Technical Data
Projekt-drafting manual
Accessories

Demag DC chain hoists

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Manufacturer

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Quickly select your chain hoist – with our online product configurator

www.demag-designer.com is the address where all important facts and data on Demag DC chain hoists can be found.

This information and planning platform provides you with a comprehensive product overview and contains all the data you need for project engineering. Various languages can be selected.

You can also download 3D CAD drawings of the entire Demag chain hoist range and integrate them into your design drawings.

Suitable hoists and accessories can be selected simply and reliably.

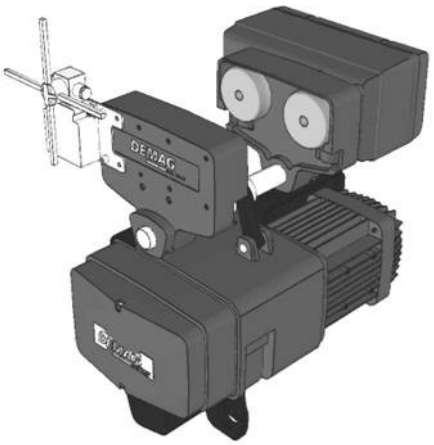
A practical and intuitive user interface ensures that you can find the right solution to meet your needs quickly and easily.

The Demag Internet ordering system at **www.demag-shop.com** also makes it possible to order chain hoists and components immediately.

Designer Portal

Product selection

Product result



Guided 3D CAD geometry selection

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DC chain hoist project engineering sheet

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The metric system is used in this document and all figures are shown with a comma as the decimal separator.

1 Chain hoist

1.1 General

Lifting loads

↓

Demag DC-Pro chain hoist

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Perfect load handling

↓

The industry standard made by Demag

High productivity, efficiency and operating reliability are the most important requirements to be met by state-of-the-art material flow systems. Demag develops and produces innovative materials handling solutions for all industries and companies of all sizes, from small workshops to major industrial corporations.

All inclusive: fully featured with no need for extras. Many features are already integrated into the Demag DC chain hoist as standard that have to be ordered and bought as extras for other chain hoists. The DC chain hoist is a fully featured, highly versatile chain hoist, which can be installed and put into service in a minimum of time.

Certified

DC chain hoists satisfy the relevant provisions of

- EC Machinery Directive 2006/42/EC,
- EC Low Voltage Directive 2006/95/EC and
- EC EMC Directive 2004/108/EC.

Electromagnetic compatibility is rated for interference immunity in industrial environments and for interference emissions in commercial and industrial environments.

In addition, an optional variant of these chain hoists meets the strict $_{C}CSA_{US}$ regulations for Canada and the USA.

Safety-related functions:

Improved safety thanks to rugged and proven electronic controls in comparison with conventional controls. At least Category 2 and Performance Level PL = c are achieved for the safety-related functions specified in DIN EN 14492-2.

(PL = c and Cat. 1 apply for DC/CC/FC conventional controls):

- Emergency stop
- Lifting and lowering limiters
- Overload protection (as of 1 t)

for travelling hoists to EN 15011:

- Emergency stop
- Travel limiters (right/left)

and for tandem operation with two hoist units by means of tandem box:

- Interlocking of the hoist units

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Always the right product

Choose the right hoist for your application from our two DC-Com or DC-Pro product lines.

DC-Com units are designed for normal application requirements – at an attractive price. DC-Pro units boast a longer service life and higher lifting speeds. Both chain hoists are Demag brand quality products.

Main differences between the product types

	DCS-Pro (DCMS-Pro)	DC-Pro (DCM-Pro)	DC-Com	DC-ProDC/CC
Control method, control voltage	Inverter, 24 V	Contactor, 24 V Tri-state signal transmission		Direct/conventional contactor
Group of mechanisms	1Am to 4m			
Standard lifting speed up to 125 kg, [m/min]	0,15-30/30	8/2; 16/4; 24/6	8/2	see DC-Pro
Standard lifting speed 160-500 kg, [m/min]	0,15-16/30; 0,08-8/15	8/2; 12/3; 16/4; 24/6	6/1,5; 4,4/1,1	
Standard lifting speed 630-2000 kg, [m/min]	0,04-4/7; 0,06-6/11; 0,11-12/22	4/1; 6/1,5; 8/2, 12/3; 24/6	4/1	
Standard lifting speed 2500-5000 kg, [m/min]	0,04-4/7 for 2500 kg	4/1; 6/1,5; 8/2	- - -	
Duty factor [CDF%]	60 (20 at vs_{min})	60 (40/20)	60 (40/20)	
Speed ratio	Variable 1:100	F4		
Hook path [m]	From 3 (Manulift 2,8, 4,3)			
Type of enclosure: chain hoist, trolley	IP55, IP55			
Height-adjustable control pendant, plug connections	Yes, yes			No
Control pendant (can be fitted)	DSC, DSE, DSM, DSK, DST		DSC, DSE, DSK, DST	DSK, DST
Limit-switch cut-off for DC 1-10 1/1	Yes		Optional	Optional/yes
Limit-switch cut-off for DC 10 2/1 to DC 25	Yes			
Elapsed operating time counter	Yes (can be read from outside)			No
Diagnostic interface	Yes (can be read from outside)			No
Gearbox	Maintenance-free for up to 10 years			
Slipping clutch	Maintenance-free for up to 10 years			No
Brake	Maintenance-free for up to 10 years (DC 10-25 brake 5 years)			
Adjustable brake	Not required			Yes/no
Speed monitoring	Yes			No
Regenerative braking from main speed to 0 via creep speed	- - -	Yes		No/yes
Wide voltage range input	Yes			Yes
ProHub: V_{max} in partial load range	Yes	No		
Fast-to-slow cut-off	Yes	No		
V, acc., dec. parameters adjustable via control pendant	Yes	No		
Motor temperature monitoring	Yes	Optional		Optional
Electric equipment cover	Aluminium	Aluminium (plastic for DC 16 - 25)	Plastic	Partly extended cover
Surface of aluminium parts	Powder-coated			

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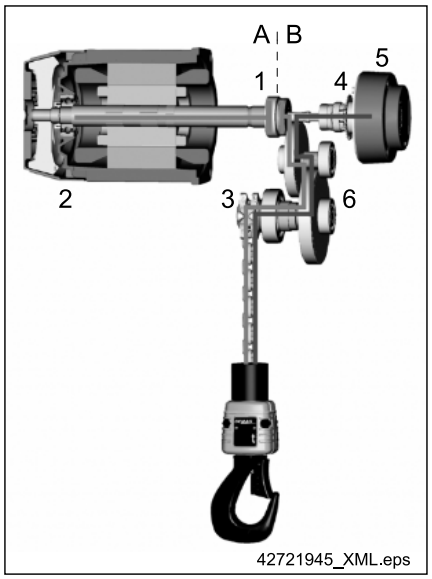
1.2 Product details at a glance

DC-Com/DC-Pro (2 lifting speeds)



A	Drives	B	Brakes
1	Slipping clutch	4	Speed sensor
2	Motor	5	Brake
3	Chain drive	6	Gearbox

The DC chain hoist standard scope of delivery already includes the following features:

- **DC-Pro:** load capacities up to 5000 kg,

  DCM-Pro Manulift: load capacities up to 250 kg (up to 500 kg for special design),

  DC-Com: load capacities up to 2000 kg,
- FEM classification from 1Am to 4m (service life of 800 – 6300 full load hours),
- Various lifting speeds available:

  DC-Pro: 4/1, 6/1,5, 8/2, 12/3, 16/4, 24/6 and variable speed up to 30 m/min,

  DC-Com: 4/1, 4,5/1,1, 6/1,5, 8/2,
- 24 V contactor control with internal tri-state signal transfer, can be extended with modules,
- Operating limit switches for upper and lower hook position:
  - DC-Pro 5-10 only with operating limit switch for lifting; operating limit switch for lowering on request (the lower end position must not be approached in normal operation),
  - DC-Pro 1-15 and DC-Com 10 2/1 reeving,
  - A geared limit switch with 4 contacts is installed as an operating limit switch for fast-to-slow and limit switch cut-off in DC-Pro 16-25 units,
  - Optional DC-Com 1-10 1/1 reeving,
- Elapsed operating time counter,
- Slipping clutch with automatic cut-out by means of speed monitoring (no continuous slipping),
- Gearbox, brake and slipping clutch are maintenance-free for up to 10 years (sizes DC-Pro 10-25: brake for up to 5 years),
- Height-adjustable control pendant:

  The control cable is available in 3 different lengths and is adjustable in height (H5: 0,8–3,8 m/H8: 3,8–6,8 m/H11: 6,8–9,8 m), enabling the position of the control pendant to be adjusted without the need for any wiring. The length of control cable that is not required is accommodated under the service cover,
- "Plug & Lift" and "Plug & Drive" plug-in electric connections:
  - Mains connection on the chain hoist,
  - Control cable on the chain hoist/control pendant,
  - Signal and power cable between the chain hoist and trolley,
- 7-segment display:

  Operating hours and operating statuses can be read on a 7-segment display that is visible from the outside through a window underneath the electric equipment cover,
- Infrared diagnostic interface (to read out and manage specific data by means of Demag IDAPSY software),
- Two speeds with main and creep lifting with F4 ratio,
- Duty factor: 60% (40%/20%), switching operations/hour: 360 (120/240),

  Reliable operation from -20 °C to +45 °C without any reduction in the duty factor. Operation also possible up to 60 °C and more,
- Hoist motor rated to insulation class F,
- Chain hoist and travel drive enclosure: IP 55, (DC-Pro 1-15 optionally IP 65),
- Chain collector with articulated attachment, made of tough, flexible and particularly impact-resistant plastic. Bags and sheet metal chain collector boxes for longer hook paths. Hook paths possible up to 180 m.

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Rugged design and service life

- Rugged hoist motor has large safety reserves to provide for reliable operation for many years. Can be used for switching cycles way beyond usual market levels,
  - Cylindrical-rotor motor with fan and separate DC brake beneath the electric equipment cover (brake double encapsulated for enclosure type, no sticky brakes).
- Demag round-section steel chain:
  - High-strength, ageing-resistant material with high surface hardening,
  - Galvanized and additionally surface-treated for protection against hostile media,
  - Optionally available with additional corrosion protection, for foodstuffs and extremely dusty applications,
- Tough and weight-saving aluminium housing of compact and modern industrial design. UV-resistant powder-coated surface is insusceptible to knocks and scratches.

Improved safety and reduced wear

- Slipping clutch, hoist motor and brake are monitored by means of integrated speed sensors,
- Low-wearing brake thanks to regenerative braking from main to creep lifting until standstill, mechanical braking from creep lifting to standstill,
- The brake does not need to be adjusted,
- The brake arranged before the slipping clutch prevents the from load sinking when the unit is at rest,
- Automatic braking if the control system fails,
- Up to 1000 kg only 1/1 reeving: reduced chain wear, improved ergonomics,
- Two chain lead-offs in tandem operation:

  Parallel control of the chain hoists from one control point for safe operation as a group according to DIN EN 15011 (not synchronised control).

Simple commissioning and optimum ergonomics

- Ergonomic DSC/DSE control pendants with gentle actuation force,
- Control cable length or position of the control pendant can be adjusted on site without any need for wiring (can be extended or shortened at any time),
- Control cable and control board signals designed for 3-axis applications,
- Reduced operating noise thanks to helical gearing in all gearbox stages. Smooth operation thanks to high-quality gearing,
- Pivoting suspension bracket enables the chain hoist to be attached when the trolley has been fitted.

Service-friendly

- Simple and rapid maintenance and repair of individual components thanks to the modular chain hoist design – cuts any downtime to a minimum,
- Elapsed operating time counter, status and error messages shown on 7-segment display,
- Infrared diagnostic interface (to read out and manage specific data by means of IDAPSY software),

Everything in one place under the service cover – rapid access for commissioning and service:

- Plug-and-socket connections (for power cable, control cable, limit switches, trolley connection),
- Strain relief (for power supply and trolley supply cables),
- Storage for 3 m of control cable,
- Chain drive (fitted to output shaft),
- Chain lubrication (through lubrication opening in the chain guide for improved lubrication between the chain lonks links on DC 1-10),
- Reduced downtimes as the entire chain drive can be replaced without dismantling motor or gearbox parts.

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DCM-Pro Manulift

- The DCM-Pro Manulift was developed for handling loads quickly and safely with only one hand,
- The DCM-Pro is based on the lifting unit of the DC-Pro chain hoist and the DSM-C control unit which is connected to it by a helical cable,
- Thanks to the control unit which is rigidly connected to the load handling attachment – for right and left-handed operation, the operator only needs one hand to operate the chain hoist and guide the load,
- The quick-release coupling enables a wide variety of load handling attachments to be changed with ease:
  - All Manulift load handling attachments are fitted with a connecting pin with a swivel lock, which snaps into the quick-release coupling,
  - It can be disconnected by lifting the unlocking sleeve,
  - The universal coupling pin can be used to connect customer-designed attachments.

DCRS-Pro rocker switch

- DCRS-Pro is based on DCMS-Pro with variable lifting speed and differs by the relevant control unit,
- Depending on the height of the workplace, Manulift provides convenient control with a horizontal handle to guide the load,
- The DCRS-Pro rocker switch enables loads to be handled with a vertical control unit.

Variable speeds: DCS-Pro
Further benefits compared to DC-Pro

In comparison with the DC-Pro with two lifting speeds, variable-speed chain hoists offer the additional benefits:

- Frequency-inverter control with 24 V control voltage integrated into the chain hoist electric enclosure,
- Infinitely variable speed control for lifting and lowering motions over the entire load range,
- Gentle starting and precise positioning thanks to particularly fine control at low speeds,
- Gentle positioning and fast travel in one, thanks to a 1:200 control ratio from the maximum to the lowest lifting speed,
- ProHub: up to 90% higher nominal speed for partial load operations or no-load motions,
- Automatic switch-over to creep lifting speed before the upper/lower limit position is reached,
- Smooth operation and optimum ergonomics thanks to the control unit which has switching elements with a progressive characteristic, like a car accelerator pedal,
- Acceleration and braking ramps prevent significant load sway,
- Lifting speed, acceleration and braking ramps can be modified via the control unit,
- Increased safety thanks to motor temperature monitoring as standard,
- 380-480 V, 50/60 Hz wide voltage range input,
- Gearbox, brake and slipping clutch are maintenance-free for up to 10 years,
- If a DCS-Pro is used in combination with an E11 – E34 travel drive, cross travel is automatically infinitely variable,
- Rocker switch type of enclosure for DCRS-Pro: IP34.

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Trolleys

- Trolley sizes 11, 22, 34, 56,
- Variable adjustment of trolley flange width up to 200/310/500 mm via adjusting rings,
- High travel performance with low wear thanks to universal travel wheels that have lateral steel guide rollers and no flanges,
- Integrated drop stop,
- Low travel noise and resistance,
- Die-cast aluminium, powder-coated,
- U11 - U34 with optional dual-output gearbox for two-wheel drive, integrated as standard for EU56,
- Travel speeds for E11/E22 up to 24/6 m/min (E22-C with RF 125 up to 27 m/min), E34 up to 14 m/min, variable from 0,7 m/min,
- E11 - E34 have plug-in electric connections, smooth starting via ramps, inputs for travel limit switches integrated on the control board; speeds/acceleration/ braking rates can be modified via control pendant, if required,
- U11 - U34 can also be supplied with added ZBF/ZBA AC motor and dual-output gearbox,
- Travel speeds for EU56 with 12/4; 24/6; 40/10 m/min (with ZBF motor, variable speeds with ZBA motor),
- Various low-headroom travelling hoist designs (stationary, RU or EU):
  - KDC low-headroom travelling hoist,
  - KLDC low-headroom travelling hoist for big bag applications,
  - LDC-D, KLDC-D double chain hoist,
  - LDC-Q quadro chain hoist,
  - UDDC, KDDC articulated monorail hoist.

DC-ProDC for direct control (2 lifting speeds)

- can be controlled direct via a line supply. Connection via terminal strip to brake module,
- Control of DC 1 - 15 optionally via DSK/DST control pendants,
- Control of DC 16 - 25 only via installation control system without control pendant,
- Operating limit switch for lifting motion optional for DC 1 - 10 (up to ZNK 100 A motor),
- Operating limit switch for lifting motion as standard for DC 10 - 15 (with ZNK 100 B motor),
- Geared limit switch as operating limit switch as standard for DC 16 - 25 (for cabling and wiring by the customer),

DC-ProCC with conventional contactor control (2 lifting speeds)

- Execution with conventionally wired contactor control,
- 48 V AC control voltage,
- Control via control pendant or installation control system,
- Lifting/lowering operating limit switches as standard for DC 1 - 15.

DC-ProDC/DC-ProCC

- No elapsed operating time counter and service display,
- Slipping clutch and brake for DC-ProDC not maintenance-free,
- The slipping clutch on DC-ProDC/CC units is not speed-monitored,
- Gearboxes are maintenance-free for up to 10 years,
- E11 - E34 travel drives are not suitable for electric travel applications with DC-ProDC, DC-ProCC and DC-Pro-FC units. Only travel drives with AC motors can be used.

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DC-ProFC for control via an external frequency inverter (variable lifting speed)

- DC-ProFC units are is prepared for connection to an external frequency inverter. The chain hoist has a 2 and 4-pole motor,
- DC-ProFC units are only supplied without a control pendant as partly completed machinery with only a declaration of incorporation (no CE declaration),
- Product selection is based on the same voltage ranges as for the DC-Pro, since the brake depends on the voltage. The motor is always rated for 360 V/87 Hz,
- Microtherm (temperature contact) integrated in the motor for evaluation,
- DC-ProFC units are always supplied with a rotary encoder,
- The slipping clutch is not monitored on DC-ProFC units,
- Gearboxes are maintenance-free for up to 10 years.

For the control and speed control of DC-ProFC units, we recommend the use of Demag Dedrive Compact STO frequency inverters.

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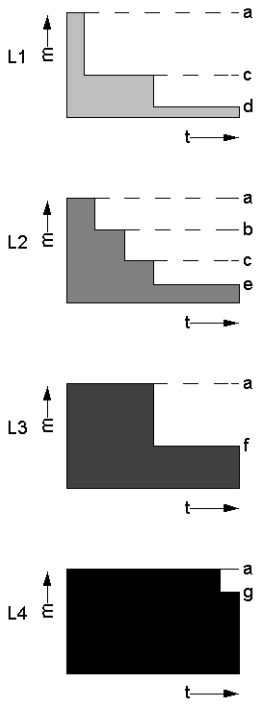
1.3 Selection criteria

The size of the hoist is determined by the load spectrum, average operating time per working day, load capacity and reeving.

1. What are the operating conditions?
2. What is the specified safe working load?
3. To what height must the load be lifted?
4. What is the required lifting speed?
5. Do the loads need to be lifted and lowered with great accuracy?
6. Is horizontal load travel necessary?
7. How is the hoist to be controlled?



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m = Load capacity
t = Operating time
a = Full load
b = Medium partial load
c = Small to medium partial load
d = Small dead load
e = Small to medium dead load
f = Heavy dead load
g = Very heavy dead load

The load spectrum
(in most cases estimated) can be evaluated in accordance with the following definitions:

L1 Light
Hoist units which are usually subject to very small loads and in exceptional cases only to maximum loads.

L2 Medium
Hoist units which are usually subject to small loads but rather often to maximum loads.

L3 Heavy
Hoist units which are usually subject to medium loads but frequently to maximum loads.

L4 Very heavy
Hoist units which are regularly subject to maximum and almost maximum loads.

Example:

Load capacity	250 kg
Load spectrum from table	“Medium”
Lifting speed	8 m/min
Reeving	1/1
Average hook path	4 m
No. of cycles/hour	20
Working time/day	8 hours

The average operating time per working day is estimated or calculated as follows:

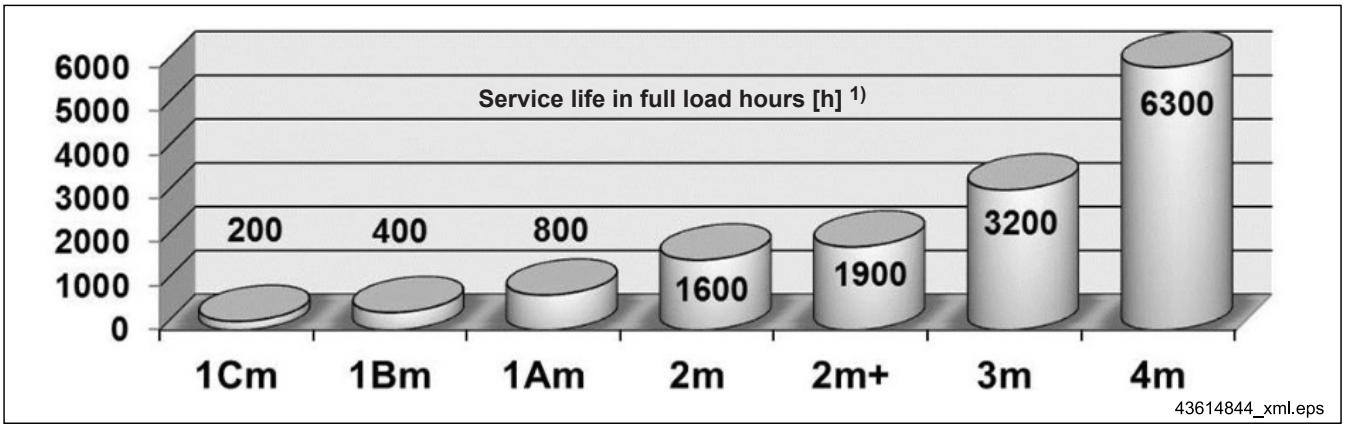
$$\text{Operating time/day} = \frac{2 \times \text{average hook path} \times \text{no. of cycles/h} \times \text{working time/day}}{60 \times \text{lifting speed}}$$

$$= \frac{2 \bullet 4 \bullet 20 \bullet 8}{60 \bullet 8}$$

= 2,66 hours

For the medium load spectrum and an average daily operating time of 2,66 hours, the table shows group 2m+. For a load capacity of 250 kg, the diagram shows size DC-Pro 2-250.

1) The actual service life is considerably increased if the hoist unit is only operated with partial loads.



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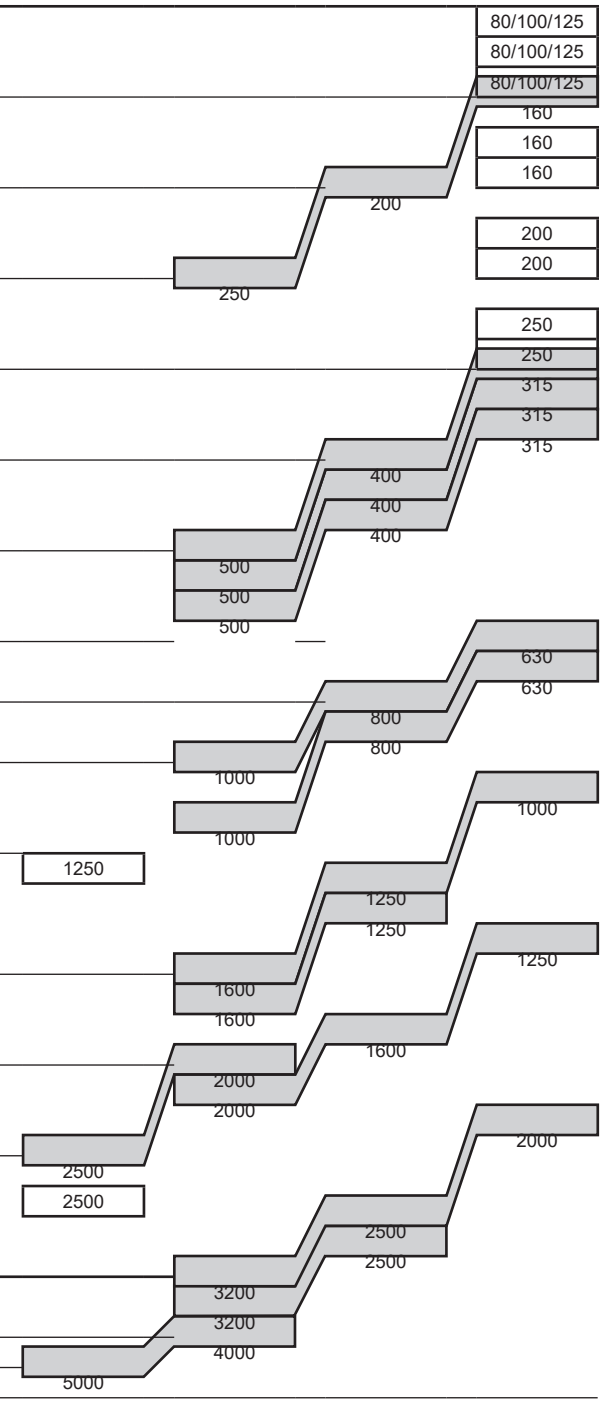
DC-Pro chain hoist

The chain hoist group of mechanisms is determined by the load spectrum and operating time.

Load spectrum		Average operating time per working day in hours			
L1	**Light**	2-4	4-8	8-16	more than 16
L2	**Medium**	1-2	2-4	4-8	8-16
L3	**Heavy**	0,5-1	1-2	2-4	4-8
L4	**Very heavy**	0,25-0,5	0,5-1	1-2	2-4
Group of mechanisms to FEM 9.511		1Am	2m+	3m	4m

Load capacity for reeving 1/1 [kg]	Load capacity for reeving 2/1 [kg]	Product type and size	Lifting speed at 50 Hz [m/min]
		DC-Pro 1	8/2
80/100/125		DC-Pro 2	16/4
		DC-Pro 5	24/6
		DC-Pro 2	8/2
160		DC-Pro 5	16/4
		DC-Pro 5	24/6
		DC-Pro 2	8/2
200		DC-Pro 5	16/4
		DC-Pro 10	24/6
250		DC-Pro 2	8/2
250		DC-Pro 5	16/4
		DC-Pro 10	24/6
		DC-Pro 5	8/2
315		DC-Pro 10	12/3
		DC-Pro 10	24/6
		DC-Pro 5	8/2
400		DC-Pro 10	12/3
		DC-Pro 10	24/6
		DC-Pro 5	8/2
500		DC-Pro 10	12/3
		DC-Pro 10	24/6
		DC-Pro 10	6/1,5
630		DC-Pro 10	12/3
		DC-Pro 10	6/1,5
800		DC-Pro 10	12/3
		DC-Pro 10	6/1,5
1000		DC-Pro 15	8/2
		DC-Pro 10	12/3
		DC-Pro 10	8/2
1250		DC-Pro 15	8/2
		DC-Pro 16	12/3
	1250	DC-Pro 10	6/1,5
		DC-Pro 15	8/2
1600		DC-Pro 16	12/3
	1600	DC-Pro 10	6/1,5
2000		DC-Pro 25	8/2
	2000	DC-Pro 10	6/1,5
		DC-Pro 15	4/1
2500		DC-Pro 25	8/2
		DC-Pro 10	4/1
	2500	DC-Pro 15	4/1
		DC-Pro 16	6/1,5
		DC-Pro 15	4/1
	3200	DC-Pro 16	6/1,5
	4000	DC-Pro 25	4/1
	5000	DC-Pro 25	4/1



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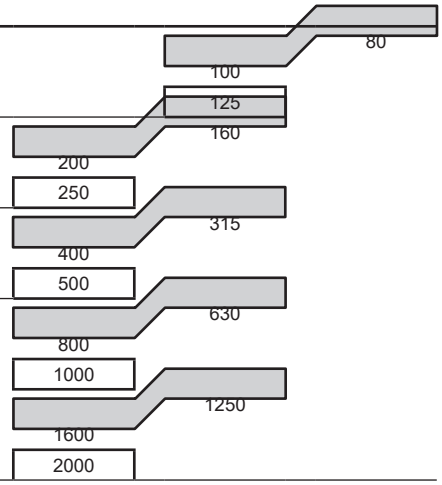
DC-Com chain hoist

The chain hoist group of mechanisms is determined by the load spectrum and operating time.

Load spectrum		Average operating time per working day in hours			
L1	**Light**	2-4	4-8	8-16	more than 16
L2	**Medium**	1-2	2-4	4-8	8-16
L3	**Heavy**	0,5-1	1-2	2-4	4-8
L4	**Very heavy**	0,25-0,5	0,5-1	1-2	2-4
Group of mechanisms to FEM 9.511		1Am	2m	3m	4m

Load capacity for reeving 1/1 [kg]	Load capacity for reeving 2/1 [kg]	Product type and size	Lifting speed at 50 Hz [m/min]
80		DC-Com 1	8/2
100			
125			
160		DC-Com 2	6/1,5
200			
250		DC-Com 2	
315		DC-Com 5	4,5/1,1
400			
500			
630		DC-Com 10	4/1
800			
1000			
	1250		
	1600		
	2000		



1.4 Model code

E	K	L	D	DC-Pro	-D	10-	1000	X X X	H5	V6/1,5	2/4-	2000	380 - 415/	50	24/6	200	220 - 480
																	Travel drive voltage range/ voltage [V]
																Max. flange width of the trolley [mm]	
															Travel speed [m/min]		
														Frequency [Hz]			
													Chain hoist voltage range [V]				
												Double chain hoist/big bag travelling hoist load hook centre distance					
											Double chain hoist load hook lead-off position						
										Lifting speed [m/min] V 2-stage = Main/creep lifting VS Stepless = VS at nominal load up to VS_{max} in the partial load range							
									Hook path [m]								
								1/1, 2/1 reeving						LDC-D 2x1/1; 2x2/1 KLDC-D 2/2-2; 4/2-2			
							Total load capacity [kg]										
						Size [1]											
					D Double chain hoist (2 chain lead-offs) Q Quadro chain hoist (4 chain lead-offs)												
				DC-Pro product range DC-Pro 2-stage chain hoist (Demag chain hoist) DCM-Pro 2-stage Manulift DCS-Pro Variable-speed chain hoist DCMS-Pro Variable-speed Manulift DCRS-Pro Stepless rocker switch										**DC-Pro product range** DC-ProCC 2-stage chain hoist for conventional contactor control DC-ProDC 2-stage chain hoist for direct control DC-ProFC Variable-speed chain hoist for control via an external frequency inverter **DC-Com product range** DC-Com 2-stage chain hoist			
			D	Articulated trolley for travel on curved track													
		L		Long trolley													
	K			Low-headroom travelling hoist													
	U			Standard-headroom monorail hoist 11 Trolley size load capacity [kg ● 100] 22 34 56													
R				Push-travel trolley													
E				Travel drive													
C	F		5	Click-fit (push-travel trolley)													

Not all features of the mounting code can be combined.

1) Since 04/2006, the designation for sizes DC 10 and DC 20 have been changed to DC 10 1/1 and DC 10 2/1, respectively.

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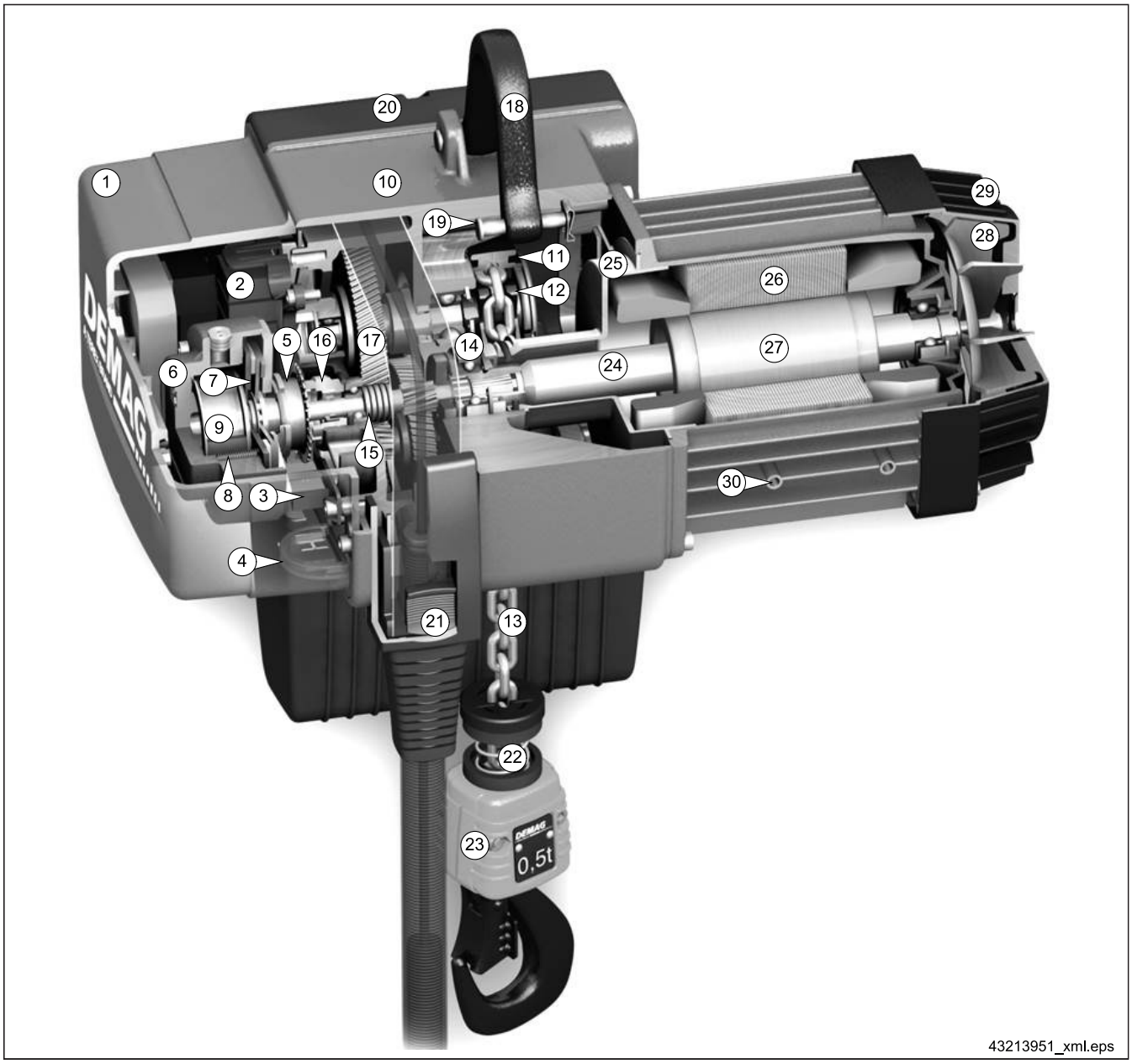
1.5 DC documents

Documents			
Technical data/catalogues	**Part no.**	**Assembly instructions (adjustment/dimensions)**	**Part no.**
Demag DC chain hoist	203 525 44	Hook/DSM5 adapter	211 240 44
Demag DC-Com chain hoist (valid until ***)	203 571 44	Z motor external pulse generator	214 372 44
CF5-DC/DCM trolley	203 568 44	DCS-Pro braking resistor	211 166 44
U11-U34/DC/DCM/DK trolley	203 569 44	DC-Run module	211 248 44
RU/EU56 trolley	203 691 44	Dedrive Compact STO (frequency inverter quick-step instructions)	211 170 44
KBK classic (steel, powder-coated)	202 976 44	DC double brake	211 217 44
KBK Aluline (anodised)	203 813 44	LDC-D double chain hoist	211 162 44
KBK trailing cable	202 617 44	KDDC/UDDC articulated trolley	211 159 44
Slewing jib crane	203 814 44	DC electric enclosure	211 250 44
DCL-Pro conductor line	203 751 44	Limit switch	211 210 44
Clamp-fitted buffers	203 313 44	DRF 200 travel drive	214 395 44
Geared motor	203 151 44	E11-E34 DC travel drive (I)	214 810 44
Operating instructions/component parts	**Part no.**	E11-E34 DC travel drive (II) (circuit diagrams)	211 229 44
		EU 11 DK trolley	206 604 44
DC-Pro/Com 1-15 chain hoist	211 273 44	EU 22 DK trolley	206 605 44
DC-Pro 1 - 15 chain hoist (valid until 12/2015)	214 741 44	DRC-DC radio control system	214 689 44
DC-Pro 16 - 25 chain hoist	211 033 44	DRC-MP radio control system	214 994 44
DC-Com chain hoist (valid until 12/2015)	214 802 44	DRC-DC quick-step instructions	211 045 44
DCS-Pro chain hoist	214 827 44	DC geared limit switches	211 011 44
DC-ProDC/CC/FC 1-15 chain hoist	211 191 44	DIR infrared control	211 274 44
DC-ProDC/CC/FC16-25 chain hoist	211 163 44	DCM-Pro, DCMS-Pro, DKM, PM, PMV Manulift chain swivel unit	211 164 44
DC-Wind chain hoist	211 010 44	KDC low-headroom travelling hoist	211 017 44
DSM Manulift	211 309 44	DC protective sleeve	211 227 44
Slewing jib crane	211 277 44	ZNA, ZBA, ZBF motors	214 228 44
PGS parallel grippers	214 095 44	DCS + E22-C parameter programming	211 247 44
DPM permanent magnet	206 623 44	DC Polu box	211 249 44
Test and inspection booklet	**Part no.**	LDC-Q quadro chain hoist	211 261 44
		Friction force checking device	206 973 44
DC test and inspection booklet	214 745 44	DC 1 - 25 safety hook	211 228 44
Certificates	235 309 44	DC PWM/3ST signal converter	211 094 44
Certificates	**Part no.**	DCS analogue/PWM signal converter	214 951 44
		DSC-EX control pendant	214 832 44
CSA certificates	199 304 44	DSE-10C control pendant	214 998 44
Brochure	**Part no.**	DC 1 - 25 tandem	211 108 44
		DSK+DST support sleeve	211 207 44
DC-Pro chain hoist	213 605 44	VG11-34 EU11-34 dual-output gearbox	211 122 44
KBK pillar and wall-mounted slewing jib cranes	208 755 44	Long hook path accessories	211 178 44
Wall chart	**Part no.**	DSC strain relief device	211 092 44
DC	227 372 44		

The documents can be ordered from the relevant Demag office.

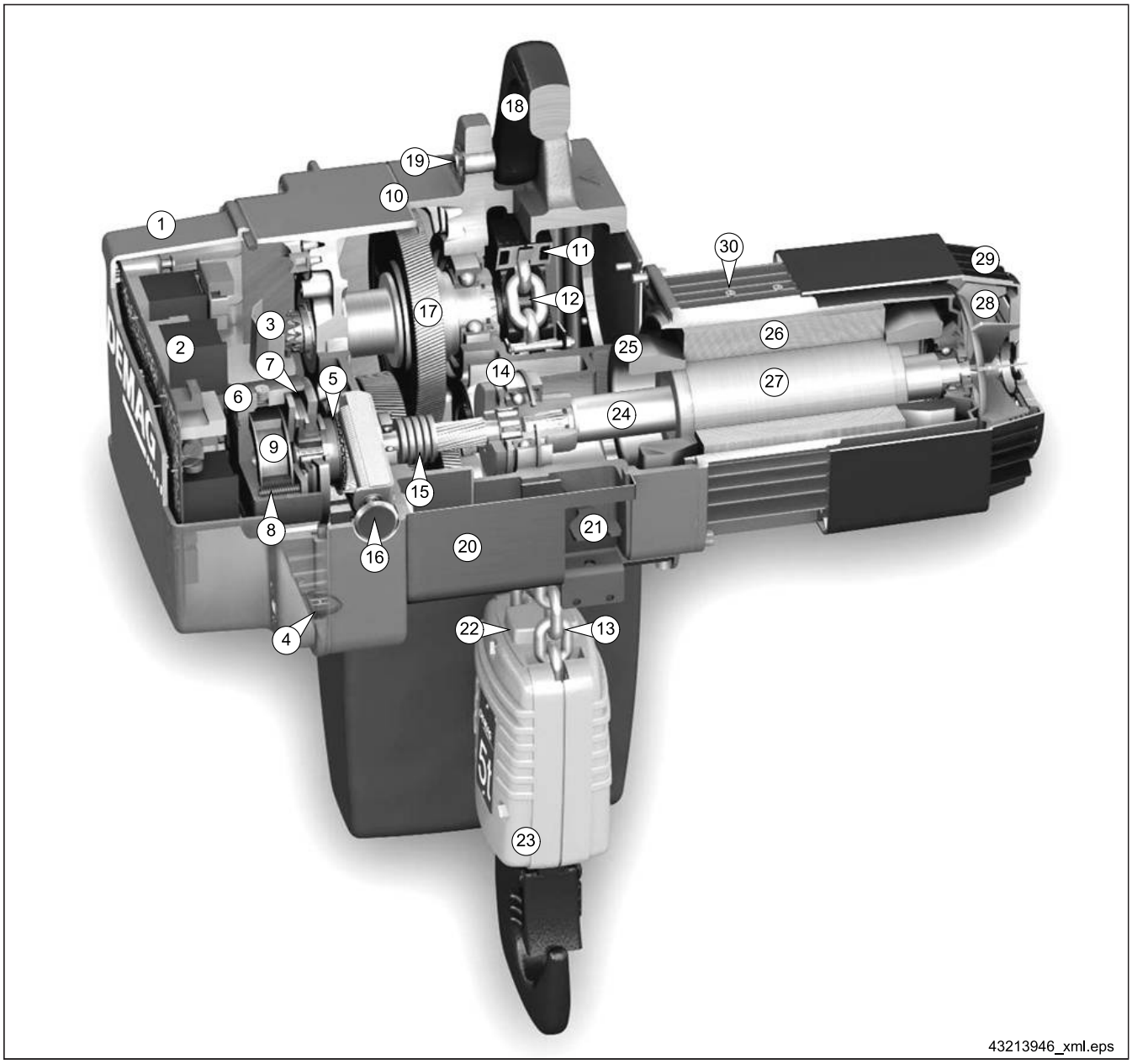
1.6 Design overview

Single-fall design, e.g. DC-Pro 5



Item	Designation	Item	Designation	Item	Designation
1	Electric equipment cover	11	Chain guide	21	Adjusting mechanism for control cable
2	Control system	12	Chain sprocket	22	Cut-off spring for operating limit switch
3	Elapsed operating time counter	13	Round section steel chain	23	Hook assembly with load capacity plate
4	Window	14	Slipping clutch	24	Motor shaft
5	Pulse wheel for speed monitoring	15	Dished washer pack	25	Winding head cover
6	Magnet brake	16	Slipping clutch adjusting nut	26	Stator
7	Brake disc with linings	17	DC 1 - 5 two-stage helical gearbox DC 10 and DC 15 three-stage helical gearbox	27	Rotor
8	Brake springs	18	Suspension bracket	28	Fan
9	Brake magnet	19	Suspension pin	29	Fan cover
10	Gearbox housing	20	Service cover	30	Mounting points

Two-fall design, e.g. DC-Pro 25



Item	Designation	Item	Designation	Item	Designation
1	Electric equipment cover	11	Chain guide	21	Adjusting mechanism for control cable
2	Control system	12	Chain sprocket	22	Cut-off buffer for operating limit switch
3	Geared limit switch	13	Round section steel chain	23	Bottom block with load capacity plate
4	Window	14	Slipping clutch	24	Motor shaft
5	Pulse wheel for speed monitoring	15	Dished washer pack	25	Winding head cover
6	Magnet brake	16	Slipping clutch adjusting screw	26	Stator
7	Brake disc with linings	17	DC 1 - 5 two-stage helical gearbox DC 10 - 25 three-stage helical gearbox	27	Rotor
8	Brake springs	18	Suspension bracket	28	Fan
9	Brake magnet	19	Suspension pin	29	Fan cover
10	Gearbox housing	20	Service cover	30	Mounting points

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1.7 Selection tables

Type of control \ Product range	DC-Pro	DCM-Pro	DCS-Pro	DCMS-Pro	DCRS-Pro	DC-ProCC	DC-ProDC	DC-ProFC	DC-Com	DC-ComCC	DC-ComDC
2-stage with electronic control system	X	X							X		
Variable			X	X	X						
2-stage for conventional contactor control						X				X	
2-stage for direct control							X				X
Variable-speed for control via an external frequency inverter								X			

1.7.1 DC-Pro, DCM-Pro, DC-ProCC, DC-ProDC, DC-Com, DC-ComCC and DC-ComDC with 2 lifting speeds

Load capacity [kg]	Chain hoist size DC-Pro DC-ProCC [1] DC-ProDC	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size [2]	Chain size [mm]	Max. weight for hook path 4 m [kg]	Max. weight for hook path 5 m [kg]
80	1	1/1	4m/M7	8,0/2,0	9,6/2,4	3	ZNK 71 A 8/2 [3]	4,2x12,2	21	22
	2			16,0/4,0	19,2/4,8		ZNK 71 B 8/2			
	5			24,0/6,0	28,8/7,2		ZNK 80 B 8/2	5,3x15,2	27	28
100	1			8,0/2,0	9,6/2,4		ZNK 71 A 8/2 [3]	4,2x12,2	21	22
	2			16,0/4,0	19,2/4,8		ZNK 71 B 8/2			
	5			24,0/6,0	28,8/7,2		ZNK 80 B 8/2	5,3x15,2	27	28
125	1			8,0/2,0	9,6/2,4		ZNK 71 A 8/2 [3]	4,2x12,2	21	22
	2			16,0/4,0	19,2/4,8		ZNK 71 B 8/2			
	5			24,0/6,0	28,8/7,2		ZNK 80 B 8/2	5,3x15,2	27	28
160	2			8,0/2,0	9,6/2,4		ZNK 71 B 8/2	4,2x12,2	21	22
	5			16,0/4,0	19,2/4,8		ZNK 80 B 8/2	5,3x15,2	27	28
				24,0/6,0	28,8/7,2					
200	2		3m/M6	8,0/2,0	9,6/2,4		ZNK 71 B 8/2	4,2x12,2	21	22
	5		4m/M7	16,0/4,0	19,2/4,8		ZNK 80 B 8/2	5,3x15,2	27	28
	10			24,0/6,0	28,8/7,2		ZNK 100 A 8/2	7,4x21,2	46	48
250	2		2m+ [4]/M5+	8,0/2,0	9,6/2,4		ZNK 71 B 8/2	4,2x12,2	21	22
	5		4m/M7	16,0/4,0	19,2/4,8		ZNK 80 B 8/2	5,3x15,2	27	28
	10			24,0/6,0	28,8/7,2		ZNK 100 A 8/2	7,4x21,2	46	48
315	5			8,0/2,0	9,6/2,4		ZNK 80 B 8/2	5,3x15,2	27	28
	10			12,0/3,0	14,4/3,6		ZNK 100 A 8/2	7,4x21,2	46	48
				24,0/6,0	28,8/7,2		ZNK 100 B 8/2		54	56
400	5		3m/M6	8,0/2,0	9,6/2,4		ZNK 80 B 8/2	5,3x15,2	27	28
	10		4m/M7	12,0/3,0	14,4/3,6		ZNK 100 A 8/2	7,4x21,2	46	48
			3m/M6	24,0/6,0	28,8/7,2		ZNK 100 B 8/2		54	56
500	5		2m+ [4]/M5+	8,0/2,0	9,6/2,4		ZNK 80 B 8/2	5,3x15,2	27	28
	10		4m/M7	12,0/3,0	14,4/3,6		ZNK 100 A 8/2	7,4x21,2	46	48
			2m+ [4]/M5+	24,0/6,0	28,8/7,2		ZNK 100 B 8/2		54	56
630			4m/M7	6,0/1,5	7,2/1,8		ZNK 100 A 8/2		46	48
				12,0/3,0	14,4/3,6		ZNK 100 B 8/2		54	56
800			3m/M6	6,0/1,5	7,2/1,8		ZNK 100 A 8/2		46	48
				12,0/3,0	14,4/3,6		ZNK 100 B 8/2		54	56
1000			2m+ [4]/M5+	6,0/1,5	7,2/1,8		ZNK 100 A 8/2		46	48
			2m+ [4] [5]/M5+	12,0/3,0	14,4/3,6		ZNK 100 B 8/2		54	56
	15		4m [6]/M7	8,0/2,0	9,6/2,4			8,7x24,2	71	72

1) DC-ProCC units weigh approximately 3 kg more.
2) See electric key data page for key motor data.
3) ZNK 71 A 8/2 with 380-415 V/50 Hz only for first delivery; a ZNK 71 B 8/2 motor is supplied for replacement requirements.
4) 2m+ corresponds to a service life of 1900 hours at full load.
5) FEM 1Am chain drive to EN 818-7
6) FEM 2m chain drive to EN 818-7
7) FEM 1Cm chain drive to EN 818-7
8) FEM 1Bm chain drive to EN 818-7
9) FEM 3m chain drive to EN 818-7

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Load capacity [kg]	Chain hoist size DC-Pro DC-ProCC [1] DC-ProDC	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size [2]	Chain size [mm]	Max. weight for hook path 4 m [kg]	Max. weight for hook path 5 m [kg]
1250	10	2/1	4m/M7	6,0/1,5	7,2/1,8	3	ZNK 100 B 8/2	7,4x21,2	62	65
		1/1	1Am [7]/M4	8,0/2,0	9,6/2,4				54	56
	15		3m [6]/M6	8,0/2,0	9,6/2,4			8,7x24,2	71	72
	16		3m [5]/M6	12,0/3,0	14,4/3,6		ZNK 100 C 8/2		111	113
1600	10	2/1	3m/M6	6,0/1,5	7,2/1,8		ZNK 100 B 8/2	7,4x21,2	62	65
	15	1/1	2m+ [4] [8]/M5+	8,0/2,0	9,6/2,4			8,7x24,2	71	72
	16		2m+ [4] [7]/M5+	12,0/3,0	14,4/3,6		ZNK 100 C 8/2		111	113
2000	10	2/1	2m+ [4] [5]/M5+	6,0/1,5	7,2/1,8		ZNK 100 B 8/2	7,4x21,2	62	65
	15		4m [9]/M7	4,0/1,0	4,8/1,2			8,7x24,2	83	86
	25	1/1	2m+ [4]/M5+	8,0/2,0	9,6/2,4		ZNK 100 C 8/2	10,5x28,2	113	115
2500	10	2/1	1Am [6]/M4	4,0/1,0	4,8/1,2		ZNK 100 B 8/2	7,4x21,2	62	65
	15		3m/M6					8,7x24,2	83	86
	16		3m [7]/M6	6,0/1,5	7,2/1,8		ZNK 100 C 8/2		123	126
	25	1/1	1Am/M4	8,0/2,0	9,6/2,4			10,5x28,2	113	115
3200	15	2/1	2m+ [4] [7]/M5+	4,0/1,0	4,8/1,2		ZNK 100 B 8/2	8,7x24,2	83	86
	16		2m+ [4] [8]/M5+	6,0/1,5	7,2/1,8		ZNK 100 C 8/2		123	126
4000	25		2m+ [4]/M5+	4,0/1,0	4,8/1,2			10,5x28,2	125	130
5000			1Am/M4							

Further special features for DC-ProDC for direct control

- The electric equipment cover is extended by an intermediate flange if the operating limit switch option for the lifting motion is selected,
- The max. line voltage with the control unit connected is 500 V,
- External control with GF brake module is possible up to 500 V,
- Braking from main lifting speed to standstill is only performed by the electro-mechanical brake,
- DC 5 - 15 brake adjustable, brake assignment partly differs from DC-Pro standard.
- For further information, see section 1.12.6.

Travel against the upper/lower limit position in normal operation and tripping of the slipping clutch caused by this is not permitted. If the upper limit position needs to be approached in normal operation, the chain hoist must be fitted with an operating limit switch.

1) DC-ProCC units weigh approximately 3 kg more.
2) See electric key data page for key motor data.
4) 2m+ corresponds to a service life of 1900 hours at full load.
5) FEM 1Am chain drive to EN 818-7
6) FEM 2m chain drive to EN 818-7
7) FEM 1Cm chain drive to EN 818-7
8) FEM 1Bm chain drive to EN 818-7
9) FEM 3m chain drive to EN 818-7

DCM-Pro Manulift (2 lifting speeds)

Load capacity [kg]	Chain hoist size DCM-Pro	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H [m]	Motor size [2]	Chain size [mm]	Max. weight for hook path 2,8 m [kg]	Max. weight for hook path 4,3 m [kg]
80	1	1/1	4m/M7	8,0/2,0	9,6/2,4	2.8 and 4.3	ZNK 71 A 8/2 [3]	4,2x12,2	22	24
	2			16,0/4,0	19,2/4,8		ZNK 71 B 8/2			
	5			24,0/6,0	28,8/7,2		ZNK 80 B 8/2	5,3x15,2	28	30
125	1			8,0/2,0	9,6/2,4		ZNK 71 A 8/2 [3]	4,2x12,2	22	24
	2			16,0/4,0	19,2/4,8		ZNK 71 B 8/2			
	5			24,0/6,0	28,8/7,2		ZNK 80 B 8/2	5,3x15,2	28	30
200	2		3m/M6	8,0/2,0	9,6/2,4		ZNK 71 B 8/2	4,2x12,2	22	24
	5		4m/M7	16,0/4,0	19,2/4,8		ZNK 80 B 8/2	5,3x15,2	28	30
250	2		2m+ [4]/M5+	8,0/2,0	9,6/2,4		ZNK 71 B 8/2	4,2x12,2	22	24
	5		4m/M7	16,0/4,0	19,2/4,8		ZNK 80 B 8/2	5,3x15,2	28	30
315	5		3m/M6	8,0/2,0	9,6/2,4		ZNK 80 B 8/2	5,3x15,2	37	38
400			2m+ [4]/M5+							
500										

DC-Com (2 lifting speeds)

Load capacity [kg]	Chain hoist size DC-Com DC-ComCC [1] DC-ComDC	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size [2]	Chain size [mm]	Max. weight for hook path 4 m [kg]	Max. weight for hook path 5 m [kg]
80	1	1/1	4m/M7	8,0/2,0	9,6/2,4	3	ZNK 71 B 8/2	4,2x12,2	21	22
100			3m/M6							
125										
160	2			6,0/1,5	7,2/1,8		ZNK 71 B 8/2			
200			2m/M5							
250										
315	5		3m/M6	4,5/1,1	5,4/1,3		ZNK 80 A 8/2	5,3x15,2	27	28
400			2m/M5							
500										
630	10		3m/M6	4,0/1,0	4,8/1,2		ZNK 100 A 8/2	7,4x21,2	47	48
800			2m/M5							
1000										
1250		2/1	3m/M6				ZNK 100 B 8/2		63	65
1600			2m/M5							
2000										

1) DC-ComCC units weigh approximately 3 kg more.
2) See electric key data page for key motor data.
3) ZNK 71 A 8/2 with 380-415 V/50 Hz only for first delivery; a ZNK 71 B 8/2 motor is supplied for replacement requirements.
4) 2m+ corresponds to a service life of 1900 hours at full load.

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1.7.2 DCS-Pro, DCMS-Pro, DCRS-Pro (variable lifting speed)

Load capacity	Chain hoist size	Reeving	Group of mechanisms	Lifting speed [1] at 50/60 Hz		Hook path H from [2]	Motor size [3]	Chain size	Max. weight for hook path	
			DIN EN 14492	vs_{rated}	vs_{max}				4 m	5 m
[kg]	DCS-Pro		FEM/ISO	[m/min]	[m/min]	[m]		[mm]	[kg]	[kg]
80	1	1/1	4m/M7	0,15-30	30	3	ZNK 71 B 4	4,2x12,2	24	25
100										
125										
160	2			0,15-16						
200			3m/M6							
250			2m+ [4]/M5+							
315	5		4m/M7	0,08-8	15		ZNK 80 A 4	5,3x15,2	28	29
	10			0,11-12	22		ZNK 100 A 4	7,4x21,2	57	59
400	5		3m/M6	0,08-8	15		ZNK 80 A 4	5,3x15,2	28	29
	10		4m/M7	0,11-12	22		ZNK 100 A 4	7,4x21,2	57	59
500	5		2m+ [4]/M5+	0,08-8	15		ZNK 80 A 4	5,3x15,2	28	29
630	10		4m/M7	0,11-12	22		ZNK 100 A 4	7,4x21,2	57	59
				0,06-6	11				52	54
				0,11-12	22				57	59
800			3m/M6	0,06-6	11				52	54
				0,11-12	22				57	59
1000			2m+ [4]/M5+	0,06-6	11				52	54
			2m+ [4] [7]/M5+	0,11-12	22				57	59
	15		4m [5]/M7	0,08-8	15			8,7x24,2	74	75
1250	10		1Am [6]/M4	0,08-8	15		ZNK 100 A 4	7,4x21,2	52	54
		2/1	4m/M7	0,06-6	11				65	68
	15	1/1	3m [7]/M6	0,08-8	15			8,7x24,2	74	75
1600	10	2/1	3m/M6	0,06-6	11			7,4x21,2	65	68
	15	1/1	2m+ [4] [8]/M5+	0,08-8	15			8,7x24,2	74	75
2000	10	2/1	2m+ [4] [7]/M5+	0,06-6	11			7,4x21,2	65	68
	15		4m [9]/M7	0,04-4	7			8,7x24,2	86	89
2500	10		1Am [6]/M4					7,4x21,2	65	68
	15		3m [5]/M6					8,7x24,2	86	89
3200			2m+ [4] [7]/M5+							

DCMS-Pro Manulift and DCRS-Pro rocker switch (variable lifting speed)

Load capacity	Manulift size		Reeving	Group of mechanisms	Lifting speed [1] at 50/60 Hz		Hook path	Motor size [3]	Chain size	Max. weight for hook path	
				DIN EN 14492	vs_{rated}	vs_{max}	H			2,8 m	4,3 m
[kg]	DCMS-Pro	DCRS-Pro		FEM/ISO	[m/min]	[m/min]	[m]		[mm]	[kg]	[kg]
80	1	1	1/1	4m/M7	0,15-30	30	2.8 and 4.3	ZNK 71 B 4	4,2x12,2	25	27
125											
200	2	2		3m/M6	0,15-16						
250				2m+ [4]/M5+							
315	5	-		4m/M7	0,08-8	15		ZNK 80 A 4	5,3x15,2	37	38
400				3m/M6							
500				2m+ [4]/M5+							

1) ● vs_{min} corresponds to a control ratio vs_{min} : vs_{max} of 1 : 200 (default setting 1 : 100)
● vs_{max}, vs_{rated}, vs_{min}, acceleration time and deceleration time can be changed by programming parameters on the control pendant (see “DCS-Pro chain hoist operating instructions”)
● Max. lifting speed in the partial load range/without load
● For DCS-Pro 1, DCMS-Pro 1, DCRS-Pro 1 units, the max. lowering speed corresponds to 78% of vs_{rated}

2) Longer hook paths on request.

3) See electric key data page for key motor data.

4) 2m+ corresponds to a service life of 1900 hours at full load.

5) FEM 2m chain drive to EN 818-7

6) FEM 1Cm chain drive to EN 818-7

7) FEM 1Am chain drive to EN 818-7

8) FEM 1Bm chain drive to EN 818-7

9) FEM 3m chain drive to EN 818-7

1.7.3 DC-ProFC (variable lifting speed) for control via an external frequency inverter

Load capacity	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size	Lifting speed at motor speed [1]				Gearbox transmission ratio	Motor size [2]	Max. weight for hook path [3]	
					vs_{rated}		vs_{max}				4 m	5 m
[kg]	DC-ProFC			[mm]	[m/min]	[rpm]	[m/min]	[rpm]	i		[kg]	[kg]
80	1	1/1	4m/M7	4,2x12,2	14,6	2550	26,6	4650	25,57	ZNK 71 B 4	24	25
100					14,6		26,6		25,57			
125					14,6		26,6		25,57			
160	2				14,6		26,6		25,57			
200			3m/M6		14,6		26,6		25,57			
250			2m+ [4]/M5+		14,6		26,6		25,57			
315	5		4m/M7	5,3x15,2	7,1		13,0		54,24	ZNK 80 A 4	29	30
	10			7,4x21,2	10,2		18,6		53,07	ZNK 100 A 4	48	50
400	5		3m/M6	5,3x15,2	7,1		13,0		54,24	ZNK 80 A 4	29	30
	10		4m/M7	7,4x21,2	10,2		18,6		53,07	ZNK 100 A 4	48	50
500	5		2m+ [4]/M5+	5,3x15,2	7,1		13,0		54,24	ZNK 80 A 4	29	30
630	10		4m/M7	7,4x21,2	10,2		18,6		53,07	ZNK 100 A 4	48	50
					5,4		9,8		100,15			
					10,2		18,6		53,07			
800			3m/M6		5,4		9,8		100,15			
					10,2		18,6		53,07			
1000			2m+ [4]/M5+		5,4		9,8		100,15			
			2m+ [4] [7]/M5+		10,2		18,6		53,07			
	15		4m [5]/M7	8,7x24,2	6,7		12,3		91,68		73	74
1250	10		1Am [6]/M4	7,4x21,2	3,8		7,0		140,96		56	58
		2/1	4m/M7		5,1		9,3		53,07		64	67
	15	1/1	3m [7]/M6	8,7x24,2	6,7		12,3		91,68		73	74
	16		3m [8]/M6		21,8	4650	21,8		62,05	ZNK 100 C 2	113	115
1600	10	2/1	3m/M6	7,4x21,2	5,1	2550	9,3		53,07	ZNK 100 A 4	64	67
	15	1/1	2m+ [4] [8]/M5+	8,7x24,2	6,7		12,3		91,68		73	74
	16		2m+ [4] [6]/M5+		21,8	4650	21,8		62,05	ZNK 100 C 2	113	115
	25		3m/M6	10,5x28,2	13,0		13,0		101,00		115	117
2000	10	2/1	2m+ [4] [7]/M5+	7,4x21,2	5,1	2550	9,3		53,07	ZNK 100 A 4	64	67
	15		4m [9]/M7	8,7x24,2	3,4		6,1		91,68		85	88
	16				10,9	4650	10,9		62,05	ZNK 100 C 2	125	128
	25	1/1	2m+ [4]/M5+	10,5x28,2	13,0		13,0		101,00		115	117
2500	10	2/1	1Am [6]/M4	7,4x21,2	3,6	2550	6,5		75,67	ZNK 100 A 4	64	67
	15		3m [5]/M6	8,7x24,2	3,4		6,1		91,68		85	88
	16				10,9	4650	10,9		62,05	ZNK 100 C 2	125	128
	25	1/1	1Am/M4	10,5x28,2	13,0		13,0		101,00		115	117
3200	15	2/1	2m+ [4] [7]/M5+	8,7x24,2	3,4	2550	6,1		91,68	ZNK 100 A 4	85	88
	16		2m+ [4] [8]/M5+		10,9	4650	10,9		62,05	ZNK 100 C 2	125	128
4000	25		2m+ [4]/M5+	10,5x28,2	6,5		6,5		101,00		127	132
5000			1Am/M4		6,5		6,5		101,00			

1) Max. lifting speed in the partial load range/without load
2) See electric key data page for key motor data.
3) Hook paths as for DC-Pro.
4) 2m+ corresponds to a service life of 1900 hours at full load.
5) FEM 2m chain drive to EN 818-7
6) FEM 1Cm chain drive to EN 818-7
7) FEM 1Am chain drive to EN 818-7
8) FEM 1Bm chain drive to EN 818-7
9) FEM 3m chain drive to EN 818-7

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Further special features:

The lifting speeds specified for DC-ProFC units are rated lifting speeds. Higher lifting speeds for partial load and/or in the field weakening range depend on the inverter provided by the customer. The maximum lifting speed is reached at vs_{max} = 5000 rpm. Note load reduction owing to field weakening

Chain sprocket pitch circle diameter d_k:

DC 1 - 2	DC 5	DC 10	DC 15	DC 16	DC 25
46,601	48,383	67,482	77,031	92,437	89,763

Increments per mm of lifting motion $= \frac{\text{Rotary encoder increments} \times i_{gearbox}}{d_k \times \pi}$

The precise lifting speed must be determined according to the following equation:

$v_H = \frac{d_k \times \pi \times n_{mot}}{i_{gearbox} \times 1000}$

A corresponding encoder is required to control DC-ProFC units. An incremental encoder is installed as standard. See also “Pulse encoder fittings” section. Other encoders on request.

For the control and speed control of DC-ProFC units, we recommend the use of Demag Dedrive Compact STO frequency inverters.

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1.8 Operating conditions

1.8.1 General operating conditions

The chain hoist and the trolley are not suitable for explosion-proof areas. They can be operated at:

Ambient temperature	Humidity	Height	Type of enclosure	Electromagnetic compatibility
-20 °C to +45 °C	Max. 80% relative humidity	Up to 1000 m above sea level	IP55 (IP 65 on request)	Resistance to interference in industrial environments Interference emission for residential, commercial and light-industrial environments

Surface protection and paint finish

As standard, the chain hoist is provided with corrosion protection (powder coating/ paint finish) and supplied in the following colours:

Finish		
Chain hoist, trolley	RAL 5009	Azure blue
Hook assembly	RAL 1007	Daffodil yellow
Load hook and suspension bracket	RAL 9005	Jet black

The chain hoist and trolley can be supplied with other paint finishes.

Noise emission/sound pressure level

Sound pressure level (LpAF) to DIN 45635 at a distance of 1 m from the chain hoist is:

Chain hoist size		DC-Pro 1	DC-Pro 2	DC-Pro 5	DC-Pro 10	DC-Pro 15 / 16 / 25
Lifting speed up to	[m/min]	8	16	12	12	8
Sound pressure level	[dB (A)]	65^{+2}		69^{+2}		

Demag chain hoists operating outdoors should be provided with a cover for protection against effects of the weather or chain hoists, trolleys and travel drives should be kept under shelter if they are not in use.

Special operating conditions may be agreed with the manufacturer in individual cases.

Such operating conditions may occur in the following applications, for example:

- galvanizing, electroplating facilities, foundries, pickling plants,
- hygiene areas, clean rooms,
- low or high temperature applications, offshore.

On request, suitably optimised equipment and important information for safe, low-wear operation can be supplied for these applications.

1.8.2 Non-standard ambient temperature

If DC chain hoists are operated at ambient temperatures that differ from the values given above, the duty factor must be reduced:

Ambient temperature [°C]	-20 to +40	> +40 to +45	> +45 to +50	> +50 to +55	> +55 to +60
Chain hoist range	CDF duty factor specified in % for creep and main lifting or V_{rated} - V_{max} for variable speed, value in brackets for V_{min}				
DC-Pro/DC-ProDC/DC-ProCC/DCM-Pro/DC-Com	20 / 40		15/35	15/25	10/20
DCS-Pro/DC-ProFC/DCMS-Pro/DCRS-Pro	(20)/60	(15)/45	(10)/30	(5)/15	-
Trolleys with ZBF 8/2 motor	40/40	25/40			
Trolleys with ZBF 12/4 motor	15/40	On request			
E11 - E34	20 / 40	15/35	> +45 °C U11 to RU56 with ZBF motor and Polu box		

1.8.3 Special ambient/operating conditions

DC-ProDC 1-15 chain hoists with direct control can be operated at ambient temperatures of up to 80 °C. Operation at temperatures down to -30 °C on request.

The manufacturer must first be consulted for individual applications.

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1.8.3.1 Outdoor operation

DC chain hoists, U11 - U34 trolleys, E11 - E34 travel drives and RU/EU56 units are suitable for outdoor operation without any special equipment.

- Hoist and travel motor type of enclosure IP 55 (EU56 IP54 as standard, IP55 as an option).

DC chain hoists are fitted with a brake that is extremely well protected against corrosion; therefore, a chromium-plated brake surface is not necessary. The brake has IP 55 enclosure and is fitted under the electric equipment cover, which also has IP 55 enclosure.

1.8.3.2 Galvanizing facility design

DC-Pro chain hoists can be operated in galvanizing facilities (pickling, electroplating facilities); depending on ambient conditions, the following special measures need to be considered:

Measures for galvanizing facility design:

- Chain with increased CORRUD corrosion protection, lubricated with acid-resistant chain grease,
- Replace standard height-adjustable control cable with DC support sleeve or 2TY control cable,
- Replace DSC/DSC-S or DSE-10C/S control pendants with DSK-C/S or DST-C/S,
- Corrosion protection by means of appropriate paint finish for ZBF travel motors (all powder-coated components/hoist motors need no additional protection),
- Use chain collector for the next larger size (only for H5 to H8),
- Use steel travel rollers for U11 trolleys (spheroidal-graphite cast-iron standard for U22-56).

Optional measures:

- Use the dual-output gearbox for U11 - U34 or a second travel drive, as required, if tracks are dirty,
- Additional corrosion protection through appropriate paint finish for all components,
- Use a control pendant arm to keep the control pendant away from aggressive media.

1.8.3.3 Food-safe design

Chain hoists used in the food industry must be operated with special food-safe lubricants.

The chain can be lubricated with Paraliq 91 lubricant (Klueber brand).

The maximum load capacity of DC chain hoists with food-safe gear oil is 800 kg owing to the modified slipping clutch setting. Additional electronic overload protection with a ZMS device is needed for load capacities higher than 800 kg.

Optional:

As an option, chain hoists can be provided with a two-component paint finish (e.g. RAL 9010 pure white) and an RS 6 stainless steel chain. Pay attention to the reduced load capacity of RS 6 stainless steel chain.

Chain hoist size	DC 1/2	DC 5	DC 10	DC 15	DC 16 - 25
Gearbox filling quantity in litres	0,35	0,5	0,9	1,3	3
Gear oil (Klueber 4 UH1-220)					
Food-safe lubricant, e.g. 4 UH1-1500 N oil (part no. 664 028 44)					

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1.8.3.4 Clean room design

In some technical sectors, such as electronics, precision mechanics and medicine, special clean air requirements need to be met. The aim is to prevent any detrimental effects of contamination on items to be handled or for the individuals working in clean room workplaces.

According to DIN EN ISO 14644-1, clean rooms are assigned to purity classes corresponding to the quantity of particles in the air. The following table shows a comparison of purity classes for various standards:

	DIN EN ISO 14644-1 (VDI 2083 of 2005)	EC – GMP guideline	US Fed. Std. 209E	VDI 2083 of 1995 (obsolete)
Not possible with DC chain hoists	Class 6	B	M4,5 (1000)	Class 4
Only possible with special measures	Class 7	C	M5,5 (10 000)	Class 5
For DC chain hoist without special measures	Class 8	D	M6,5 (100 000)	Class 6

Clean air classes are determined by measuring the concentration of particles. They are considered to be fulfilled if the measured concentration of particles shows values below the specified limit concentration for each of the specified particle sizes.

Particles may occur in solid or liquid form. In the case of particularly sensitive processes, vapours given off by grease used during the production of individual components can also have a detrimental effect, for example. Clean room requirements may apply, for example, in the optical industry when layers of gold or coatings are applied to optical lenses.

Hoist units and trolleys for clean rooms must be specified and manufactured in such a way that no particles can be released when they are used. This applies in particular to avoiding particle formation by abrasion, corrosion or vibration.

Cleanroom class ISO 8 can be achieved without any special measures thanks to double encapsulation of the brake on DC units. Cleanroom class ISO 6 **cannot** be achieved with chain hoists.

The special measures listed below are necessary to obtain cleanroom class ISO 7 with DC-Pro chain hoists:

Clean room design	DC 1/2	DC 5	DC 10 (1/1) up to 1000 kg	DC 10 (2/1)	DC15	DC 16 - 25 (1/1, 2/1)
Dual-component Hydro paint finish, stationary or with trolley						
Motor fan cover not painted (standard)						
Load hook nickel-plated						
Suspension bracket nickel-plated						
Plastic travel wheels standard for U11 trolley				On request		
The standard height-adjustable control cable must be replaced with a support sleeve.						
Optional measures: oil/grease collection tray under the chain hoist/trolley						

Explanation:

- Preservation of bare parts not necessary,
- Plastic parts are not painted,
- Load hook/suspension bracket are nickel-plated, not bronze-coated. Bronze-coated surfaces might be rough. There is a risk of particles flaking off.
- For U11 trolleys with E11 travel drives, no special measures are necessary due to their plastic travel wheels and direct drive. **The travel profile must not be painted, since otherwise abrasion can occur.**
- Oil grease collection trays are not absolutely necessary for maintenance operation, however, they must be provided for production operations.

1.8.3.5 Handling molten masses with DC-Pro chain hoists

The following measures must be taken according to EN14492-2:

The load capacity of the hoist unit must be 50% higher than the total load to be lifted, i.e. “2/3 rule”.

Rated load capacity mH [t]	5	3,2	2,5	2	1
Reduced load capacity mHn [t] for molten materials	3,2	2	1,6	1,3	0,65

Example:

For a load capacity of 3200 kg, the hoist unit must be able to lift 50% more than the load capacity (50% of 3200 kg = 1600 kg), i.e. 4800 kg (the next load capacity level is 5000 kg).

Chain drive	The chain drive must be rated at least for FEM group 2m/M5.
Electric equipment	A crane switch contactor must be provided.
Overload protection	The slipping clutch acts as direct acting overload protection. A ZMS is not needed.
Motor	The CDF duty factor and the switching frequency may need to be reduced at higher temperatures.
Brake	A second brake is not needed.
Further measures for DC units	
Heat deflection shield	A heat deflection shield must be installed depending on the suspension height and temperature.
Chain drive	The chain guide and chain sprocket must be checked from time to time for any visible damage (e.g. snagged chain) caused by dirt or spatters of metal being drawn in with the chain.
Chain	HS7 chain must be used if the chain cannot be lubricated. This chain does not need to be lubricated, a dry film lubricant can be applied.
Control pendant	Use a DST control pendant with support sleeve or 2TY control cable instead of a standard DSC control pendant and height-adjustable cable.
Surface protection	Powder-coated housing surfaces on the chain hoist do not need any additional protective coating.

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1.9 Hoist chains

Genuine Demag chain is a round-section steel chain tested to EN 818-7 and is subject to the regulations and test criteria issued for round-section steel chains used in hoist applications, the inspection regulations to DIN 685 part 5 of Nov. 1981 as well as the rules and regulations of the German Social Accident Insurance (DGUV).

Pay attention to reduced load capacities.
For non-standard operating conditions, the special chains listed below are available for special ambient conditions.

	Chain hoist Size	Max. load capacity for reeving 1/1 [kg]	Max. load capacity for reeving 2/1 [kg]	Dimension [mm]	Stamp, chain quality	Weight per metre [kg]	Production test force [kN]	Minimum breaking force [kN]	Minimum elongation at rupture [%]
Demag RDC/TDK standard chain									
	DC 1 - 2	250	-	4,2 x 12,2	DAT RDC/TDK	0,38	13,8	22	10
	DC 5	500	-	5,3 x 15,2		0,62	22	35	
	DC 10	1250	2500	7,4 x 21,2		1,20	43	70	
	DC 15 - 16	1600	3200	8,7 x 24,2		1,67	59	95	
	DC 25	2500	5000	10,5 x 28,2		2,49	87	138	
Properties	High-strength ageing-resistant material with a high degree of surface hardening, galvanized with additional surface treatment, colour: DC 1 - 10 silver, DC 15 - 25 yellow								
Material	Ni-Mo special chain steel to EN 818-7, part 5.3.1								
Lubrication	GP00H-30REN.SO-GFB grease								
Demag Corrud special chain									
Applications such as galvanizing, electroplating, pickling facilities	DC 1 - 2	250	-	4,2 x 12,2	DAT RDC/TDK	0,38	13,8	22	10
	DC 5	500	-	5,3 x 15,2		0,62	22	35	
	DC 10	1250	2500	7,4 x 21,2		1,20	43	70	
	DC 15 - 16	1600	3200	8,7 x 24,2		1,67	59	95	
	DC 25	2500	5000	10,5 x 28,2		2,49	87	138	
Properties	Ageing-resistant, corrosion-free, “Corrud DS” micro-layer corrosion protection, black-coated, colour: black, Stabylan 2001								
Material	Ni-Mo special chain steel to EN 818-7, part 5.3.1								
Lubrication	Acid-resistant chain grease, e.g. Ceplattyn BL white Paste (part no. 665 023 44)								
Demag HS7 special chain									
Applications such as foundries, dust, emery, blasting	DC 1 - 2	160	-	4,2 x 12,2	RSX/DS	0,38	12,5	19,3	5
	DC 5	400	-	5,3 x 15,2		0,62	19,8	30,8	
	DC 10	800	1600	7,4 x 21,2		1,20	38,7	60	
	DC 15 - 16	-	-	-		-	-	-	
	DC 25	1600	3200	10,5 x 28,2		2,49	78	121	
Properties	Ageing-resistant, blue-chromated, with deeper surface hardening								
Material	Ni-Mo special chain steel to EN 818-7, part 5.3.1								
Lubrication	Dry or with dry lubricant, e.g. Ceplattyn 300 Paste (part no. 665 022 44)								
Demag RS6 special chain									
Applications such as the food sector	DC 1 - 2	125 [1] - 160 [2]	-	4,2 x 12,2	RSA/S	0,38	10	16	15
	DC 5	200 [1] - 250 [2]	-	5,3 x 15,2		0,62	16	25	
	DC 10	400 [1] - 500 [2]	800 [3] - 1000 [4]	7,4 x 21,2		1,20	32	50	
	DC 15 - 16	-	-	-		-	-	-	
	DC 25	630 [1] - 800 [2]	1250 [3] - 1600 [4]	10,5 x 28,2		2,23	50	80	
Properties	Non-rusting chain, not hardened, bright								
Material	Stainless steel AISI 316 (V4A) 1,4401								
Lubrication	Food-safe lubricant, e.g. 4 UH1-1500 N oil (part no. 664 028 44)								

Use of HS7 special chain in foundries, fettling shops or other environments with high dust levels:
- It is recommended to lubricate the chain with a dry lubricant, e.g. Cettaplyn 300 Paste (part no. 665 022 44).
- The chain can also be used dry. Without any lubrication, however, greatly increased wear and louder operating noise in the chain drive must be expected.
- The chain must not be lubricated with normal grease in environments with high dust levels, as the grease will form clumps and any chain wear will not be visible.

