



INDUSTRIAL MANIPULATORS

COMPREHENSIVE IMPLEMENTATION OF NEW SOLUTIONS

INDUSTRIAL MANIPULATORS

SIGMA is a privately owned joint stock company. Founded by Jan Hajduk on **17th May 1996**. Our headquarters are located in Lubelskie Voivodship, in the town of Barak, Lublin. Additionally, **SIGMA SILESIA** operate a regional office located in Knurów. The main objective of **SIGMA S.A.** is:

“**THE COMPREHENSIVE IMPLEMENTATION OF NEW SOLUTIONS**”

for the design and production of machinery, equipment and tailor-made technical solutions for various branches of industry, for example, waste sorting, mining and material handling.

Many years of experience, our own technology and engineering design office, modern and developed machine park, highly qualified personnel and close collaboration with Research and Development units and universities, allows **SIGMA** to implement innovative solutions, each tailored to the individual needs of customers, maintaining the highest quality of products.

Present
on the
MARKET
SINCE

1996

Combining years of experience and the ability to analyze the precise requirements of our partners, we provide efficiency and functionality of the proposed solutions. A wide range of products are manufactured, allowing **SIGMA** to offer advanced technical systems related to transportation, handling and packaging of materials.

SIGMA S.A. have extensive experience of manufacturing and supplying machinery and equipment to **Argentina, Czech Republic, Turkey, Bosnia, Columbia, Mexico** and many locations across **Poland**. **SIGMA S.A.** are recognised as a respected leader in the market.



SIGMA S.A. cooperate with several global partners such as **CATERPILLAR, SANDVIK, FAMUR, FESTO, ALSTOM, BROETJE, ROSENDAHL, FLS, YASKAWA, AEROLIFT, DRAGFLOW.**

SIGMA have extensive knowledge in providing tailor made solutions for many companies and sectors where the individual requirements of each application are considered. **SIGMA** manufactured technological lines are applied in many plants in Poland.

Continuous dynamic development of the company SIGMA is guaranteed by acting in accordance with a clear development strategy, targeted and transparent human resources policy and management structure.

SIGMA LIFT IT

The ergonomic handle, thanks to which the lifting of loads is performed quickly, easily and effortlessly. It is perfect solution for distribution centres and warehouses, where smooth and effective operation is required. LIFT IT, equipped with a vacuum gripper, allows to carry both cartons, luggage and bags. The standard version includes an additional hook that allows to handle the buckets in easy manner.



STANDARD GRIPPERS



Vacuum gripper for bags/sacks

Fork-style gripper for pallets

Vacuum gripper with one suction cup

Vacuum gripper for packages

Adapter for quick changing and installation of new grippers

Safety

Features of handle performed by the operator:

- control of up/down moves
- linear actuator, up/down moves
- vacuum gripper switching on/off

Other features of the system:

- compressed air supply signalling
- load's holding signalling
- vacuum level signalling
- reducer with shut-off valve
- gripper's stroke reducing system in case of losing the load
- automatic lowering in case of power failure
- vacuum level control

How it works?

After placing the holder on the surface of the load and pressing it, the vacuum is activated. The carried load is lifted by a proportional up/down trigger, using the control buttons. The operator decides, when and how quickly to lift. The harder you press, the faster you move. Together with the free rotation of the load, it facilitates to put the load away carefully and precisely.

Main advantages

The vacuum gripper is indispensable for high work efficiency. Its versatility and the ability to perform quick retooling, allows to handle the loads with flat or uneven surfaces, for a various applications and weights of carried loads. We offer a range of standard vacuum solutions with one, two, four or more suction cups, and in case the standard solution isn't sufficient, our team will design and manufacture the gripper specifically tailored to your needs.

SIGMA ML MANIPULATOR



0,6



50

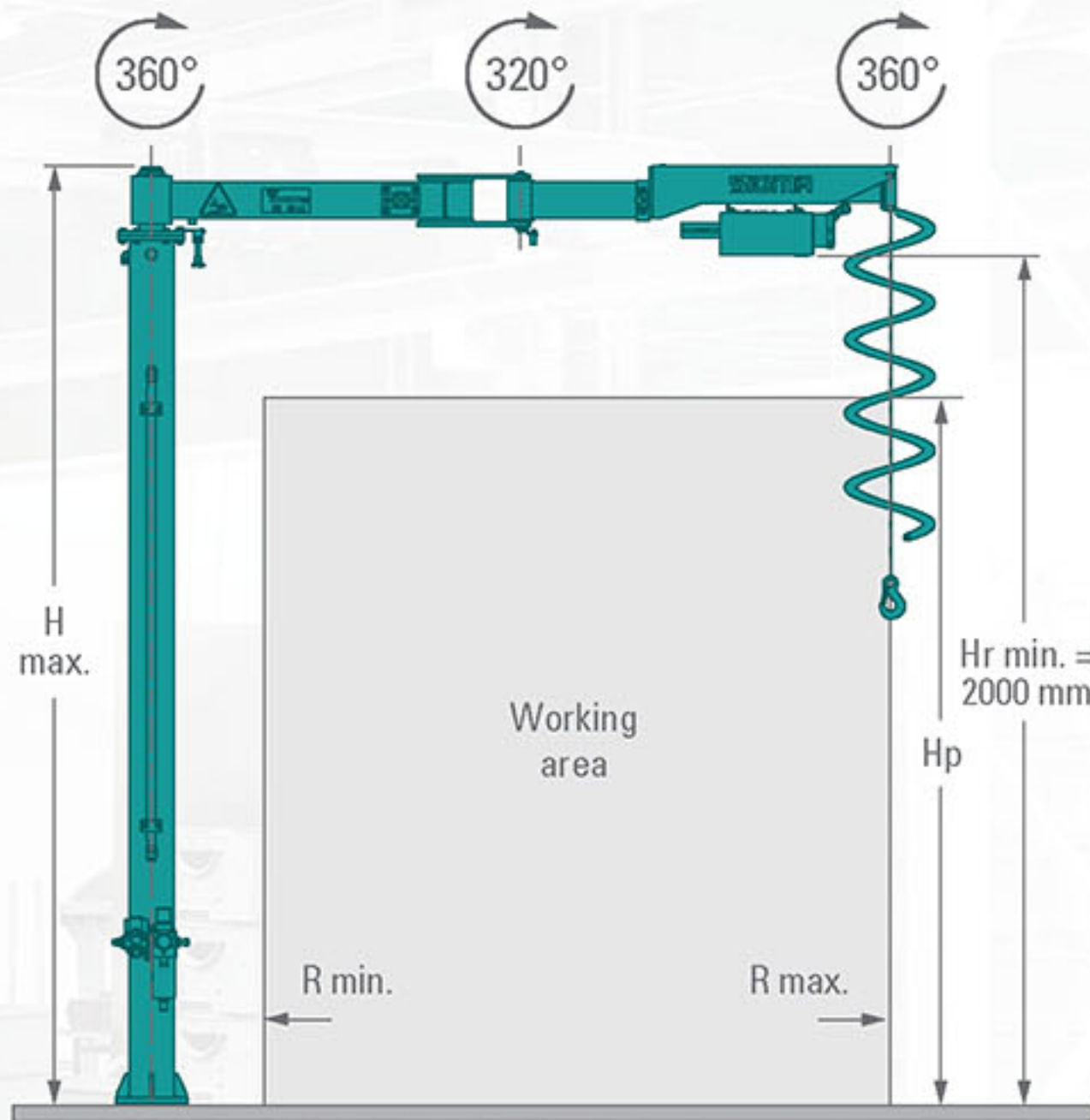


3000

The SIGMA ML manipulator is equipped with pneumatic actuator and integrated lifting cable. This manipulator, together with the individually designed and manufactured gripper, is used in applications related to palletization or depalletization. It can be applied in every industry branch, where increase of work efficiency is required, from the wood industry to the food industry, also within EX zone. The manipulator is equipped with stabilization plate and telescopic/boom column, it can be easily moved to any place/area with a forklift or pallet jack.

PARAMETERS

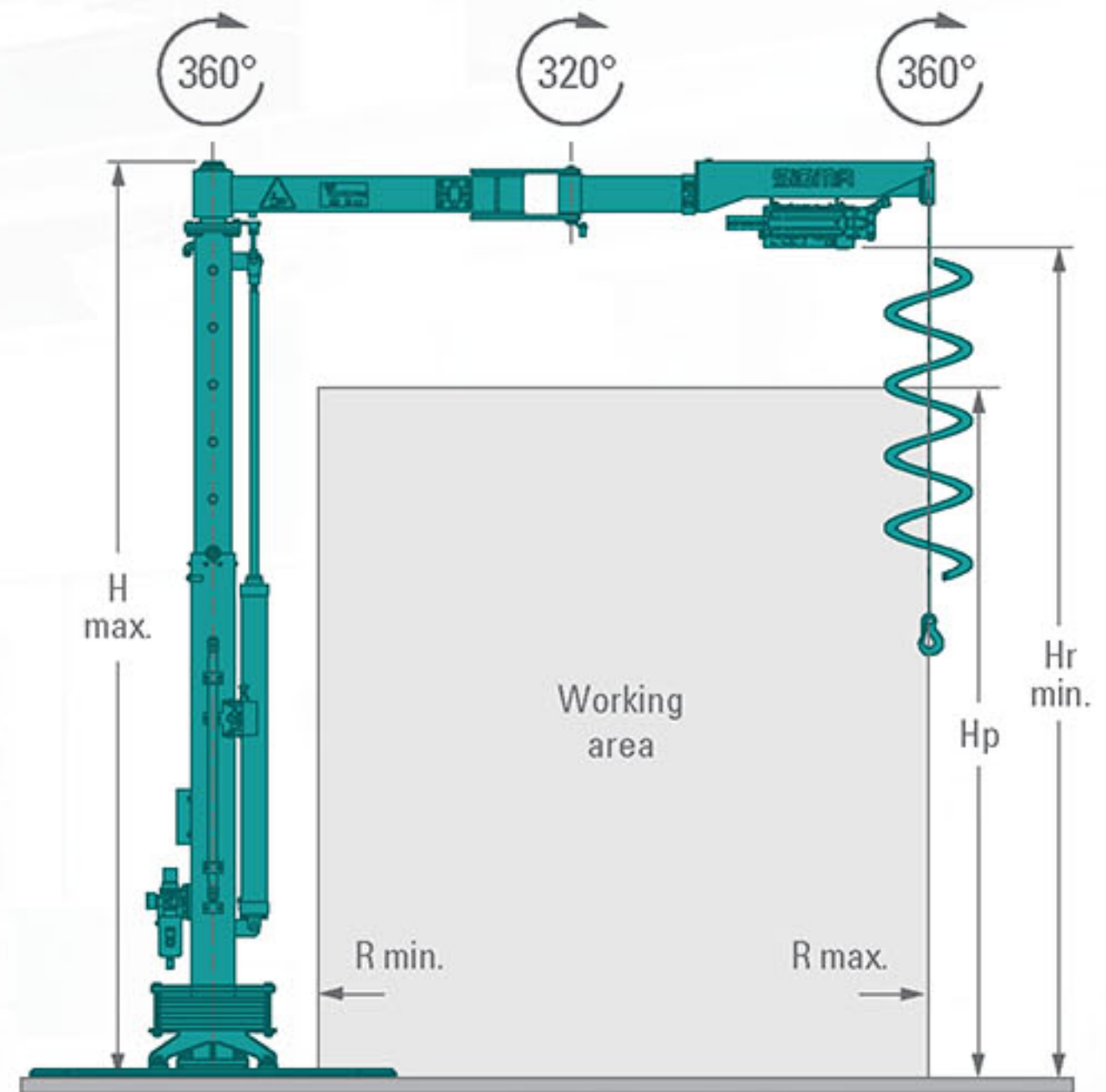
ML - SK
COLUMN-MOUNTED



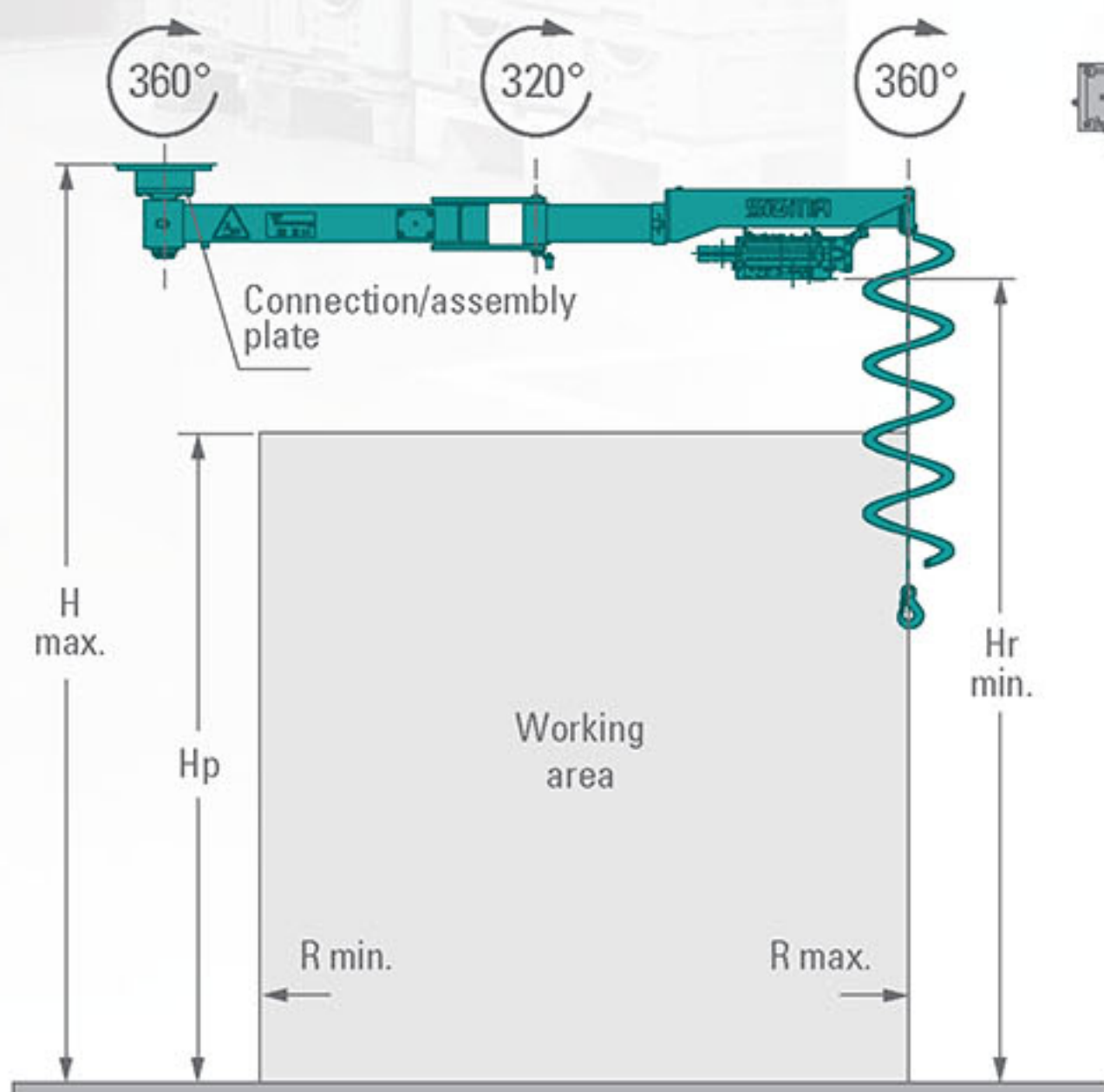
COMPREHENSIVE IMPLEMENTATION

OF NEW SOLUTIONS

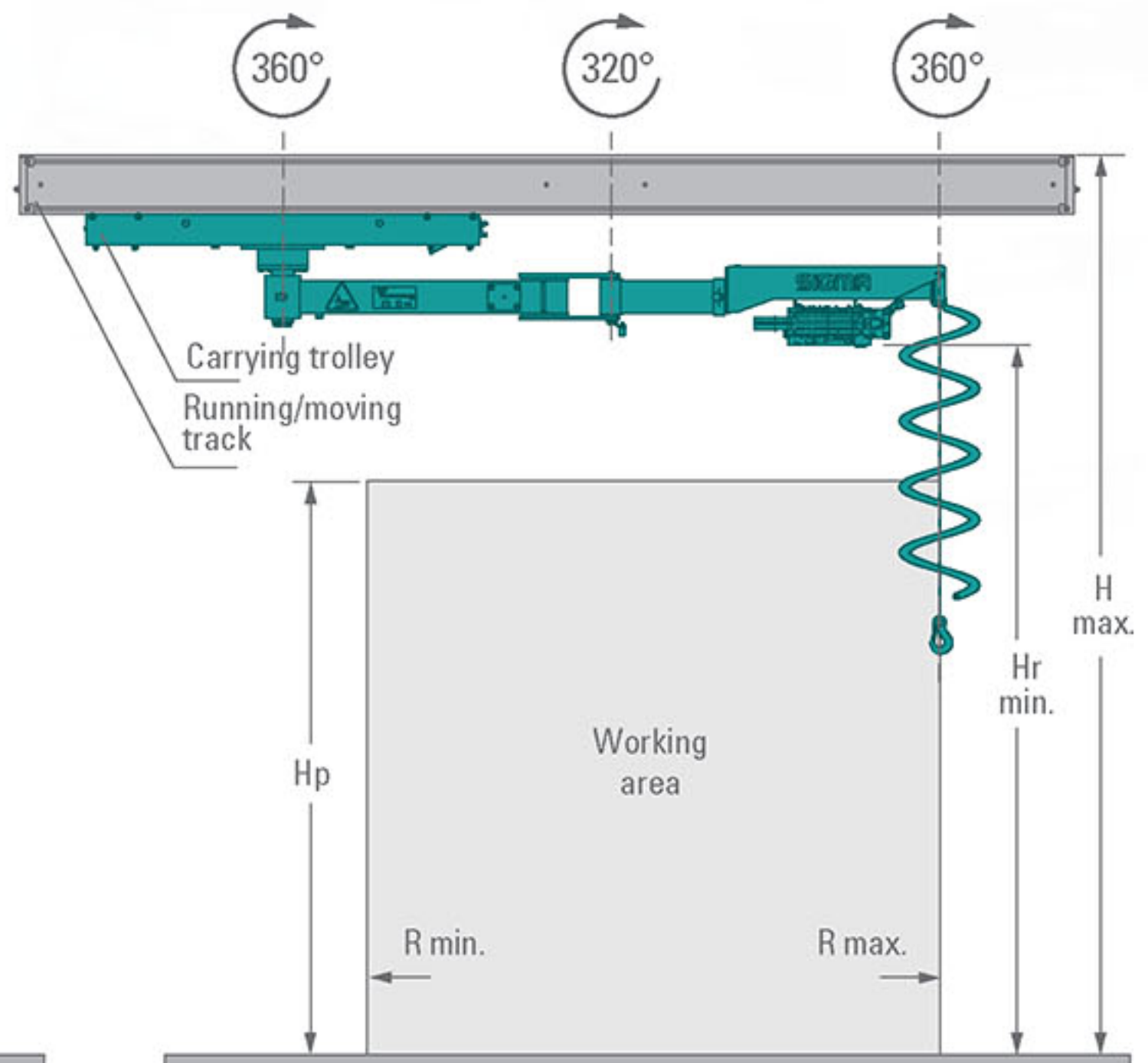
ML - MK
COLUMN-MOUNTED, MOBILE



ML - SP
SUSPENDED



ML - PJ
SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	35	50
LIFTING HEIGHT RANGE [mm]	300 - 1800	300 - 1800
MINIMAL RADIUS RANGE R [mm]	525	300
MAXIMAL RADIUS RANGE R [mm]	3000	2000

