3 – M8), classified per ISO 4301-1 for the actual load spectrum and cycles
Hoist unit duty class	FEM 1Am (ISO M4) or FEM 2m (ISO M5) as standard; heavier classes per project
Rope reeving	2/1 · 4/1 · 6/1 · 8/1 · 12/2 depending on capacity
Drives	Two-speed hoisting, cross travel and gantry travel as standard; inverter control with stepless speed on all motions as an option
Control	Radio remote control, pendant, or operator cabin
Travel	Two legs on ground rails; rail, foundation and travel length designed per project
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C standard; other ranges per project
Outdoor operation	Corrosion protection package defined per project
Explosion-protected version	Available for gas Zone 1 – 2 and dust Zone 21 – 22 under 2014/34/EU; project data issued with the quotation

Safety Equipment

Standard on Every Crane

- Emergency stop
- Upper and lower hoisting limit switches
- Cross travel and gantry travel limit switches
- Overload protection with load cell and rated capacity limiter (EN 14492-2, EN 15011, EN 12077-2)
- Buffers on trolley and legs
- Audible and visual warning

Options

- Anti-sway control
- Anti-collision with reflective photoelectric sensors: travel in that direction is cut when an object is detected
- Assisted automation: position memory, target positioning, ABRA Crane Tracking
- Operator cabin
- Auxiliary hoist, weighing, special hooks and lifting attachments

Functional Safety

A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1). The scope of individual safety functions is fixed in the quotation.



Standard Speeds · m/min

CAPACITY	HOISTING · CRANE	HOISTING · HOIST UNIT	CROSS TRAVEL	GANTRY TRAVEL
0.25 t	0 – 4	0 – 4	4 – 16	5 – 20
0.5 t	0 – 4	0 – 4	4 – 16	5 – 20
1 t	0 – 4	0 – 4 · 0 – 5	4 – 16	5 – 20
1.5 t	0 – 4	0 – 4	4 – 16	5 – 20
2 t	0 – 4	0 – 4 · 0 – 5	4 – 16	5 – 20
3.2 t	0 – 4	0 – 4 · 0 – 7	5 – 20	5 – 20
5 t	0 – 4	0 – 4 · 0 – 8	5 – 20	5 – 20
6.3 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
8 t	0 – 4	–	5 – 20	5 – 20
10 t	0 – 4	0 – 4	5 – 20	5 – 20
12 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
12.5 t	0 – 3.5	–	5 – 20	5 – 20
16 t	0 – 3.6	0 – 3.6	5 – 20	5 – 20
20 t	0 – 4	0 – 4	5 – 20	5 – 20
25 t	0 – 4	–	5 – 20 / 25	5 – 20 / 25 / 30
30 t	0 – 2.3	–	5 – 20 / 25	5 – 20 / 25 / 30
32 t	0 – 2.3	0 – 2.3	5 – 20 / 25	5 – 20 / 25 / 30
40 t	0 – 3.2	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
50 t	0 – 3.4	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
63 t	0 – 3	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
80 t	0 – 2	0 – 3.4	5 – 20 / 25 / 30	5 – 20 / 25 / 30
100 t	0 – 3.5	–	5 – 20 / 25 / 30	5 – 20 / 25 / 30
160 t	1 – 2.3	0 – 2.8	5 – 20 / 25 / 30	5 – 20 / 25 / 30

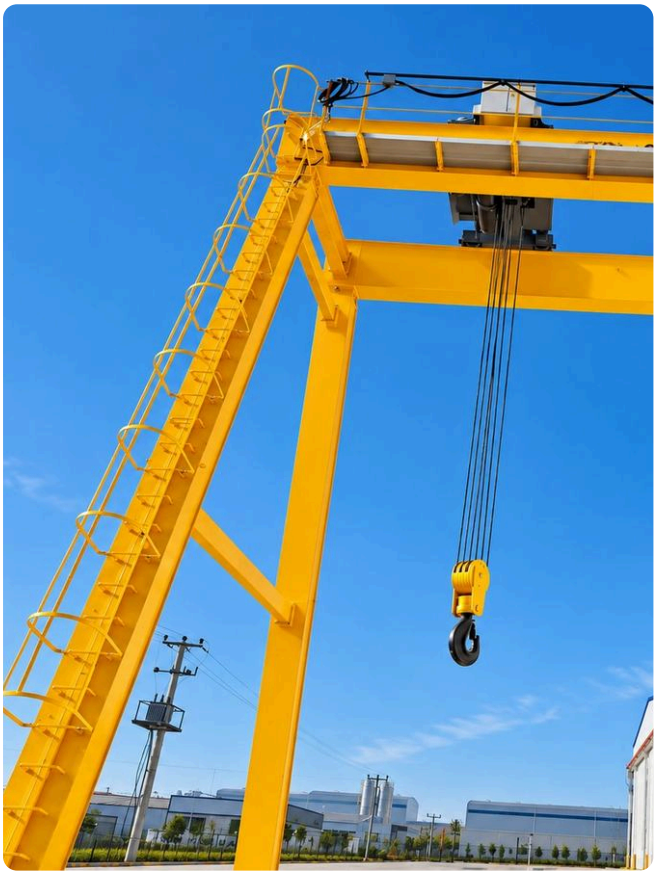
Hoisting · crane: standard crane speed. Hoisting · hoist unit: speed of the standard hoist units; several values where several units are listed for that capacity, – where no standard hoist unit is listed. Gantry travel: the crane long travel values apply. Speed ranges are given for inverter control (option); the rated speeds of the standard two-speed drives are issued with the quotation. Other speeds are available on request and are fixed in the quotation. 1 – 12 t cranes are built as single or double girder; from 12.5 t upward as double girder.

Standard selection values. Project values are issued with the quotation.

Semi-Gantry Cranes

A bridge with one end running on a wall or column runway and the other carried by a leg on a floor rail, for buildings where one side cannot take a runway. Single girder to 12 t, double girder for heavier capacities. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



12 t · 160 t
single girder to 12 t · double girder to 160 t in the standard selection table · above 160 t engineered per project

32 m
span as standard

4 – 28 m
hook height of standard hoist units · crane hook height per project

FEM 1Bm – 5m
crane duty class · ISO M3 – M8, defined per project

Where a Semi-Gantry Fits

On one side the bridge runs on a runway fixed to the existing wall or column line. On the other, a single leg carries the load into a floor rail. A semi-gantry is chosen when:

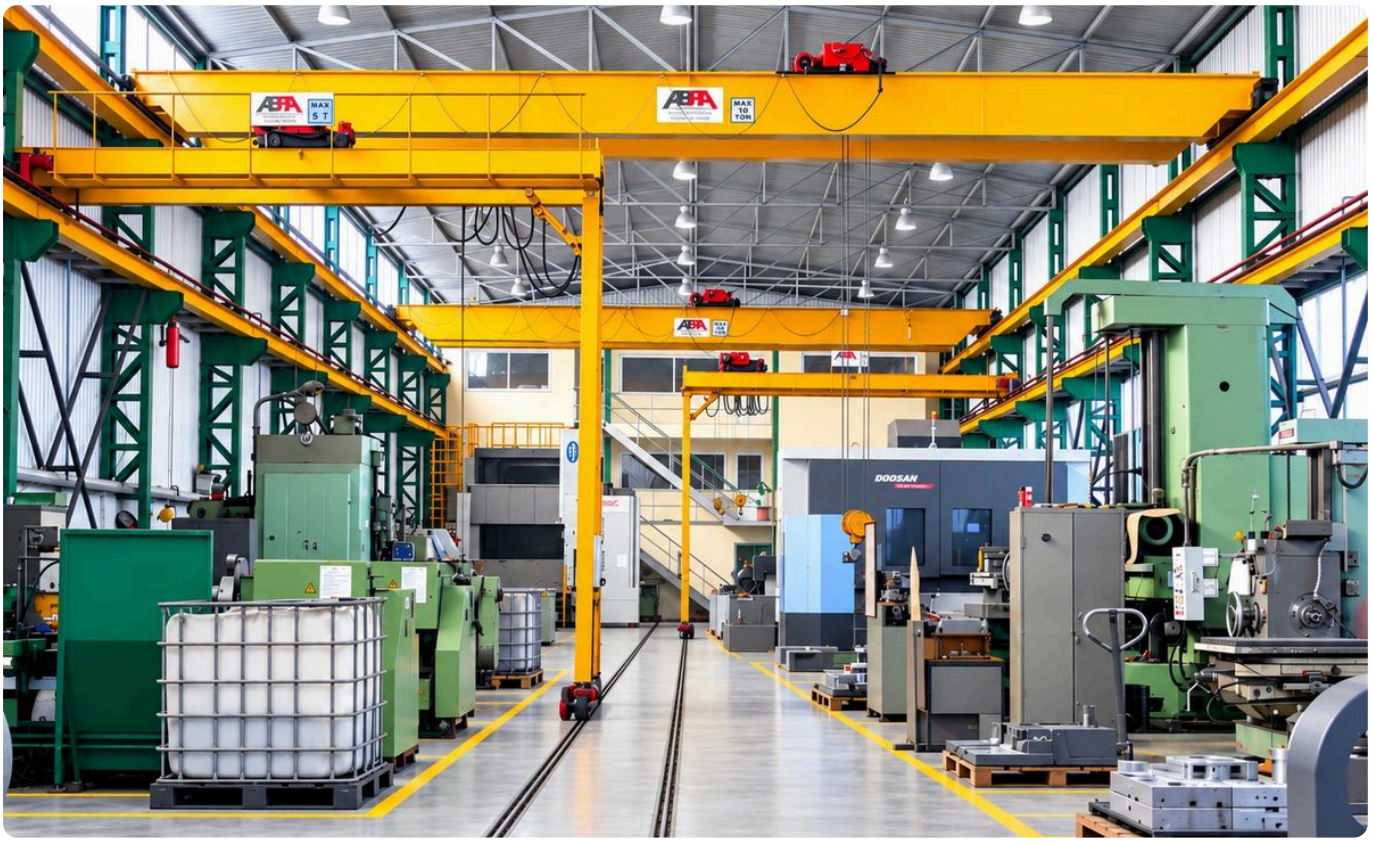
- the building can carry a runway on one side and not on the other
- floor traffic has to continue: the crane has one leg at floor level, placed on the side where vehicles do not run
- a second crane is needed below an existing overhead crane, on its own runway; clearances, travel zones and anti-collision between the two cranes are set per project

Where both sides are open ground, a gantry crane is the simpler structure.

Building Side and Floor Side

The runway side transfers vertical load and moment into the columns or the wall. The wheel loads on the building runway, the loads at the bracket and the wheel and foundation loads of the floor-rail leg are calculated and issued with the quotation. A structural check of the wall or column line is requested from the customer before manufacturing begins. The single leg puts its wheel loads on one rail line, so rail type, slab condition and foundation are part of the design from the start.

Girders, legs, end carriages, hoist units and operator cabins are built in the ABRA plant in İzmir.



Equipment and Options

- Two-speed drives on hoisting, cross travel and gantry travel as standard; inverter control with stepless speed on all motions as an option
- Soft start and stop on all motions
- Radio remote control, pendant or operator cabin; the cabin fixed or travelling with the trolley
- Anti-sway control and anti-collision
- Assisted automation: position memory and target positioning, run automatically under the operator's supervision
- ABRA Crane Tracking: running hours, load spectrum, overload events, brake operations and faults
- Redundant hoisting brake, auxiliary hoist, weighing, special hooks and lifting attachments
- Corrosion protection package for outdoor operation
- Explosion-protected version for gas Zone 1 – 2 and dust Zone 21 – 22

Technical Summary

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU

Main Data

Capacity	Single girder to 12 t; double girder from 1 t. Standard selection range 250 kg – 160 t; above 160 t engineered per project
Span	32 m as standard; longer spans are engineered as a special project
Hook height	Set per project from the site section; standard hoist units 4 – 28 m
Leg height and clearance	Per project
Crane duty class	FEM 1Bm – 5m (ISO M3 – M8), classified per ISO 4301-1 for the actual load spectrum and cycles
Hoist unit duty class	FEM 1Am (ISO M4) or FEM 2m (ISO M5) as standard; heavier classes per project
Rope reeving	2/1 · 4/1 · 6/1 · 8/1 · 12/2 depending on capacity
Drives	Two-speed hoisting, cross travel and gantry travel as standard; inverter control with stepless speed on all motions as an option
Control	Radio remote control, pendant, or operator cabin
Travel	One end carriage on the building runway, one leg on a floor rail; bracket, rail and foundation loads designed per project
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C standard; other ranges per project
Outdoor operation	Corrosion protection package defined per project
Explosion-protected version	Available for gas Zone 1 – 2 and dust Zone 21 – 22 under 2014/34/EU; project data issued with the quotation

Safety Equipment

Standard on Every Crane

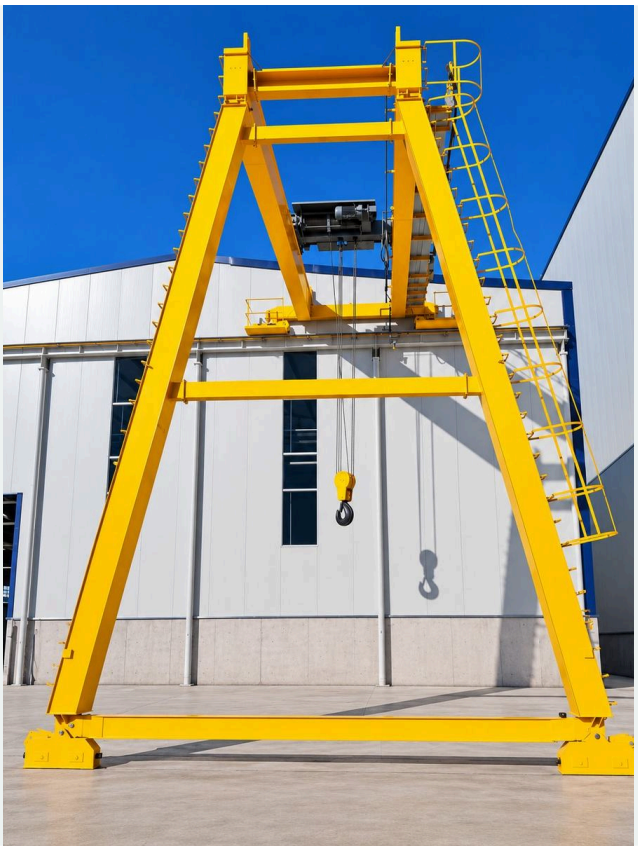
- Emergency stop
- Upper and lower hoisting limit switches
- Cross travel and gantry travel limit switches
- Overload protection with load cell and rated capacity limiter (EN 14492-2, EN 15011, EN 12077-2)
- Buffers on trolley and legs
- Audible and visual warning

Options

- Anti-sway control
- Anti-collision with reflective photoelectric sensors: travel in that direction is cut when an object is detected
- Assisted automation: position memory, target positioning, ABRA Crane Tracking
- Operator cabin
- Auxiliary hoist, weighing, special hooks and lifting attachments

Functional Safety

A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1). The scope of individual safety functions is fixed in the quotation.



Standard Speeds · m/min

CAPACITY	HOISTING · CRANE	HOISTING · HOIST UNIT	CROSS TRAVEL	GANTRY TRAVEL
0.25 t	0 – 4	0 – 4	4 – 16	5 – 20
0.5 t	0 – 4	0 – 4	4 – 16	5 – 20
1 t	0 – 4	0 – 4 · 0 – 5	4 – 16	5 – 20
1.5 t	0 – 4	0 – 4	4 – 16	5 – 20
2 t	0 – 4	0 – 4 · 0 – 5	4 – 16	5 – 20
3.2 t	0 – 4	0 – 4 · 0 – 7	5 – 20	5 – 20
5 t	0 – 4	0 – 4 · 0 – 8	5 – 20	5 – 20
6.3 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
8 t	0 – 4	–	5 – 20	5 – 20
10 t	0 – 4	0 – 4	5 – 20	5 – 20
12 t	0 – 3.5	0 – 3.5	5 – 20	5 – 20
12.5 t	0 – 3.5	–	5 – 20	5 – 20
16 t	0 – 3.6	0 – 3.6	5 – 20	5 – 20
20 t	0 – 4	0 – 4	5 – 20	5 – 20
25 t	0 – 4	–	5 – 20 / 25	5 – 20 / 25 / 30
30 t	0 – 2.3	–	5 – 20 / 25	5 – 20 / 25 / 30
32 t	0 – 2.3	0 – 2.3	5 – 20 / 25	5 – 20 / 25 / 30
40 t	0 – 3.2	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
50 t	0 – 3.4	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
63 t	0 – 3	0 – 2.3	5 – 20 / 25 / 30	5 – 20 / 25 / 30
80 t	0 – 2	0 – 3.4	5 – 20 / 25 / 30	5 – 20 / 25 / 30
100 t	0 – 3.5	–	5 – 20 / 25 / 30	5 – 20 / 25 / 30
160 t	1 – 2.3	0 – 2.8	5 – 20 / 25 / 30	5 – 20 / 25 / 30

Hoisting · crane: standard crane speed. Hoisting · hoist unit: speed of the standard hoist units; several values where several units are listed for that capacity, – where no standard hoist unit is listed. Gantry travel: the crane long travel values apply. Speed ranges are given for inverter control (option); the rated speeds of the standard two-speed drives are issued with the quotation. Other speeds are available on request and are fixed in the quotation. 1 – 12 t cranes are built as single or double girder; from 12.5 t upward as double girder.