1) For max. 25-50 cycles per day
2) For max. 10 cycles per day
3) For max. 12-25 cycles per day
4) For max. 5 cycles per day

HS7 and RS6 chains are not suitable for travelling hoist applications with additional chain return arrangements.

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1.10 Electric key data

1.10.1 DC-Pro, DC-Com, DC-ProDC, DC-ProCC (2 lifting speeds)

Voltage [1] Frequency (Conformity)	Chain hoist size	Type of control				Motor size	No. of poles	P_N	CDF	n_N	Starts/ h	Min./max. currents and start-up current				
		Pro	Com	ProDC	ProCC	ZNK ...		[kW]	[%]	[rpm]		$I_{N\ min.}$ [A]	$I_{N\ max.}$ [A]	$I_{max.}$ [2] [A]	$I_A/I_{N\ max.}$	cos φ_N
3 ~ 220-240 V 50 Hz (CE)	1	X	X	X	X	71 B 8/2	8	0,05	20	720	240	1,75	2,10	2,10	1,45	0,48
							2	0,18	40	2925	120	2,10	2,80	2,80	2,75	0,46
	2	-	X	-	-	71 B 8/2	8	0,07	20	695	240	1,80	2,10	2,35	1,45	0,52
							2	0,27	40	2880	120	2,30	2,80	3,20	2,75	0,55
		X	-	X	X	71 B 8/2	8	0,09	20	675	240	1,80	2,10	2,35	1,45	0,56
							2	0,36	40	2825	120	2,40	2,80	3,20	2,75	0,63
	5	-	X	-	-	80 A 8/2	8	0,10	20	720	240	1,90	1,90	2,15	2,50	0,46
							2	0,41	40	2910	120	3,60	4,70	5,50	4,70	0,49
		X	-	X	X	80 B 8/2	8	0,18	20	665	240	2,45	2,80	2,95	1,45	0,51
							2	0,73	40	2745	120	3,80	4,20	4,70	3,00	0,77
	10	-	X	-	-	100 A 8/2	8	0,18	20	705	240	2,80	3,10	3,65	1,90	0,48
							2	0,73	40	2850	120	3,50	4,00	4,50	4,85	0,65
		X	-	X	X	100 A 8/2	8	0,27	20	690	240	2,95	3,30	3,80	1,80	0,54
							2	1,09	40	2745	120	5,40	5,40	6,10	3,60	0,81
		-	X	-	-	100 B 8/2	8	0,36	20	705	240	4,80	5,50	6,40	1,95	0,48
							2	1,45	40	2880	120	6,00	8,60	9,00	5,15	0,59
	10	-	-	X	-	100 B 8/2	8	0,54	20	675	240	5,20	5,90	6,80	1,85	0,58
	15	-	-	X	-											
	16	X	-	-	-		2	2,18	40	2790	120	9,50	10,70	11,00	4,15	0,77
	16/25	-	-	-	-	100 C 8/2	-									
3 ~ 380-415 V 50 Hz (CE)	1	X	X	X	X	71 A 8/2 [3]	8	0,05	20	700	240	0,95	1,10	1,10	1,20	0,66
							2	0,18	40	2840	120	1,20	1,40	1,40	2,60	0,57
						71 B 8/2	8	0,05	20	720	240	1,00	1,20	1,20	1,45	0,48
							2	0,18	40	2925	120	1,20	1,60	1,60	2,75	0,46
	2	-	X	-	-	71 B 8/2	8	0,07	20	695	240	1,00	1,20	1,35	1,45	0,52
							2	0,27	40	2880	120	1,30	1,60	1,85	2,75	0,55
		X	-	X	X	71 B 8/2	8	0,09	20	675	240	1,00	1,20	1,35	1,45	0,56
							2	0,36	40	2825	120	1,40	1,60	1,85	2,75	0,63
	5	-	X	-	-	80 A 8/2	8	0,10	20	720	240	1,10	1,10	1,25	2,50	0,46
							2	0,41	40	2910	120	2,10	2,70	3,20	4,70	0,49
		X	-	X	X	80 B 8/2	8	0,18	20	665	240	1,40	1,60	1,70	1,45	0,51
							2	0,73	40	2745	120	2,20	2,40	2,70	3,00	0,77
	10	-	X	-	-	100 A 8/2	8	0,18	20	705	240	1,60	1,80	2,10	1,90	0,48
							2	0,73	40	2850	120	2,00	2,30	2,60	4,85	0,65
		X	-	X	X	100 A 8/2	8	0,27	20	690	240	1,70	1,90	2,20	1,80	0,54
							2	1,09	40	2745	120	3,10	3,10	3,50	3,60	0,81
		-	X	-	-	100 B 8/2	8	0,36	20	705	240	2,80	3,20	3,70	1,95	0,48
							2	1,45	40	2880	120	3,50	5,00	5,20	5,15	0,59
	10	X	-	X	X	100 B 8/2	8	0,54	20	675	240	3,00	3,40	3,90	1,85	0,58
	15	X	-	X	X											
	16	-	-	-	X		2	2,18	40	2790	120	5,50	6,20	6,40	4,15	0,77
	16/25	X	-	-	X	100 C 8/2	8	0,91	20	685	240	4,30	4,70	5,10	2,35	0,55
							2	3,63	40	2820	120	8,20	8,40	8,90	4,95	0,82

1) Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible. Motors are rated to insulation class F.
2) I_{max} = maximum current for lowering motion.
3) For replacement requirements, the ZNK 71 A 8/2 motor at 380-415 V/50 Hz is replaced by a ZNK 71 B 8/2 motor.

Hoist motor data continued

Voltage [1] Frequency (Conformity)	Chain hoist size	Type of control				Motor size	No. of poles	P_N	CDF	n_N	Starts/ h	Min./max. currents and start-up current				
		Pro	Com	ProDC	ProCC	ZNK ...		[kW]	[%]	[rpm]		$I_{N\ min.}$ [A]	$I_{N\ max.}$ [A]	$I_{max.}$ [2] [A]	$I_A/I_{N\ max.}$	cos φ_N
3 ~ 500-525 V 50 Hz (CE) [3]	1	X	X	X	X	71 B 8/2	8	0,05	20	720	240	0,75	0,95	0,95	1,45	0,48
							2	0,18	40	2925	120	0,90	1,25	1,25	2,75	0,46
	2	-	X	-	-	71 B 8/2	8	0,07	20	695	240	0,80	0,95	1,10	1,45	0,52
							2	0,27	40	2880	120	1,10	1,25	1,45	2,75	0,55
		X	-	X	X	71 B 8/2	8	0,09	20	675	240	0,80	0,95	1,10	1,45	0,56
							2	0,36	40	2825	120	1,10	1,25	1,45	2,75	0,63
	5	-	X	-	-	80 A 8/2	8	0,10	20	720	240	0,90	0,90	1,00	2,50	0,46
							2	0,41	40	2910	120	1,70	2,15	2,55	4,70	0,49
		X	-	X	X	80 B 8/2	8	0,18	20	665	240	1,20	1,30	1,35	1,45	0,51
							2	0,73	40	2745	120	1,80	1,90	2,15	3,00	0,77
	10	-	X	-	-	100 A 8/2	8	0,18	20	705	240	1,30	1,40	1,70	1,90	0,48
							2	0,73	40	2850	120	1,70	1,80	2,00	4,85	0,65
		X	-	X	X	100 A 8/2	8	0,27	20	690	240	1,35	1,50	1,75	1,80	0,54
							2	1,09	40	2745	120	2,40	2,50	2,80	3,60	0,81
		-	X	-	-	100 B 8/2	8	0,36	20	705	240	2,40	2,50	2,90	1,95	0,48
							2	1,45	40	2880	120	3,40	4,00	4,20	5,15	0,59
	10 15 16	X X -	- - -	X X -	X X X	100 B 8/2	8	0,54	20	675	240	2,50	2,70	3,10	1,85	0,58
							2	2,18	40	2790	120	4,60	4,90	5,10	4,15	0,77
	16/25	X	-	-	X	100 C 8/2	8	0,91	20	685	240	3,50	3,70	4,00	2,35	0,55
							2	3,63	40	2820	120	6,60	6,70	7,00	4,95	0,82
3 ~ 220-240 V 60 Hz (CE/$_C$CSA$_{US}$)	1	X	X	X	X	71 B 8/2	8	0,05	20	870	240	2,10	2,50	2,50	1,45	0,47
							2	0,22	40	3525	120	2,50	3,35	3,35	2,75	0,45
	2	-	X	-	-	71 B 8/2	8	0,08	20	845	240	2,10	2,50	2,80	1,45	0,51
							2	0,33	40	3480	120	2,70	3,30	3,85	2,75	0,54
		X	-	X	X	71 B 8/2	8	0,11	20	825	240	2,10	2,50	2,80	1,45	0,55
							2	0,44	40	3425	120	2,90	3,30	3,85	2,75	0,62
	5	-	X	-	-	80 A 8/2	8	0,12	20	870	240	2,30	2,30	2,60	2,50	0,45
							2	0,49	40	3510	120	4,40	5,60	6,60	4,70	0,48
		X	-	X	X	80 B 8/2	8	0,22	20	815	240	2,90	3,30	3,50	1,45	0,50
							2	0,87	40	3345	120	4,60	5,00	5,60	3,00	0,76
	10	-	X	-	-	100 A 8/2	8	0,22	20	855	240	3,35	3,75	4,40	1,90	0,47
							2	0,87	40	3450	120	4,20	4,80	5,40	4,85	0,67
		X	-	X	X	100 A 8/2	8	0,33	20	840	240	3,55	3,90	4,60	1,80	0,53
							2	1,31	40	3345	120	6,50	6,40	7,30	3,60	0,80
		-	X	-	-	100 B 8/2	8	0,44	20	855	240	5,80	6,60	7,70	1,95	0,47
							2	1,74	40	3480	120	7,30	10,40	10,80	5,15	0,58
	10 15 16	- - X	- - -	X X -	- - -	100 B 8/2	8	0,65	20	825	240	6,20	7,10	8,10	1,85	0,57
							2	2,61	40	3390	120	11,40	12,90	13,30	4,15	0,76
	16/25	-	-	-	-	100 C 8/2	-									

1) Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible. Motors are rated to insulation class F.
2) I_{max} = maximum current for lowering motion.
3) DC-ProDC and DC-ProCC only up to 500 V

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Hoist motor data continued

Voltage [1] Frequency (Conformity)	Chain hoist size	Type of control				Motor size	No. of poles	P_N	CDF	n_N	Starts/ h	Min./max. currents and start-up current				
		Pro	Com	ProDC	ProCC	ZNK ...		[kW]	[%]	[rpm]		$I_{N\ min.}$ [A]	$I_{N\ max.}$ [A]	$I_{max.}$ [2] [A]	$I_A/I_{N\ max.}$	cos φ_N
3 ~ 380-400 V 60 Hz (CE)	1	X	X	X	X	71 B 8/2	8	0,05	20	870	240	1,35	1,60	1,60	1,45	0,47
							2	0,22	40	3525	120	1,70	2,00	2,00	2,75	0,45
	2	-	X	-	-	71 B 8/2	8	0,08	20	845	240	1,40	1,60	1,70	1,45	0,51
							2	0,33	40	3480	120	1,80	2,00	2,20	2,75	0,54
		X	-	X	X	71 B 8/2	8	0,11	20	825	240	1,50	1,60	1,80	1,45	0,55
							2	0,44	40	3425	120	1,80	2,00	2,30	2,75	0,62
	5	-	X	-	-	80 A 8/2	8	0,12	20	870	240	1,55	1,55	1,75	2,50	0,45
							2	0,49	40	3510	120	3,00	3,50	4,10	4,70	0,48
		X	-	X	X	80 B 8/2	8	0,22	20	815	240	1,80	1,95	2,00	1,45	0,50
							2	0,87	40	3345	120	2,70	2,90	3,20	3,00	0,76
	10	-	X	-	-	100 A 8/2	8	0,22	20	855	240	2,30	2,50	2,80	1,90	0,47
							2	0,87	40	3450	120	2,70	2,90	3,30	4,85	0,64
		X	-	X	X	100 A 8/2	8	0,33	20	840	240	2,40	2,70	2,90	1,80	0,53
							2	1,31	40	3345	120	3,80	4,00	4,60	3,60	0,80
		-	X	-	-	100 B 8/2	8	0,44	20	855	240	3,20	3,30	3,80	1,95	0,47
							2	1,74	40	3480	120	4,50	5,30	5,50	5,15	0,58
	10 15 16	X X -	- - -	X X -	X X X	100 B 8/2	8	0,65	20	825	240	3,90	4,30	4,90	1,85	0,57
							2	2,61	40	3390	120	7,20	7,70	8,00	4,15	0,76
	16/25	X	-	-	X	100 C 8/2	8	1,09	20	835	240	5,50	5,80	6,30	2,35	0,54
							2	4,36	40	3420	120	10,50	10,60	11,00	4,95	0,81
3 ~ 440-480 V 60 Hz (CE/$_C$CSA$_{US}$)	1	X	X	X	X	71 B 8/2	8	0,05	20	870	240	1,05	1,25	1,25	1,45	0,47
							2	0,22	40	3525	120	1,25	1,65	1,65	2,75	0,45
	2	-	X	-	-	71 B 8/2	8	0,08	20	845	240	1,05	1,25	1,40	1,45	0,51
							2	0,33	40	3480	120	1,35	1,70	1,95	2,75	0,54
		X	-	X	X	71 B 8/2	8	0,11	20	825	240	1,05	1,25	1,40	1,45	0,55
							2	0,44	40	3425	120	1,45	1,65	1,95	2,75	0,62
	5	-	X	-	-	80 A 8/2	8	0,12	20	870	240	1,15	1,15	1,30	2,50	0,45
							2	0,49	40	3510	120	2,20	2,80	3,30	4,70	0,48
		X	-	X	X	80 B 8/2	8	0,22	20	815	240	1,50	1,70	1,80	1,45	0,50
							2	0,87	40	3345	120	2,30	2,50	2,80	3,00	0,76
	10	-	X	-	-	100 A 8/2	8	0,22	20	855	240	1,65	1,85	2,20	1,90	0,47
							2	0,87	40	3450	120	2,10	2,40	2,70	4,85	0,64
		X	-	X	X	100 A 8/2	8	0,33	20	840	240	1,80	1,95	2,30	1,80	0,53
							2	1,31	40	3345	120	3,25	3,20	3,70	3,60	0,80
		-	X	-	-	100 B 8/2	8	0,44	20	855	240	2,90	3,20	3,80	1,95	0,47
							2	1,74	40	3480	120	3,60	5,20	5,40	5,15	0,58
	10 15 16	X X -	- - -	X X -	X X X	100 B 8/2	8	0,65	20	825	240	3,10	3,50	4,00	1,85	0,57
							2	2,61	40	3390	120	5,70	6,40	6,60	4,15	0,76
	16/25	X	-	-	X	100 C 8/2	8	1,09	20	835	240	4,50	4,90	5,30	2,35	0,54
							2	4,36	40	3420	120	8,50	8,70	9,20	4,95	0,81

1) Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible. Motors are rated to insulation class F.
2) I_{max} = maximum current for lowering motion.

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Hoist motor data continued

Voltage [1] Frequency (Conformity)	Chain hoist size	Type of control				Motor size	No. of poles	P_N	CDF	n_N	Starts/ h	Min./max. currents and start-up current				
		Pro	Com	ProDC	ProCC	ZNK ...		[kW]	[%]	[rpm]		$I_{N\ min.}$ [A]	$I_{N\ max.}$ [A]	$I_{max.}$ [2] [A]	$I_A/I_{N\ max.}$	cos φ_N
3 ~ 575 V 60 Hz (CE/cCSA$_{US}$) [3]	1	X	X	-	X	71 B 8/2	8	0,05	20	870	240	0,85		0,85	1,45	0,48
							2	0,22	40	3525	120	0,90		0,90	2,75	0,46
	2	-	X	-	-	71 B 8/2	8	0,08	20	845	240	0,80		0,90	1,65	0,60
							2	0,33	40	3480	120	1,00		1,15	2,75	0,55
		X	-	-	X	71 B 8/2	8	0,11	20	825	240	0,90		1,00	1,45	0,65
							2	0,44	40	3425	120	1,00		1,15	2,75	0,63
	5	-	X	-	-	80 A 8/2	8	0,12	20	870	240	0,95		1,10	2,50	0,45
							2	0,49	40	3510	120	1,80		2,10	4,70	0,48
		X	-	-	X	80 B 8/2	8	0,22	20	815	240	1,10		1,35	1,45	0,54
							2	0,87	40	3345	120	1,75		2,10	3,00	0,88
	10	-	X	-	-	100 A 8/2	8	0,22	20	855	240	1,30		1,50	2,20	0,46
							2	0,87	40	3450	120	1,60		1,80	5,70	0,73
		X	-	-	X	100 A 8/2	8	0,33	20	840	240	1,35		1,55	2,10	0,58
							2	1,31	40	3345	120	2,40		2,70	3,80	0,87
		-	X	-	-	100 B 8/2	8	0,44	20	855	240	2,20		2,50	1,95	0,52
							2	1,74	40	3480	120	2,80		2,90	5,15	0,70
	10 15 16	X X -	- - -	- - -	X X X	100 B 8/2	8	0,65	20	825	240	2,40		2,70	1,85	0,62
							2	2,61	40	3390	120	4,40		4,50	4,15	0,83
	16/25	X	-	-	X	100 C 8/2	8	1,09	20	835	240	3,40		3,70	2,35	0,62
							2	4,36	40	3420	120	6,50		6,90	4,95	0,89

Mains connection delay fuse link

Voltage		220-240V	380-415V	500-525V	220-240V	380-400V	440-480V	575V
Frequency		50Hz			60Hz			
Size	Motor size	[A]	[A]	[A]	[A]	[A]	[A]	[A]
DC-Pro 1	ZNK 71 A 8/2	6	6	6	6	6	6	6
DC-Pro 1 DC-Com 1	ZNK 71 B 8/2							
DC-Pro 2 DC-Com 2	ZNK 71 B 8/2							
DC-Pro 5	ZNK 80 B 8/2	10			10			
DC-Com 5	ZNK 80 A 8/2							
DC-Pro 10 DC-Com 10	ZNK 100 A 8/2							
	ZNK 100 B 8/2	-	10	10	-	16	10	10
DC-Pro 15	ZNK 100 B 8/2		16			15	15	
DC-Pro 16	ZNK 100 B 8/2	20			25			
	ZNK 100 C 8/2	-	20	16	-	20	20	15
DC-Pro 25	ZNK 100 C 8/2							

Danger – live components.
Danger to life and limb.

Electric energy can cause very severe injuries. Danger of death caused by electric current if the insulation or individual components are damaged.

For safety reasons, we recommend the use of 3-pole automatic circuit breakers/circuit breakers (to DIN EN 60898-1, tripping characteristic B or C) instead of separate fuse links. This arrangement ensures that all phases are disconnected from the power supply in the event of a short circuit.

1) Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible. Motors are rated to insulation class F.
2) I_{max} = maximum current for lowering motion.
3) DC-ProDC and DC-ProCC only up to 500 V

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Supply lines [1] for 5% voltage drop ΔU and start-up current I_A

Voltage		220-240V		380-415V		500-525V		220-240V		380-400V		440-480V		575V	
Frequency		50Hz						60Hz							
Size	Motor size	[mm²]	[m]	[mm²]	[m]	[mm²]	[m]	[mm²]	[m]	[mm²]	[m]	[mm²]	[m]	[mm²]	[m]
DC-Pro 1	ZNK 71 A 8/2	1,5	89	1,5	100	1,5	100	1,5	76	1,5	100	1,5	100	1,5	100
DC-Pro 1 DC-Com 1	ZNK 71 B 8/2														
DC-Pro 2 DC-Com 2	ZNK 71 B 8/2														
DC-Pro 5	ZNK 80 B 8/2		31		94				26		75				
DC-Com 5	ZNK 80 A 8/2														
DC-Pro 10 DC-Com 10	ZNK 100 A 8/2		34						29		78				
	ZNK 100 B 8/2	-	-		38		61	-	-	2,5	45		43		78
DC-Pro 15	ZNK 100 B 8/2				46		73			1,5			52		90
DC-Pro 16	ZNK 100 B 8/2	2,5	25					2,5	21		36				
	ZNK 100 C 8/2	-		2,5	47		45	-		2,5		2,5	53		51
DC-Pro 25	ZNK 100 C 8/2														

1.10.2 DCS-Pro, DCMS-Pro, DCRS-Pro (variable lifting speed)

Hoist motor data

Chain hoist size	Motor size	No. of poles	P_N [kW]	CDF [2] [%]	n_N [rpm]	Load capacity [kg]	vs_{rated} [m/min]	$I_{N\ 380-480}$ [A]	$M_K/M_{N\ 380-480}$	cos φ_N
Mains connection voltage 380-480 V, 50/60 Hz, 3 ~ ($CE/_CCSA_{US}$) [3]										
1 - 2	ZNK 71 B 4	4	0,73	60	2480			3,10	2,50	0,50
5	ZNK 80 A 4	4	0,73	60	2540			2,90	3,20	0,58
10 - 15	ZNK 100 A 4	4	2,20	60	2540	1000	6	4,50	2,70	0,68
						2000	6	5,50		
						500	12	4,50		
						1000	12	5,50		

The motor frequency is:

- For DCS-Pro 1 = 150 Hz at rated load,
- For DCS-Pro 2 to 15 = 87 Hz at rated load and vsrated,
- For DCS-Pro 2 to 15 = 150 Hz at partial load and vsmax.

For safety reasons, we recommend the use of 3-pole automatic circuit breakers/circuit breakers (to DIN EN 60898-1, tripping characteristic B or C) instead of separate fuse links. This arrangement ensures that all phases are disconnected from the power supply in the event of a short circuit.

380-480 V, 50/60 Hz, 3 ~		Mains connection delay fuse link	Supply lines [1] for 5% voltage drop ΔU	
Chain hoist size	Motor size	[A]	[mm²]	[m]
1 - 2	ZNK 71 B 4	6	1,5	100
5	ZNK 80 A 4			
10 - 15	ZNK 100 A 4	10		40

A start-up current $I_A = I_N \cdot 1,5$ must be used as the basis for rating the supply cable.

1) The lengths of the supply lines are calculated on the basis of an earth-loop impedance of 200 mΩ.
2) 20% CDF at vs_{min}; 60% CDF at vs_{rated} up to vs_{max}
3) Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible. Motors are rated to insulation class F.

1.10.3 DC-ProFC (variable lifting speed)

Product selection is based on the voltage ranges of the DC-ProDC. However, they only refer to the brake that is actually installed. The motor must be fed by a frequency inverter.

DC 1 - 15:

The rated operating point is always at 360 V / 87 Hz. The speed is approx. 2540 rpm at the rated point. The motor frequency can be further increased up to a maximum of 150 Hz. This corresponds to a maximum speed of approx. 5000 rpm - (Important: f > 87 Hz = field weakening range).

DC 16 - 25:

The speed at the rated point is 4650 rpm and cannot be increased any further.

Hoist motor data

Chain hoist size	Motor size	No. of poles	P_N [kW]	CDF [1] [%]	n_N [rpm]	Load capacity [kg]	vs_{rated} [m/min]	$I_{N\ 380-480}$ [A]	$M_K/M_{N\ 380-480}$	cos φ_N
360 V, 87 Hz, 3 ~ (CE) [2]										
1 - 2	ZNK 71 B 4	4	0,73	60	2480			3,10	2,50	0,50
5	ZNK 80 A 4	4	0,73	60	2540			2,90	3,20	0,58
10 - 15	ZNK 100 A 4	4	2,20	60	2540	1000	6	4,50	2,70	0,82
						1000	12	5,50		
						2000	6	5,50		
16	ZNK 100 C2	2	4,2	100	4650	1250	21,8	16,4	2,9	0,94
16						1600	21,8			
25							13,0			
16						2000	10,9			
25							13,0			
16						2500	10,9			
25							13,0			
16						3200	10,9			
25						4000	6,5			
						5000	6,5			

Danger – live components.
Danger to life and limb.

- Frequency inverter-fed chain hoists must only be operated if a protective earth conductor is connected. If the protective earth conductor connection is damaged or interrupted, the chain hoist must be disconnected from the power supply without delay.
- Fault-free operation with a current-operated e.l.c.b. (earth-leakage circuit-breaker) is ensured with a tripping current ≥ 30 mA, if residual-current-operated circuit breakers (type B to EN 50178, e.g. Siemens 5SZ3 ... G00) are used.

The values for the mains connection fuse link and supply cable depend on the frequency inverter used.

Voltage ranges of the brake for DC-ProFC

Voltage range	3 ~ 380-415 V 50 Hz	3 ~ 500 V 50 Hz	3 ~ 380-400 V 60 Hz	3 ~ 440-480 V 60 Hz
Brake voltage	180 V	258 V	180 V	198 V

1) 20% CDF at vs_{min}; 60% CDF at vs_{rated} up to vs_{max}
2) Motors are rated to insulation class F.

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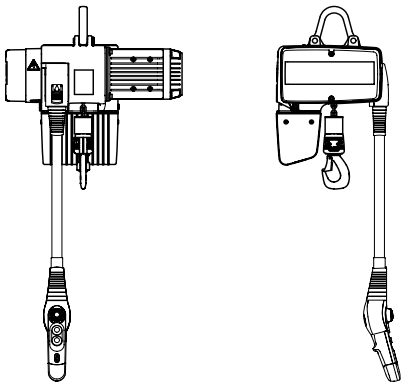
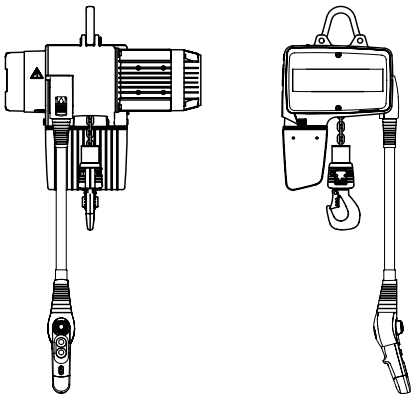
1.11 Size overview

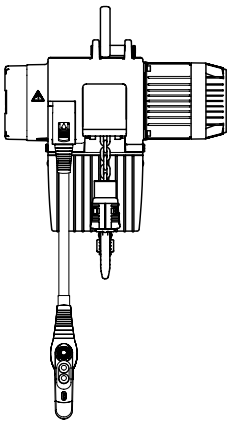
DC 1 / 2



DC 5



DC 10



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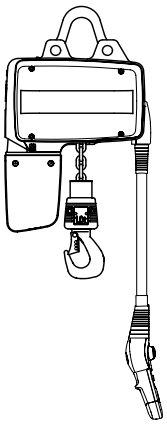

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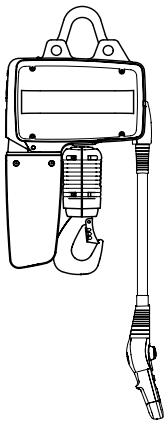

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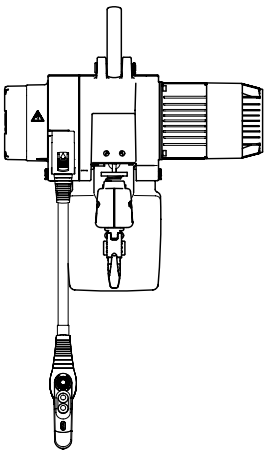

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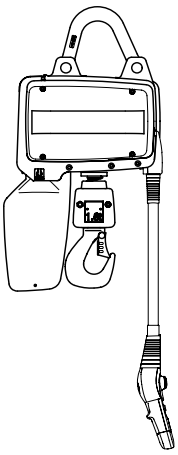
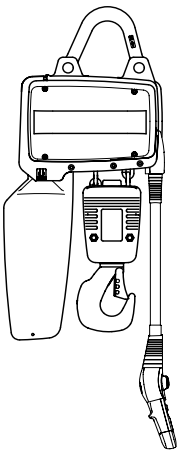
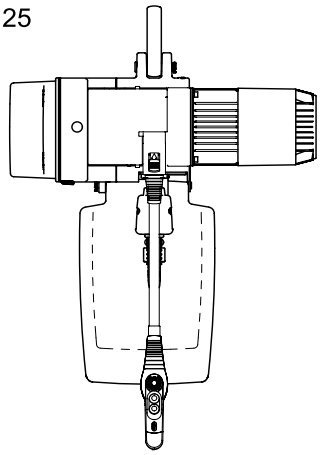


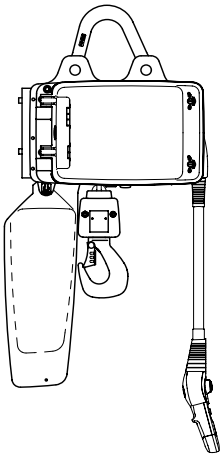
2/1



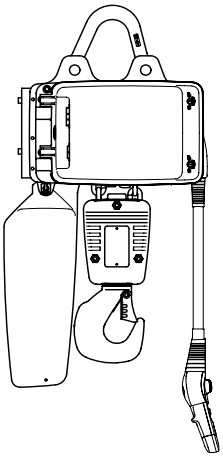
DC 16 / 25



1/1



2/1



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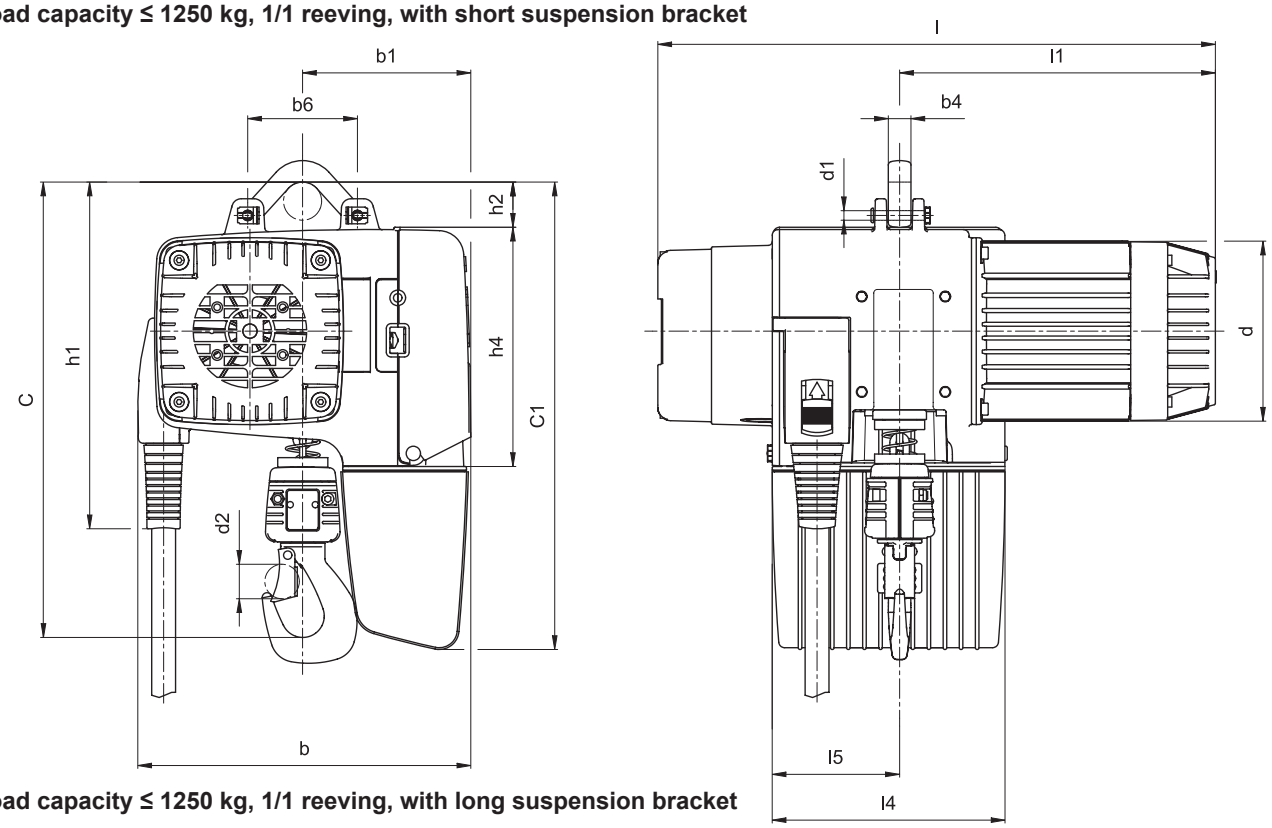
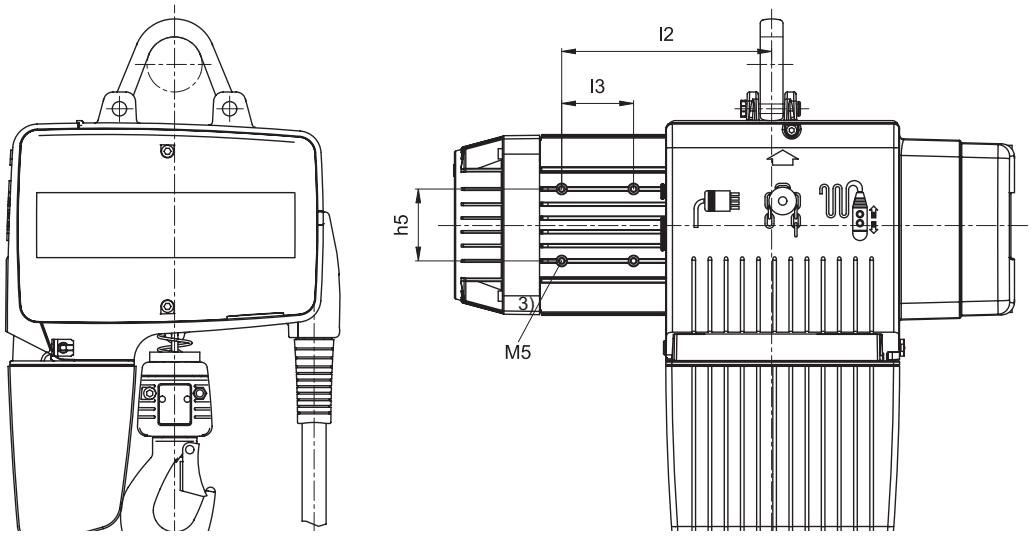
1.12 Dimensions

1.12.1 Demag DC-Pro 1 - 10 and DC-Com 1 - 10 chain hoist

Load capacity ≤ 1250 kg, 1/1 reeving, with short suspension bracket



Load capacity ≤ 1250 kg, 1/1 reeving, with long suspension bracket



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The following dimensions change due to larger cut-off springs for higher speeds:

1) H8 chain collector boxes are used for H5 hook paths and speed v2.

2)
- Dimension C is increased by 42 mm for chain hoists with v=16/4 or v=12/3.
- Dimension C is increased by 111 mm for DC 5 chain hoists with v=24/6.
- Dimension C is increased by 131 mm for DC 10 chain hoists with v=24/6.
- For DC-Com sizes 1-2, dimension C is reduced by 11 mm, for size 5 by 16 mm and for size 10 by 12 mm.

3) Min./max. thread depth 9 mm.

Chain hoist size	Motor	Suspension bracket						b	b1	l	l1	l2	l3	l4	l5	b4	b6	d	d1	d2	Suspension bracket				h4	h5
		Short	Long	Short		Long															Short		Long			
		C 2)		Chain collector box size																	h1	h2	h1	h2		
				H5	H8	H5	H8																			
				C 1 1)																						
DC-Pro 1/2	ZNK 71 B 8/2	326	364	335	365	373	403	268	138	422	237	170	60	183	100	19	92	124	8	22	263	40	300	78	163	50
DC-Pro 5	ZNK 80 B 8/2	378	416	395	425	435	465	280	141	468	265	175		195	107			151		24	293		323		201	
DC-Pro 10	ZNK 100 A 8/2	472	505	493	582	526	615	349	184	543	289	183		227	135	23	124	187	18	33	350	65	383	98	233	60
	ZNK 100 B 8/2			582		615				593	339															

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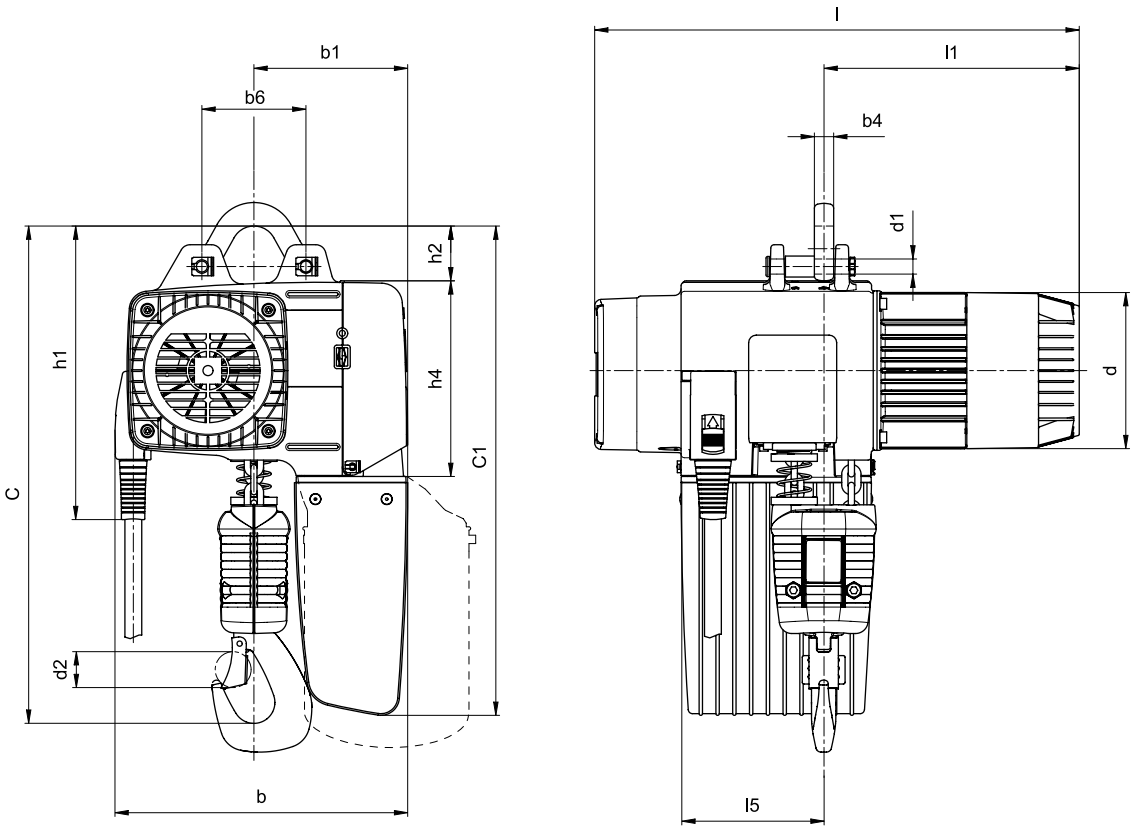
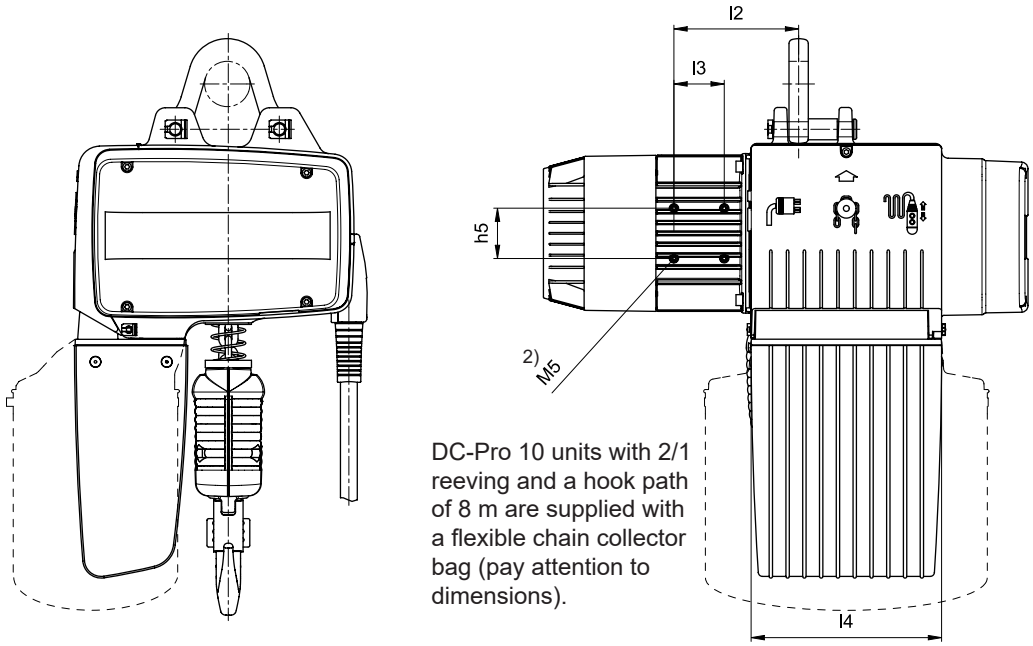
Load capacity > 1000 kg, 2/1 reeving, with short suspension bracket



Load capacity > 1000 kg, 2/1 reeving, with long suspension bracket



DC-Pro 10 units with 2/1 reeving and a hook path of 8 m are supplied with a flexible chain collector bag (pay attention to dimensions).

1) For DC-Com sizes 1-2, dimension C is reduced by 11 mm, for size 5 by 16 mm and for size 10 by 12 mm.

2) Min./max. thread depth 9 mm.

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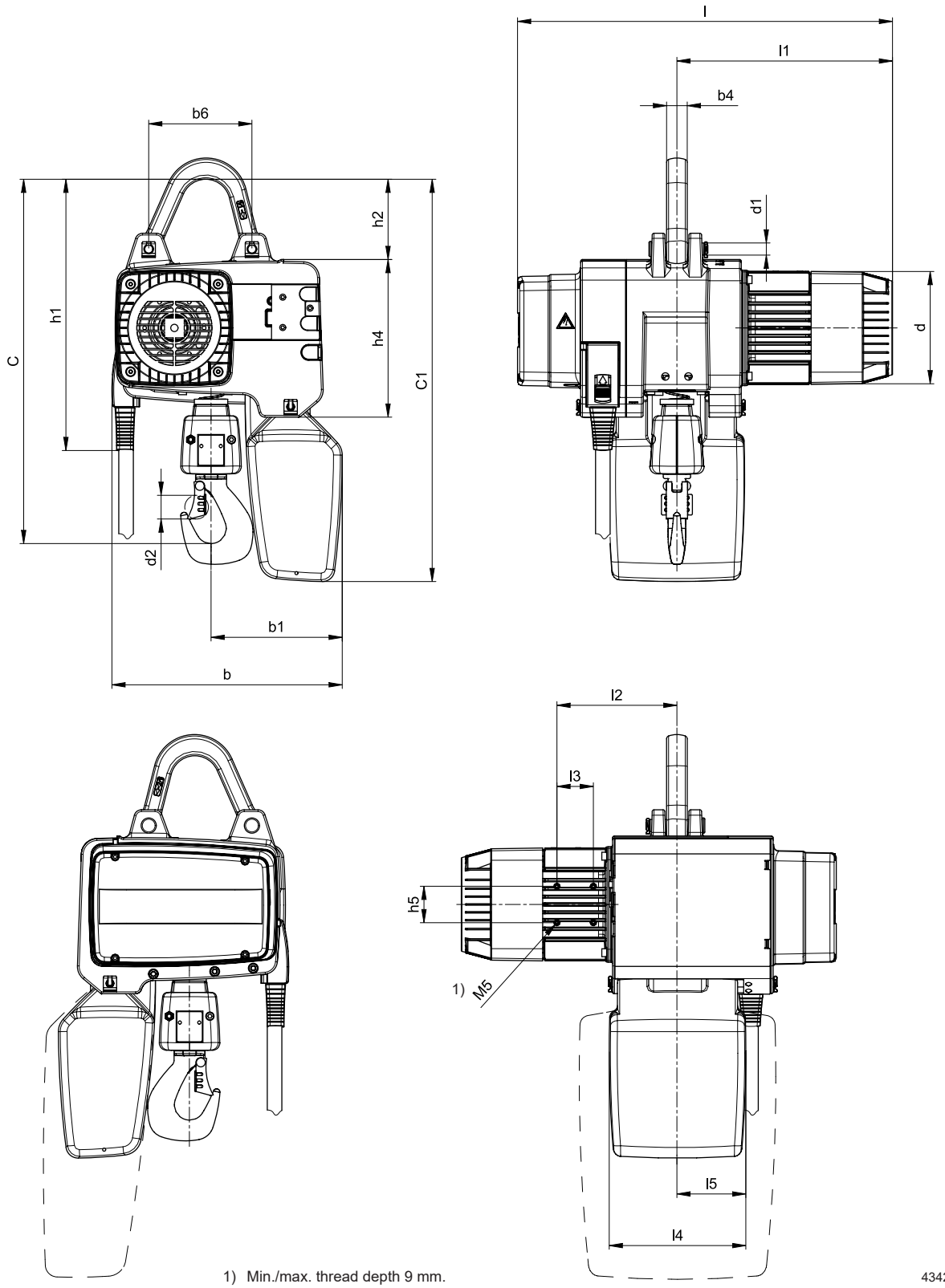
Size	Motor	Suspension bracket																													
		Short		Long		Short		Long																		Susp. bracket					
																										Short		Long			
						Chain collector box size																									
						H5	H8	H5	H8	H5	H8	H5	H8	H5	H8	H5	H8																
DC-Pro 10	ZNK 100 B 8/2	C 1)				C 1				b		b1		l4		l5		l	l1	l2	l3	b4	b6	d	d1	d2	h1	h2	h1	h2	h4	h5
		564	597	582	632	615	665	349	409	184	244	227	340	170	225	593	304	149	60	23	124	187	18	42	350	65	383	98	233	60

Load capacity ≤ 1600 kg, 1/1 reeving



1) Min./max. thread depth 9 mm.

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Size	Reeving	C1			b			b1			l4			l5		
		Chain collector box size														
		S	1	2	S	1	2	S	1	2	S	1	2	S	1	2
DC-Pro 15	1/1	H9 ➡ 663	H16 ➡ 783	H26 ➡ 863	379	384	389	216	221	226	224	260	320	112	130	160

Size	Reeving	C	l	l1	l2	l3	b4	b6	d	d1	d2	h1	h2	h4	h5
DC-Pro 15	1/1	598	626	355	198	60	34	170	187	20	39	447	132	260	60

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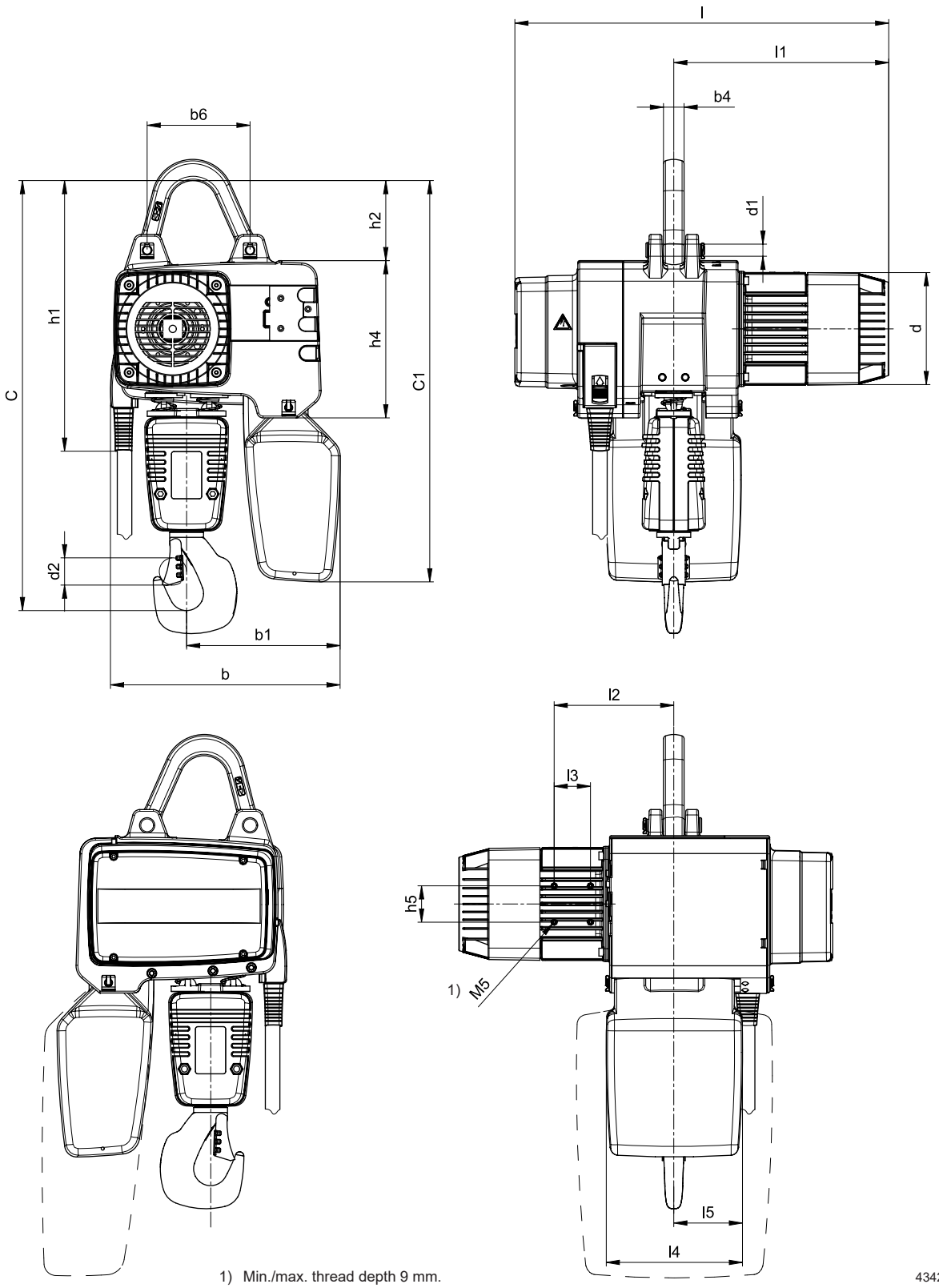
Load capacity 2000 - 3200 kg, 2/1 reeving



1) Min./max. thread depth 9 mm.

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Size	Reeving	C1			b			b1			l4			l5		
		Chain collector box size														
		S	1	2	S	1	2	S	1	2	S	1	2	S	1	2
DC-Pro 15	2/1	H4 ➡ 663	H8 ➡ 783	H13 ➡ 863	379	384	389	254	259	264	224	260	320	112	130	160

Size	Reeving	C	l	l1	l2	l3	b4	b6	d	d1	d2	h1	h2	h4	h5
DC-Pro 15	2/1	708	626	355	198	60	34	170	187	20	45	447	132	260	60

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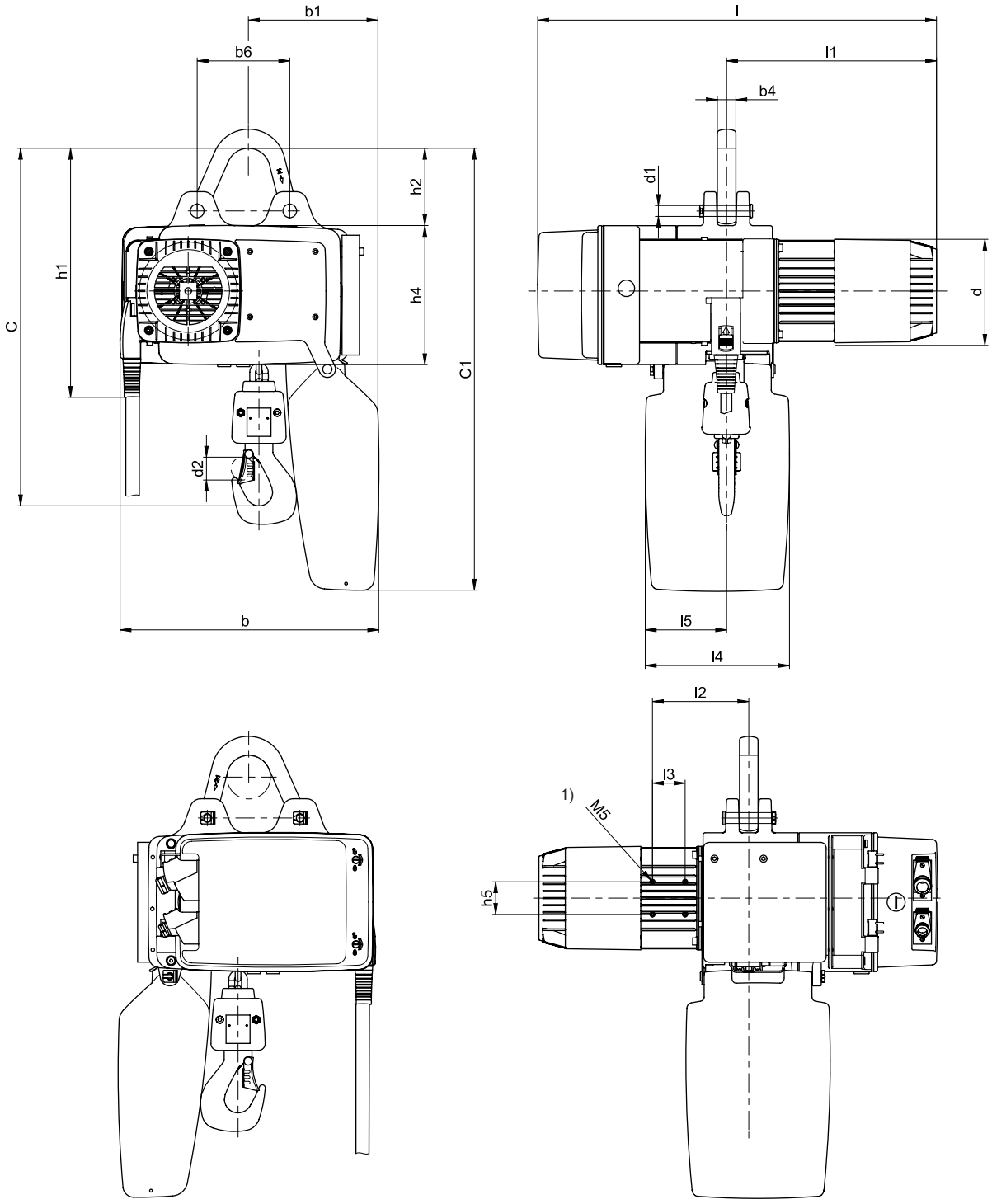
1/1 reeving



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1) Min./max. thread depth 9 mm.

Chain hoist size	Motor	C	Chain collector box size												l	l1	l2	l3	b4	b6	d	d1	d2	h1	h2	h4	h5
			1	2	1	2	1	2	1	2	1	2	1	2													
			C 1		Hook path		b		b1		l4		l5														
DC-Pro 16	ZNK 100 B 8/2	640	813	893	H16	H26	490	501	235	245	265	325	145	177	679	333	177	60	34	170	187	20	39	502	142	255	60
	ZNK 100 C 8/2														732	386											
DC-Pro 25					H10	H18																					

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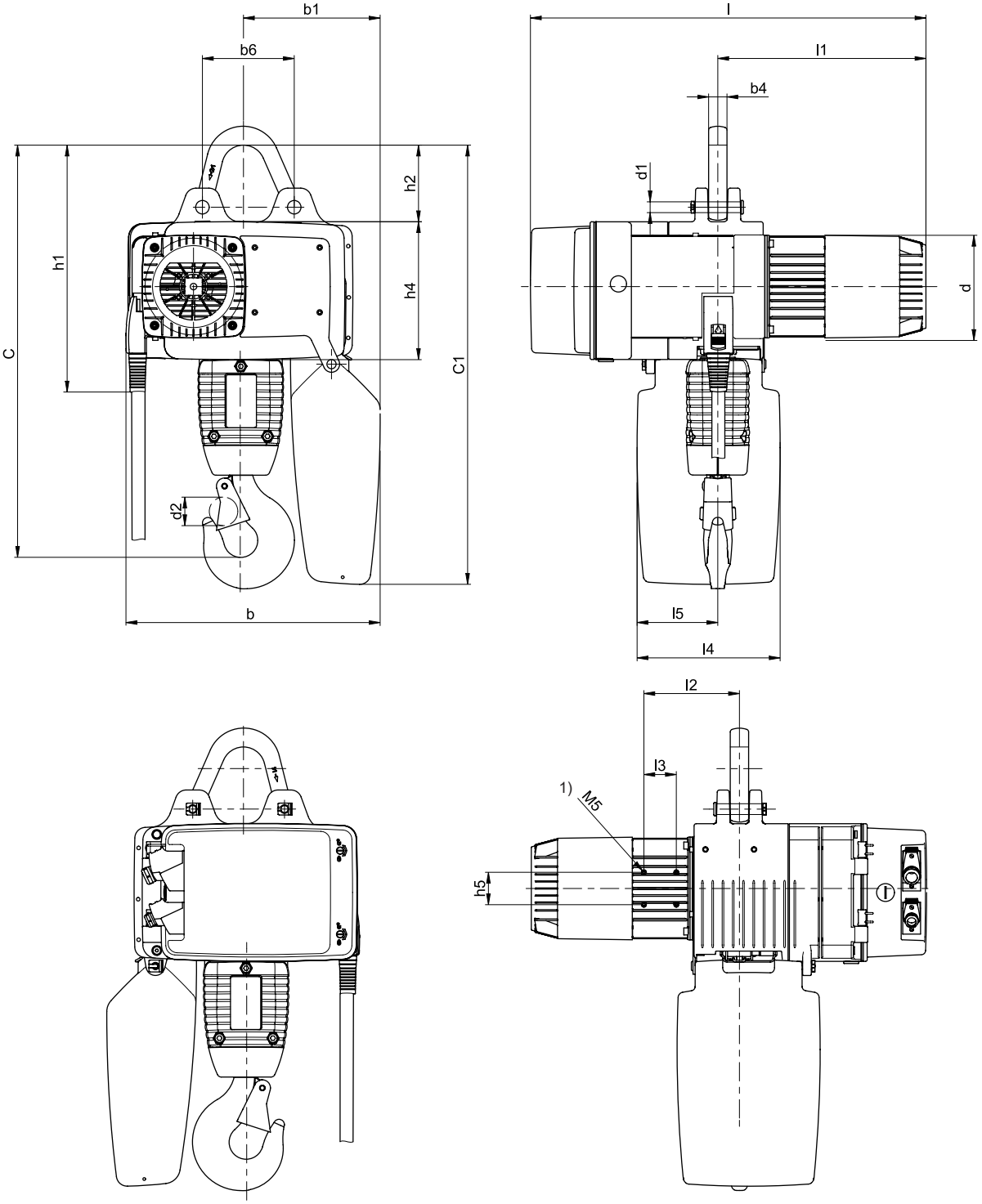
2/1 reeving



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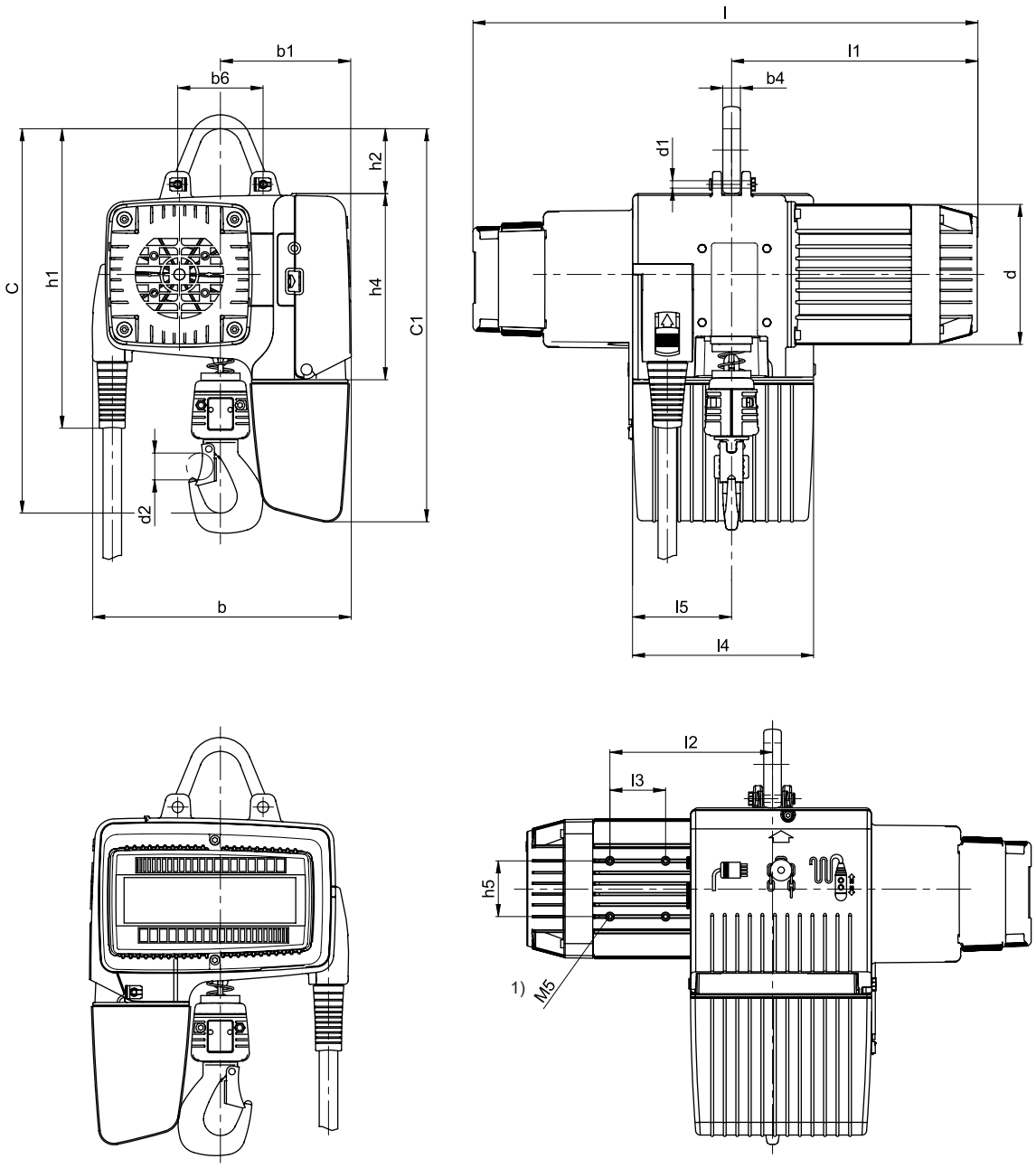
1) Min./max. thread depth 9 mm.

Chain hoist size	Motor	C	Chain collector box size												l	l1	l2	l3	b4	b6	d	d1	d2	h1	h2	h4	h5
			1	2	1	2	1	2	1	2	1	2	1	2													
			C 1		Hook path		b		b1		l4		l5														
DC-Pro 16	ZNK 100 B 8/2	735	813	893	H8	H13	490	501	244	254	265	325	145	177	679	333	177	60	34	170	187	20	45	502	142	255	60
	ZNK 100 C 8/2														732	386											
DC-Pro 25		770			H5	H9																	41				

Load capacity ≤ 500 kg, 1/1 reeving, with long suspension bracket



1) Min./max. thread depth 9 mm.

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Chain hoist size	Motor	Suspension bracket						b	b1	l	l1	l2	l3	l4	l5	b4	b6	d	d1	d2	Susp. bracket				h4	h5
		Short	Long	Short		Long															Short		Long			
				Chain collector box size																						
				H5	H8	H5	H8																			
		C		C1																	h1	h2	h1	h2		
DCS-Pro 1/2	ZNK 71 B 4	326	364	335	365	373	403	268	138	502	237	170	60	183	100	19	92	124	8	22	263	40	300	78	163	50
DCS-Pro 5	ZNK 80 A 4	378	416	395	425	435	465	280	141	548	265	175		195	107			151		24	293		323		201	60

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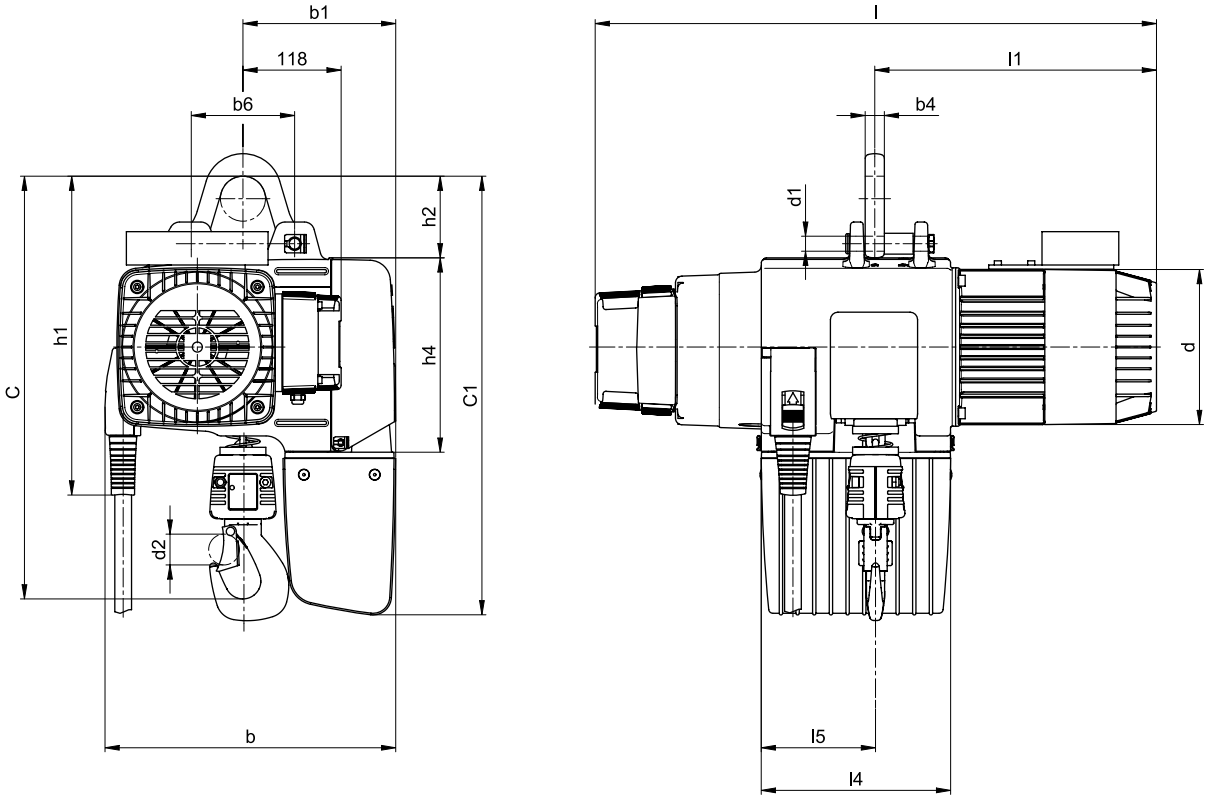
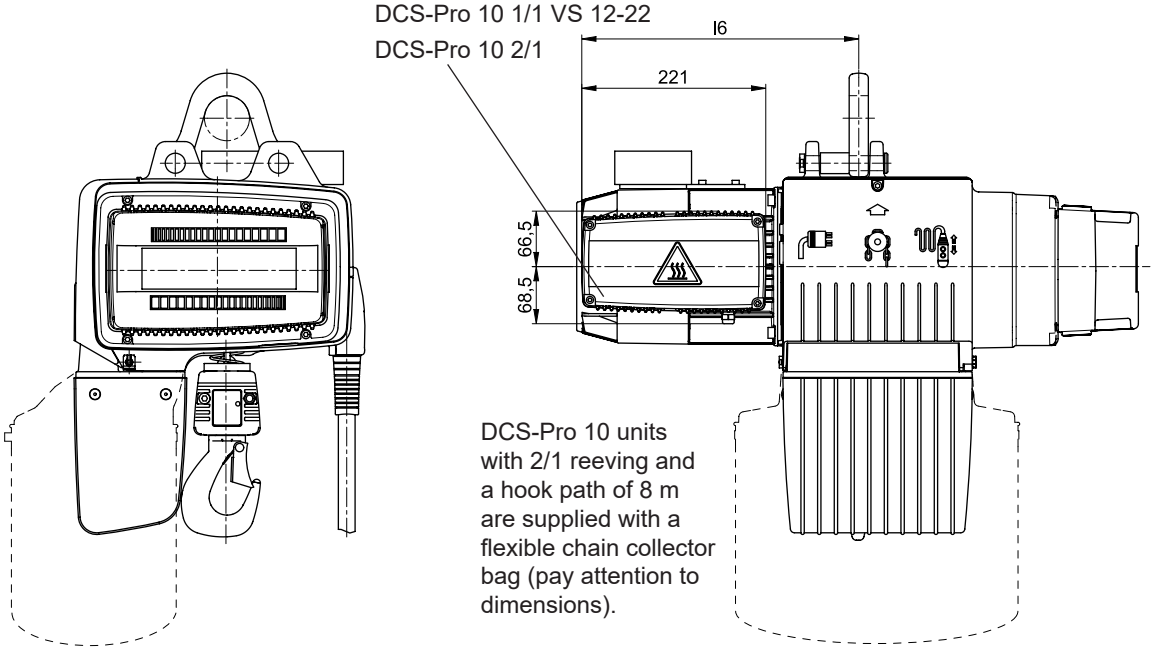
Load capacity 630 - 2500 kg, 1/1 and 2/1 reeving, with long suspension bracket



External braking resistor
DCS-Pro 10 1/1 VS 12-22
DCS-Pro 10 2/1



DCS-Pro 10 units with 2/1 reeving and a hook path of 8 m are supplied with a flexible chain collector bag (pay attention to dimensions).