SIGMA ML-Z MANIPULATOR



0,6



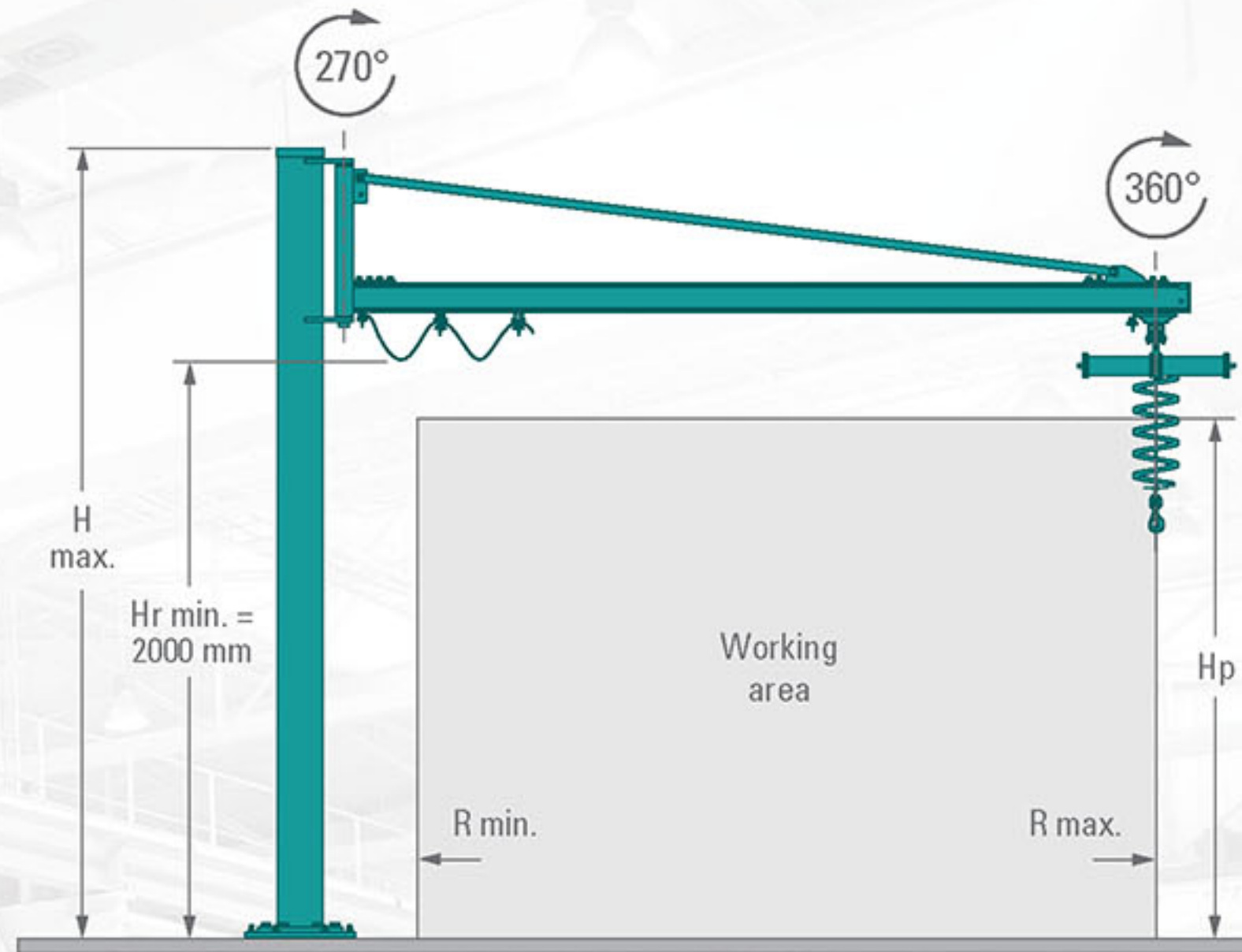
250



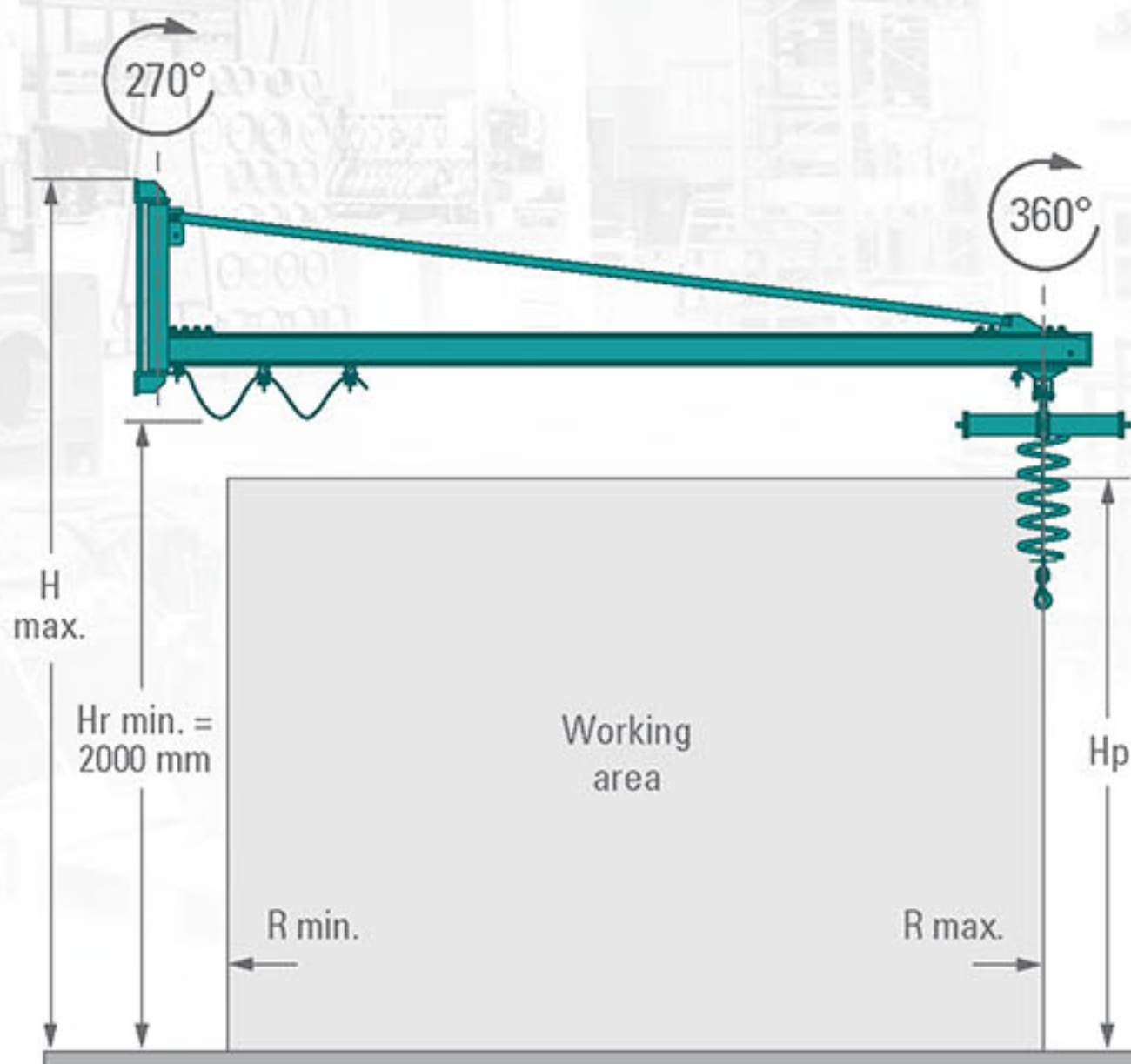
6000

The SIGMA ML-Z manipulator is an ideal alternative to cranes and simple hoists. It allows to carry out the operations of lifting and handling the load in a specific direction. The manipulator enables to perform the necessary movements while handling the load under full control of the operator. The device is supplied with compressed air only, maximal carried load is 250 kg.

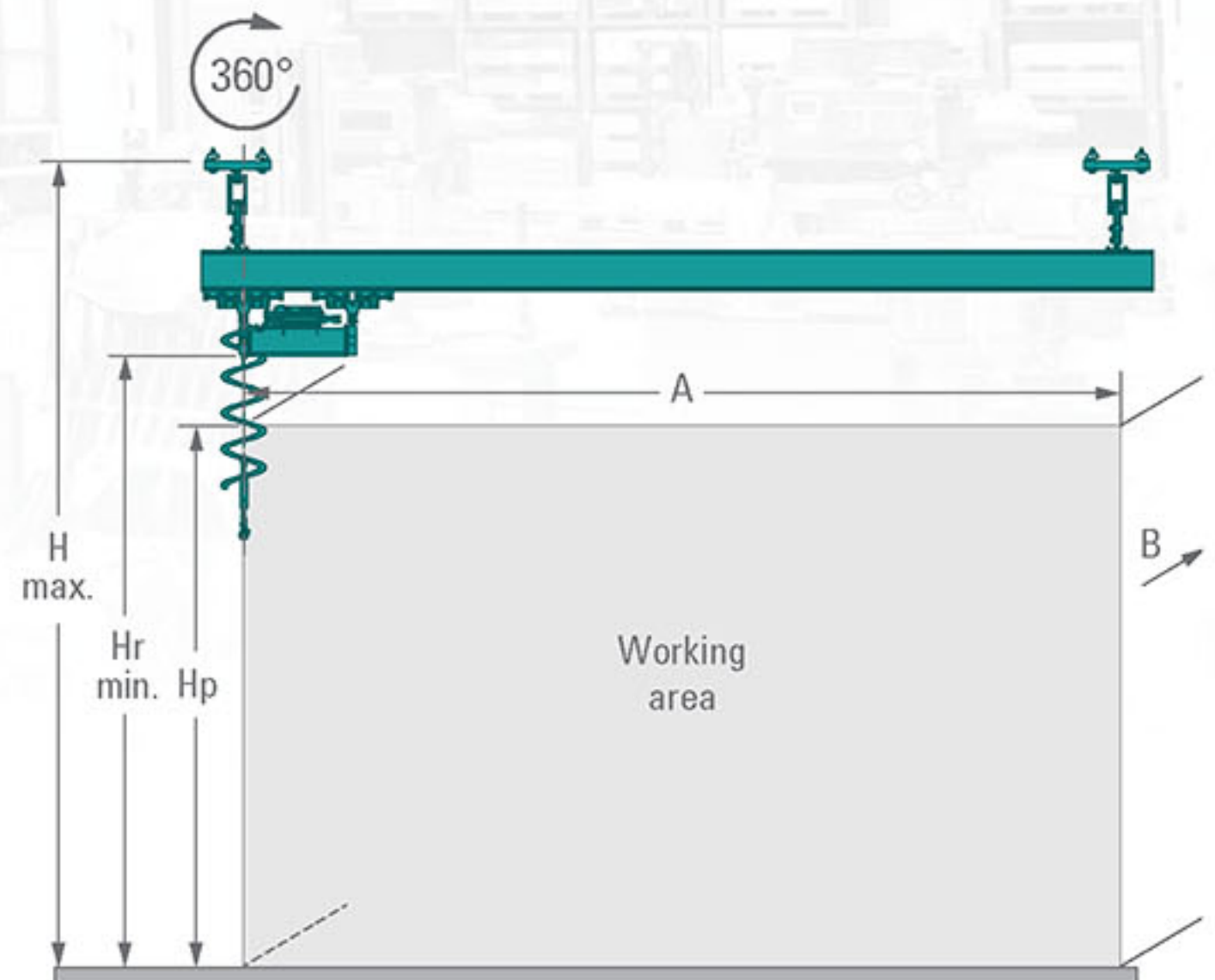
ML - ZK COLUMN-MOUNTED



ML - ZP WALL-MOUNTED



ML - ZJ GANTRY TYPE, MOVABLE

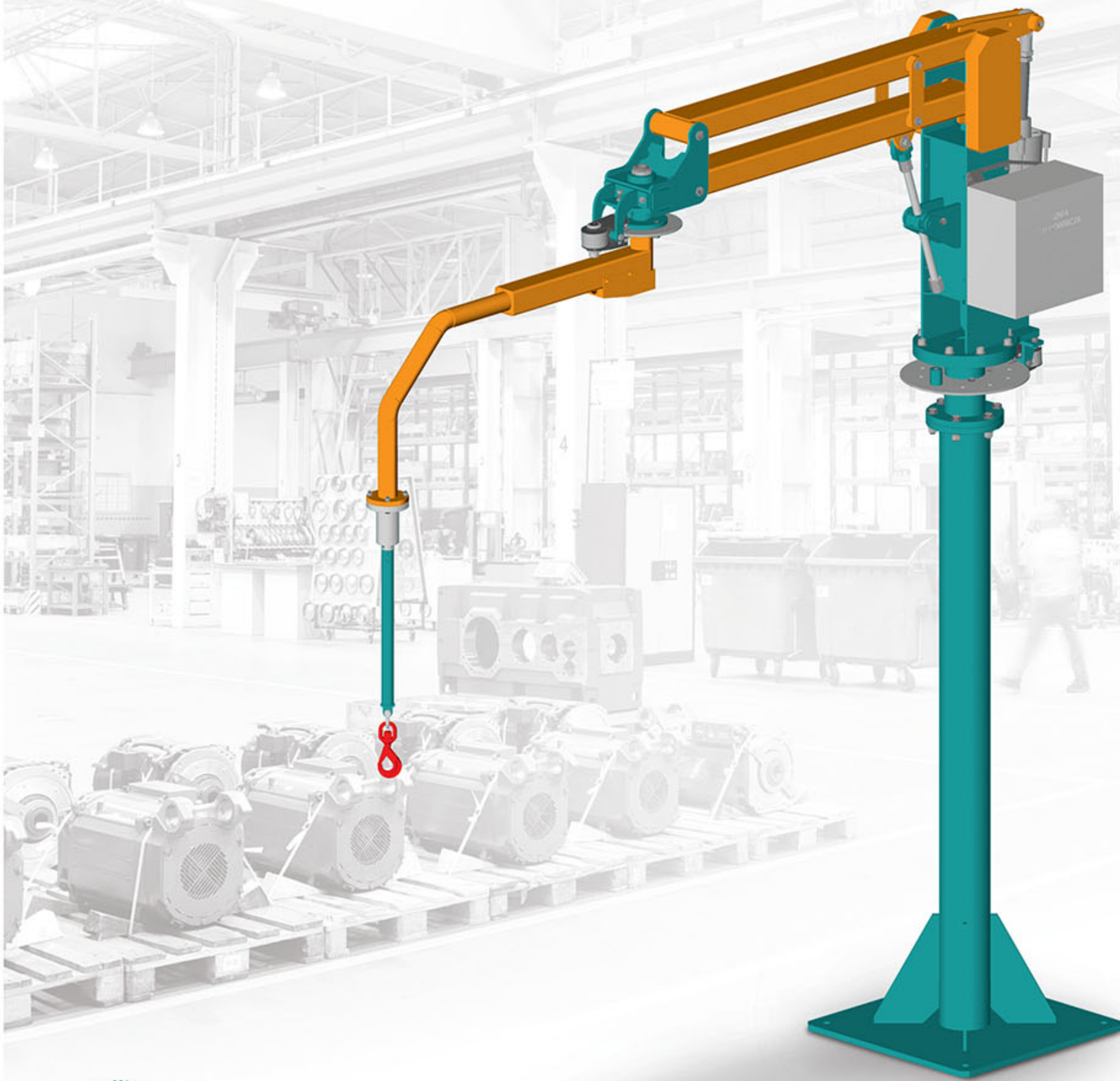


TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	250
LIFTING HEIGHT RANGE [mm]	300 - 2100
MINIMAL RADIUS RANGE R [mm]	450 - 650
MAXIMAL RADIUS RANGE R [mm]	2000 - 6000

INDUSTRIAL MANIPULATORS

SIGMA XS MANIPULATOR



POWER SUPPLY
Mpa

0,6



MAX. LOAD
KG

180



MAX. RANGE
in mm

3000

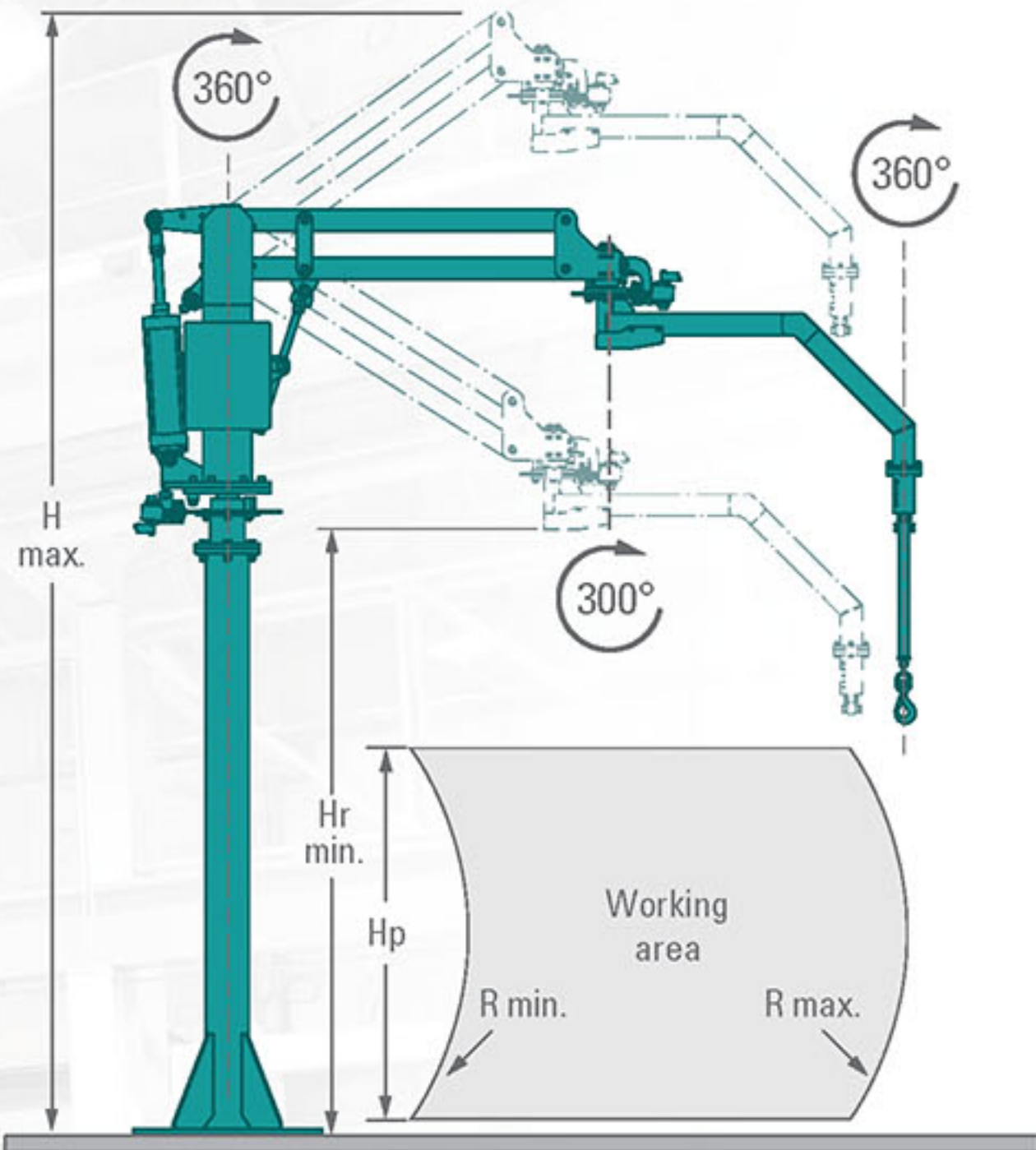
The SIGMA XS MANIPULATOR - easy to operate pneumatic balancer with swivel arm, designed and manufactured to carry loads in any direction up to 85 kg.