Standard selection values. Project values are issued with the quotation.

Jib Cranes

Slewing jib cranes for a single workplace: column-mounted types slewing 360° or 270° and a wall-mounted type slewing 180°, with an ABRA wire rope hoist on the jib. Installation and load testing are undertaken by ABRA.



250 kg – 5 t
standard selection table

2.5 – 5 m
outreach as standard · above 5 m engineered per project

3 · 4 · 5 m
hook height in the standard table

360° · 270° · 180°
slewing range by type · 1 rpm

Where a Jib Fits

A jib crane serves one machine or one station within the circle of its jib. It is chosen when:

- the lifting comes from one station: a machine tool, a welding bench, a press, or a pump or motor taken off its base for service
- the load moves along a radius, from the machine to the bench and back
- an overhead crane runs in the building, and a short, repeated lift at one station would take it out of production
- the building cannot take a crane runway

Where the load has to travel the length of the building, an overhead crane is the structure to compare.

Column and Wall Types

Column type, 360° or 270°. The column stands on a concrete foundation or a base plate and carries its load into the floor, with no wall or runway needed. The 360° types turn through a full circle; the 270° types suit a station beside a wall or a machine. Slewing is electric or manual.

Wall-mounted type, 180°. The jib is carried by a wall or a building column and the floor stays clear. Slewing is electric.

Wall-travelling jib crane. The jib is mounted on a runway fixed to a wall or a column line and travels along it, serving a strip beside the wall such as a line of machines. Capacity, slewing range, travel length and the loads into the runway and the columns are engineered per project.

Capacity, Outreach and Foundation

Capacity and outreach together set the moment carried by the column and the foundation, so the enquiry gives both. Vertical force, overturning moment, anchor pattern and foundation dimensions are issued with the quotation.

Columns, jibs, hoist units and trolleys are built in the ABRA plant in İzmir.



Equipment and Options

- ABRA wire rope hoist, underhung on the jib; two-speed hoisting and trolley travel as standard, inverter control with stepless speed as an option
- Pendant or radio remote control
- Electric slewing at 1 rpm or manual slewing, by type
- Slewing range limitation, limit switches and slewing lock, per project
- Audible and visual warning
- Outdoor package to ISO 12944 C4 and special lifting attachments

Technical Summary

Main Data

Capacity	250 · 500 · 1 000 · 1 500 · 2 000 · 2 500 · 3 200 · 5 000 kg in the standard table
Outreach	2.5 · 3 · 3.5 · 4 · 4.5 · 5 m as standard; above 5 m engineered per project
Hook height	3 · 4 · 5 m in the standard table; other heights per project
Slewing	360° · 270° (column types) · 180° (wall-mounted); 1 rpm on electric types
Trolley travel	4 – 16 m/min along the jib; two-speed as standard, stepless with inverter control as an option
Hoist unit	ABRA wire rope hoist, underhung on the jib; hoisting speed per hoist unit selection
Hook	DIN 15401 forged hook, single hook block
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Control voltage	24 V control circuit
Control	Pendant or radio remote control
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C, indoor and outdoor
Corrosion protection	Paint system to ISO 12944: C3 indoor · C4 outdoor
Foundation	Concrete foundation or base plate; anchor design issued with the quotation

Jib Types

TYPE	MOUNTING	SLEWING	SLEWING DRIVE
BRFE	Column, on foundation or base plate	360°	Electric
BRFM	Column, on foundation or base plate	360°	Manual
BRHE	Column	270°	Electric
BRHM	Column	270°	Manual
BRWE	Wall or building column, wall-mounted	180°	Electric

All five types are selected from the same table: every capacity from 250 to 5 000 kg at every outreach from 2.5 to 5 m, with a hook height of 3, 4 or 5 m. Outreach above 5 m and capacities above 5 t are engineered per project. Slewing range limitation, slewing brake and slewing lock are defined per project.

Example Loads on the Foundation

CAPACITY	OUTREACH	VERTICAL FORCE	MOMENT AT FOUNDATION
1 000 kg	4 m	12.65 kN	46.70 kNm
2 000 kg	4 m	22.76 kN	86.71 kNm
3 200 kg	5 m	39.24 kN	184.68 kNm

Example values, column type: vertical force and overturning moment at the foundation for the selected capacity and outreach. Project values, anchor pattern and foundation dimensions are issued with the quotation.

Safety Equipment

Standard on Every Jib Crane

- Emergency stop
- Upper and lower hoisting limit switches
- Trolley end stops and buffers on the jib
- Overload protection with load cell and rated capacity limiter (EN 14492-2)

Options

- Radio remote control
- Slewing range limitation, limit switches and slewing lock (per project)
- Audible and visual warning
- Outdoor package to ISO 12944 C4 · special lifting attachments

Functional Safety

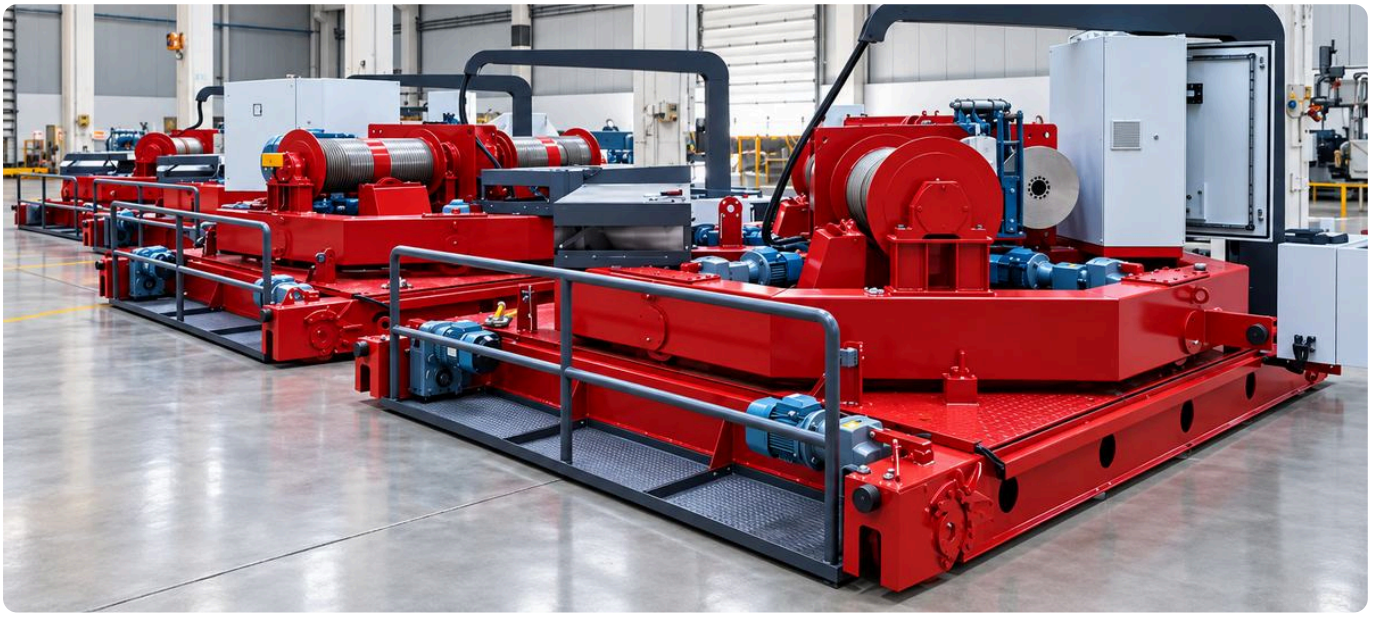
A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1). The scope of individual safety functions is fixed in the quotation.