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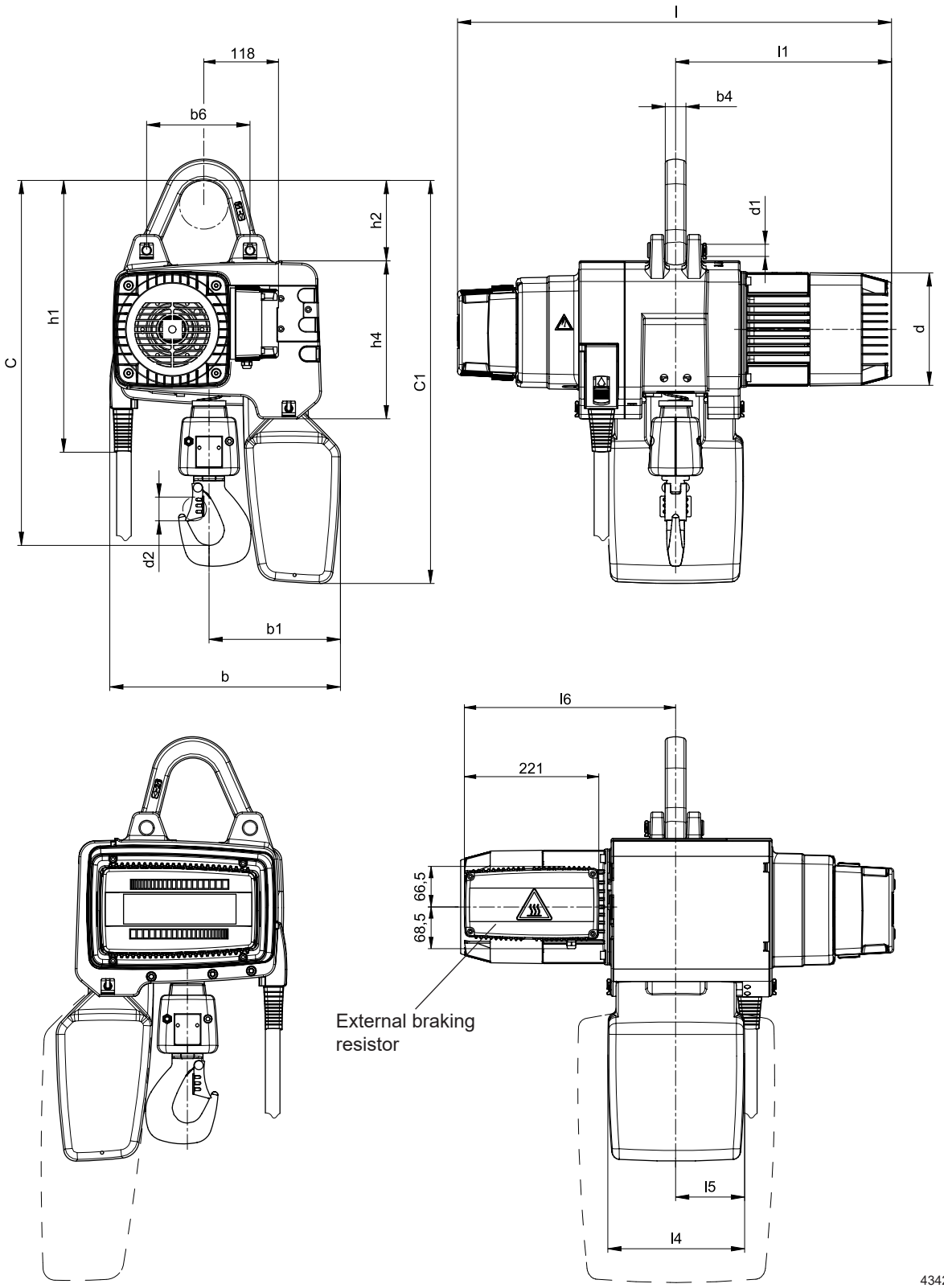
Chain hoist size	Motor	Suspension bracket																						Susp. bracket				
		Short		Long		Short		Long																Short		Long		
		Chain collector box size																										
		C				C1				b		b1		l4		l5		l	l1	l6	b4	b6	d	d1	d2	h1	h2	h1	h2	h4
						H5	H8	H5	H8	H5	H8	H5	H8	H5	H8	H5	H8													
DCS-Pro 10 1/1	ZNK 100 A 4	472	505	493	582	526	615	349	409	184	244	227	340	135				674	339	333	23	124	187	18	33	350	65	383	98	233
DCS-Pro 10 2/1		564	597	582	632	615	665							170	225				304	298					42					

Load capacity ≤ 1600 kg, 1/1 reeving



Size	Reeving	C1			b			b1			l4			l5		
		Chain collector box size														
		S	1	2	S	1	2	S	1	2	S	1	2	S	1	2
DCS-Pro 15	1/1	H9 ➡ 663	H16 ➡ 783	H26 ➡ 863	379	384	389	216	221	226	224	260	320	112	130	160

Size	Reeving	C	l	l1	l2	l3	l6	b4	b6	d	d1	d2	h1	h2	h4	h5
DCS-Pro 15	1/1	598	715	355	198	60	349	34	170	187	20	39	447	132	260	60

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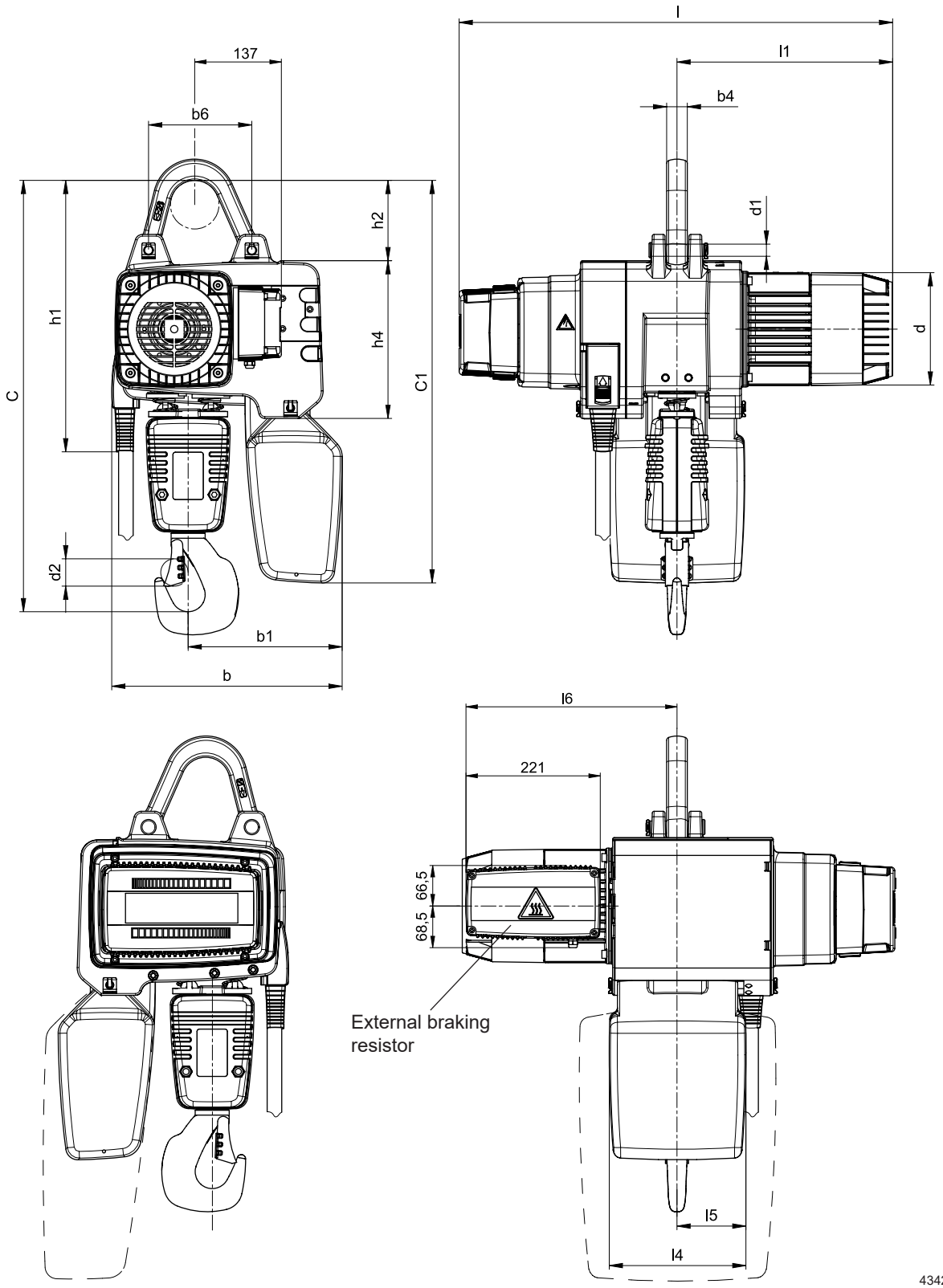
Load capacity 2000 - 3200 kg, 2/1 reeving



Size	Reeving	C1			b			b1			l4			l5		
		Chain collector box size														
		S	1	2	S	1	2	S	1	2	S	1	2	S	1	2
DCS-Pro 15	2/1	H4 ➡ 663	H8 ➡ 783	H13 ➡ 863	379	384	389	254	259	264	224	260	320	112	130	160

Size	Reeving	C	l	l1	l2	l3	l6	b4	b6	d	d1	d2	h1	h2	h4	h5
DCS-Pro 15	2/1	708	715	355	198	60	349	34	170	187	20	45	447	132	260	60

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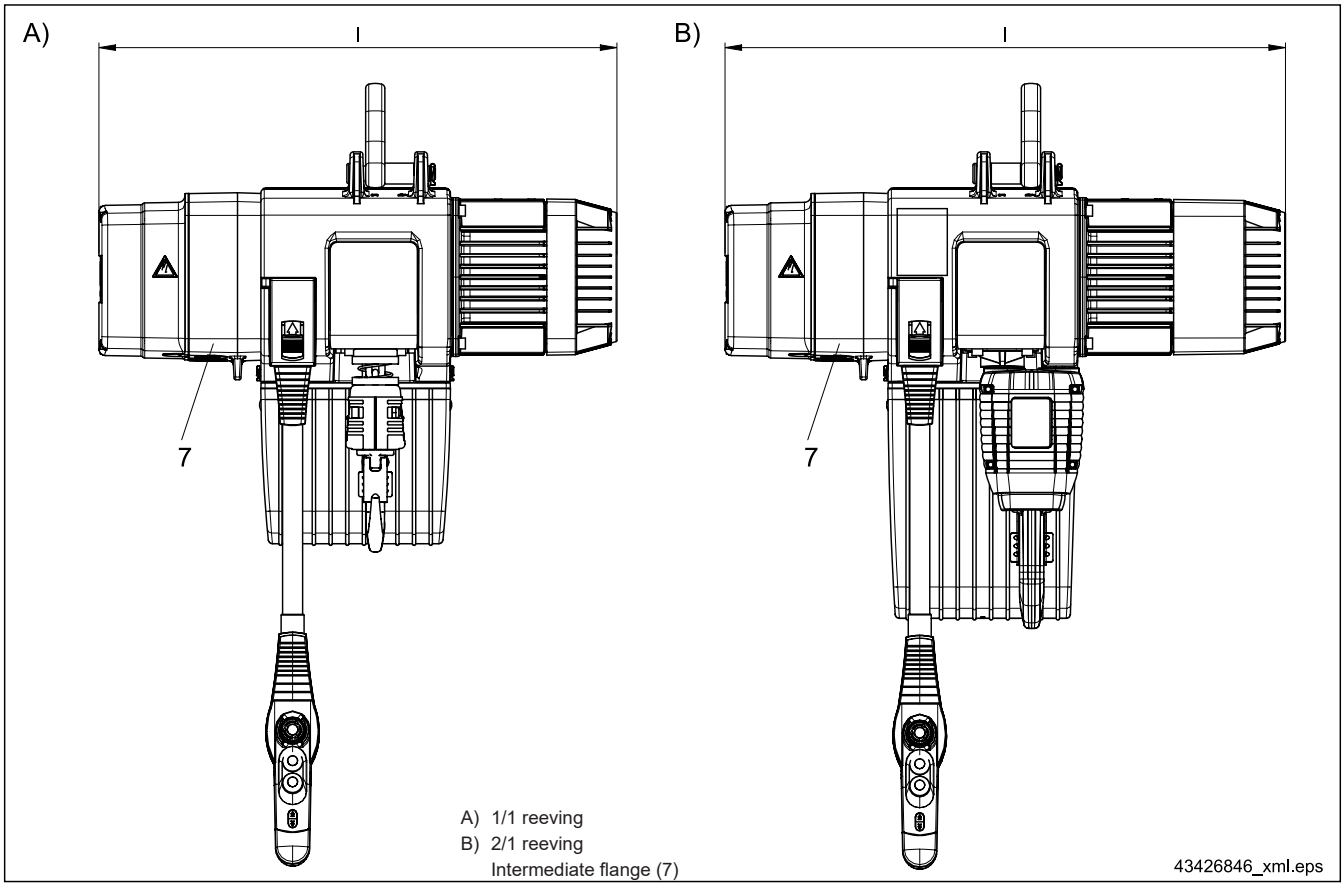
1.12.6 Demag DC-ProDC/CC/FC 1 - 25 chain hoist



Chain hoist size	DC 1	DC 2	DC 5	DC 10			DC 15	
Load capacity [kg]	≤ 125	≤ 250	≤ 500	≤ 1000	≤ 1250	≤ 2500	≤ 1600	≤ 3200
Reeving	1/1					2/1	1/1	2/1
Motor size	ZNK 71 A 8/2	ZNK 71 B 8/2	ZNK 80 B 8/2	ZNK 100 A 8/2	ZNK 100 B 8/2			
l [mm]	532	532	578	633	683	683	716	716

DC-ProDC			
Operating limit switch for lifting	- Standard without operating limit switch for lifting - Option with operating limit switch for lifting	- Standard with operating limit switch for lifting - Option without operating limit switch for lifting (The operating limit switch is not needed in chain hoists for installation control systems supplied by the customer which include a corresponding limit cut-off arrangement.)	
Intermediate flange	- Standard without intermediate flange - Option with intermediate flange - For option with operating limit switch for lifting with intermediate flange	- Standard with intermediate flange	- Standard with intermediate flange - For option with operating limit switch for lifting without intermediate flange
Counterweight	- For option with intermediate flange with counterweight fitting on the motor	- No counterweight	
Dimensions	DC-ProDC 16 - 25 dimensions correspond to the DC-Pro 16 - 25 dimensions.		

DC-ProCC	
Operating limit switches Lifting/lowering	- Standard
Intermediate flange	- Standard

DC-ProFC		
Intermediate flange	- For combined rotary encoder with intermediate flange - For AG 1 - 2 incremental encoder without intermediate flange	- For combined rotary encoder or for AG 1 - 2 incremental encoder without intermediate flange

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1.13 Long hook path > 8 m

When ordering DC chain hoists with hook paths longer than 8 m, please indicate the required control cable length.

The reduced load capacity of the chain hoist due to the deadweight of the chain must be considered for very long hook paths. The total weight of the chain must not exceed 10% of the chain hoist's load capacity. Hook paths longer than those specified here on request

The long suspension bracket must be used for DC chain hoists with flexible chain collector bags when

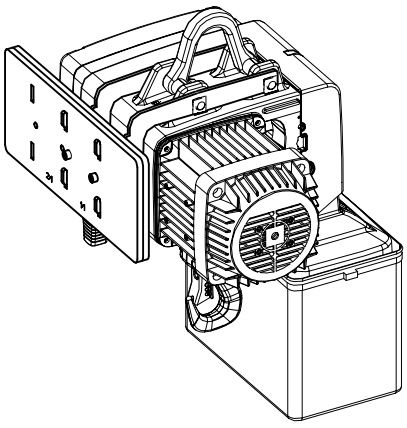
- a counterweight is fitted,
- a suspension and support roller are fitted.

Chain collectors for shorter hook paths than those shown in the following are supplied with the standard rigid plastic chain collector box.

Chain collectors for longer hook paths and sheet metal chain collector boxes on request.

For further information, see "Long hook path accessory assembly instructions" document, refer to the table on page 19.

1.13.1 Counterweights and suspension via supporting roller



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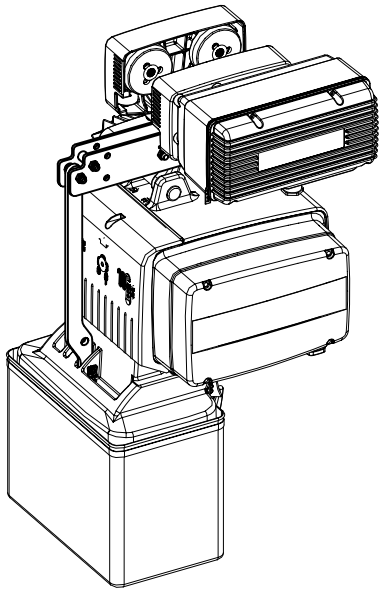

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Chain hoist size	Reeving	Hook path [m]	Flexible chain collector bag 4) 5)	Stationary chain hoist and KBK		Travelling chain hoist
				Longitudinal beam incl. counterweight 4) 5) 6) 7) 8) 10) 13) 16)	Additional counterweights	Suspension via supporting roller 4) 5) 9) 10) 14) 17) 18)
DC 1/2	1/1	9-25	717 350 45	---	---	---
		26-35	717 302 45	718 990 45	---	718 960 45 (U11)
		36-50	717 303 45		---	
		51-65	717 304 45		---	
DC 5		9-20	718 350 45	---	---	---
		21-35	718 302 45	718 990 45	---	718 960 45 (U11)
		36-50	718 303 45		1x 718 993 45	
		51-65	718 304 45		2x 718 993 45	
DC 10		9-10	--- 1)	---	---	---
		11-20	715 350 45 2)	---	---	---
		21-30	715 302 45	715 990 45	---	718 960 45 (U11) 11)
		31-40	715 303 45		1x 715 993 45	718 960 45 (U11) 11) 12)
		41-50	715 304 45		2x 715 993 45	
		51-60	715 305 45		3x 715 993 45	
	2/1	6-10	715 350 45 2)	---	---	---
		11-15	715 302 45	715 990 45	---	715 960 45 (U22/34)
		16-20	715 303 45		1x 715 993 45	
		21-25	715 304 45		2x 715 993 45	
		26-30	715 305 45		3x 715 993 45	
DC 15	1/1	4-9	721 189 45 1)	---	---	---
		10-16	721 830 45 1)	---	---	---
		17-26	721 835 45 1)	721 990 45	---	721 960 45 (U34/56) 15)
		27-40	721 350 45		---	
	2/1	4	721 189 45 1)	---	---	---
		5-8	721 830 45 1)	---	---	---
		9-13	721 835 45 1)	721 990 45	---	721 960 45 (U34/56) 15)
		14-20	721 350 45		---	
DC 16	1/1	4-16	721 830 45 1)	---	---	---
		17-26	721 835 45 1)	---	---	---
		27-40	721 350 45	721 990 45	---	721 960 45 (U34/56) 15)
	2/1	4-8	721 830 45 1)	---	---	---
		9-13	721 835 45 1)	---	---	---
		14-20	721 350 45	721 990 45	---	721 960 45 (U34/56) 15)
DC 25	1/1	4-10	721 830 45 1)	---	---	---
		11-18	721 835 45 1)	---	---	---
		19-30	721 350 45	721 990 45	---	721 960 45 (U34/56) 15)
		31-40	749 312 46 3)	721 990 45 3)	2x 721 993 45	721 960 45 (U34/56) 3) 15)
	2/1	4-5	721 830 45 1)	---	---	---
		6-9	721 835 45 1)	---	---	---
		10-15	721 350 45	721 990 45	---	721 960 45 (U34/56) 15)
		16-20	749 312 46 3)	721 990 45 3)	2x 721 993 45	721 960 45 (U34/56) 3) 15)

1) Standard plastic chain collector.
2) Flexible chain collector bag.
3) Design with sheet metal chain collector.
4) Longer hook paths on request.
5) Pay attention to possibly reduced load capacity due to chain deadweight.
6) Pay attention to crab frame installation dimensions for use with KBK.
7) Not possible with short suspension bracket.
8) Can be used with RUD/EUD.
9) Not possible with short suspension bracket/ suspension ring/suspension hook and RUD/ EUD.
   Max. flange width of the trolleys is 310 mm; for DC 10 with U22 min. flange width of the trolleys is 90 mm.
10) Not possible for KDC.
11) Rolling beam with supporting roller must be used for U22/U34 on DC 10-1250 1/1.
12) Rolling beam with supporting roller must be used for U22/U34 on DC 10-1000 1/1 from H31 due to the chain deadweight.
13) Extension section 718 996 45 must used for counterweights with a Harting signal plug.
14) Flange width U11 min. 58 mm (for 716 502 45), U22 / U34 min. 90 mm, RU/EU56 min. 98 mm.
15) Allow for additional adjusting ring set 716 854 45 for RU/EU56.
16) The counterweight sub-assembly comprises 2 longitudinal beams, for DC 1 - 5 1x counterweight, for DC 10-25 2x counterweights (use additional counterweights according to the table, as required) and fastening material.
17) The suspension and support roller sub-assembly consists of various plates, travel wheel and fastening material.
18) Suspension via supporting roller for EU/RU 11 DK and/or EU/RU 22 DK trolleys on request.

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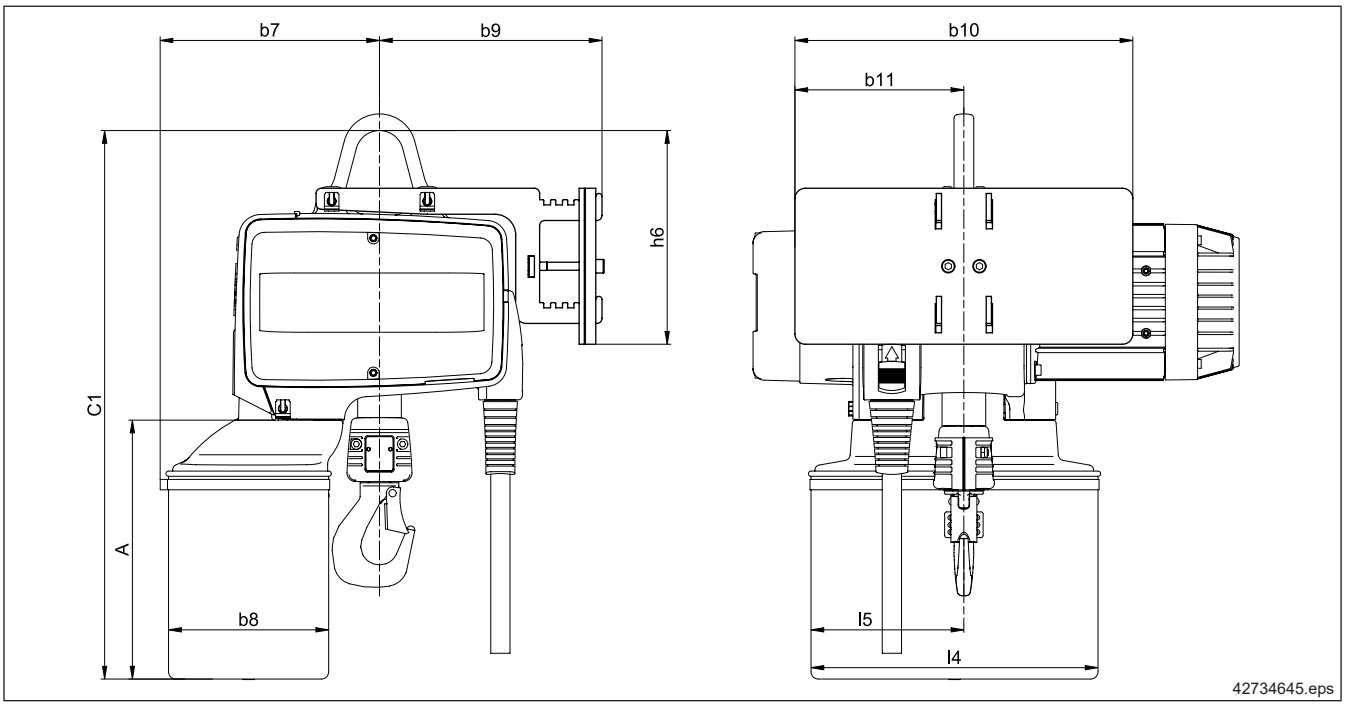
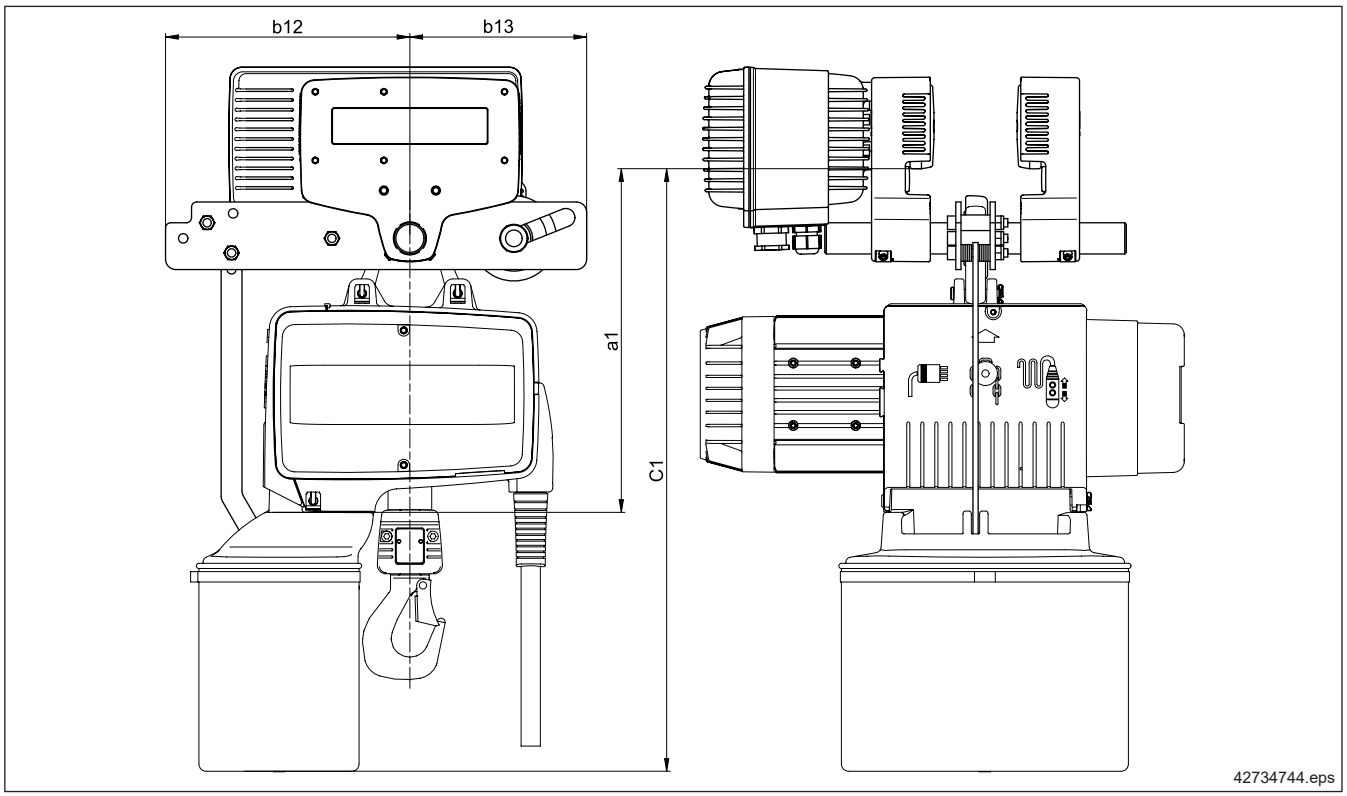
1.13.2 Chain collector and counterweight dimensions
(for stationary DC chain hoists and on KBK)



Chain hoist size	Reeving	Hook path [m]	A [mm]	C1 [mm]	l4 [mm]	l5 [mm]	b7 [mm]	b8 [mm]	b9 [mm]	b10 [mm]	b11 [mm]	h6 [mm]	Weight [kg]
DC 1/2	1/1	9-25 [1]	220	461	256	137	193	152	214	325	162,5	206	5,2
		26-35	270	511									
		36-50	320	561									
		51-65	380	621									
DC 5		9-20 [1]	250	529	276	129	203	154	214	325	162,5	206	5,2
		21-35	385	664									10,6
		36-50	515	794									16,0
		51-65	644	923									
DC 10		9-10 [1]	300	631	336	146	257	196	238	400	217	258	14,1
		11-20 [1]											
		21-30	345	676									19,6
		31-40	420	751									25,1
		41-50	495	826									30,6
		51-60	608	939									
	2/1	6-10 [1]	300	631	336	111	257	196	238	400	217	258	14,1
		11-15	345	676									19,6
		16-20	420	751									25,1
		21-25	495	826									30,6
		26-30	608	939									
DC 15	1/1	27-40	500	790	380	190	284	220	305	500	250	365	60,0
	2/1	14-20					302		323				
DC 16	1/1	27-40	524	921	380	190	282	220	345				
	2/1	14-20	524	921			291						
DC 25	1/1	19-30	524	921	380	190	282	220					
		31-40	503	900	577	288	424	340					84,0
	2/1	10-15	524	921	380	190	291	220					60,0
		16-20	503	900	577	288	433	340					84,0

1) No suspension

1.13.4 Dimensions of suspension with supporting roller
(for travelling DC chain hoists)



Chain hoists with chain collector with suspension and supporting roller are **not** suitable for:

- travel on curved tracks,
- in combination with clamp-fitted buffers,
- ZMS strain gauge carrier links.

Chain hoist size	Reeving	Trolley	Hook path [m]	C1 [mm]	a1 [mm]	b12 [mm]	b13 [mm]	Weight [kg]
DC 1/2	1/1	RU/EU11	9-25 1)	513				
			26-35	563	293	245	170	3,1
			36-50	613				
			51-65	673				
DC 5			9-20 1)	581				
			21-35	716	293	245	170	3,1
			36-50	846				
			51-65	9753				
DC 10			9-10 1)	683				
			11-20 1)	683				
			21-30	728	383	245	170	4,2
			31-40	803				
			41-50	878				
			51-60	991				
	2/1	RU/EU22-C RU/EU34	6-10 1)	695				
			11-15	740	383	245	170	4,2
			16-20	815				
			21-25	890				
			26-30	1003				
DC 15	1/1	RU/EU34	27-40	854	456	250	260	10,7
	2/1		14-20					
DC 16	1/1	RU/EU34	27-40	985	461			
		RU/EU56		1000	477			
	2/1	RU/EU34	14-20	985	461			
		RU/EU56		1000	477			
DC 25	1/1	RU/EU34	19-30	985	461			
		RU/EU56		1000	477			
		RU/EU34 2)	31-40	964	461			
		RU/EU56 2)		973	477			
	2/1	RU/EU34	10-15	985	461			
		RU/EU56		1000	477			
		RU/EU34 2)	16-20	964	461			
		RU/EU56 2)		973	477			

1) No suspension
2) Sheet-metal chain collector box

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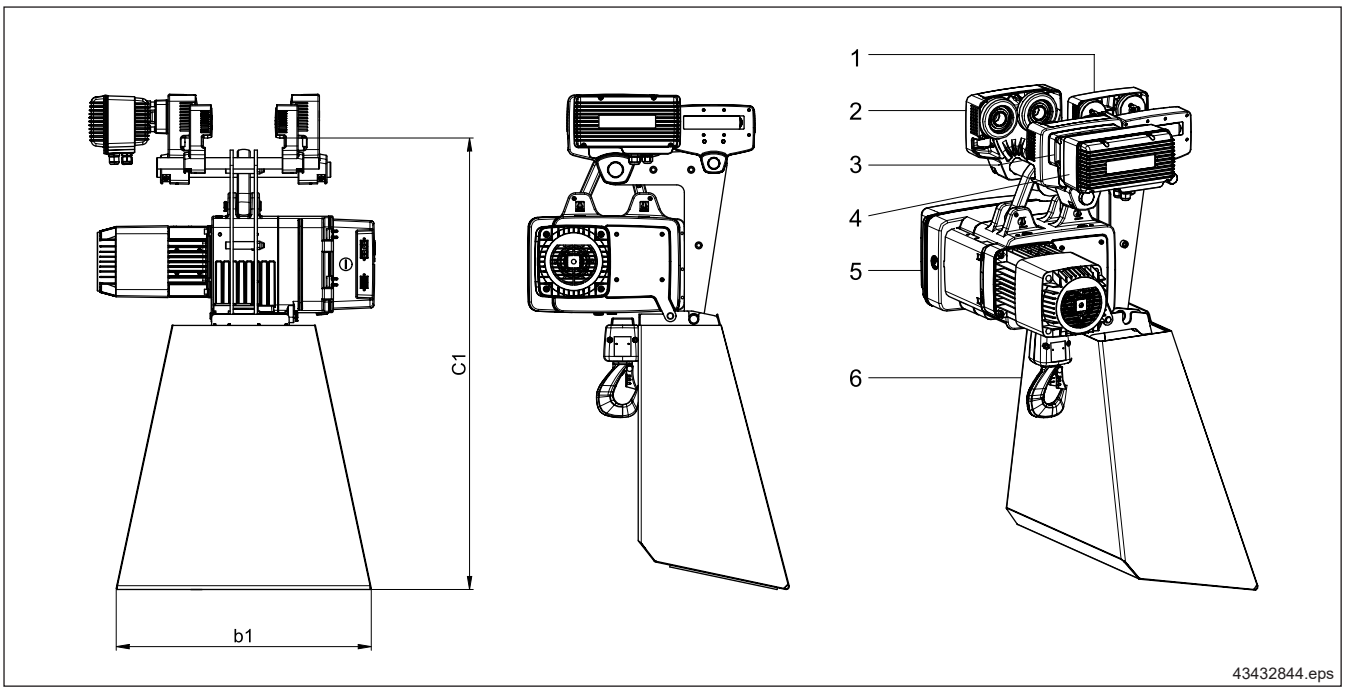
1.13.5 Chain hoist with tetragonal chain collector and additional trolley



1 Additional trolley
2 Trolley
3 Dual-output gearbox
4 Travel drive
5 Chain hoist
6 Tetragonal chain collector

Chain hoist size	Reeving	Chain collector box size	Hook path H [m]	C1 [mm]	b1 [mm]	Part no.	Weight [kg]
Suspension with supporting roller required							
DC-Pro 16	1/1	Size 1	40	904	552	749 311 46	15,0
	2/1		20				
DC-Pro 25	1/1		30				
	2/1		15				
DC-Pro 16	1/1	Size 2	55	962	577	749 312 46	17
	2/1		27				
DC-Pro 25	1/1		40				
	2/1		20				
DC-Pro 16	1/1	Size 3	70	1020	602	749 313 46	19
	2/1		35				
DC-Pro 25	1/1		50				
	2/1		25				
DC-Pro 16	1/1	Size 4	85	1078	626	749 314 46	21,0
	2/1		42				
DC-Pro 25	1/1		60				
	2/1		30				
DC-Pro 16	1/1	Size 5	On request	1136	651	749 315 46	23,0
	2/1						
DC-Pro 25	1/1		70				
	2/1		35				
Additional trolley required							
DC-Pro 16	1/1	Size 6	On request	1196	676	749 593 46	25
	2/1						
DC-Pro 25	1/1		80				
	2/1		40				
DC-Pro 16	1/1	Size 11	On request	1512	811	760 648 46	40
	2/1						
DC-Pro 25	1/1						
	2/1						

1.14 Suspension

Standard suspension assignment

Chain hoist load capacity [kg]						80-125	80-250	160-500	315-1250	1250-2500	1000-1600	2000-3200	1250-1600	2500-3200	2000-2500	4000-5000
Reeving						1/1				2/1	1/1	2/1	1/1	2/1	1/1	2/1
Trolley size		Trolley load capacity [kg]	Flange width [mm]	Flange thickness [mm]	Crossbar diameter [mm]	DC 1	DC 2	DC 5	DC 10		DC 15		DC 16		DC 25	
						See "Standard suspension" for diagram										
RU 3		450	60-90	12	21	1+2 11)	1+2 11)	1+2 1) 11)								
RU 6		450	58-143	20	30	1	1	1 1)								
			144-300	18	35											
		700	58-143	20	30											
			144-300	18	38											
RU/EU 11 DK		850	58-300	16	34	1	1	1								
		1350	58-143													
			144-300		45											
RU/EU 22 DK		2600	82-300	22	51				3 13)	3 13)	5 4)	5 4) 7)	5 4)			
RU/EU 36 DK 10)		3600	106-300	30	56							5	5	5	5	5
RU/EU 55 DK 10)		5500	106-186		70											
			187-300		82,5											
CF 5		550	50-91	15	16	1+2	1+2	1+2								
U/EU11		1100	58-200	22	30				3+4 5)							
			201-310													
U/EU22-C		2200	74-200	30 2)	40	1	1	1	3+4 5) 12)	3+4 6) 12)	5	5 9)	5	5	5	5
U/EU34		2200	201-310													
		3400	74-310									5				
RU/EU56		5600	98-200	30	55				3 8)	3 8)						
			201-310													
KBK																
Trolley	100	100				2	2	2								
	I	300														
	II	600							3+4 3)							
	III	1300				1	1	1	3							
Articulated frame (double trolley)	I	400														
	II	1200							3							
	III	2600								3	5 14)					
Crossbar	100	200				1	1	1								
	I	600														
	II	1400-2200							3							
	III	2600								3	5 14)					
Crab frame	100	200														
	I	600														
	II	1200/2400							3	3						
	III	3300									5 14)					

1) Up to 400 kg
2) Max. 28 mm for DC 16 - 25
3) Up to 500 kg
4) Max. flange thickness 15 mm
5) DC 10 - 1250 1/1 with U/EU22-C
6) DC 10 - 2500 2/1 with U/EU34
7) Up to 2500 kg
8) DC 10 with RU/EU56 on request
9) Up to 2200 kg
10) Discontinued, no longer available
11) Short suspension bracket = from flange width 75 mm
12) Short suspension bracket = from flange width 170 mm
13) From flange width 120 mm
14) Suspension bracket for KBK III up to 3200 kg = contour as for item 5 in "Standard suspension"

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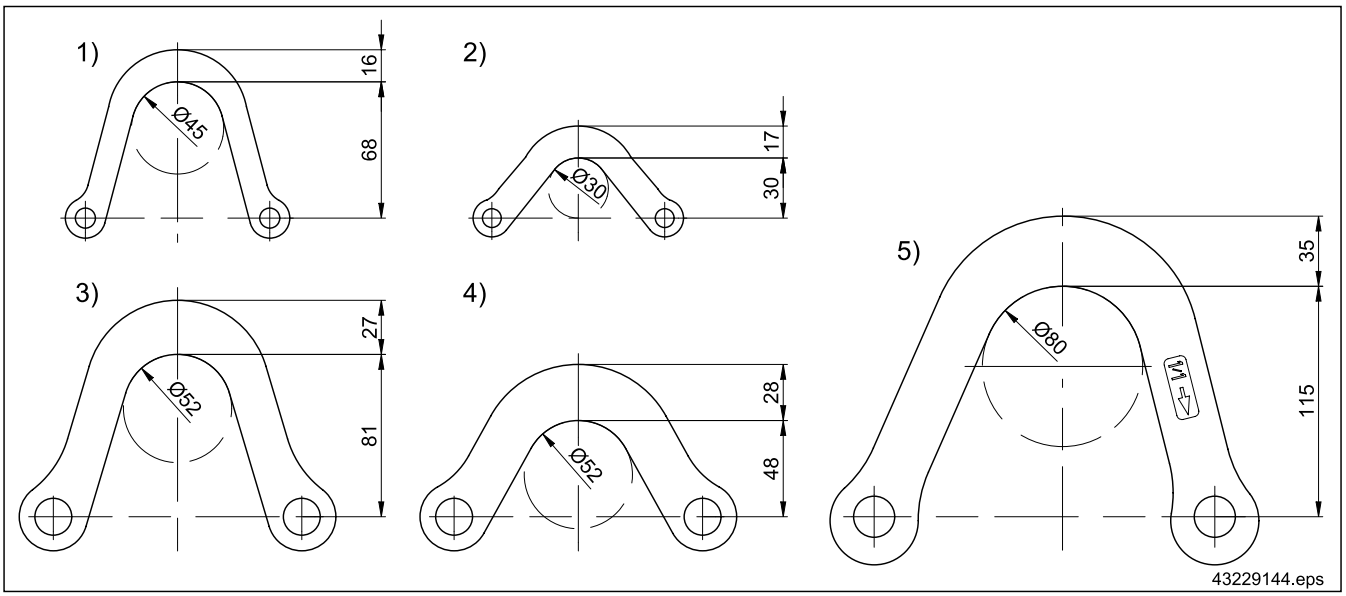
Standard suspensions



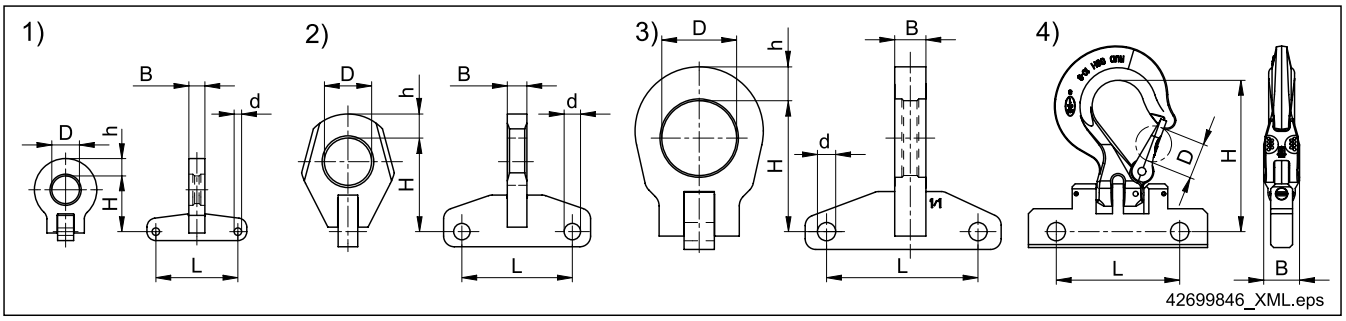
Item	Designation	Part no.	Chain hoist size
1	Long suspension bracket	Included in the scope of delivery	DC 1 - 5
2	Short suspension bracket (optional)	718 272 45	
3	Long suspension bracket	Included in the scope of delivery	DC 10
4	Short suspension bracket (optional)	715 272 45	
5	Suspension bracket	Included in the scope of delivery	DC 15 - 25

The suspension bracket facilitates installation, since the chain hoist can be suspended direct from the trolley. It is not necessary to dismantle existing trolleys.

If the DC is to be installed direct to the 4 attachment points on the gearbox housing without a suspension, you must expect to see stronger chain oscillation.

Chain hoists that have fixed suspensions must not be used for inclined pull of loads.

Optional suspensions



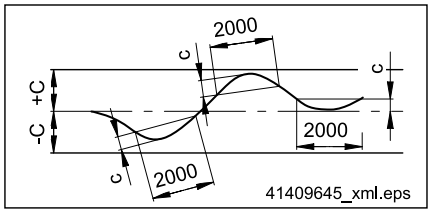
Item	Designation	Chain hoist size	Part no.	Dimensions [mm]					
				L	B	H	h	D	d
1	Suspension ring, for suspension parallel to the track girder	DC 1 - 5	718 278 45	92	18	62,5	19,5	31	8,4
2		DC 10	715 278 45	124	22	117	27	53	18,4
3		DC 15 - 25	721 278 45	170	35	147	38	84	20,5
4	Suspension hook, folding	DC 1 - 5	718 910 45	92	22	104	-	25	-
		DC 10	715 910 45	124	36	152	-	36	-
		DC 16 - 25	721 910 45	170	44,5	193	-	40	-
Not shown	Suspension bracket for KBK III up to 3200 kg	DC 15 - 16	721 870 45	Contour as for item 5 in “Standard suspension”					

2 Trolleys

2.1 Track girder characteristics

Tolerance designation	Crane runways		
Tolerance C of straightness with reference to the height of the crane rail centre and crane runway length. **Tolerance c** of straightness with reference to 2000 mm measured length (sample measurement) at any point on the crane runway.	Tolerance class 1	C = ± 5 mm	c = 1 mm
	Tolerance class 2	C = ± 10 mm	c = 2 mm
	Tolerance class 3	C = ± 20 mm	c = 4 mm

Source: VDI 3576, recommendation: minimum tolerance class 2



Position of a crane rail seen in elevation (longitudinal slope)

Pay attention to the following when our trolleys are employed:

- I-beams with parallel or sloping flanges to DIN 1025 can be used as tracks. The track must satisfy at least tolerance class 2 for manufacturer tolerance C. Displacement between the rails and gaps at the joint must be avoided. Any displacement between the rails should be ground flat, if required.
- The trolleys must not be obstructed by protruding suspension pins, bolt heads, clamping plates and joint flanges, etc., on the track.
- The running surface of the track girder must only be given a primer coat of 40 µm in the area engaged by the trolley wheels.
- In unclean environments, the running surface of the track should be cleaned regularly and should be free of oil and grease.
- Assume a uniform distribution of the total load (maximum permissible load + deadweight of the travelling hoist + any load handling attachment) for calculating wheel loads.
- Supporting rollers must be fitted to the trolleys if U11/U22/U34/EU56 trolleys are used with ZBF motors in combination with small flange widths.

Metal or similar hard stops must not be approached as this can result in damage to the chain hoist. Resilient buffers should be mounted at the level of the travel wheel axle at the ends of tracks to prevent the trolley from derailing.

2.2 General information on standard trolleys

Properties

The trolleys have the following product features:

- Variable adjustment of the flange width via adjusting rings,
- U11 travel wheels made of plastic (optional steel rollers),
- U22/U34/RU56 travel wheels made of spheroidal-graphite cast iron,
- Universal travel wheels for parallel and sloping running surfaces,
- Travel wheels without flanges, additional lateral steel guide rollers,
- Integrated drop stops in the individual die-cast aluminium halves,
- Side cheek surfaces are powder-coated.

U11 - U34 travel on curved track

The minimum permissible curve radius for push-travel trolleys is 1000 mm for U11 and 2000 mm for U22/U34 trolleys. However, to ensure good travel characteristics and a longer trolley service life, we recommend that much larger curve radii be used, e.g. 1500 mm or 3000 mm, respectively.

The minimum permissible curve radius for electric-travel trolleys is 2000 mm (U11) and 3000 mm (U22/U34).

Wear of the travel wheels is highly dependent on the curve radius. I-beam tracks should be bent with the utmost care to obtain an even and regular curve. The forces required to move the load may strongly increase in the case of small curve radii in connection with high loads.

Trolleys with steel and spheroidal-graphite cast-iron travel wheels

We recommend that steel travel rollers be used for:

- frequent travel on curved tracks,
- extreme ambient conditions (dirt accumulation, hot atmospheres, etc.),
- heavily worn girders,
- very heavy dead loads.

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Articulated trolleys

The travel wheels and guide rollers of four-wheel trolleys may display increased wear in installations featuring intensive operation, we recommend the use of double-wheel articulated trolleys for:

- frequent travel on curved tracks that have small curve radii (1000 mm) and high load capacities,
- automatic operation in connection with travel on curved tracks, small curve radii (1000 mm) and high load capacities.

2.3 Curve radii for standard trolleys

The specified curve radii apply for normal applications.

Contact the manufacturer or his representative for frequent travel on curves (e.g. automatic installations).

Trolley size		Load capacity	Push travel		Electric travel		Travel wheel material
Push-travel trolley	Travel drive/ travel motor	[kg]	Girder flange width [1] [mm]	R_{min} [mm]	Girder flange width [1] [mm]	R_{min} [mm]	
CF 5		550	50-91	800	-	-	Plastic
U11	E11	1100	58-310	1000	58-310	2000	Plastic [2]
U22	E22-C	2200	74-200 [3]	2000	74-200 [3]	3000	Spheroidal-graphite cast iron [4]
U34	E34	2200	201-310 [5]		201-310 [5]		Spheroidal-graphite cast iron
		3400	74-310 [5]		74-310 [5]		
RU56	EU56	5600	98-310	2000 [6]	98-310	2500 [6]	

2.4 Cross-travel speeds

Load capacity [kg]	Chain hoist size DC-Pro [8]	Reeving	Possible speeds in approx. ... m/min	Trolley [7]	Travel drive/travel motor	
					2-stage	Variable
125	1	1/1	20/5	U11	ZBF 63 A 8/2	ZBA 63 B4
250	2	1/1	24/6	U11	E11	
500	5	1/1	40/10	U11	ZBF 63 A 8/2	ZBA 63 B4
1000	10	1/1	12/4	EU56	ZBF 80 A 12/4	-
			20/5	U11	ZBF 63 A 8/2	ZBA 63 B4
			24/6	U11	E11	
				EU56	ZBF 71 A 8/2	ZBA 71 A4
			40/10	U11	ZBF 63 A 8/2	ZBA 63 B4
				EU56	ZBF 80 A 8/2	ZBA 80 A4
1250	10	1/1	12/4	EU56	ZBF 80 A 12/4	-
1600	15	1/1	20/5	U22	ZBF 63 A 8/2	ZBA 63 B4
1600	16	1/1	24/6	U22	E22-C	
2000	10	2/1		U34	E22-C	
2000	15	2/1		EU56	ZBF 71 A 8/2	ZBA 71 A4
			40/10	U22	ZBF 71 A 8/2	ZBA 71 A4
				EU56	ZBF 80 A 8/2	ZBA 80 A4
2500	10	2/1	14/3,5	U34	E34	
2500	25	1/1	12/4	EU56	ZBF 80 A 12/4	-
3200	15	2/1	20/5	U34	ZBF 63 A 8/2	ZBA 71 A4
3200	16	2/1	24/6	EU56	ZBF 71 A 8/2	ZBA 71 A4
			40/10	U34	ZBF 80 A 8/2	ZBA 71 A4
				EU56	ZBF 80 A 8/2	ZBA 80 A4
4000	25	2/1	12/4	EU56	ZBF 80 A 12/4	-
			20/5	EU56	ZBF 71 A 8/2	ZBA 71 A4
			24/6	EU56	ZBF 71 A 8/2	ZBA 71 A4
			40/10	EU56	ZBF 80 A 8/2	ZBA 80 A4
5000	25	2/1	12/4	EU56	ZBF 80 A 12/4	-
			20/5	EU56	ZBF 71 A 8/2	ZBA 71 A4
			24/6	EU56	ZBF 71 A 8/2	ZBA 71 A4
			40/10	EU56	ZBF 90 B 8/2	ZBA 80 A4

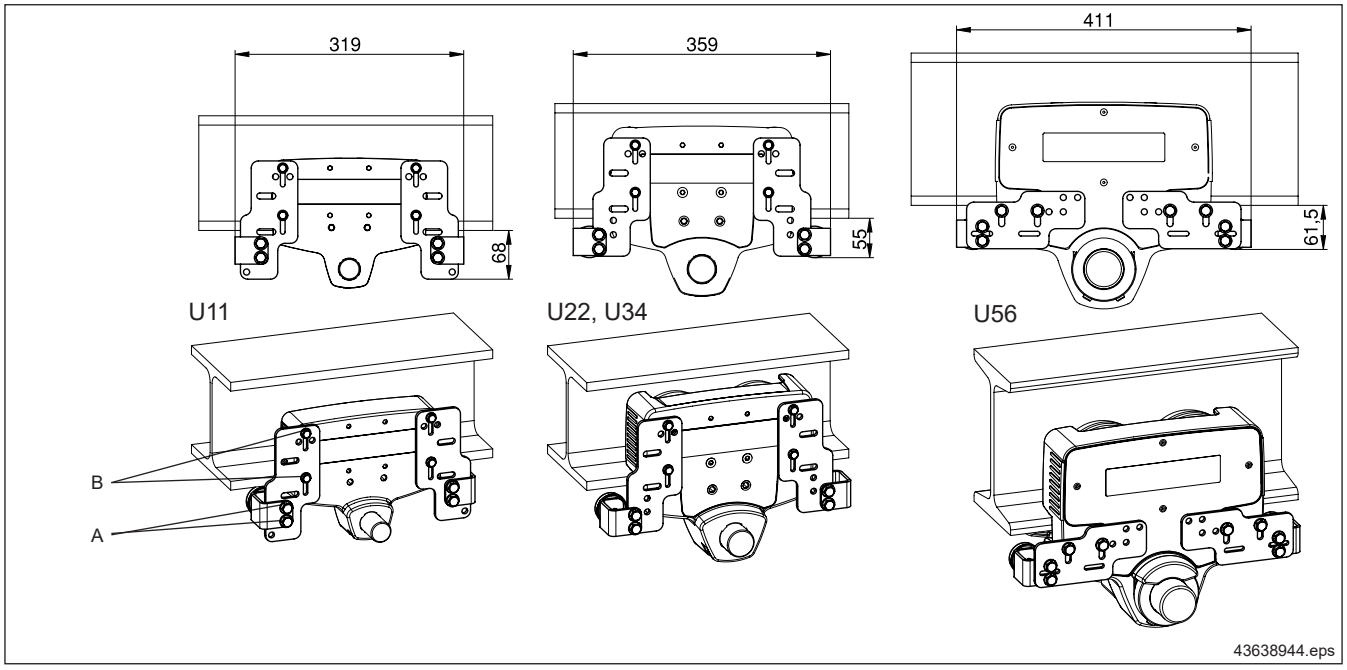
1) Max. flange width 500 mm (except CF 5)
2) Steel travel rollers optional
3) Flange width for DC 16 - 25 = 90 - 200 mm
4) Plastic travel rollers on request
5) Flange width for DC 16 - 25 = 90 - 310 mm
6) From flange width 106 mm
7) U11 - U34 trolleys can only be used together with ZBF motors in combination with a VGZ11-34 dual-output gearbox.
8) A special crossbar is needed when DC-Pro 10 units are combined with EU56 trolleys

2.5 General information on control methods

Cross-travel unit control (pole-changing)
Trolley module (part no. 720 335 45) is required to connect an AC motor to a DC-Pro 16 - 25 chain hoist. The trolley module and the Polu box (DC 1 - 15) already include the brake control. GF brake modules are used and motors are supplied with a star point for voltages higher than 500 V.

Long-travel unit control (pole-changing)
An additional GF brake module must be included.

2.6 Supporting roller fittings



To prevent the trolley from tilting, and to prevent the travel rollers from coming into contact with the girder, supporting rollers are required in the following cases:

Trolley	Motor size		DC chain hoist size					Tightening torque		Part no.	Weight
			1 - 2 [mm]	5 [mm]	10 [mm]	15 [mm]	16 - 25 [mm]	A [Nm]	B [Nm]		[kg]
U11	ZBF 63	Supporting roller needed up to flange width	260	220	150	-		42	12	716 670 45	1,4
U22	ZBF 63		200	180	130	100	80				
U34	ZBF 71		220	200	150	120	90				
U34	ZBF 80		330	300	210	160	120				
U56	ZBF 71	Supporting roller needed from flange width	-		150 1)	130	110		20		
	ZBF 80				200 1)	170	130				
	ZBF 90				220 1)	210	170				

 1) Only with special crossbar

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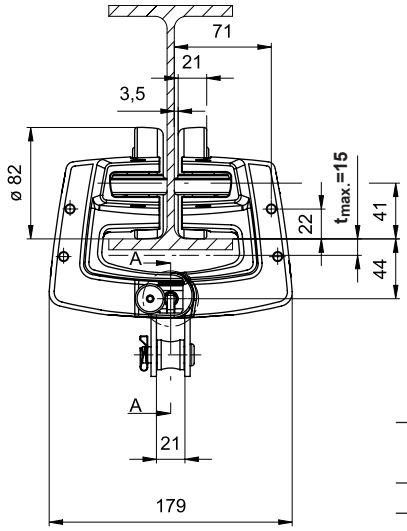
2.7 CF 5 click-fit trolley

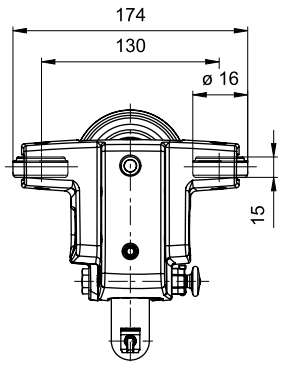
Max. load capacity 550 kg

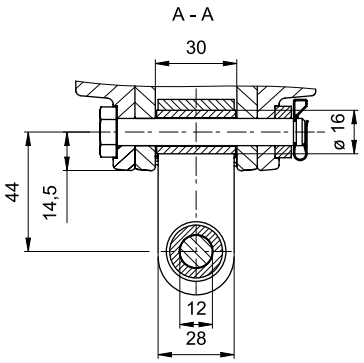
For track girders to DIN 1025, part 1 + 5

Suitable for
Demag chain hoist:
DC-Pro 1 - 80 to 125,
DC-Pro 2 - 80 to 250,
DC-Pro 5 - 80 to 500

For further information, see "CF5-DC/DCM trolley technical data" document, refer to the table on page 19.

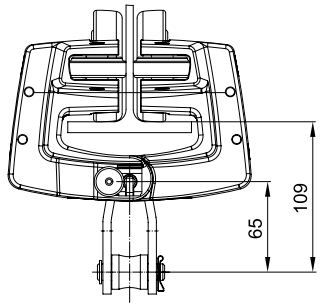


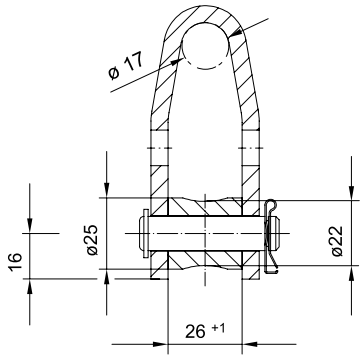


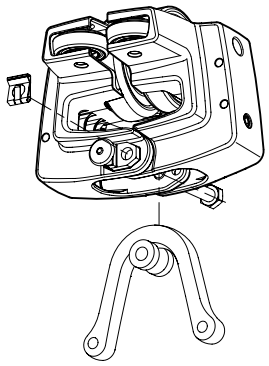


Designation	Max. flange thickness t [mm]	Flange width [mm]	Part no.	Weight [kg]
CF 5	15	50 - 91	840 007 44	2,6

CF 5 universal bracket
Part no. 840 045 44







Chain hoist parallel to the track girder

The long suspension bracket of the DC chain hoist must be used.

Girder connections by means of fish plates are not permitted in the area of the guide rollers

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2.8 U11 trolley

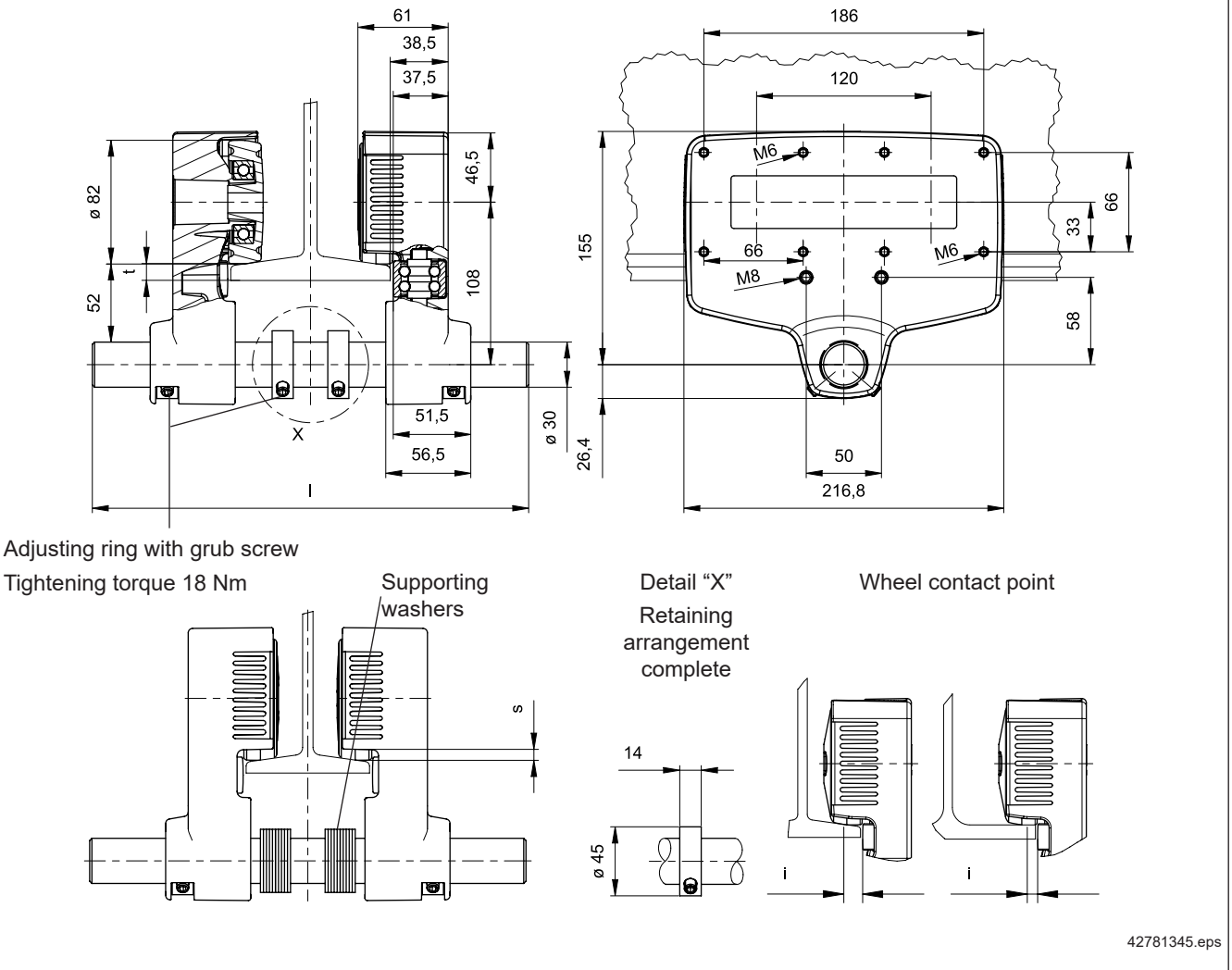
Max. load capacity 1100 kg

For track girders to DIN 1025, part 1 + 5

For use with Demag chain hoists

≤ 1000 kg load capacity:
DC 1, DC 2, DC 5
DC 10 up to 1000 kg
DCM 1, DCM 2, DCM 5
DKUN 1, DKUN 2, DKUN 5, DKUN 10

For further information, see "U11-U34/DC/DCM/DK trolley technical data" document, refer to the table on page 19.



Pay attention to clearance dimension for girder connection with fish plates.
Total play between adjusting rings and suspension bracket: U11 = 2 - 6 mm.
Travel wheel material: plastic, steel travel rollers optional

Designation	Load capacity [kg]	Part no.	Flange width [mm]	Max. flange thickness t [mm]	Crossbar l [mm]	Sloping flange i [mm]	Sloping flange s [mm]	Parallel flange i [mm]	Parallel flange s [mm]	Weight [kg]	Track girder curve radii Push travel R_{min} [mm]	Track girder curve radii Electric travel R_{min} [mm]
U11 - 200	1100	716 502 45	58 - 200	22	320	13	min. 3 to 6	7,8	min. 4 to 7	7,3	1000	2000
U11 S - 200		716 507 45								9,0		
U11 - 310		716 503 45	201 - 310		430					7,7		
U11 - 500		On request	311 - 500		620					9,9		

Bolts for fittings	Tightening torque [Nm]	Thread depth min. [mm]	Thread depth max. [mm]
M6	11	12	17
M8	18	16	21

Number of supporting washers	Flange width [mm] 58	66	74	82	90	98 - 310
DC 1 - 5, DCM 1 - 5	5	Adjusting rings				
DKUN 1-2	0					
DKUN 5	5					
DC 10 1/1	6					
DKUN 10	6					

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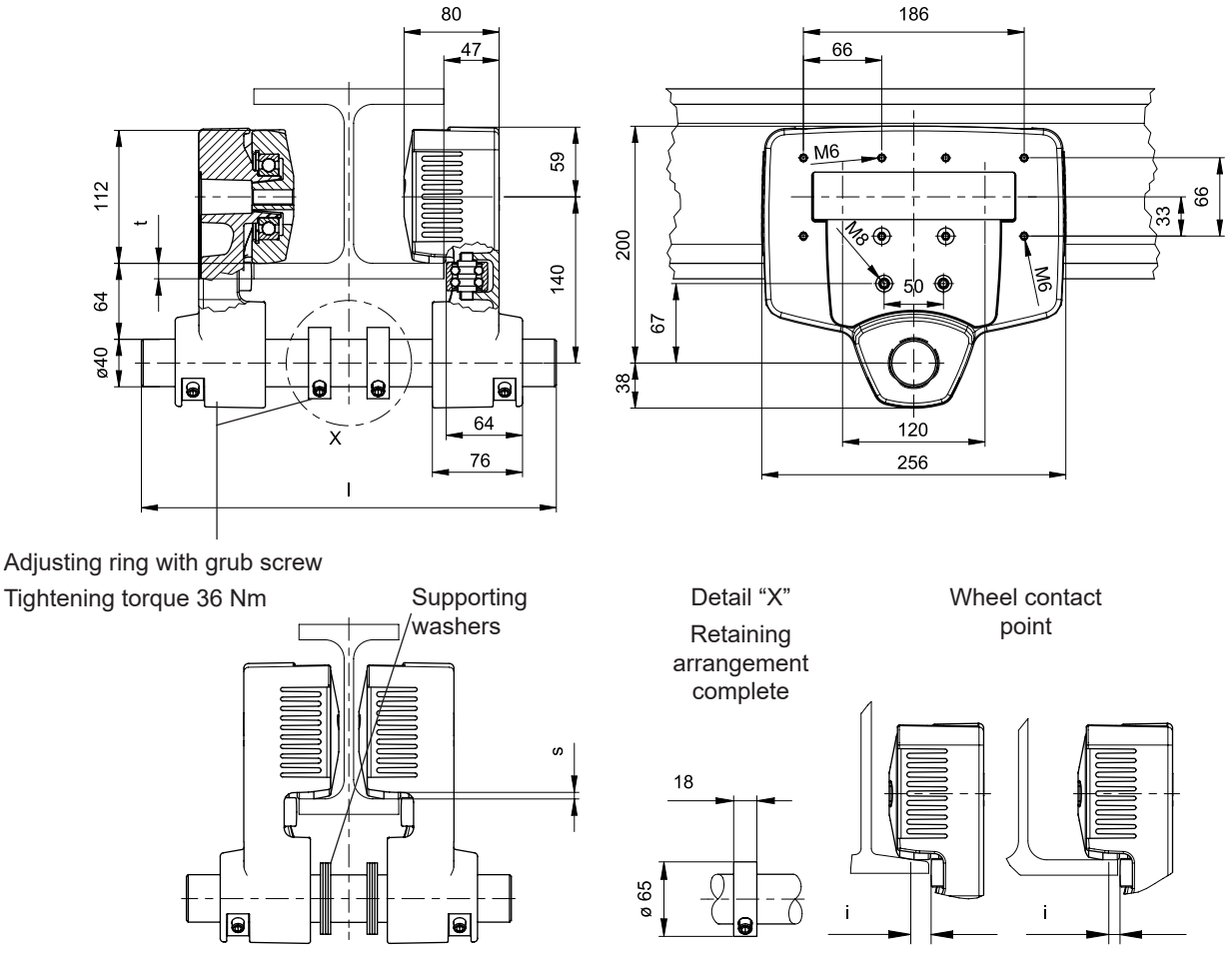
2.9 U22/U34 trolley

Max. load capacity 2200 kg/3400 kg

For track girders to DIN 1025, part 1 + 5

For use with Demag chain hoists
≤ 2000 kg load capacity:
DC 1 - 10, DCM 1 - 5, DKUN 5 - 10
≤ 3400 kg load capacity:
1/1 reeving: DC 16 - 25
2/1 reeving: DC 10 - 16
DKUN 16 - 20

For further information, see "U11-U34/DC/DCM/DK trolley technical data" document, refer to the table on page 19.



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Pay attention to clearance dimension for girder connection with fish plates.
Total play between adjusting rings and suspension bracket: U22/U34 = 6 - 12 mm.
Travel wheel material: spheroidal-graphite cast iron, plastic travel rollers on request

Designation	Load capacity [kg]	Part no.	Flange width [mm]	Max. flange thickness t [1] [mm]	Crossbar l [mm]	Sloping flange i [mm]	Sloping flange s [mm]	Parallel flange i [mm]	Parallel flange s [mm]	Weight [kg]	Track girder curve radii Push travel R_{min} [mm]	Track girder curve radii Electric travel R_{min} [mm]
U22 - 200	2200	716 602 45	74 - 200	30	350	17	min. 2 up to 6	9,5	min. 1 up to 5	14,5	2000	3000
U22 - 500		On request	311 - 500		640					19,8		
U34 - 310	2200 3400	716 703 45	201 - 310 74 - 310		460					15,5		
U34 - 500	3400	On request	311 - 500		640					20,8		

1) Max. 28 mm for DC 16 - 25

Bolts for fittings	Tightening torque [Nm]	Thread depth min. [mm]	Thread depth max. [mm]
M6	11	12	17
M8	18	16	21

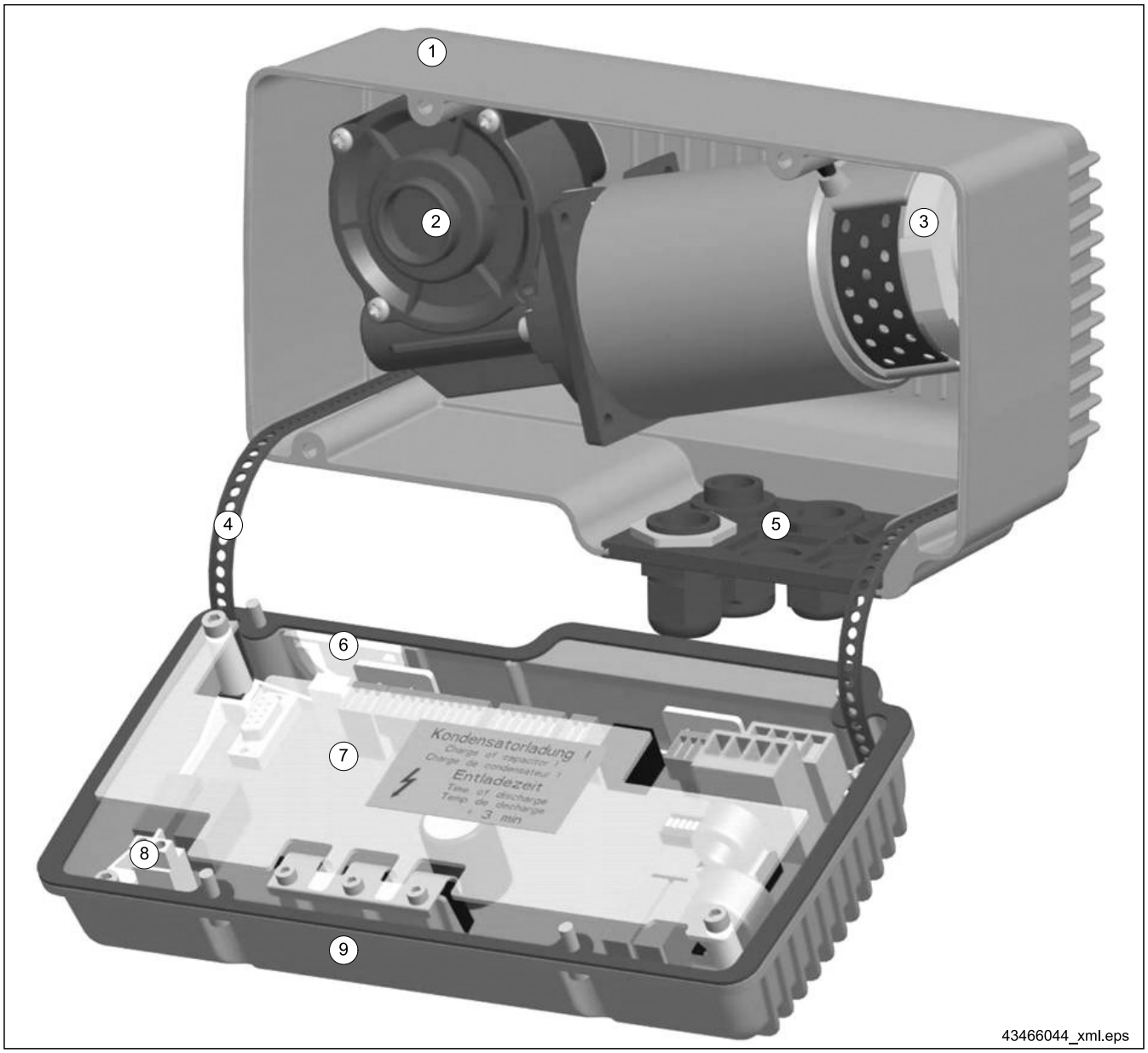
Number of supporting washers	Flange width [mm] 74	82	90	100 - 310
DC 1 - 5, DCM 1 - 5, DKUN 5	3			
DC 10	4	2		
DC 16 - 25	3	6	4	Adjusting rings
DKUN 10/16	4	2		
DKUN 20	5	6		

2.10 E11 - E34 travel drive

220-480 V, 50/60 Hz, 3 ~

Suitable for trolleys:
U11 - U34
KBK RF 125

For further information, see “E11-E34 DC travel drive assembly instructions (I)+(II)” document, refer to the table on page 19.



Example: E22-C travel drive

Item	Designation	Item	Designation	Item	Designation
1	Housing lower section	4	Housing cover safety retainer	7	Cover plate of control board
2	DC worm geared motor	5	Plug-in module with unions	8	Control board
3	Rotary encoder (E22-C)	6	Window for 7-segment display (E22-C)	9	Housing cover

Selection table

Max. displaceable weight incl. dead load [2]	Travel drive size	Travel speed for 50/60 Hz [1] [3]				Possible trolleys	Part no.	Max. weight
		Steps		Variable				
		v_{rated} at full load	v_{max} at partial load	v at full load	v at partial load			
[kg]	Type	[m/min]	[m/min]	[m/min]	[m/min]			[kg]
1100	E11	24/6	30/7,5	1,92 - 24	2,40 - 30	U11	716 570 45	4
2200	E22-C [5]	24/3	30/3,7	1,2 - 24	1,5 - 30	U22/U34	716 950 45	5
		27/3,5	33/4	1,4 - 27	4 - 33	RF 125		
3400	E34	14/3,5	-	1,12 - 14	-	U34	716 740 45	

Electric key data

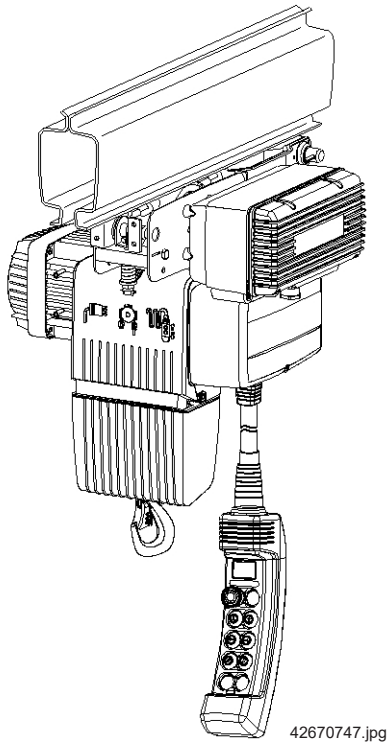
Travel drive size	Motor size	Min./max. currents and start-up current							
						220-480 V, 50/60 Hz, 3 ~ (CE/CSA) [4]			
		P_N	CDF [6]	n_N	Starts/h	$I_{N\ 220}$	$I_{N\ 480}$	$I_{max\ 220}$	$I_{max\ 480}$
		[kW]	[%]	[rpm]		[A]	[A]	[A]	[A]
E11	MP 56 M	0,025	20	862	240	0,30	0,15	1,30	0,65
		0,10	40	3450	120	1,10	0,55	2,60	1,30
E22-C	MP 56 L	0,05	20	630	240	0,50	0,24	1,16	0,58
		0,20	40	2525	120	1,80	0,90	4,30	2,15
E34	MP 56 XL	0,04	20	478	240	0,50	0,24	1,16	0,58
		0,15	40	1914	120	1,60	0,80	3,80	1,90

1) In connection with DCS (variable) from 0,5 m/min to v_{max}
2) Max. gradient 1%, > 1% on request
3) Travel speed values = default. They can be changed by programming parameters.
4) Temporary voltage tolerances of +5% and -10% are possible. Motors are rated to insulation class F.
5) E22-C with speed control for long-travel drives.
6) At -20 °C to +40 °C.

Properties

- IP 55 enclosure,
- Ambient temperature -20 °C to +40 °C,
- Temperature monitoring,
- 7-segment display for operating status, error messages, parameter programming;
- All electric connections are of plug-in design,
- Inputs for limit switches and fast-to-slow limit switches are integrated on the control board,
- Smooth starting via ramps,
- For voltages greater than 480 V - 575 V, a single-phase isolating transformer with the following technical data must be integrated into the line power supply:

  Type: TTT 0,25
  Primary voltage: 575 V
  Secondary voltage: 230 V
  Output: 250 VA
- E11 - E34 is fitted to the relevant U11 - U34 trolley,
- E22-C can also be fitted to the new RF 125 friction-wheel travel drive,
- The travel drive is designed to match the electric concept of the DC chain hoist,
- Line voltage relayed from the travel drive to the chain hoist,
- Signal transmission in steps with 24 V tri-state signals for controlled DC chain hoists (half-wave evaluation),
- Stepless signal transmission with 0–24 V PWM (pulse width modulation) signals in connection with stepless DCS chain hoists.
- E11 - E34 travel drives are not suitable for electric travel applications with DC-ProDC, DC-ProCC and DC-Pro-FC units. Only travel drives with AC motors can be used.



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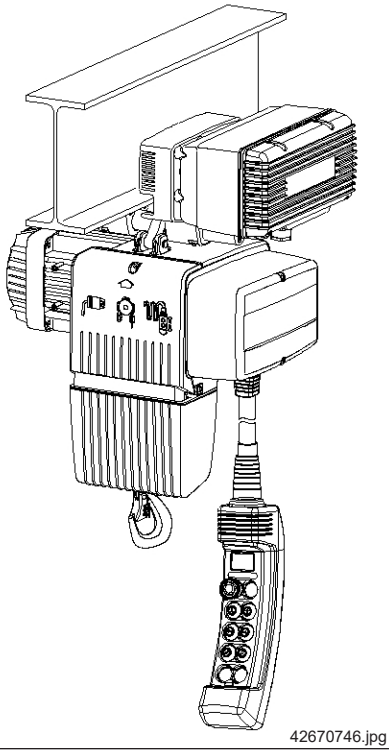

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E22-C travel drive

The new E22-C travel drive with speed feedback for software version 1.30 and later has the following additional functions:

- Motor speed detection by means of a separate rotary encoder, which eliminates the need to synchronise the long-travel drives; the influence of the load is also reduced.
- In master/slave mode, only the master unit receives the speed command (from the control unit) and communicates the speed setpoint value to the slave drives (maximum of 2 possible), which reduces the need for cabling and wiring and also makes it possible to provide stepless setpoint values.
- The 7-segment display is visible from the outside.
- The drive parameters can be programmed without opening the cover. The master unit transfers the parameters to the slave unit.
- The hand-held terminal can be connected to the drives. This arrangement enables a diagnosis to be carried out and further parameters become accessible (these are not transferred to the slave unit).

For further information, see “DCS + E22-C parameter programming assembly instructions” document, refer to the table on page 19.

Pay attention to the following when travel drives are employed:

- E22 and E22-C travel drives cannot be combined with each other within one travel axis.
- Even if master/slave mode is used, skewing of the crane bridge cannot be avoided if the load is distributed on one side and short pulses are given to the drives (inching).

E11 - E34 travel drive

The travel drives are shipped ready for operation.

The following settings are also possible:

- Travel speed, acceleration and braking parameters can be programmed via DSE-10C/CS control pendants,
- Infinitely variable cross-travel speed only in connection with DCS-Pro and DSE-10CS.

The following are provided for the electric connection between the chain hoist and the trolley travel drive:

DC 1 - 15

Control cable set (part no. 720 070 45) and

Mains connection cable (part no. 720 072 45),

DC 16-25

Power/control cable set (part no. 720 369 45).

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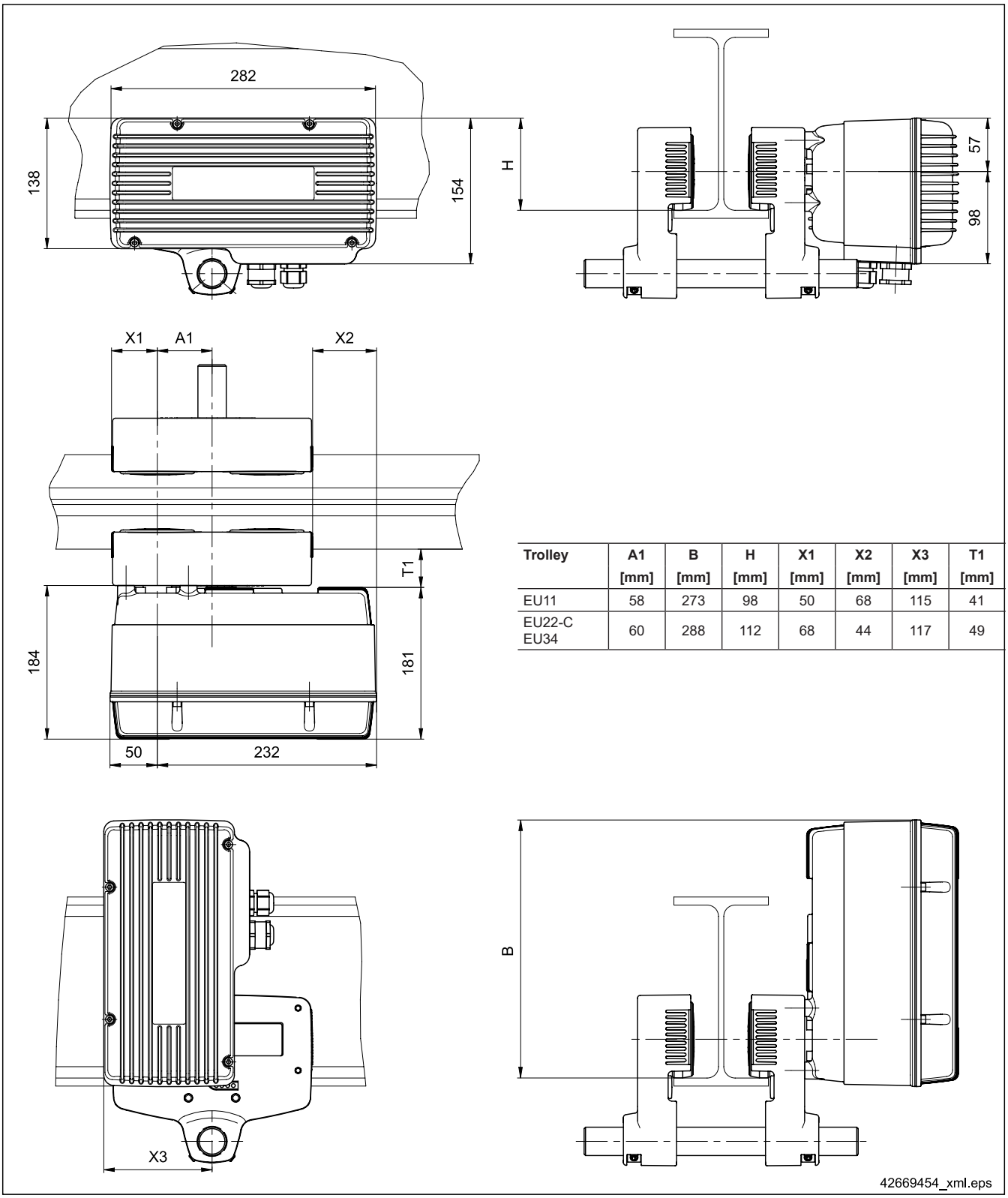
E11 - E34 travel drive on U11 - U34 trolley

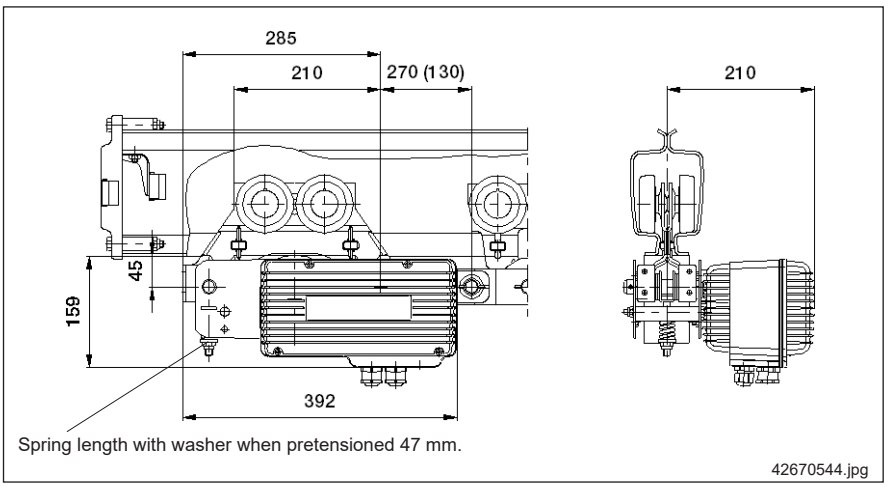


Trolley	A1 [mm]	B [mm]	H [mm]	X1 [mm]	X2 [mm]	X3 [mm]	T1 [mm]
EU11	58	273	98	50	68	115	41
EU22-C EU34	60	288	112	68	44	117	49

The following must be considered:

- Application as a long-travel drive on bottom flanges is not recommended because of the single-wheel drive.
- E11 to E34 travel drives cannot be used in combination with a dual-output gearbox in a vertical mounting arrangement.
- We recommend horizontal mounting of the travel drive for outdoor operation.