PARAMETERS

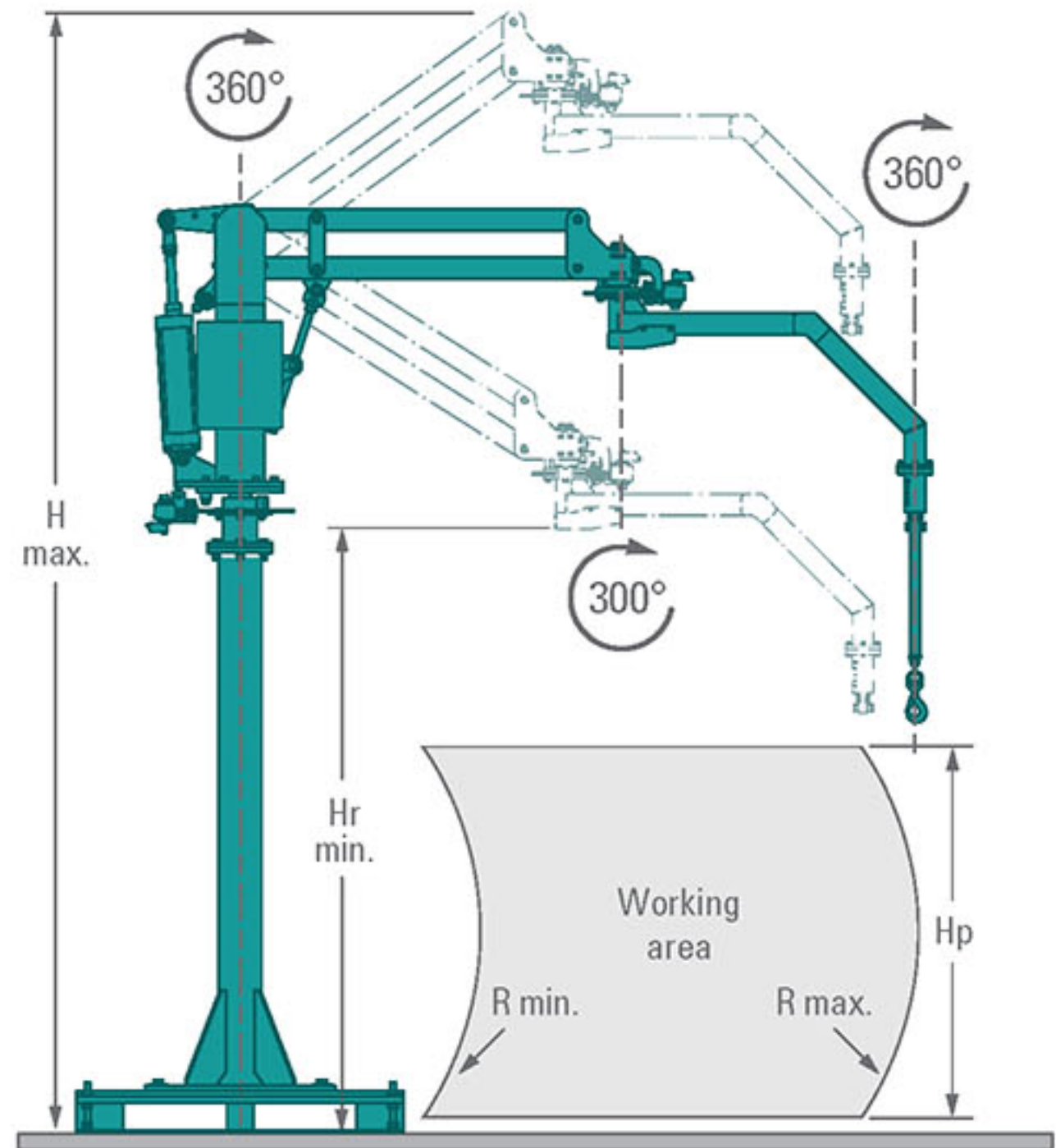
COMPREHENSIVE IMPLEMENTATION

OF NEW SOLUTIONS

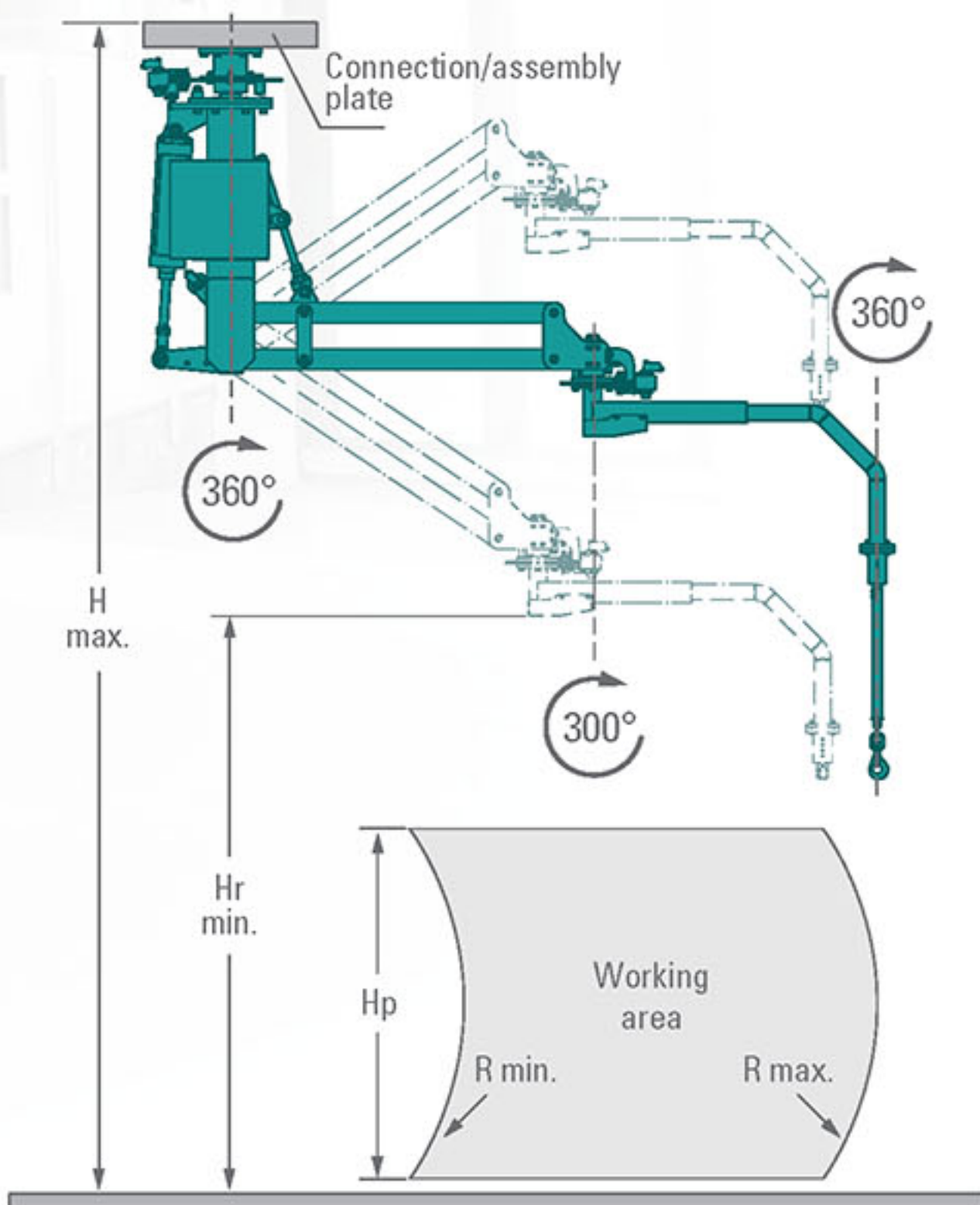
XS - SK COLUMN-MOUNTED STATIONARY



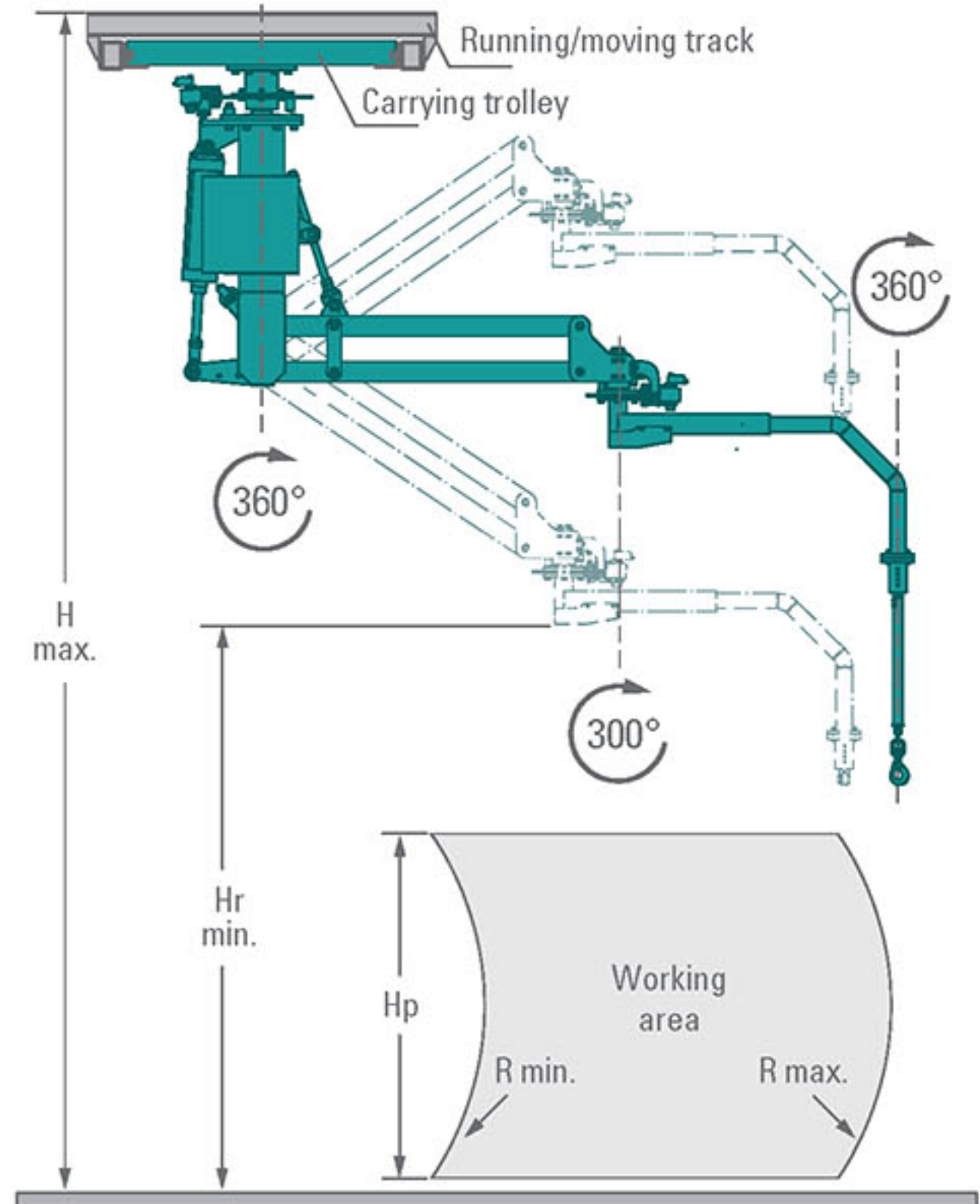
XS - MK COLUMN-MOUNTED, MOBILE



XS - SP SUSPENDED STATIONARY



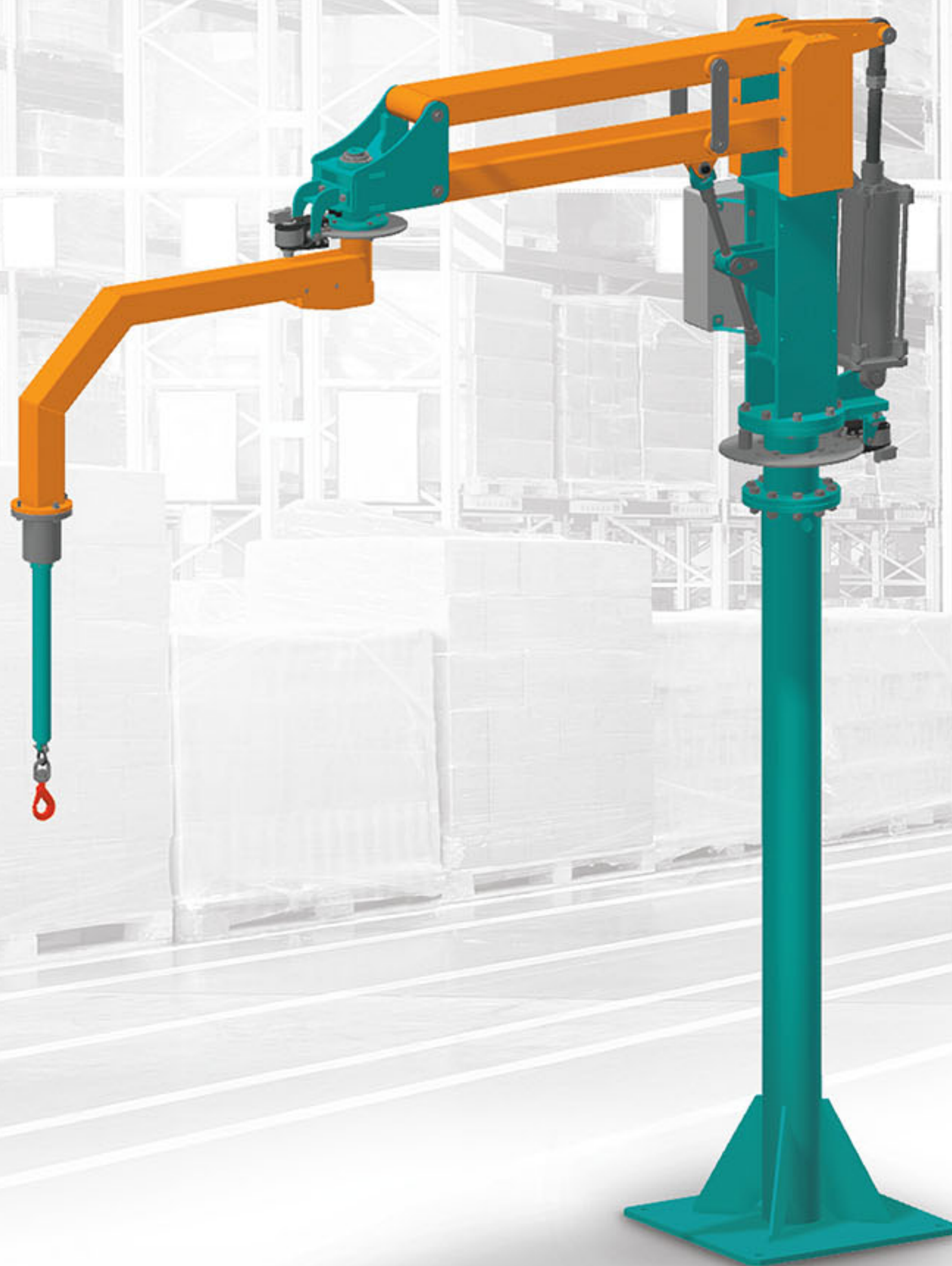
XS - PJ SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	50	90	125	180
LIFTING HEIGHT RANGE [mm]	1700	1400	1100	800
MINIMAL RADIUS RANGE R [mm]	850	700	600	500
MAXIMAL RADIUS RANGE R [mm]	3000	2500	2000	1500

SIGMA S MANIPULATOR



0,6



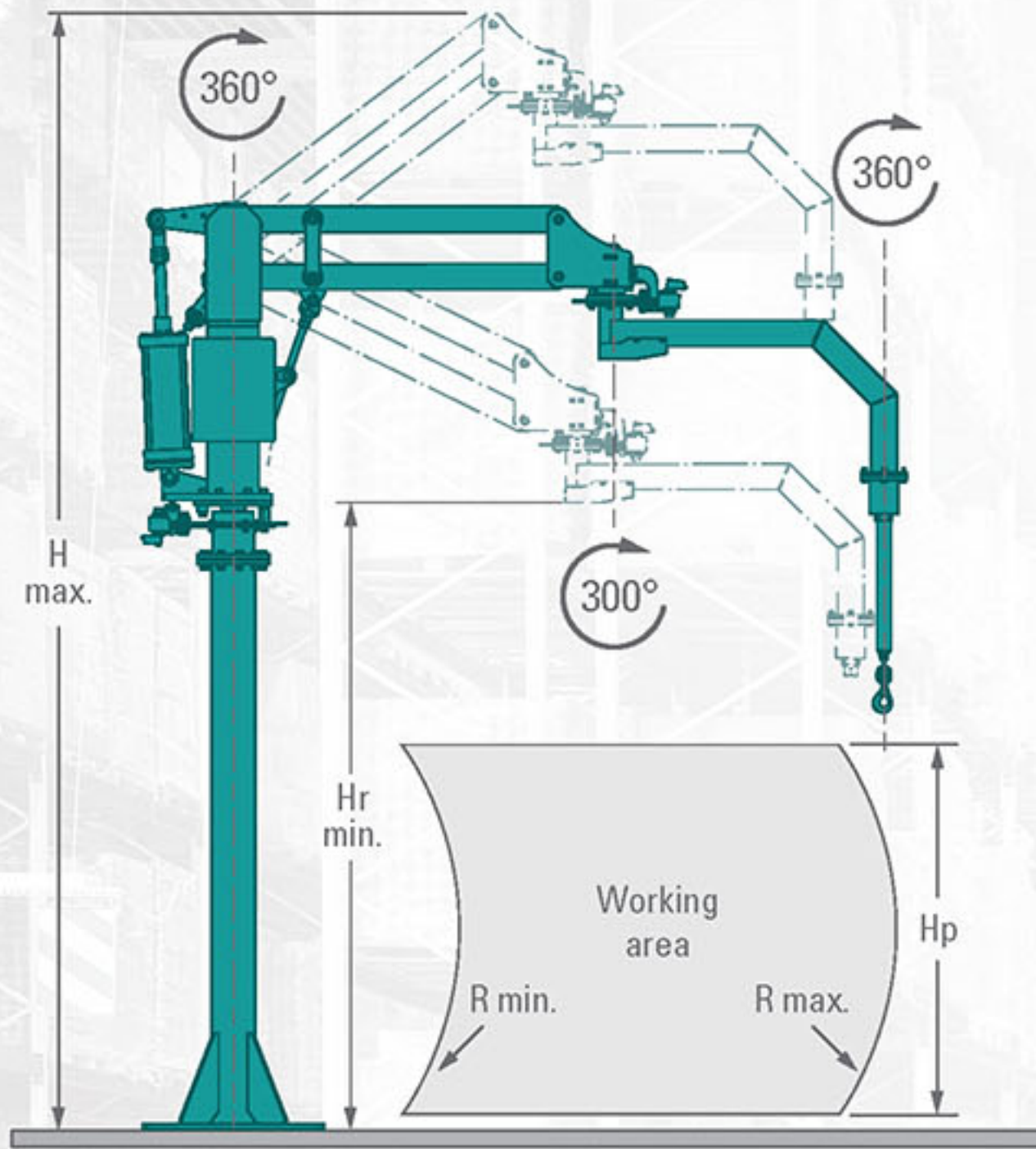
230



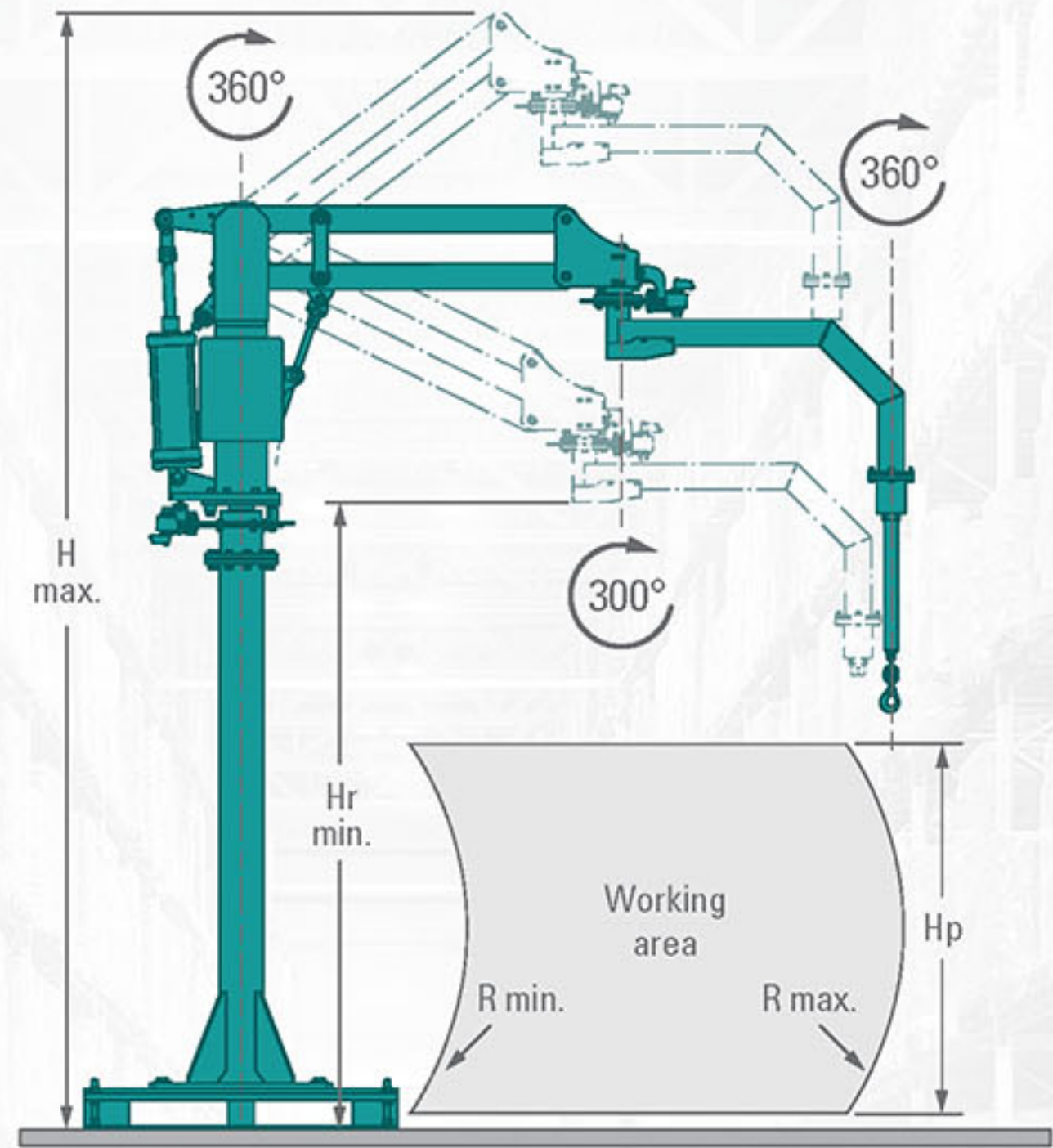
3500

The SIGMA S MANIPULATOR – small-sized device which allows to carry loads even up to 230 kg. The small size and the possibility of balancing the carried load, make every application of SIGMA S MANIPULATOR effective and easy.