Standard selection values. Project values are issued with the quotation.

Process Cranes

Overhead cranes engineered around a production process: the heat, the cycle and the load set the design, and the duty class follows from them. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



250 kg – 160 t
standard selection range · above 160 t engineered per project · capacity set by the process

FEM 1Bm – 5m
duty class at the high end of the range · ISO M3 – M8, calculated from the load spectrum

Main + auxiliary
hoist, where the process needs two independent motions

–10 °C to +50 °C
standard equipment · higher ambient engineered per project

Process Crane or Standard Overhead Crane

A crane inside a process repeats a defined move on a defined interval, and the line waits for it. Against a standard overhead crane, four things change:

- the duty class is calculated from the measured load spectrum and the running hours
- the process conditions are designed into the machine: ambient temperature, radiant heat, chemical or solvent exposure, dust, washdown or a classified area, each of which changes component selection, material, protection class and lubrication
- positioning accuracy is part of the specification where the load has to land in the same place every time
- maintenance access is built into the structure, with platforms and walkways on the crane

Where a standard build answers the conditions, a standard overhead crane is the structure to compare.

Environment, Cycle and Load Behaviour

Environment. Radiant heat acts on the hoist unit, the ropes and the electrics. Acid vapour and condensate decide the coating system and the material of exposed parts. Abrasive or combustible dust sets the protection class and the surface temperature limit. Protection is specified for the position of each component. At a steel and scrap plant, a 75 / 20 / 2×5 t ladle crane built by ABRA works around the clock in an 85 °C ambient.

Cycle. A crane that repeats the same move every few minutes builds up load cycles quickly, so the duty class is calculated from the load spectrum and the running hours.

Load behaviour. A liquid load swings, a charging load drops abruptly, and a long load on a lifting beam loads two points at once. Inverter-based sway control and inverter travel keep the load steady at the set-down point.

Hoist units, girders, end carriages and operator cabins are built in the ABRA plant in İzmir.

Equipment and Options

- Main and auxiliary hoist, where the process needs two independent motions
- Two-speed drives as standard; inverter control on all motions as an option, with inverter-based sway control and stepless hoisting with slow, accurate lowering
- Soft start and stop on all motions
- Operator cabin, fixed or travelling with the trolley; radio remote control or pendant
- Redundant hoisting brake
- Anti-collision for cranes sharing one runway
- Maintenance platform and walkway on the crane
- Audible and visual warning
- Assisted automation and ABRA Crane Tracking
- Explosion-protected version for gas Zone 1 – 2 and dust Zone 21 – 22

Main Data

Capacity	Per project; standard selection range 250 kg – 160 t, above 160 t engineered per project
Span and hook height	Per project, from the runway geometry and the process layout
Girder type	Single or double girder, set by the process
Crane duty class	Defined per project, at the high end of FEM 1Bm – 5m (ISO M3 – M8)
Hoisting	Main and auxiliary hoist where the process needs two independent motions; speeds per project
Rope reeving	2/1 · 4/1 · 6/1 · 8/1 · 12/2

Drives	Two-speed as standard; inverter control on all motions as an option
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C standard equipment; higher ambient engineered per project
Overload protection	Load cell and rated capacity limiter, standard (EN 14492-2)
Functional safety	Minimum PL c as standard; PL d or PL e where the risk assessment or the project specification requires it (EN ISO 13849-1)

Project values are issued with the quotation.

Ladle Crane for a Steel and Scrap Plant · Built in İzmir







Hoist unit and hook block for the 75 / 20 / 2×5 t ladle crane on page 50, leaving the ABRA plant in İzmir.

Automated Crane Systems

Assisted automation on an ABRA crane: position memory, target positioning, anti-sway and repeatable movement. The crane carries out the move automatically; the operator selects it, supervises it and can stop it at any point.



4 functions
position memory · target positioning · anti-sway · repeatable movement

Inverter-based
anti-sway from the drive profile

PL c
minimum performance level as standard · PL d or PL e where the project requires it

Retrofit
ABRA Crane Tracking fits cranes of other manufacturers

What the Automation Does

- Position memory: the crane stores the points it works between.
- Target positioning: the operator selects a stored point and the crane drives to it automatically.
- Anti-sway: the drive profile is shaped so the load stops when the crane stops.
- Repeatable movement: a sequence runs the same way each time it is called.

Anti-sway works through the inverter: acceleration and deceleration are shaped so the swing put into the load is taken out before the crane stops. The stored points and the drive profile are set at commissioning, on site, with the operators. An automated crane usually runs a tighter cycle, and the duty class (FEM 1Bm – 5m / ISO M3 – M8) is sized for that cycle.

The crane's working area is physically closed to personnel while it runs automatically. Where an access point cannot be avoided, safety light barriers or similar devices cover it and an emergency stop is triggered the moment a person enters.

ABRA Crane Tracking

PLC-based monitoring that reads the crane's own control data and records it continuously:

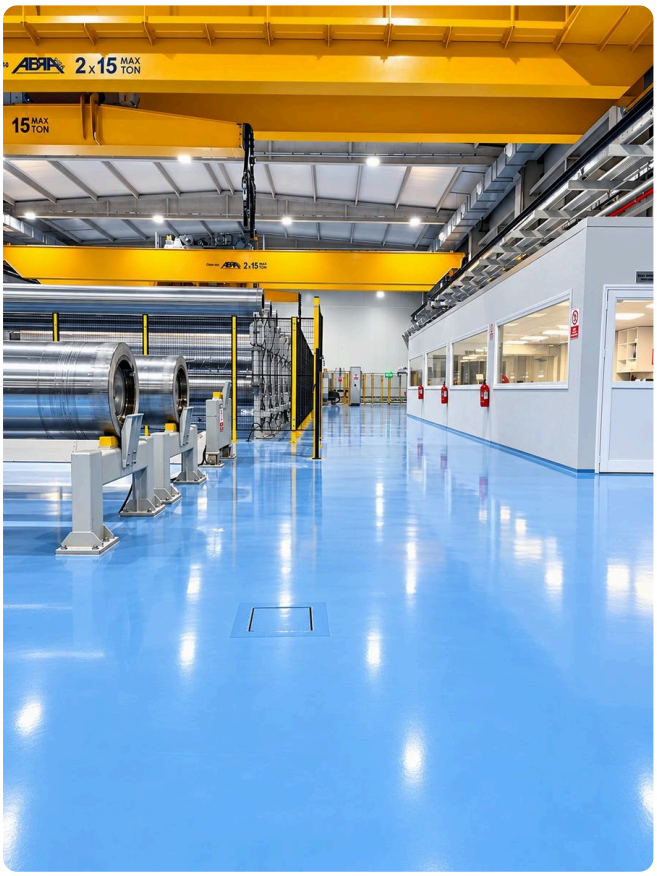
- running hours and work cycles, with time under load and time running empty
- loads lifted, load spectrum and overload events
- brake operations
- faults and warning events
- operation against the designed duty class, and time to the next maintenance

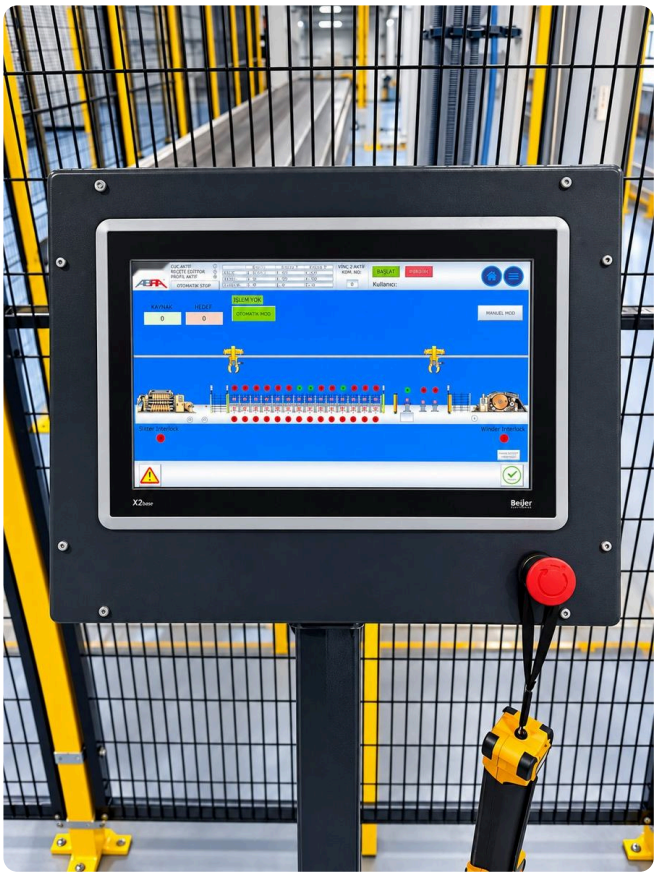
Data stays on a closed internal network; secure remote access is optional. Crane Tracking can be fitted to cranes of other manufacturers. The data available on an existing crane depends on its control system and is assessed per crane before the quotation.