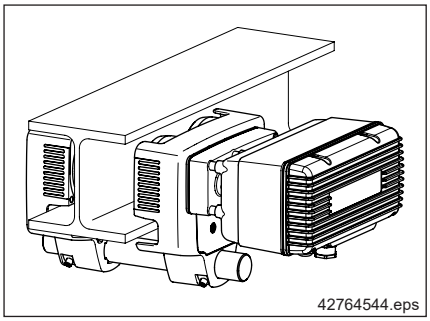
E22-C travel drive on KBK RF 125



For further information, see "KBK classic (steel, powder-coated) technical data" document, refer to the table on page 19.

2.11 Dual-output gearbox for E11 - E34 travel drive

Trolley				Dual-output gearbox	
Size	Flange width [mm]	Part no.	Weight [kg]	Part no.	Weight [kg]
U11 - 200	58 - 200	716 502 45	7,3	716 680 45	2,2
U11 S - 200		716 507 45	9,0		
U11 - 310	201 - 310	716 503 45	7,7		
U22 - 200	74 - 200	716 621 45	13,6		
U34 - 310	74 - 310	716 731 45	14,6		



When U11 - U34 trolleys are fitted with E11 - E34 travel drives, 1 travel wheel is driven. Under certain ambient conditions, e.g. travel track contaminated with oil, it may be necessary to drive more than one travel wheel. The VG dual-output gearbox is used for driving both travel wheels on the driven side cheek.

Older trolley designs cannot be combined with the dual-output gearbox, as they partly have only one travel wheel that can be driven per trolley (U22-34) or different axle centre distances (U11). If all 4 travel wheels are to be driven, 2 separately driven side cheeks, 1 crossbar and 2 drives and 2 dual-output gearboxes must be ordered.

If a dual-output gearbox is installed between the trolley and the travel drive, the travel drive protrudes a further 51 mm beyond the girder.

For further information, see "VG11-34 EU11-34 dual-output gearbox assembly instructions" document, refer to the table on page 19.

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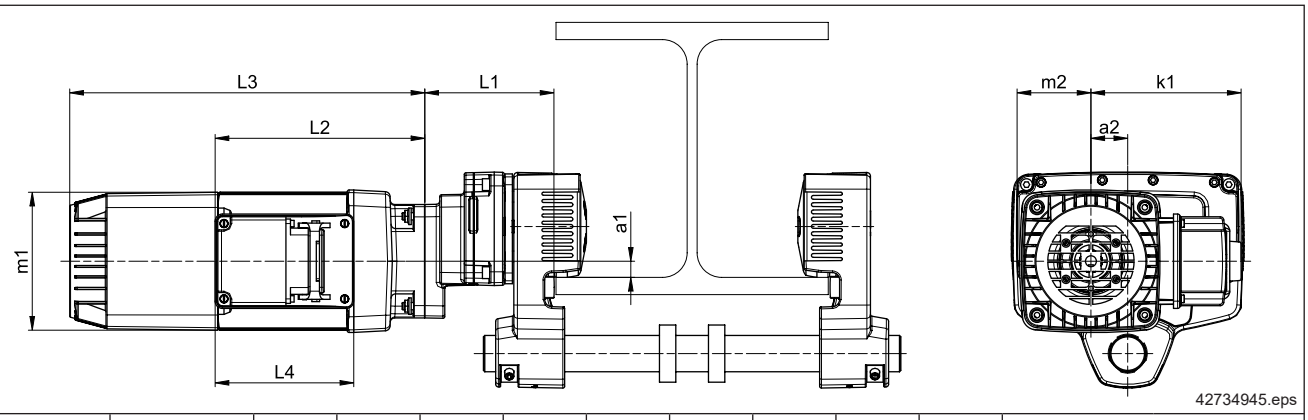
2.12 EU11 - EU34 trolley with ZBF/ZBA three-phase motors



Trolley size	Motor	a1 [mm]	a2 [mm]	m1 [mm]	m2 [mm]	k1 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Weight for flange width ≤ 200 mm [kg]	Weight for flange width > 200 - 310 mm [kg]
EU11	ZBF 63	3,44	40,53	140	70	124	134	218	335	153	22,6 1)	23,0 1)
EU22 / EU34	ZBF 71	18,44					142				29,8	30,8
	ZBF 80			157	80	134		231	391		32,0	33,0
											39,3	40,3

Designation	Trolley load capacity [kg]	Trolley size	Flange width [mm]	2-stage V [m/min]	2-stage ZBF motor	Variable V [m/min]	Variable ZBA motor for frequency inverter operation	Gearbox transmission ratio i_{ges}	Part no.	Weight [kg]
1 VGZ11-34 dual-output gearbox for ZB motors (without trolley and motor)	1100	EU11		16/4	ZBF 63 A 8/2	16,0	ZBA 63 B4	45,56	716 750 45	5,3
				20/5	ZBF 63 A 8/2	20,0	ZBA 63 B4	35,55	716 751 45	
				30/7,5	ZBF 63 A 8/2	30,0	ZBA 63 B4	26,64	716 752 45	
				40/10	ZBF 63 A 8/2	40,0	ZBA 63 B4	18,69	716 753 45	
	2200	EU22		20/5	ZBF 63 A 8/2	20,0	ZBA 63 B4	45,56	716 750 45	
				28/7	ZBF 63 A 8/2	28,0	ZBA 71 A4	35,55	716 751 45	
				40/10	ZBF 71 A 8/2	40,0	ZBA 71 A4	26,64	716 752 45	
				50/12,5	ZBF 71 A 8/2	50,0	ZBA 71 A4	18,69	716 753 45	
	3400	EU34		20/5	ZBF 63 A 8/2	20,0	ZBA 71 A4	45,56	716 750 45	
				28/7	ZBF 71 A 8/2	28,0	ZBA 71 A4	35,55	716 751 45	
				40/10	ZBF 80 A 8/2	40,0	ZBA 71 A4	26,64	716 752 45	
Side cheek, driven	1100	U11							716 501 45	2,3
		U11S							716 504 45	9,4
	2200/3400	U22/U34							716 704 45	7,0
Side cheek, non-driven	1100	U11							716 501 45	2,3
		U11S							716 504 45	9,4
	2200/3400	U22/U34							716 706 45	6,4
1 crossbar	1100	U11	58 - 200						716 551 45	2,1
	1100		201 - 310						716 553 45	2,6
	1100		311 - 500						716 557 45	4,5
	2200	U22/U34	74 - 200						716 651 45	2,1
	2200/3400		201 - 310						716 653 45	5,2
	2200/3400		311 - 500						716 657 45	7,5
1 adjusting ring set	1100	U11							716 465 45	0,3
	2200/3400	U22/U34							716 470 45	0,6

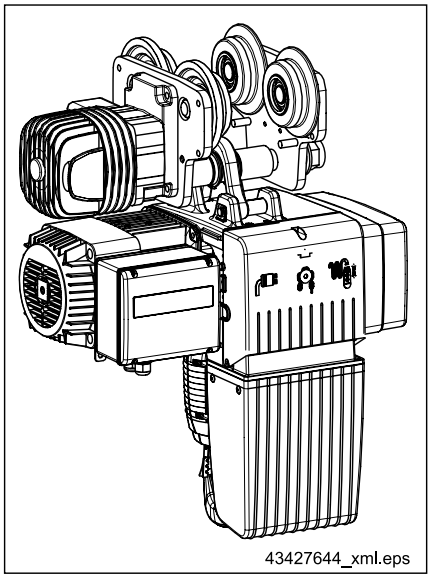
Example for ordering

EU11 cpl. up to flange width 310 mm, consisting of:

1 U11 - 310 trolley complete
1 Travel motor with specified voltage and type of enclosure
1 Travel drive gearbox according to speed and load capacity assignment

1) For steel travel rollers +1,7 kg

2.13 EU 11 DK/EU 22 DK trolley with PKF three-phase motors



Depending on the application, size 11 and 22 trolleys of the predecessor DK generation can be used as an alternative to EU11 - EU34 units with ZBF motors.

For control, the Polu box operates as the contactor control system for the trolley and converts the travel signals of the DC 1 - 15 unit into electric travel output.

For further information, see "DC Polu box assembly instructions", "EU 11 DK trolley operating instructions" and "EU 22 DK trolley operating instructions" documents, refer to the table on page 19.

2.13.1 Curve radii

The specified curve radii apply for normal applications.

Use RUD/EUD trolleys for frequent travel on curves (e.g. in automatic installations).

Curve radii in mm

Trolley size	Track girder			
	Round edges		Sharp edges	
	Flange width	R_{min}	Flange width	R_{min}
RU 11 DK **EU 11 DK**	58-300	1800	58-300	2000
RU 22 DK **EU 22 DK**	82-143 144-200 201-300	2300 1900 1300	82-300 - -	2575 - -

2.13.2 Travel speeds

Travel drive			Possible cross-travel speeds in approx. ... m/min				
			28	14	7	7/28	4,6/14
			13/3 PKF 2	13/3 PKF 4	13/3 PKF 8	13/6 PKF 8/2	13/6 PKF 12/4
Part no.	**Voltage**	**230/400 V**	563 062 44	563 064 44	563 067 44	-	-
		400 V	-	-	-	563 057 44	563 056 44

2.13.3 Travel motor data

EU standard-headroom monorail hoist

Size	P_N	CDF	n_N	Rated current I_N and start-up current I_A for 50 Hz						cos φ N	cos φ A
				230 V		400 V		500 V			
				I_N	I_A	I_N	I_A	I_N	I_A		
	[kW]	[%]	[rpm]	[A]	[A]	[A]	[A]	[A]	[A]		
13/3 PKF 2	0,2	40	2890	1,1	5,7	0,63	3,3	0,46	2,4	0,73	0,74
13/3 PKF 4	0,14	40	1390	0,77	2,6	0,44	1,5	0,32	1,1	0,76	0,74
13/3 PKF 8	0,05	40	710	0,95	2,2	0,55	1,3	0,4	0,91	0,48	0,7
13/6 PKF 8/2	0,07/0,27	20/40	680/2900	1,3/1,8	2,6/8,6	0,74/1,1	1,5/5,0	0,53/0,76	1,1/3,6	0,57/0,71	0,86/0,86
13/6 PKF 12/4	0,05/0,17	20/40	450/1440	2,2/1,8	2,8/6,2	1,3/1,1	1,6/3,6	0,91/0,76	1,2/2,8	0,66/0,55	0,82/0,86

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2.13.4 EU 11 DK trolley

For use with Demag chain hoists

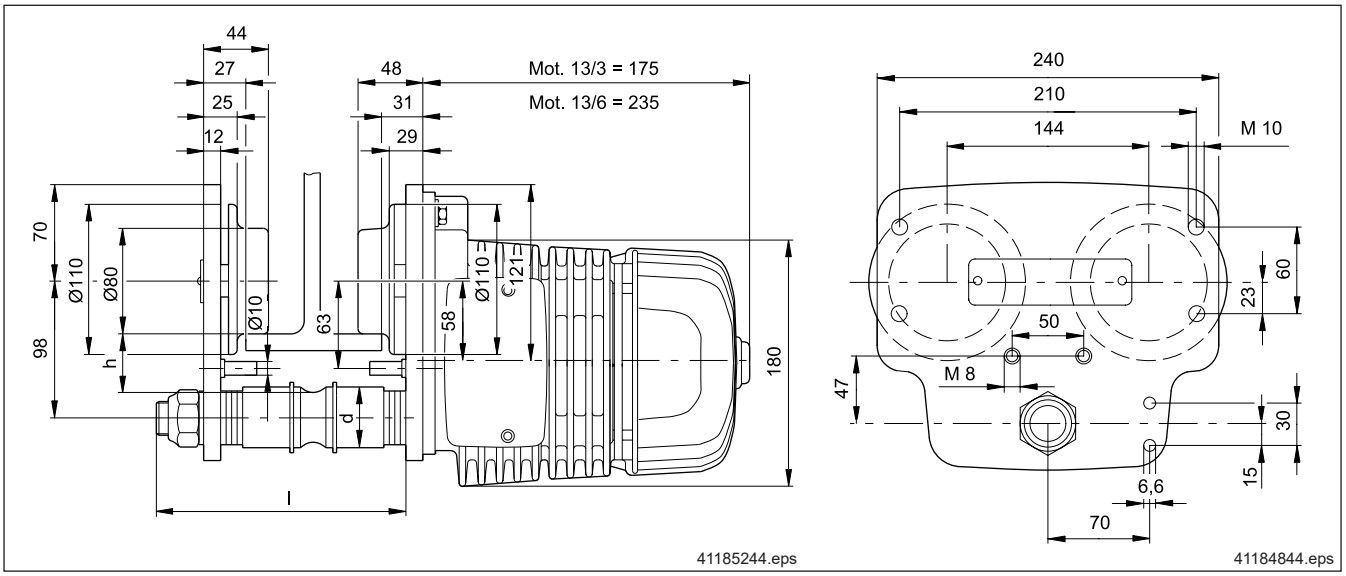
DC 1 - 5 **1/1 reeving**

DCM 1 - 5 **1/1 reeving**

Standard-headroom monorail hoist

Max. load capacity 1350 kg [1)]

DC 10 only with long suspension bracket for max. flange thickness “t” 13 mm



Flange width	b mm	58	66	74	82	90	91	98	106	113	119	125	131	137	143
Max. flange thickness	t mm	16/without anti-run-off device 22 mm													
Crossbar	l mm	171					224								
Dimension	d mm	34													
	h mm	43													
		Position of the distance washers (4 mm distance washer) Required number of distance washers													
Left side cheek	inside	-	1	2	3	4	-	1	2	3	4	4	5	6	7
	outside	9	7	5	3	1	14	12	10	8	7	5	4	2	1
Right side cheek	inside	1	2	3	4	5	1	2	3	4	4	6	6	7	7
Weight without electric equipment	without/with travel drive	14,2/27,2					14,5/27,5								
Crossbar cpl. with supporting roller		839 523 44					839 524 44								
Trolley cpl.		840 104 44													

Flange width	b mm	144	149	155	163	170	178	185	200	201	210	220	240	260	280	300
Max. flange thickness	t mm	16/without anti-run-off device 22 mm														
Crossbar	l mm	281								381						
Dimension	d mm	45														
	h mm	37														
		Position of the distance washers (4 mm distance washer) Required number of distance washers														
Left side cheek	inside	-	1	1	2	3	4	5	7	-	1	3	5	8	10	13
	outside	15	13	12	10	8	6	4	-	26	23	21	16	11	6	1
Right side cheek	inside	1	2	3	4	5	6	7	9	1	3	3	6	8	11	13
Weight without electric equipment	without/with travel drive	15,4/28,4								16,5/29,5						
Crossbar cpl.		839 544 44								839 545 44						
Trolley cpl.		840 104 44														

1) If loads close to the maximum load capacity are frequently moved, we recommend the next largest size trolley be used.

Example:
Order for an EU 11 DK standard-headroom monorail hoist for 90 mm flange width
Travel speed approx. 14 m/min, 230/400 V, 50 Hz

1	Crossbar	part no.	839 523 44
1	Trolley	part no.	840 104 44
1	Travel drive	part no.	563 064 44

2.13.5 EU 22 DK trolley

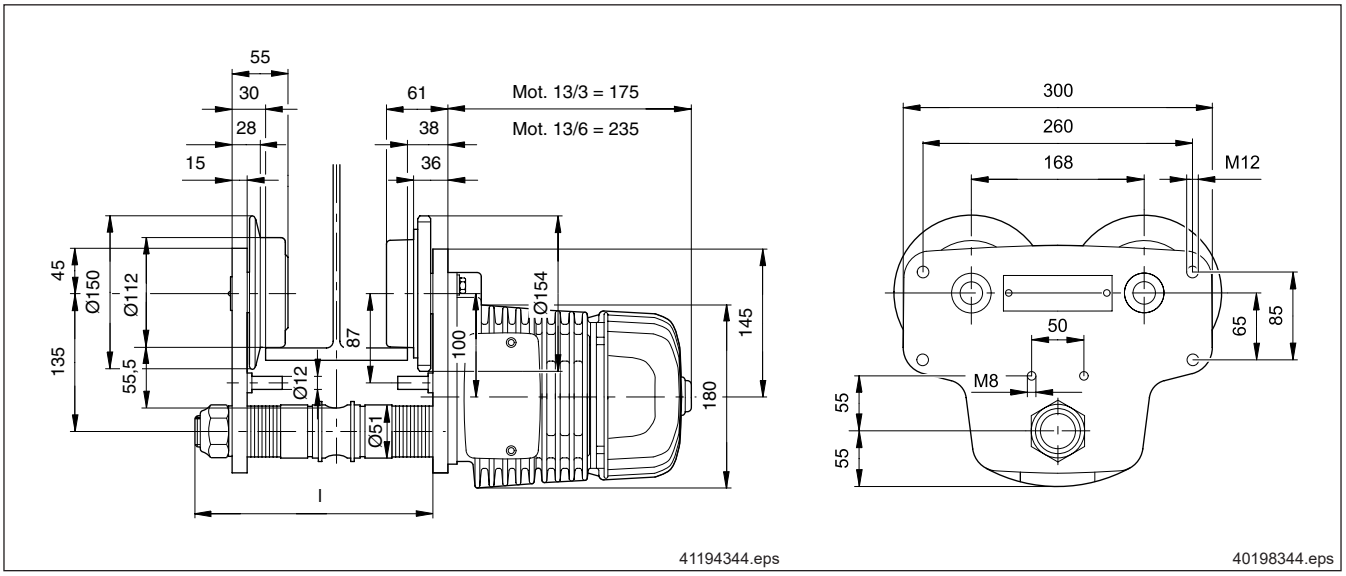
For use with Demag chain hoists

	Reeving
DC 10 [2]	**1/1 and 2/1**
DC 15/16	**1/1 and 2/1**

Standard-headroom monorail hoist

Max. load capacity 2600 kg [1]

Pay attention to flange thickness -t-



Flange width	b mm	82	90	98	106	113	119	125	131	137	143
Max. flange thickness	t mm	22/without anti-run-off device 28 mm (DC 15/16 t = 15 mm)									
Crossbar	l mm	235									
		Position of the distance washers (4 mm distance washers) Required number of distance washers									
Left side cheek	inside	1	2	3	4	5	5	6	7	8	8
	outside	16	14	12	10	8	7	5	4	2	1
Right side cheek	inside	2	3	4	5	6	7	8	8	9	10
Weight without electric equipment	without/with travel drive	27,2/40,2									
Crossbar cpl.		839 563 44									
Trolley cpl.		840 114 44									

Flange width	b mm	144	149	155	163	170	178	185	200	201	210	220	240	260	280	300
Max. flange thickness	t mm	22/without anti-run-off device 28 mm (DC 15/16 t = 15 mm)														
Crossbar	l mm	292								392						
		Position of the distance washers (4 mm distance washer) Required number of distance washers														
Left side cheek	inside	-	1	2	3	4	4	5	7	-	1	2	5	8	10	13
	outside	15	14	12	10	8	6	5	1	26	23	20	16	11	6	1
Right side cheek	inside	2	2	3	4	5	7	7	9	2	4	6	7	9	12	14
Weight without electric equipment	without/with travel drive	27,9/40,9								29,2/42,2						
Crossbar cpl.		839 564 44								839 565 44						
Trolley cpl.		840 114 44														

1) If loads close to the maximum load capacity are frequently moved, we recommend the next largest size trolley be used.
2) See section 1.14.

Example:
Order for an EU 22 DK standard-headroom monorail hoist for 90 mm flange width
Travel speed approx. 14 m/min, 230/400 V, 50 Hz

1	Crossbar	part no.	839 563 44
1	Trolley	part no.	840 114 44
1	Travel drive	part no.	563 064 44

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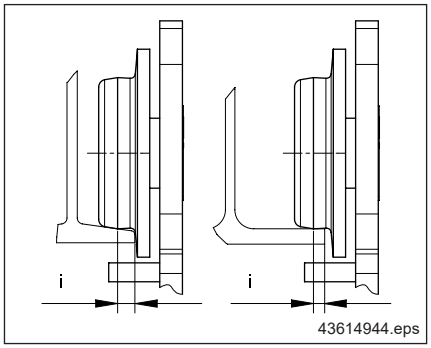
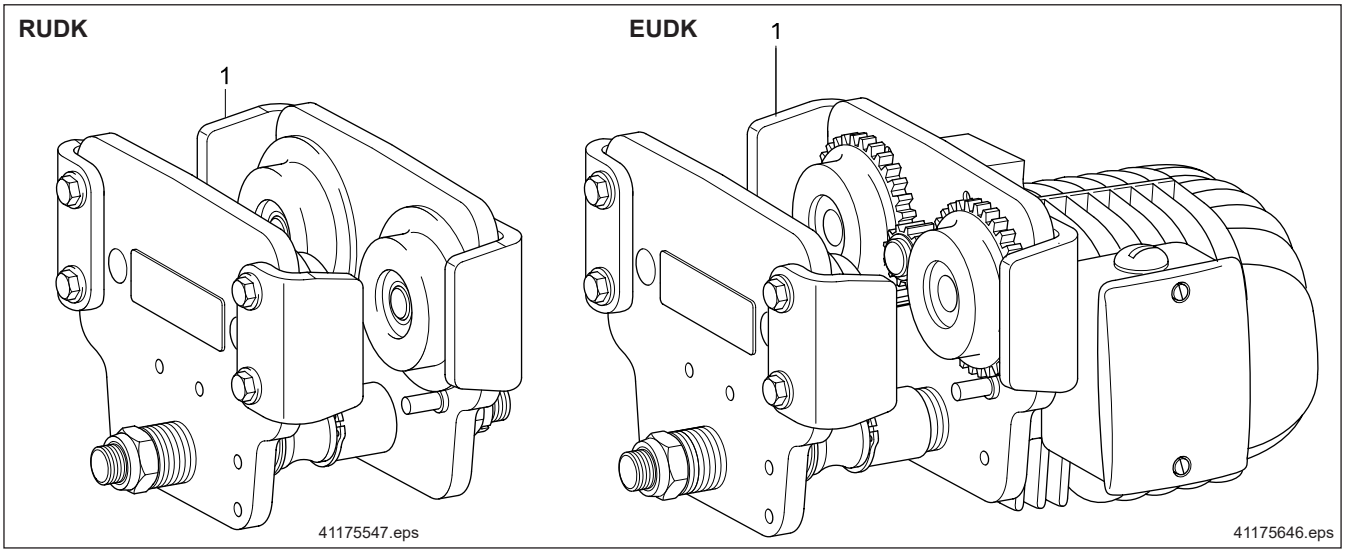
2.13.6 Wheel contact point



		EU 11 DK	EU 22 DK
Parallel flange	i [mm]	4,5	6,5
Sloping flange	i [mm]	11,5	16,5

2.13.7 RUDK/EUDK drop-stop arrangement

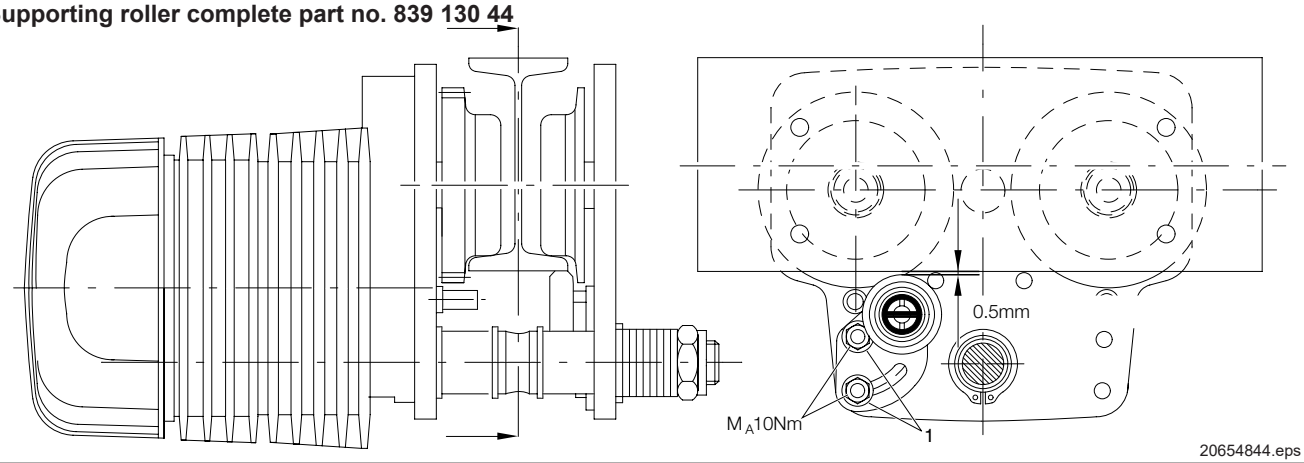


RU/EU 11 DK drop stop set	Part no. 839 697 44
RU/EU 22 DK drop stop set	Part no. 839 698 44

2.13.8 Supporting rollers

On EU 11 DK trolley for flange width 58 - 143 mm

Supporting roller complete part no. 839 130 44



2.14 RU56/EU56 trolley with ZBF/ZBA three-phase motors

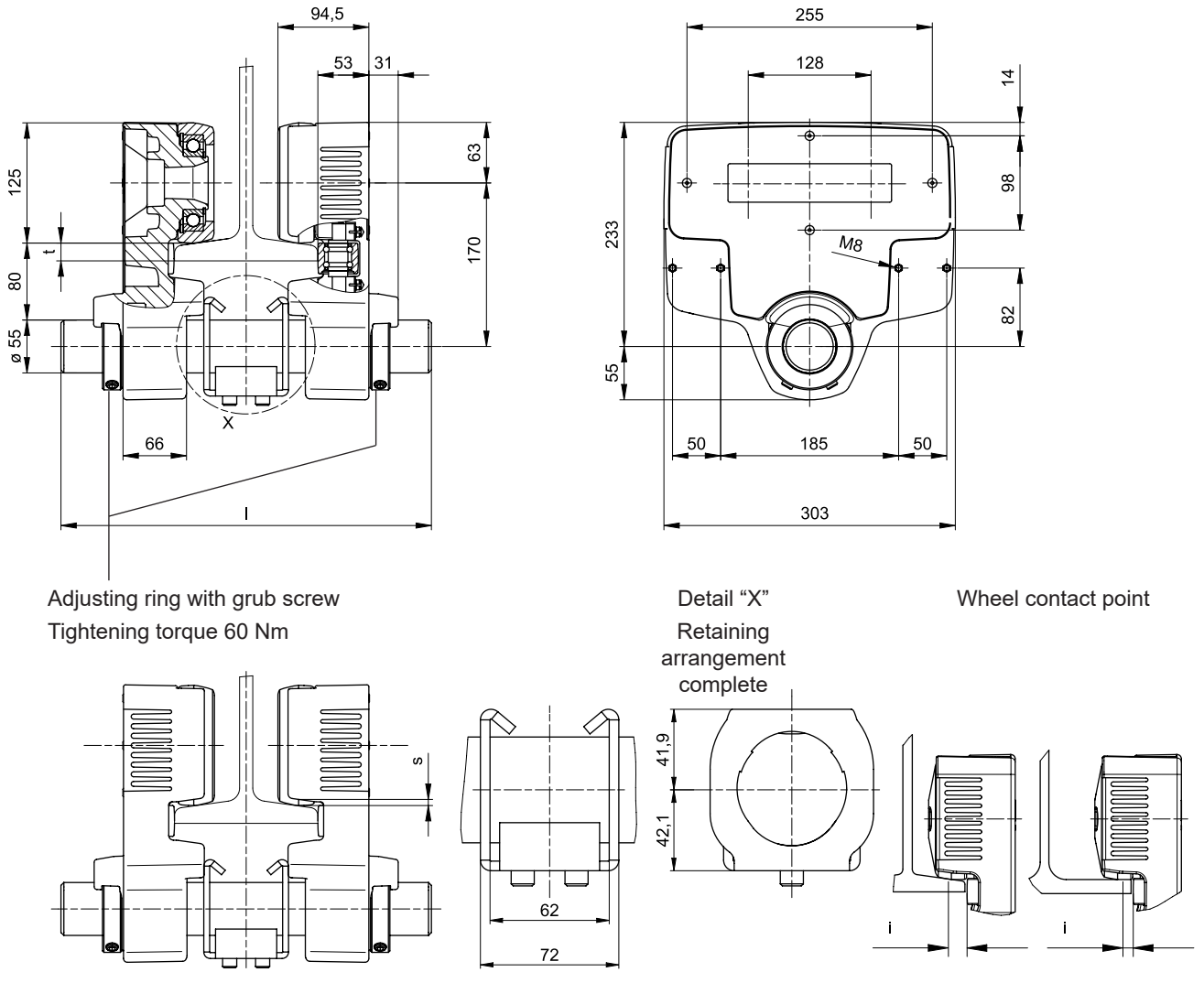
Max. load capacity 5600 kg

For track girders to DIN 1025, part 1 - 5

For use with Demag chain hoists:

DC-Pro 15 - 1000 to 3200 kg,
DC-Pro 16 - 1250 to 3200 kg,
DC-Pro 25 - 2000 to 5000 kg,

For further information, see "RU/EU56 trolley technical data" document, refer to the table on page 19.



Pay attention to clearance dimension for girder connection with fish plates.
Travel wheel material: spheroidal-graphite cast iron

Bolts for fittings	Tightening torque	Thread depth	
		min.	max.
	[Nm]	[mm]	[mm]
M8	18	16	21

1) From flange width 106 mm

Designation	Load capacity	Part no.	Flange width	Max. flange thickness	Crossbar	Sloping flange		Parallel flange		Weight	Track girder curve radii 1)	
				t	l	i	s	i	s		Push travel	Electric travel
	[kg]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	R_{min} [mm]	R_{min} [mm]
RU56 - 200	5600	716 820 45	98 - 200	30	385	22,7	min. 3 to 6	20	min. 2 to 4	32,8	2000	2500
RU56 - 310		716 831 45	201 - 310		495					34,8		
RU56 - 500		On request	311 - 500		695					39,8		

DK chain hoist application with RU/EU56	DK 16	DK 20
At right angles to the girder	From flange width 140 mm with a long suspension eye and additional adjusting rings part no. 716 854 45	With long suspension eye and retaining arrangement, cpl.
Parallel to the girder	-	From flange width 106 mm with a suspension ring and additional adjusting rings part no. 716 854 45

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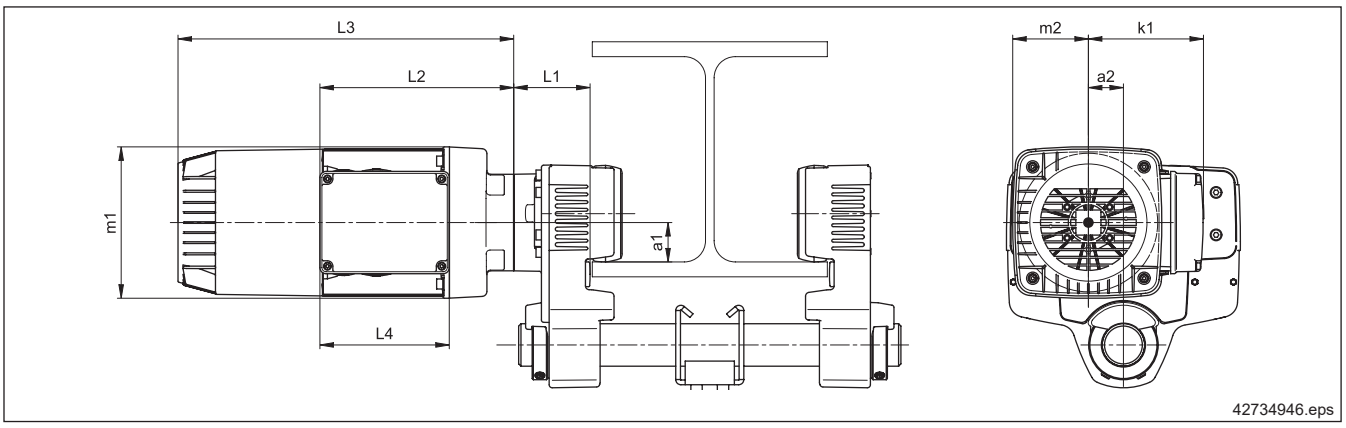

EU56 with motor	a1 [mm]	a2 [mm]	m1 [mm]	m2 [mm]	k1 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Weight for flange width ≤ 200 mm [kg]	Weight for flange width > 200 mm [kg]
ZBF 71	51	45	140	70	123	99	218	335	153	51,2	53,2
ZBF 80			157	79	132		231	391	153	58,2	60,2
ZBF 90			196	98	149		251	435	168	66,2	68,2

Designation	Trolley load capacity [kg]	Trolley size	Flange width [mm]	2-stage V [m/min]	2-stage ZBF motor	Variable V [m/min]	Variable ZBA motor for frequency inverter operation	Gearbox transmission ratio i_{ges}	Part no.	Weight [kg]
1 EU56 trolley for ZB motors (without motor)	4000	EU56	98 - 200	40/10	ZBF 80 A 8/2			30,09	716 843 45	38,2
	5600	EU56	98 - 200	12/4	ZBF 80 A 12/4			47,49	716 842 45	
				20/5	ZBF 71 A 8/2	20	ZBA 71 A4	56,87	716 840 45	
				24/6	ZBF 71 A 8/2	24	ZBA 71 A4	47,49	716 842 45	
				40/10	ZBF 90 B 8/2	40	ZBA 80 A4	30,09	716 843 45	
	4000	EU56	201 - 310	40/10	ZBF 80 A 8/2			30,09	716 845 45	40,2
	5600	EU56	201 - 310	12/4	ZBF 80 A 12/4			47,49	716 844 45	
				20/5	ZBF 71 A 8/2	20	ZBA 71 A4	56,87	716 846 45	
				24/6	ZBF 71 A 8/2	24	ZBA 71 A4	47,49	716 844 45	
				40/10	ZBF 90 B 8/2	40	ZBA 80 A4	30,09	716 845 45	
1 side cheek, driven (2 wheels)	4000	EU56		40/10	ZBF 80 A 8/2			30,09	716 828 45	17,5
	5600	EU56		12/4	ZBF 80 A 12/4			47,49	716 827 45	
				20/5	ZBF 71 A 8/2	20	ZBA 71 A4	56,87	716 830 45	
				24/6	ZBF 71 A 8/2	24	ZBA 71 A4	47,49	716 827 45	
				40/10	ZBF 90 B 8/2	40	ZBA 80 A4	30,09	716 828 45	
1 side cheek, non-driven									716 824 45	12
1 RU/EU crossbar	5600	RU56/ EU56	98 - 200						716 851 45	8,8
			201 - 310						716 853 45	10,8
1 crossbar for DC 10	2500		180 - 310						749 514 46	10,5
	5600		311 - 500						716 857 45	15,5
1 adjusting ring set	5600								716 854 45	1,3

Example for ordering
EU56 cpl. up to flange width 310 mm
Consisting of:
1 EU56 trolley complete according to speed and load capacity assignment
1 Travel motor with specified voltage and type of enclosure

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EU56 gearbox
The gearbox is maintenance-free for up to 10 years. No oil change required.

IP55 sealing arrangement

Travel motors and brakes are provided with IP54 type of enclosure as standard. Travel drives can be ordered with IP55 as an option.
A sealing arrangement can be used to increase the enclosure of the brake to IP 55 to prevent harmful dust accumulation and hose water from inhibiting correct operation of the brake.
This is recommended for outdoor operation. The advantages of an open brake arrangement without any sealing are improved heat dissipation and removal of abrasion from inside the brake.

For further information, see “ZNA, ZBA, ZBF motor assembly instructions” document, refer to the table on page 19.

Brake
Unlike the standard design, the following must be considered for EU56 trolleys with ZBF motors:

Motor	Brake	Brake torque	Spring assignment
ZBF 63	B003	1,4 Nm	3 off blue
ZBF 71	B003	1,4 Nm	3 off blue
ZBF 80	B020	3,3 Nm	3 off red
ZBF 90	B020	5,6 Nm	4 off red and 2 off blue

Contact the manufacturer for reduced brake torque on ZBF 90 motors.

2.15 ZBF AC motor electric key data

Travel motor data (Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible.)
Motors are rated to insulation class F.
The current values are calculated for an ambient temperature of 40 °C.

Motor size	No. of poles	CDF	P_N	n_N	220 V, 50 Hz, 3 ~ (CE)				230 V, 50 Hz, 3 ~ (CE)				240 V, 50 Hz, 3 ~ (CE)			
		[%]	[kW]	[rpm]	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A
ZBF 63 A 8/2	8	40	0,06	675	1,20	1,40	0,59	0,78	1,15	1,40	0,59	0,78	1,10	1,40	0,59	0,78
	2	40	0,25	2745	1,75	2,70	0,71	0,88	1,65	2,70	0,71	0,88	1,60	2,70	0,71	0,88
ZBF 71 A 8/2	8	40	0,09	675	1,40	1,60	0,61	0,78	1,30	1,60	0,61	0,78	1,30	1,60	0,61	0,78
	2	40	0,34	2785	1,90	3,50	0,73	0,85	1,80	3,50	0,73	0,85	1,70	3,50	0,73	0,85
ZBF 80 A 8/2	8	40	0,13	630	2,60	1,20	0,64	0,90	2,50	1,20	0,64	0,90	2,40	1,20	0,64	0,90
	2	40	0,50	2790	2,60	4,50	0,73	0,90	2,50	4,50	0,73	0,90	2,40	4,50	0,73	0,90
ZBF 90 B 8/2	8	40	0,20	690	2,80	1,95	0,50	0,78	2,60	1,95	0,50	0,78	2,50	1,95	0,50	0,78
	2	40	0,80	2765	4,10	3,60	0,79	0,81	4,00	3,60	0,79	0,81	3,80	3,60	0,79	0,81
ZBF 80 A 12/4	12	15	0,06	415	2,60	1,00	0,71	0,79	2,50	1,00	0,71	0,79	2,40	1,00	0,71	0,79
	4	40	0,25	1380	1,80	2,80	0,64	0,88	1,70	2,80	0,64	0,88	1,60	2,80	0,64	0,88

Motor size	No. of poles	CDF	P_N	n_N	380-400 V, 50 Hz, 3 ~ (CE)				415 V, 50 Hz, 3 ~ (CE)				500 V, 50 Hz, 3 ~ (CE)			
		[%]	[kW]	[rpm]	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A
ZBF 63 A 8/2	8	40	0,06	675	0,66	1,40	0,59	0,78	0,64	1,40	0,59	0,78	0,59	1,40	0,59	0,78
	2	40	0,25	2745	0,95	2,70	0,71	0,88	0,92	2,70	0,71	0,88	0,76	2,70	0,71	0,88
ZBF 71 A 8/2	8	40	0,09	675	0,76	1,60	0,61	0,78	0,73	1,60	0,61	0,78	0,61	1,60	0,61	0,78
	2	40	0,34	2785	1,00	3,50	0,73	0,85	1,00	3,50	0,73	0,85	0,84	3,50	0,73	0,85
ZBF 80 A 8/2	8	40	0,13	630	1,45	1,20	0,64	0,90	1,35	1,20	0,64	0,90	1,15	1,20	0,64	0,90
	2	40	0,50	2790	1,45	4,50	0,73	0,90	1,35	4,50	0,73	0,90	1,15	4,50	0,73	0,90
ZBF 90 B 8/2	8	40	0,20	690	1,50	1,95	0,50	0,78	1,45	1,95	0,50	0,78	1,20	1,95	0,50	0,78
	2	40	0,80	2765	2,30	3,60	0,79	0,81	2,20	3,60	0,79	0,81	1,80	3,60	0,79	0,81
ZBF 80 A 12/4	12	15	0,06	415	1,50	1,00	0,71	0,79	1,40	1,00	0,71	0,79	1,20	1,00	0,71	0,79
	4	40	0,25	1380	0,97	2,80	0,64	0,88	0,93	2,80	0,64	0,88	0,78	2,80	0,64	0,88

Motor size	No. of poles	CDF	P_N	n_N	525 V, 50 Hz, 3 ~ (CE)			
		[%]	[kW]	[rpm]	I_N [A]	I_A/I_N	cos φ_N	cos φ_A
ZBF 63 A 8/2	8	40	0,06	675	0,51	1,40	0,59	0,78
	2	40	0,25	2745	0,72	2,70	0,71	0,88
ZBF 71 A 8/2	8	40	0,09	675	0,58	1,60	0,61	0,78
	2	40	0,34	2785	0,80	3,50	0,73	0,85
ZBF 80 A 8/2	8	40	0,13	630	1,10	1,20	0,64	0,90
	2	40	0,50	2790	1,10	4,50	0,73	0,90
ZBF 90 B 8/2	8	40	0,20	690	1,15	1,95	0,50	0,78
	2	40	0,80	2765	1,75	3,60	0,79	0,81
ZBF 80 A 12/4	12	15	0,06	415	1,10	1,00	0,71	0,79
	4	40	0,25	1380	0,74	2,80	0,64	0,88

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Motor size	No. of poles	CDF	P_N	n_N	220 V, 60 Hz, 3 ~ (CE/cCSAus)				230 V, 60 Hz, 3 ~ (CE/cCSAus)				240 V, 60 Hz, 3 ~ (CE/cCSAus)			
		[%]	[kW]	[rpm]	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A
ZBF 63 A 8/2	8	40	0,07	825	1,45	1,40	0,58	0,77	1,40	1,40	0,58	0,77	1,35	1,40	0,58	0,77
	2	40	0,30	3345	2,10	2,70	0,70	0,87	2,00	2,70	0,70	0,87	1,90	2,70	0,70	0,87
ZBF 71 A 8/2	8	40	0,11	825	1,70	1,60	0,60	0,77	1,60	1,60	0,60	0,77	1,50	1,60	0,60	0,77
	2	40	0,41	3385	2,30	3,50	0,72	0,84	2,20	3,50	0,72	0,84	2,10	3,50	0,72	0,84
ZBF 80 A 8/2	8	40	0,16	780	3,10	1,20	0,63	0,89	3,00	1,20	0,63	0,89	2,90	1,20	0,63	0,89
	2	40	0,60	3390	3,10	4,50	0,72	0,89	3,00	4,50	0,72	0,89	2,90	4,50	0,72	0,89
ZBF 90 B 8/2	8	40	0,24	840	3,30	1,95	0,49	0,77	3,20	1,95	0,49	0,77	3,00	1,95	0,49	0,77
	2	40	0,96	3365	5,00	3,60	0,78	0,80	4,80	3,60	0,78	0,80	4,60	3,60	0,78	0,80
ZBF 80 A 12/4	12	15	0,07	515	3,20	1,00	0,70	0,78	3,00	1,00	0,70	0,78	2,90	1,00	0,70	0,78
	4	40	0,30	1680	2,10	2,80	0,63	0,87	2,00	2,80	0,63	0,87	1,90	2,80	0,63	0,87

Motor size	No. of poles	CDF	P_N	n_N	380 V, 60 Hz, 3 ~ (CE)				400 V, 60 Hz, 3 ~ (CE)				440 V, 60 Hz, 3 ~ (CE/cCSAus)			
		[%]	[kW]	[rpm]	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A
ZBF 63 A 8/2	8	40	0,07	825	0,84	1,40	0,58	0,77	1,80	1,40	0,58	0,77	0,73	1,40	0,58	0,77
	2	40	0,30	3345	1,20	2,70	0,70	0,87	1,15	2,70	0,70	0,87	1,05	2,70	0,70	0,87
ZBF 71 A 8/2	8	40	0,11	825	0,96	1,60	0,60	0,77	0,91	1,60	0,60	0,77	0,83	1,60	0,60	0,77
	2	40	0,41	3385	1,30	3,50	0,72	0,84	1,30	3,50	0,72	0,84	1,10	3,50	0,72	0,84
ZBF 80 A 8/2	8	40	0,16	780	1,80	1,20	0,63	0,89	1,70	1,20	0,63	0,89	1,55	1,20	0,63	0,89
	2	40	0,60	3390	1,80	4,50	0,72	0,89	1,70	4,50	0,72	0,89	1,55	4,50	0,72	0,89
ZBF 90 B 8/2	8	40	0,24	840	1,90	1,95	0,49	0,77	1,80	1,95	0,49	0,77	1,65	1,95	0,49	0,77
	2	40	0,96	3365	2,90	3,60	0,78	0,80	2,70	3,60	0,78	0,80	2,50	3,60	0,78	0,80
ZBF 80 A 12/4	12	15	0,07	515	1,80	1,00	0,70	0,78	1,70	1,00	0,70	0,78	1,60	1,00	0,70	0,78
	4	40	0,30	1680	1,20	2,80	0,63	0,87	1,20	2,80	0,63	0,87	1,10	2,80	0,63	0,87

Motor size	No. of poles	CDF	P_N	n_N	460 V, 60 Hz, 3 ~ (CE/cCSAus)				480 V, 60 Hz, 3 ~ (CE/cCSAus)				575 V, 60 Hz, 3 ~ (CE/cCSAus)			
		[%]	[kW]	[rpm]	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A	I_N [A]	I_A/I_N	cos φ_N	cos φ_A
ZBF 63 A 8/2	8	40	0,07	825	0,69	1,40	0,58	0,77	0,67	1,40	0,58	0,77	0,56	1,40	0,58	0,77
	2	40	0,30	3345	0,99	2,70	0,70	0,87	0,95	2,70	0,70	0,87	0,79	2,70	0,70	0,87
ZBF 71 A 8/2	8	40	0,11	825	0,79	1,60	0,60	0,77	0,76	1,60	0,60	0,77	0,63	1,60	0,60	0,77
	2	40	0,41	3385	1,10	3,50	0,72	0,84	1,00	3,50	0,72	0,84	0,87	3,50	0,72	0,84
ZBF 80 A 8/2	8	40	0,16	780	1,50	1,20	0,63	0,89	1,45	1,20	0,63	0,89	1,20	1,20	0,63	0,89
	2	40	0,60	3390	1,50	4,50	0,72	0,89	1,45	4,50	0,72	0,89	1,20	4,50	0,72	0,89
ZBF 90 B 8/2	8	40	0,24	840	1,60	1,95	0,49	0,77	1,50	1,95	0,49	0,77	1,25	1,95	0,49	0,77
	2	40	0,96	3365	2,40	3,60	0,78	0,80	2,30	3,60	0,78	0,80	1,90	3,60	0,78	0,80
ZBF 80 A 12/4	12	15	0,07	515	1,50	1,00	0,70	0,78	1,50	1,00	0,70	0,78	1,20	1,00	0,70	0,78
	4	40	0,30	1680	1,00	2,80	0,63	0,87	0,97	2,80	0,63	0,87	0,81	2,80	0,63	0,87

2.16 ZBA AC motor electric key data

Travel motor data (Temporary voltage tolerances of ± 10% and temporary frequency tolerances of ± 2% are possible.)
Motors are rated to insulation class F.
The motor current values are calculated for an ambient temperature of 60 °C.

Trolley load capacity [kg]	Trolley size	V [m/min]	Motor size	Brake Separate 400 V AC (180 V DC) power supply	No. of poles	P_N [kW]	CDF [%]	n_N [rpm]	I_N [A]	M_K/M_N	cos φ_N	Recommended Dedrive Compact frequency inverter
Y 220 V, 50 Hz, 3 ~ (CE/$_C$CSA$_{US}$)												
1100	EU11	16	ZBA 63 B4	B003	4	0,18	60	1390	1,5	2,55	0,57	STO DIC-4-002
		20	ZBA 63 B4									
		30	ZBA 63 B4									
		40	ZBA 63 B4									
2200	EU22-C	20	ZBA 63 B4									
		28	ZBA 71 A4			0,25		1385	2,0	2,6	0,55	
		40	ZBA 71 A4									STO DIC-4-004
		50	ZBA 71 A4									
3400	EU34	20	ZBA 71 A4									STO DIC-4-002
		28	ZBA 71 A4									STO DIC-4-004
		40	ZBA 71 A4									
5600	EU56	20	ZBA 71 A4	B007								STO DIC-4-002
		24	ZBA 71 A4									
		40	ZBA 80 A4			0,55		1420	3,0	2,7	0,68	STO DIC-4-004

2.17 DRF 200 friction-wheel travel drive with travel motor for profile-section girders

2.17.1 Use

DC chain hoists coupled to DRF 200 friction-wheel travel drives can be used for the following applications: inclined travel, special speeds, frequency-regulated speeds, but also for poor track conditions, wet and dirty tracks, for example.

Drive control

A Polu box for DC-Pro 1 to 15 or a trolley module for DC-Pro 16 to 25 are needed to control the motor.

2.17.2 Track

I-beam girders and box-section girders that have parallel flanges can be used tracks.

Curve radii

Minimum average horizontal curve radius				
Flange width b	[mm]	≥ 100	< 200	< 300
Curve radius $R_{hor\ min}$	[mm]	> 800	> 850	> 900
Minimum average vertical curve radius (gradient radius)				
Flange thickness t	[mm]	10 - 19	20 - 25	28 - 30
Curve radius $R_{vert\ min}$	[mm]	> 2000	> 2500	> 3000

In the interest of good travel characteristics, we recommend the use of much larger curve radii,

- Wear of the travel wheels is highly dependent on the curve radius. The forces required to move the load may strongly increase in the case of small curve radii in connection with high loads.
- The travel wheels and guide rollers may display increased wear in installations featuring intensive operation.

I-beam tracks should be bent with the utmost care to obtain an even and regular curve. Ready-made curved sections are available for our special track.

For further information, see “DRF 200 travel drive assembly instructions” document, refer to the table on page 19.

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2.17.3 Selection table

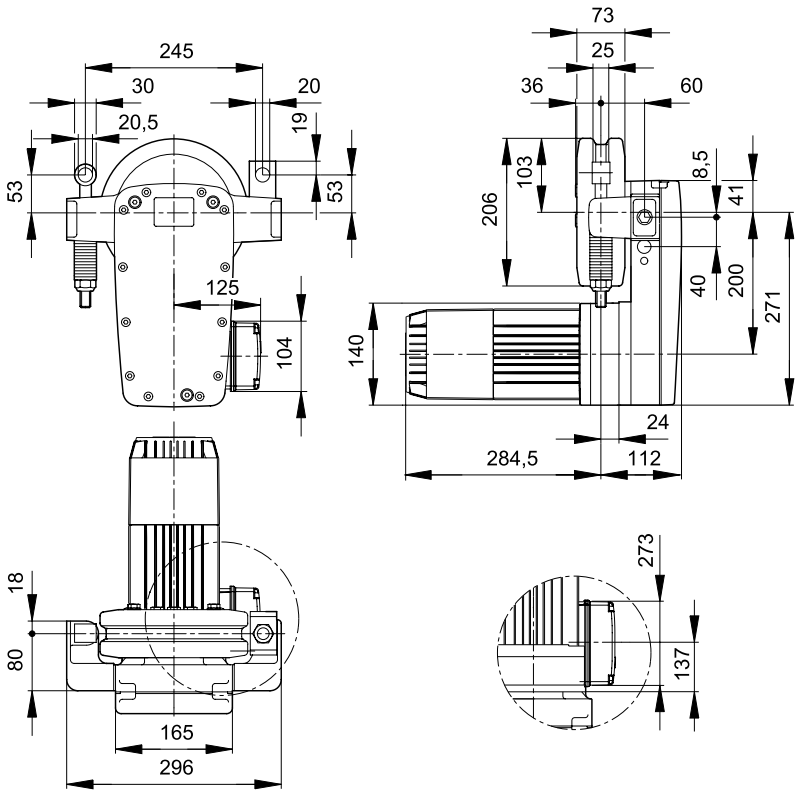
Load capacity [kg]	Possible travel speeds [m/min]	Travel drive	Brake	i_{ges}
ZBF motor, 2 travel speeds				
1500	10/40	ZBF 63 A8/2	B004	43,7
2000	8/31,5	ZBF 63 A8/2		55,1
2200	10/40	ZBF 71 A8/2		43,7
2500	6,3/25	ZBF 63 A8/2		68,9
	8/50	ZBF 80 A12/2	B020	34,6
	12,5/50	ZBF 80 A8/2		
2800	8/31,5	ZBF 71 A8/2	B004	55,1
3000	5/20	ZBF 63 A8/2		84,6
3400	6,3/25	ZBF 71 A8/2	B004	68,9
3500	6,3/40	ZBF 80 A12/2	B020	43,7
	10/40	ZBF 80 A8/2		
4000	4/25	ZBF 80 A12/2	B020	67
	6,3/25	ZBF 80 A8/2		
4200	5/20	ZBF 71 A8/2	B004	84,6
4500	5/31,5	ZBF 80 A12/2	B020	54,6
	8/31,5	ZBF 80 A8/2		
KBF motor, 2 travel speeds				
1750	8/31,5	KBF 71 A 8/2	-	56
1990	10/40	KBF 71 B 8/2		44,4
2200	6,3/25	KBF 71 A 8/2		68,8
2530	8/31,5	KBF 71 B 8/2		56
2710	5/20	KBF 71 A 8/2		85,9
3180	6,3/25	KBF 71 B 8/2		68,8
3930	5/20	KBF 71 B 8/2		85,9

2.17.4 Electric key data

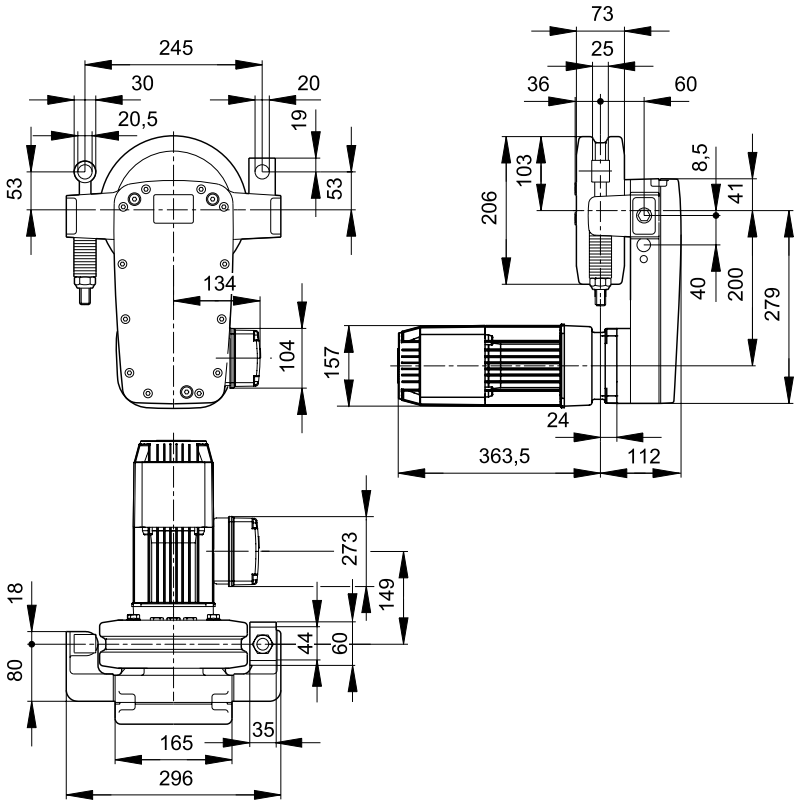
Size	P_N	n_N	I_N for 50 Hz, 3 ~			I_A/I_N	cos φ_N	M_N	M_A/M_N	M_H	J_{mot}	A	M_{BStd}	Weight
			230 V	400 V	500 V									
	[kW]	[rpm]	[A]	[A]	[A]			[Nm]		[Nm]	[kgm²]	[1/h]	[Nm]	[kg]
ZBF motor														
ZBF 63 A 8/2 B004	0,06	675	1,20	0,66	0,53	1,40	0,59	0,85	2,20	1,70	0,00461	720	1,3	12,5
	0,25	2745	1,70	0,95	0,76	2,65	0,71	0,87	2,10	1,50		550		
ZBF 71 A 8/2 B004	0,09	675	1,40	0,76	0,61	1,60	0,61	1,25	2,70	2,50	0,00692	620	1,8	13
	0,34	2785	1,80	1,00	0,80	3,50	0,73	1,15	2,60			500		
ZBF 80 A 8/2 B020	0,13	630	2,10	1,20	0,96	1,25	0,64	1,95	2,10	3,50	0,01275	620	3,3	19,5
	0,50	2790	2,50	1,40	1,10	4,50	0,73	1,70	2,60	4,00		500		
ZBF 80 A 12/2 B020	0,06	415	2,70	1,50	1,20	1,00	0,71	1,40	2,40	3,00		620		
	0,50	2790	2,50	1,40	1,20	4,50	0,73	1,70	2,60	4,00		500		
KBF motor														
KBF 71 A 8/2	0,04	640	On request	0,76	On request	1,25	0,71	0,60	3,20	1,70	3,8	1400	1,1	9,6
	0,20	2650		0,62		3,55	0,80	0,72	2,50	1,50		600		
KBF 71 B 8/2	0,06	660		1,20		1,15	0,55	0,87	4,40	2,50	3,9	1250	1,6	11,0
	0,30	2750		1,10		3,55	0,70	1,05	3,10	2,70		500		

2.17.5 Dimensions

A)



B)



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Item	Designation	Item	Designation
A)	DRF 200 with ZBF 63/71 motor	B)	DRF 200 with ZBF 80 motor

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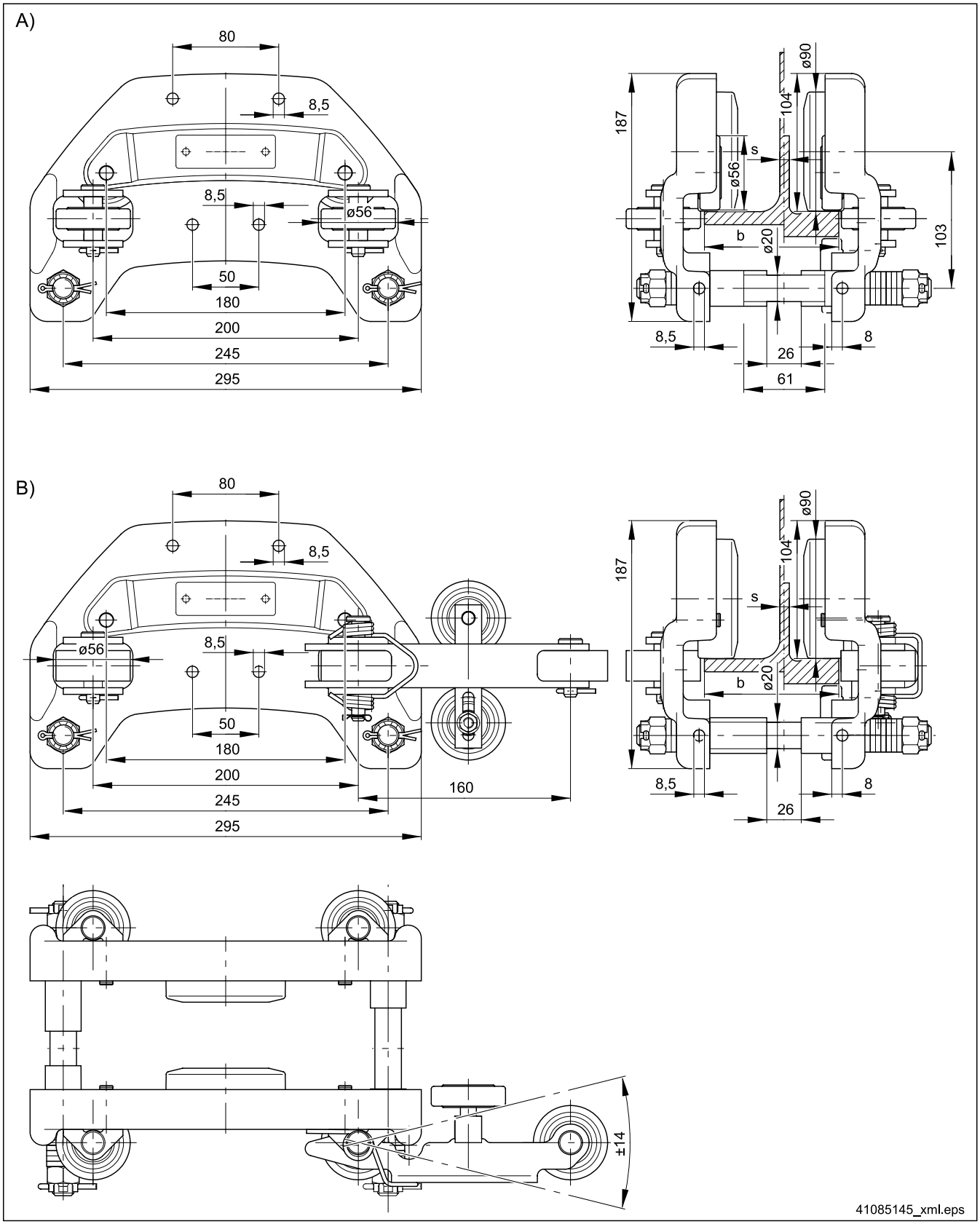
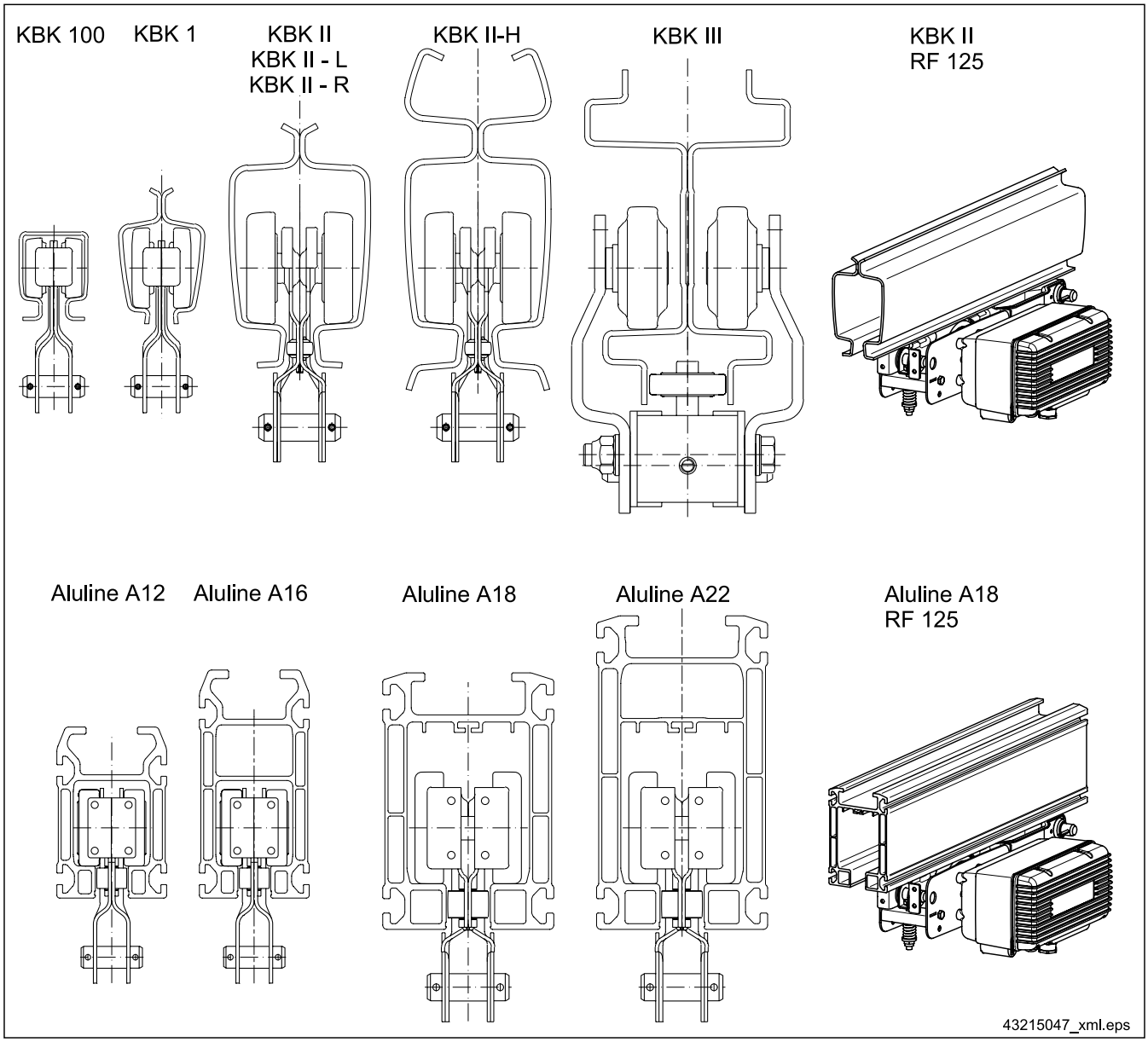
2.17.6 Trolley for DRF 200 for profile-section girders



Item	Designation	Item	Designation
A)	Trolley for straight travel as tractor trolley	B)	Trolley with curve travel guide arm as tractor trolley

2.18 KBK track



When selecting a track, we recommend you specify the special profile sections of our Demag KBK crane construction kit. They off particularly smooth operation, low rolling resistance and a low deadweight. The cold-rolled track sections feature a smooth running surface and offer the advantage of simple power supply via trailing cables or integrated conductor lines.

KBK profile sections can also be used for more complex installations, including curved sections, track switches and turntables. Special fittings on KBK profile sections, e.g. for terminal boxes or limit switches, avoid any obstruction by suspension pins, bolt heads, clamping plates and joint flanges.

For further information on trolleys and power supply, refer to the table on page 19.

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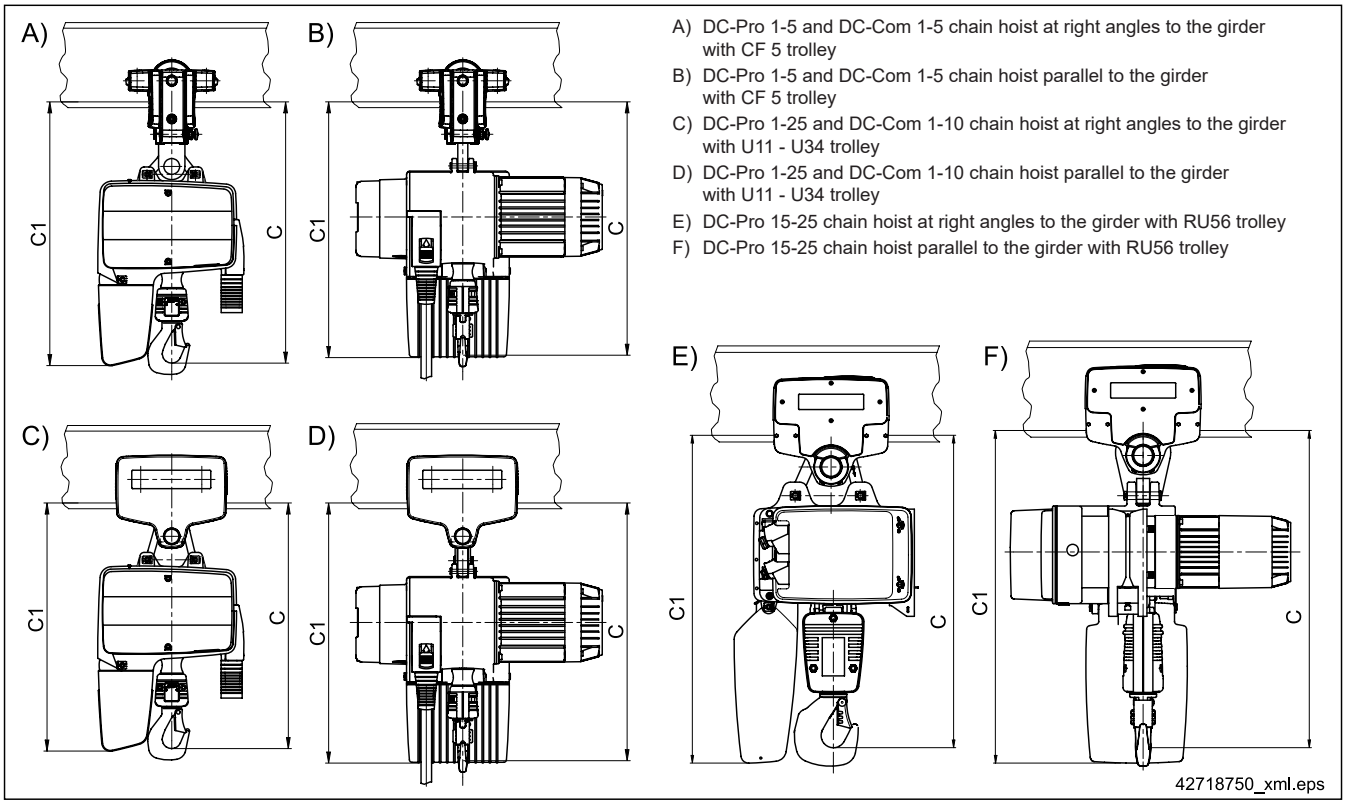
2.19 Hook dimension C with trolleys



A) DC-Pro 1-5 and DC-Com 1-5 chain hoist at right angles to the girder with CF 5 trolley
B) DC-Pro 1-5 and DC-Com 1-5 chain hoist parallel to the girder with CF 5 trolley
C) DC-Pro 1-25 and DC-Com 1-10 chain hoist at right angles to the girder with U11 - U34 trolley
D) DC-Pro 1-25 and DC-Com 1-10 chain hoist parallel to the girder with U11 - U34 trolley
E) DC-Pro 15-25 chain hoist at right angles to the girder with RU56 trolley
F) DC-Pro 15-25 chain hoist parallel to the girder with RU56 trolley

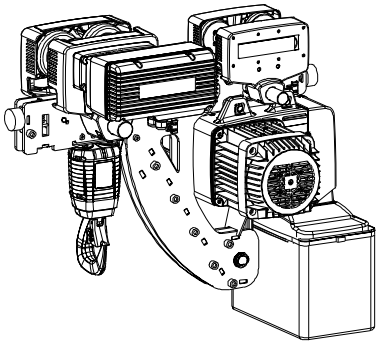
Chain hoist size [1]	Reeving	Motor size	Trolley	(A), (C), (E) chain hoist at right angles to girder						(B), (D), (F) chain hoist parallel to girder					
				C [2]	C1 with chain collector size (hook path)					C [2]	C1 with chain collector size (hook path)				
		ZNK …			H5	H8	S	1	2		H5	H8	S	1	2
DC 1/2	1/1	71 …	CF 5	406	415	445	-	-	-	401	410	440	-	-	-
			U11	416	425	455				410	419	449			
DC 5		80 …	CF 5	458	477	507				453	472	502			
			U11	468	487	517				462	481	511			
DC 10		100 A 8/2	U11	557	578	667				581	602	691			
			U22	569	590	679				593	614	703			
		100 B 8/2	U11	557	667	667				581	691	691			
			U22	569	679	679				593	703	703			
	2/1		U22/U34	661	679	729				685	703	753			
DC 15	1/1	100 B 8/2	U22/U34	662	-	-	727 (H9)	847 (H16)	927 (H26)	694	-	-	759 (H9)	879 (H16)	959 (H26)
			RU56	678			743 (H9)	863 (H16)	943 (H26)	710			775 (H9)	895 (H16)	975 (H26)
	2/1		U22/U34	772			727 (H4)	847 (H8)	927 (H13)	804			759 (H4)	879 (H8)	959 (H13)
			RU56	788			743 (H4)	863 (H8)	943 (H13)	820			775 (H4)	895 (H8)	975 (H13)
DC 16	1/1	100 …	U22	704			-	877 (H16)	957 (H26)	736			-	909 (H16)	989 (H26)
	2/1		U34	799				877 (H8)	957 (H13)	831				909 (H8)	989 (H13)
DC 25	1/1	100 …		704				877 (H10)	957 (H18)	736				909 (H10)	989 (H18)
	2/1		RU56	850				893 (H5)	973 (H9)	882				925 (H5)	1005 (H9)

1) Dimensions C and C1 decrease when the short suspension bracket is used:
by 38 mm for DC 1 - 5 units,
by 33 mm for DC 10 units.

2) Dimension C is increased by 42 mm for chain hoists with v=16/4 or v=12/3.
Dimension C is increased by 111 mm for DC 5 chain hoists with v=24/6.
Dimension C is increased by 131 mm for DC 10 chain hoists with v=24/6.
For DC-Com sizes 1-2, dimension C is reduced by 11 mm, for size 5 by 16 mm and for size 10 by 12 mm.