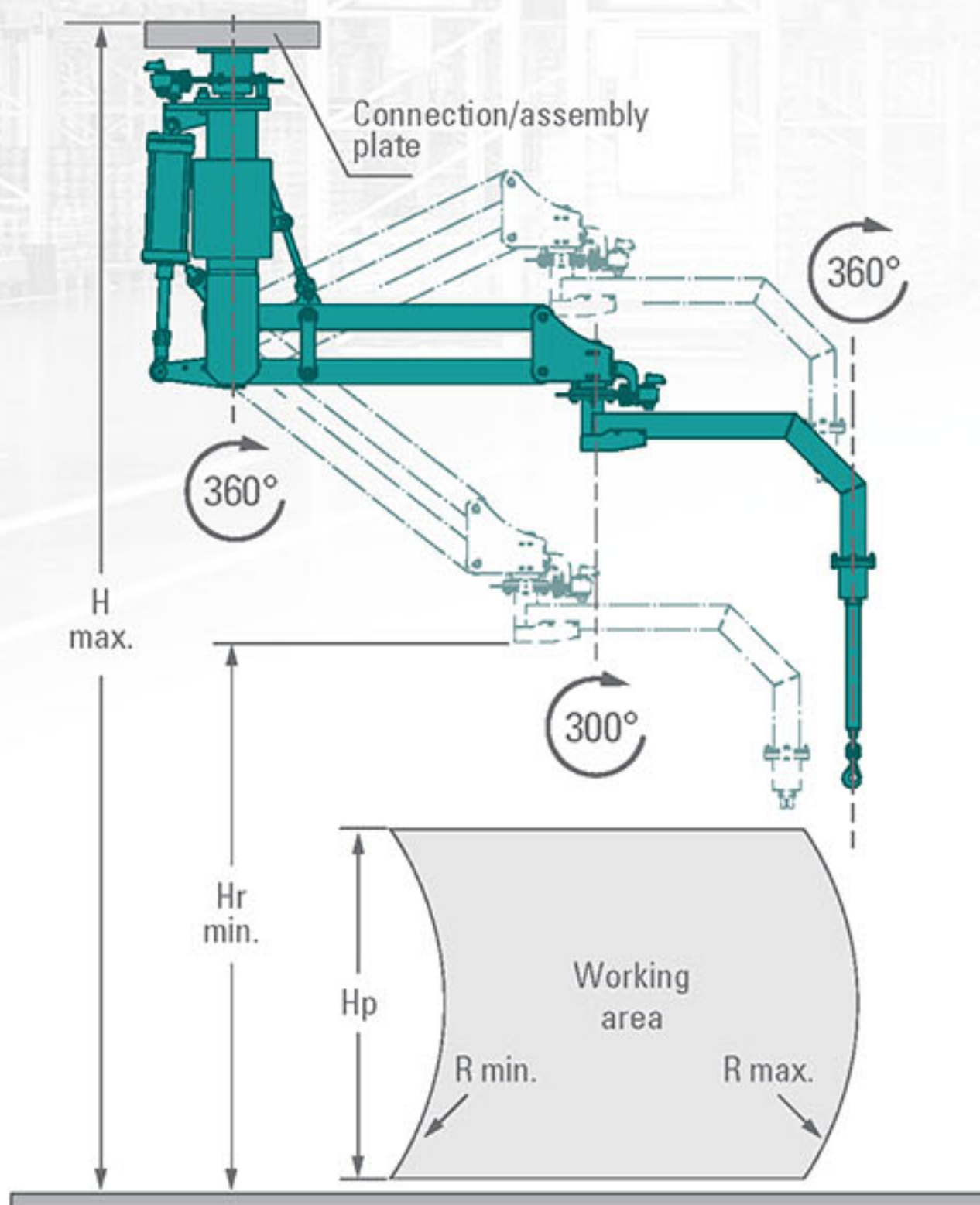
S - SK COLUMN-MOUNTED STATIONARY



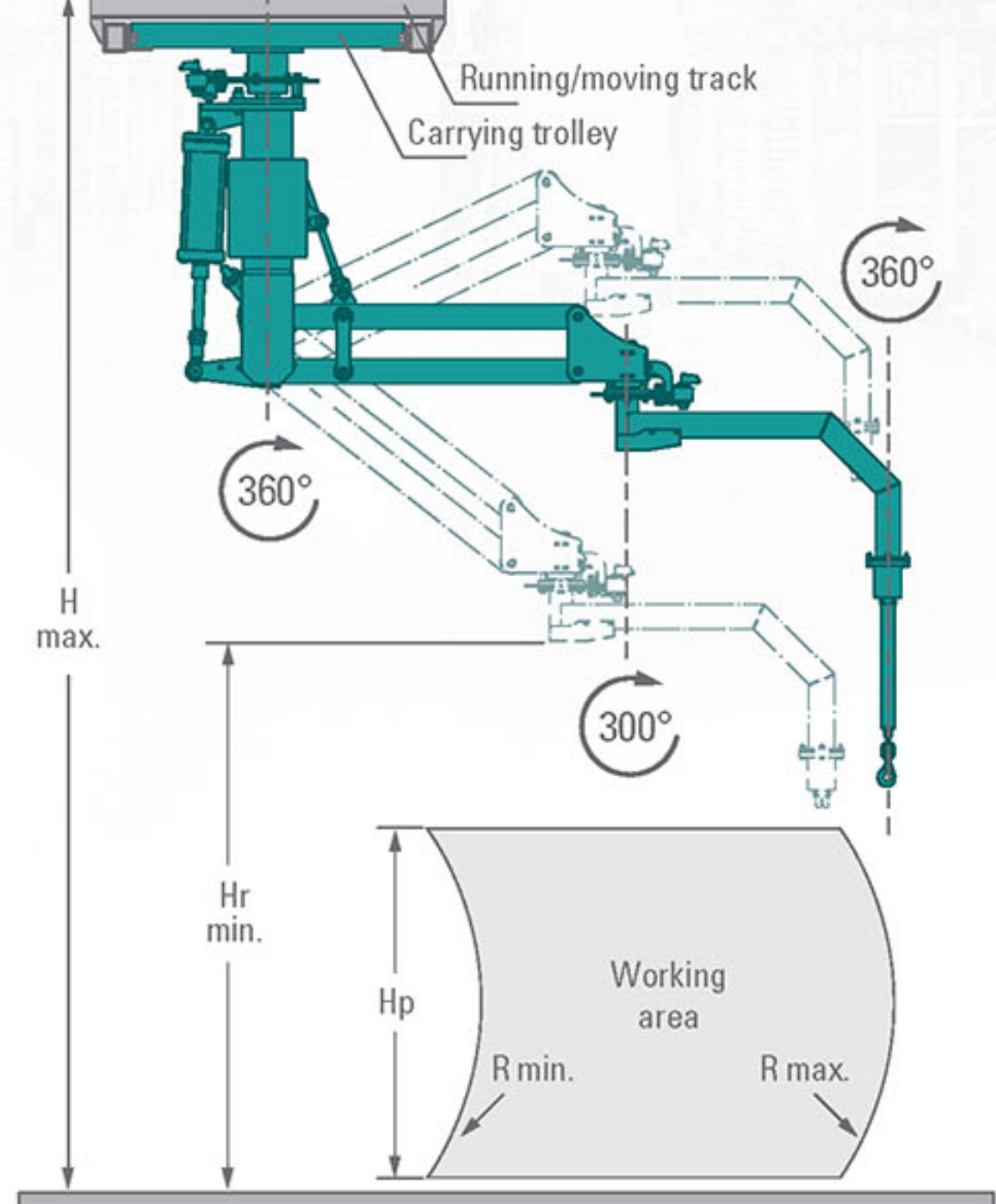
S - MK COLUMN-MOUNTED, MOBILE



S - SP SUSPENDED STATIONARY



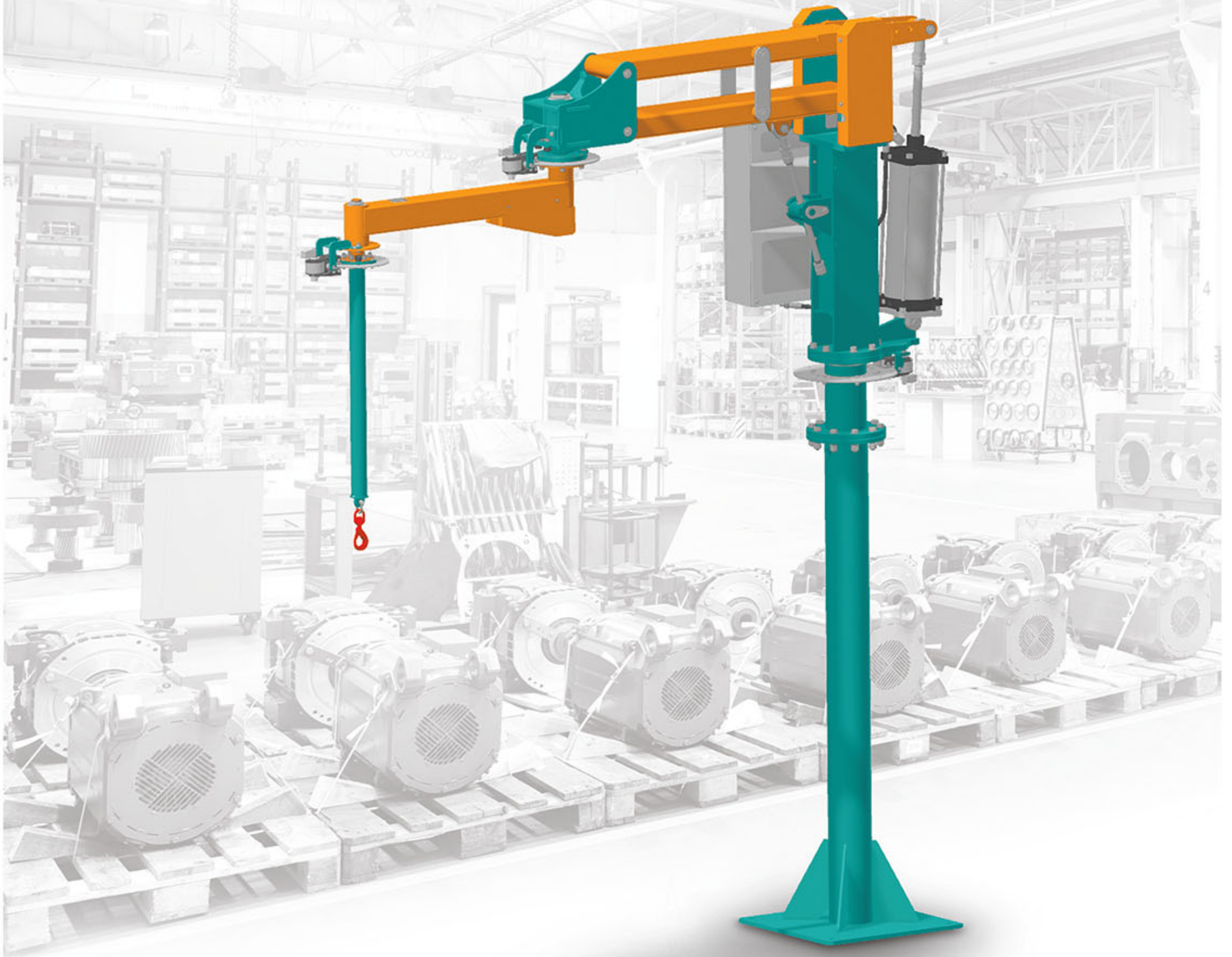
S - PJ SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	80	120	160	230
LIFTING HEIGHT RANGE [mm]	1850	1600	1300	1050
MINIMAL RADIUS RANGE R [mm]	1000	850	750	650
MAXIMAL RADIUS RANGE R [mm]	3500	3000	2500	2000

SIGMA M MANIPULATOR



POWER SUPPLY
Mpa

0,6



MAX. LOAD
KG

470



MAX. RANGE
in mm

4000

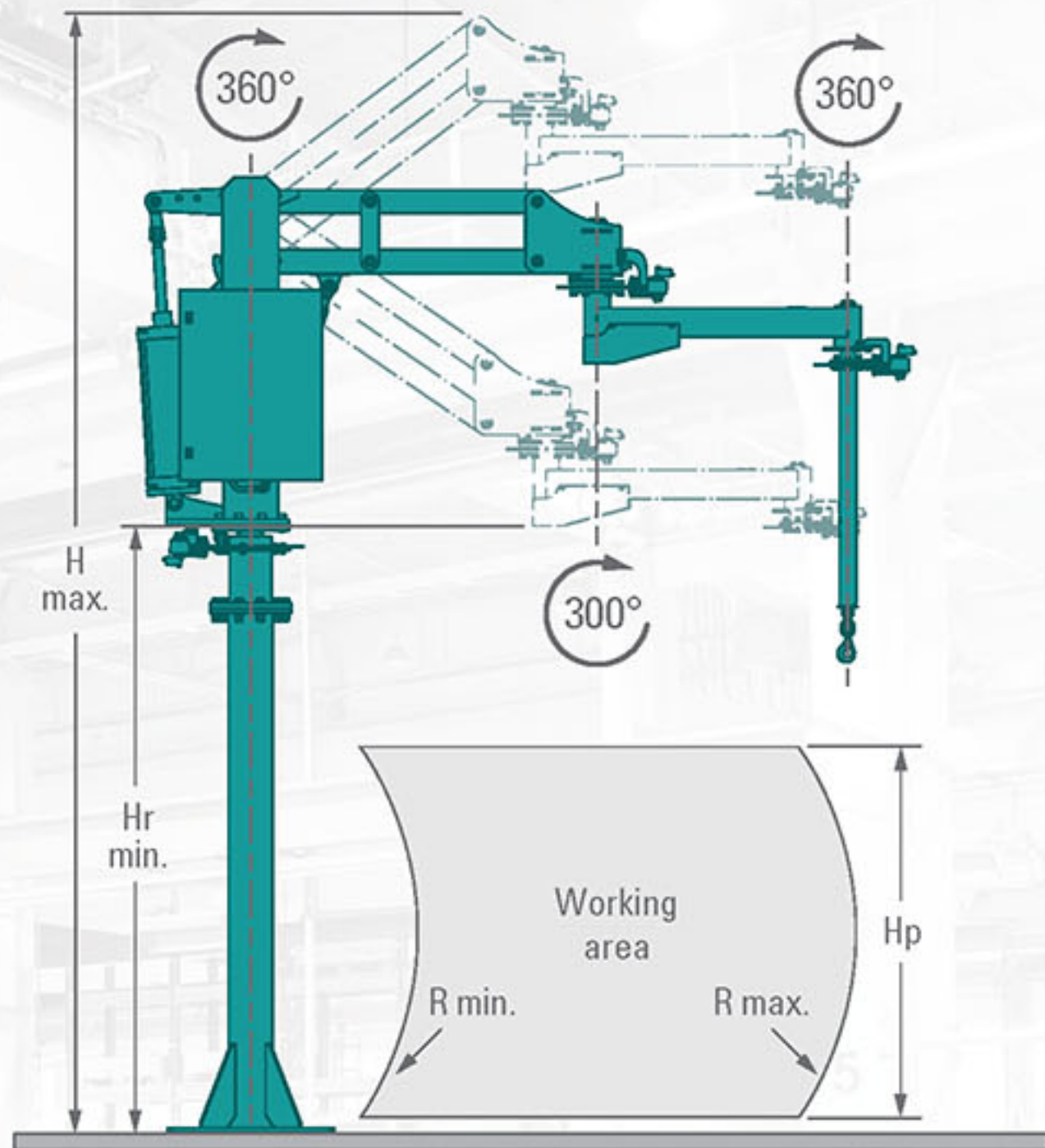
The SIGMA M MANIPULATOR – optimized design of the rigid arms system, allows to carry heavy loads in relatively low-ceilinged areas and low boom radius applied.