Main Data

Automation scope	Assisted: position memory · target positioning · anti-sway · repeatable movement; moves run automatically, the operator selects, supervises and can stop them
Anti-sway method	Inverter-based, from the drive profile
Drives	Inverter-controlled hoisting and travel, required for assisted automation and anti-sway
Control	Radio remote control, pendant or operator cabin; the functions work from the operator's own control
Working area	Physically closed to personnel during automatic operation; safety light barriers or similar devices at unavoidable access points, with emergency stop on entry
Crane duty class	FEM 1Bm – 5m (ISO M3 – M8), per project
ABRA Crane Tracking	PLC-based · running hours, load spectrum, overload events, brake operations, faults · closed internal network, secure remote access optional · fits other makes
Functional safety	Minimum PL c as standard; PL d or PL e where the risk assessment or the project specification requires it (EN ISO 13849-1)

Project values are issued with the quotation.





Ex-Proof Crane Systems

Cranes for classified areas, engineered to the zone code in the specification: gas Zone 1 – 2 and dust Zone 21 – 22 under 2014/34/EU. The hoist unit and its gearbox are built and certified in the ABRA plant in İzmir. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



Zone 1 – 2
gas · equipment 2G / 3G

Zone 21 – 22
dust · equipment 2D / 3D

2014/34/EU
equipment certified with a notified body

Per project
capacity, span, duty class, gas group, dust group, temperature class

How It Differs from a Standard Crane

A plant is usually classified in one area: a production section, a filling line or a silo. The explosion-protected crane working there is designed from the load, the span, the duty cycle and the zone code of the site. Electrical equipment is certified Ex equipment selected for the zone, contact surfaces use non-sparking materials, and the surface temperature is a design limit set by the temperature class.

Two Ignition Paths

Electrical. Switching arcs in motors, brakes and panels, hot windings and loose terminals. These are covered by the protection concept of each certified item: flameproof enclosure, increased safety, dust-tight enclosure.

Mechanical. Friction and impact sparks from the hook, rope, wheels, gears and bearings, and the surface temperature that friction creates. These are covered in the construction: gearing running in oil, non-sparking contact surfaces, and surface temperature verified against the temperature class.

Both paths are assessed and documented separately in each project.

Hoist Unit and Gearbox

The hoist unit carries most of the risk: motor, brake, gearbox and rope drum sit in one load path. The hoist unit and its gearbox are built and certified in the ABRA plant, so the protection concept is set with the load calculation, on the same drawing.

Rating

Non-sparking materials are less strong than the alloy steels of a standard build, and an Ex motor needs thermal headroom below its surface temperature limit. Capacity, speed and duty class are calculated with the material; the de-rating against the standard build is stated in the quotation.

Zone classification and the explosion protection document are the site operator's duty; the crane is engineered from the site's zone map.



Technical Framework

Project Framework

Gas zone	Zone 1 and Zone 2 (equipment 2G / 3G)
Dust zone	Zone 21 and Zone 22 (equipment 2D / 3D)
Gas group, dust group, temperature class	Defined per project against the code in the specification
Crane type	Single girder, double girder, gantry or process crane, as the installation requires
Capacity, span, hook height	Per project, calculated with the material and the protection concept
Duty class	FEM / ISO duty class per project; de-rating stated in the quotation
Hoist unit and gearbox	ABRA manufacture, certified
Drives	Ex motors selected for the zone; speeds per project
Control	Pendant control, specified per zone
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Certification	2014/34/EU; unit verification (Module G) by a notified body; the ABRA-built Ex gearbox under Module A
Ex standards	EN 1127-1 · EN IEC 60079 series · EN ISO 80079-36 / -37
Marking	Issued with the equipment documentation of the certified unit

Component Protection

COMPONENT	IGNITION PATH	PROTECTION
Hoist motor	Electrical	Flameproof enclosure or increased safety; dust-tight enclosure in dust zones; selected per zone
Brake	Electrical, friction heat	Within the motor protection assembly; friction heat assessed as a non-electrical source
Gearbox	Mechanical	Constructional safety, gearing in an oil bath, surface temperature verified; ABRA manufacture, certified
Rope drum and rope	Mechanical	Load path and friction points assessed; part of the ABRA hoist unit
Hook and bottom block	Impact spark	Bronze-plated hook, non-sparking contact surfaces
Travel drives	Electrical, mechanical	Same protection family as the hoist drive, per zone
Trolley collision	Impact spark	Anti-collision, option per project
Control panel	Electrical	Flameproof switching with increased-safety terminals
Pendant control	Electrical	Protected enclosure or intrinsically safe circuit, per zone
Limit switches	Electrical	Protected switching element in a protected enclosure
Wheels and rails	Friction spark	Contact surface material reviewed against the zone
Buffers	Impact spark	Non-sparking material
Structure	Static discharge	Earthing and bonding route defined

Safety Equipment

- Overload protection with load cell and rated capacity limiter, standard (EN 14492-2)
- Spring-applied electromagnetic brakes, closing when power is removed
- Static earthing and bonding of the structure
- Anti-collision on trolleys, load display and ABRA Crane Tracking as options

Functional Safety

A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1).

Project values are issued with the quotation.

Hoist Units

Wire rope hoist units in three arrangements: on a top-running trolley for double girder cranes, underhung on the lower flange of a single girder or monorail beam, and side-mounted beside a single girder. Installation and load testing are undertaken by ABRA.

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU



250 kg – 160 t
standard selection range across the three arrangements · above 160 t engineered per project

4 – 28 m
hook height in the standard tables

0 – 8 m/min
hoisting speed range with inverter control (option) · two-speed as standard

FEM 1Am · 2m
hoist unit duty class · ISO M4 · M5

Three Arrangements

Double girder hoist, 1 – 160 t. The trolley runs on top of two girders. It covers the high capacities and the longest hook path, and is used on double girder overhead, gantry and semi-gantry cranes.

Underhung hoist, 250 kg – 6.3 t. The trolley runs on the lower flange of a single girder or a monorail beam. A compact unit for installations with a low headroom requirement.

Side-mounted hoist, 1.6 – 12 t. The trolley runs beside the girder and the hook rises above the lower flange, giving a higher hook position under the same runway.

The arrangement follows the crane and the building. Capacity and duty class are then set from the load spectrum.

Duty Class at Machine Level

A hoist unit rated FEM 2m / ISO M5 is rated for 40 % ED; one rated FEM 1Am / ISO M4 for 30 % ED. Drum, reeving and motor are selected together against the load spectrum and the duty class. At crane level the duty class runs FEM 1Bm – 5m (ISO M3 – M8), set per project.

Hoist units and trolleys are built in the ABRA plant in İzmir.