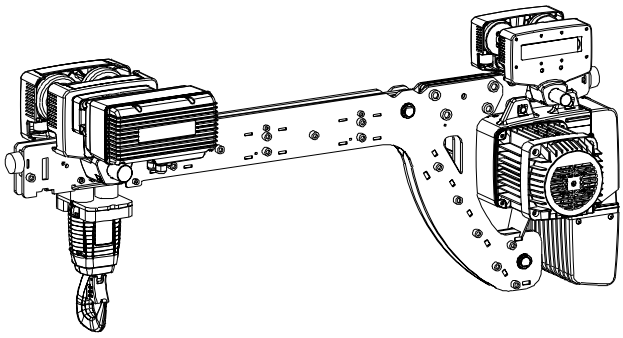
3 Chain hoist models

3.1 Overview of travelling chain hoist models

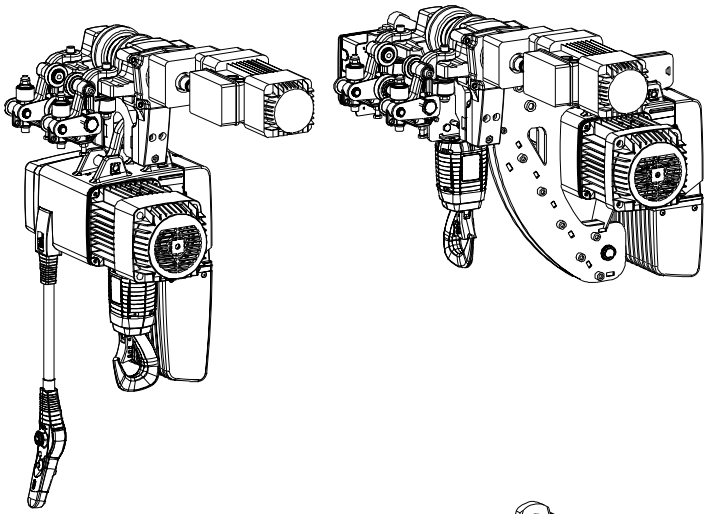


Application:
Designation:
Model:

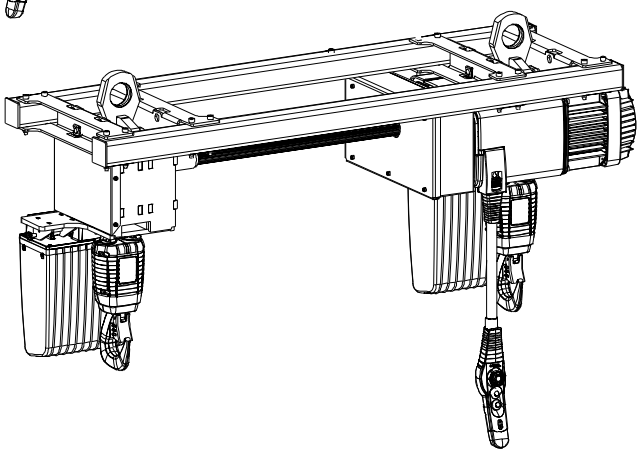
- For restricted headroom
- Low-headroom travelling hoist
- KDC



- For restricted headroom (big bag applications)
- Low-headroom travelling hoist with extended hook lead-off
- KLDC



- For travel on curved track
- Standard and low-headroom articulated travelling hoist
- UDDC and KDDC



- For handling long goods with 2 mechanically synchronised hook lead-offs
- Double chain hoist with connecting shaft
- LDC-D

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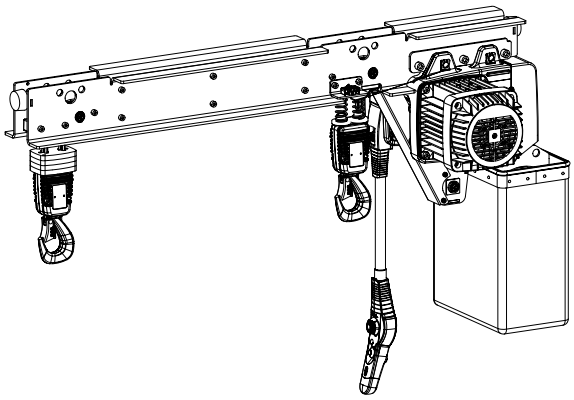
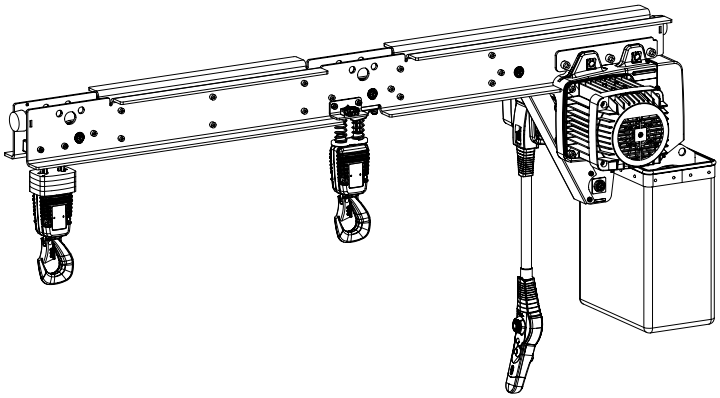
Application:

Designation:

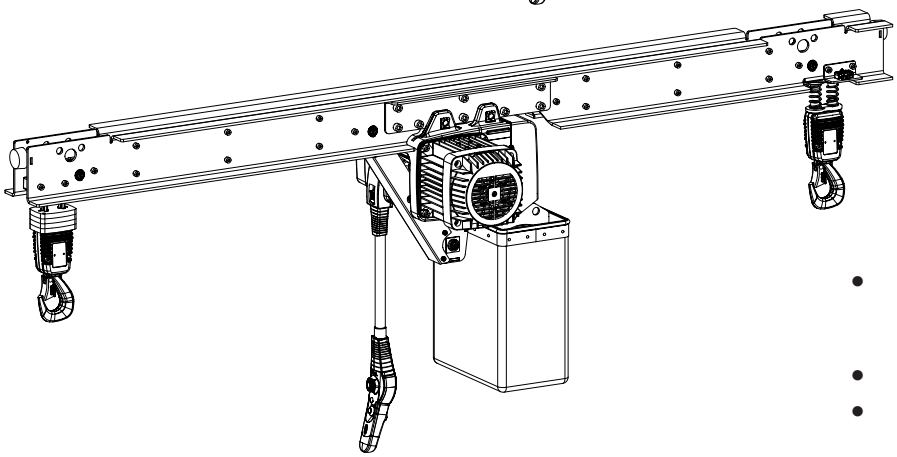
Model:



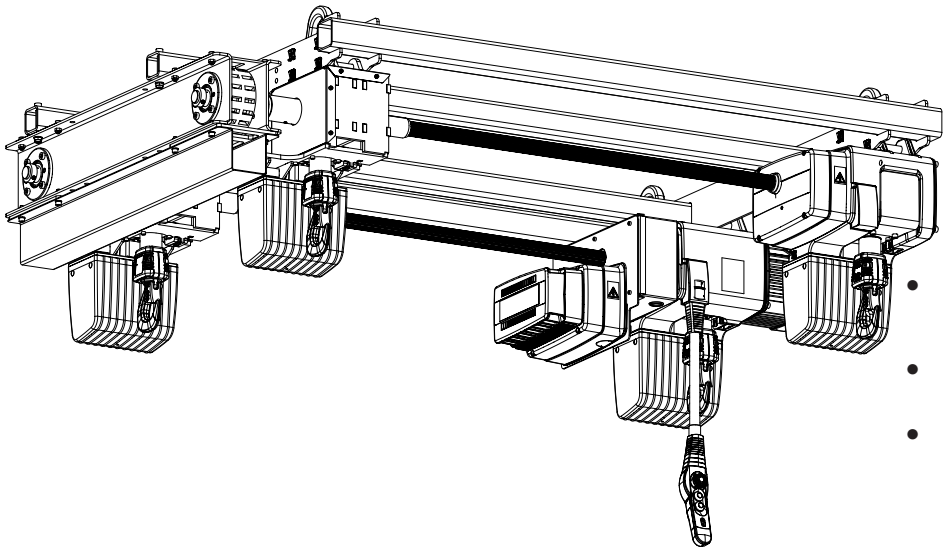
- For handling long goods with 2 mechanically synchronised hook lead-offs, 2/4 lead-off position
- Low-headroom double chain hoist
- KLDC-D



- For handling long goods with 2 mechanically synchronised hook lead-offs, 3/4 lead-off position
- Low-headroom double chain hoist
- KLDC-D



- For handling long goods with 2 mechanically synchronised hook lead-offs, 4/5 lead-off position
- Low-headroom double chain hoist
- KLDC-D



- For chassis or spreader beam transport with 4 mechanically synchronised hook lead-offs
- Quadro chain hoist with connecting shafts
- LDC-Q

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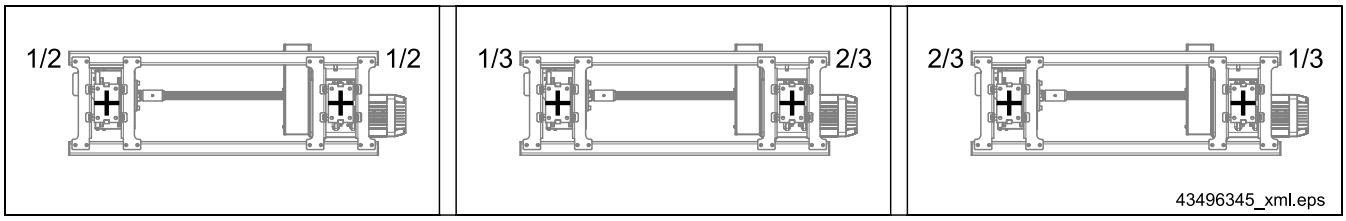
3.2 Load distribution

3.2.1 LDC-D double chain hoist

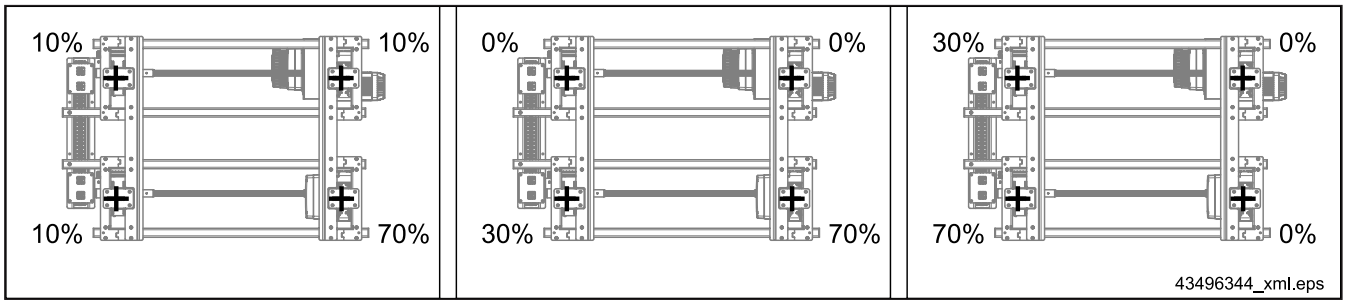


Distribution of the load must not exceed 1/3 to 2/3.
The load must be distributed equally on KBK trolleys.

3.2.2 KLDC-D double chain hoist

Load distribution is as for LCD-D double chain hoists.

3.2.3 LDC-Q quadro chain hoist



For further information, see “LDC-D double chain hoist assembly instructions” and “LDC-Q quadro chain hoist assembly instructions” documents, refer to the table on page 19.

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3.3 KDC/KLDC low-headroom travelling hoist

3.3.1 Use

The particularly compact, short KDC monorail travelling hoist offers extremely low headroom for optimum utilisation of the hook path.

3.3.2 Properties

KDC and KLDC chain hoists are based on DC-Pro/DCS-Pro chain hoists with the following features:

- All KDC/KLDC units are equipped with operating limit switches for the highest and lowest hook positions.
- The C dimension includes the cut-off spring for limit-switch cut-off at the highest hook position.
- The FEM classification of the drive mechanism and the FEM rating of the chain are each reduced by one group due to the two additional return arrangements for the chain.
- The FEM specifications in the selection tables refer to the drive mechanism. In individual cases, the FEM rating for the chain drive can differ from this.
- Owing to the additional chain return arrangements, increased chain vibration may occur as a result of the polygon effect, particularly at higher lifting speeds. For this reason, types with V24/6 m/min are not offered.
- HS7 and RS6 special chains with reduced load capacity are not available due to the additional chain return arrangements.
- Longer hook paths are only possible for the given ranges with a flexible collector bag without counterweight or rolling beam with supporting roller.
- A suspension ring, suspension hook or ZMS cannot be attached.
- The crab frame is electro-coated in black, small parts are galvanized. The crab frame cannot be supplied with special colours.
- Travel on curved tracks is only possible with KBK or RKDDC/EKDDC.
- The maximum flange width of the trolleys is 310 mm.
- Supporting rollers cannot be attached. Trolley buffers are not required, since the crab frame is buffered.
- The E11 - E34 travel drive is always equipped with a VG dual-output gearbox for two-wheel drive.
- The travel drive of a driven EKDC low-headroom monorail hoist is always fitted to the load trolley.
- Trolley flange widths:
  - KDC/KLDC 5: 66-310 mm,
  - KDC/KLDC 10 ≤ 1000 kg: 58-310 mm,
  - KDC/KLDC 10 > 1000 kg: 74-310 mm,
- Max. flange thickness:
  - KDC/KLDC 5 with U11 + RU3/2 trolleys = 22 mm,
  - KDC/KLDC 10 with U11 trolleys = 16 mm,
  - KDC/KLDC 10 with U22 trolleys = 30 mm.
- Travelling hoists can be supplied for conventional controls with ZBF/ZBA AC motors.

For further information, see “KDC low-headroom travelling hoist assembly instructions” document, refer to the table on page 19.

KDC/KLDC low-headroom travelling hoist as DC-Pro, DC-ProDC (2 lifting speeds)

Load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size [2]	Max. weight for hook path [3] 5 m [kg]	Max. weight for hook path [3] 8 m [kg]
160/200/250	5	1/1	3m/M6	5,3x15,2	16,0/4,0	19,2/4,8	3	ZNK 80 B 8/2	40	42
315					8,0/2,0	9,6/2,4				
	10			7,4x21,2	12,0/3,0	14,4/3,6		ZNK 100 A 8/2	75	79
400	5		2m/M5	5,3x15,2	8,0/2,0	9,6/2,4		ZNK 80 B 8/2	40	42
	10		3m/M6	7,4x21,2	12,0/3,0	14,4/3,6		ZNK 100 A 8/2	75	79
500	5		1Am/M4	5,3x15,2	8,0/2,0	9,6/2,4		ZNK 80 B 8/2	40	42
	10		3m/M6	7,4x21,2	12,0/3,0	14,4/3,6		ZNK 100 A 8/2	75	79
630	5	2/1		5,3x15,2	4,0/1,0	4,8/1,2		ZNK 80 B 8/2	45	49
	10	1/1		7,4x21,2	6,0/1,5	7,2/1,8		ZNK 100 A 8/2	75	79
					12,0/3,0	14,4/3,6		ZNK 100 B 8/2	83	87
800	5	2/1	2m/M5	5,3x15,2	4,0/1,0	4,8/1,2		ZNK 80 B 8/2	45	49
	10	1/1		7,4x21,2	6,0/1,5	7,2/1,8		ZNK 100 A 8/2	75	79
					12,0/3,0	14,4/3,6		ZNK 100 B 8/2	83	87
1000	5	2/1	1Am/M4	5,3x15,2	4,0/1,0	4,8/1,2		ZNK 80 B 8/2	45	49
	10	1/1		7,4x21,2	6,0/1,5	7,2/1,8		ZNK 100 A 8/2	75	79
					12,0/3,0	14,4/3,6		ZNK 100 B 8/2	83	91
1250		2/1	3m/M6		6,0/1,5	7,2/1,8				
1600			2m/M5							
2000			1Am/M4							

KDC/KLDC low-headroom travelling hoist as DC-Com (2 lifting speeds)

Load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size [2]	Max. weight for hook path [3] 4 m [kg]
315	5	1/1	2m/M5	5,3x15,2	4,5/1,1	5,4/1,3	3	ZNK 80 A 8/2	39
400/500			1Am/M4						
630	10		2m/M5	7,4x21,2	4,0/1,0	4,8/1,2		ZNK 100 A 8/2	74
800/1000			1Am/M4						
1250		2/1	2m/M5					ZNK 100 B 8/2	81
1600/2000			1Am/M4						

KDC/KLDC low-headroom travelling hoist as DCS-Pro, DC-ProFC (variable lifting speeds)

Load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed at 50/60 Hz [4] [5] vs_{rated} [m/min]	Lifting speed at 50/60 Hz [4] [5] vs_{max} [m/min]	Hook path H from [m]	Motor size [2]	Max. weight for hook path [3] 5 m [kg]	Max. weight for hook path [3] 8 m [kg]
315	5	1/1	3m/M6	5,3x15,2	0,08-8	15	3	ZNK 80 A 4	42	44
	10			7,4x21,2	0,11-12	22		ZNK 100 A 4	77	81
400	5		2m/M5	5,3x15,2	0,08-8	15		ZNK 80 A 4	42	44
	10		3m/M6	7,4x21,2	0,11-12	22		ZNK 100 A 4	77	81
500	5		1Am/M4	5,3x15,2	0,08-8	15		ZNK 80 A 4	42	44
	10		3m/M6	7,4x21,2	0,11-12	22		ZNK 100 A 4	77	81
630	5	2/1		5,3x15,2	0,04-4	7		ZNK 80 A 4	46	48
	10	1/1		7,4x21,2	0,06-6	11		ZNK 100 A 4	81	85
					0,11-12	22			89	93
800	5	2/1	2m/M5	5,3x15,2	0,04-4	7		ZNK 80 A 4	46	48
	10	1/1		7,4x21,2	0,06-6	11		ZNK 100 A 4	81	85
					0,11-12	22			89	93
1000	5	2/1	1Am/M4	5,3x15,2	0,04-4	7		ZNK 80 A 4	46	48
	10	1/1		7,4x21,2	0,06-6	11		ZNK 100 A 4	81	85
					0,11-12	22			89	93
1250		2/1	3m/M6		0,06-6	11			95	99
1600			2m/M5							
2000			1Am/M4							

2) See electric key data page for key motor data.

3) Weight of chain hoist with crab frame.

4) vs_{min} corresponds to a control ratio vs_{min} : vs_{max} of 1 : 200 (default setting 1 : 100). vs_{max}, vs_{rated}, vs_{min}, acceleration time and deceleration time can be changed by programming parameters on the control pendant (see DCS-Pro chain hoist operating instructions). Max. lifting speed in the partial load range/ without load

5) For DC-ProFC only rated lifting speed vs_{rated} applies.

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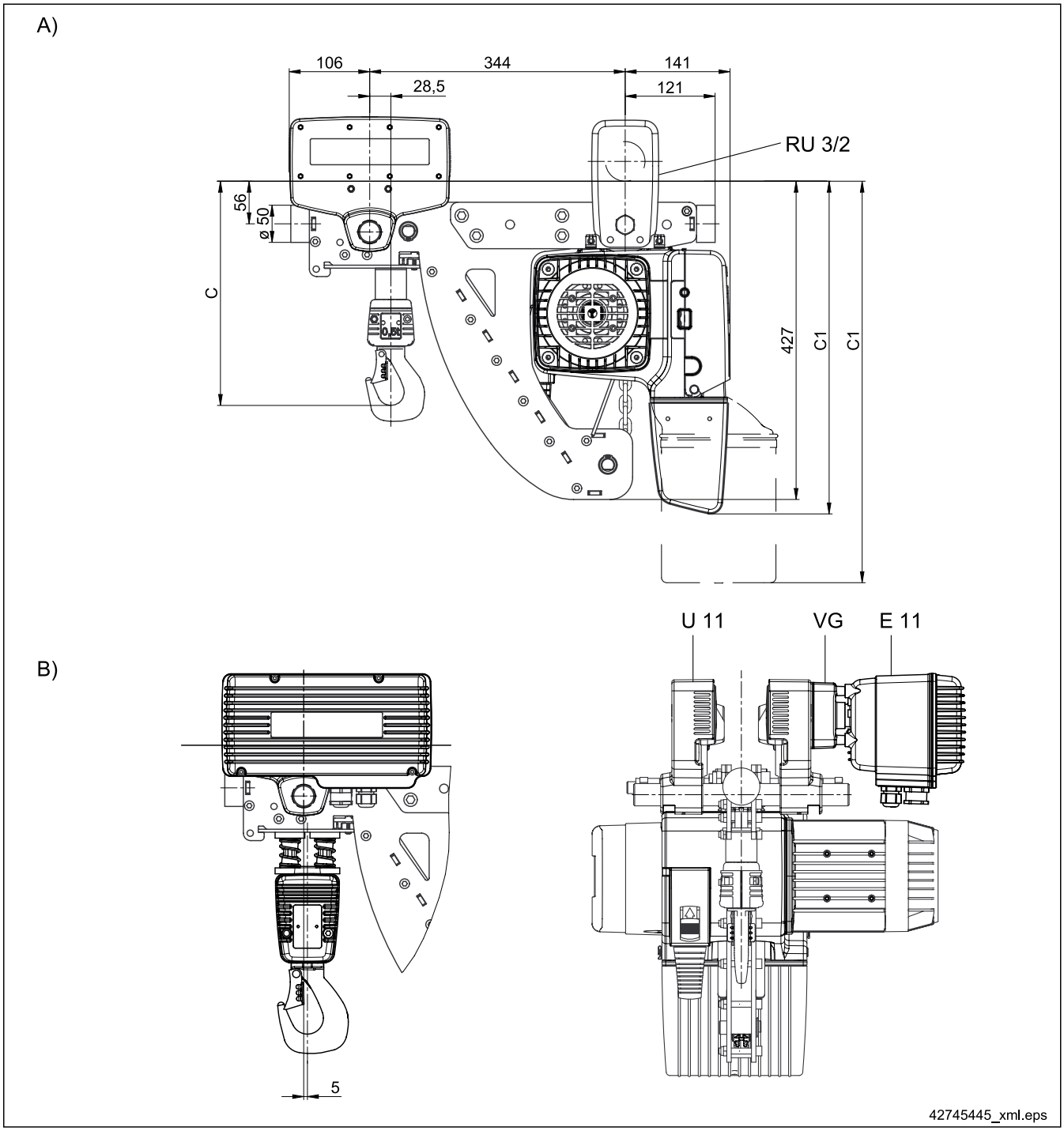
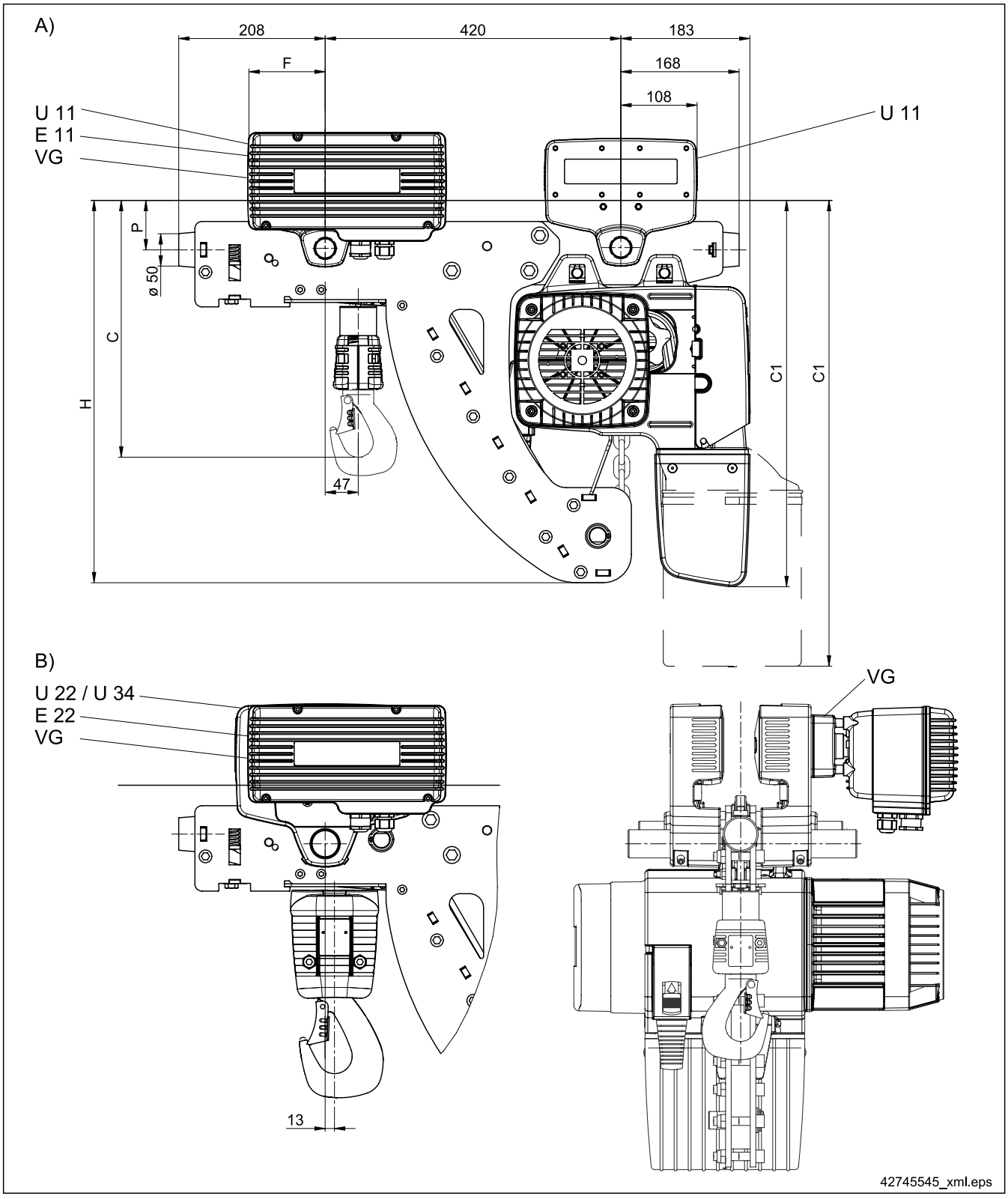
3.3.4 Dimensions

3.3.4.1 KDC 5



Chain hoist size	Reeving	Item	C [mm]	C1 [mm]		
				H5	H8	H25
KDC 5	1/1	A	300	446	476	540
	2/1	B	386	540	540	-

3.3.4.2 KDC 10



Chain hoist size	Reeving	Item	Trolley	C [mm]	C1 [mm]			F [mm]	H [mm]	P [mm]
					H5	H8	H20			
KDC 10	1/1	A	U11	353	539	628	631	110	533	60
	2/1	B	U22/U34	432	638	641	-	128	543	70

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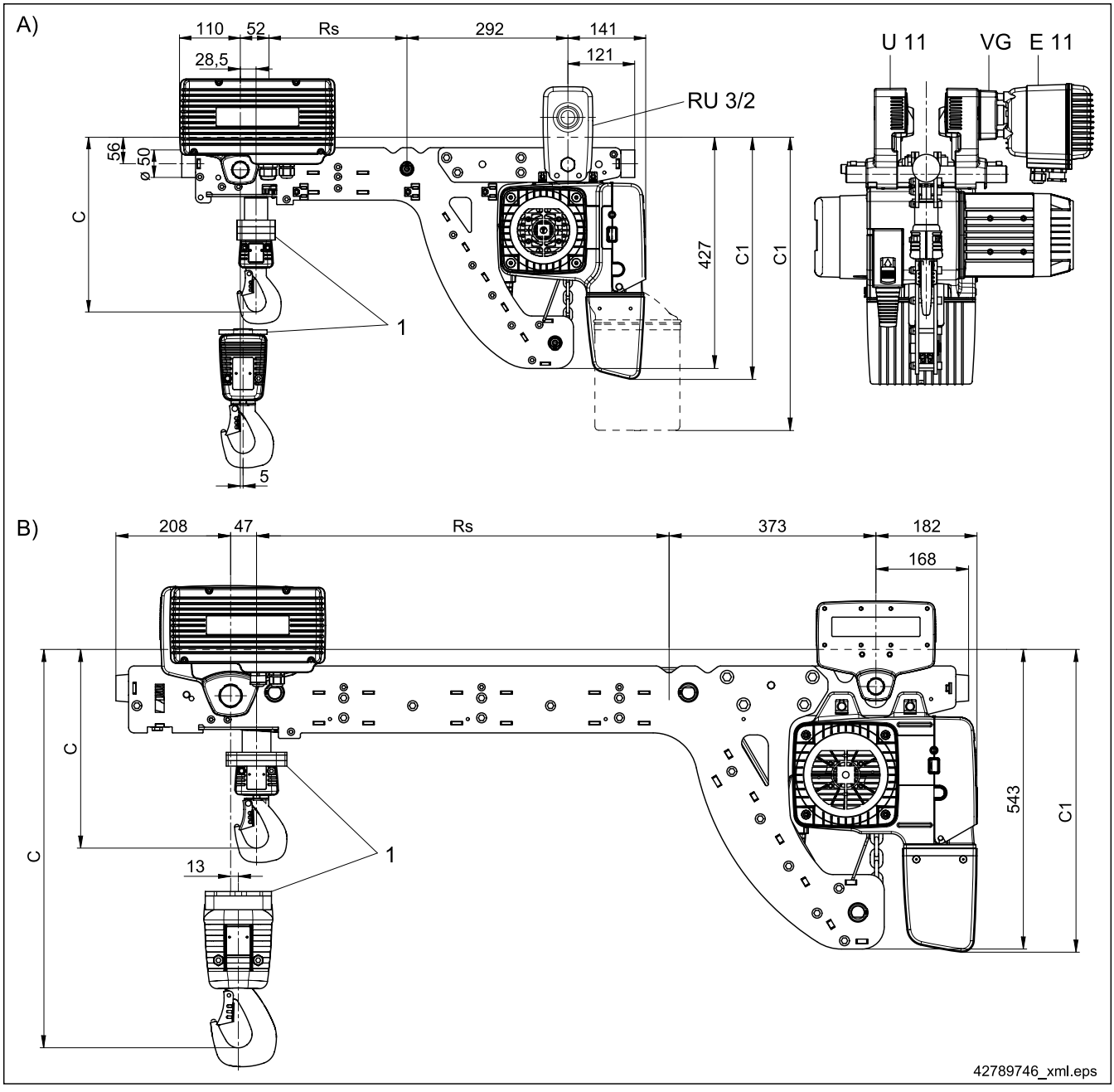
3.3.4.3 KLDC with extended distance between hooks (for big bag applications)



Chain hoist size	Reeving	Trolley	C [mm]	C1 [mm]			Total length for grid pitch Rs [mm]					
				H5	H8	H20	250	500	750	1000	1250	1500
KLDC 5 (item A)	1/1	U11 + RU 3/2	324	446	476	540	845	1095	1345	1595	1845	2095
	2/1		412	540	540	-						
KLDC 10 (item B)	1/1	U11	368	539	628	614	1060	1310	1560	1810	2060	2310
	2/1	U22/U34	440	638	624	-						

Use

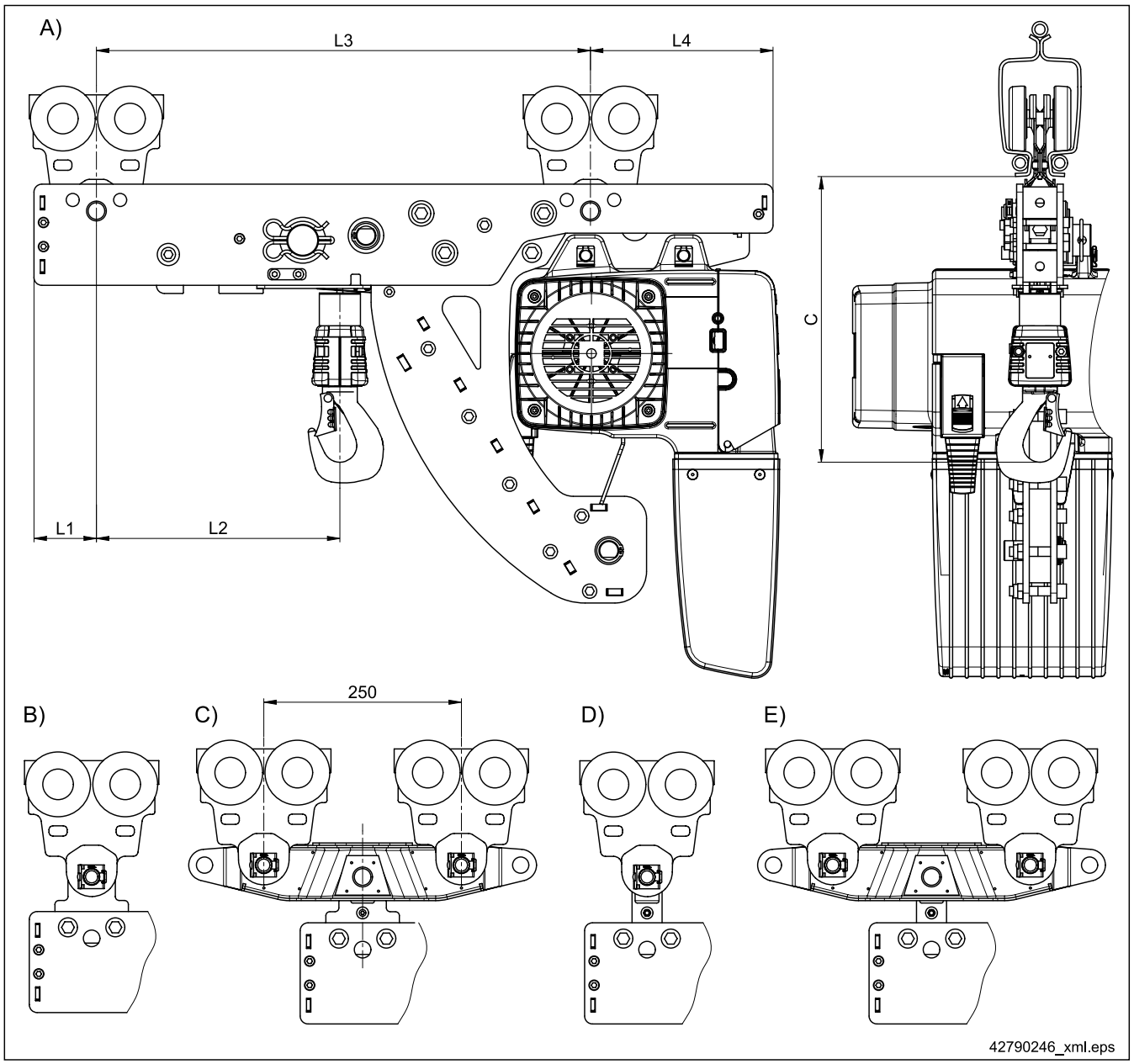
KLDC low-headroom travelling hoists with extended hook distance are used for handling big bags with a wide load bar, for example.

Properties

The low-headroom travelling hoist can be extended in steps of 250 mm up to max. 1500 mm, which corresponds to the distance between the two upper return sprockets.

Additional weight (1) increases the mass of the unloaded hook assembly/bottom block. This prevents the chain from snagging when lowering.

3.3.4.4 KDC with KBK II



Item	Designation	Item	Designation
A)	Short type with single trolley (not for driven trolleys)	D)	Curve travel with single trolley
B)	Straight travel with single trolley	E)	Curve travel with articulated frame
C)	Straight travel with articulated frame		

Load capacity	Chain hoist size	Reeving	C dimension from lower edge of KBK II section					L1	L2	L3	L4
			A)	B)	C)	D)	E)				
[kg]			[mm]								
≤ 500	KDC5	1/1	285	366	518	380	395	73	369	684	104
≤ 1000		2/1	437	518		532	547		346		
≤ 1000	KDC10	1/1	361	439	454	453	468	79	308	625	231
> 1000			-	-		-					
≤ 2000		2/1	-	-	554	-	568		275		

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3.3.5 Trolley and travel drive combinations

U11 - U34 and E11 - E34

Load capacity [kg]	Chain hoist size KDC		Flange width [mm]	Max. flange thickness [1] [mm]	Load trolley [2]	Auxiliary trolley [2]	Travel drive	Dual-output gearbox
≤ 1000	5	Non-driven	58 - 200	22	U11 - 200	RU3/2	-	-
			201 - 310		U11 - 310		-	-
		Driven	58 - 200		U11 - 200		E11	VG 11 - 34
			201 - 310		U11 - 310			
≤ 1000	10	Non-driven	58 - 200	16	U11 - 200	U11 - 200	-	-
			201 - 310		U11 - 310	U11 - 310	-	-
		Driven	58 - 200		U11 - 200	U11 - 200	E11	VG 11 - 34
			201 - 310		U11 - 310	U11 - 310		
≤ 2000		Non-driven	82 - 200	22	U22 - 200	U11 - 200	-	-
			201 - 310		U34 - 310	U11 - 310	-	-
		Driven	82 - 200		U22 - 200	U11 - 200	E22-C	VG 11 - 34
			190 - 200			U22 - 200		
			201 - 310		U34 - 310	U11 - 310	E34	
						U34 - 310		

RU/EU 11 DK and RU/EU 22 DK

Load capacity [kg]	Chain hoist size KDC-ProDC		Flange width [mm]	Max. flange thickness [mm]	Load trolley	Auxiliary trolley	Travel drive
≤ 1000	5	Non-driven	78 - 300	16 [3]	RU 11 DK	RU 3/2	-
		Driven			EU 11 DK		13/* PKF
≤ 2000	10	Non-driven	82 - 300	22 [4]	RU 22 DK	RU11	-
		Driven			EU 22 DK		13/* PKF

1) Optional trolley/drive combination EU/RU22 or EU/RU34 as load trolley and RU22 or RU34 as auxiliary trolley with up to 30 mm flange thickness.
2) U11 trolley with steel travel rollers on request
3) 27 mm without anti-run-off device
4) 28 mm without anti-run-off device

3.4 RUDDC and EUDDC 1 - 25/RKDDC and EKDDC 5 - 10 articulated trolley

3.4.1 Use

UDDC/KDDC monorail travelling hoists are equipped with articulated trolleys for travel on tight curve radii up to 800 mm. Guide rollers on the side ensure quiet and smooth operation on the track.

Standard-headroom or low-headroom travelling hoist versions are available.

The following must be considered:

- The travel motion should be switched to V1 at travel speeds of V2 > 20 m,
- The travel motion must be switched over to V1 in automatic installations and systems with radio control,

3.4.2 Properties

- Articulated trolley with two travel speeds,
- Flange width 82 - 300 mm, min. curve radius 800 mm,
- 24 V contactor control, DSE-10C control pendant,
- Cross-travel speed stages by means of PoluBox for articulated trolleys with DCS-Pro and DSE-10CS control pendant,
- Drop-stop arrangement: the wheel legs are designed in such a way that parts beside the travel wheels protrude into the track girder. If a wheel breaks, this part of the wheel leg acts as a drop stop.
- Chain hoist parallel to the track girder on request.

The following components are included:

- DC Polu-Box (to control the travel motor for DC 1 - 15 chain hoists) incl. fitting on the trolley,
- Trolley module (to control the travel motor for DC 16 - 25 chain hoists),
- Connecting cables to the travel drive,
- EUD articulated trolley.

3.4.3 Selection table with AMK/WUK motor/gearbox combination

<table>
<tr><th rowspan="2">Load capacity [kg]</th><th rowspan="2">Chain hoist size</th><th rowspan="2">Reeving</th><th colspan="4">Travel drive for possible cross-travel speeds in approx. ... m/min [1)]</th><th rowspan="2"></th></tr>
<tr><th>V12,5/3,15</th><th>V20/5</th><th>V31,5/8</th><th>V40/10</th></tr>
<tr><td>≤ 1000</td><td>1 - 15</td><td>1/1</td><td rowspan="11">ZBF 63 A 8/2
40% CDF
0,06/0,25 kW

AMK20TD i=88,5
WUK20DD i=90,1</td><td rowspan="5">ZBF 63 A 8/2
40% CDF
0,06/0,25 kW

AMK10DD i=52,5
WUK10DD i=48,3</td><td rowspan="3">ZBF 63 A 8/2
40% CDF
0,06/0,25 kW

AMK10DD i=35,0
WUK10DD i=35,3</td><td>ZBF 63 A 8/2
40% CDF
0,06/0,25 kW

AMK10DD i=28,3
WUK10DD i=27,5</td><td rowspan="11">Motor
Cyclic duration factor
Output

Gearbox + transmission ratio</td></tr>
<tr><td rowspan="2">1250</td><td>10</td><td>1/1</td><td rowspan="3">ZBF 71 A 8/2
40% CDF
0,09/0,34 kW

AMK10DD i=28,3
WUK10DD i=27,5</td></tr>
<tr><td>10</td><td>2/1</td></tr>
<tr><td>15, 16</td><td>1/1</td><td rowspan="2">ZBF 71 A 8/2
40% CDF
0,09/0,34 kW

AMK10DD i=35,0
WUK10DD i=35,3</td></tr>
<tr><td rowspan="2">1600</td><td>10</td><td>2/1</td></tr>
<tr><td>15, 16</td><td>1/1</td><td rowspan="3">ZBF 80 A 8/2
40% CDF
0,13/0,5 kW

AMK10DD i=28,3
WUK10DD i=27,5</td></tr>
<tr><td rowspan="2">2000</td><td>10, 15</td><td>2/1</td></tr>
<tr><td>25</td><td>1/1</td><td rowspan="3">ZBF 71 A 8/2
40% CDF
0,09/0,34 kW

AMK10DD i=52,5
WUK10DD i=56,2</td></tr>
<tr><td rowspan="3">2500</td><td>10</td><td rowspan="2">2/1</td><td rowspan="3">ZBF 80 A 8/2
40% CDF
0,13/0,5 kW

AMK10DD i=35,0
WUK10DD i=35,3</td></tr>
<tr><td>15, 16</td></tr>
<tr><td>25</td><td>1/1</td></tr>
<tr><td>3200</td><td>15, 16</td><td rowspan="3">2/1</td><td rowspan="3">ZBF 90 B 8/2
40% CDF
0,2/0,8 kW

AMK20DD i=28,0
WUK20DD i=27,9</td></tr>
<tr><td>4000</td><td rowspan="2">25</td><td>ZBF 71 A 8/2
40% CDF
0,09/0,34 kW

AMK20TD i=88,5
WUK20DD i=90,1</td><td>ZBF 80 A 8/2
40% CDF
0,13/0,5 kW

AMK10DD i=52,5
WUK10DD i=56,2</td><td>ZBF 90 B 8/2
40% CDF
0,2/0,8 kW

AMK30DD i=36,1
WUK20DD i=34,2</td></tr>
<tr><td>5000</td></tr>
</table>

For further information, see “KDDC/UDDC articulated trolley assembly instructions” document, refer to the table on page 19.

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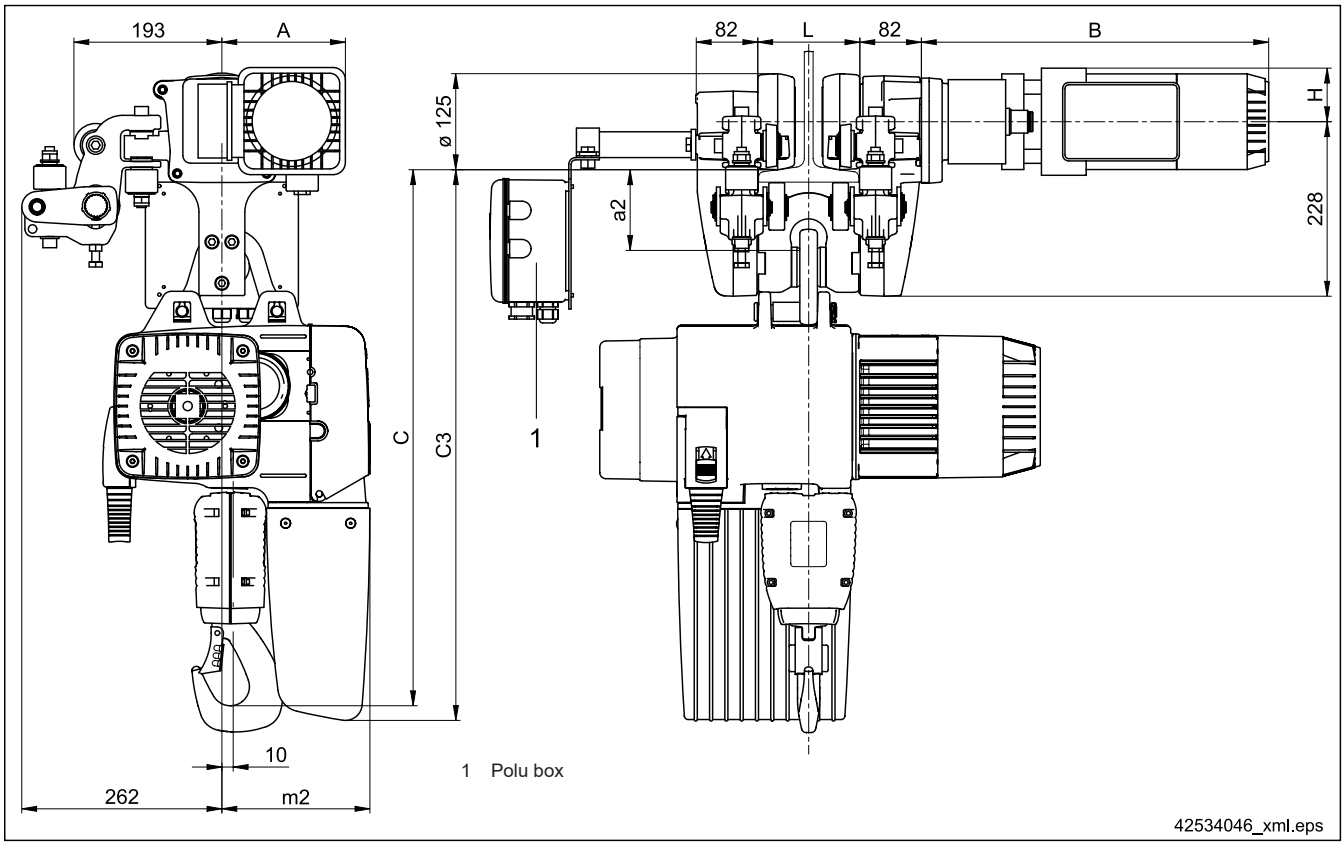
3.4.4 Dimensions

3.4.4.1 RUDDC/EUDDC standard-headroom travelling hoist



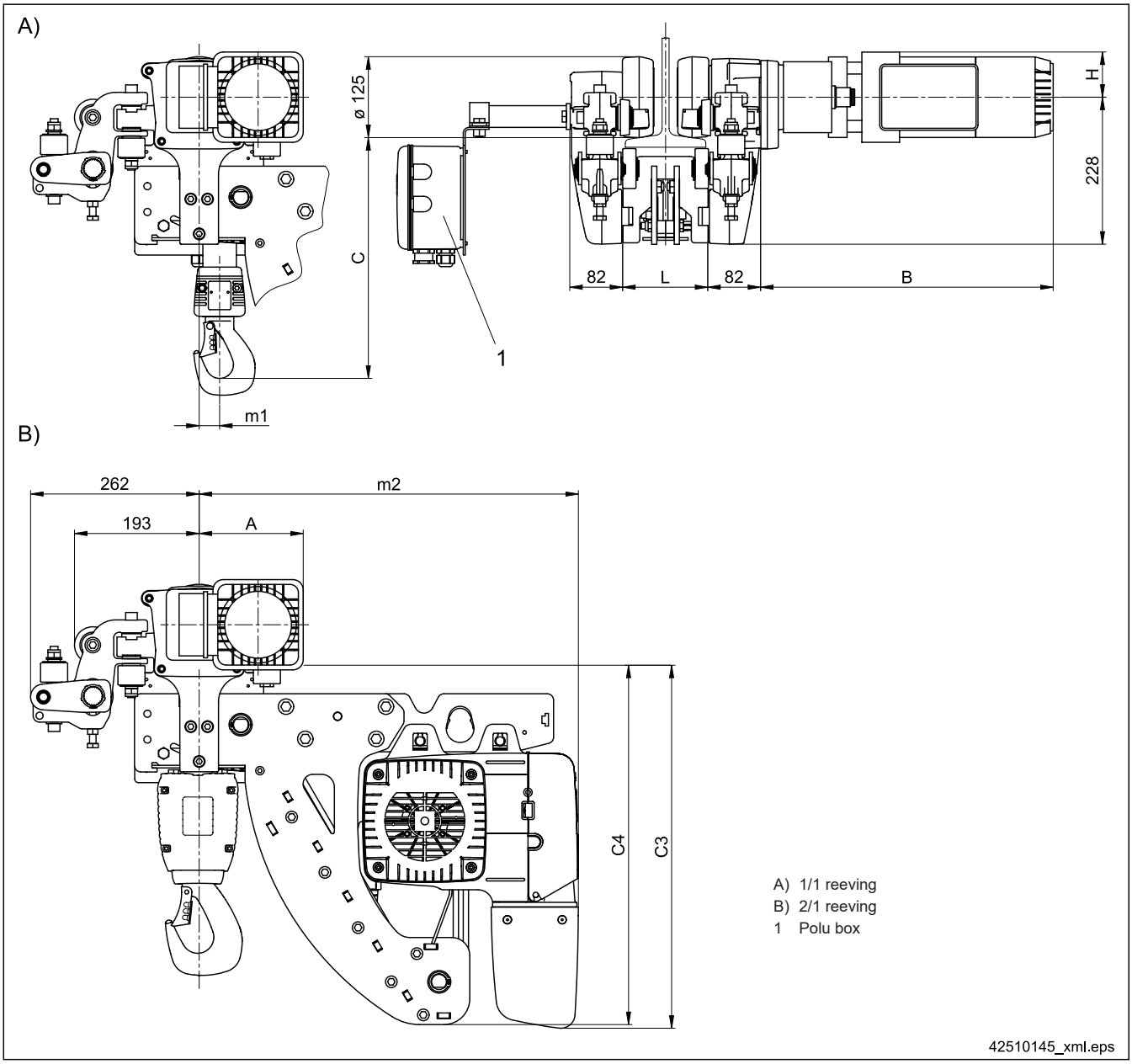
Chain hoist [1] DC-Pro, DCS-Pro	Reeving	C for flange width < 170 mm [2] [3] [mm]	Hook path	C3 [mm]	m2 [mm]
DC 1 - 2	1/1	469	H5	482	148
			H8	502	
			H25	566	203
DC 5	1/1	521	H5	532	151
			H8	562	
			H20	633	213
DC 10	1/1	610	H5	624	194
			H8	713	
			H20	736	267
	2/1	702	H5	713	194
			H8, H10	736	267
DC 15	1/1	705	H9	768	226
			H16	888	
			H26	968	
	2/1	815	H4	768	249
			H8	888	
			H13	968	
DC 16	1/1	745	H4, H16	919	245
			H26	999	255
	2/1	850	H4, H8	919	254
			H13	999	264
DC 25	1/1	745	H4, H10	919	245
			H18	999	255
	2/1	883	H4, H5	919	254
			H9	999	264

1) For dimensions A, B and H, see “AMK motor/gearbox combinations”. For dimension L see “Curve radii”.

2) Dimension C increases by 42 mm for chain hoists with v=16/4 or v=12/3; dimension C increases by 111 mm for DC 5 chain hoists with v=24/6; dimension C increases by 131 mm for DC 10 chain hoists with v=24/6.

3) < 170 mm flange width a2 = 105 mm. ≥ 170 mm flange width a2 = 140 mm.

3.4.4.2 RKDDC/EKDDC low-headroom travelling hoist



Chain hoist [1]	C for reeving		Hook path	C3	C4	m1 for reeving		m2 for reeving	
	1/1	2/1				1/1	2/1	1/1	2/1
KDDC 5	302	-	H5	450	430	28,5	5	485	-
			H8	480					
			H20	491				547	
KDDC 10	374	447	H5	563	558	32	0	588	588
			H8	652					661
			H20	667				661	-

1) For dimensions A, B and H, see “AMK motor/gearbox combinations”. For dimension L see “Curve radii”.

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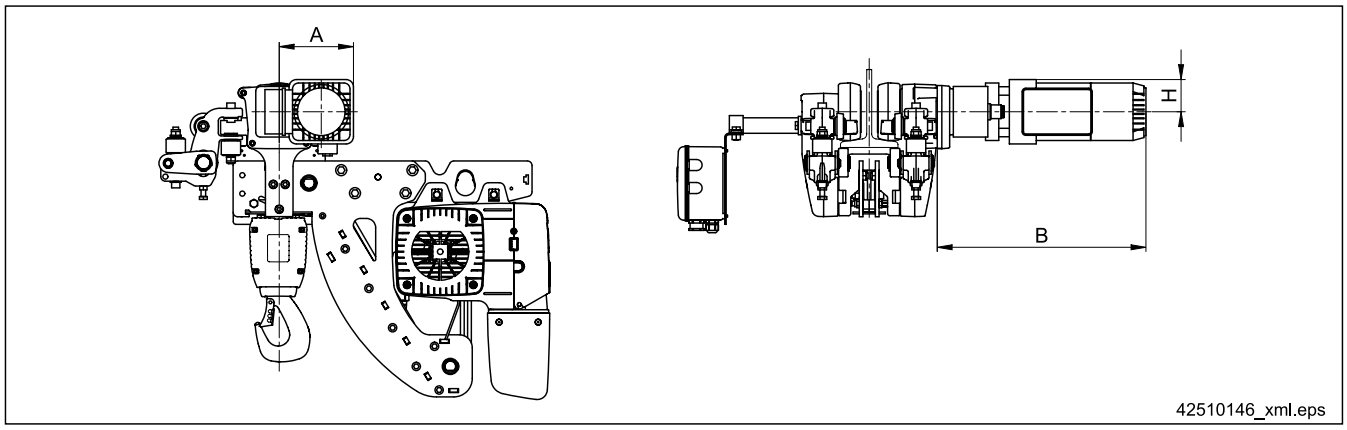
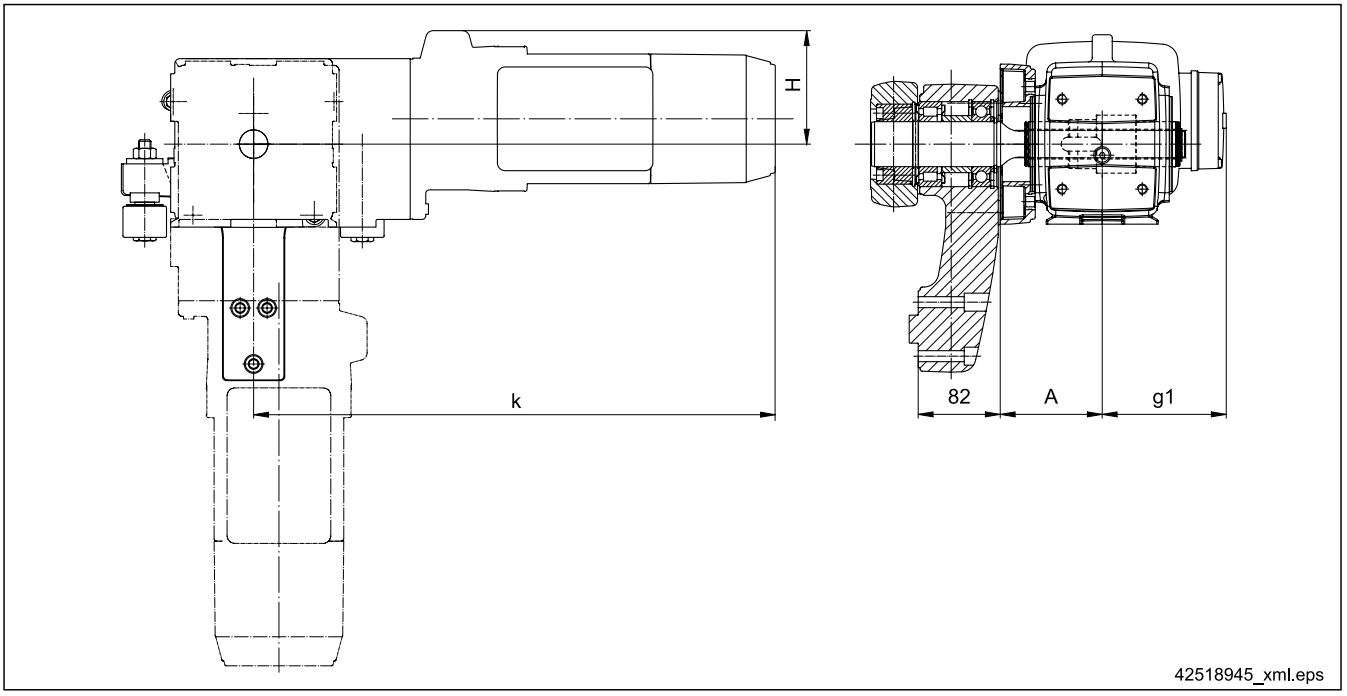
3.4.5 Travel drives

AMK motor/gearbox combination



Motor/gearbox combination	A [mm]	B [mm]	H [mm]	Weight [kg]
AMK10DD ZBF63A	161,5	457	70	16
AMK10DD ZBF71A				
AMK10DD ZBF80A	170	513	78,5	23
AMK20TD ZBF63A	174	468	70	18
AMK20TD ZBF71A				19
AMK20DD ZBF90B	202	568	98	34
AMK30DD ZBF90B	227,5	576		37

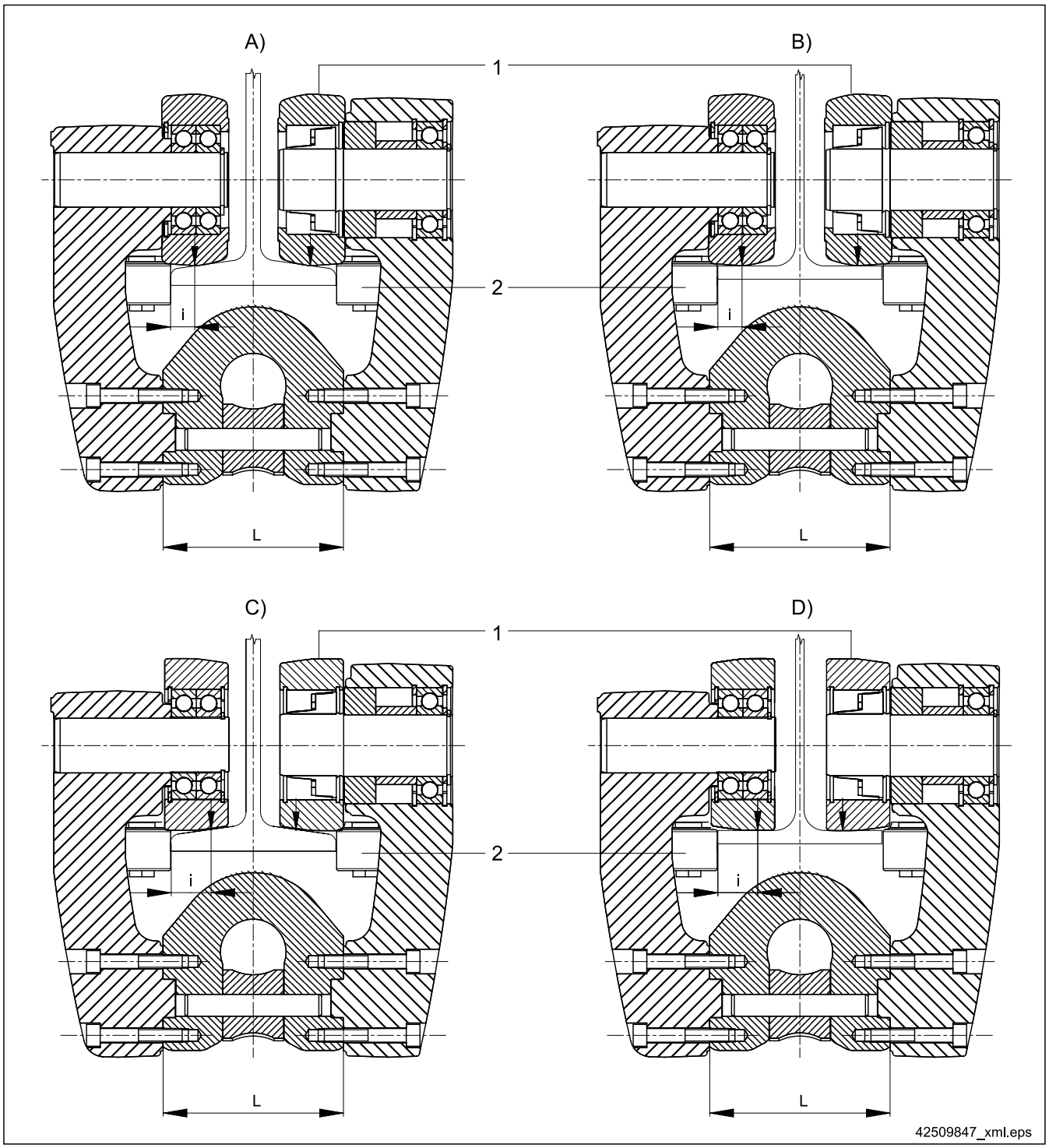
WUK motor/gearbox combination



Motor/gearbox combination	A [mm]	g1 [mm]	k [mm]	H [mm]	Weight [kg]
WUK10DD ZBF63A	95,5	124	488	83,5	18
WUK10DD ZBF71A					
WUK10DD ZBF80A		134	544		24
WUK20DD ZBF63A	105	124	566	70	21
WUK20DD ZBF71A					22
WUK20DD ZBF90B		150	605	98	37

1) See also section 2.13

3.4.6 Curve radii



A)	Combined travel wheel for medium to large flange widths, sloping flange 1	1	Travel wheel 125 mm dia. (drive side)
B)	Combined travel wheel for medium to large flange widths, parallel flange 2	2	Guide roller 42 mm dia.
C)	Adjustable travel wheel for small flange widths, sloping flange i	i	Wheel support point in mm (value for static calculation)
D)	Adjustable travel wheel for small flange widths, parallel flange L	L	Length of bearing support in mm

I-beam with sloping flanges INP [1]																			
I-beam	180 [2]	200 [2]	220 [2]	240 [2]	260 [2]	280 [2]	300 [2]	320	340	360	380	400	425	450	475	500	550	600
Flange width	82	90	98	106	113	119	125	131	137	143	149	155	163	170	178	185	200	215
Rmin	1000	800	800	800	800	800	800	800	800	800	800	800	800	800	800	900	900	900
L	121	125	132	132	132	132	132	128	132	132	132	132	132	136	144	151	165	180
i	16	18	19,5	22,5	26	29	32	26,5	27,5	30,5	33,5	36,5	40,5	42	42	42	42,5	42,5

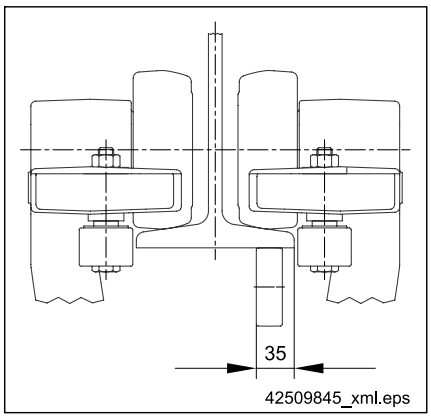
IPE I-beam centre width [1]														
I-beam	160 [2]	180 [2]	200 [2]	220 [2]	240	270	300	330	360	400	450	500	550	600
Flange width	82	91	100	110	120	135	150	160	170	180	190	200	210	220
Rmin	800	800	800	800	800	800	800	800	800	800	900	900	900	900
L	124	124	128	132	125	132	132	132	136	146	155	165	175	185
i	14,5	19	21,5	24,5	22,5	26,5	34	39	42	42	42,5	42,5	42,5	42,5

HE-A (HE-B) I-beam width [1]								
I-beam	160	180	200	220	240	260	280	300-1000 (300-600)
Flange width	160	180	200	220	240	260	280	300
Rmin	800	800	900	900	900	1000	1000	1000
L	132	146	165	185	204	224	243	263
i	42	42	42,5	42,5	43	43	43,5	43,5

HE-M I-beam width [1]							
I-beam	160	180	200	220	240	260	280
Flange width	166	186	206	226	248	268	288
Rmin	800	900	900	900	1000	1000	1000
L	132	152	171	190	212	232	251
i	42	42	42,5	43	43	43	43,5

1) Normal type with combined travel wheel, type with adjustable travel wheel possible on request.
2) With adjustable travel wheel only.

3.4.7 Track girder



Shape of the track girder

Do not exceed permissible deviations in dimension and shape of the track girder according to DIN EN 10034. Track joints must be clean and smooth, also below the track to a distance of 35 mm from the outer edge of the flange. Bolted joints must be outside the travel area of the travel wheels (observe maximum web thickness).

Material of the track girder

We recommend the use of at least S355J2G3 material, since track wear is ten times higher when S235JRG2 is used.

Track girders with sloping flanges

The load on the inner travel wheel is reduced if the trolley is used on tracks with sloping flanges. If this travel wheel is driven, it may start to slip under unfavourable circumstances. This effect increases with decreasing curve radii.

Curve radii

In the interest of good travel characteristics, we recommend the use of much larger curve radii. Wear of the travel wheels is highly dependent on the curve radius. The forces required to move the load may strongly increase in the case of small curve radii in connection with high loads.

3.4.8 Wheel load calculation (per wheel)

E/RUDDC: $R = \frac{1{,}06 \times (\text{load} + \text{deadweight})}{2}$ **E/RKDDC:** $R = \frac{(\text{Load} + \text{deadweight})}{2}$

Trolley + chain hoist deadweight	Weight [kg]
Driven trolley (without drive)	42
Non-driven trolley	40
Travel drive	
Stationary or KDC chain hoist	

3.5 LDC-D double chain hoist with connecting shaft

3.5.1 Use

Double chain hoists that have two mechanically synchronised chain lead-offs are particularly suited for handling long materials and for spreader operation. LDC-D or KLDC-D variants can be supplied. Two separate chain hoists with tandem control (but not with synchronised control) can also be used as an alternative for applications with two chain lead-offs.

3.5.2 Properties

- Possible variants: stationary, travelling, for operation with KBK and for articulated trolleys.
- Asymmetric load distribution is permitted:
  - distribution of the load must not exceed 1/3 to 2/3
  - the load must be distributed equally on KBK trolleys.
- EU trolley with VG dual-output gearbox on the chain hoist.
- The chain hoist drives a separate lifting block that has its own chain drive via a connecting shaft. Both chain lead-offs are rigidly connected to each other by a common frame.
- Hook centre distances from 550 mm to 3200 mm.
- The frame is reinforced with square-section tubes for hook centre distances > 2 m.
- C dimension similar to normal DC chain hoist.
- Suitable for higher speeds.
- Longer chain service life thanks to reduced polygon effect since there are no additional chain return sprockets.
- LDC-D units are not available as DC-Com units.

For further information, see “LDC-D double chain hoist assembly instructions” document, refer to the table on page 19.

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3.5.3 Selection table

LDC-D double chain hoist as DC-Pro, DC-ProDC (2 lifting speeds)

Load capacity [kg]	Total load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size [2]
2 x 40	80	5	2 x 1/1	4m/M7	5,3x15,2	24,0/6,0 [3]	28,8/7,2	3	ZNK 80 B 8/2
2 x 50	100								
2 x 65	125								
2 x 80	160					16,0/4,0	19,2/4,8		
						24,0/6,0 [3]	28,8/7,2		
2 x 100	200					16,0/4,0	19,2/4,8		
		10			7,4x21,2	24,0/6,0 [3]	28,8/7,2		ZNK 100 A 8/2
2 x 125	250	5			5,3x15,2	16,0/4,0	19,2/4,8		ZNK 80 B 8/2
		10			7,4x21,2	24,0/6,0 [3]	28,8/7,2		ZNK 100 A 8/2
2 x 160	315	5			5,3x15,2	8,0/2,0	9,6/2,4		ZNK 80 B 8/2
		10			7,4x21,2	12,0/3,0	14,4/3,6		ZNK 100 B 8/2
						24,0/6,0 [3]	28,8/7,2		
2 x 200	400	5		3m/M6	5,3x15,2	8,0/2,0	9,6/2,4		ZNK 80 B 8/2
		10		4m/M7	7,4x21,2	12,0/3,0	14,4/3,6		ZNK 100 A 8/2
				3m/M6		24,0/6,0 [3]	28,8/7,2		ZNK 100 B 8/2
2 x 250	500	5		2m+ [4]/M5+	5,3x15,2	8,0/2,0	9,6/2,4		ZNK 80 B 8/2
		10		4m/M7	7,4x21,2	12,0/3,0	14,4/3,6		ZNK 100 A 8/2
				2m+ [4]/M5+		24,0/6,0 [3]	28,8/7,2		ZNK 100 B 8/2
2 x 315	630			4m/M7		6,0/1,5	7,2/1,8		ZNK 100 A 8/2
						12,0/3,0	14,4/3,6		ZNK 100 B 8/2
2 x 400	800			3m/M6		6,0/1,5	7,2/1,8		ZNK 100 A 8/2
						12,0/3,0	14,4/3,6		ZNK 100 B 8/2
2 x 500	1000			2m+ [4]/M5+		6,0/1,5	7,2/1,8		ZNK 100 A 8/2
						12,0/3,0	14,4/3,6		
2 x 630	1250		2 x 2/1	4m/M7		6,0/1,5	7,2/1,8		ZNK 100 B 8/2
			2 x 1/1	1Am/M4		8,0/2,0	9,6/2,4		
		16	2 x 1/1	3m/M6	8,7x24,2	12,0/3,0	14,4/3,6		ZNK 100 C 8/2
2 x 800	1600	10	2 x 2/1	3m/M6	7,4x21,2	6,0/1,5	7,2/1,8		ZNK 100 B 8/2
		16	2 x 1/1	2m+ [4]/M5+	8,7x24,2	8,0/2,0	9,6/2,4		
				2m+ [4]/M5+		12,0/3,0	14,4/3,6		ZNK 100 C 8/2
2 x 1000	2000	10	2 x 2/1	2m+ [4]/M5+	7,4x21,2	6,0/1,5	7,2/1,8		ZNK 100 B 8/2
		25	2 x 1/1	2m+ [4]/M5+	10,5x28,2	8,0/2,0	9,6/2,4		ZNK 100 C 8/2
2 x 1250	2500	10	2 x 2/1	1Am/M4	7,4x21,2	4,0/1,0	4,8/1,2		ZNK 100 B 8/2
		16	2 x 2/1	3m/M6	8,7x24,2	6,0/1,5	7,2/1,8		ZNK 100 C 8/2
		25	2 x 1/1	1Am/M4	10,5x28,2	8,0/2,0	9,6/2,4		
2 x 1600	3200	16	2 x 2/1	2m+ [4]/M5+	8,7x24,2	4,0/1,0	4,8/1,2		ZNK 100 B 8/2
				2m+ [4]/M5+		6,0/1,5	7,2/1,8		ZNK 100 C 8/2
2 x 2000	4000	25		2m+ [4]/M5+	10,5x28,2	4,0/1,0	4,8/1,2		
2 x 2500	5000			1Am/M4					

3) Only with operating limit switch for lifting; operating limit switch for lowering on request (the lower end position must not be approached in normal operation).
4) 2m+ corresponds to a service life of 1900 hours at full load.

LDC-D double chain hoist as DCS-Pro, DC-ProFC (variable lifting speeds)

Load capacity [kg]	Total load capacity [kg]	Chain hoist size [1]	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed vs_{rated} [m/min]	Lifting speed vs_{max} [m/min]	Hook path H from [m]	Motor size [2]
2 x 160	315	5	2 x 1/1	4m/M7	5,3x15,2	0,08-8	15	3	ZNK 80 A 4
		10			7,4x21,2	0,11-12	22		ZNK 100 A 4
2 x 200	400	5		3m/M6	5,3x15,2	0,08-8	15		ZNK 80 A 4
		10		4m/M7	7,4x21,2	0,11-12	22		ZNK 100 A 4
2 x 250	500	5		2m+ [4]/M5+	5,3x15,2	0,08-8	15		ZNK 80 A 4
2 x 315	630	10		4m/M7	7,4x21,2	0,11-12	22		ZNK 100 A 4
						0,06-6	11		
						0,11-12	22		
2 x 400	800			3m/M6		0,06-6	11		
						0,11-12	22		
2 x 500	1000			2m+ [4]/M5+		0,06-6	11		
						0,11-12	22		
2 x 630	1250			1Am/M4		0,04-4	7		
			2 x 2/1	4m/M7		0,06-6	11		
2 x 800	1600			3m/M6					
2 x 1000	2000			2m+ [4]/M5+					
2 x 1250	2500			1Am/M4		0,04-4	7		

1) LDC-D not available as DC-ProFC 5.
2) See “Electric key data” section for key motor data.
4) 2m+ corresponds to a service life of 1900 hours at full load.

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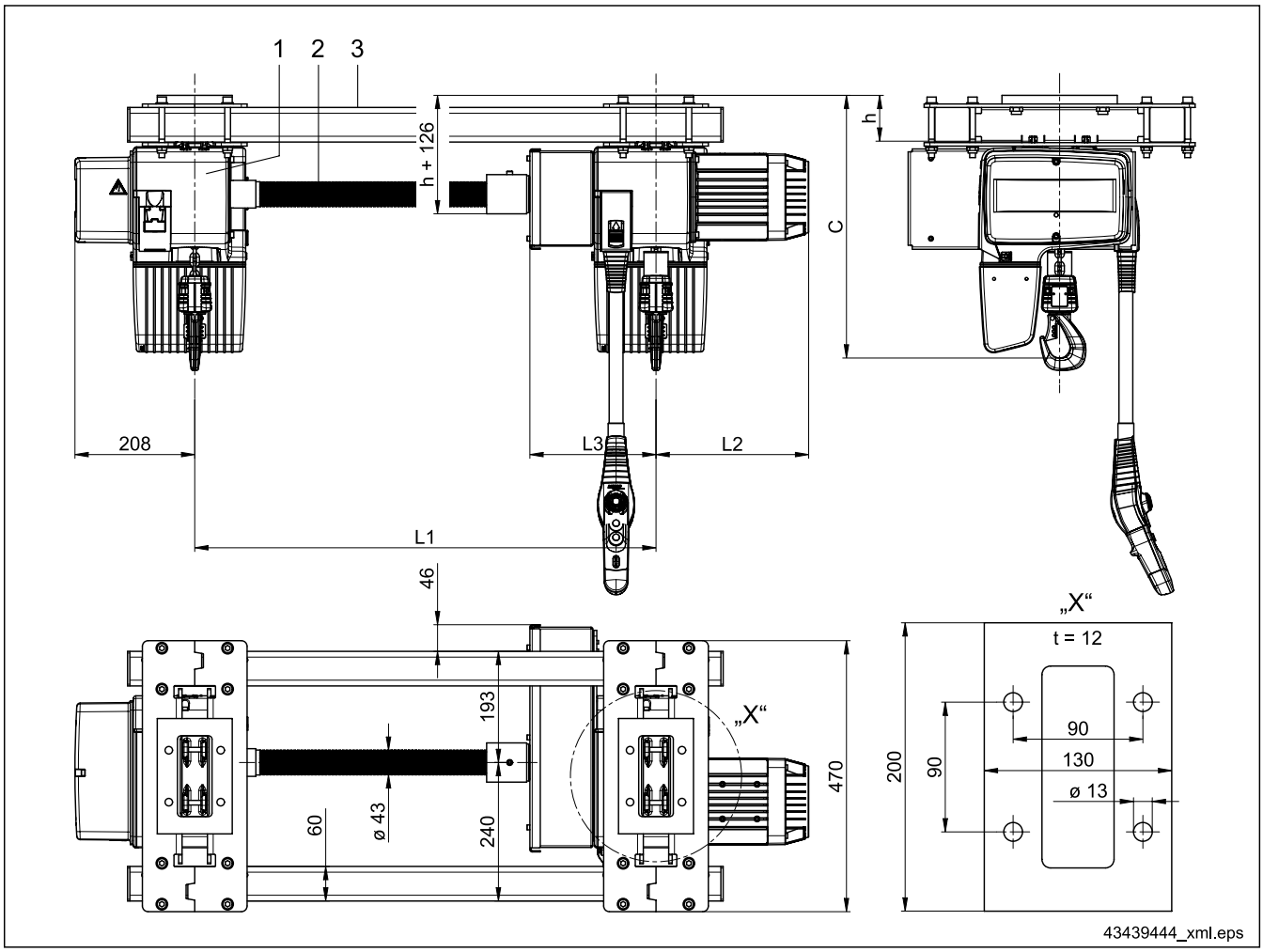
3.5.4 LDC-D dimensions

3.5.4.1 Stationary LDC-D

Chain hoist size DC 5

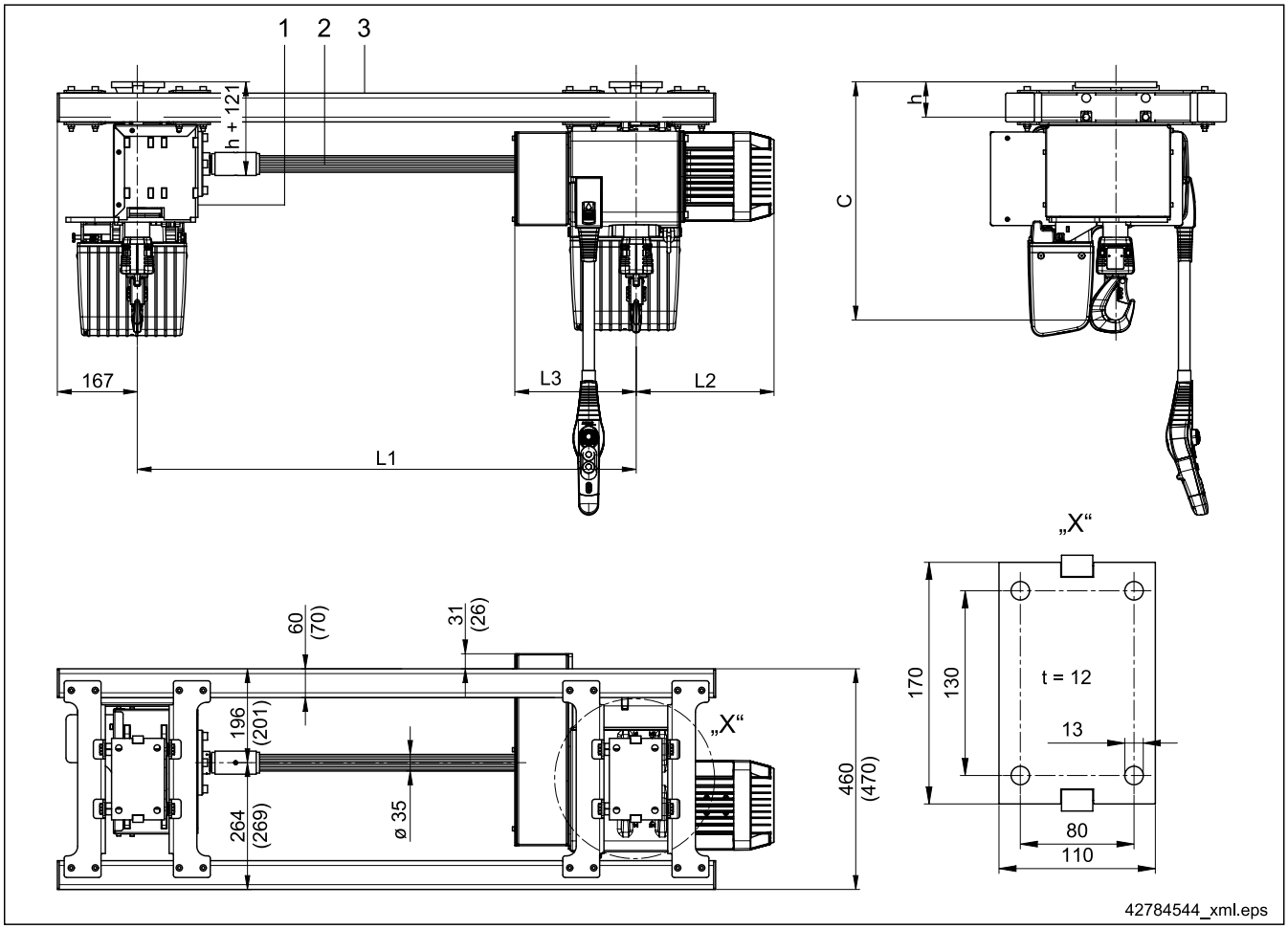


Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
500	5	2 x 1/1	ZNK 80 B 8/2	456	80	550 - 3200	265	219	max. 1/3 to 2/3

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

Stationary LDC-D chain hoists consist of a basic module and connecting plates.

Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	2 x 1/1	ZNK 100 A 8/2	498	74	550 - 3200	289	253	max. 1/3 to 2/3
1250			ZNK 100 B 8/2				339		
2500		2 x 2/1	ZNK 100 B 8/2	590			304	288	

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

Stationary LDC-D chain hoists consist of a basic module and connecting plates.

Note the following for size 10:

- At hook centre distance L1 = 550 - 2000 mm, the outside dimension of the square-section tube of the crab frame measures 60 mm,
- At hook centre distance L1 > 2000 mm, the outside dimension of the square-section tube of the crab frame measures 70 mm, see dimensions in brackets.

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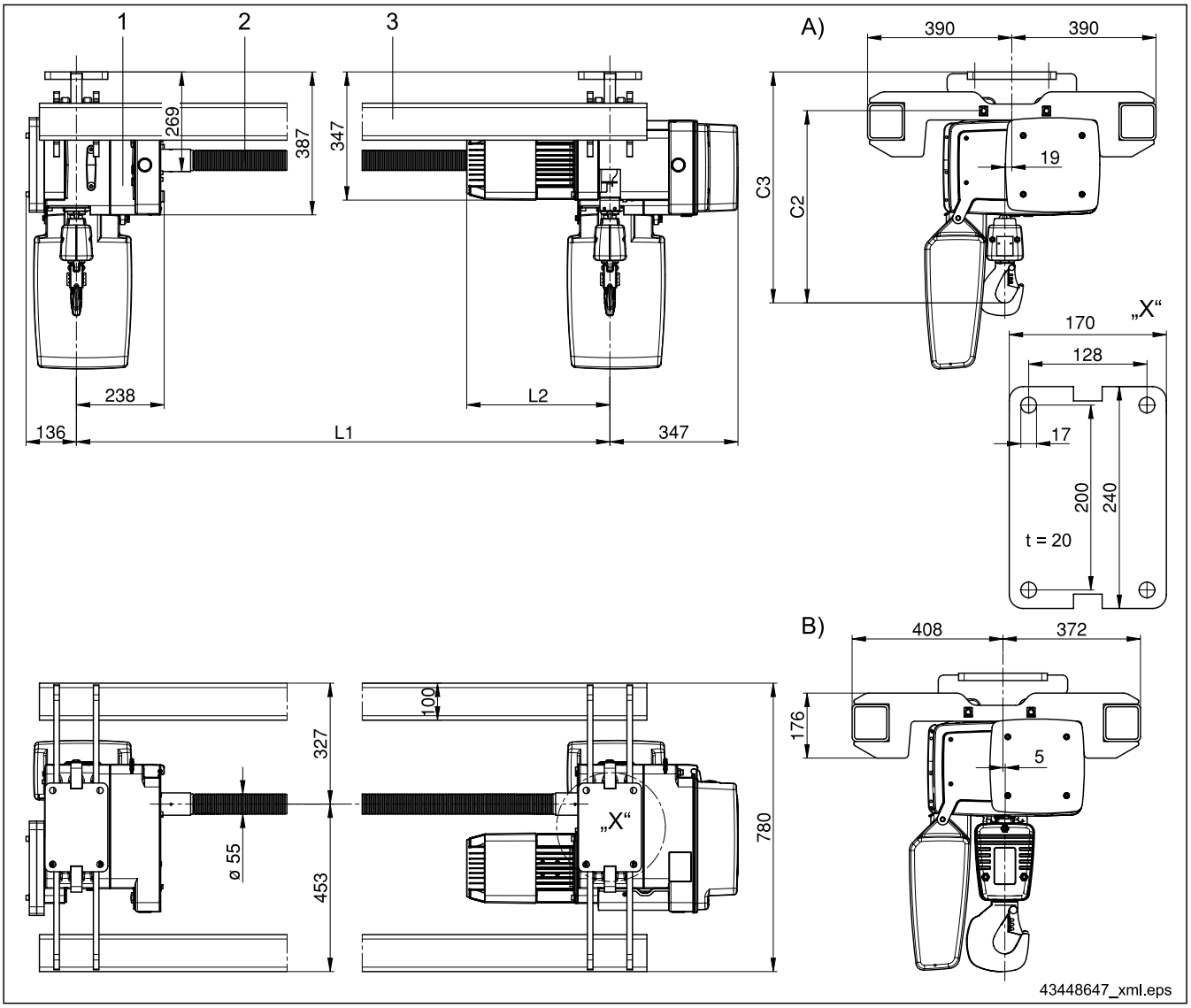
Chain hoist size DC 16 - 25



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C2 [mm]	C3 [mm]	L1 [mm]	L2 [mm]	Load distribution
1250	16	2 x 1/1	ZNK 100 C 8/2	525	630	800 - 3200	386	max. 1/3 to 2/3
1600	16		ZNK 100 B 8/2				333	
	16		ZNK 100 C 8/2				386	
2000	25							
2500	16	2 x 2/1		620	725			
	25	2 x 1/1		525	630			
3200	16	2 x 2/1	ZNK 100 B 8/2	620	725		333	
	16		ZNK 100 C 8/2				386	
4000	25			655	760			
5000	25							

A) 1/1 reeving
B) 2/1 reeving
(1) Hoist block
(2) Connecting shaft
(3) Crab frame

Stationary LDC-D chain hoists consist of a basic module and connecting plates.

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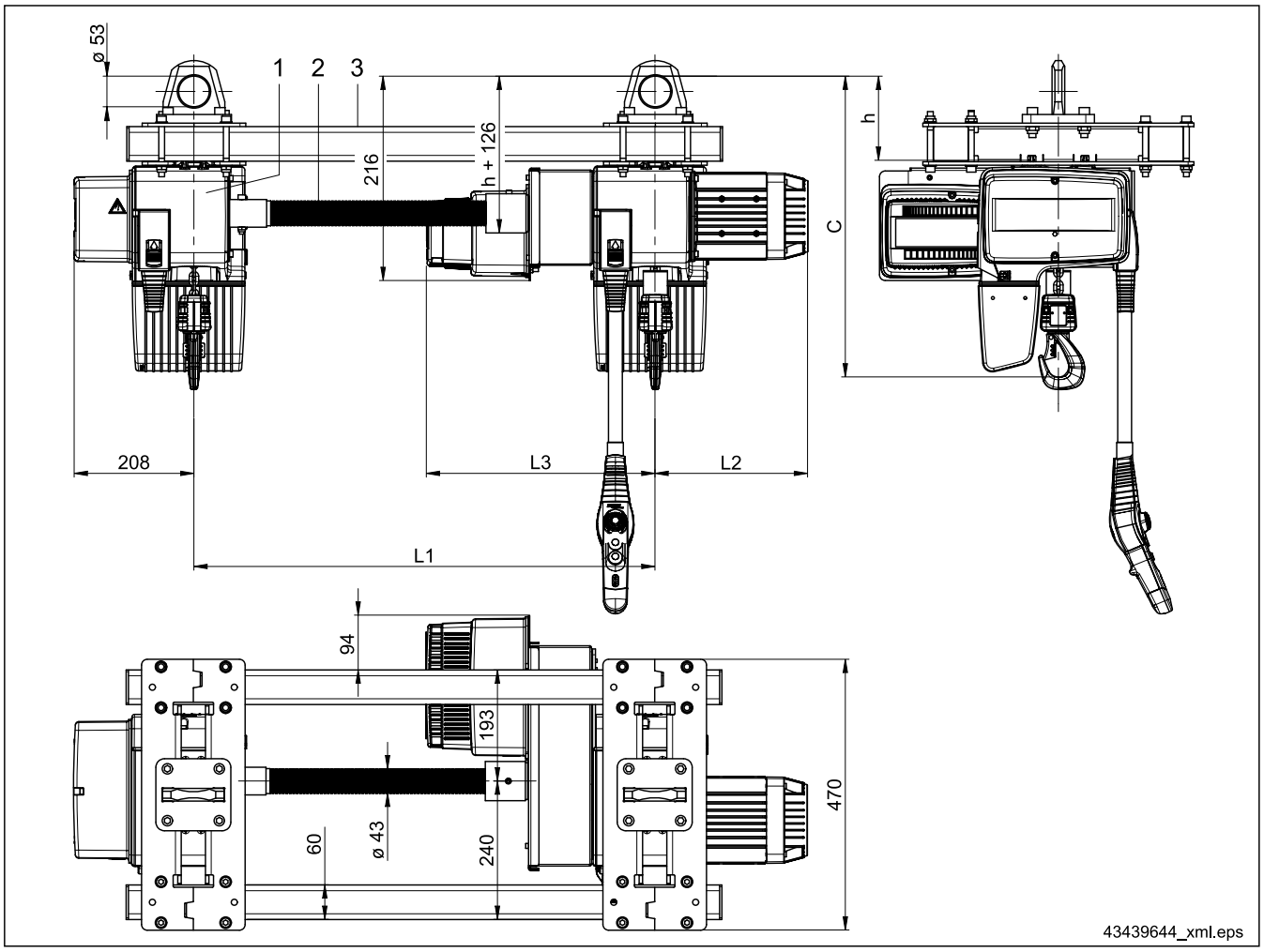
3.5.4.2 LDC-D with DCS-Pro variable lifting-speed control

Chain hoist size DC 5



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C_2 [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
500	5	2 x 1/1	ZNK 80 A 4	522	146	700 - 3200	265	397	max. 1/3 to 2/3

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

LDC-D chain hoists with variable lifting-speed control consist of a basic module and suspension rings turned 90°.

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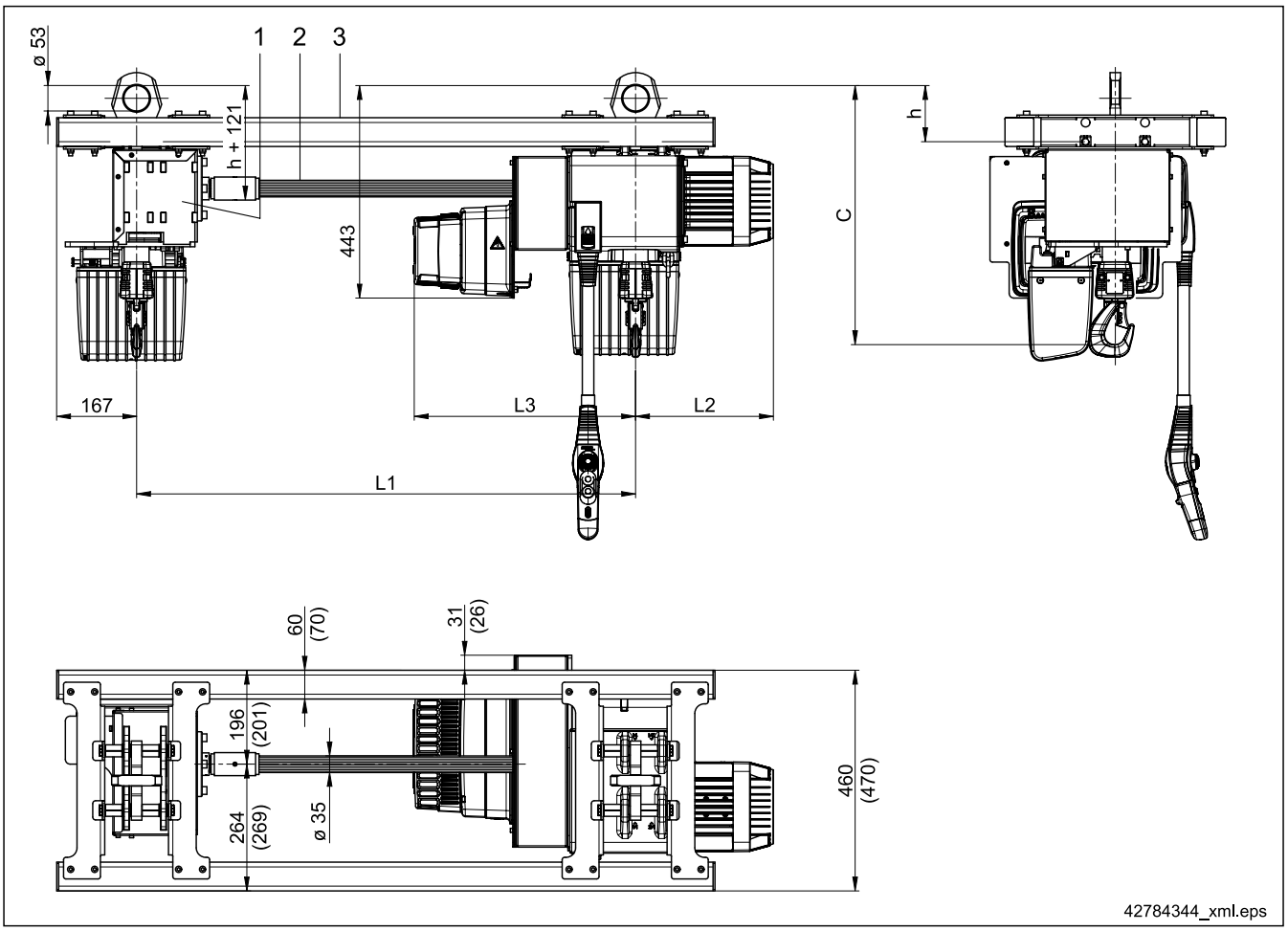
Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	2 x 1/1	ZNK 100 A 4	541	117	700 - 3200	339	461	max. 1/3 to 2/3
1250									
2500		2 x 2/1		633			304	496	

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

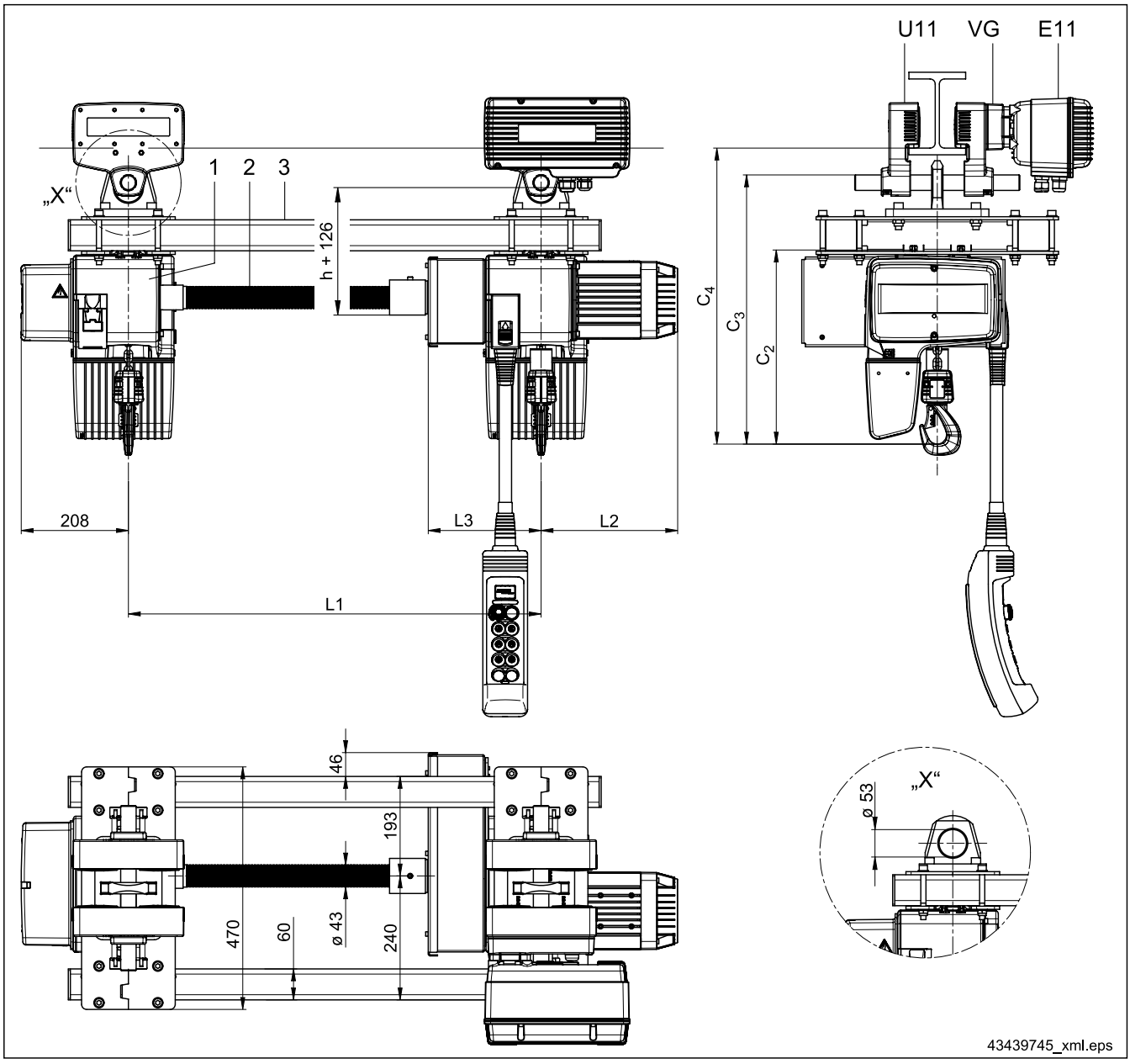
LDC-D chain hoists with variable lifting-speed control consist of a basic module and suspension rings turned 90°.

Note the following for size 10:

- At hook centre distance L1 = 550 - 2000 mm, the outside dimension of the square-section tube of the crab frame measures 60 mm,
- At hook centre distance L1 > 2000 mm, the outside dimension of the square-section tube of the crab frame measures 70 mm, see dimensions in brackets.

3.5.4.3 LDC-D as a travelling hoist with basic module

Chain hoist size DC 5



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C_2 [mm]	C_3 [mm]	C_4 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
500	5	2 x 1/1	ZNK 80 B 8/2	348	522	574	550 - 3200	265	397	max. 1/3 to 2/3

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

LDC-D chain hoists used as travelling hoists consist of a basic module, suspension rings turned 90° and U trolleys.

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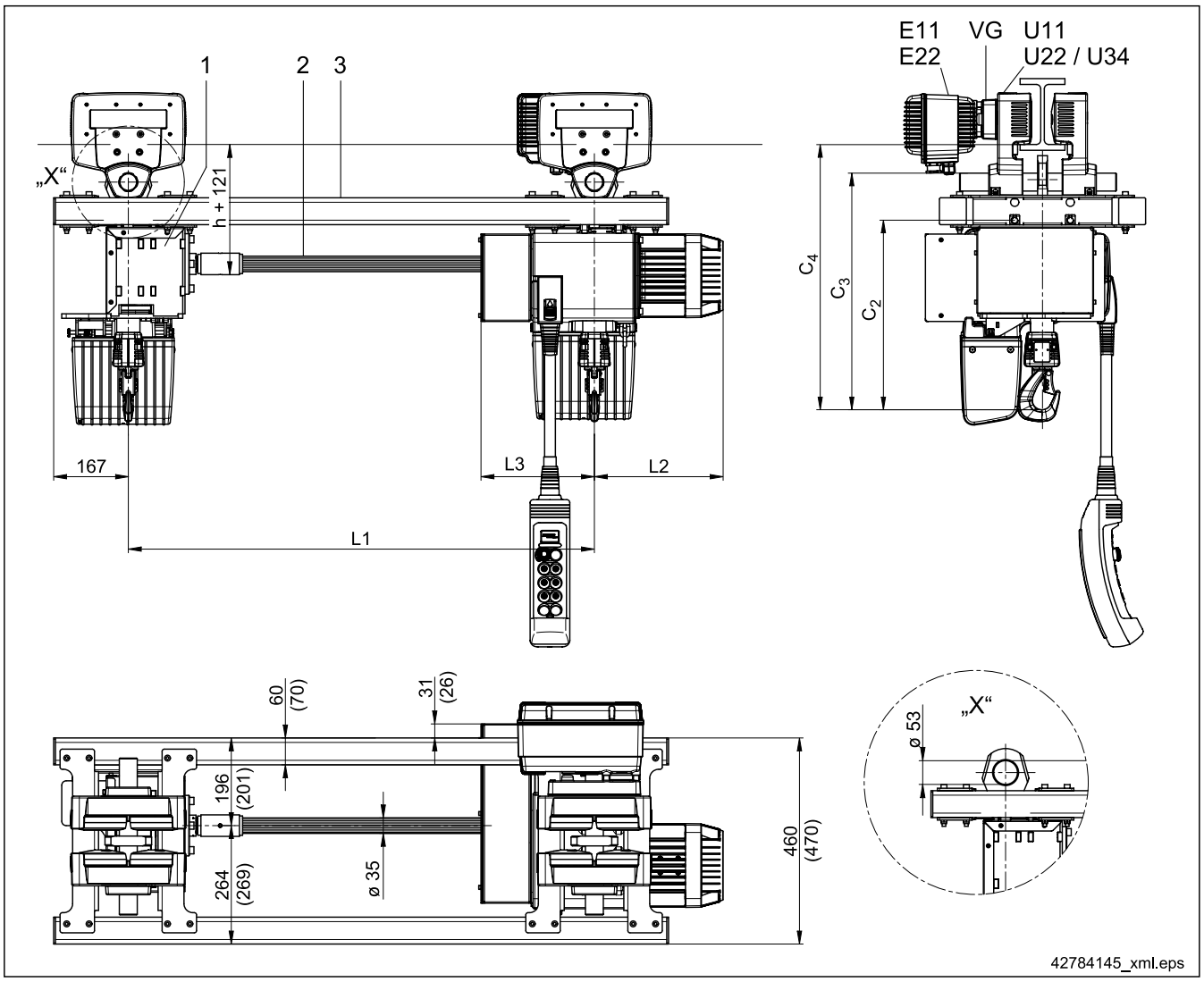
Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	Trolley	C_2 [mm]	C_3 [mm]	C_4 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	2 x 1/1	ZNK 100 A 8/2	EU11	424	541	593	550 - 3200	289	253	max. 1/3 to 2/3
1250			ZNK 100 B 8/2	EU22-C			605		339		
2500		2 x 2/1	ZNK 100 B 8/2		516	633	697		304	288	

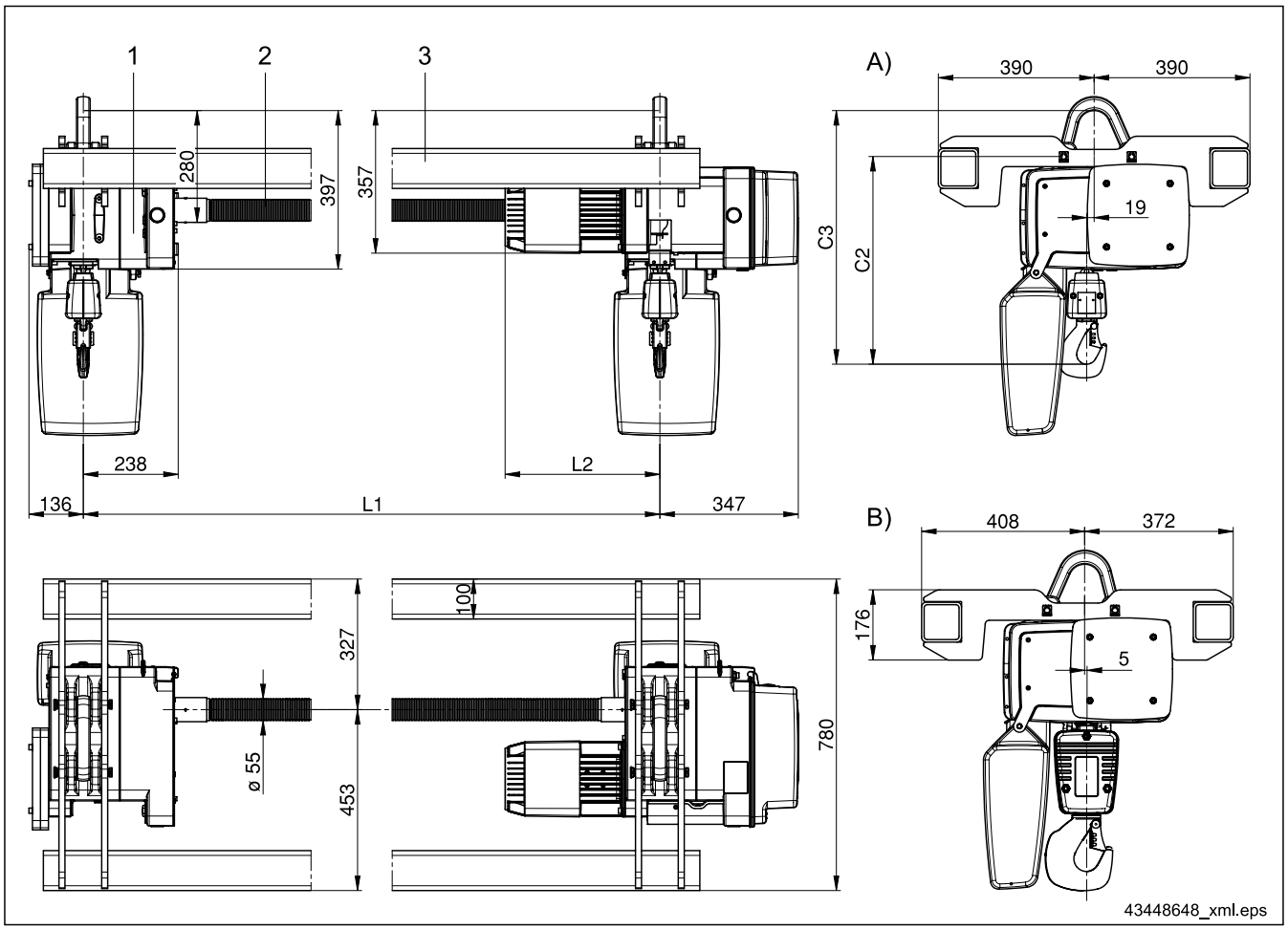
(1) Hoist block
(2) Connecting shaft
(3) Crab frame

LDC-D chain hoists used as travelling hoists consist of a basic module, suspension rings turned 90° and U trolleys.

Note the following for size 10:

- At hook centre distance L1 = 550 - 2000 mm, the outside dimension of the square-section tube of the crab frame measures 60 mm,
- At hook centre distance L1 > 2000 mm, the outside dimension of the square-section tube of the crab frame measures 70 mm, see dimensions in brackets.

Chain hoist size DC 16 - 25 at right angles to the track



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C2 [mm]	C3 [mm]	L1 [mm]	L2 [mm]	Load distribution
1250	16	2 x 1/1	ZNK 100 C 8/2	525	640	800 - 3200	386	max. 1/3 to 2/3
1600			ZNK 100 B 8/2				333	
			ZNK 100 C 8/2				386	
2000	25							
2500	16	2 x 2/1		620	735			
	25	2 x 1/1		525	640			
3200	16	2 x 2/1	ZNK 100 B 8/2	620	735		333	
4000	25		ZNK 100 C 8/2	655	770		386	
5000								

A) 1/1 reeving
B) 2/1 reeving
(1) Hoist block
(2) Connecting shaft
(3) Crab frame

LDC-D chain hoist basic modules for installation at right angles to the track are supplied with suspension brackets.

L1 > 3200 mm on request.

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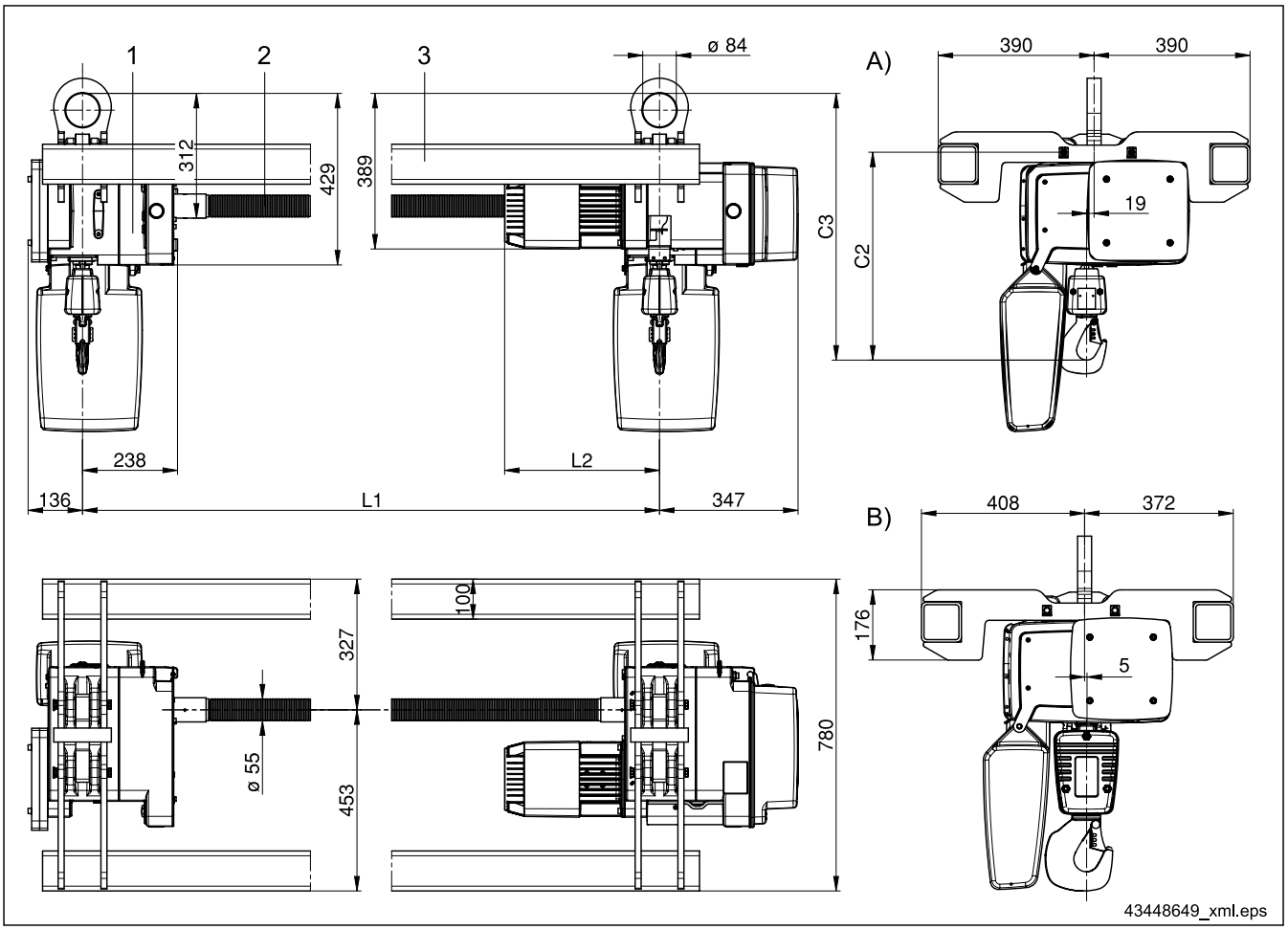
Chain hoist size DC 16 - 25 parallel to the track



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C2 [mm]	C3 [mm]	L1 [mm]	L2 [mm]	Load distribution
1250	16	2 x 1/1	ZNK 100 C 8/2	557	672	800 - 3200	386	max. 1/3 to 2/3
1600			ZNK 100 B 8/2				333	
2000	25		ZNK 100 C 8/2				386	
2500	16	2 x 2/1		652	767			
	25	2 x 1/1		557	672			
3200	16	2 x 2/1	ZNK 100 B 8/2	652	767		333	
4000	25		ZNK 100 C 8/2	687	802		386	
5000								

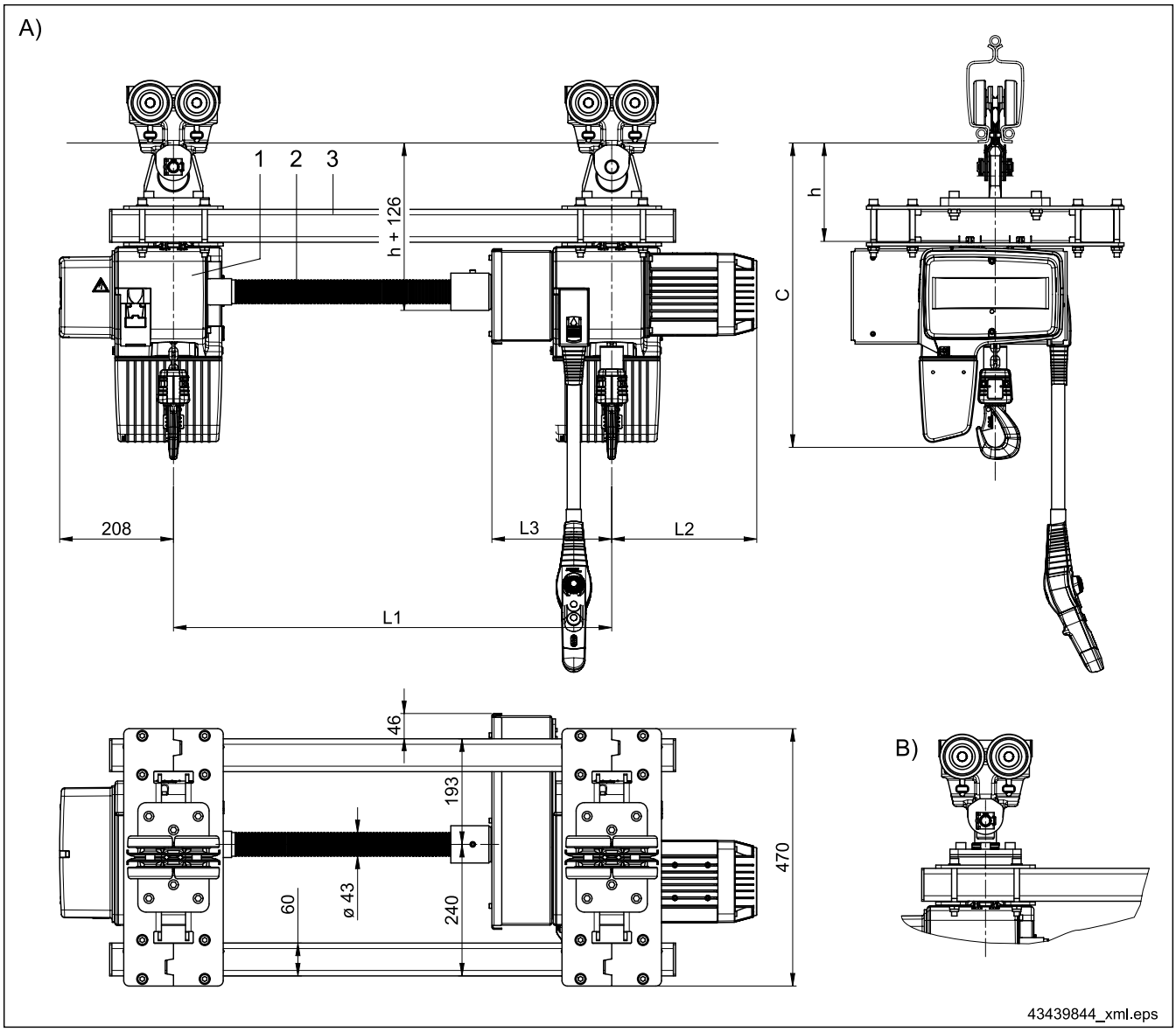
A) 1/1 reeving
B) 2/1 reeving
(1) Hoist block
(2) Connecting shaft
(3) Crab frame

LDC-D chain hoist basic modules for installation parallel to the track are supplied with suspension rings turned 90°.

L1 > 3200 mm on request.

3.5.4.4 LDC-D with KBK trolleys

Chain hoist size DC 5



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	Straight travel Trolley	C [mm]	h [mm]	Travel on curved track Trolley	C [mm]	h [mm]	L1 1) [mm]	L2 [mm]	L3 [mm]	Load distribution
500	5	2 x 1/1	ZNK 80 B 8/2	Single trolley (A)	556	180	Single trolley (B)	566	190	550 - 3200	265	397	max. 1/2 to 1/2

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

Straight travel: LDC-D chain hoists with KBK trolleys consist of a basic module, suspension rings turned 90° and KBK trolleys.

Travel on curved track: LDC-D chain hoists with KBK trolleys consist of a basic module, adapters for travel on curved tracks and KBK trolleys.

1) For travel on curved track L1 ≤ 1500 mm

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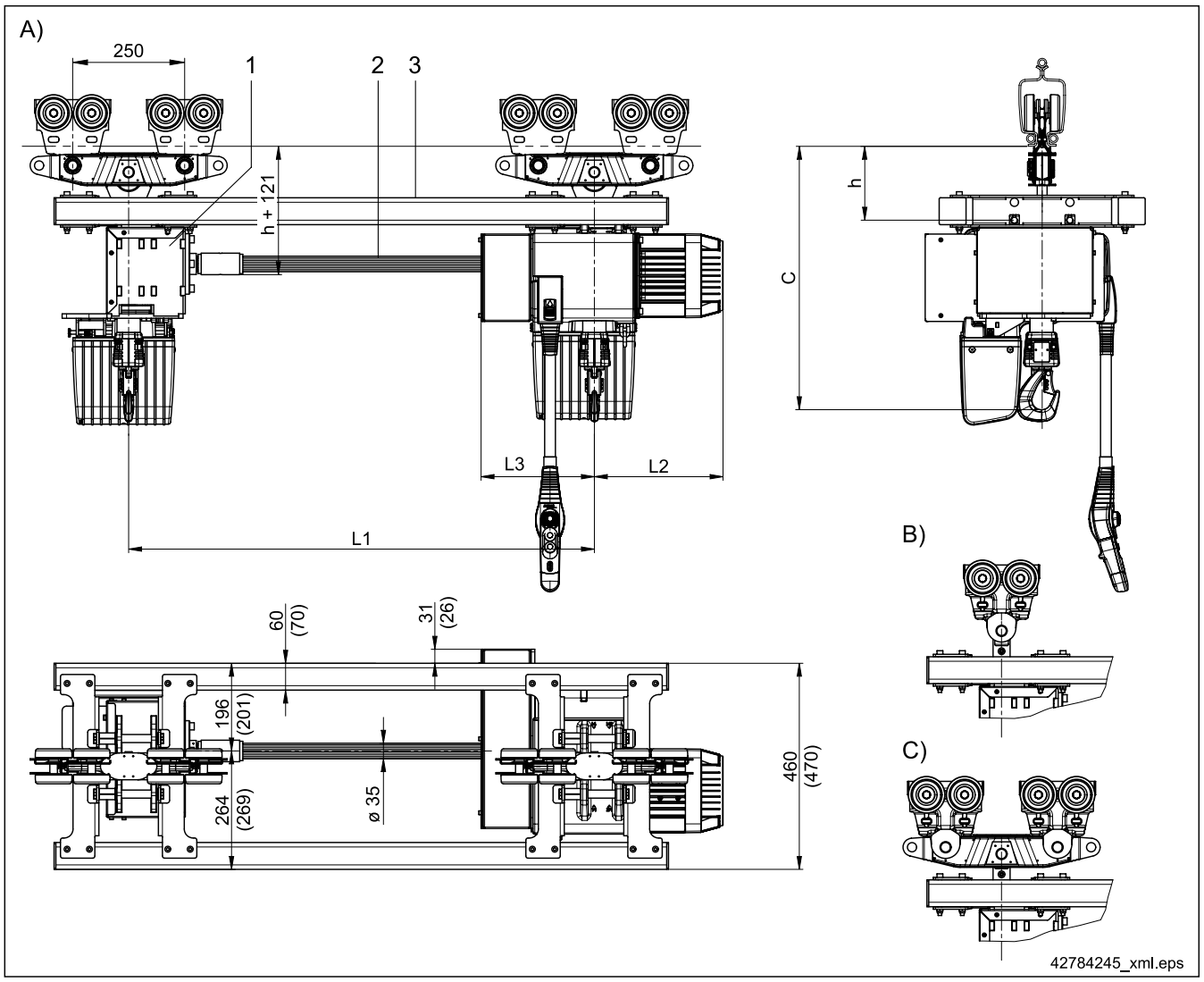
Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	Straight travel Trolley	C [mm]	h [mm]	Travel on curved track Trolley	C [mm]	h [mm]	L1 [1] [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	2 x 1/1	ZNK 100 A 8/2	Articulated frame (A)	591	167	Single trolley (B)	571	162	550 - 3200	289	253	max. 1/2 to 1/2
1250			ZNK 100 B 8/2				Articulated frame (C)	586			339		
2000		2 x 2/1	ZNK 100 B 8/2		683			678			304	288	

(1) Hoist block
(2) Connecting shaft
(3) Crab frame

Straight travel: LDC-D chain hoists with KBK trolleys consist of a basic module, suspension rings turned 90° and KBK trolleys.

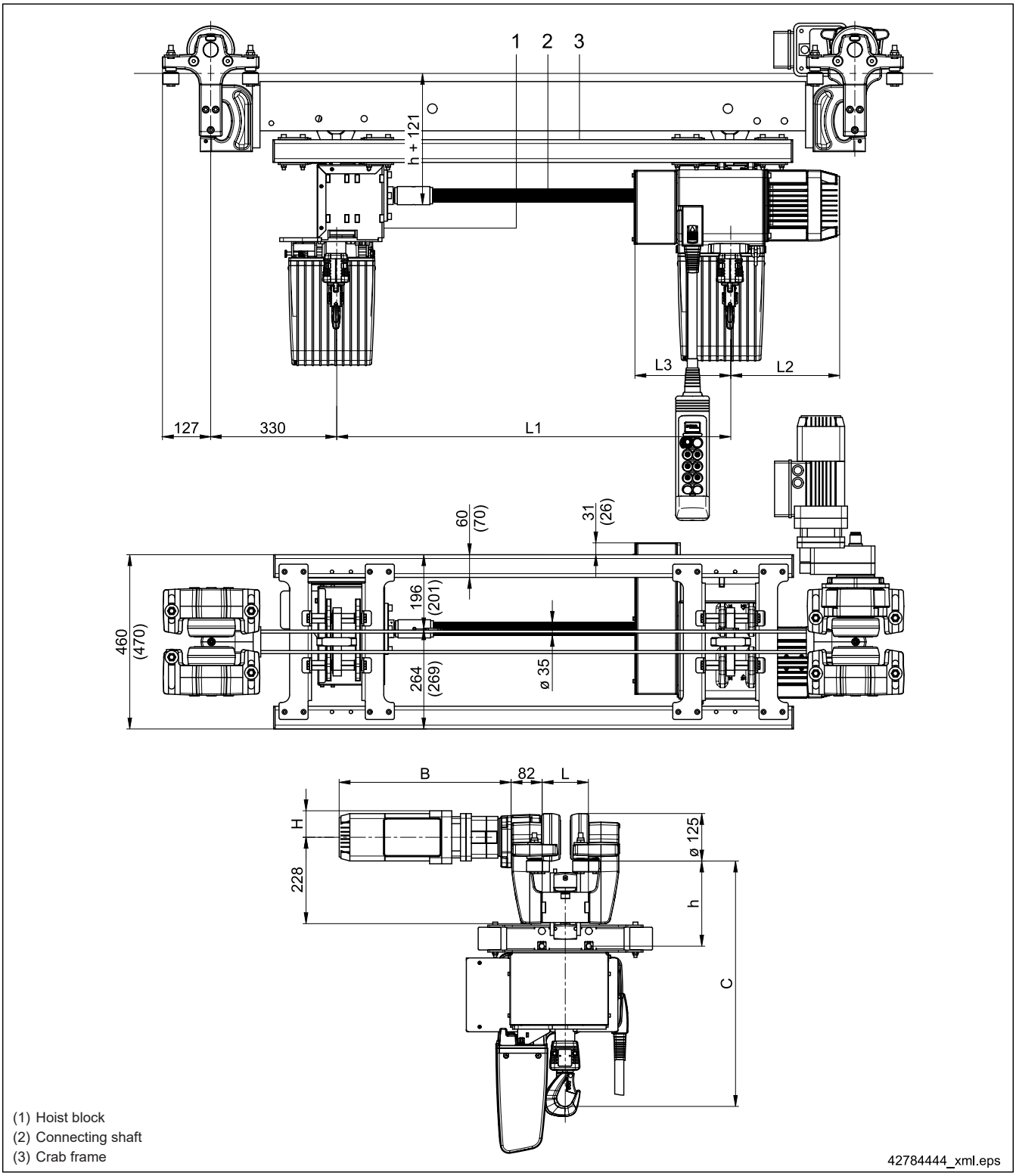
Travel on curved track: LDC-D chain hoists with KBK trolleys consist of a basic module, adapters for travel on curved tracks and KBK trolleys.

1) For travel on curved track L1 ≤ 1500 mm

Note the following for size 10:

- At hook centre distance L1 = 550 - 2000 mm, the outside dimension of the square-section tube of the crab frame measures 60 mm,
- At hook centre distance L1 > 2000 mm, the outside dimension of the square-section tube of the crab frame measures 70 mm, see dimensions in brackets.

Chain hoist size DC 10



(1) Hoist block
(2) Connecting shaft
(3) Crab frame

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Total load capacity [kg]	Chain hoist size DC-Pro [1)]	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	2 x 1/1	ZNK 100 A 8/2	649	225	550 - 3200	289	253	max. 1/3 to 2/3
1250			ZNK 100 B 8/2				339		
2500		2 x 2/1	ZNK 100 B 8/2	741			304	288	

1) For dimensions A, B and H see “Articulated trolley assembly instructions”.

LDC-D chain hoists used as articulated travelling hoists consist of a basic module and a load bar with articulated trolleys.

Note the following for size 10:

- At hook centre distance L1 = 550 - 2000 mm, the outside dimension of the square-section tube of the crab frame measures 60 mm,
- At hook centre distance L1 > 2000 mm, the outside dimension of the square-section tube of the crab frame measures 70 mm, see dimensions in brackets.

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3.6 KLDC-D low-headroom double chain hoist

3.6.1 Use

Double chain hoists that have two mechanically synchronised chain lead-offs are particularly suited for handling long materials and for spreader operation. LDC-D or KLDC-D variants can be supplied. Two separate chain hoists with tandem control (but not with synchronised control) can also be used as an alternative for applications with two chain lead-offs.

3.6.2 Properties

- C dimension advantage as for low-headroom travelling hoists.
- Possible variants: stationary, travelling, for operation with KBK and for articulated trolleys.
- Asymmetric load distribution is permitted:
  - distribution of the load must not exceed 1/3 to 2/3
  - the load must be distributed equally on KBK trolleys.
- EU trolley with VG dual-output gearbox on the chain hoist.
- Both chains are brought out of the chain hoist via a double chain guide to the two different run-off points. Both chain lead-offs are rigidly connected to each other by a common frame.
- Hook centre distances from 400 mm to 4600 mm, other distances on request.
- Speeds with V24/6 m/min are not offered. Owing to the additional chain return arrangements, increased chain vibration may occur as a result of the polygon effect.
- The chain collector box is divided into two compartments by a partition so that each chain is stored separately.

The chain lead-offs are not arranged in a line below the crab frame as the chains run next to each other. The distance measures:

- ● DC 10 = 18 mm;
- ● DC 15 = 24 mm.

3.6.3 Selection table

KLDC-D double chain hoist as DC-Pro, DC-ProDC (2 lifting speeds)

Load capacity [kg]	Total load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size 2)
2 x 160	315	10	2/2-2	4m/M7	5,3x15,2	12,0/3,0	14,4/3,6	3	ZNK 100 A 8/2
2 x 200	400								
2 x 250	500								
2 x 315	630					6,0/1,5	7,2/1,8		
						12,0/3,0	14,4/3,6		ZNK 100 B 8/2
2 x 400	800		4/2-2			6,0/1,5	7,2/1,8		
		15	2/2-2		7,4x21,2	8,0/2,0	9,6/2,4		
2 x 500	1000	10	4/2-2		5,3x15,2	6,0/1,5	7,2/1,8		
		15	2/2-2		7,4x21,2	8,0/2,0	9,6/2,4		
2 x 630	1250	10	4/2-2		5,3x15,2	6,0/1,5	7,2/1,8		
		15	2/2-2	3m/M6	7,4x21,2	8,0/2,0	9,6/2,4		
2 x 800	1600		4/2-2	4m/M7		4,0/1,0	4,8/1,2		
2 x 1000	2000								
2 x 1250	2500			3m/M6					

KLDC-D double chain hoist as DC-Com (2 lifting speeds)

Load capacity [kg]	Total load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed at 50 Hz [m/min]	Lifting speed at 60 Hz [m/min]	Hook path H from [m]	Motor size 2)
2 x 315	630	10	2/2-2	3m/M6	5,3x15,2	4,0/1,0	4,8/1,2	3	ZNK 100 A 8/2
2 x 400	800			2m/M5					
2 x 500	1000								
2 x 630	1250		4/2-2	3m/M6					ZNK 100 B 8/2
2 x 800	1600			2m/M5					
2 x 1000	2000								

KLDC-D double chain hoist as DCS-Pro, DC-ProFC (variable lifting speeds)

Load capacity [kg]	Total load capacity [kg]	Chain hoist size	Reeving	Group of mechanisms DIN EN 14492 FEM/ISO	Chain size [mm]	Lifting speed vs_{rated} [m/min]	Lifting speed vs_{max} [m/min]	Hook path H from [m]	Motor size 2)
2 x 160	315	10	2/2-2	4m/M7	5,3x15,2	0,11-12	22	3	ZNK 100 A 4
2 x 200	400								
2 x 250	500								
2 x 315	630		4/2-2			0,06-6	11		
2 x 400	800								
2 x 500	1000								
2 x 630	1250								

3.6.4 KLDC-D dimensions

L1 [mm]	400 - 1700	1800 - 3200	3300 - 4600
Number of weights	3	6	9

The C dimension is increased by 12 mm for each weight.

2) See “Electric key data” section for key motor data.

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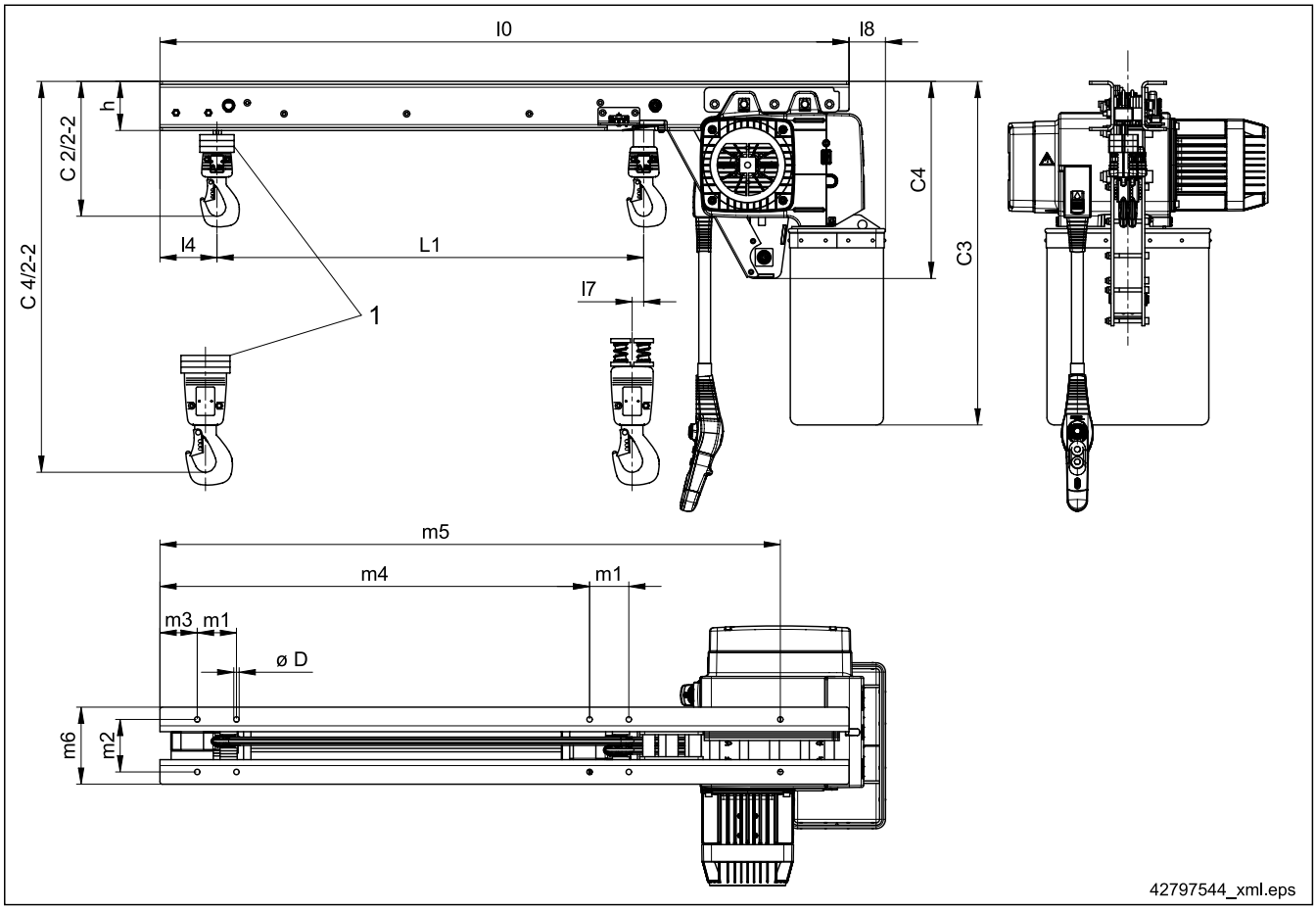
3.6.4.1 Stationary KLDC-D

Chain hoist size DC 10, max. 1250 kg load capacity (chain size 5,3x15,2 mm)

Chain hoist size DC 15, max. 2500 kg load capacity (chain size 7,4x21,2 mm)



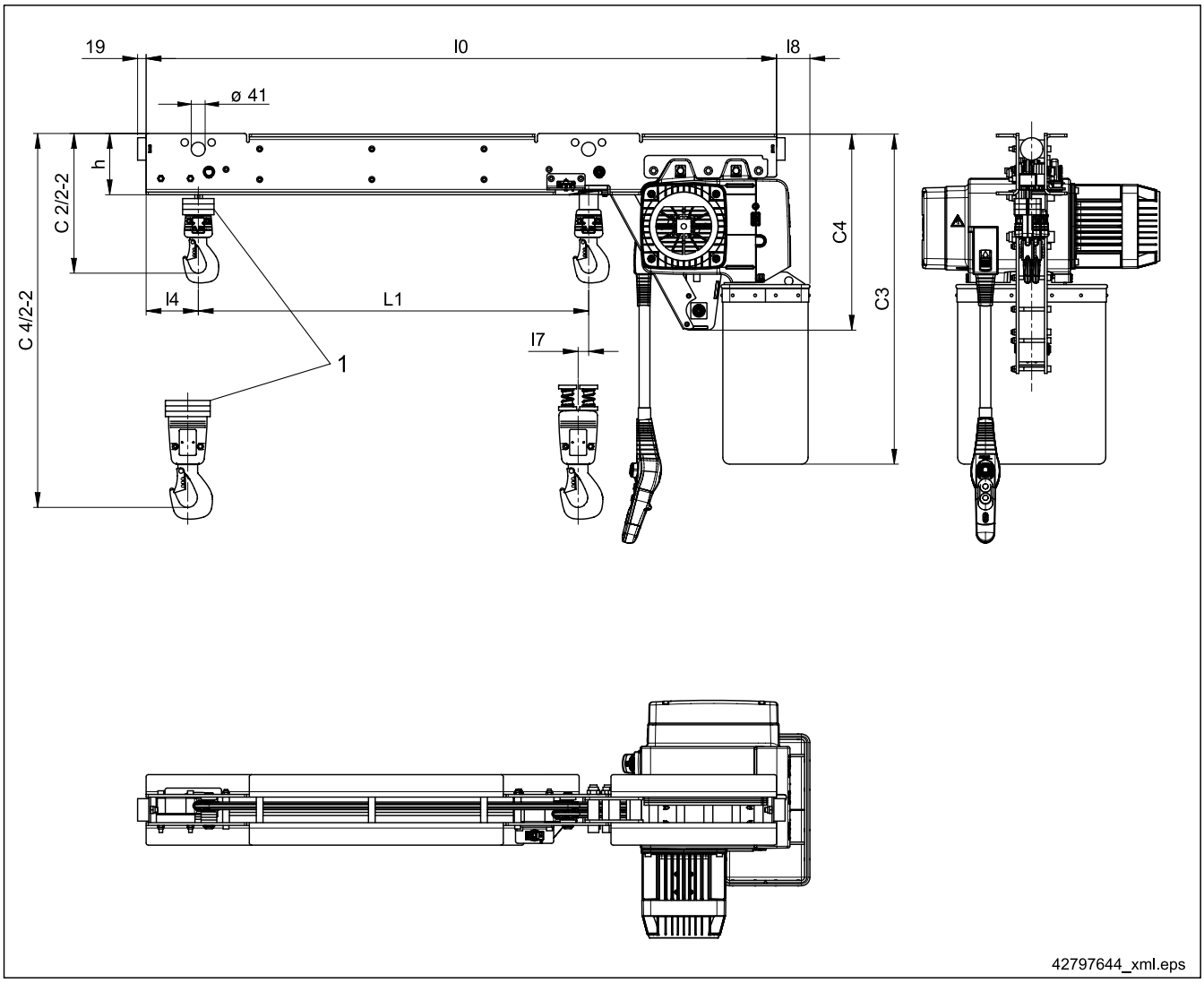
Chain hoist size DC-Pro	l0 [mm]	L1 [mm]	l4 [mm]	l7 [mm]	l8 [mm]	C 2/2-2 min [mm]	C 4/2-2 min [mm]	C3 min [mm]	C4 [mm]	h [mm]	m1 [mm]	m2 [mm]	m3 [mm]	Dia. D [mm]	m4 [mm]	m5 [mm]	m6 [mm]
10	L1 + 535	400 - 4600	116	23,5	74	275	387	570	402	100	80	107	76	11	L1 + 76	L1 + 388	157
15	L1 + 655		158	34	120	338	430	715	440	135	120	130	96,5	13	L1 + 96,5	L1 + 485	190

Additional weight (1) increases the mass of the unloaded hook assembly/bottom block. This prevents the chain from snagging when lowering.

3.6.4.2 KLDC-D basic module without trolley

Chain hoist size DC 10, max. 1250 kg load capacity (chain size 5,3x15,2 mm)

Chain hoist size DC 15, max. 2500 kg load capacity (chain size 7,4x21,2 mm)



Chain hoist size	l0 [mm]	L1 [mm]	l4 [mm]	l7 [mm]	l8 [mm]	C 2/2-2 min [mm]	C 4/2-2 min [mm]	C3 min [mm]	C4 [mm]	h [mm]
DC 10	L1 + 535	400 - 4600	116	23,5	74	311	423	610	438	136
DC 15	L1 + 655		158	32,4	119	434	522	750	493	187

Additional weight (1) increases the mass of the unloaded hook assembly/bottom block. This prevents the chain from snagging when lowering.

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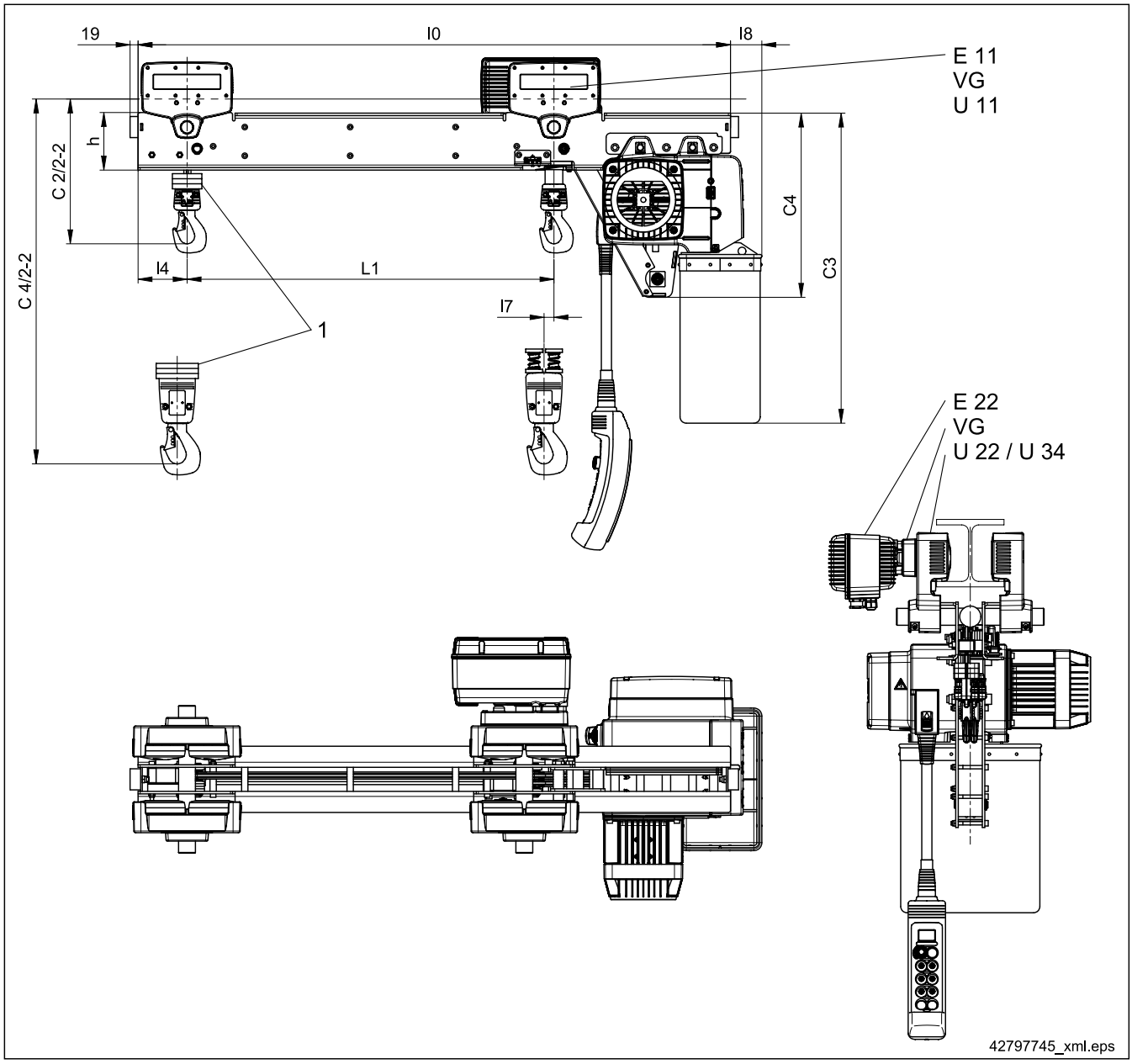
3.6.4.3 KLDC-D as a travelling hoist

Chain hoist size DC 10, max. 1250 kg load capacity (chain size 5,3x15,2 mm)

Chain hoist size DC 15, max. 2500 kg load capacity (chain size 7,4x21,2 mm)

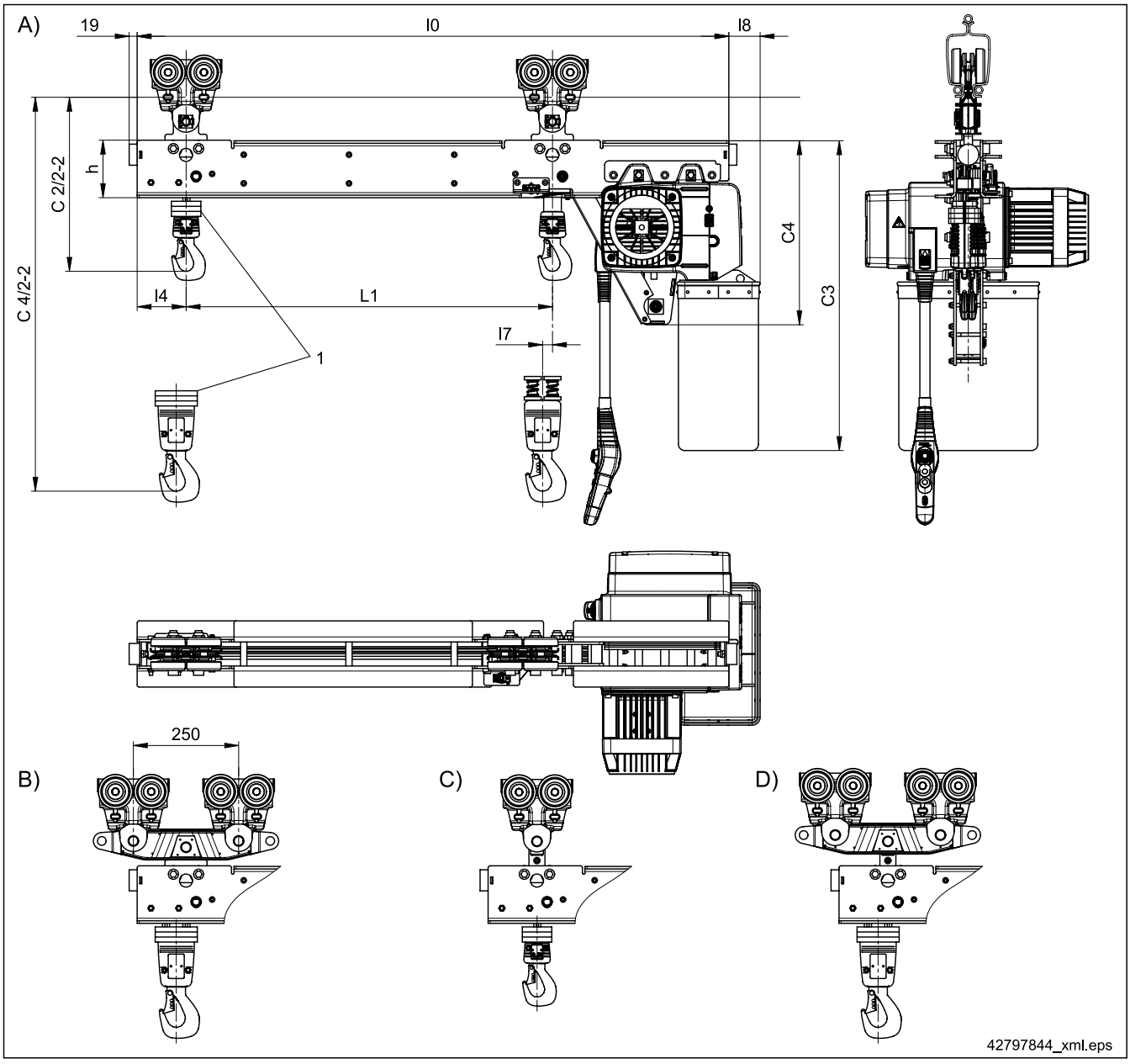


Chain hoist size	Trolley	l0 [mm]	L1 [mm]	l4 [mm]	l7 [mm]	l8 [mm]	C 2/2-2 min [mm]	C 4/2-2 min [mm]	C3 min [mm]	C4 [mm]	h [mm]
DC 10	U11	L1 + 535	400 - 4600	116	23,5	74	343	452	610	438	136
	U22/U34						357	469			
DC 15		L1 + 655		158	32,4	119	470	558	750	529	187

Additional weight (1) increases the mass of the unloaded hook assembly/bottom block. This prevents the chain from snagging when lowering.

3.6.4.4 KLDC-D with KBK trolleys

Chain hoist size DC 10, max. 1250 kg load capacity (chain size 5,3x15,2 mm) 2)



Total load capacity KBK [kg]	Trolley	2/2-2 C min 1) [mm]	4/2-2 C min 1) [mm]	l0 [mm]	L1 [mm]	l4 [mm]	l7 [mm]	l8 [mm]	C3 min [mm]	C4 [mm]	h [mm]
1000	Single trolley for travel on straight tracks	398 (A)		L1 + 535	400 - 4600	116	23,5	74	610	438	136
	Single trolley for travel on curved tracks	412 (C)									
1250	Articulated frame for travel on straight tracks		435 (B)								
	Articulated frame for travel on curved tracks		451 (D)								

Additional weight (1) increases the mass of the unloaded hook assembly/bottom block. This prevents the chain from snagging when lowering.

For further information see “KBK classic technical data”.

1) C dimension from lower edge of KBK section.

2) KLDC-D15 on request.

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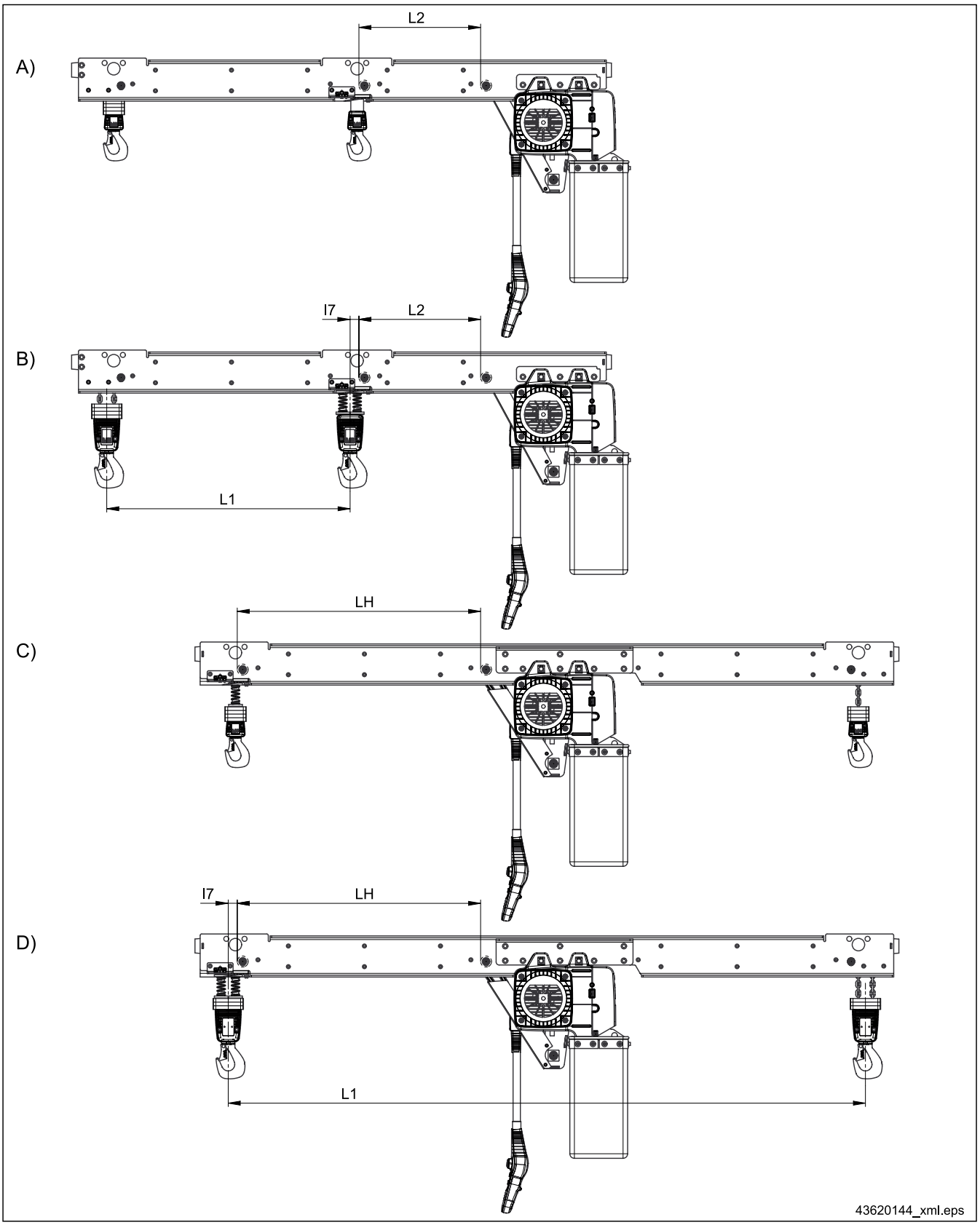
3.6.4.5 KLDC-D (examples with 3/4 or 4/5 chain lead-off)



(A) 3/4 chain lead-off, 1/1 reeving
(B) 3/4 chain lead-off, 2/1 reeving
(C) 4/5 chain lead-off, 1/1 reeving
(D) 4/5 chain lead-off, 2/1 reeving

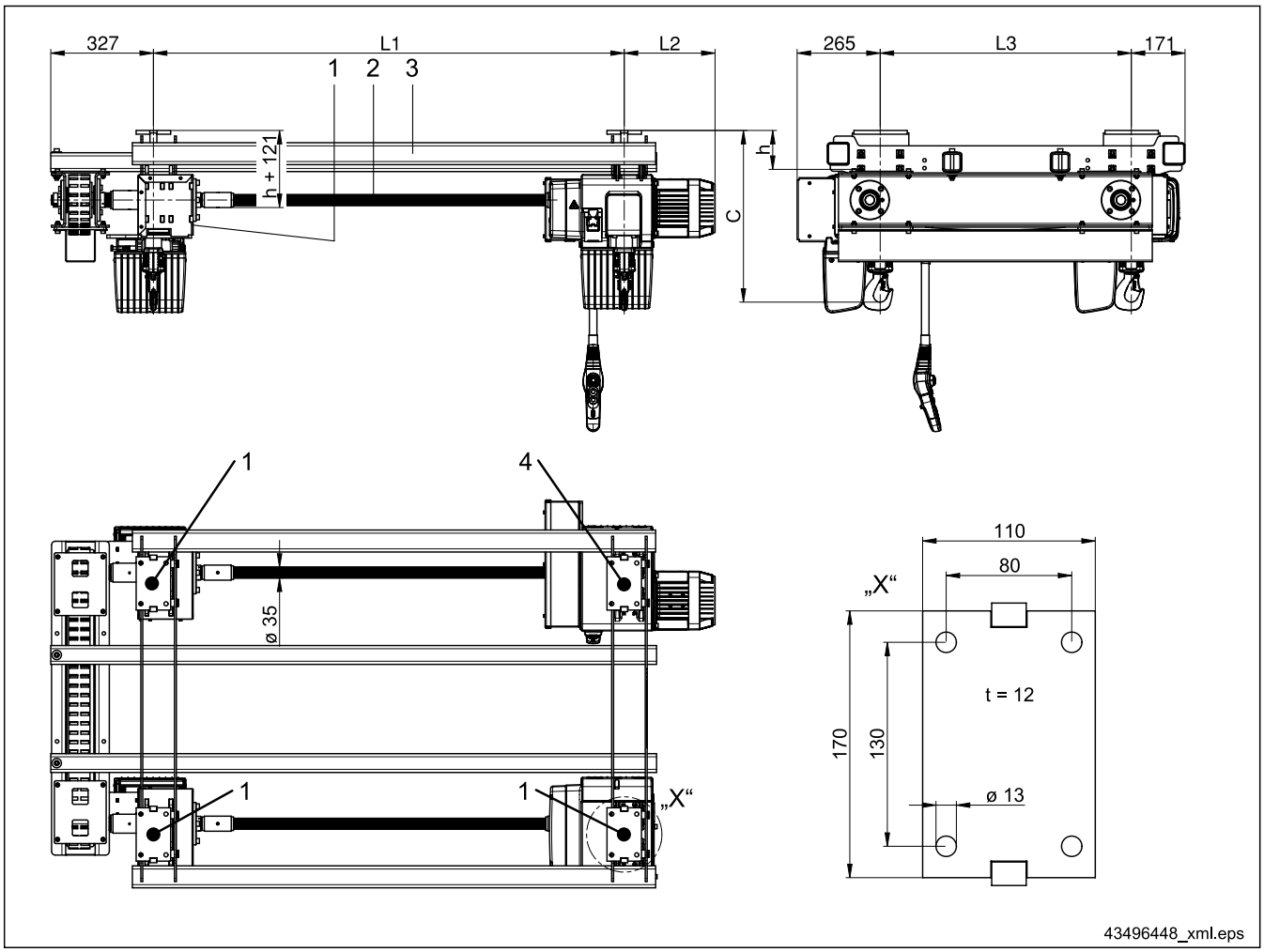
Chain hoist size DC-Pro	L1 [mm]	l7 [mm]	LH [mm]
10	400 - 4600	23,5	L1 • 0,5 - 200
15		32,4	

3.7 LDC-Q quadro chain hoist with connecting shaft

3.7.1 LDC-Q dimensions

3.7.1.1 Stationary LDC-Q

Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	4 x 1/1	ZNK 100 A 8/2	548	124	550 - 3200	289	500 - 2000	See section 3.2 “Load distribution”
1250			ZNK 100 B 8/2				339		
2500		4 x 2/1	ZNK 100 B 8/2	640			304		

Hoist block (1), shaft (2), crab frame (3), basic hoist (4)

Stationary LDC-D chain hoists consist of a basic module and connecting plates.