PARAMETERS

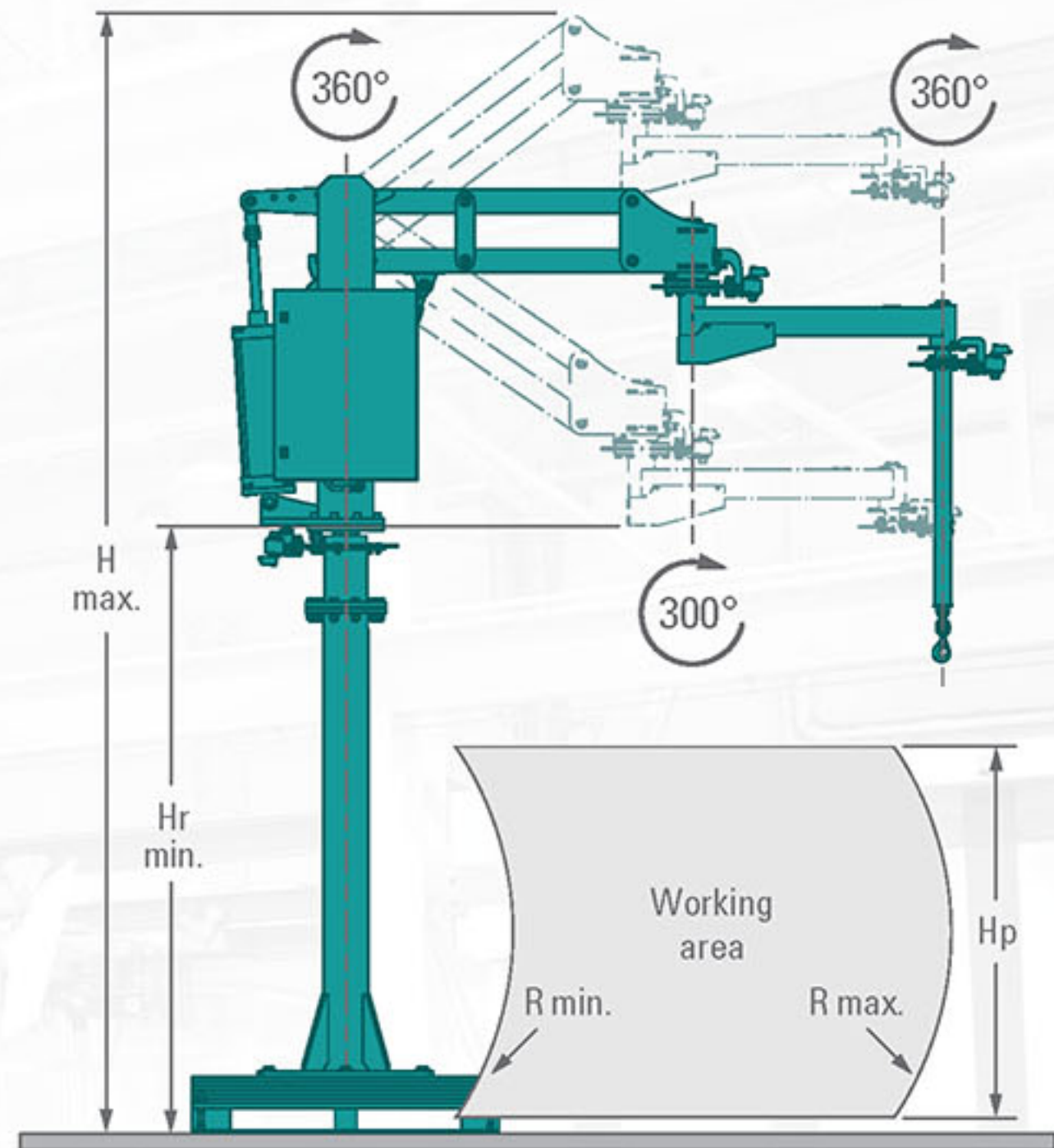
COMPREHENSIVE IMPLEMENTATION

OF NEW SOLUTIONS

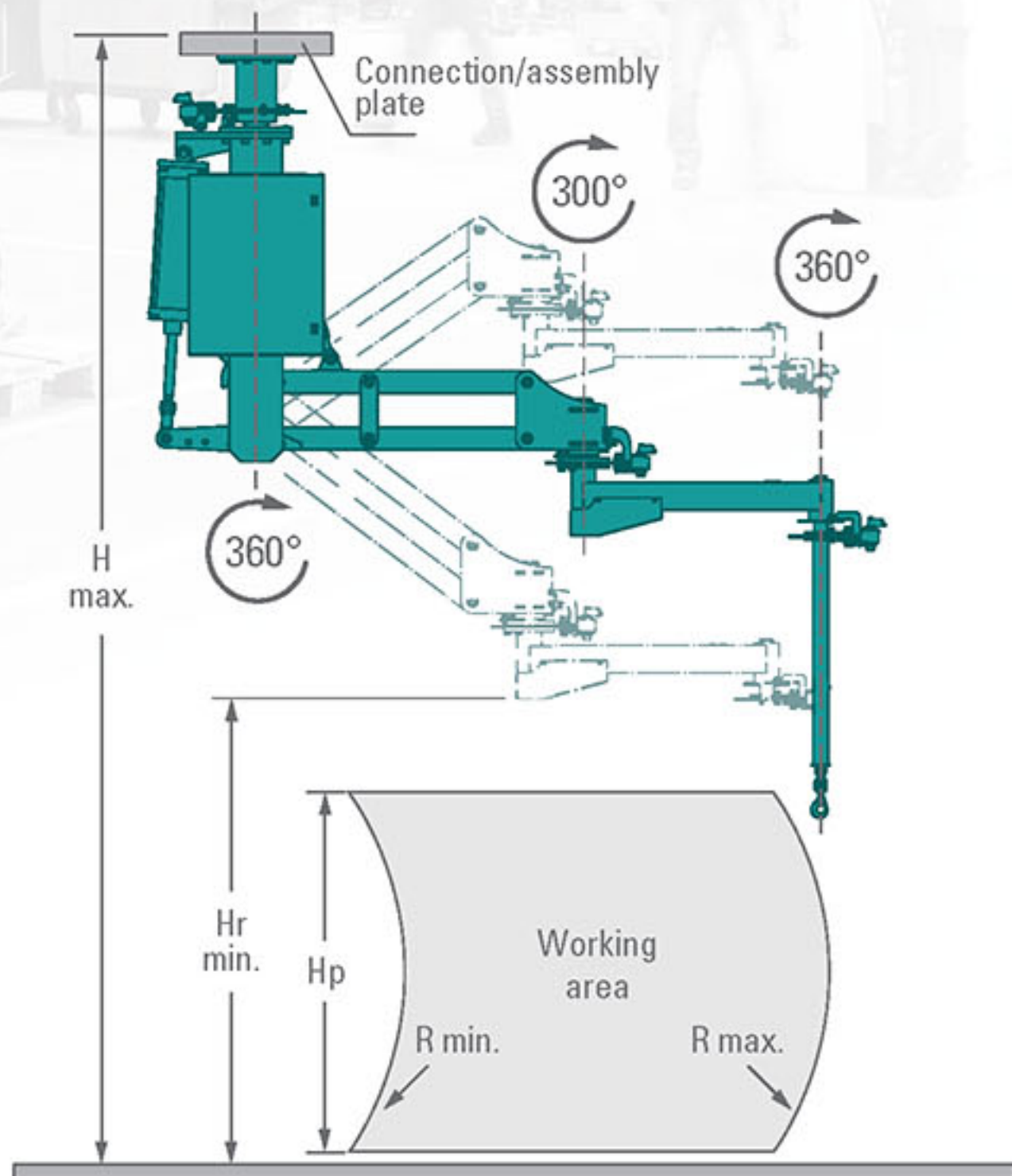
M - SK COLUMN-MOUNTED STATIONARY



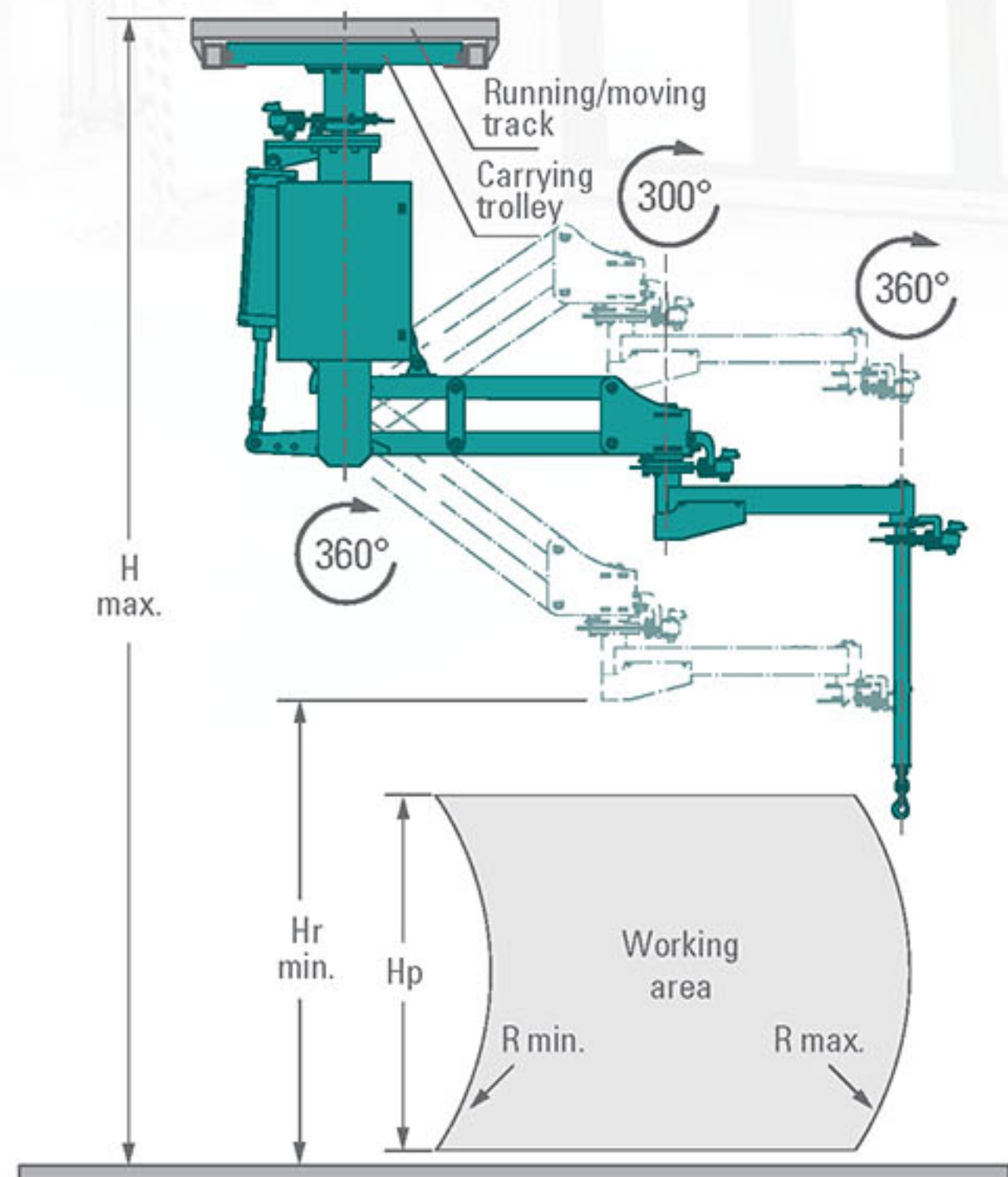
M - MK COLUMN-MOUNTED, MOBILE



M - SP SUSPENDED STATIONARY



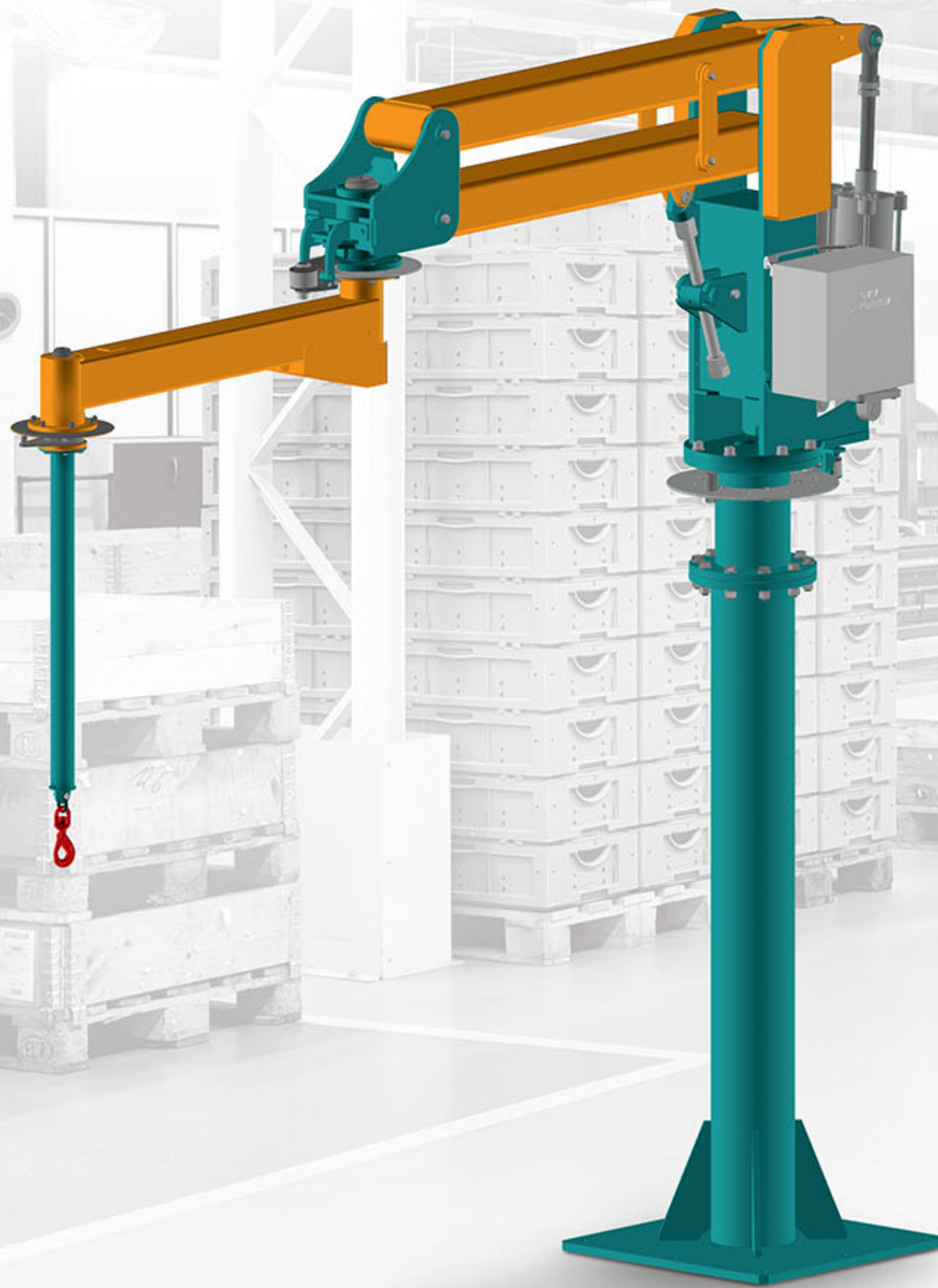
M - PJ SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	100	150	230	330	470
LIFTING HEIGHT RANGE [mm]	2300	2000	1700	1400	1100
MINIMAL RADIUS RANGE R [mm]	1100	1000	850	750	650
MAXIMAL RADIUS RANGE R [mm]	4000	3500	3000	2500	2000

SIGMA L MANIPULATOR



- POWER SUPPLY**
Mpa 0,6
- MAX. LOAD**
KG 700
- MAX. RANGE**
RADIUS in mm 4000

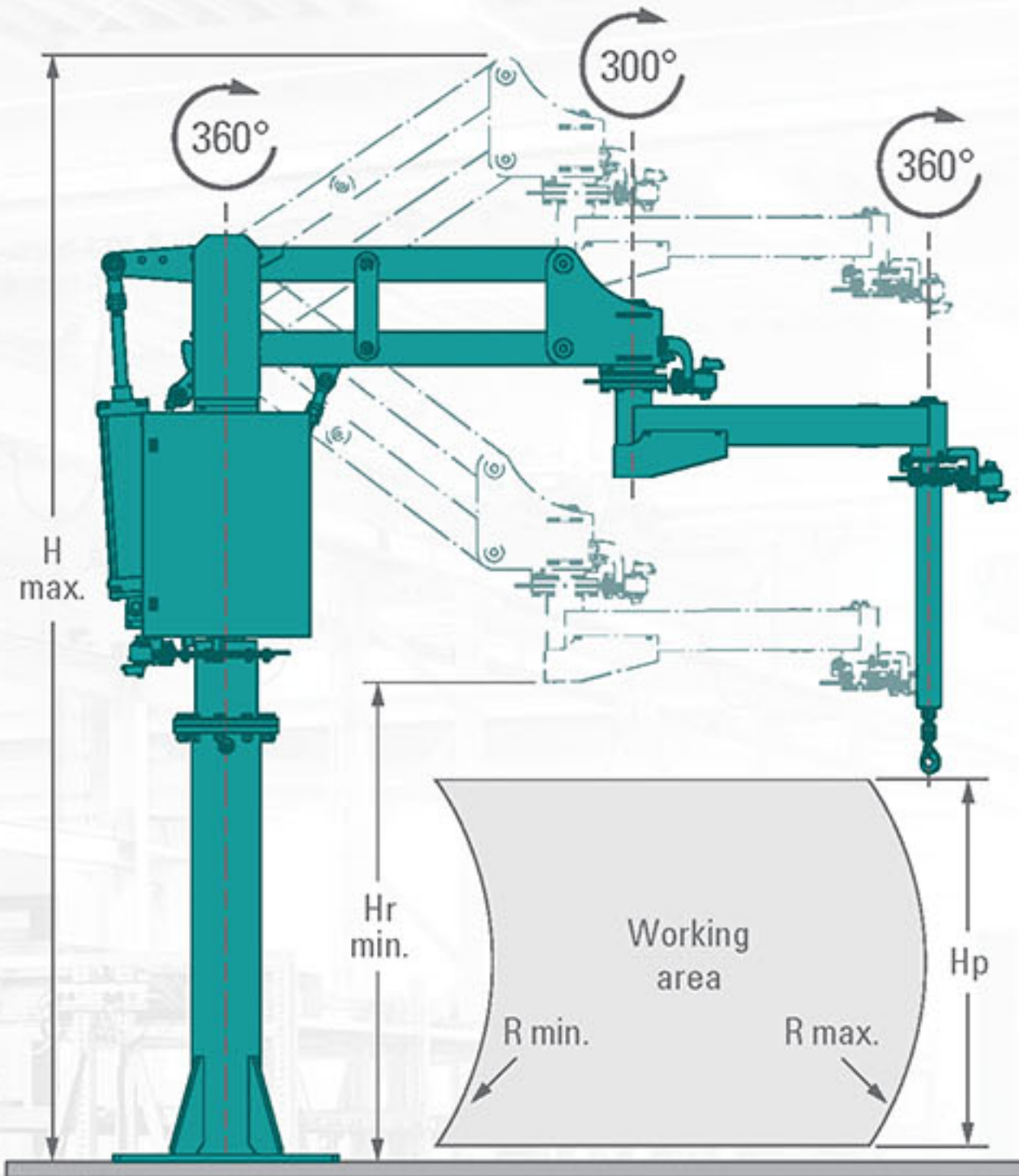
The manipulator with adjusted gripper allows the operator to handle the load easily, quickly and precisely. Highest quality automation and pneumatic components from reliable producers applied, make manipulator's performance totally safe.