Equipment and Options

- Two-speed hoisting and trolley travel as standard; inverter control with stepless speed as an option
- Soft start and stop on all motions
- Spring-applied electromagnetic hoisting brake, closing when power is removed
- Overload protection with load cell and rated capacity limiter, standard
- Redundant hoisting brake, weighing, special hooks and lifting attachments
- Speeds, hook heights and duty classes outside the standard tables, per project
- ABRA Crane Tracking
- Explosion-protected version for gas Zone 1 – 2 and dust Zone 21 – 22

Technical Summary

Explosion-protected version
gas Zone 1 – 2 · dust Zone 21 – 22 · 2014/34/EU

Main Data by Arrangement

	DOUBLE GIRDER HOIST	UNDERHUNG HOIST	SIDE-MOUNTED HOIST
Capacity	1 – 160 t in the standard table; above 160 t engineered per project	250 kg – 6.3 t in the standard table	1.6 – 12 t in the standard table
Series	BR23 · BR33 · BR36 · BR46 · BR58 · BR68	BR23 to 2 t · BR30 from 1 t	BR33 to 6.3 t · BR36 from 5 t
Hook height	4 – 28 m	4 – 8 m (BR23) · 8 – 28 m (BR30)	8 – 28 m
Hoisting speed	0 – 2.3 to 0 – 8 m/min with inverter control	0 – 3.5 to 0 – 8 m/min with inverter control	0 – 3.5 to 0 – 8 m/min with inverter control
Trolley travel	4 – 16 or 5 – 20 m/min; 5 – 16 m/min on BR68	4 – 16 m/min on the lower flange	4 – 16 m/min (BR33) · 5 – 20 m/min (BR36)
Rope reeving	2/1 · 4/1 · 6/1 · 8/1 · 12/2	2/1 · 4/1	2/1 · 4/1
Girder interface	Trolley wheel centres 246 – 1 100 mm depending on series; per project drawing	Trolley set to the customer girder profile; flange width and headroom dimension per project	Trolley wheels on the lower flange, hoist body beside the girder; girder profile and hook approach per project

Hook heights, speeds and reeving follow the standard selection tables; other values per project. Speed ranges are given for inverter control (option); the rated speeds of the standard two-speed drives are issued with the quotation.

Common Data

Duty class	FEM 1Am / ISO M4 (30 % ED) or FEM 2m / ISO M5 (40 % ED)
Drives	Two-speed hoisting and trolley travel as standard; inverter control with stepless speed as an option
Brake	Spring-applied electromagnetic brake, closing when power is removed; safety factor 2.5 on hoisting, 1.5 on trolley travel; release time around 0.3 s
Rope and hook	Wire rope Ø6 – Ø18 mm, 6×36 WS or 18×7 construction, 1960 N/mm²; single or double hook block on double girder hoists, single hook block on underhung and side-mounted hoists
Control	Radio remote control or pendant, through the crane control
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C standard; other ranges per project
Explosion-protected version	Available for gas Zone 1 – 2 and dust Zone 21 – 22 under 2014/34/EU; project data issued with the quotation

Safety Equipment

Standard on Every Hoist Unit

- Overload protection with load cell and rated capacity limiter (EN 14492-2)
- Upper and lower hoisting limit switches
- Trolley travel limit switches and buffers
- Emergency stop through the crane control
- Spring-applied hoisting brake, closing on power loss

Options

- Redundant hoisting brake
- Weighing
- Special hooks and lifting attachments
- Speeds, hook heights and duty classes outside the table

Functional Safety

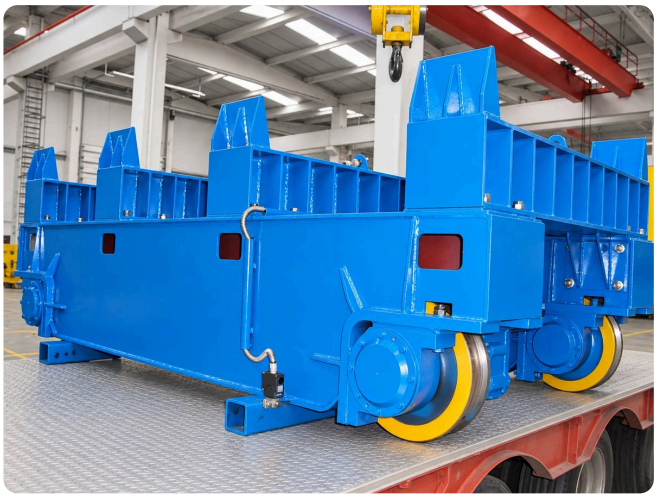
A minimum performance level of PL c is provided as standard; PL d or PL e is applied where the risk assessment or the project specification requires it (EN ISO 13849-1). The scope of individual safety functions is fixed in the quotation.

Standard selection values. Project values are issued with the quotation.

Transfer Cars

Motorised platforms that carry heavy loads horizontally at floor level, between halls or stations, from 1 to 100 t. The crane sets the load down at one end, the car carries it across, and the equipment at the far end takes it off.

Rail-guided cars run on a fixed line with repeatable stopping positions and suit heavy loads and frequent cycles. Rubber-tyred cars run without rails where the route has to change or the floor cannot take rails. Rail profile, gauge and tolerances, and the wheel loads transferred to the slab, are calculated per project and issued with the quotation.

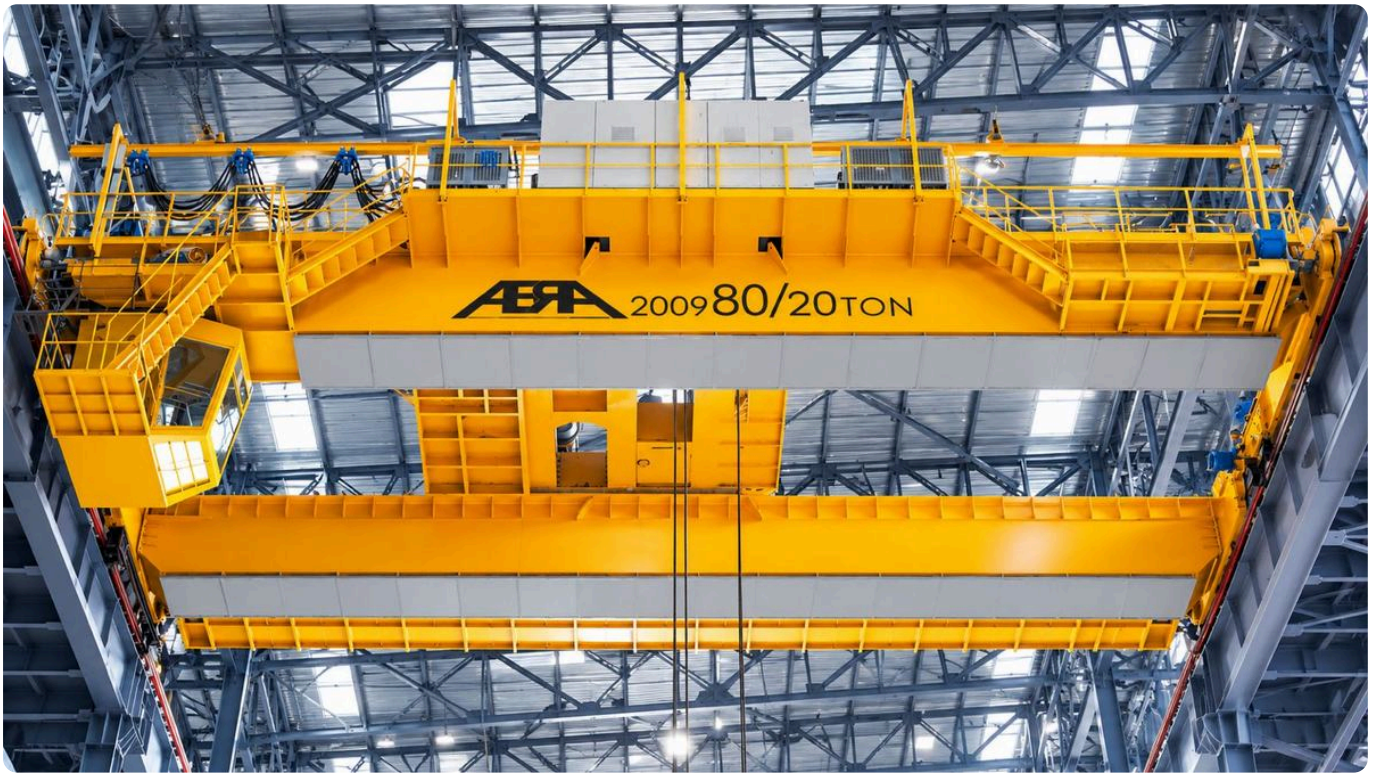


Capacity	1 – 100 t, built to the application; deck sized to the load
Guidance	Rail-guided, or rubber-tyred without rails
Travel control	Two-speed as standard; inverter-controlled as an option
Control	Manual control or radio remote control
Safety equipment	Area scanner sensors at the route ends · ultrasonic sensors · bumpers · emergency stop · audible and visual warning · load securing on the deck
Power supply	380 – 415 V, 50 Hz; 60 Hz for export projects
Protection class	IP54 / IP55 (motors and panels)
Ambient temperature	−10 °C to +50 °C
Deck, travel speed, route, rails	Per project
Explosion-protected version	For gas Zone 1 – 2 and dust Zone 21 – 22, per project

Operator Cabins

An enclosed control station on the crane, designed and built by ABRA with the crane it goes on. A cabin suits long spans, continuous duty, heavy or accurate placing, hot, dusty or noisy conditions, and loads that cannot be seen from the floor.