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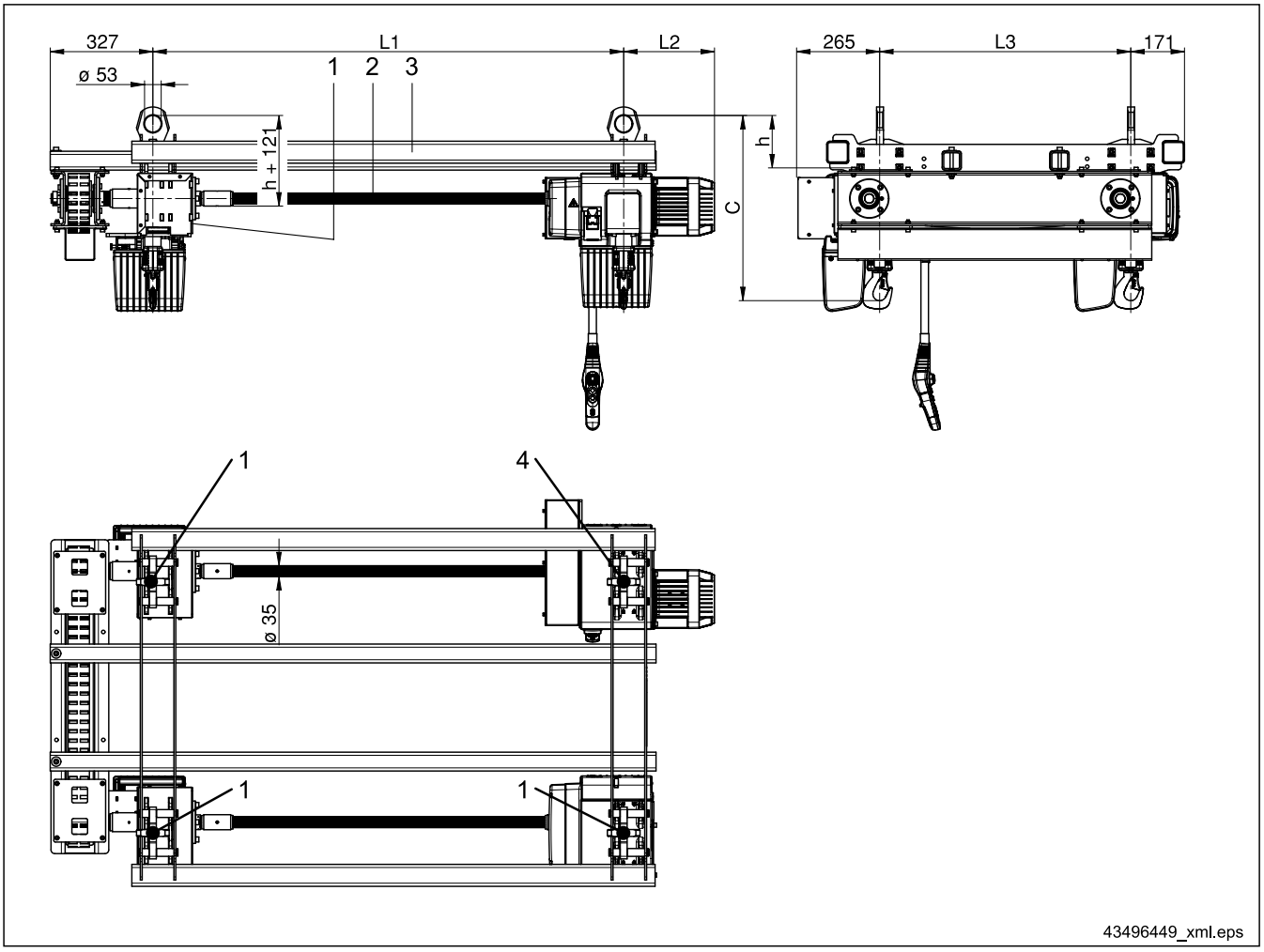
3.7.1.2 LDC-Q basic module without trolley

Chain hoist size DC 10



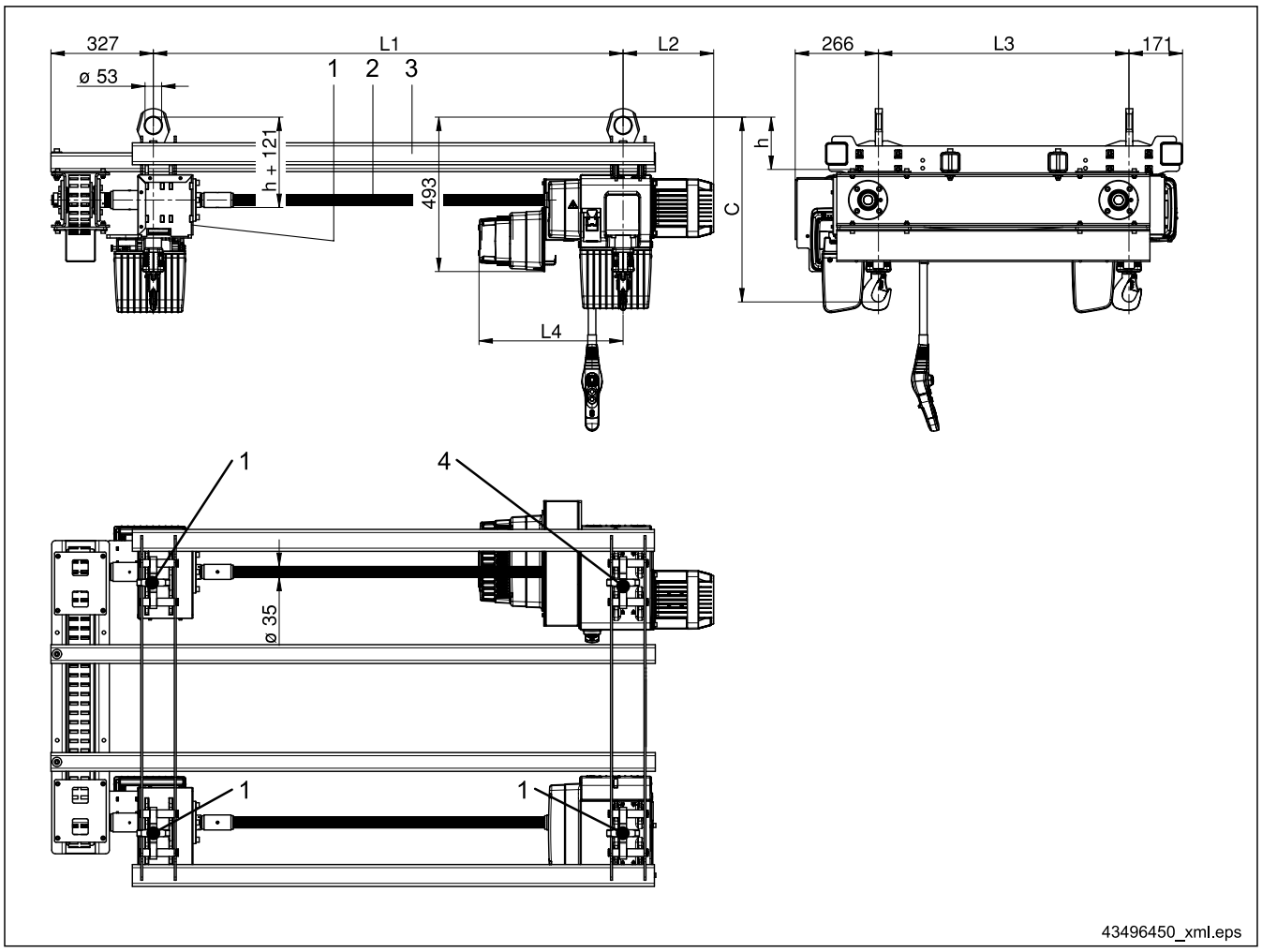
Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	4 x 1/1	ZNK 100 A 8/2	591	167	700 - 3200	289	500 - 2000	See section 3.2 “Load distribution”
1250			ZNK 100 B 8/2				339		
2500		4 x 2/1	ZNK 100 B 8/2	683			304		

Hoist block (1), shaft (2), crab frame (3), basic hoist (4)

LDC-Q chain hoists with variable lifting-speed control consist of a basic module and suspension rings turned 90°.

3.7.1.3 LDC-Q basic module without trolley with DCS-Pro variable lifting-speed control

Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Load distribution
1000	10	4 x 1/1	ZNK 100 A 4	591	167	550 - 3200	289	500 - 2000	461	See section 3.2 “Load distribution”
1250							339			
2500		4 x 2/1		683			304		496	

Hoist block (1), shaft (2), crab frame (3), basic hoist (4)

LDC-Q chain hoist basic modules are supplied with suspension rings turned 90°.

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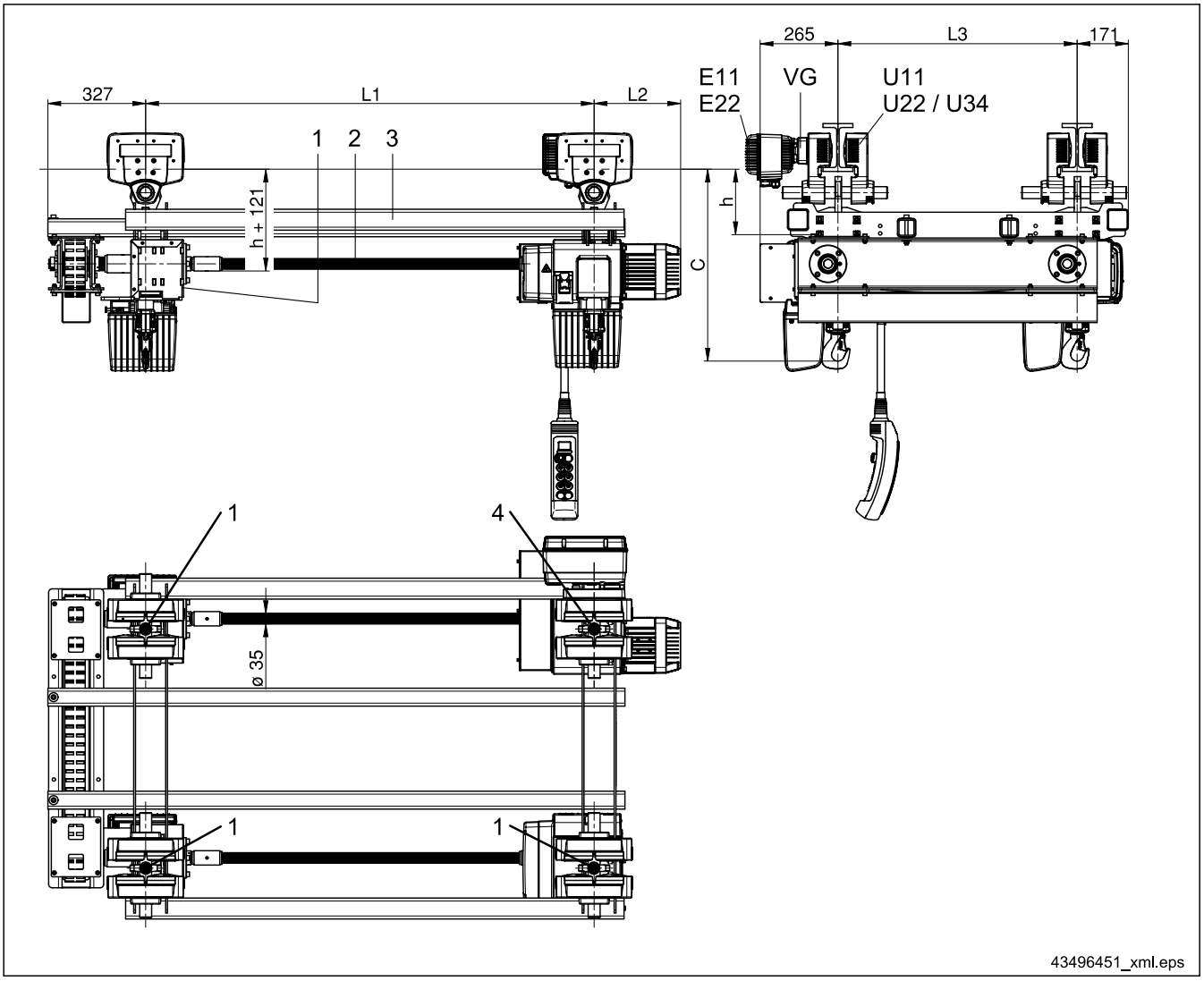
3.7.1.4 LDC-Q as a standard-headroom travelling hoist

Chain hoist size DC 10



Total load capacity [kg]	Chain hoist size DC-Pro	Reeving	Motor size	Trolley	C [mm]	h [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Load distribution
1000	10	4 x 1/1	ZNK 100 A 8/2	EU11	643	219	550 - 3200	289	500 - 2000	See section 3.2 “Load distribution”
1250			ZNK 100 B 8/2	EU22-C	655	231		339		
2500		4 x 2/1	ZNK 100 B 8/2		747			304		

Hoist block (1), shaft (2), crab frame (3), basic hoist (4)

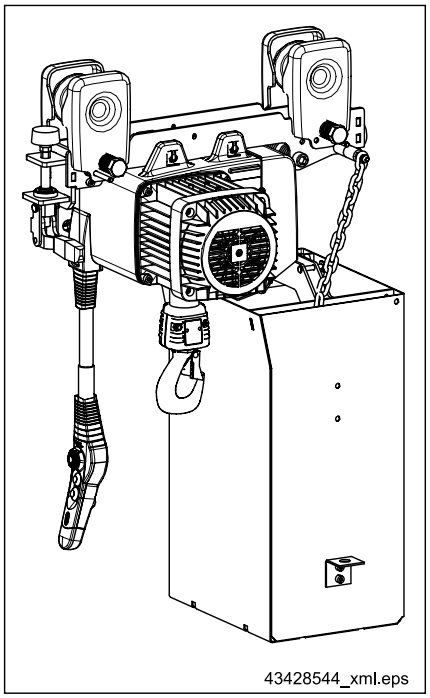
LDC-Q chain hoists used as travelling hoists consist of a basic module, suspension rings turned 90° and U trolleys.

3.8 DC-Wind (maintenance chain hoist for long hook paths)

3.8.1 Selection table

Load capacity [kg]	Chain hoist Type	Lifting speed at 50 Hz [m/min]	Hook path H [m]
250	DC-Wind 5	16/4	≤ 120
	DC-Wind 10	24/6	≤ 180
500	DC-Wind 5	12/3	≤ 120
	DC-Wind 10	12/3	
		24/6	≤ 180
800		18/4,5	≤ 150
1000			≤ 120
		12/3	
	DC-Wind 16	24/6	≤ 150

3.8.2 Properties



DC-Wind units are suited for use as hoists for maintenance work in wind turbines. They have the following characteristics:

- Also suitable for high installations with hook paths up to 180 m,
- Load capacities up to 1500 kg, also for handling larger components,
- High lifting speeds of up to 24/6 m/min for fast load handling. Hoist motors with duty factor up to 100%,
- Control units:
  - Ergonomic control pendants
  - Control pendant pocket on chain collector box,
- Chain drive:
  - Chain collector for different mounting positions, e.g. additional separate suspension on the trolley or on the support superstructure,
  - The chain is galvanized specially for maintenance work,
  - Protective cover for the hook with fittings,
- Models:
  - Stationary,
  - Low-headroom push-travel trolley with locking device,
- Special equipment can be supplied for offshore applications, high installation heights, cold-climate versions or special corrosion protection requirements.

For further information, see “DC-Wind chain hoist operating instructions” document, refer to the table on page 19.

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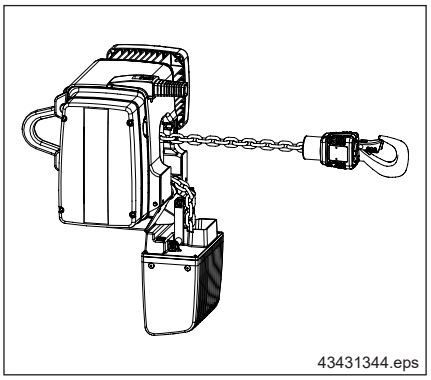
4 Accessories

4.1 Mechanical options

4.1.1 Chain hoists with horizontal chain lead-off



Use

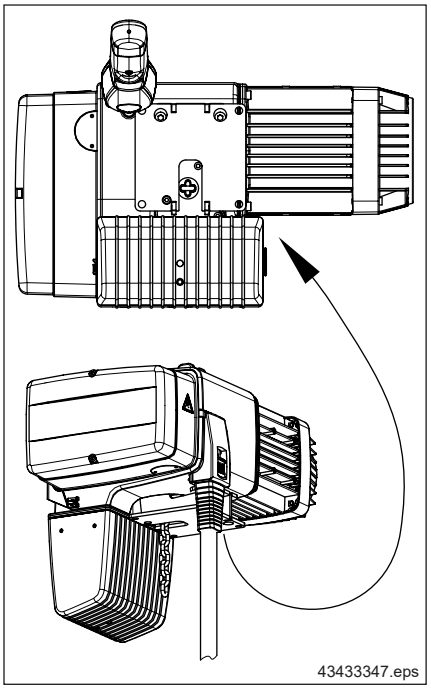
DC-Pro 5 - 10 chain hoists can be used for inclined/horizontal chain lead-offs, e.g. for stationary opening of covers or horizontal lead-offs.

Properties DC chain hoists can be supplied with pivoting or rigid chain collector box fittings with a pivoting range of 0° - 90°. Standard plastic chain collector boxes or flexible chain collector bags can be fitted.

Depending on the application, contact the manufacturer regarding the quantity of oil in the gearbox, frequency of use and chain wear.

A return assembly, which is available as a separate component, can be used as an additional chain return arrangement.

4.1.2 Foot-mounted hoist, attached from below



Use

Depending on the application, the chain hoist can be attached with a foot-mounting arrangement instead of a suspension bracket. This includes attachment to telescoping lifting masts or pivot arms, for example.

The chain lead-off is then vertical. Horizontal lead-off can be achieved by using an additional chain return arrangement subsequent to this, which is available as an option.

Properties

The chain hoist is only attached by via the foot-mounting arrangement. This base is bolted to the guide plate below the chain hoist and also to the chain hoist housing.

The foot-mounting arrangement is available for size DC 5.

A return assembly, which is available as a separate component, can be used as an additional chain return arrangement.

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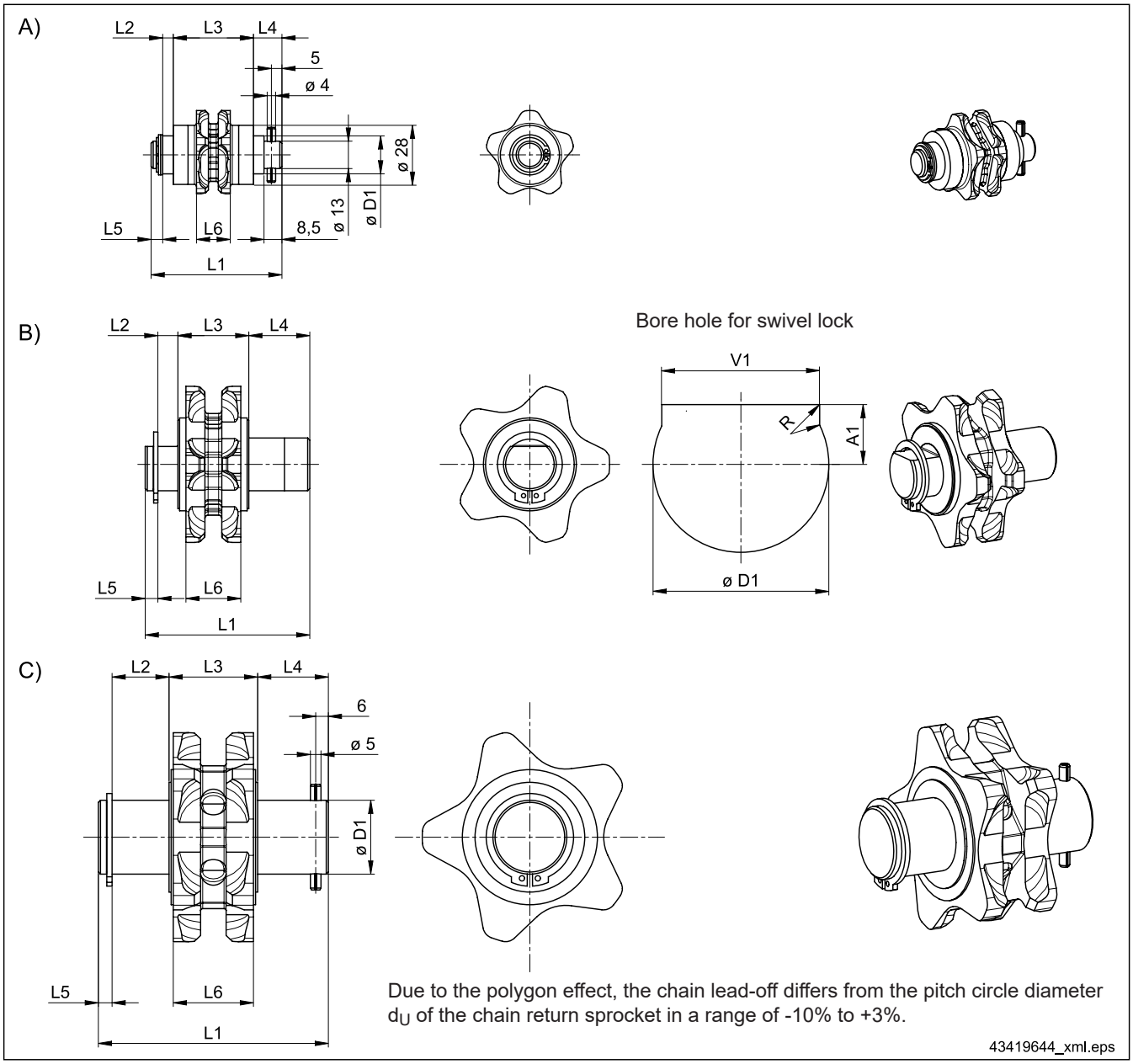
For further information, see “Chain return arrangement” section.

4.1.3 Chain return arrangement



Due to the polygon effect, the chain lead-off differs from the pitch circle diameter d_U of the chain return sprocket in a range of -10% to +3%.

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Item	Designation	Size	A1 [mm]	Dia. d_U [mm]	Dia. D1 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	R [mm]	V1 [mm]	Part no.
A)	Chain return kit	DC 1/2	-	38,8	$18^{+0,2}/_{+0,1}$	62	5	38	13,5	5,5	16	-	-	717 808 45
B)		DC 5	$6,1^{+0,3}$	48,4	$18^{+0,2}/_{+0,1}$	56	7	26	16,5	6,5	20	0,5	15,5	718 808 45
		DC 10	$8,5^{+0,2}$	67,5	$25^{+0,2}/_{+0,1}$	78	9,5	33,6	28,9	6	26	1,0	$22,5^{+0,2}$	715 808 45
C)	Return sprocket accessories	DC 15 / 16	-	77,0	$25^{+0,3}$	78	16,5	33	22,5	6	31	-	-	721 845 45
		DC 25	-	89,8	$35^{+0,3}$	109	27	42	33,5	6,5	40	-	-	721 850 45

Chain return sprocket for installation by the customer, see also “Chain hoists with horizontal chain lead-off” section.

Multiple return arrangements only by agreement; it may be necessary to reduce the chain hoist FEM classification.

All pins must be secured against turning.

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4.1.4 Friction force checking device

Designation	Chain hoist size	Part no.	Weight [kg]
Case with display unit/measuring sensor/adapter	DC-Pro 1 - 25, DCM-Pro 1 - 5, DC-Com 1 - 10, DC-Wind 2 - 10, DCS-Pro 1 - 10, DCMS-Pro 1 - 2, DCRS-Pro 1 - 2 DKUN 1 - 20, DKM 1 - 2, PKV 1, PK 2 - 10, PMV 5 - 12	836 708 44	5,8

The friction force checking device is supplied in a specially designed case.

The display unit indicates the force measured by the measuring sensor in t, the lowest display value is 0,01 t.

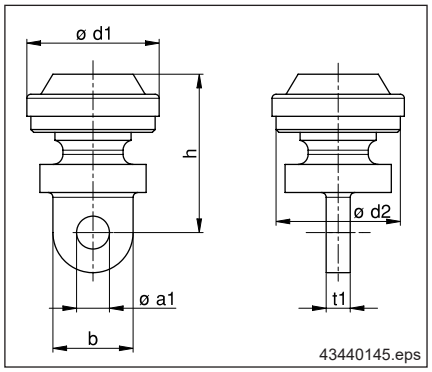
The display unit is powered by a battery. The electronic circuit performs the following functions:

- supplies the measuring sensor with regulated voltage,
- converts the sensor signal into a display value,
- monitors the 9 V battery; when the battery voltage drops below 8 V, the display switches to “Lo Batt”.

For further information, see “Friction force checking device assembly instructions” document, refer to the table on page 19.

4.1.5 Hook accessories

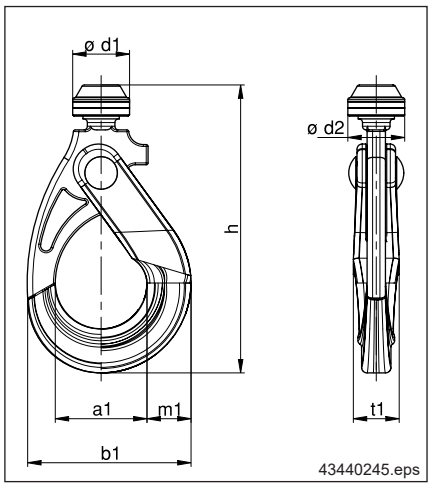
Swivel unit for hook assembly/bottom block



Chain hoist size	Designation	Dia. a1 [mm]	b [mm]	Dia. d1 [mm]	Dia. d2 [mm]	h [mm]	t1 [mm]	Part no.
DC 1 - 2	Swivel unit	8,2	20	33	-	39,5	6	750 331 45
DC 5				40		47		751 331 45
		9,8	25			53,5	8	751 332 45
DC 10 1/1				52		60,7		752 331 45
DC 10 2/1 DC 15 - 25 1/1		12,2	32	62	60,5	77,5	10,3	752 332 45
DC 15 - 25 2/1		16,2	41	81	-	91,5	13,2	721 331 45

The swivel unit for hook assembly/bottom block can be used for load handling attachments that have a load eye connection.

Safety hook



Chain hoist size	Designation	a1 [mm]	b1 [mm]	Dia. d1 [mm]	Dia. d2 [mm]	h [mm]	m1 [mm]	t1 [mm]	Part no.
DC 1 - 2	Safety hook	50	89	31	-	157	24	25	716 450 45
DC 5				39		164			716 451 45
DC 10 1/1				50		173			716 452 45
DC 10 2/1 DC 15 - 25 1/1		60	115	62	60,5	220	32	28	716 453 45

If the load hook is deposited while attached to a load, the safety hook prevents the hook from opening.

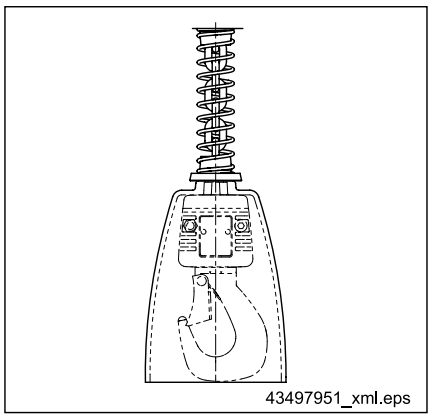
Safety hooks cannot be installed in DC-Com 1/1 hook assemblies; a DC-Pro hook assembly must be used in such cases.

Safety hooks must not be used under alkaline or acidic conditions.

They must not be used direct in galvanizing facilities.

For further information, see “DC 1 - 25 safety hook assembly instructions” document, refer to the table on page 19.

Hook assembly cover



Chain hoist size	Designation	Part no.
DC 1 - 10	Cover	729 418 45

A cover can be installed above the hook assembly to protect parts from being damaged by impacts against the hook assembly.

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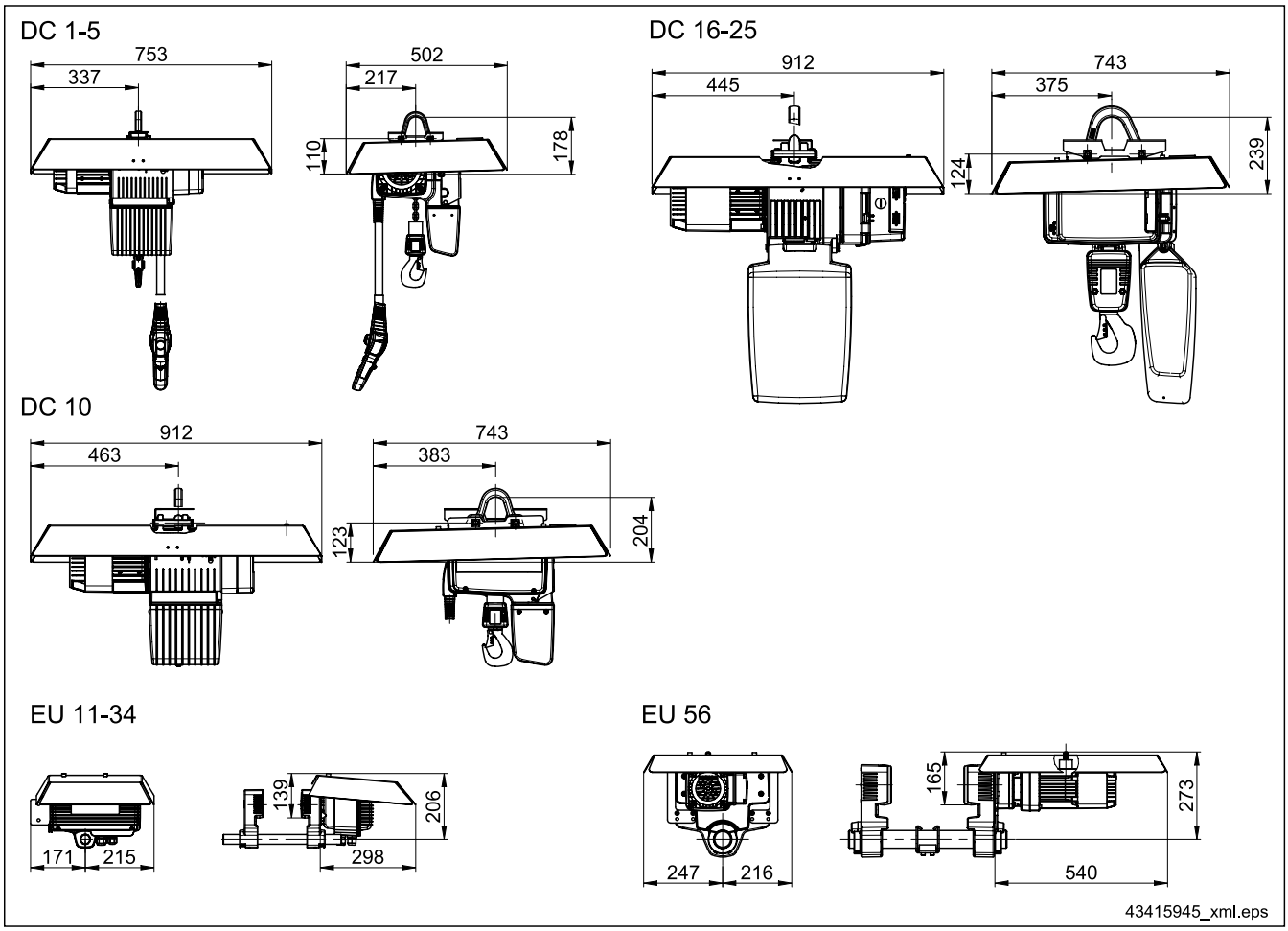
4.1.6 Canopy



Designation	Chain hoist size	Part no.	Weight [kg]
Canopy for chain hoist	DC 1 - 5	718 975 45	6,5
	DC 10	715 975 45	15,1
	DC 16 - 25	721 975 45	15,1
Canopy for trolley	EU11 - EU34	716 775 45	3,4
	EU56	749 047 46	6,0

Demag chain hoists, trolleys and travel drives operating outdoors should generally be provided with direct cover for protection against effects of the weather or kept under shelter if they are not in use.

(Material: sheet metal, colour: black)

The following additional fittings can be installed:

- Trolley suspension for chain collector,
- DCS chain hoist,
- In principle, only long suspension bracket.

On the service cover side:

- Harting power plug,
- Geared limit switch,
- Electric enclosures, DRC-DC.

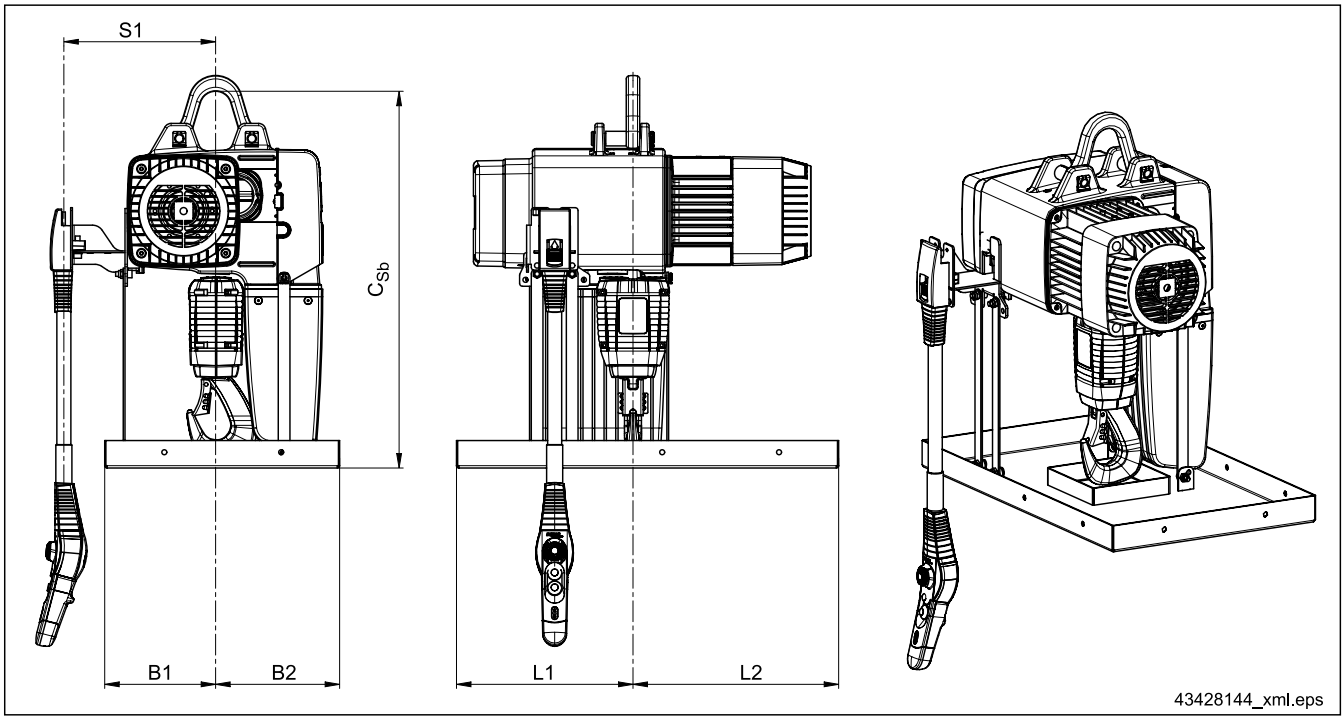
The following combinations are **not** possible:

- KDC,
- Counterweight for DC 1 - 25,
- DRC-MP radio control fitting,
- Enclosure fittings on the suspension eyes.

On the control pendant side:

- Harting power plug,
- Electric boxes.

4.1.7 Protective plates



Chain hoist size	Reeving	C_{Sb} [mm]	B1 [mm]	B2 [mm]	S1 [mm]	L1 [mm]	L2 [mm]	Oil collector tray Part no.	Weight [kg]	Heat deflection shield incl. sheet-metal chain collector box Part no.	Weight [kg]
DC 1 - 2	1/1	459	160	142	225	222	282	749 209 46	6,0	749 394 46	10,0
DC 5		497			233			749 210 46		749 395 46	10,2
DC 10	1/1, 2/1	645	190	212	260	302	352	749 211 46	7,0	749 396 46	12,8
DC 15	1/1	872	173	279	239	402	402	762 584 46	10	On request	-
	2/1		164	288	230						
DC 16 - 25	1/1	903	277	275	330	402	402	749 762 46	10,0	750 333 46	20,5
	2/1		268	284	321						

The **oil collector tray**, e.g. for use in clean-room applications, includes:

- Collector tray with connecting plates for fastening to the chain hoist and short arm to attach the control pendant.
- Max. possible chain collector box size is H8 of series plastic design.

A **heat deflection shield** incl. sheet-metal chain collector box for protecting the chain hoist against radiant heat includes:

- Collector tray incl. heat damping plate (6 mm) with connecting plates for fastening to the chain hoist and short arm to attach the control pendant.
- In addition incl. sheet metal chain collector box.

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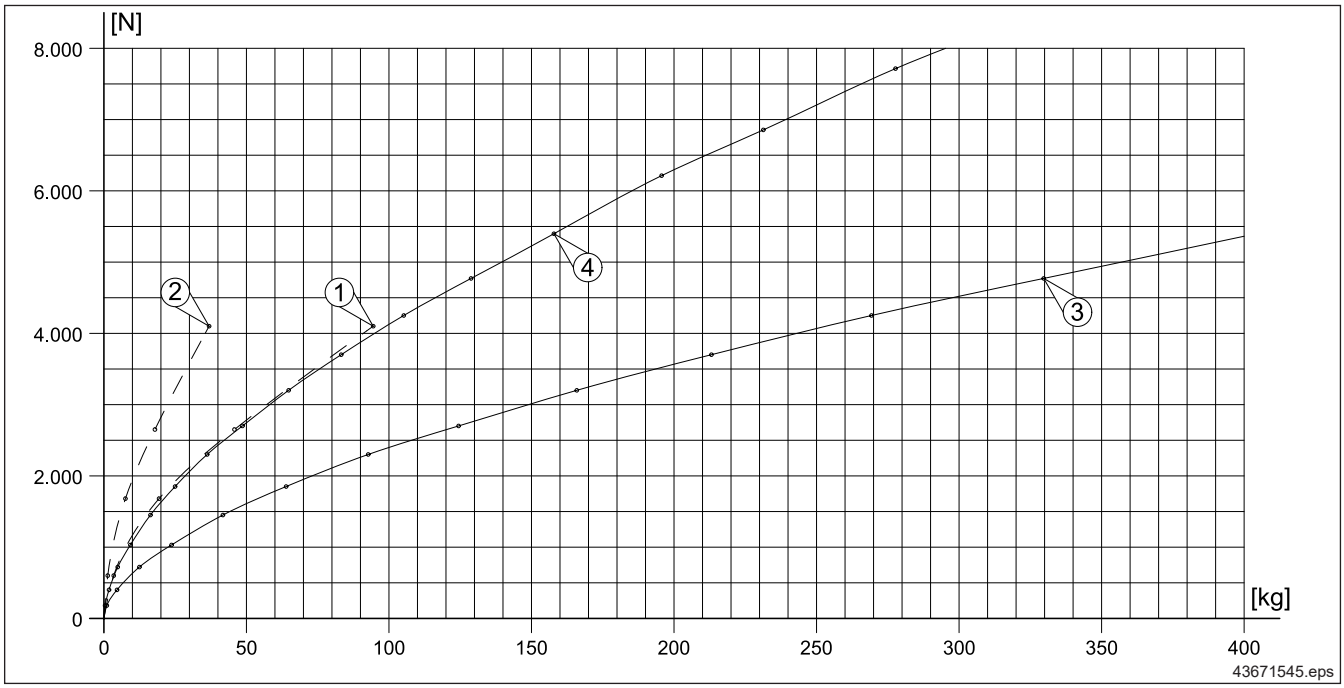
4.1.8 Buffers for travel motions

4.1.8.1 Buffer impact forces



Buffer forces for:
See also “Trolley buffers” section:
1) v = 25 m/min round buffer
2) v = 40 m/min round buffer
See also “Track buffers” section:
3) v = 25 m/min KP-A10/A12 clamp-fitted buffer
4) v = 40 m/min KP-A10/A12 clamp-fitted buffer

Consider the following factors when calculating buffer forces:

v = Impact speed allowing for a limit switch, as required,
m = Travelling hoist mass to be buffered (without lifted load),
n = Number of buffers.

4.1.8.2 Trolley buffers

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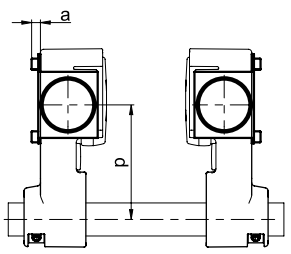

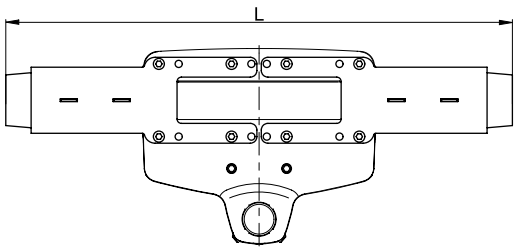

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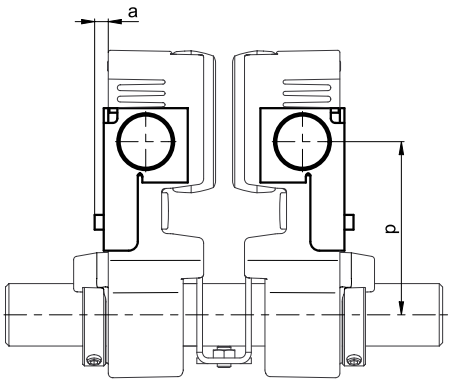

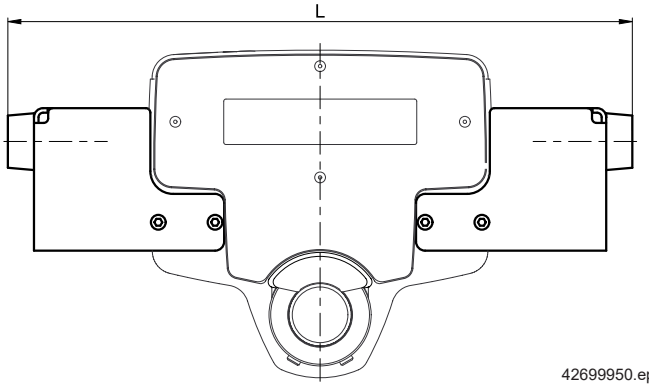

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If several trolleys are operated on one girder, we recommend the use of trolley buffers to dampen any collisions between the trolleys.

Designation	a [mm]	L [mm]	p [mm]	Part no.	Weight [kg]
U11/22/34 buffer kit	8	460	108	716 766 45	1,4
	8	500	140		
RU/EU56 buffer kit	12	550	153	716 862 45	2,3

4.1.8.3 Track buffers

Use

We recommend that track ends be provided with elastic buffers and that our KP-A and KP-T clamp-fitted buffers are used:

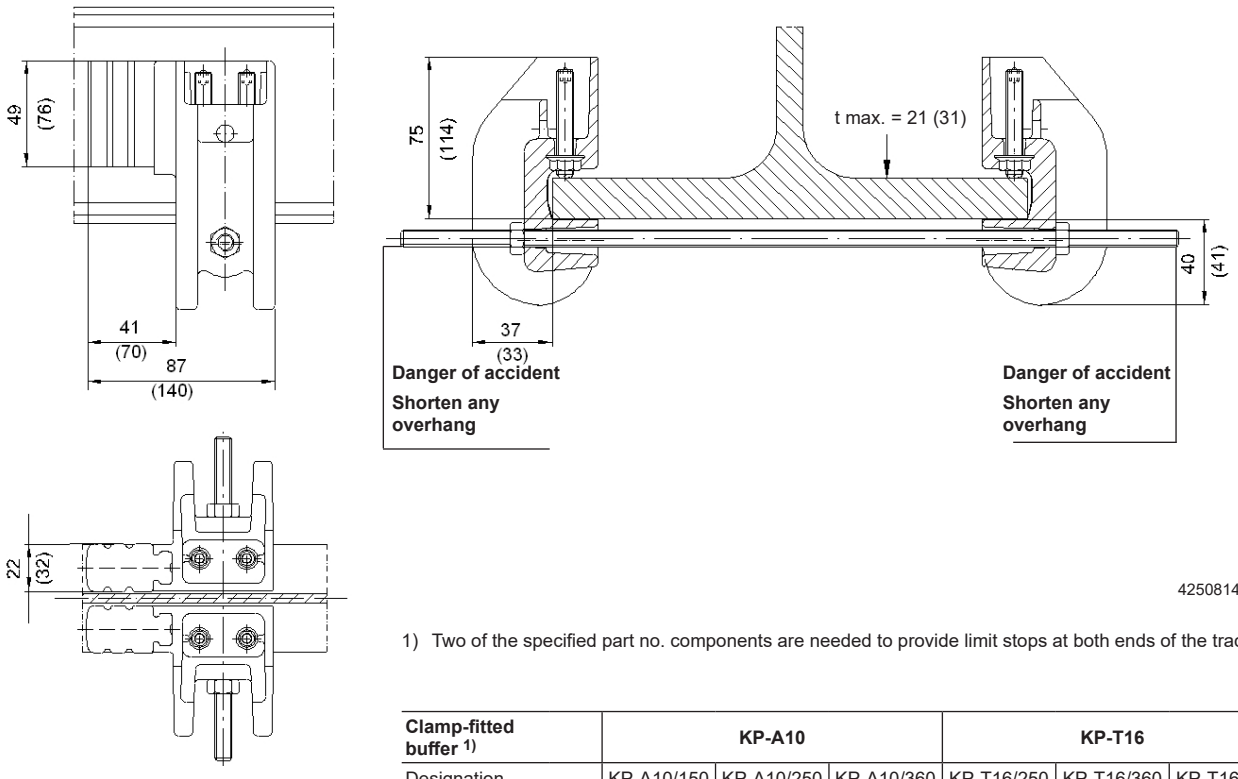
Properties

- Simple installation,
- For sloping and parallel flanges,
- Ffor various trolleys, from CF 5 Click-fit trolleys and U11 to RU56 trolleys,
- Tightening torques for assembly cast into clamp-fitted buffer,
- Buffers can be easily replaced,
- Operating temperature range: from -20°C to +70°C,
- Sufficient resistance to ageing, ozone and weather,
- Resistant to acids and lyes,
- Not suitable for chain hoists with suspension and support roller for chain collector box,
- Not suitable for articulated trolleys.

General operating conditions

Buffer size	KP-A10				KP-T16			
Flange thickness	Max. 21 mm				Max. 31 mm			
Flange width	50 mm to 314 mm				82 mm to 305 mm			
Smallest DIN girder profile section	INP 100	IPE 100	IPB 120	IPBL 120	INP 180	IPE 180	IPB 180	IPBL 180
Largest DIN girder profile section	INP 300	IPE 600	IPB 320	IPBL 450	INP 500	IPE 600	IPB 650	IPBL 1000
Travel wheel diameter	56 mm to 80 mm				80 mm to 125 mm			

KP-A10 (KP-T16) clamp-fitted buffer



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1) Two of the specified part no. components are needed to provide limit stops at both ends of the track.

Clamp-fitted buffer [1]	**KP-A10**			**KP-T16**		
Designation	KP-A10/150	KP-A10/250	KP-A10/360	KP-T16/250	KP-T16/360	KP-T16/420
Part no.	826 924 44	826 926 44	826 928 44	826 982 44	826 984 44	826 986 44
Flange width [mm]	50 - 104	105 - 204	205 - 314	82 - 195	196 - 305	306 - 420

For further information, see "Clamp-fitted buffer technical data" document, refer to the table on page 19.

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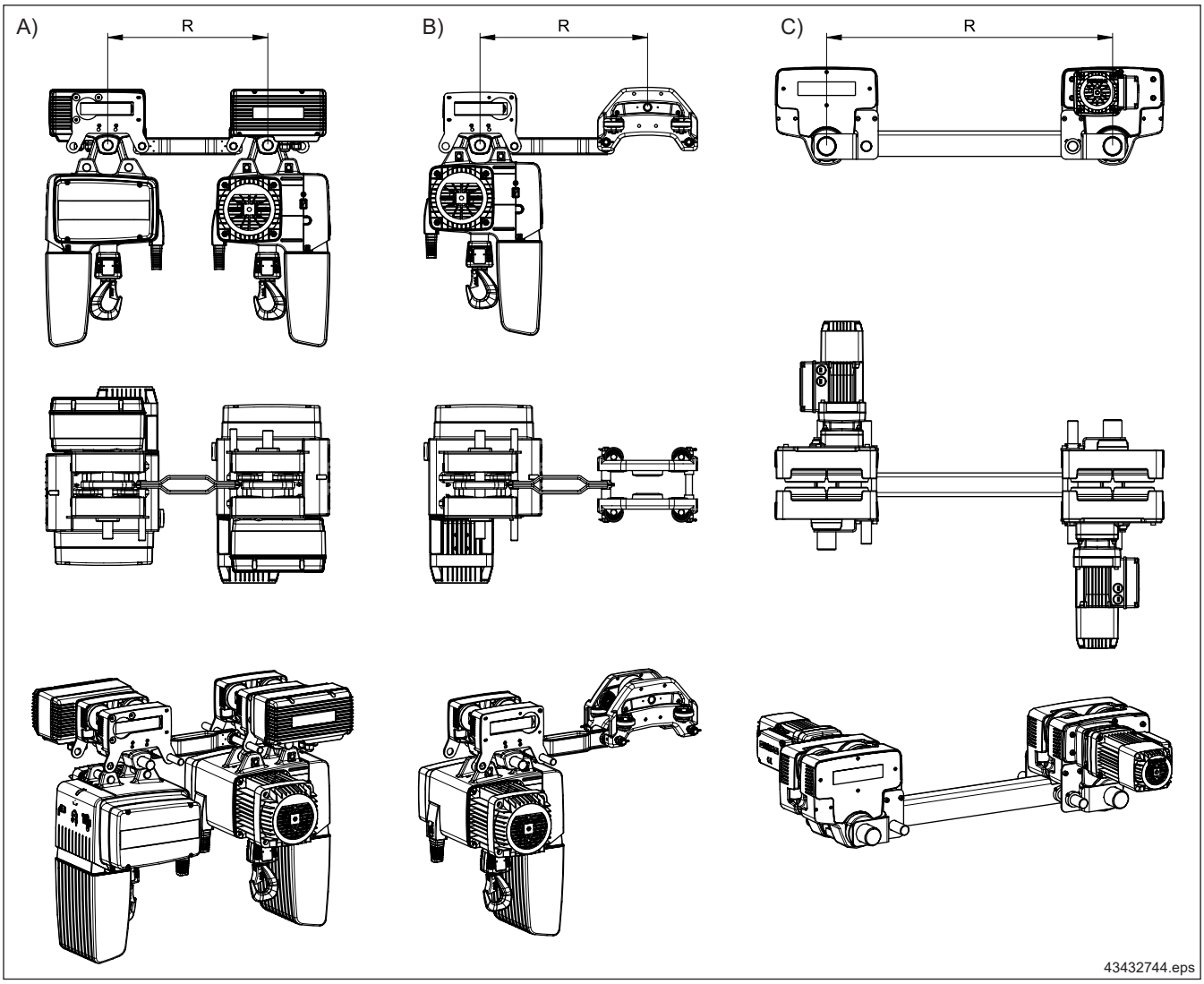
4.1.9 Link bar



Item	Designation		Crossbar distance R [mm]	Part no.
A)	Coupling set for trolley combination	U11 ➔ U11	350 - 3000	747 670 46
		U22/U34 ➔ U22/U34	410 - 3000	749 279 46
C)		U56 ➔ U56	600 - 3000	749 772 46
B)		U11 ➔ DRF 200	330 - 1500	747 604 46
		U22/U34 ➔ DRF 200	410 - 3000	749 468 46
Not shown		U56 ➔ DRF 200		750 430 46

If two chain hoists are operated from a common control position with coupled trolleys, a risk analysis must be carried out and it must be clarified whether the application is subject to the new tandem directive.

DC chain hoists coupled to DRF 200 friction-wheel travel drives can be used for poor track conditions, wet and dirty tracks, inclined travel, special speeds, frequency-regulated speeds, for example.

For further information, see “DC 1 - 25 tandem assembly instructions” document, refer to the table on page 19.

4.2 Chain hoists for special safety regulations

4.2.1 General

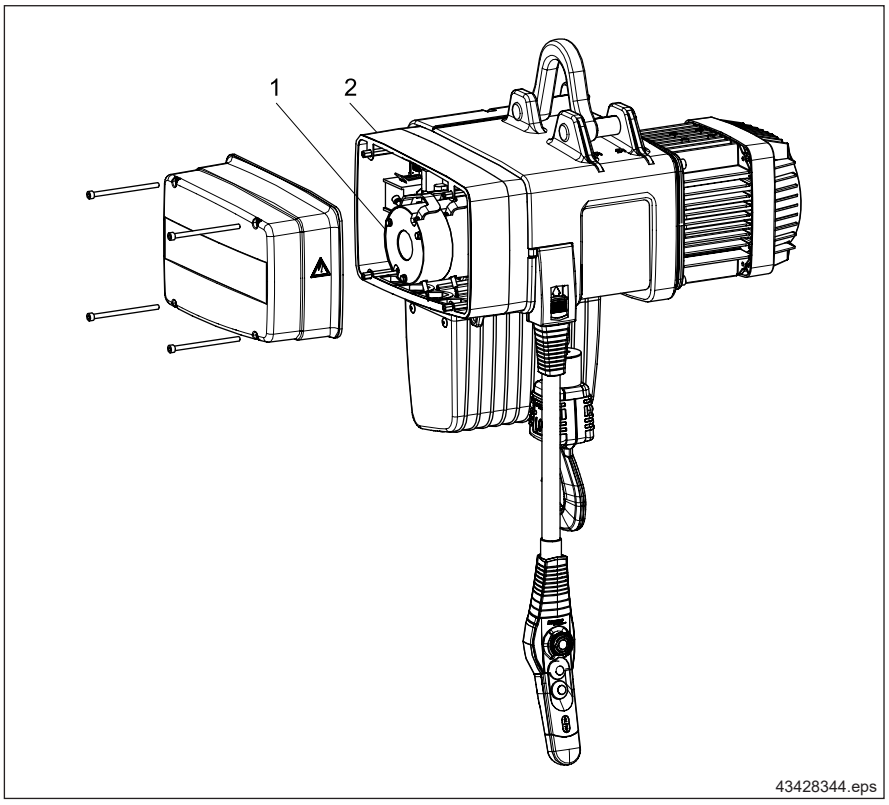
Depending on the chain hoist application, special safety measures may be required, e.g.:

- for handling molten masses,
- for use of chain hoists when persons are present under the load according to rules and regulations of German Social Accident Insurance (DGUV) (BGV D 8 Plus or BGV C 1).

The requirements of the safety regulations may be satisfied, for example, by the use of:

- additional external safety controls or safety controls provided by the customer and overload protection,
- PROFIBUS encoder, double brake, geared limit switch, double GF brake module.

4.2.2 Double brake



1 Double brake with manual brake release lever
2 Intermediate flange

Overall length l of the chain hoist is increased by the required intermediate flange:

- DC 5 by 110 mm,
- DC 10 by 90 mm.

Please contact the manufacturer for installation of a double brake in a chain hoist at a later date.

For further information, see “DC double brake assembly instructions” document, refer to the table on page 19.

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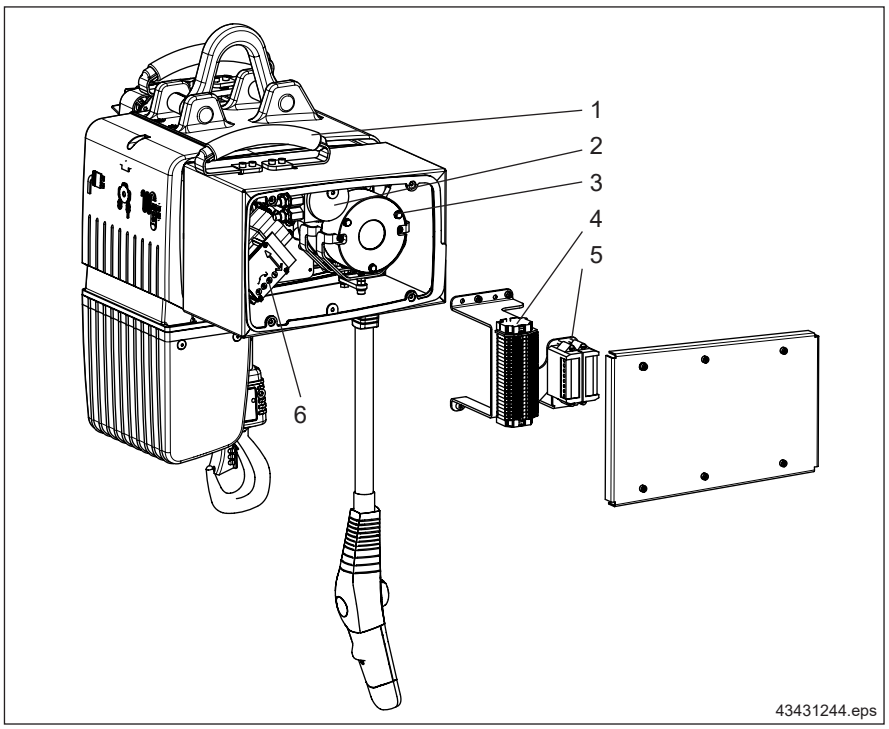
4.2.3 Chain hoists for mobile entertainment systems



1 Handle for mobile transport
2 PROFIBUS rotary encoder
3 Double brake
4 Terminal strip
5 Brake module
6 Geared limit switch

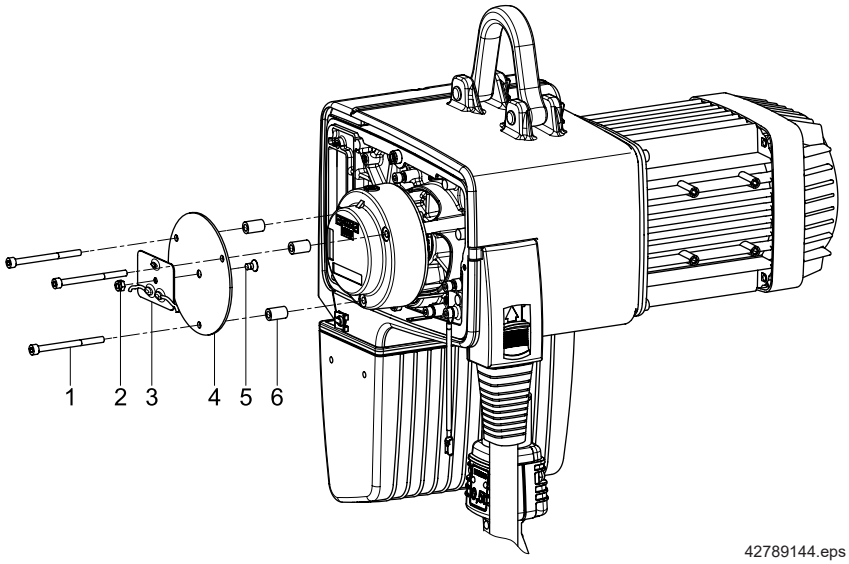
Use of chain hoists when persons are present under the load	Rules and regulations of German Social Accident Insurance (DGUV)			
	(BGV D 8)	**(BGV D 8)** with secondary retaining arrangement, additional safety rope/chain	**(BGV D 8 Plus)**	**(BGV C 1)**
Assembly/disassembly, setting-up	Not permissible	Not permissible	Not permissible	Permissible
Holding loads (no movement/standstill)	Not permissible	Permissible	Permissible	Permissible
Moving loads (lifting and lowering)	Not permissible	Not permissible	Not permissible	Permissible
Design requirements for chain hoists				
Group of mechanisms	min. 1Bm		min. 1Bm	min. 1Bm
Dimensioning of the mechanism	Single rated load		Double rated load	Double rated load
Chain specification for rated load	Safety factor min. 5		Safety factor min. 10	Safety factor min. 10
Slipping clutch permissible	Permissible		Not permissible (for the DC, the slipping clutch is permissible as it does not bear the load when the brake is applied)	Not permissible (for the DC, the slipping clutch is permissible as it does not bear the load when the brake is applied)
Brake	1 x		2 x	2 x
Emergency limit switch	No		No	Yes
Operating limit switch	No		No	Yes
Overload monitoring	Slipping clutch		Cut-off (for the DC, the slipping clutch is permissible as it does not bear the load when the brake is applied)	Cut-off at 120% of rated load
Underload monitoring	No		No	Yes (underload monitoring with group cut-off is necessary for guided loads and system loads)
Speed monitoring for regulated drives	Omitted		Omitted	Yes
Result	**DC chain hoist fulfils the requirements without special measures**		**DC chain hoist fulfils the requirements with the following measures:** Double brake 50% load capacity reduction	**DC chain hoist only fulfils the requirements with additional safety control system provided by the customer**

(Source for table listing: VPLT.SR2.0 Standards for entertainment systems)

4.3.1 Braking resistor for DCS-Pro

DCS-Pro 1 - 5

1 M5x65 hexagon socket screw
2 M5 hexagon nut
3 PLR 100 resistor
4 Braking resistor plate
5 M5x8 countersunk screw
6 Braking resistor spacer tube



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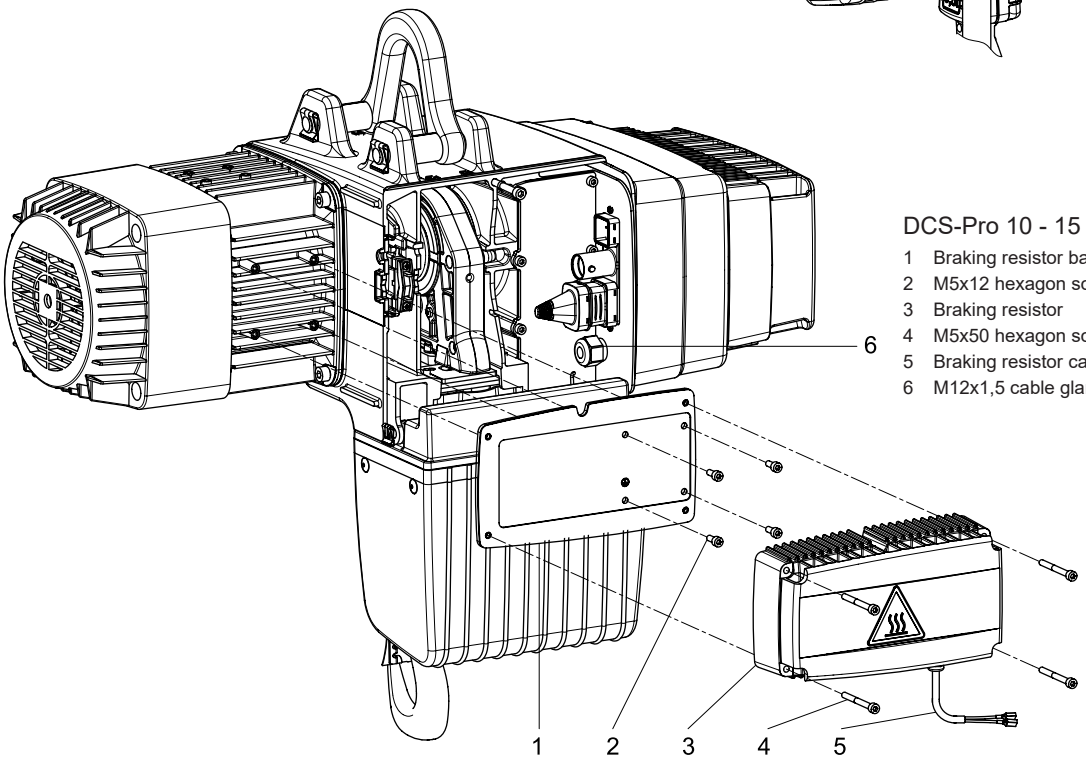
DCS-Pro 10 - 15

1 Braking resistor base plate
2 M5x12 hexagon socket screws
3 Braking resistor
4 M5x50 hexagon socket screws
5 Braking resistor cable
6 M12x1,5 cable gland



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Designation	Chain hoist size	Part no.	Weight [kg]
Braking resistor set	DCS-Pro 1 - 5 (can be retrofitted from year of manufacture 07/2010)	718 630 45	0,26
	DCS-Pro 10 - 15	715 615 33	2,50

The chain hoist can be retrofitted with a braking resistor to increase deceleration and, as a result, shorten the braking distance.

The braking resistor set includes the braking resistor and all components needed for installation. The braking resistor is already included as standard in the following chain hoists:

DCS 10 1/1 VS12, DCS 10 2/1 and DCS 15.

For further information, see “DCS-Pro braking resistor assembly instructions” document, refer to the table on page 19.

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4.3.2 Geared limit switch

For further information, see “DC geared limit switch assembly instructions” and “DC-Pro 16- 25 chain hoist operating instructions” documents, refer to the table on page 19.

DC 1 - 15	B-Command/FRS					Stromag LC 76					Stromag LC 180				
3 contacts	720 156 45	Hook path per revolution of the drive shaft on the geared limit switch [mm]	Hook path when switching cam is actuated. No data, as the switching cam is pointed.	± Repeat accuracy [mm]	Hysteresis [mm]	-	Hook path per revolution of the drive shaft on the geared limit switch [mm]	Hook path when 40° switching cam is actuated approx. [mm]	± Repeat accuracy [mm] 1)	Hysteresis [mm] 1)	-	Hook path per revolution of the drive shaft on the geared limit switch [mm]	Hook path when 40° switching cam is actuated approx. [mm]	± Repeat accuracy [mm] 1)	Hysteresis [mm] 1)
4 contacts	-					150 008 98					100 015 98				
4 additional contacts	-					150 007 98					100 013 98				
Rated revolutions	100					76					180				
Useful revolutions	-					76,0					185,6				
Transmission ratio	1:100					1:85,55					1:208,77				
Chain hoist 2)	Hook path [m]					Hook path [m]					Hook path [m]				
DC 1 - 2	14,5	146,4				10,7	146,40	1390	10	130	26,7	146,40	3400	25	220
DC 5	8	85,5				6,3	85,50	810	6	80	15,6	85,50	1980	15	130
DC 10 1/1	11,6	119,25				8,7	119,25	1130	8	110	21,8	119,25	2770	21	180
DC 10 2/1	5,8	59,625	-	-	-	4,4	59,63	570	4	50	10,9	59,63	1380	10	90
DC 15 1/1	13	136,125				10,0	136,13	1290	10	120	24,8	136,13	3160	24	200
DC 15 2/1	6,5	68,063				5,0	68,06	650	5	60	12,4	68,06	1580	12	100
Double chain hoist 3)															
KLDC-D 10 1/1	11,6	119,7				8,8	119,70	1140	9	110	21,8	119,70	2780	21	180
KLDC-D 10 2/1	5,8	59,85				4,4	59,85	570	4	50	10,9	59,85	1390	10	90
KLDC-D 15 1/1	14	143,1	-	-	-	10,5	143,10	1360	10	130	26,1	143,10	3320	25	210
KLDC-D 15 2/1	7	71,55				5,2	71,55	680	5	60	13,1	71,55	1660	12	110
	Mechanical service life: 3 x 10^6 switching operations					Mechanical service life: 1 x 10^7 switching operations									
	Type of enclosure: IP 65					Type of enclosure: IP 65									
	Rated operating voltage: 250 V AC					Rated operating voltage: 230 V AC/60 V DC									

DC 16 - 25		Stromag series 51 type 205					Stromag series 51 type 540				
3 contacts		-	Hook path per rev. of the drive shaft on the geared limit switch [mm]	Hook path when 15° switching cam is actuated approx. [mm]	± Repeat accuracy [mm] 1)	Hysteresis: [mm] 1)	721 100 45	Hook path per rev. of the drive shaft on the geared limit switch [mm]	Hook path when 15° switching cam is actuated approx. [mm]	± Repeat accuracy [mm] 1)	Hysteresis [mm] 1)
4 contacts		721 095 45					-				
4 additional contacts		721 096 45					-				
Rated revolutions		205					540				
Useful revolutions		206,26					541,5				
Transmission ratio		1:212,272					1:557,284				
Chain hoist 2)		Hook path [m]					Hook path [m]				
DC 16 1/1		44,0	217,80	1930	39	220	116,8	217,80	5060	101	590
DC 16 2/1		22,0	108,90	960	19	110	58,4	108,90	2530	51	290
DC 25 1/1		42,8	211,50	1870	37	220	113,4	211,50	4910	98	570
DC 25 2/1		21,4	105,75	940	19	110	56,7	105,75	2460	49	290
		Mechanical service life: 1 x 10^7 switching operations									
		Type of enclosure: IP 55 (in electric equipment cover)									
		Rated operating voltage: 24 V AC									

1) The repeat accuracy corresponds approximately to the hook path travelled when the cam disc of the geared limit switch turns 0,2°. The values given for repeat accuracy and hysteresis are quoted with a safety factor of 1,5 and rounded off.

2) The specified values do not apply to DC-Wind chain hoists.

3) The values for the double chain hoists only apply to KLDC-D models. The values for the LDC-D model correspond to those of standard chain hoists.

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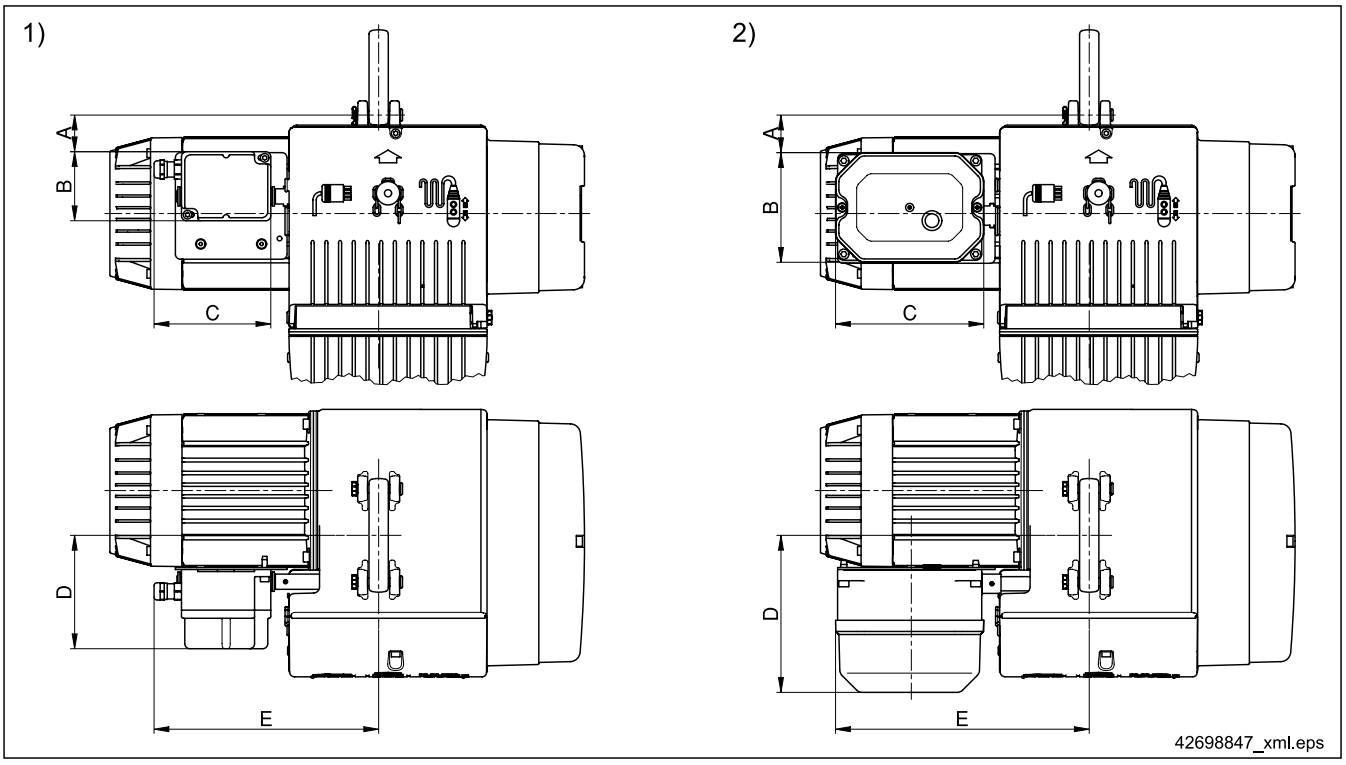
DC 1 - 15 chain hoist

With DC 1 - 15 chain hoists, the geared limit switch enables additional cut-off points to be approached beyond the normal standard limit switch functions. The geared limit switch is available as an option. It is fitted to the outside of the chain hoist.

3 contacts
Geared limit switches with 3 contacts are supplied ready wired with the hoist control system and replace the standard operating limit switches in DC chain hoists. The third contact is designed for fast-to-slow switching of the lifting motion. It can be rewired for fast-to-slow switching of the lowering motion. It cannot be wired by the customer. The fast-to-slow limit switch function is not available for DCS units with infinitely variable lifting speeds.

4/8 contacts
Geared limit switches with 4 or 8 contacts are provided for wiring in installations by the customer. The standard operating limit switches of the DC chain hoist therefore remain active.
The geared limit switch is delivered without wiring to the hoist control system.

Dimensions



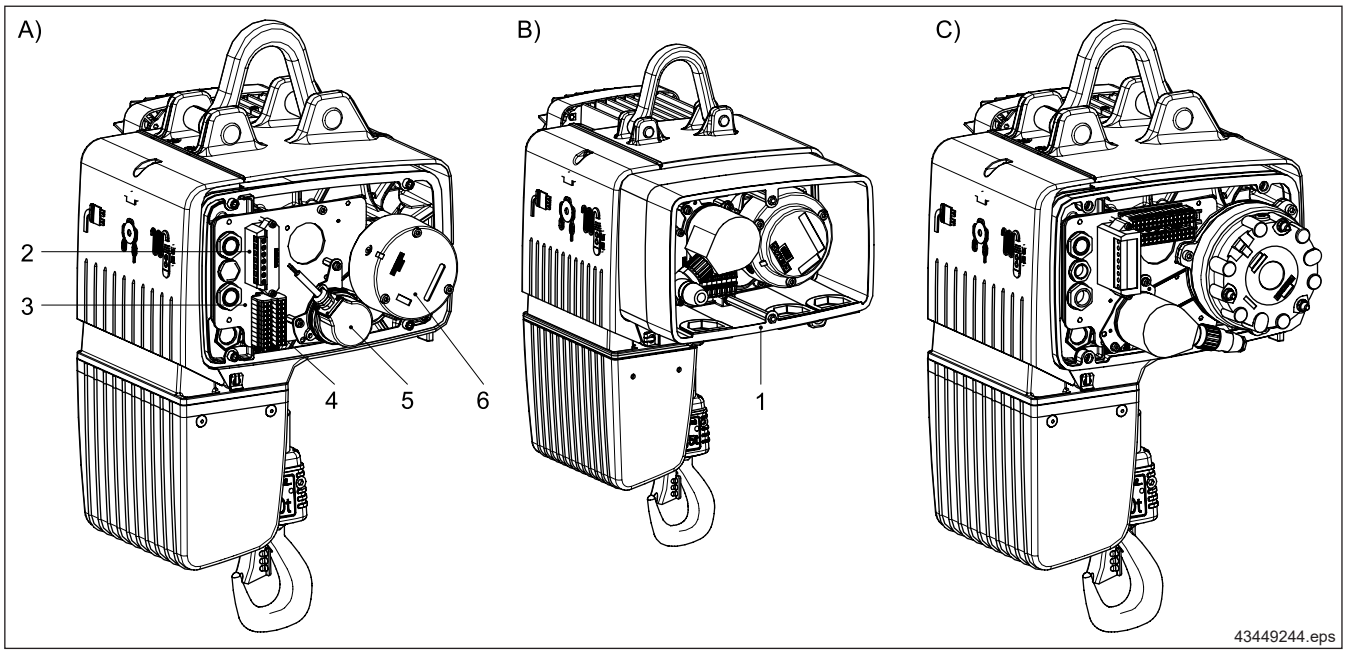
Manufacturer/switch type		B-Command/FRS					Stromag LC 76 and LC 180				
		3 contacts					4/8 contacts				
Chain hoist size	**Reeving**	**A [mm]**	**B [mm]**	**C [mm]**	**D [mm]**	**E [mm]**	**A [mm]**	**B [mm]**	**C [mm]**	**D [mm]**	**E [mm]**
DC 1 - 2	1/1	19	72	116	106	220	7	108	146	139	248
DC 5		36			119	221	37			156	250
DC 10	1/1	70,5			125	233	46,6			163	265
	2/1					268					300
DC 15	1/1	82			133	238	62			170	265
	2/1				142					179	

DC 16 - 25 chain hoist

Demag DC-Pro 16 - 25 chain hoists are provided with a geared limit switch as an operating limit switch for fast-to-slow and limit cut-off in the highest and lowest hook position, as standard. The geared limit switch is installed beneath the electric equipment cover and internally wired with the hoist control system. A second GGS geared limit switch is available as an option for signal evaluation by the customer.