PARAMETERS

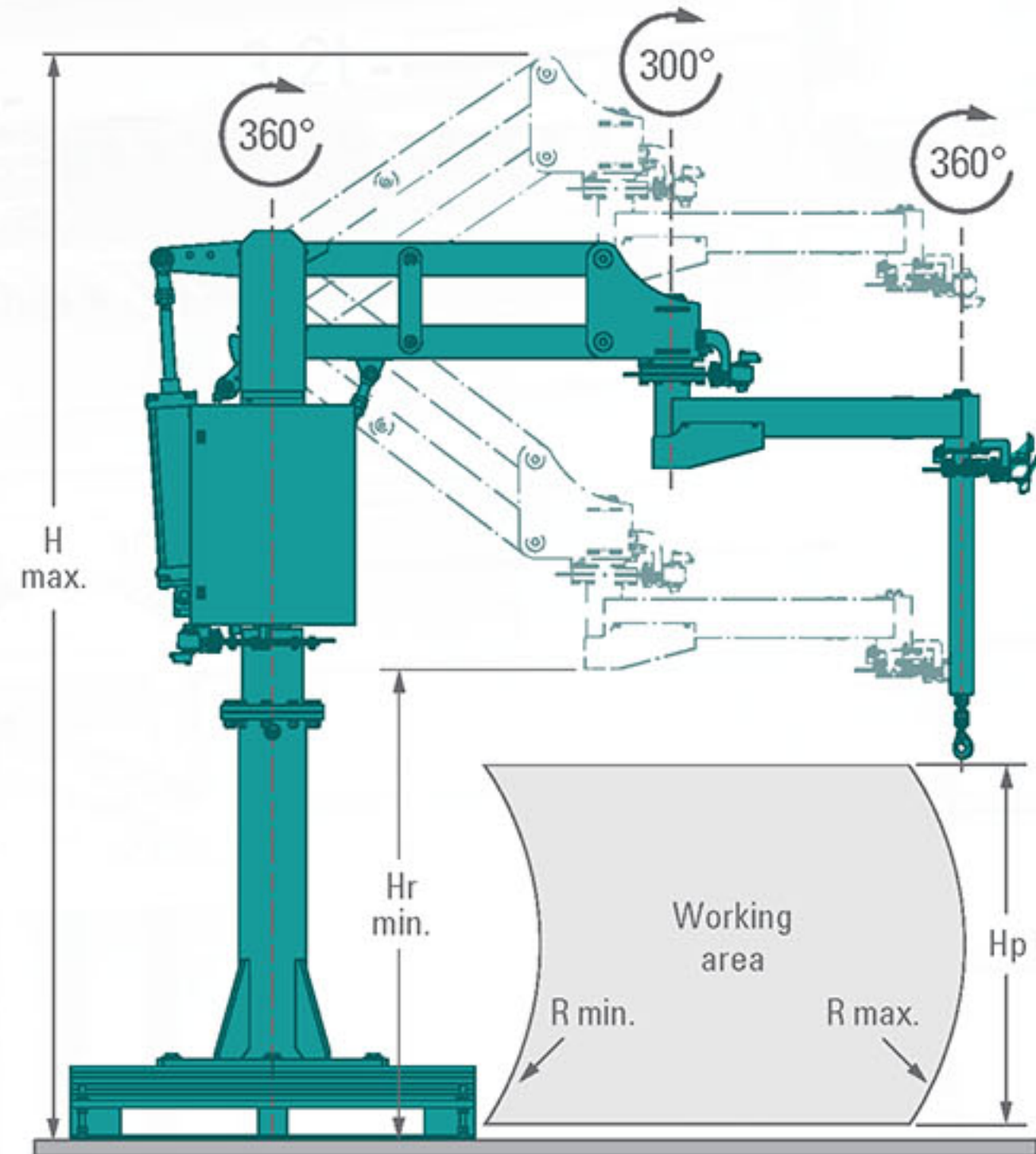
COMPREHENSIVE IMPLEMENTATION

OF NEW SOLUTIONS

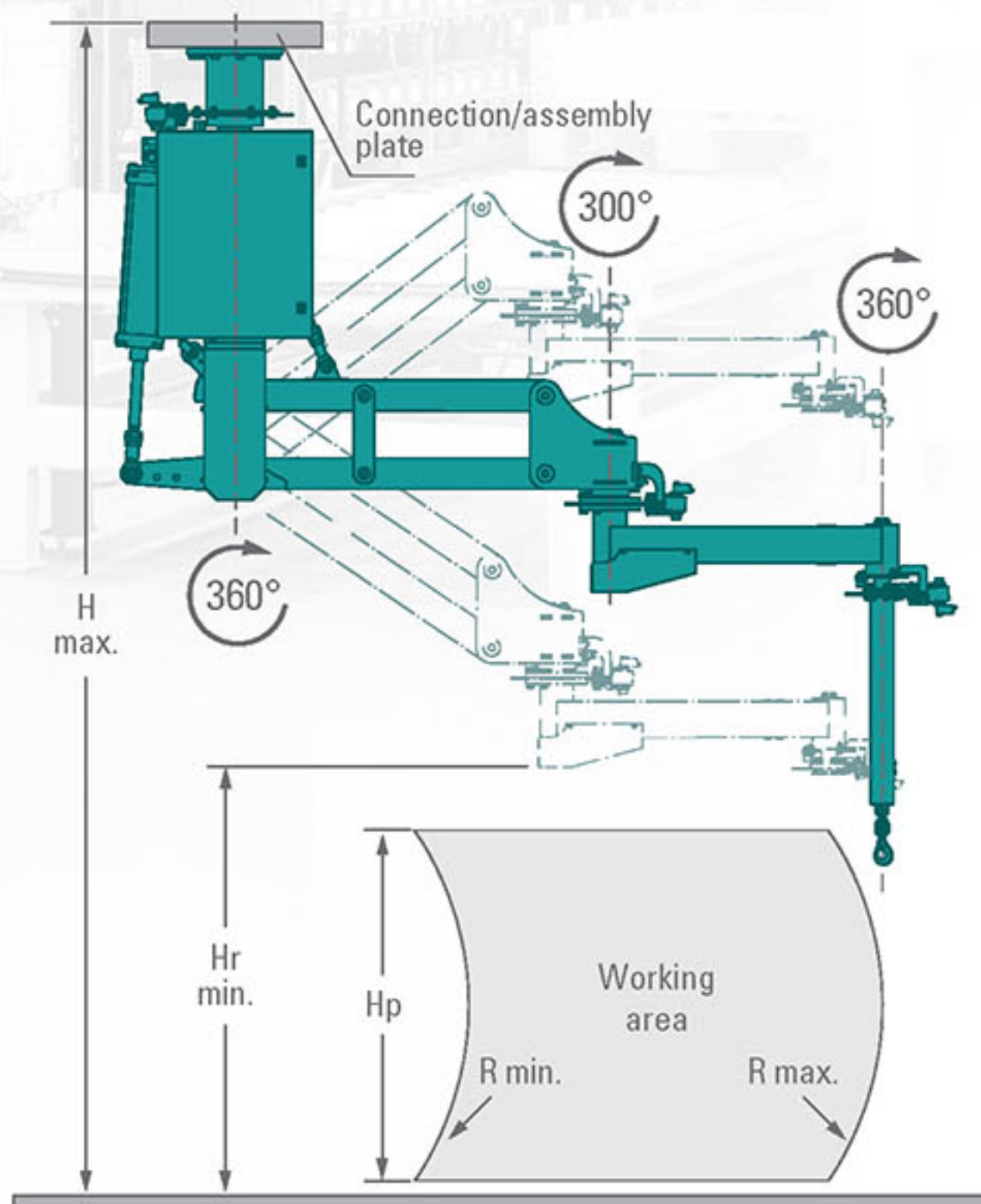
L - SK COLUMN-MOUNTED STATIONARY



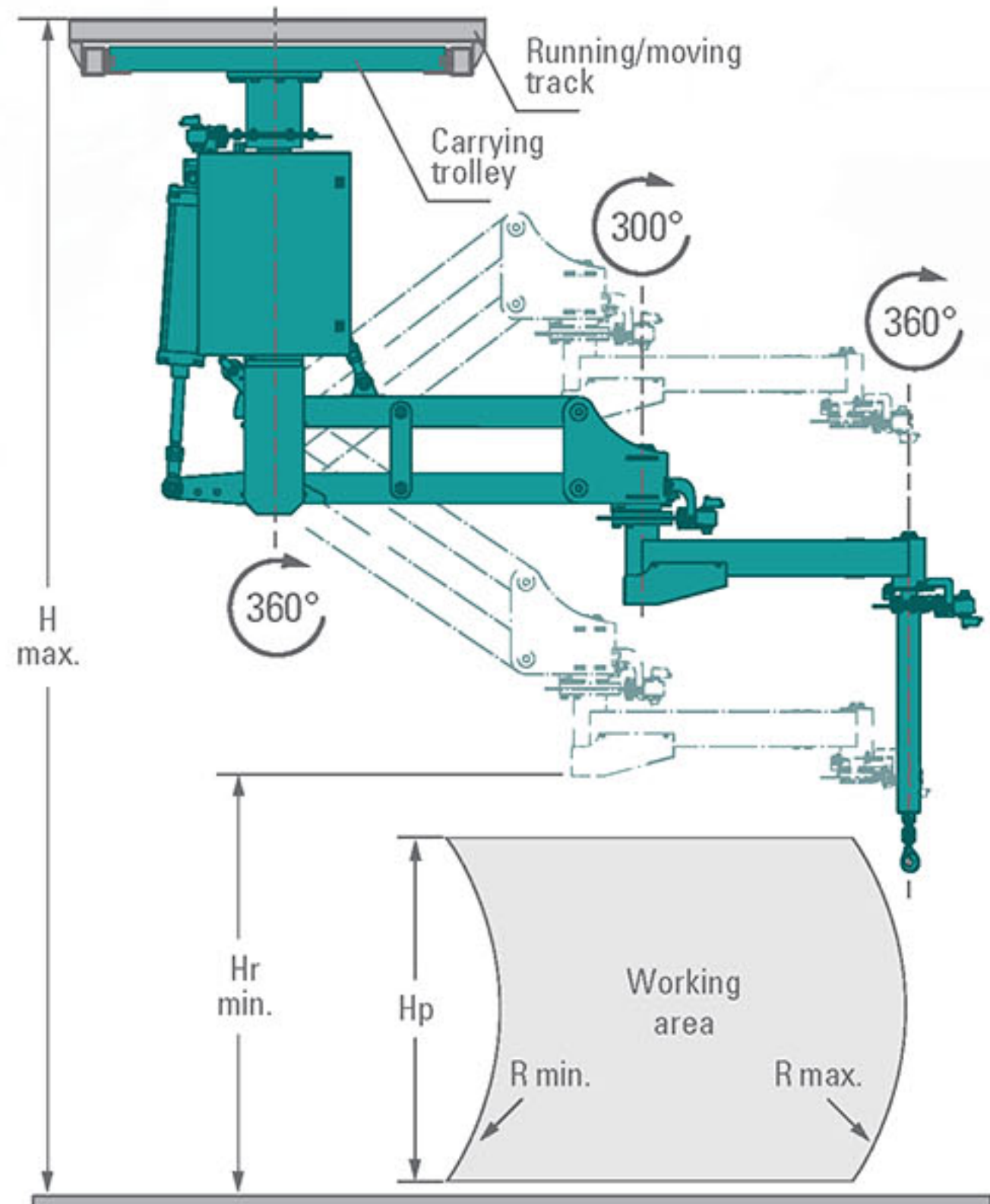
L - MK COLUMN-MOUNTED, MOBILE



L - SP SUSPENDED STATIONARY



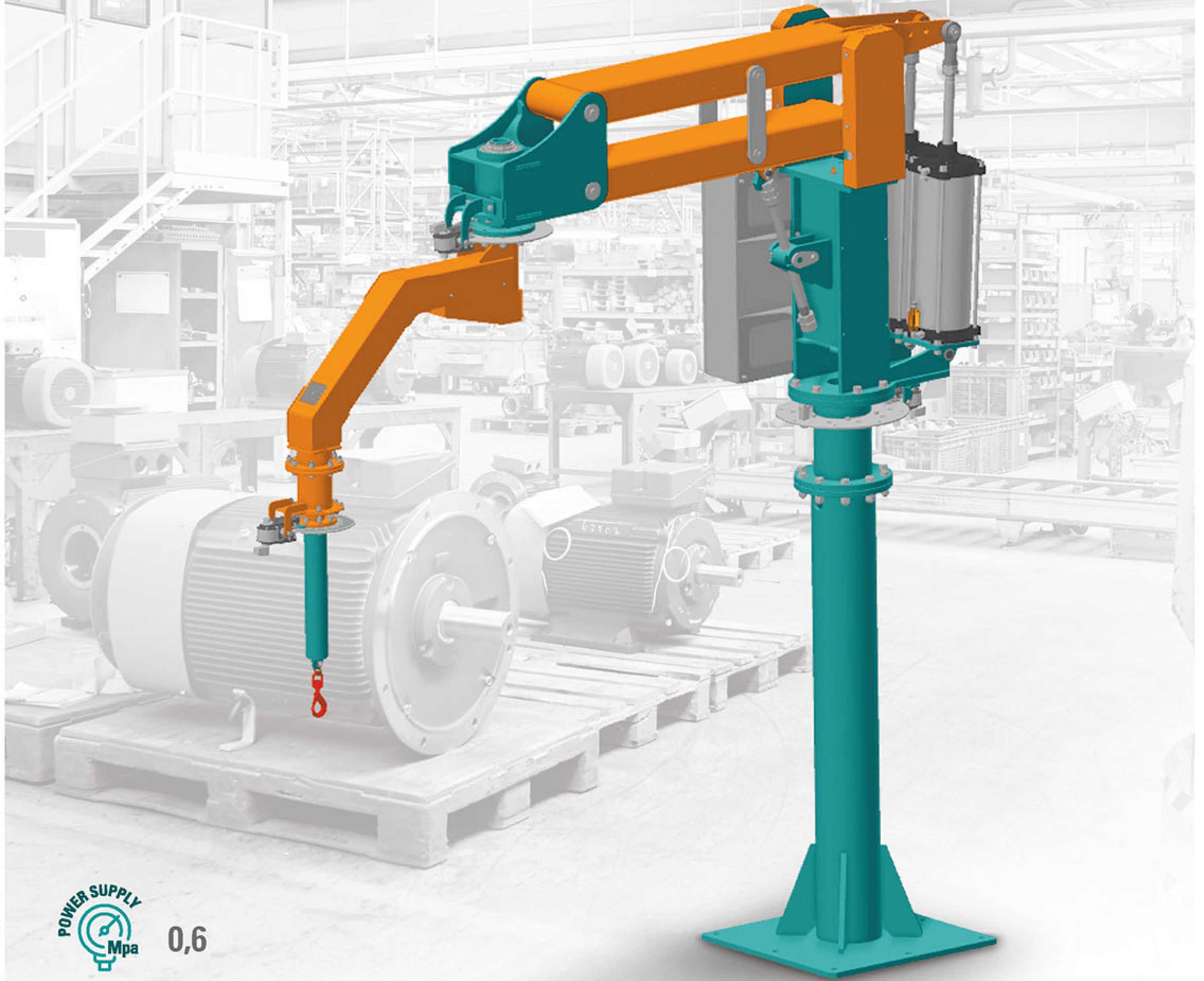
L - PJ SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	200	280	400	530	700
LIFTING HEIGHT RANGE [mm]	2300	2000	1700	1400	1100
MINIMAL RADIUS RANGE R [mm]	1150	1050	850	750	650
MAXIMAL RADIUS RANGE R [mm]	4000	3500	3000	2500	2000

SIGMA XL MANIPULATOR



POWER SUPPLY
Mpa 0,6

MAX. LOAD
KG 1000

MAX. RANGE
RADIUS
in mm 4500

ROTATION'S PNEUMATIC
SUPPORT

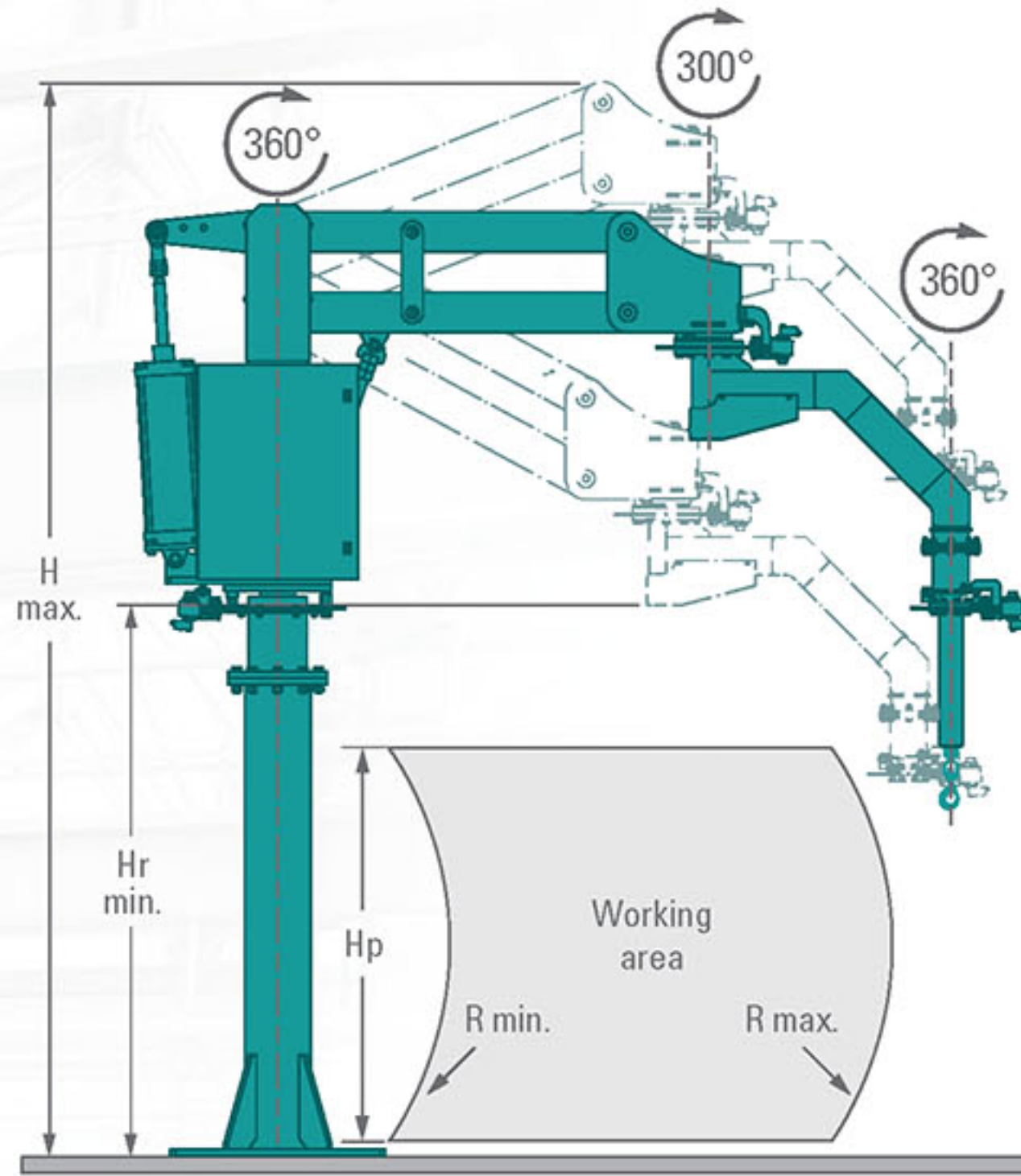
This pneumatic manipulator is designed to be applied in heavy industry. In order to improve ergonomics of handling the loads, rotation support in column's axis has been implemented.