TYPE	POSITION	SIGHTLINE TO THE HOOK
Fixed cabin	At one end of the bridge, moving with the bridge	Changes with the trolley position; general supervision over a wide area
Travelling cabin	On the trolley, moving with the load	Constant, short and near-vertical; process, charging and casting duty



- Large glazed areas and a sightline worked out to keep the hook in view
- Ergonomic seat, with every control at hand while facing the work
- Heating and cooling; sound and thermal insulation
- High-strength frame with cold-rolled plate cladding; modular, demountable structure
- Camera and in-cab display, fitted where a blind spot remains
- Internal dimensions and mass per project; designed to ISO 8566-5

Crane Control and Safety

The control device is chosen for where the operator needs to stand: pendant, radio remote control or operator cabin. Two-speed control on all motions is standard. Inverter control is an option; its drive profile gives stepless speed, soft starts and stops and slow placing speeds.

Standard on Every Crane

- Emergency stop
- Hoisting and travel limit switches
- Overload protection with load cell and rated capacity limiter (EN 14492-2)
- Buffers and end stops
- Audible and visual warning

Options

- Inverter-based anti-sway
- Anti-collision and travel-zone interlocking with reflective photoelectric sensors
- Assisted automation
- ABRA Crane Tracking

Cranes in Service

Radio remote control, inverter control and anti-sway can be fitted to cranes in service, including other makes; the scope is set after a site review.

Radio Remote Control

Protection class	IP65
Frequency band	2.4 GHz
Operating temperature	−10 °C to +75 °C or −20 °C to +45 °C by type; −40 °C to +85 °C available
Transmission distance	100 m standard; 20 – 300 m by type and site
Power	Rechargeable with wireless charging, or battery

Crane Components

The hoist unit, the travel drives and the end carriages are the three working assemblies of a crane.

Hoist units, end carriages and wheel groups, crane structures and operator cabins are built in the ABRA plant in İzmir.

Inverter drives, radio and pendant control, overload electronics and busbar and festoon supply are specified and integrated under ABRA engineering.



Wire rope hoist family	250 kg – 160 t · series BR23 · BR30 · BR33 · BR36 · BR46 · BR58 · BR68
Machine duty class	FEM 1Am / ISO M4 (30 % ED) · FEM 2m / ISO M5 (40 % ED)
Hoisting speed	0 – 2.3 to 0 – 8 m/min with inverter control (option), by series and reeving
Hook height	4 – 28 m in the standard tables
Drum · rope	Ø150 – Ø348 mm · rope Ø6 – Ø18 mm, 6×36 WS or 18×7, 1960 N/mm²
Trolley wheel centres	246 – 1 100 mm
Steel structure	EN 1090 execution class EXC3 · EN ISO 3834-2 welding quality with approved WPS/WPQR · weld testing by VT, MT, PT and UT

Crane Kits

A matched set for crane builders who manufacture the girder and assemble the crane locally.

Supplied with the kit: hoist unit and trolley · end carriages with the girder connection · long-travel drive units and wheel groups · bridge control panel with overload protection and load cell · pendant or radio remote control; two-speed drives as standard, inverter control as an option · bridge electrification, limit switches, buffers and end stops. Wheel loads, connection geometry, hook approach and the duty class of the set are issued with the kit.

Provided by the crane builder: main girder design, manufacturing and paint · runway and runway conductor line · assembly, installation, load test and commissioning of the crane.

Standard selection values. Project values are issued with the quotation.

Duty Class, Wheels and Brakes

The selection rules behind the values in this catalogue: how crane and hoist unit duty classes relate, how travel wheels are sized and how brakes are selected.

Crane Duty Class

FEM	ISO 4301-1	TYPICAL SERVICE
1Bm	M3	Light, occasional lifting
1Am	M4	Light regular service
2m	M5	Medium regular service
3m	M6	Heavy regular service
4m	M7	Heavy, high-cycle service
5m	M8	Very heavy, continuous service

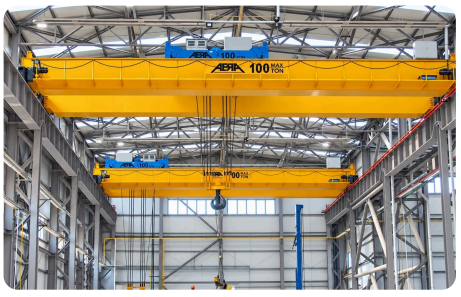
The crane class is set per ISO 4301-1 from the load spectrum and the number of cycles over the design life; FEM 9.511 is used as complementary reference for mechanism classification. Standard ABRA cranes are supplied in FEM 1Bm – 5m.

Hoist Unit Duty Class

HOIST UNIT CLASS	DUTY CYCLE
FEM 1Am · ISO M4	30 % ED
FEM 2m · ISO M5	40 % ED

Duty cycle (ED) is the share of a 10-minute period during which the motor runs. The hoist unit class is selected to meet or exceed the crane class for the hoisting motion; heavier classes are engineered per project. The safe working period of the hoisting mechanism is monitored to FEM 9.755 and ISO 12482 from the recorded load spectrum and running hours.







Travel Wheels

WHEEL Ø MM	RAIL WIDTH MM	AVERAGE LOAD PER WHEEL KG
125	30	2 260
160	30 · 40	2 890 · 3 850
200	30 · 40 · 50	3 930 · 5 240 · 6 560
250	40 · 50	6 560 · 8 200
315	30 · 40 · 50 · 60	6 500 · 8 680 · 10 850 · 13 020
400	50 · 60	14 440 · 17 330
500	60	21 660

End carriage wheel groups, FEM 2m / ISO M5, travel 20 m/min; load values follow the order of the rail widths. Wheel loads are calculated to FEM 1.001 from the crane dead weight, the hoist and trolley weight and the rated load, for the actual span. Example, 4 wheels, rail 40 mm, 20 m/min: Rmax 4 999 kg · Rmin 2 499 kg · Rmean 4 166 kg · required diameter 160.2 mm, Ø200 selected. Runway rails are checked for gauge, straightness and level to ISO 12488-1.

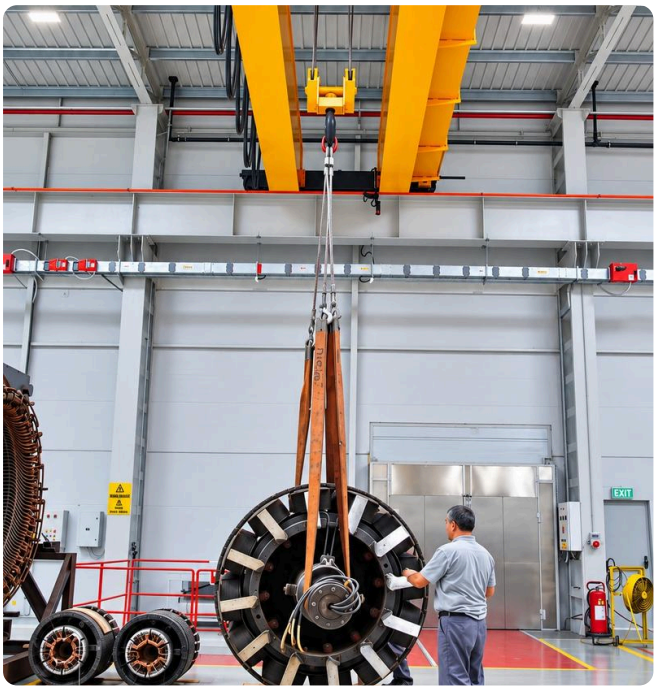
Brakes

Brake type	Spring-applied electromagnetic disc brake on every hoisting and travel motor; closes when power is removed
Brake torque	Mr = 9 550 · P · K / n; a brake is selected with a rated torque at or above Mr
Safety factor K	2.5 hoisting · 1.5 travel and slewing
Release time	Inverter parameter, around 0.3 s on standard drives
Stopping	Deceleration ramp, typically 1 – 2 s on hoisting and 2 – 3 s on travel; the motor stops, then the brake closes
Redundant brake	Second hoisting brake per project

Project values are issued with the quotation.

Service and Spare Parts

Maintenance under an agreement, technical service when a crane stops, spare parts and modernisation, for ABRA cranes and for other makes. 444 8 440 connects to the Crane Contact Center around the clock.



48 hours
on-site response, anywhere in Türkiye

2 years
warranty, fixed term

4 visits a year
preventive maintenance agreement

Any make
service, spare parts, modernisation and ABRA Crane Tracking retrofit

Preventive Maintenance

Four visits a year under a maintenance agreement, scheduled around the production plan. Brakes, rope and hook, hoist and travel mechanisms, electrics and controls, and the structure are checked, and each visit ends with a written findings report. Work outside the agreed scope is quoted before it is done. Cranes under an agreement have priority response between visits.

Technical Service

A fault, a stoppage or a failed component. One call to 444 8 440 starts it, and the service team is on site within 48 hours anywhere in Türkiye. The fault is traced on the machine, the crane is returned to service, and each call ends with a written record of what was found and what was done.

Spare Parts

Mechanical, electrical, control and safety parts, and parts for explosion-protected equipment, for ABRA cranes and other makes. Parts that ABRA manufactures come from the same drawing and the same plant as the original. The nameplate model code, serial number and year of manufacture identify a part fastest.

Modernisation

Components at the end of their service life are renewed; components with service life left stay on the machine. A condition survey on site sets the scope. Where the scope calls for it, the equipment is inspected and renewed in the ABRA plant and reinstalled on site, and the crane is commissioned and load tested before it returns to production.

Warranty scope is written into the contract with the scope of supply. Outside Türkiye, installation and field support are defined per project and written into the contract.

Quality and Standards

Management systems, steelwork and welding approvals, and the standards ABRA cranes are designed and built to.

Certificates

- ISO 9001 quality management: design, manufacture, sale and after-sales service of electric overhead travelling cranes
- ISO 14001 environmental management
- ISO 45001 occupational health and safety management
- EN 1090-1 factory production control for load-bearing steel structures, up to execution class EXC3
- EN 1090-2 welding certificate for load-bearing steel structures
- EN ISO 3834-2 comprehensive quality requirements for fusion welding
- TS EN 15011 conformity certificate for electrically driven overhead and gantry cranes
- TS 12578 service competence certificate
- CE marking with an EU declaration of conformity, available per project
- ATEX product certification for explosion-protected cranes, issued per product

Current copies are supplied for the project on request.

Standards and Conformity

CE marking	2006/42/EC Machinery Directive · 2014/30/EU EMC · 2014/35/EU Low Voltage · 2000/14/EC Noise Emission
(EU) 2023/1230	Machinery Regulation: conformity actions completed for 20 January 2027
Design	EN 13001 series (-1, -2, -3-1 to -3-5) · EN 15011 · EN 14492-2 · EN 12077-2 · EN IEC 60204-32 · EN ISO 13849-1 / -2 · ISO 12482 · EN 14985 (jib cranes)
Classification	ISO 4301-1; FEM 9.511 as complementary reference for mechanism classification · FEM 9.755 safe working period
Steel structure and runways	EN 1993-6 design · EN 1090 execution class EXC3 · EN ISO 3834-2 welding quality with approved WPS/WPQR · weld testing by VT, MT, PT and UT
Runway tolerances	Rail gauge, straightness and level checked on site to ISO 12488-1
Power supply systems	EN 60204-32; busbar trunking to EN IEC 61439-1 / -6
Explosion-protected version	2014/34/EU; unit verification by a notified body; EN 1127-1, EN IEC 60079 series, EN ISO 80079-36 / -37
Functional safety	Minimum PL c as standard; PL d or PL e where the risk assessment or the project specification requires it (EN ISO 13849-1)

Standards are applied in their current editions.

Material, Welding and Load Test

Plate, profile, wire rope, hooks and castings enter production against the supplier's material certificate, recorded by batch; hooks are supplied to DIN 15401 / 15402. Welding runs under the EN 1090-2 and EN ISO 3834-2 approvals with a named welding coordinator. Measuring and test equipment is calibrated by an accredited laboratory on an annual plan. The load test is run at 125 % of rated capacity static and 110 % dynamic.

Corrosion Protection to ISO 12944

CLASS	TYPICAL ENVIRONMENT	TOTAL DRY FILM THICKNESS
C2-M	Warehouses, stores, assembly halls	100 µm
C3-M	Machining and general production halls, urban outdoor gantries	160 µm
C4-M	Paper mills, plants with chemical vapour, refinery and shipyard outdoor gantries	180 µm
C5-M	Steelworks, acidic or corrosive atmospheres, coastal and port structures	240 µm

Documents delivered with the product: operating manual and technical documentation; EU declaration of conformity where the project calls for CE marking.



References

ABRA has built overhead, gantry, process and explosion-protected cranes in İzmir since 2004, and more than 2,500 are in service.

2004
manufacturing in İzmir, on the same site

2,500+
cranes installed

16,000 m²
plant, Torbalı, İzmir

ISO M3 – M8
duty classes built to

Steel and Scrap Processing · Ladle Crane at 85 °C



A 75 / 20 / 2×5 t ladle crane for a steel and scrap plant. It carries ladles of molten metal around the clock under an 85 °C ambient, with an auxiliary hoist for tipping and an operator cabin on the bridge.

The crane was drawn and calculated for that installation. Heat protection was placed component by component on the hoist unit, the ropes and the electrics.

The hoist unit and the hook block were built in the ABRA plant in İzmir. The customer visited the plant before the order was placed.

Packaging Film Production · Assisted Automation



Double girder cranes with 15 t lifting beams move rolls between a film production line and automated storage.

The installation runs assisted automation: position memory, target positioning, weighing and labelling in one system, running automatically with the operator supervising throughout. The crane working area is closed to personnel; the access points that remain are covered by safety light barriers, and entry triggers an emergency stop.

ABRA Crane Tracking on these cranes records running hours, load spectrum, overload events, brake operations and faults.

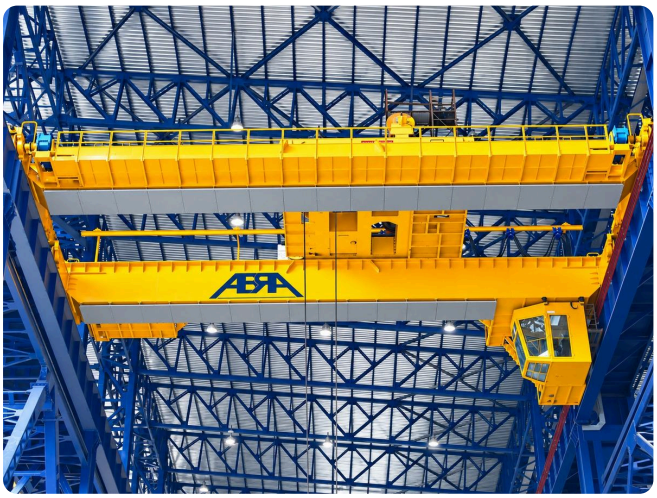
Remote Monitoring in Demanding Plants

In foundries, melt shops and scrap yards the crane works above heat, dust and molten metal, and every check on the crane means stopping it and sending a person up into those conditions.

ABRA Crane Tracking reads the crane's own control data and shows it from the ground, on the plant's internal network or with secure remote access. The maintenance team knows what the crane has been doing before the visit, overloads stay on record, and operation outside the designed duty class shows early.

Maintenance is planned from data rather than found on the crane. That reduces unplanned stops and the time people spend at height in heat and dust. Statutory inspections stay as they are.

Working Abroad



Cranes built in İzmir work across Europe, the Gulf, Africa, Central Asia and Latin America. Installation and site support outside Türkiye are defined per project and written into the contract.

Introductions to the references on these pages are arranged on request.



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CRANE

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