PARAMETERS

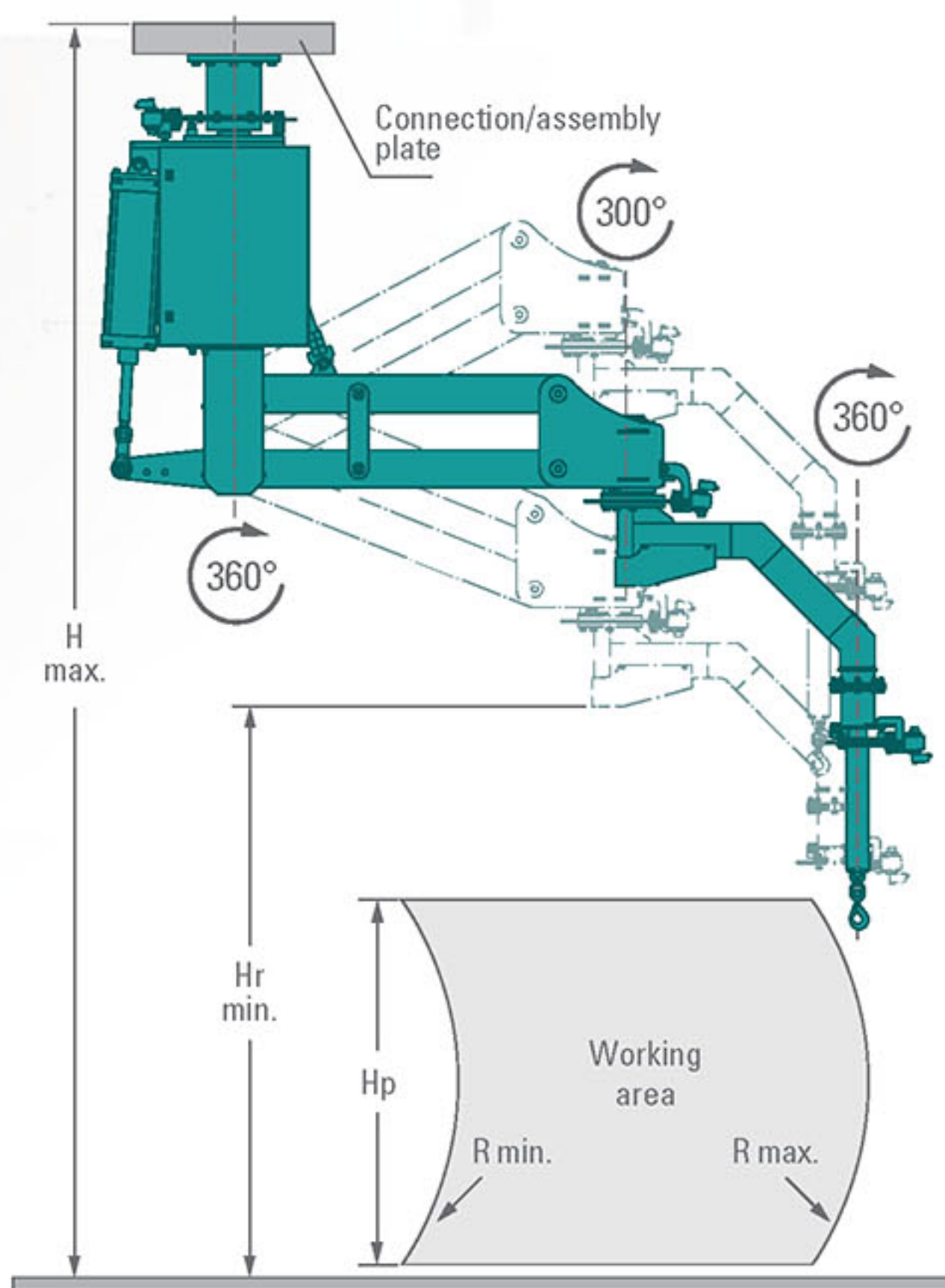
COMPREHENSIVE IMPLEMENTATION

OF NEW SOLUTIONS

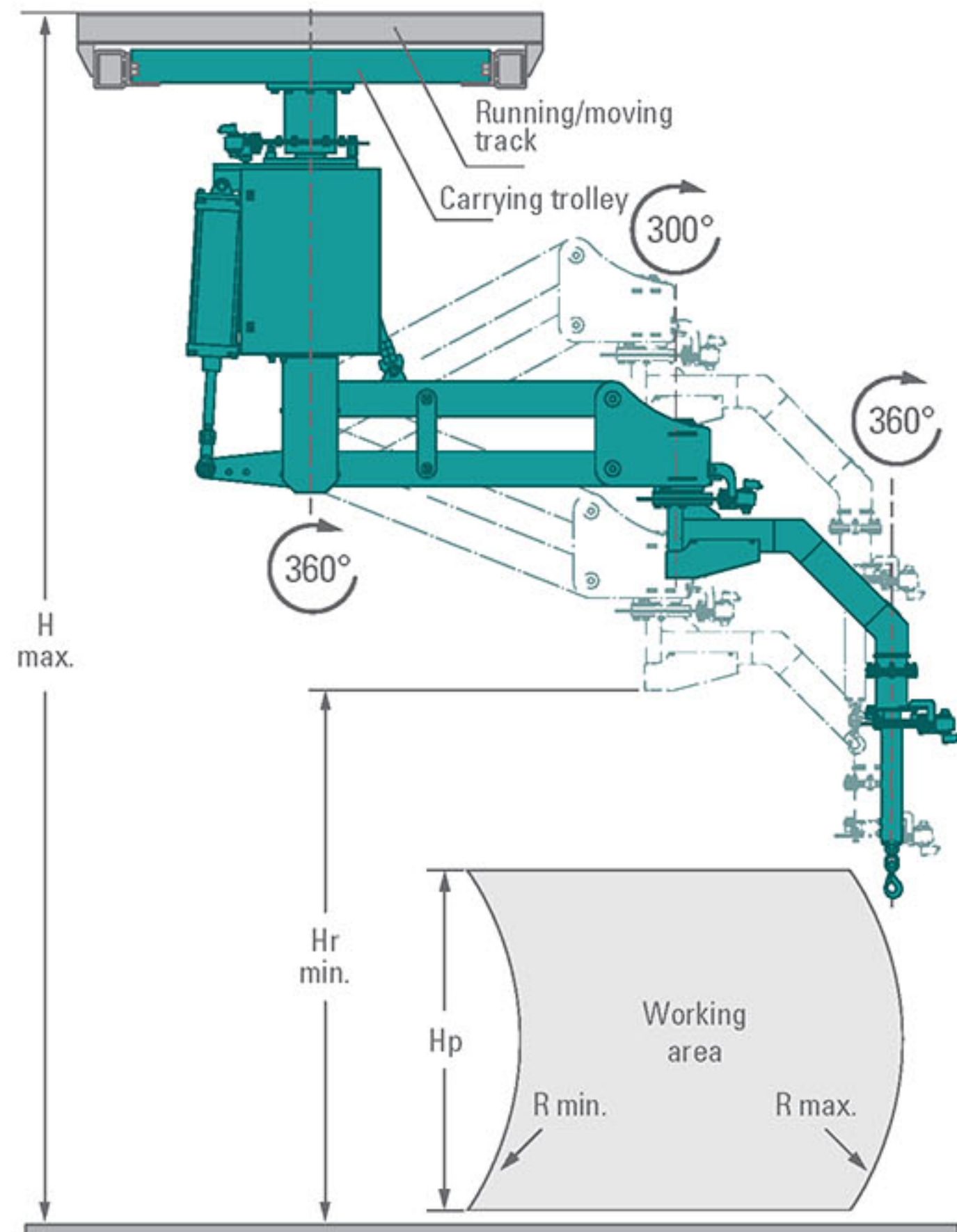
XL - SK COLUMN-MOUNTED STATIONARY



XL - SP SUSPENDED STATIONARY



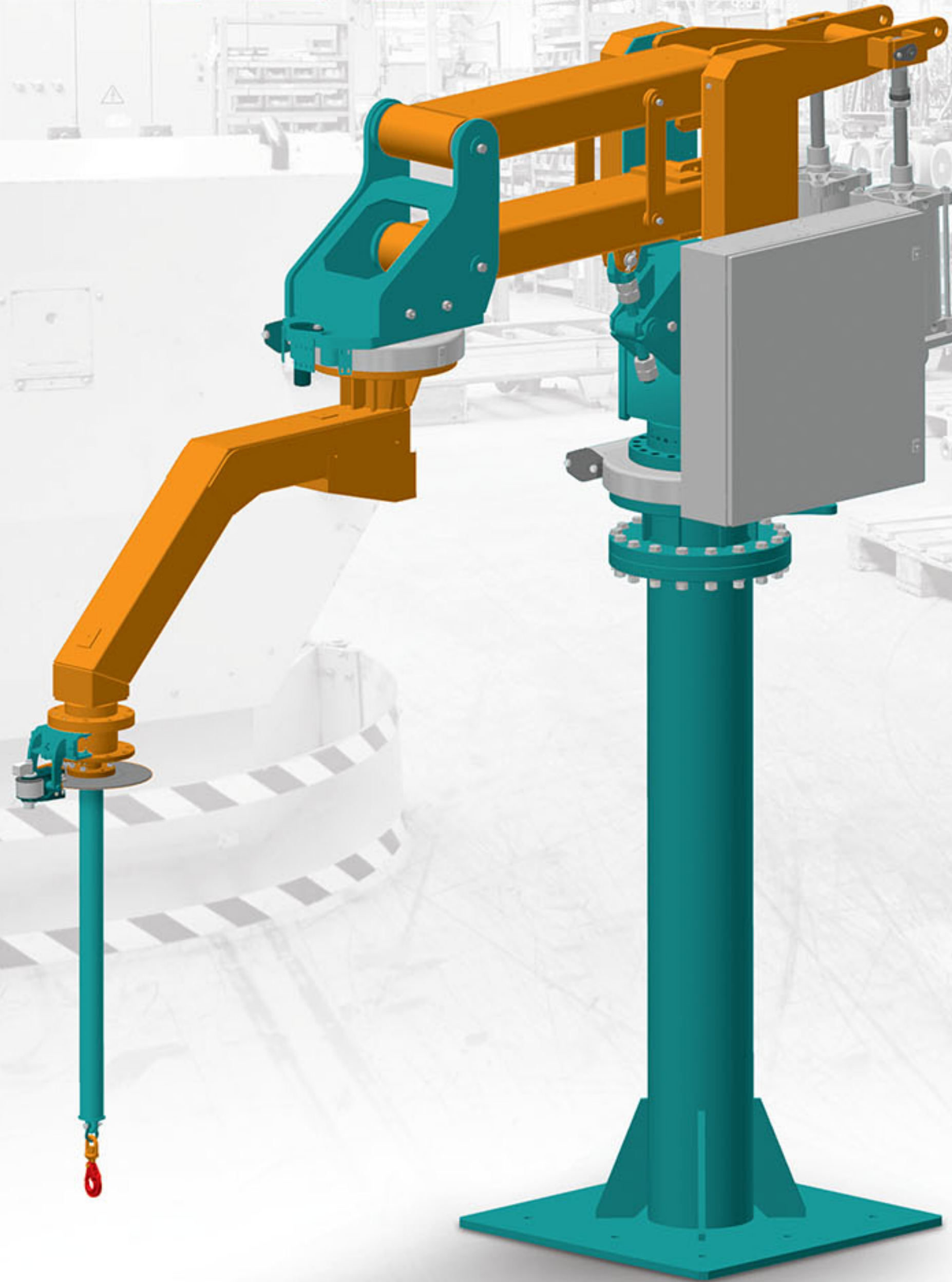
XL - PJ SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	280	400	550	750	950
LIFTING HEIGHT RANGE [mm]	2300	2000	1700	1400	1100
MINIMAL RADIUS RANGE R [mm]	1650	1400	1250	1000	900
MAXIMAL RADIUS RANGE R [mm]	4500	4000	3500	3000	2500

SIGMA XXL MANIPULATOR



0,6



1500



5000



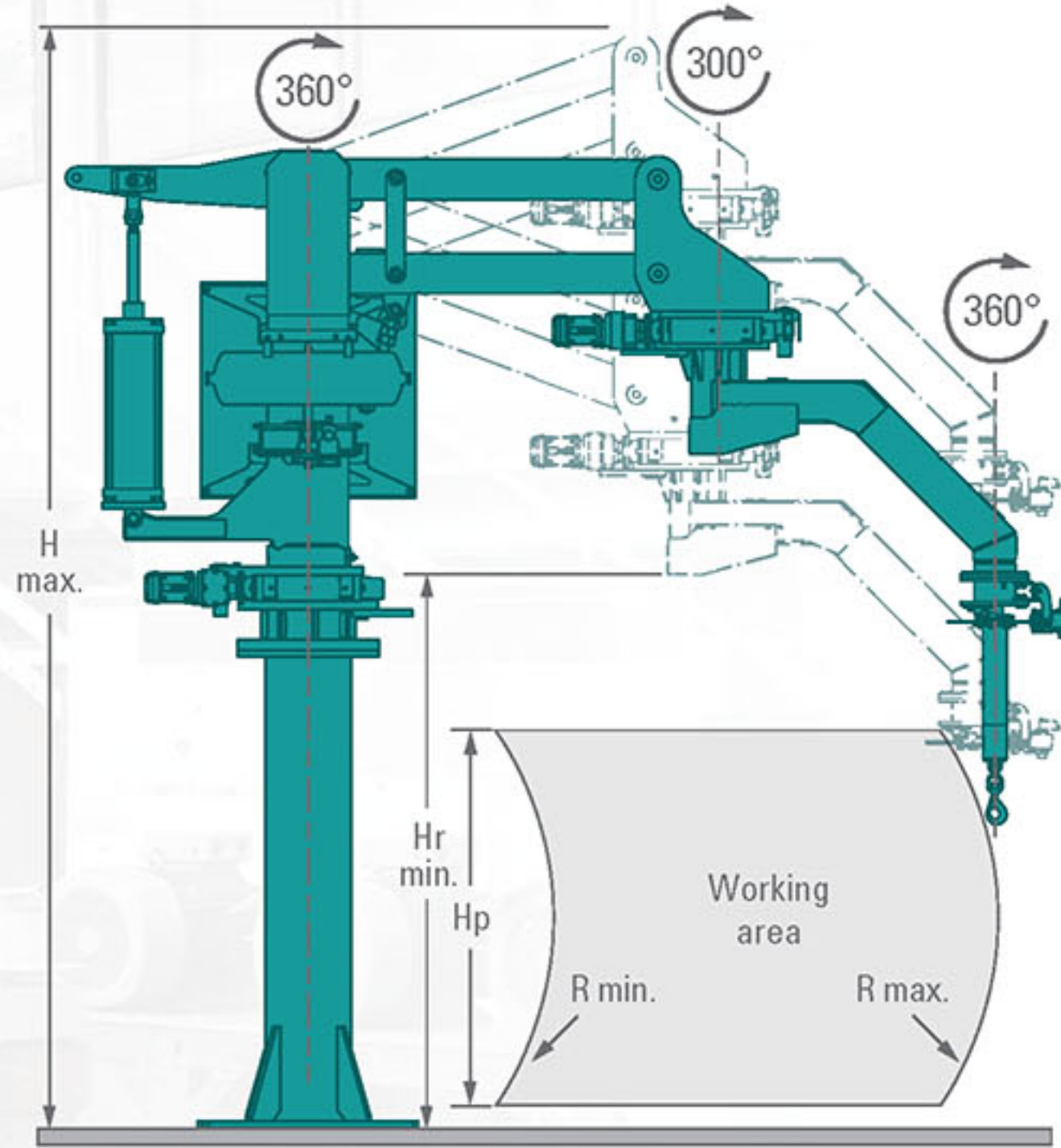
The SIGMA XXL is our largest pneumatic manipulator designed to carry loads with weight above one ton. It can be considered as alternative to small gantries. Application of many additional technical solutions (brakes in the gripper's axis, throttle valves and valves supporting the rotary movement in the column and boom axis), enables fully ergonomic and safe handling of the loads in many axes.

PARAMETERS

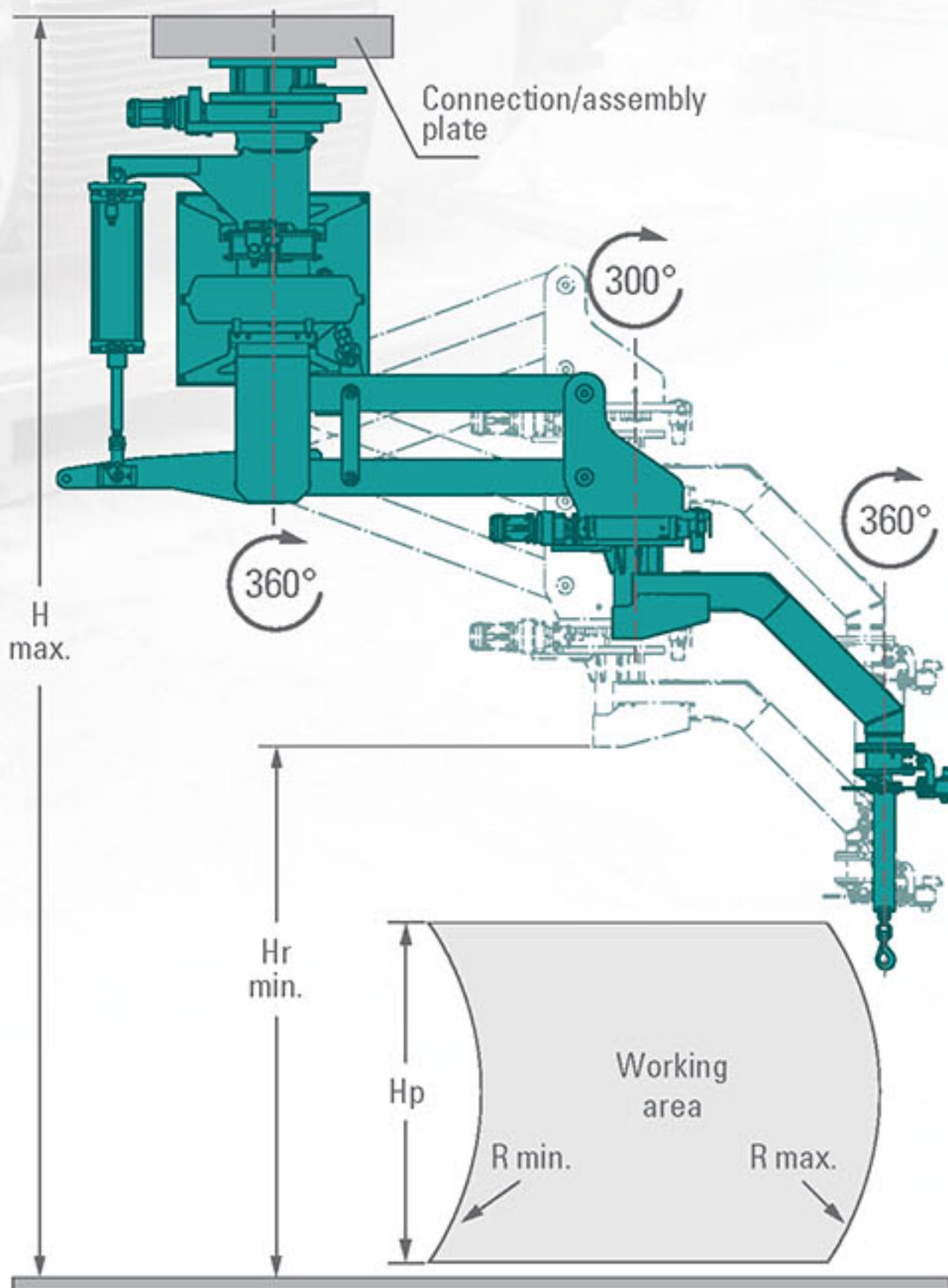
COMPREHENSIVE IMPLEMENTATION

OF NEW SOLUTIONS

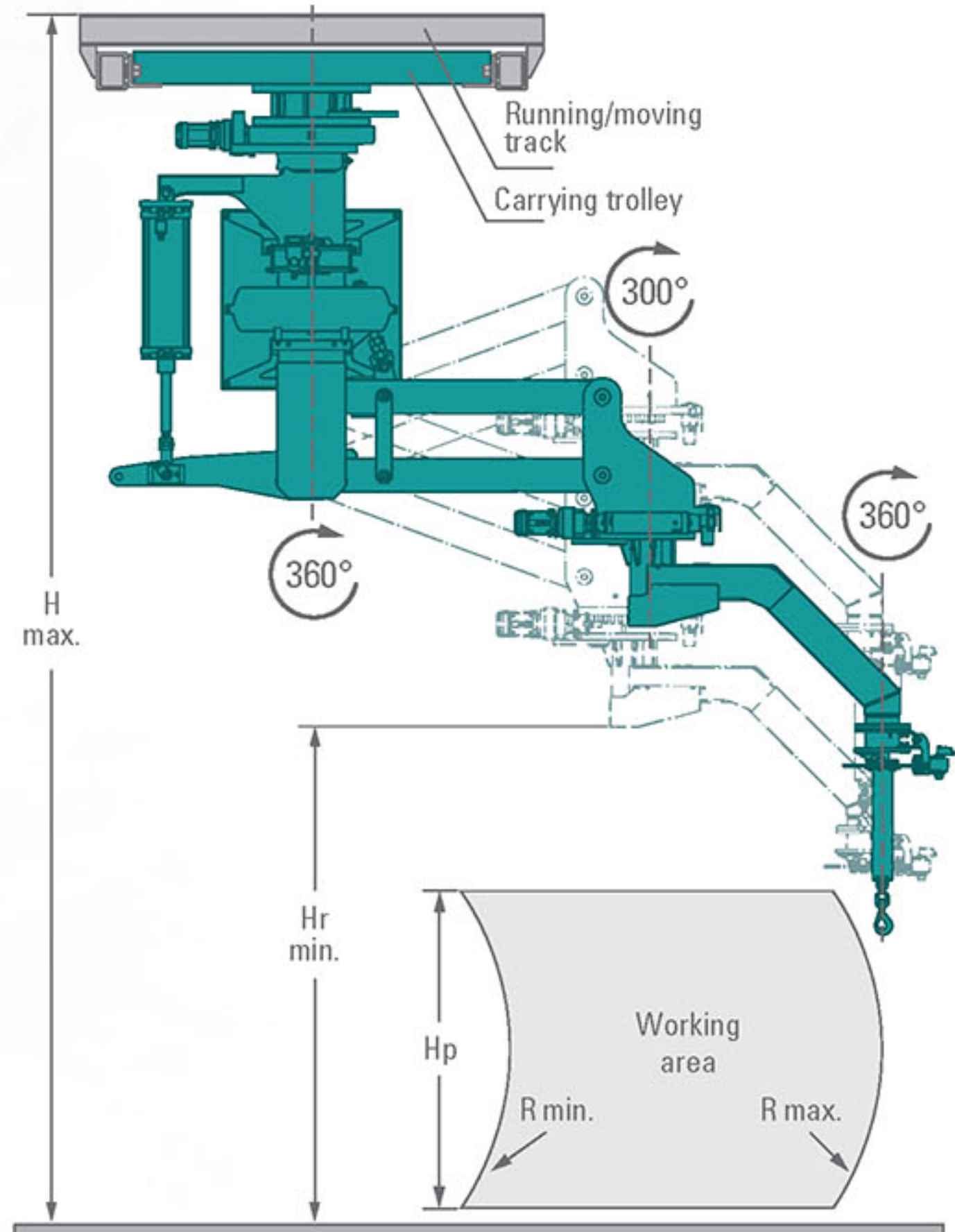
XXL - SK
COLUMN-MOUNTED
STATIONARY



XXL - SP SUSPENDED STATIONARY



XXL - PJ SUSPENDED MOVABLE



TECHNICAL CHARACTERISTICS

LIFT CAPACITY [kg]	550	750	950	1200	1500
LIFTING HEIGHT RANGE [mm]	1700	1500	1250	1100	950
MINIMAL RADIUS RANGE R [mm]	1250	1100	1000	900	750
MAXIMAL RADIUS RANGE R [mm]	4500	4000	3500	3000	2500

INDUSTRIAL MANIPULATORS

SI Gmove

ELECTRIC MOBILE LIFTER



DESCRIPTION

OF SIGmove's FEATURES AND FUNCTIONS APPLIED:

- Electric drive up/down
- Controlled by buttons on handle grip
- Two levels of lifting speed (max. 130 mm/s) with precise positioning and possibility of reduced speed setting
- The mast is made of anodized aluminium, the trolley frame is made of structural steel, powder coated
- IP41 (International Protection Marking)
- Maintenance-free design of drive with silent toothed belt installed
- Soft START/STOP lifting mechanism
- Protection against device's overturning when boom is blocked
- Self-locking gear for safety assurance in case of drive's electric failure
- Battery powered, efficient and maintenance-free AGM type batteries applied
- Integrated charger 24V X A ensuring long life cycle of battery due to protection against overcharging
- Ease and driving precision are features which allow to manoeuvre our manipulator in tight and space limited areas
- Adjustable handle grip to suit individual ergonomic preferences
- Central mechanism of rear wheels blocking function
- Power supply 115-240 V ACv



TECHNICAL CHARACTERISTICS

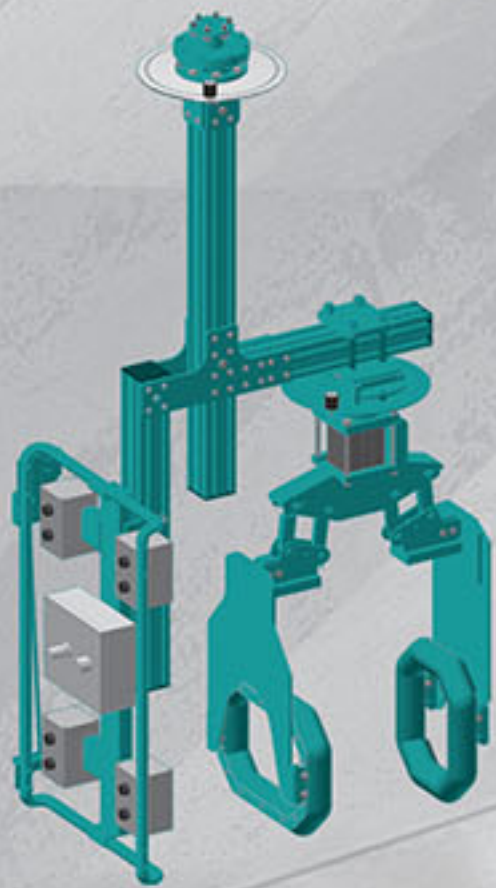
	M	L	XL
TOTAL HEIGHT [mm]	1975	2375	2775
LIFTING RANGE [mm]	1600	2000	2400
LOAD CAPACITY [kg]		140	
TYPE OF DRIVE		electric	
MAX. LIFTING SPEED [mm/s]		130	
REAR WHEELS BLOCKADE		central mechanism	
LOAD'S CENTER OF GRAVITY [mm]		400	
RAW MATERIAL		steel, aluminium	
SURFACE COATING		powder coating/anodizing	
SOFT START/STOP MECHANISM		yes	
INTERNATIONAL PROTECTION MARKING		IP41	
CHARGER		integrated	
CONTROL/STEERING		local – control panel, up/down	

GRIPPERS HOLDERS

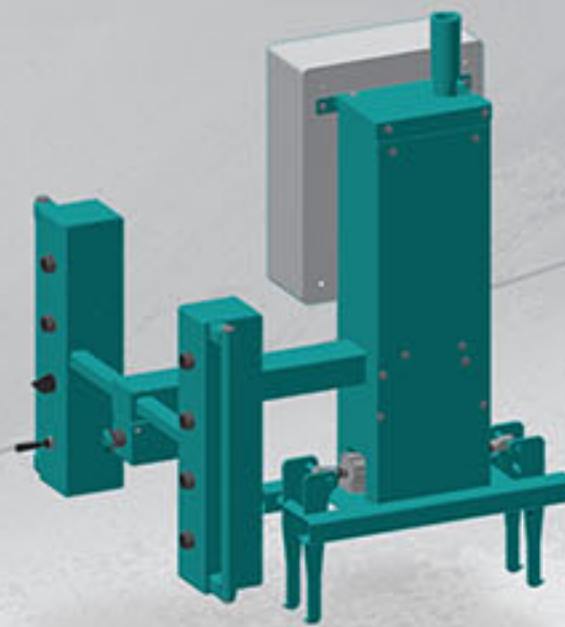
For 25 years SIGMA S.A. has been recognized on the market as company representing unconventional and innovative approach towards technical issues. In order to answer market requirements, we design and implement material handling solutions with adjusted grippers. Industrial manipulators are manufactured in Polish factory located near Lublin. We possess our own R&D Department and experienced team of technologists and automation engineers.

Research&Development Centre title granted by Government's Minister, allows SIGMA to constantly implement new products tailored to customer's needs. We apply highest quality pneumatic and automation components from reliable producers.

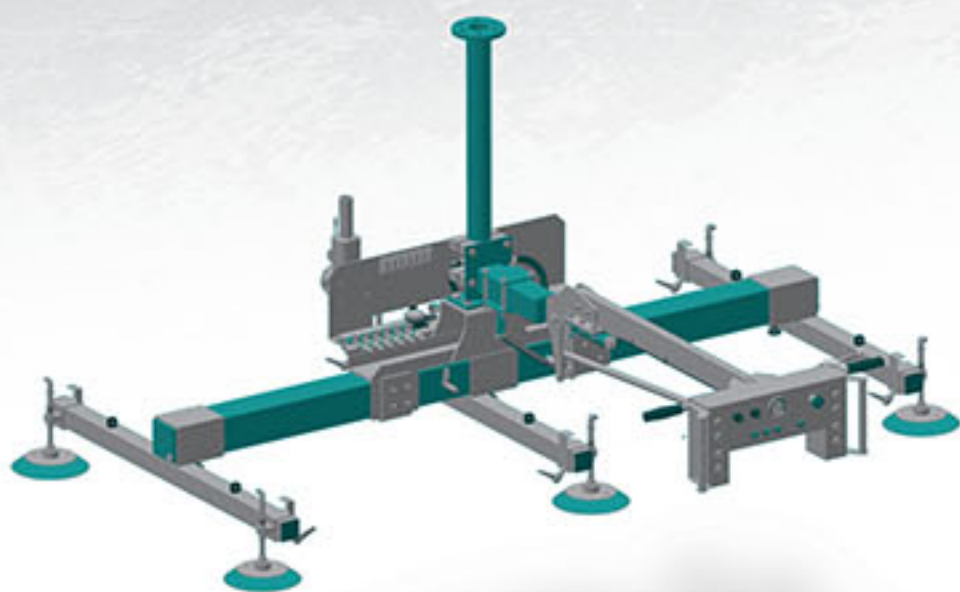
**CLAMP
GRIPPER**



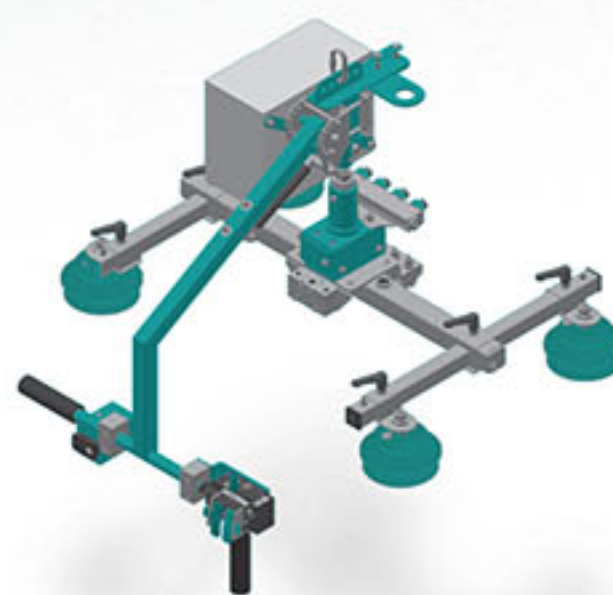
**CRATE
GRIPPER**



**VACUUM
GRIPPER**



**METAL SHEET
GRIPPER**



**PACKAGES
GRIPPER**



**BOBBIN
GRIPPER**



BARREL
GRIPPER



FORK
GRIPPER



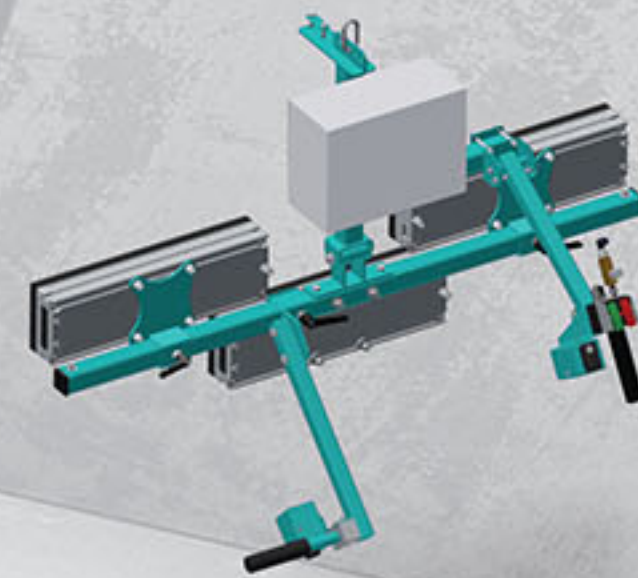
HOOK
HOLDER/ATTACHMENT



AXLEBOX
HOLDER/ATTACHMENT



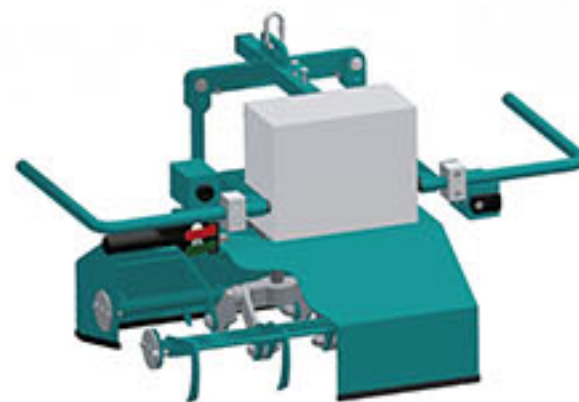
BARREL
VACUUM GRIPPER



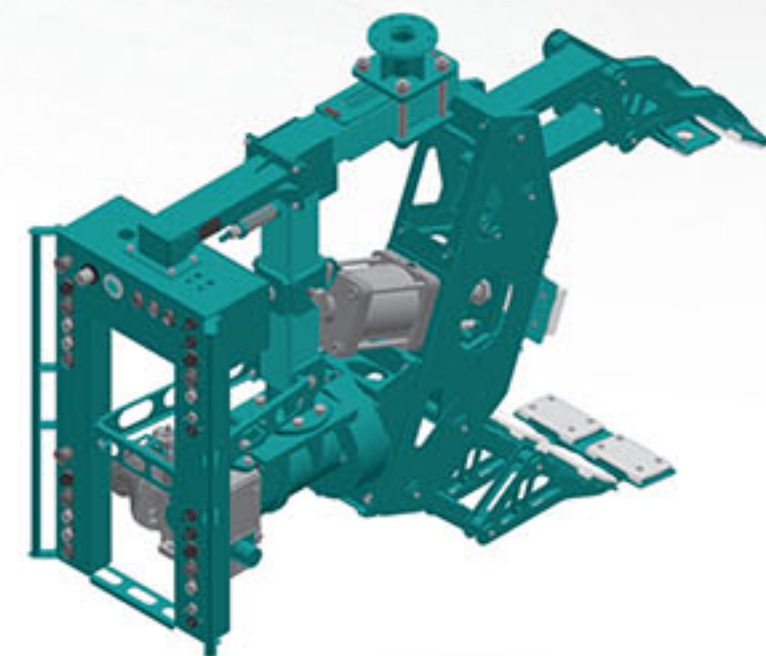
TV
GRIPPER



BRAKE DISC
GRIPPER



JUTE SACK
GRIPPER



CONTAINER
ROTARY GRIPPER

INDUSTRIAL MANIPULATORS





Our **RESEARCH AND DEVELOPMENT DEPARTMENT** is specialized in designing and implementation of modern automation and control systems, robotics, as well as control and measurement devices. Projects carried out by our engineers have significant impact on our customers' business activity, increasing the efficiency, effectiveness and safety of the processes they accomplish. We approach each project individually and exactly get to know given technology, what allows to optimize the process. We carry out the projects meeting customers' needs in accordance with applicable regulations and safety requirements. Thanks to our experience and candidness, we are able to meet every challenge.

ROBOTICS

PROGRAMMING of Yaskawa industrial robots.

SERVICE of industrial robots.

Designing and carrying out the **ROBOTIZED AND AUTOMATED WORKPLACES**

ELECTRONICS

Designing of **ELECTRONIC CIRCUITS**.

PCB designing.

AUTOMATION

DETERMINING THE REQUIREMENTS AND PREPARING THE CONCEPT OF CONTROL SYSTEM.

Technical advice in scope of production process and machines improvements in order to increase efficiency and reduce failure rates.

CARRYING OUT THE COMPREHENSIVE CONTROL SYSTEMS

of machines and technological installations using PLC controllers (communication standard Profinet, Profibus, Ethernet IP, Modbus TCP, Modbus RTU, IO-Link).

PROGRAMMING PLC controllers (Siemens, Allen Bradley, Schneider, IDEC).

VISUALIZATION OF INDUSTRIAL PROCESSES

using HMI operator panels and computer SCADA stations.

DESIGNING of circuit diagrams.

START-UP AND FUNCTIONAL TESTS OF DEVICES

– support in start-up phase.

SUPPLY OF CONTROL cabinets and switchboards.

CONDUCTING SAFETY AUDITS, risk assessment.

SUPPORTING THE DESIGNERS in phase of device concept development.

DESIGN AND INSTALLATION OF OPERATORS' PANELS, production, control and measuring workplaces.

INTEGRATION OF INDUSTRIAL AUTOMATION DEVICES into one system.

TRAININGS FOR SERVICE and technical personnel.

DESIGNING of pneumatic systems.

CONTROL and measurement devices.

CARRYING OUT THE VISION SYSTEMS to control the quality of manufactured elements.

WE SPECIALIZE

IN FOLLOWING APPLICATIONS:

HANDLING, ASSEMBLY AND MACHINE operation.

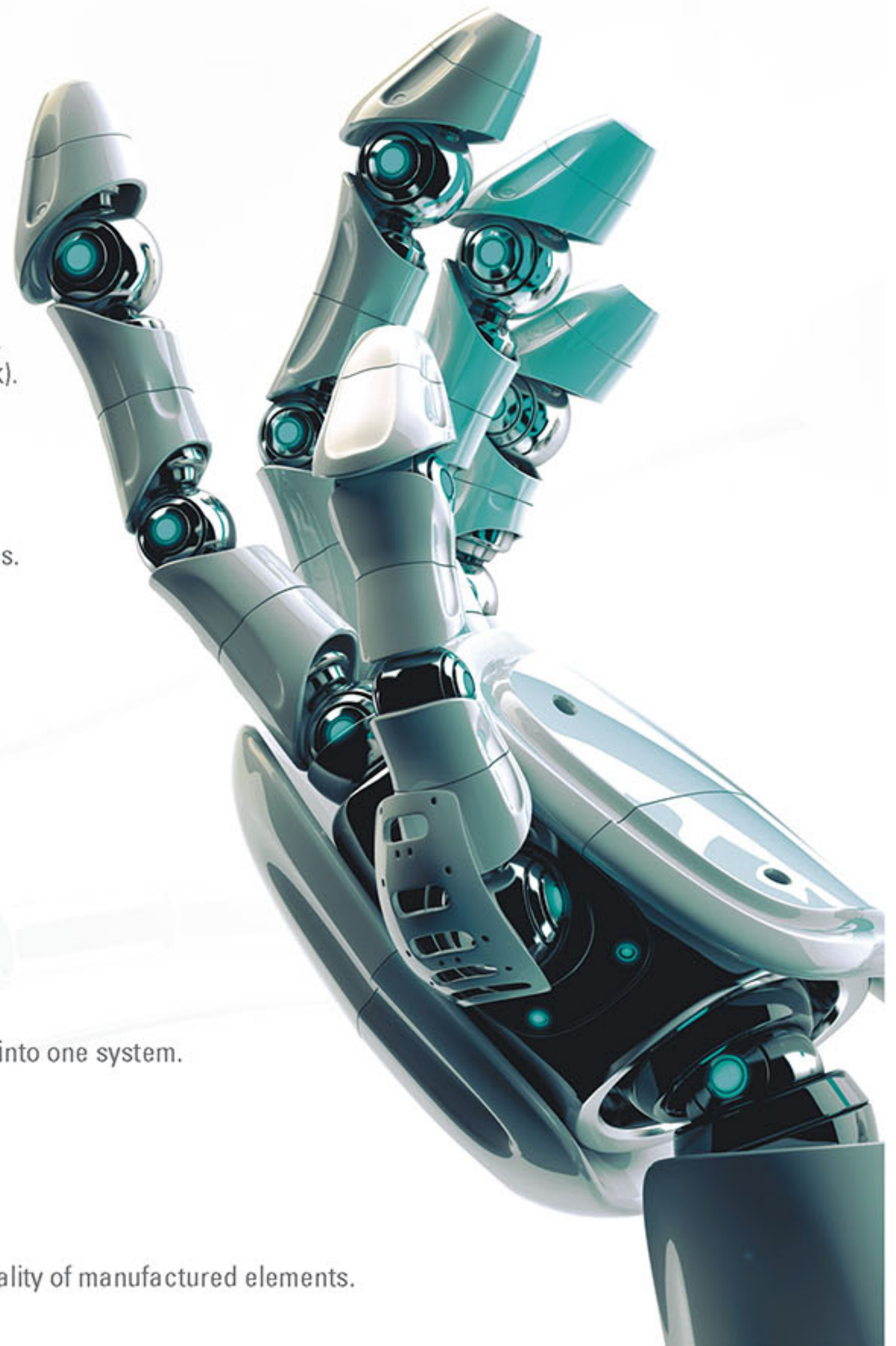
PACKING, palletization and depalletization.

Collaborative **ROBOTS – COBOTS**.

SERVICE WARRANTY AND POST-WARRANTY service of industrial automation.

Carrying out the safety **AUDITS FOR MACHINES**, modernization of safety systems.

MODERNIZATION of machines and production lines control systems.



PATENTS INNOVATIONS

Applications submitted
at **POLISH PATENT OFFICE** between **2001 - 2021**



137
APPLICATIONS

77

GRANTED PATENTS

31
GRANTED
UTILITY MODELS

32
PATENT
APPLICATIONS
STILL PENDING

CERTIFICATES QUALITY

Implemented and constantly improved
QUALITY MANAGEMENT SYSTEM at SIGMA S.A.



PN-EN
ISO 9001:2015
QUALITY MANAGEMENT SYSTEM

PN-EN
ISO 3834-2 QUALITY REQUIREMENTS
FOR FUSION WELDING OF METALLIC MATERIALS

PN-EN
15085-2:2007 CERTIFICATION LEVEL **CL1**
WELDING OF RAILWAY VEHICLES AND COMPONENTS



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