4.3.3. Pulse encoder fittings

The rotary encoder is driven via a toothed belt with the motor speed at a transmission ratio of 1:1.



Chain hoist size	DC-ProFC 1 - 5	DC-ProFC 10 - 25	DC-ProDC 10	LDC-ProDC 10	DC-ProDC 16 - 25
Available encoder type	Incremental encoder		-		
	Combined rotary encoder				

A) DC-ProFC 1 - 10 with AG 1 - 2
B) DC-ProDC 1 - 5 with combined rotary encoder with intermediate flange
C) DC-ProDC 10 with combined rotary encoder and BC20 brake
1) Intermediate flange
2) Brake module
3) Mounting plate
4) Terminals
5) Rotary encoder
6) Brake

Combined rotary encoder		
General technical data	Temperature range	-20 … +70°C
	Type of enclosure	IP 65
	Connection	17-pole Coninvers connector
Absolute	Supply	11 - 27 V
	Format	SSI
	Code	Gray
	Level	RS 422
	Pulse number per revolution	1024 (10 bits)
	Revolutions	32768 (15 bits)
	Preset 1	30720000
	Preset 2	1024000
	Programmable	Yes
Incremental	Supply	11 - 27 V
	Increments	1024
	Interface	TTL

Encoder	Incremental encoder	Combined encoder	
Interface	Incremental (AG 1/2)	SSI (absolute)	Incremental
Supply voltage	5 … 30 V DC	11 ... 27 V DC	
Current consumption, typical	50 mA	50 mA	
Interface type	RS 422	RS 422	
Output level	H > 2,5 V DC L< 0,5 V DC	-	H > 2,5 V DC L< 0,5 V DC
Output load	Max. 20 mA per channel	Max. 50 mA per channel	
Output signals	A, /A B, /B N, /N	Gray code	A, /A B, /B
Phase offset A/B channel	90° + 7,5%	-	90° + 7,5%
Pulse number per revolution/ revolutions	1024	1024/32768 (10 bits/15 bits)	1024
Pulse frequency	Max. 150 kHz	-	Max. 300 kHz
Permissible cable lengths (up to 6000 rpm)	250 m	150 m	
Connection	5 m cable with open end	17-pole connector	
Speed	Max. 6000 rpm		
Type of enclosure	IP 65		
Operating temperature	-40 … +80 °C	-20 … +70 °C	

For further information, see “Dedrive Compact STO quick-step operating instructions” document, refer to the table on page 19.

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4.3.4 Overload cut-off with ZMS strain gauge carrier link or load measuring pin

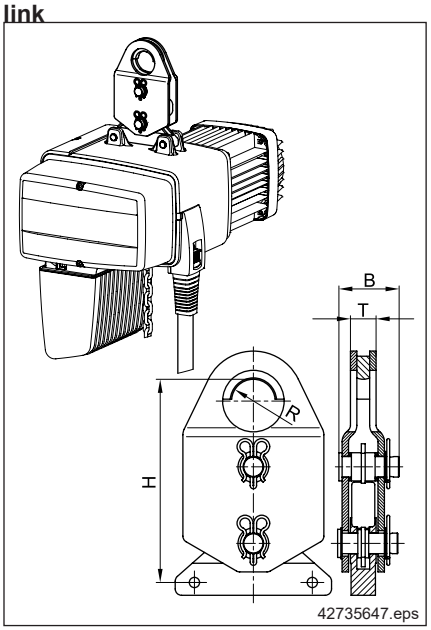
The slipping clutch acts as the **overload protection** for DC chain hoists.

Overload cut-off can optionally be used to provide hoists and supporting structures with even better overload protection.

If the suspended load exceeds the set value by more than 10%, the lifting motion is switched off. The lowering motion can still be used to deposit the load safely.

Besides overload protection, a slack chain function is also possible on application.

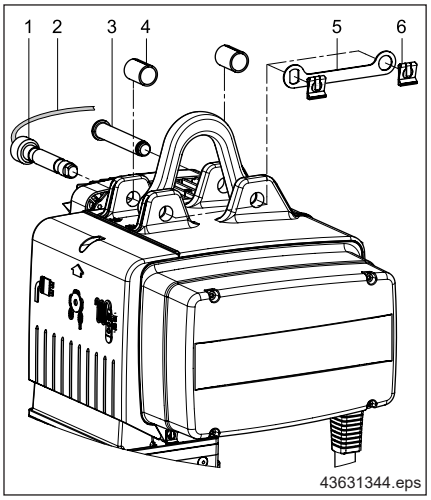
Suspension with strain gauge carrier link



Suspension with strain gauge carrier link

Size DC	Max. load capacity [kg]	H [mm]	B [mm]	R [mm]	T [mm]	Weight [kg]
1 - 5	500	159	47	17	20	2,37
10	1250	187	58,5	22	19	3,56
	2500	218	68,5	31	44	5,57
15 - 25	2500	213				6,70
	5000	300	98	42	70	15,2

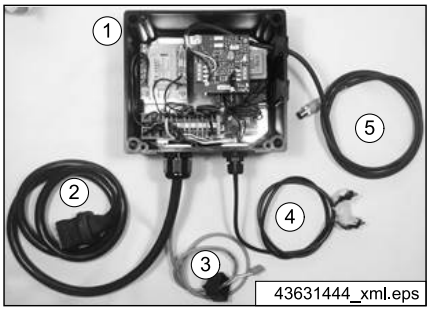
Suspension with load measuring pin



Suspension with load measuring pin

Item	Designation
1	Load measuring pin
2	Cable with connector
3	Suspension bracket pin
4	Spacer tube (DC-Pro 10)
5	Swivel lock
6	Retaining clip

Due to asymmetrical application of the load, attention must be paid to the correct mounting position of the load measuring pin to ensure that the load is clearly detected for overload cut-off with a load measuring pin.



Item	Designation
1	FAW/FGB-MA box
2	Power cable
3	Limit switch cable
4	Limit switch assembly
5	Cable with connector

Refer to the “Installation parts for electric enclosures” section for installing the box.

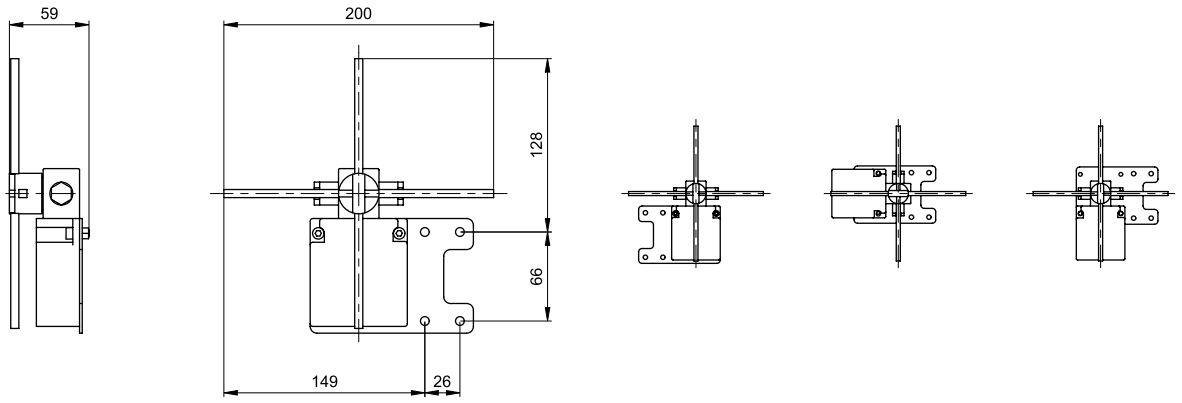
Besides the strain gauge carrier link or load measuring pin, the overload cut-off function requires an electric evaluation unit. This is installed in a separate enclosure on the chain hoist or trolley. The additional electric equipment comprises the FGB-1 (frequency generator) and FAW-1 (frequency evaluator) load detector.

4.3.5 Long and cross-travel limit switches

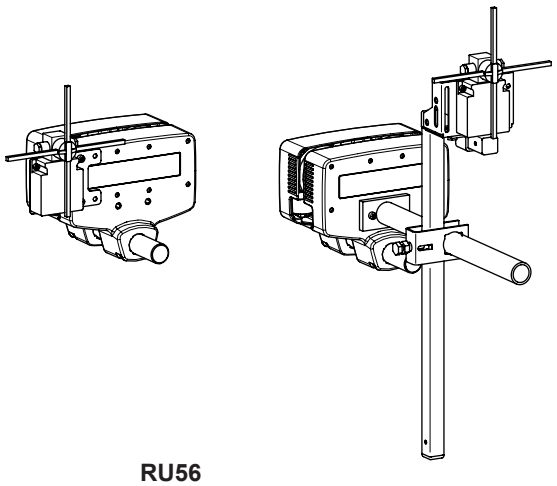
For further information, see “E11-E34 DC travel drive assembly instructions (I)+(II)” and “KBK Classic technical data” documents, refer to the table on page 19.

Cross-type limit switches for single or double-stage cut-off of the travel motion

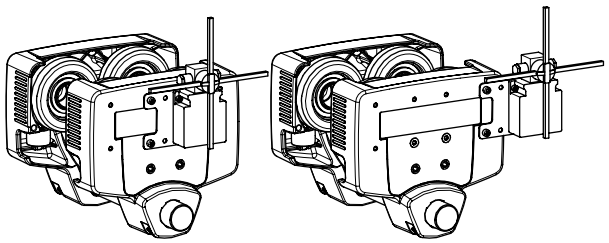
Dimensions



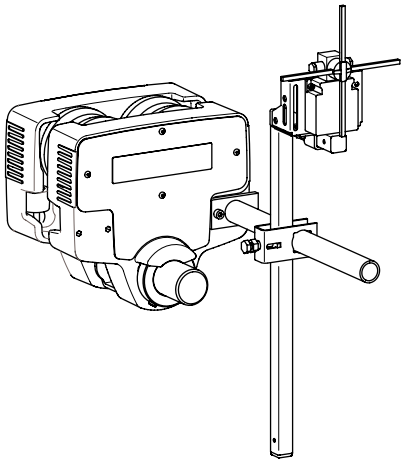
Examples for mounting U11



U22 / U34



RU56



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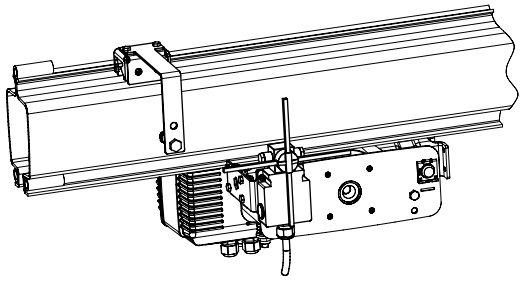
KBK II



Designation		Part no.	Weight [kg]
Limit switch	EU11 to EU56	716 663 45	1,60
	KBK II-L, KBK II, KBK II-H	858 351 44	0,85
Switching vane	KBK II-L, KBK II	851 352 44	0,60
	KBK II-H	858 352 44	0,66

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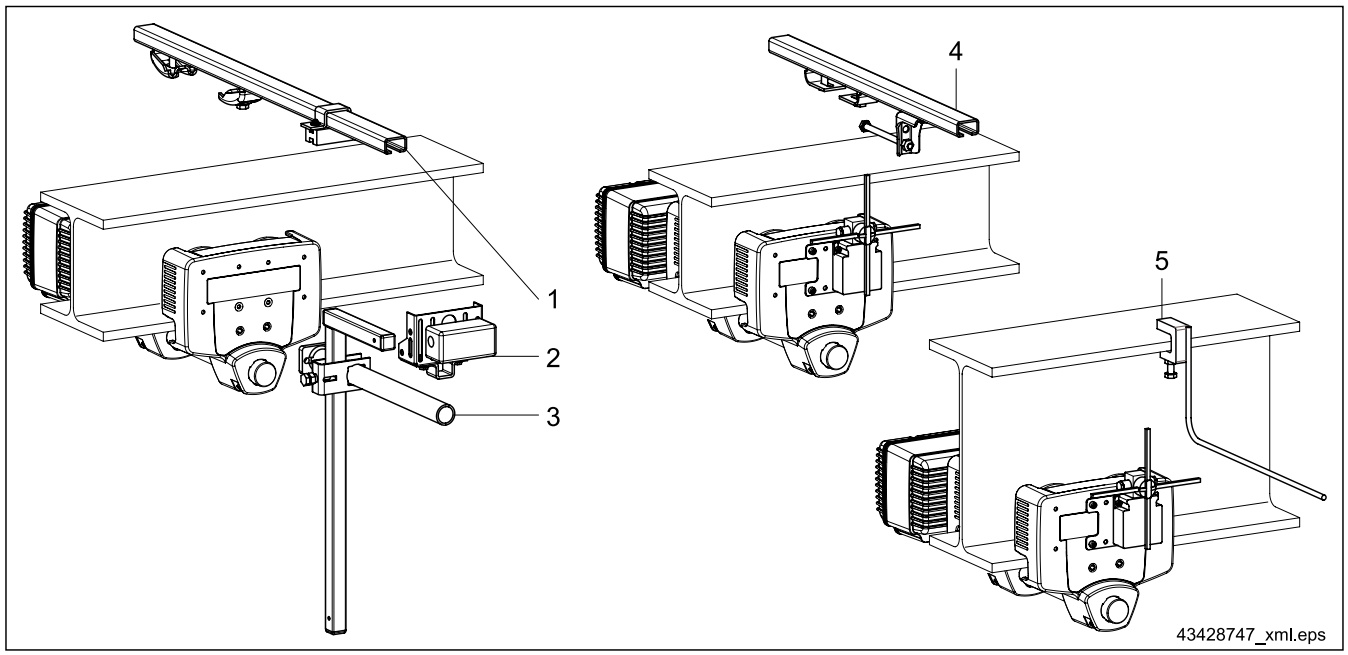
Maintained-contact magnet switch **Switching vanes on profile girder sections**



Item	Designation	Part no.	Weight [kg]
1	I section magnet bracket	764 489 46	3,0
2	Trolley magnet fitting	764 490 46	0,8
3	Current collector set	716 560 45	3,0
4	Switching vane on profile girder sections	748 032 46	2,6
5		655 300 44	0,7

The travel motion can be cut off mechanically via a travel limit switch at a switching vane/limit switch fitting or electrically by means of a maintained contact magnet switch.

4.3.6 Electric accessories

For further information, see “DC electric enclosure assembly instructions” document, refer to the table on page 19.

The electric equipment also serves to convert signals between pole-changing DC chain hoists with tri-state signal transmission (DCS with PWM signals) and crane systems that are fitted with conventional electric contactor controls.

The Polu box is used as a contactor control arrangement between a chain hoist and trolley to control AC drives (e.g. for long-travel drives or slewing cranes fitted with a slewing drive).

The signal converter, terminal box and DC Polu box can be fitted to the DC chain hoist motor for sizes DC 1 - 15.

Universal E box IP 55 enclosure

It may be necessary to fit them in a different position depending on any other equipment (e.g. Harting connector in the power supply line or geared limit switch for DC 1 - 15).

On DC-Pro 16 - 25 units, the signal is modified with 3TK and KT3 plug-in modules (42 - 230 V, 50/60 Hz). These are integrated beneath the electric equipment cover.

Depending on the application, crane bridge enclosures must be selected with EU11 - EU34 trolleys and for installations with AC motors for the travel drive.

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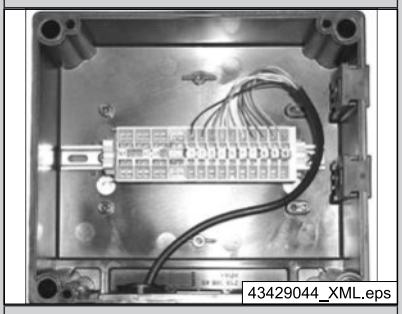
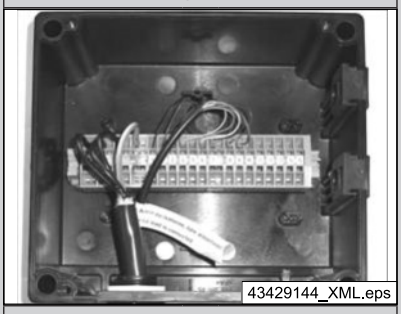
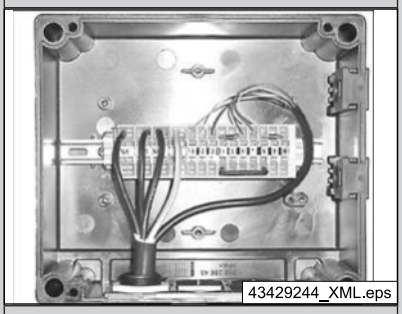
3T3 terminal box



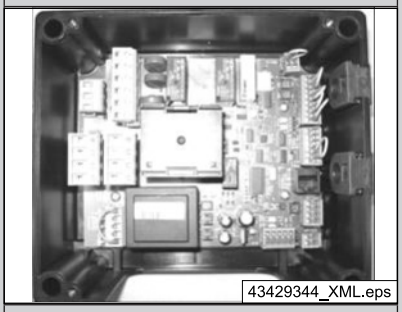
Manual travelling hoist terminal box



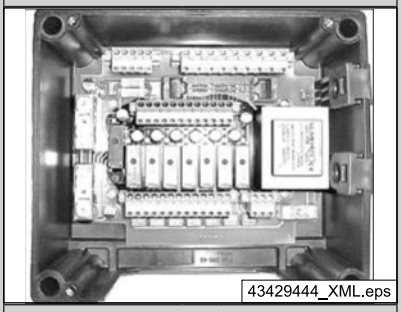
DC/diode terminal box



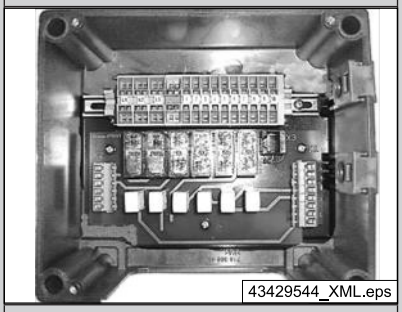
Polu box



3TK signal converter

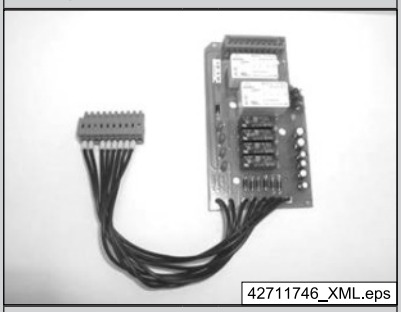


KT3/DT3 signal converter

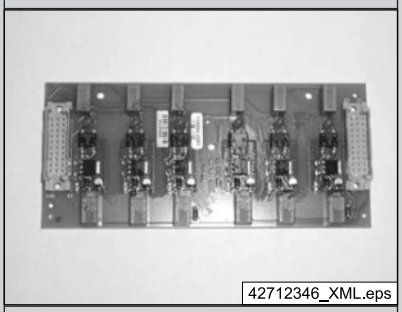


Trolley module

3TK signal converter module for crane axis



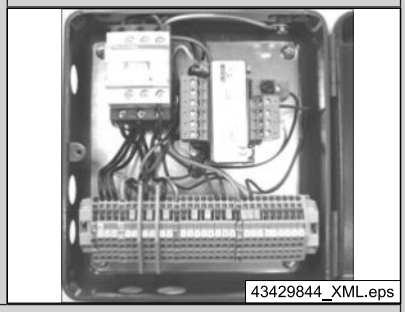
KT3 signal converter module



PWM/tri-state signal converter

Analogue/PWM signal converter

KRBG crane bridge enclosure



Universal E box

KRBG 2 crane bridge enclosure

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Designation	Application	Function	Part no.
3T3 terminal box Power and signal distribution (incl. signal cable to DC and mounting plate)	DC 1 - 25		772 174 45
Manual travelling hoist terminal box Electric long travel, manual cross travel (incl. power and signal cable to DC and mounting plate)	DC 1 - 15		772 175 45
DC/diode terminal box Control of the DC unit via floating contacts with 24 V AC (incl. diodes, power and signal cable to DC and mounting plate)	e.g. control pendant, PLC control system provided by the customer.	Converting parallel contact signals into tri-state signals Power distribution, signal distribution (flat/round cable to RJ45 cable). Not for DCS-Pro / DC-ProDC/CC/FC.	DC 1 - 15 772 165 45 DC 16 - 25 772 168 45
Polu box Control of an AC travel motor up to 2x750 W (for DC 16 - 25 with EU56 trolley module, use 720 335 45.)	DC 1 - 15, travel applications with squirrel-cage rotor motors, e.g. DRF 200, EUD articulated trolley, end carriage drives, slewing cranes with a slewing drive.	Contactor control for DC systems with tri-state control signals. Connection for power distribution, limit and fast-to-slow switches, pole-changing motor and control signals to the chain hoist via RJ45 plug connection.	772 280 45
Trolley module	DC 16 - 25	The trolley module is required to control AC asynchronous motors used as travel or slewing drives. The motor may have one or two numbers of poles and an electro-mechanical brake.	720 335 45
3TK signal converter 3-state to conventional ➔ generation of conventional control signals/contacts for 42 V, 48 V, 115 V and 230 V, 50/60 Hz (incl. mounting plate)	DC 1 - 15, for replacing an existing hoist unit with contactor control, control pendant on DC.	Is used for converting chain hoist tri-state signals in floating contacts for conventional contactor controls. Forwards, Reverse, Fast, Right, Left, Fast, Special signal_1, Special signal_2, Emergency-stop (safety relay) contacts. Is only used for the crane axis if the DSE is fitted to the DC unit.	772 176 45
3TK signal converter module for crane axis (3-State To Conventional ➔ conventional output)	DC 16 - 25	24 V AC tri-state control signals can be converted into conventional control signals from 42 V to 230 V AC for the crane axis. In addition, the module also isolates the emergency-stop contact via two interlocked safety relays.	720 345 45
KT3 signal converter **C**onventional **T**o **3**-State Control of the DC unit via conventional control signals/contacts for 42 V, 48 V, 110 V and 115 V, 50/60 Hz (incl. mounting plate)	DC 1 - 15, for replacing an existing hoist unit with contactor control, control pendant is mobile or not fitted to the travelling hoist.	Is used to convert conventional signals (Lifting, Lowering, Fast, Right/Forwards, Left/Reverse, Fast, Emergency-Stop) into tri-state signals for DC chain hoist/ travelling hoist.	772 177 45
KT3 signal converter module (Conventional To 3-State ➔ conventional input)	DC 16 - 25	Conventional control signals can be converted from 42 to 230 V AC, 50/60 Hz, into tri-state signals on 24 V AC basis. The module can also be used for 24 V DC signals (e.g. PLC).	720 340 45
DT3 signal converter **D**irect **T**o **3**-State Control of the DC unit via conventional control signals/contacts for 230 V AC, 50/60 Hz (incl. mounting plate)	DC 1 - 15, used as for KT3 signal converter, different voltage range	Is used to convert conventional signals (Lifting, Lowering, Fast, Right/Forwards, Left/Reverse, Fast, Emergency-Stop) into tri-state signals for DC chain hoist/ travelling hoist.	772 166 45
PWM/tri-state signal converter	Is used to convert PWM signals for DC 1 - 25 ● tri-state signals, ● conventional V1/V2 signals or ● variable analogue signals (0-5 V or 0-10 V) with direction contacts		720 185 45
Analogue/PWM signal converter	Is used to convert analogue signals (0-5 V DC or 0-10 V DC) for DCS-Pro 1 - 15 ● Control of the DCS-Pro unit via PLC with analogue output ● Parallel control of two or more DCS-Pro chain hoists with DRC-MP radio control		720 188 45
KRBG crane bridge enclosure (230-575 V/50/60 Hz)	Crane applications, e.g. KBK crane with DC travel drives	Used to provide power supply for crane installations with DC systems (tri-state signals). Enclosure with crane switch contactor, 24 V AC control transformer, connection for power and signal distribution to DC travel drives.	772 278 45
KRBG 2 crane bridge enclosure (230-575 V / 50/60 Hz), incl. Polu-Box	Crane applications, e.g. KBK crane with DRF 200 as crane drive, pillar-mounted slewing jib with AC motor as slewing drive	Used for power supply for crane installations with DC travelling hoists (tri-state signals) and for connecting pole-changing motors via a Polu box (e.g. end carriage drives with max. 2 x 750 W). Enclosure with crane switch contactor, 24 V AC control transformer, integrated Polu box. Connection for power and signal distribution to DC travel drives and connection for limit and fast-to-slow limit switches.	772 378 45
Universal E box	DC 1 - 25 (incl. terminal strip, cable unions, mounting plate)		772 167 45

For further information, refer to the documents in the table on page 19:

- **“DC PWM/3ST signal converter assembly instructions”**
- **“DCS analogue/PWM signal converter assembly instructions”**
- **“Technical data, DC electric accessories”**
- **“DC Polu box assembly instructions”**

4.3.6.2 Cables

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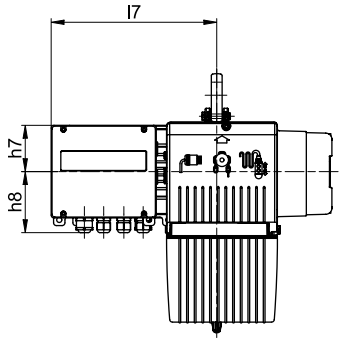
Item	Designation	Size	Part no.	No. of conductors x cross-section [mm²]	Length [m]	Weight [kg]
1	Control cable set (for E11-E34 travelling hoist), flat cable union	DC 1 - 15	720 070 45	10x0,14	1,5	0,10
	Control cable set (KLDC), flat cable union		720 142 45		3,0	
2	Mains connection cable set (for E11-E34 travelling hoist), plug-in module		720 072 45	4x2,5	1,5	0,44
	Mains connection cable set (KLDC), plug-in module		720 144 45		3,0	0,80
3	Power/control cable set (for E22-E34 travelling hoist)	DC 16 - 25	720 369 45	10x0,14/4x1,5	1,5	0,45
4	Motor connection cable set DC 16 - 25 to EU 55 DK/EU56 KBF 71 to KBF 90		720 364 45	8x1,5		0,48
	Motor connection cable set DC 16 - 25 to EU56 with Microtherm option		720 383 45	2x0,5		0,48
5	Power cable with power connector and loose conductor ends	DC 1 - 15	772 068 45	4x2,5		0,50
6	KT3 power cable with loose conductor ends		720 125 45	4x1,5		0,18
7	3TK power cable with loose conductor ends		720 126 45	12x1,5		0,35
8	DRF200/ZBF/ZBA power cable with loose conductor ends		720 127 45	8x1,5		0,30
9	Manual travelling hoist control cable with RJ45 plug connector and loose conductor ends		772 069 45	10x0,14		0,10
10	Control cable with bayonet connector and loose conductor ends		772 073 45			0,08
			772 058 45		10	0,38
11	DRC-DC 6 mains cable from receiver to DC with power connectors	DC 1 - 15	772 051 45	4x2,5	1,5	-
12	DRC-DC 6 E mains cable from travel drive to receiver with power connectors		772 052 45			-
13	24 V AC DRC-DC 10 control cable from travel drive to receiver with connector		772 053 45	2x0,5		-
14	Control cable with bayonet connector and RJ45 connector		772 062 45	10x0,14		-
15	KDC limit switch cut-off		718 382 45	4x0,25	1,5	0,12
	KLDC limit switch cut-off		718 377 45		3,5	0,14
(Not shown)	Signal cable between long-travel limit switch and corresponding long-travel drive (E11-E34)		720 277 45	9x0,5	13	1,40

Examples for attachment:
Motor-side fitting

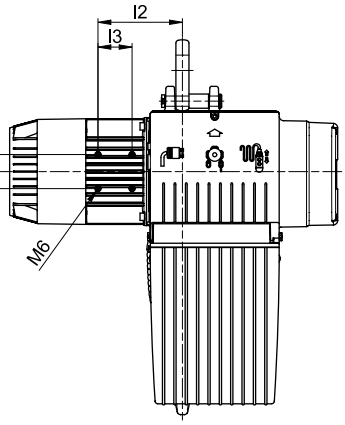
An additional electric enclosure may need to be installed for certain applications (see next page).

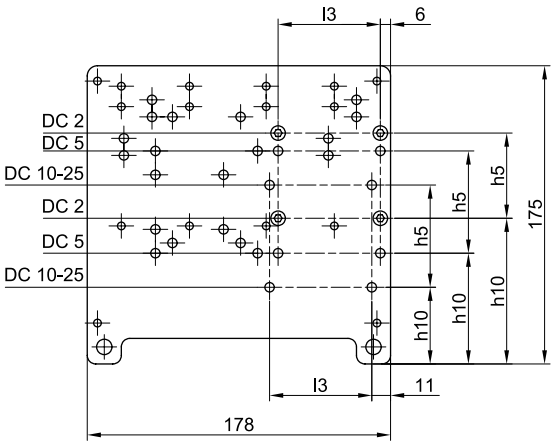
The bore holes on the motor ribs serve as attachment points for the mounting plate.

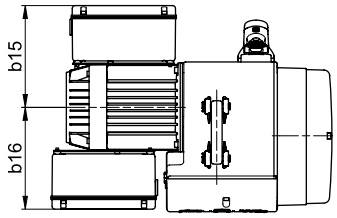
DC 5



DC 10

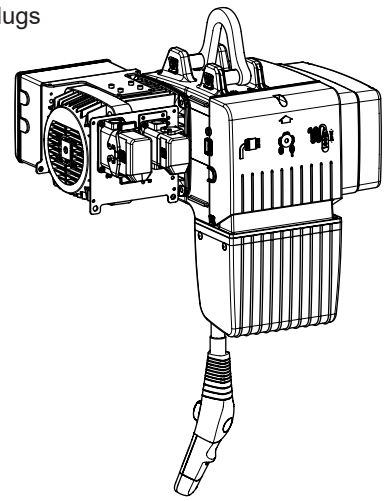




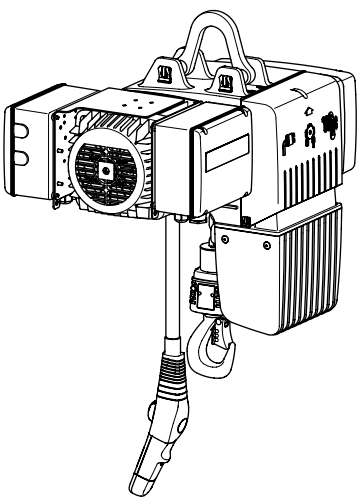


Size	Reeving	b15	b16	l2	l3	l7	h5	h7	h8	h10
DC 1 - 2	1/1	167	167	170	60	286	50	66	123	85,5
DC 5		180	180	175		292	60	82	107	65
DC 10		211	198	182		294		102	87	45
	2/1			147		259				
DC 15	1/1			198		310				
	2/1									
DC 16 - 25	1/1			177		294		82	107	
	2/1									

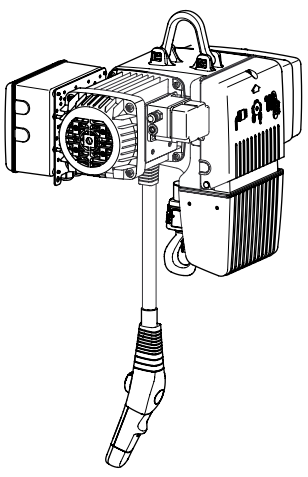
Attachment examples:
DC 10 with electric enclosure and plugs



DC 10 with 2 electric enclosures



DC 5 with 1 electric enclosure and 1 GGS



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Designation	Size	Part no.	Weight [kg]
Enclosure mounting pate (incl. Harting plate)	DC 1 - 25	718 383 45	0,460
Angle bracket	DC 10 - 25	718 335 45	1,150

The enclosure is always fitted to the motor on the control pendant side if a geared limit switch or Harting connector plug is fitted.

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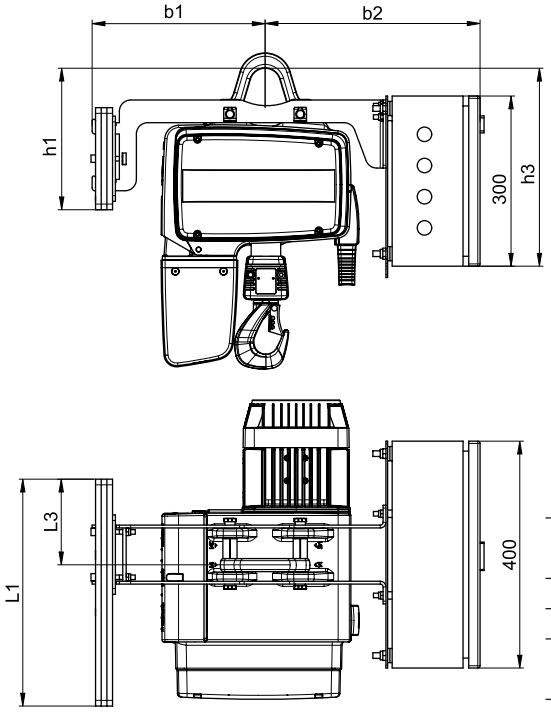
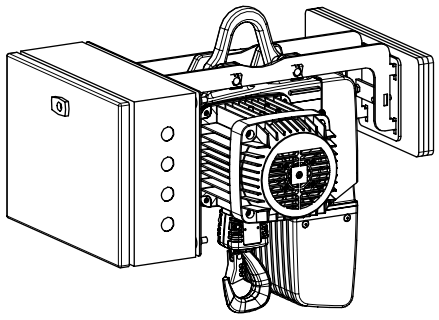
Examples for attachment:
Mounting via suspension eyes

Enclosure attached by means of frame for counterweight fitting





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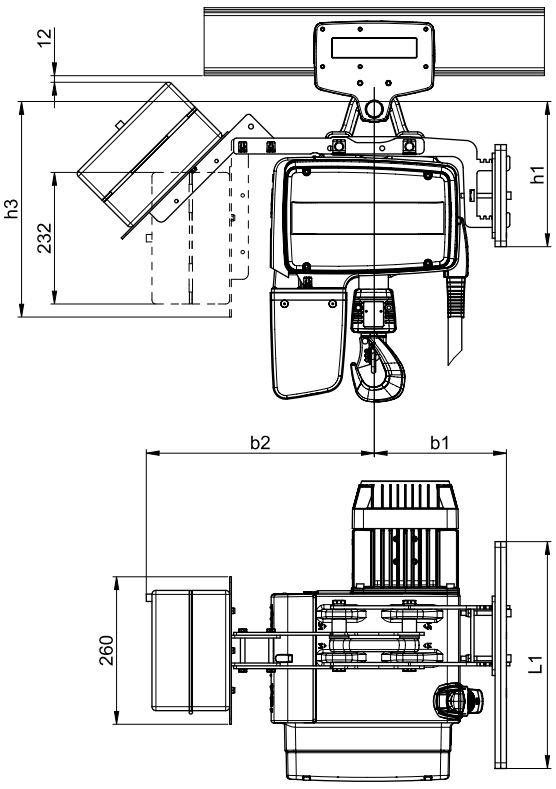
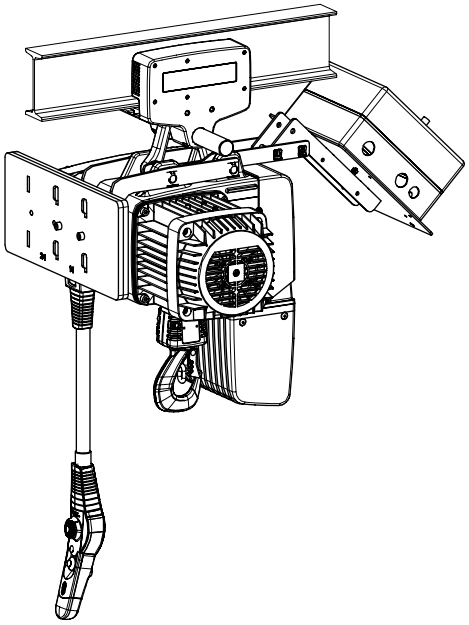
Chain hoist size	Reeving	b1 [mm]	b2 [mm]	h1 [mm]	h3 [mm]	L1 [mm]	L3 [mm]
DC 1 - 5	1/1	258	372	203	346	325	-
DC 10		305	379	250	349	400	151
DC 15 - 25		346	414	363	393	500	250
	2/1	337	423				

Pivoting enclosure fitting allows access to the service cover for sizes DC 1 - 10





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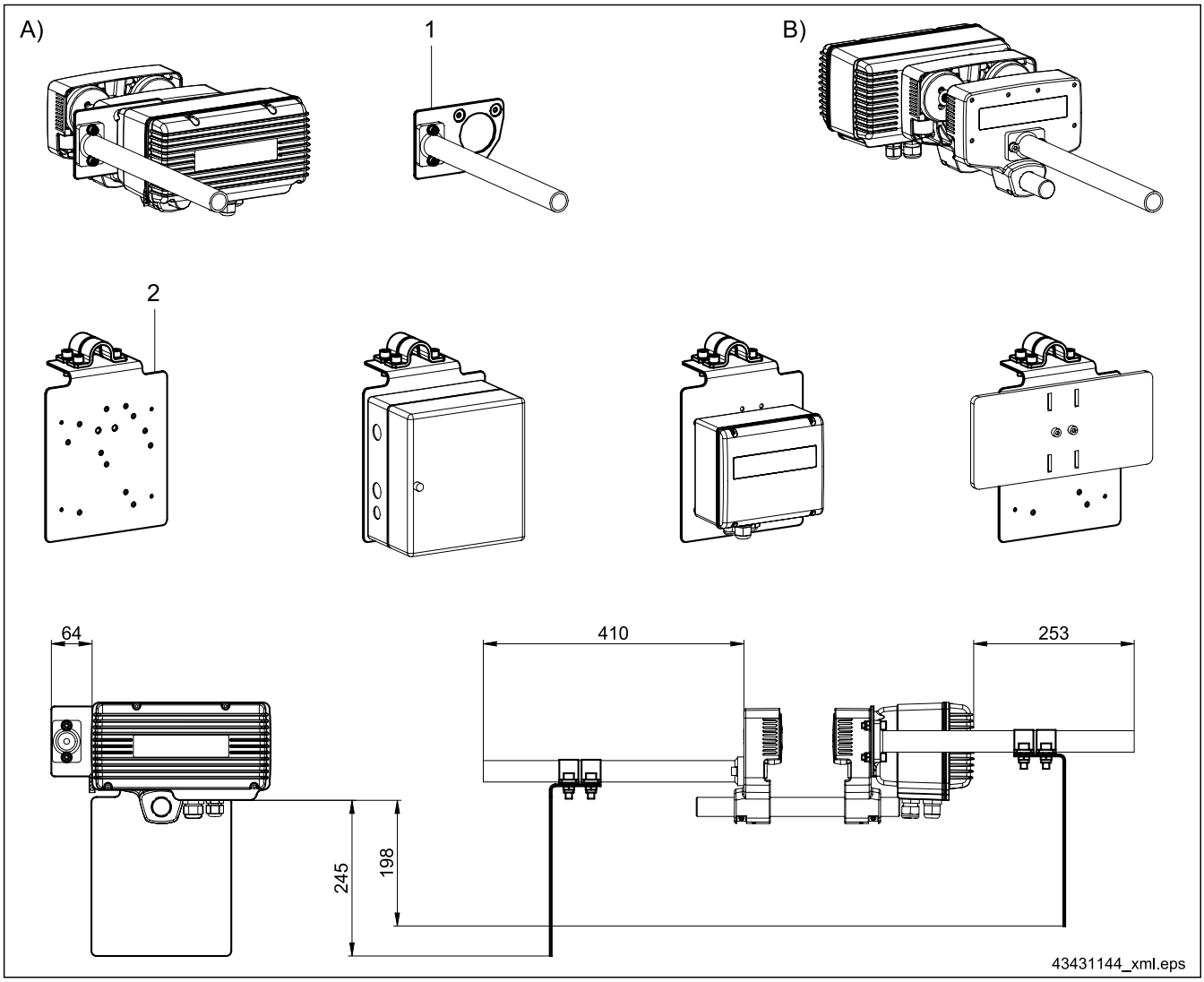
Chain hoist size	Reeving	b1 [mm]	b2 [mm]	h1 [mm]	h3 [mm]	L1 [mm]
DC 1 - 5	1/1	214	360	206	366	325
DC 10		233	402	256	380	400
DC 15 - 25		346	406	363	358	500
	2/1	337	415			

Examples for attachment:
Mounting via current collector tube



Item	Designation	Part no.	Weight [kg]
A)	Current collector fitting on travel drive	-	-
B)	Current collector fitting on trolley		
1	Mounting plate for current collector fitting on travel drive	716 725 45	0,430
2	Mounting plate for current collector fitting on trolley	749 185 46	6,500

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4.3.7 Tandem operation

For further information, see “DC 1 - 25 tandem assembly instructions” document, refer to the table on page 19.

The tandem control system fulfils the requirements of the Machinery Directive for safe and simultaneous operation of two hoist units from one control position.

Tandem operating mode is used if very heavy or long goods have to be transported by two chain hoists or two travelling hoists at the same time.

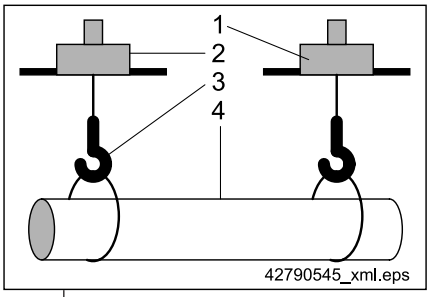
Joint lifting/lowering can cause the load to be inclined if one of the two chain hoists travels against a limitation device (e.g. limit switch, slipping clutch) or stops as the result of a fault. The chain hoists are provided with a “common cut-off” safety function in order to avoid hazards caused by such an inclined position of the load. In this way, the second chain hoist is also brought to a standstill when a chain hoist is switched off by a limitation device or a malfunction.

Absolutely synchronous operation cannot be ensured by the tandem control system.

Tandem operation makes it possible to select control of one or two chain hoists or two travelling hoists in parallel via a control pendant or a radio transmitter. The operator takes over joint control of the chain hoists and/or travelling hoists by means of a hand-over procedure (operating mode selector switch).

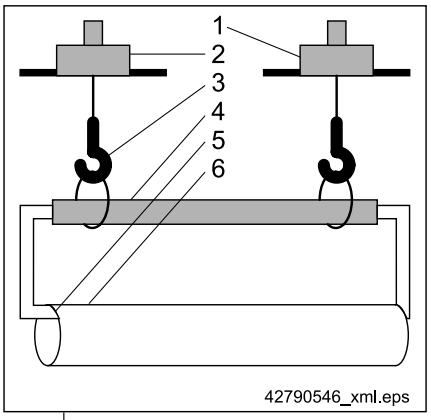
Comply with the operating instructions of the radio control system or the control pendant used for operation from the common control point. The following tandem designs are available:

Long loads



1	Chain hoist/travelling hoist 1
2	Chain hoist/travelling hoist 2
3	Attachment point of the load
4	Load

Heavy loads by means of load handling attachment

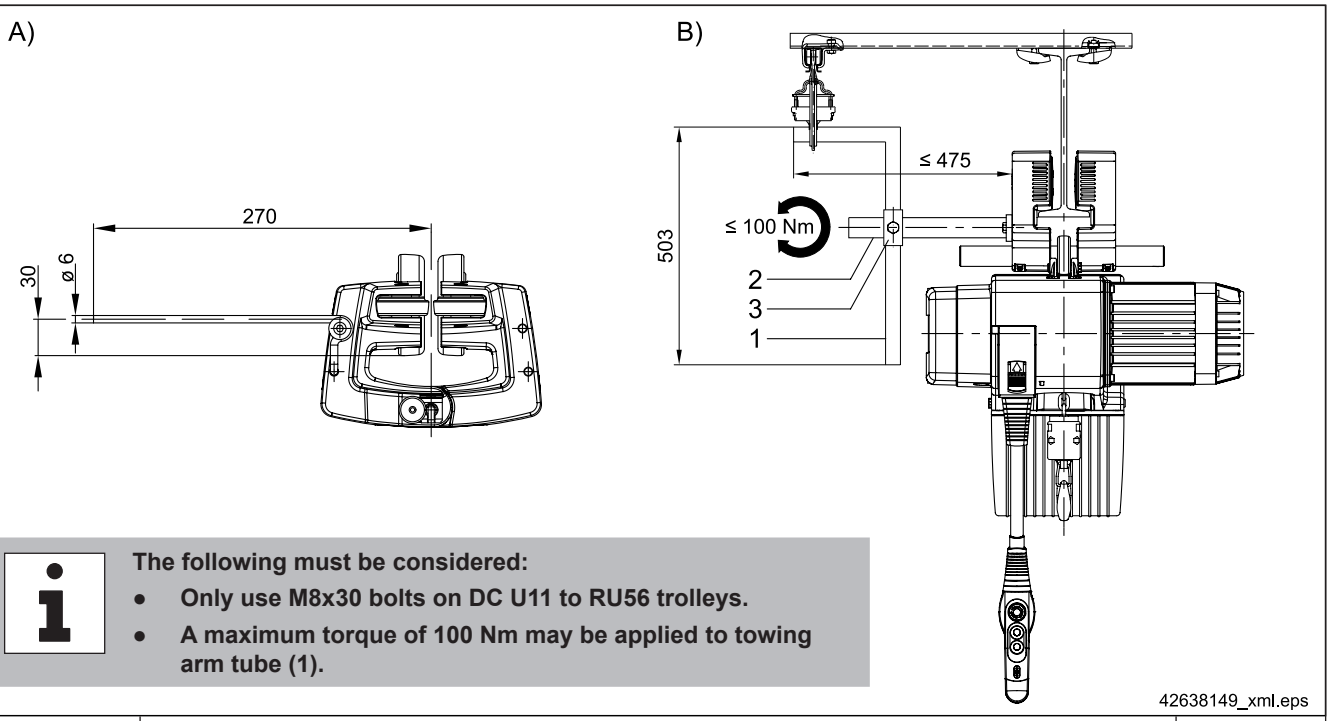


1	Chain hoist/travelling hoist 1
2	Chain hoist/travelling hoist 2
3	Attachment point of the load handling attachment
4	Load handling attachment (e.g. spreader)
5	Attachment point of the load
6	Load

2 chain hoists - stationary, no trolley									
Tandem box	X			X					
2DC terminal box		X	X						
External GGS4 geared limit switch				X					
DST7-C with selector switch	X		X						
DST3-C without selector switch		X		X					
Schematic diagram	1	2	2.1	3					

2 chain hoists - travelling chain hoists									
Each fitted with an electric-travel trolley, trolleys can travel separately	X	X	X	X	X	X			
With a common electric-travel trolley, mechanically connected							X		
With a common pole-changing trolley, mechanically connected								X	
With a double electric-travel trolley, mechanically connected									X
On common track	X	X	X				X	X	X
On parallel tracks				X	X	X			
Tandem box	X	X	X	X	X	X	X	X	X
Terminal box	X	X	X	X	X	X			
Polu box								X	
Mobile control system		X			X				
DST7-C with selector switch	X	X		X	X		X	X	X
DRC-MP radio control system			X			X			
Schematic diagram	4	4.1	4.2	5	5.1	5.2	6	6.1	7

2 chain hoists - crane designs					
No electric-travel trolley, mechanically connected				X	X
Each fitted with an electric-travel trolley, trolleys can travel separately	X	X	X		
On common track	X	X	X		
Tandem box	X	X	X	X	X
Long-travel drives with pole-changing motors	X		X	X	X
Long-travel drives with electric-travel trolleys		X			
Crane bridge enclosure with Polu box	X		X	X	X
Mobile control system	X	X			X
DST7-C with selector switch				X	X
DST9-C with selector switch	X	X	X		
DRC-MP radio control system		X			
Schematic diagram	8	9	10	11	12



The following must be considered:

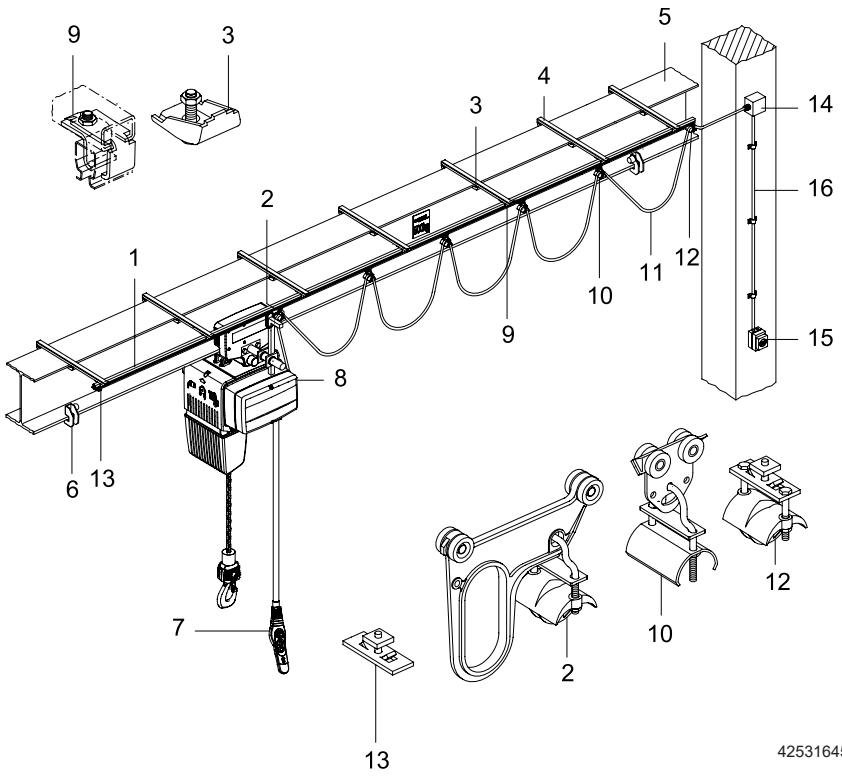
- **Only use M8x30 bolts on DC U11 to RU56 trolleys.**
- **A maximum torque of 100 Nm may be applied to towing arm tube (1).**

Item	Designation	Trolley	Part no.
A)	Current collector	CF 5 Click-fit	840 085 44
B)	Current collector consisting of: Towing arm tube (1), current collector tube (2), tube clip (3)	U11 - U34 RU/EU56	716 560 45

Example: KBK 25

KBK 25 trailing cable power supply line for straight track sections up to 30 m in length, comprising:

1 KBK 25 travel rail (galvanized)
2 Towing trolley
3 Flange clamp
4 800 mm C-rail
5 Steel girder (by the customer)
6 Clamp-fitted buffer
7 Control pendant
8 Chain hoist
9 C-rail bracket
10 Cable trolley
11 Trailing cable
12 Rail end cable clamp
13 Adjustable limit stop
14 Terminal box
15 Mains connection switch
16 Rising line (by the customer)



For further information, see “KBK trailing cable technical data” document, refer to the table on page 19.

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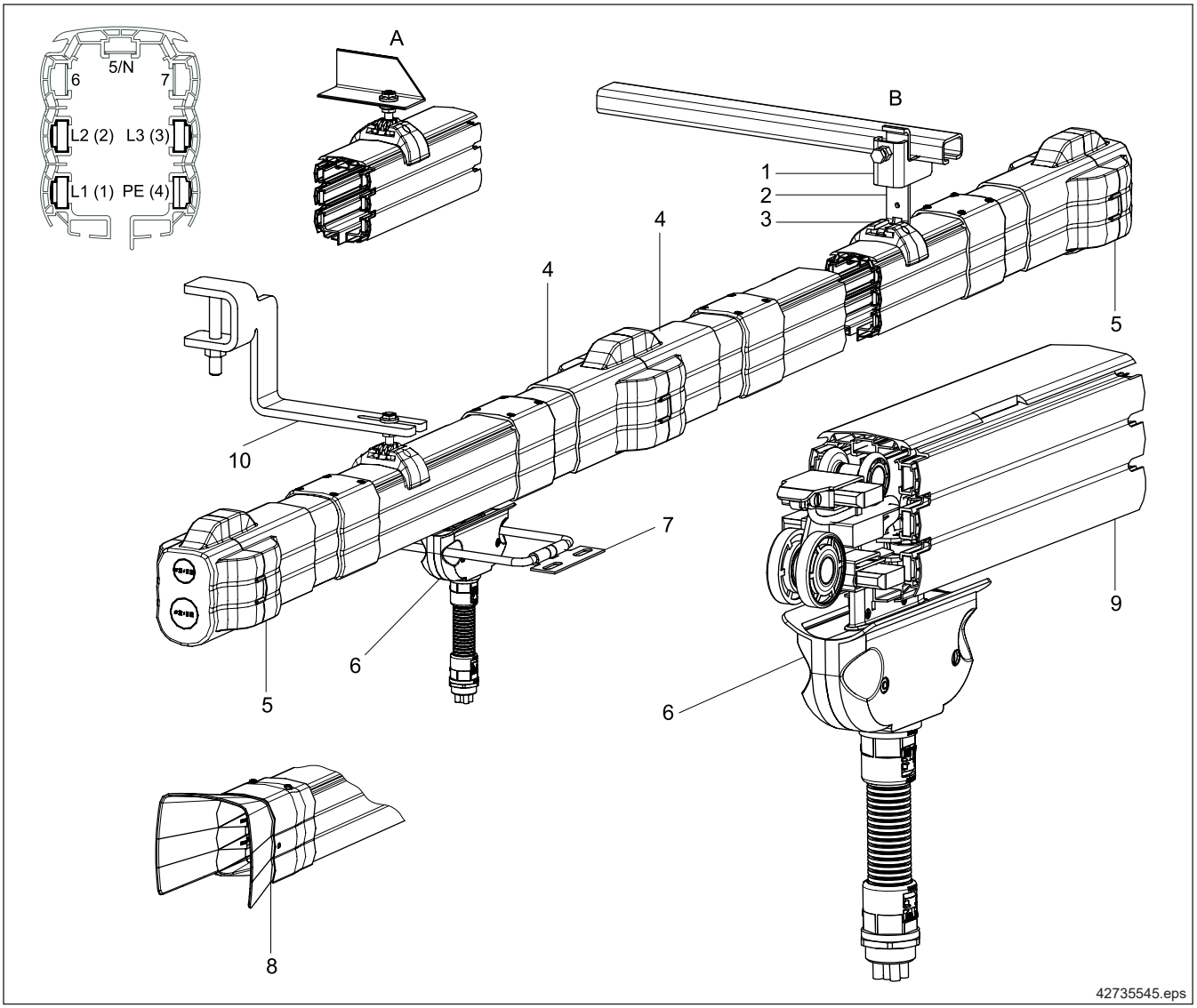
DCL-Pro with end powerfeed or line powerfeed

The DCL-Pro system (Demag Compact Line) can be used as an alternative to a trailing cable power supply arrangement.

It can be installed quickly and easily thanks to patented connectors. The rail elements are supplied pre-assembled and do not have any loose parts. It can be connected to its supporting superstructure either by threaded pins or by suspensions for C-rails.

DCL-Pro can be supplied as an enclosed conductor line system that has 4 to 7 poles with IP23 enclosure (IP24 optional). Thanks to its modular design, it can be easily adapted to your superstructure.

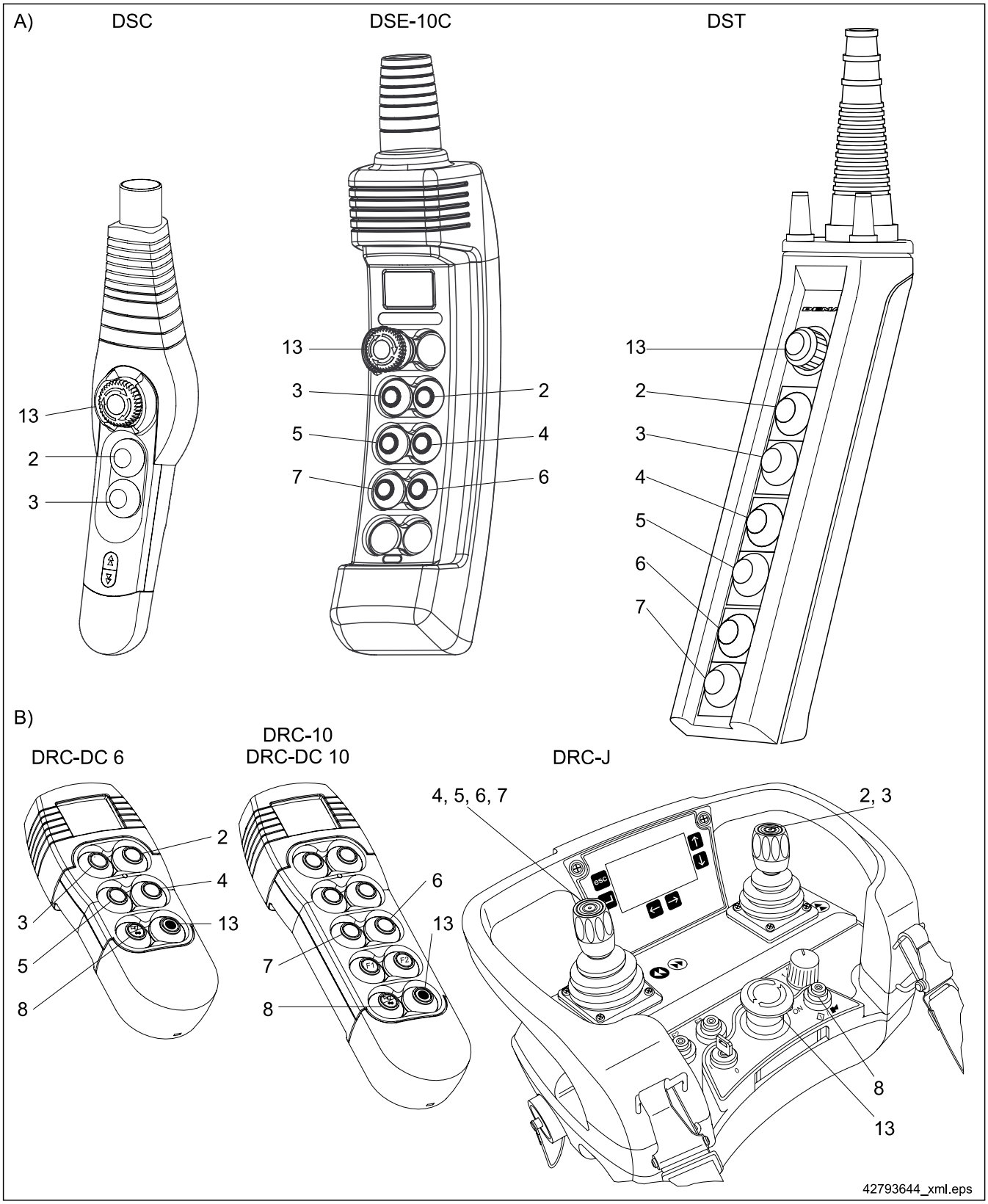


Item	Function	Item	Function	Item	Function
A)	Suspension with M8 threaded pin	4	Connector caps	8	Entry/transfer section
B)	Suspension from C-rail	5	Connector end cap (with powerfeed)	9	Straight section (standard length 4000 mm)
1	Clamp section			10	Mounting arrangement, e.g. on I-beam section
2	Attachment bracket	6	Current collector trolley		
3	Sliding suspension	7	Towing arm		

For further information, see "DCL-Pro conductor line technical data" document, refer to the table on page 19.

5 Control units

5.1 Overview and functions of control units



Item	Function	Item	Function	Item	Function
A)	Cable-connected control pendants	4	Travelling hoist right	8	Signal, horn
B)	Hand-held transmitters for radio control	5	Travelling hoist left	13	Emergency stop
2	Lift	6	Crane forwards/slew right		
3	Lower	7	Crane reverse/slew left		

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5.2 Standard control pendants

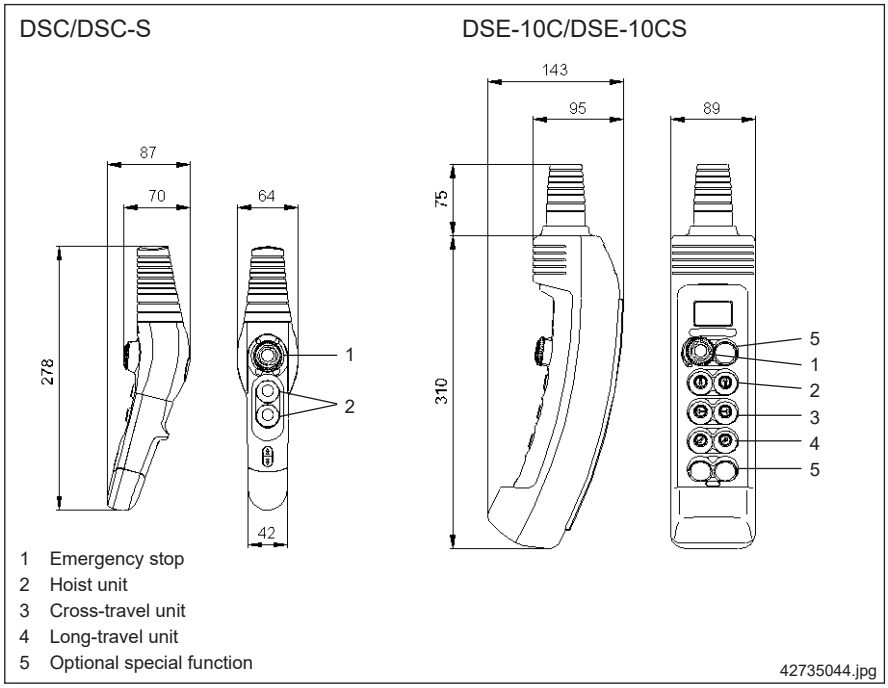
Standard DSC/DSC-S (lifting/lowering) or DSE-10C/CS (2 to 3 axes) control pendants are used for manual cable-connected control of the chain hoist. Both control pendants feature the same plug-in connection for the control cable. The control cable and control pendant are connected by means of a bayonet connector.

DSC/DSC-S and DSE-10C/CS control pendants can be fitted to the height-adjustable standard control cable for DC chain hoists.

An attachment set (part no. 773 371 44) is needed for connection to the DC support sleeve and 2TY control cable.

Design features

- No internal wiring is required in the pendant housing thanks to the plug-in connection.
- The housing is made of high-quality thermoplastic which is highly resistant to impacts.
- Protective insulation to VDE 0100 part 410, section 6.2.
- Switching distances and forces to DIN 33 401, holding force < 8 N.
- IP 65 enclosure to DIN VDE 0470 T.1 and EN 60 529 as standard.
- The housing is non-flammable, climate and corrosion-proof.
- Largely resistant to fuels, salt water, grease, oils and lyes.



1 Emergency stop
2 Hoist unit
3 Cross-travel unit
4 Long-travel unit
5 Optional special function

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Designation			Part no.	Weight [kg]
DSC	For stepped motions	without control cable	773 300 33	0,380
DSE-10C			773 352 45	0,840
DSC-S	For stepless motions		773 500 33	0,380
DSE-10CS			773 353 45	0,840

For further information, see "DSE-10C control pendant assembly instructions" document, refer to the table on page 19.

5.3 Standard control cable

The control cable is protected by a flexible, easily bent strain relief sleeve. Its suspension height can be specifically adapted to the requirements at the workplace at any time by means of an adjusting mechanism. To do this, it is not necessary to cut the cable conductors or to shorten the strain relief sleeve. The adjustable-height control cable is available in 3 different lengths up to a maximum hook path H11 (9,8 m length). The length of control cable that is not needed (max. 3 m) is stored under the service cover or in the cable collector. The strain relief sleeve must be fixed at the required suspension height by means of a self-locking clamp mechanism. The control pendant can be adjusted to a different suspension height by unlocking the clamp mechanism.

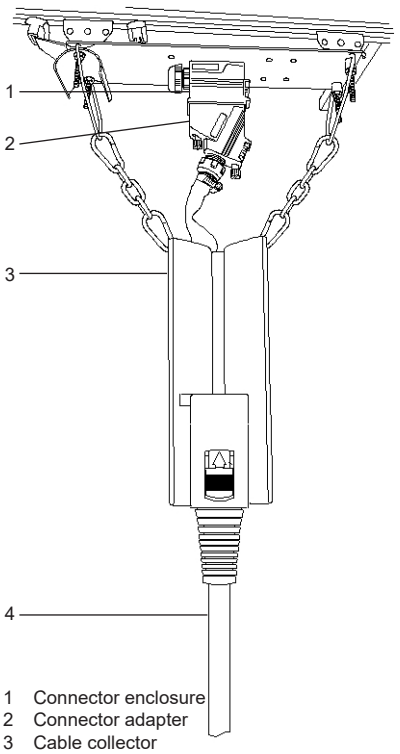
The strain relief sleeve for the control cable consists of an abrasion-resistant fabric hose with flame-protection impregnation.

The control cable is reinforced by rubber-elastic filler material in the gripping area (0,8 m above the control pendant) of the strain relief hose.

Designation		Part no.
Standard control cable	H4 / H5	718 810 33
	H8	718 809 33
	H11	720 037 45

5.4 Mobile control pendant

As an alternative to the control pendant fitted direct to the chain hoist, the control pendant can travel independently of the position of the chain hoist along a separate KBK 25 rail parallel to the trolley runway. This enables the chain hoist and trolley to be controlled with ease in the case of awkward loads or in inaccessible positions, for example.



1 Connector enclosure
2 Connector adapter
3 Cable collector
4 Standard control cable

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Component parts		
Item	**Designation**	**Part no.**
1	Connector enclosure cpl. for 2x6x0,5 mm^2 cable (720 139 45)	720 187 45
2	Connector adapter cpl.	720 087 45
3	Cable collector	720 065 45

For further information, see “KBK trailing cable technical data” document, refer to the table on page 19.

5.5 Control cable/control pendants for special ambient conditions

For extreme operating conditions, e.g. in galvanizing facilities, foundries, damp rooms or hot applications, it may be necessary to:

- replace the standard height-adjustable control cable with a control cable with support sleeve or 2TY control cable and/or
- replace the standard control pendant with a DSK or DST unit.

Other control pendant designs on request.

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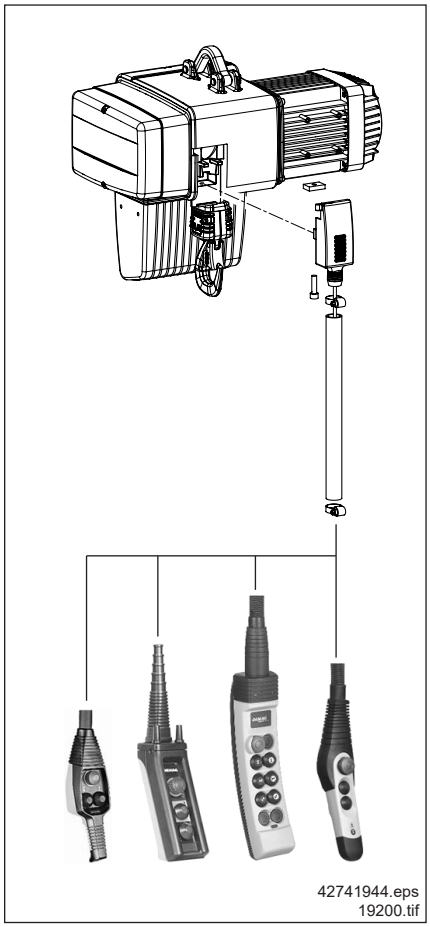
DC support sleeve



The height of the external protective sleeve cannot be adjusted; the height of the inner signal cable can, however, be adjusted.

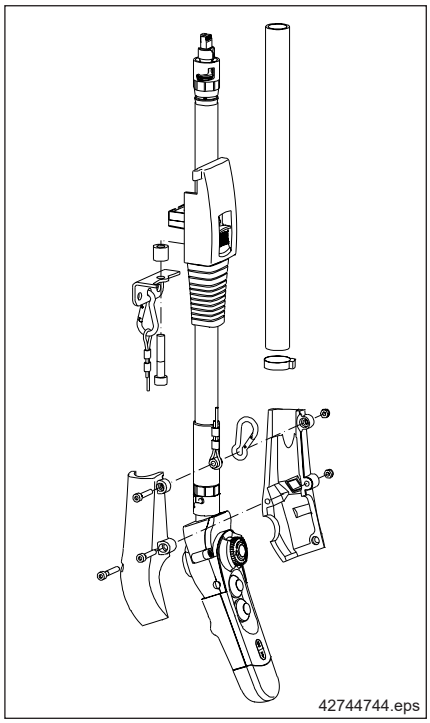
DC support sleeve control cable can be combined with:

- DSC/DSC-S/DSE-10C/CS
- DST-3/7/9C/CS / DSK-3C/CS

Designation	Hook path (cable length)	Part no.
DC control cable with support sleeve incl. attachment material	H4 (2,8 m)	720 082 45
	H5 (3,8 m)	720 074 45
	H8 (6,8 m)	720 079 45
	H11 (9,8 m)	720 133 45
DSE-10 C/CS to DC support sleeve attachment set contains: protective sleeve, sealing ring, thrust ring, pressure sleeve, thrust washer, clip		773 371 44
DST to DC support sleeve attachment set contains: flexible boot, connecting socket, seal		773 541 44

For further information, see “DSK+DST support sleeve assembly instructions” document, refer to the table on page 19.

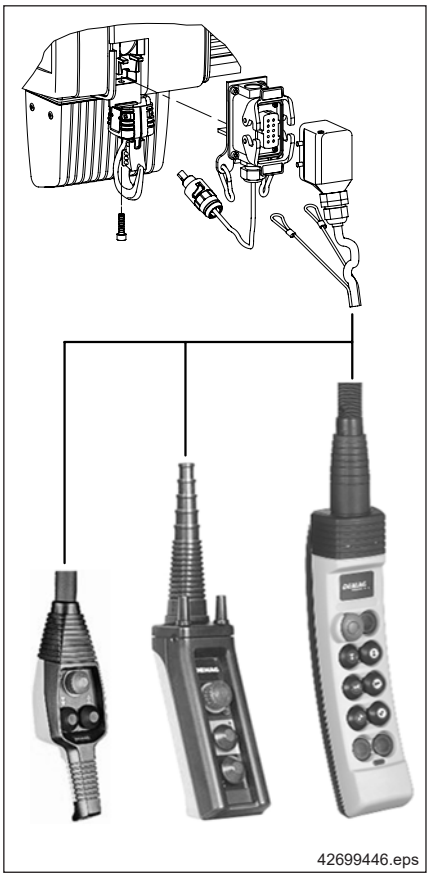
DSC/DSC-S reinforced strain relief



For particularly arduous operating conditions, additional strain relief with a rope or chain (part no. 773 575 44) can be fitted on DSC/DSC-S control pendants.

For further information, see “DSC strain relief assembly instructions” document, refer to the table on page 19.

2TY control cable



2TY control cable is available as an alternative to the DC support sleeve for the same applications.

2TY control cable is used for control cable lengths longer than H11 as standard. The cable consists of an inner signal cable and two steel strain relief cords fixed to the outside.

Lengths shorter than H11 are possible, the maximum length is H30. For control cable lengths longer than H30, we recommend the use of a radio control system.

2TY control cable is attached to the chain hoist by a Harting connector plug, as standard.

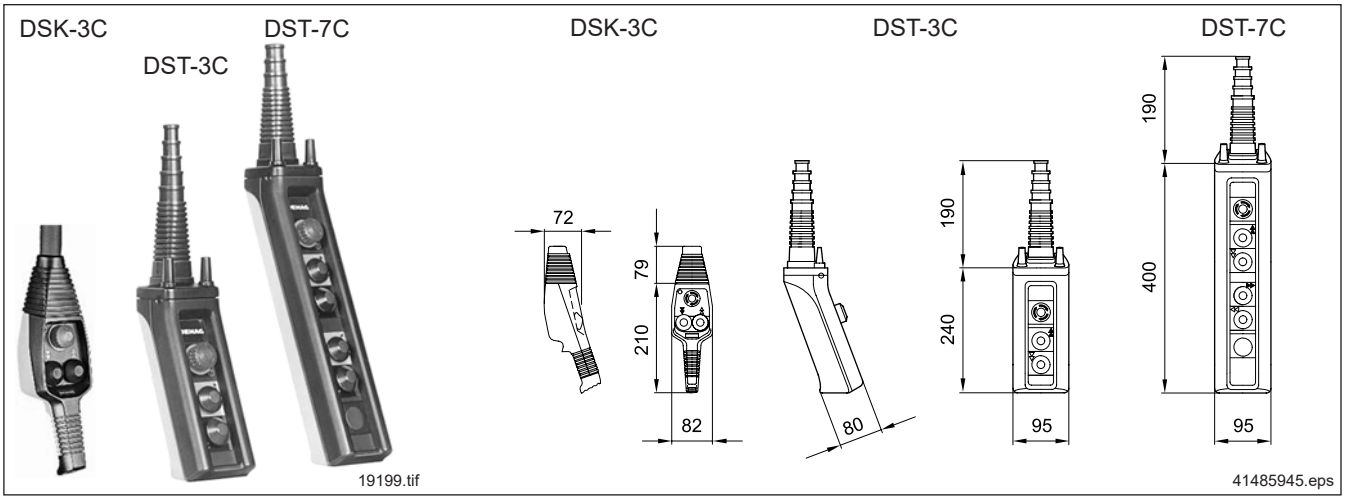
2TY control cable can be combined with:

- DSC/DSC-S/DSE-10C/CS
- DST-3/7/9C/CS / DSK-3C/CS

Designation	Weight [kg]	Part no.
2TY control cable (10x1,5 mm^2) 1)	0,39 kg/m	792 633 44

1) An attachment set (part no. 773 371 44) is needed to connect DSE-10 C/C units to 2TY control cable.

Control pendant



Designation	Axes	Can be fitted to	Cannot be fitted to	Part no.
DSK-3C 2)	1	DC support sleeve and 2TY control cable	Height-adjustable standard DC control cable	773 550 44
DSK-3CS 2)				773 551 44
DST-3C	1			773 530 44
DST-7C 22	2			773 544 44
DST-7C 222	3			773 546 44
DST-3CS	1			773 535 44
DST7-CSVV	2			773 547 44
DST7-CSVVV	3			773 548 44

2) An attachment set (part no. 773 553 44) is needed to connect DSK units to 2TY control cable.

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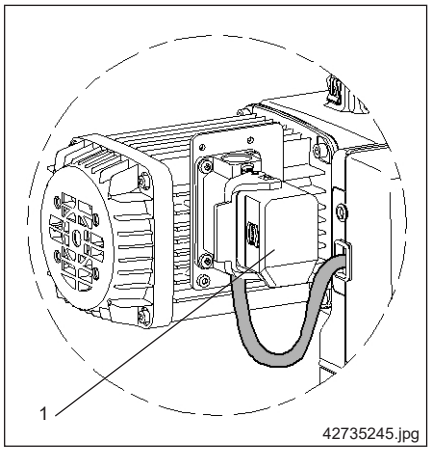
5.6 Plug-and-socket connectors

DC chain hoists are fitted with plug-and-socket connectors for the power supply connection, control cable, control pendant and trolley connection interfaces as standard. The following optional plug connectors may also be used or required for certain applications.

1) An attachment set is needed to connect DSE-10C/CS or DSK-3C/CS units to 2TY control cable.

Item	Designation	Part no.	Weight [kg]
1	Harting connector plug (6-pole) for power supply for DC 1 - 15 (fitted on the service cover side)	716 350 45	0,720
Not shown	Harting connector plug (6-pole) for power supply for DC 1 - 15 (fitted on the control pendant side)	720 266 45	0,850
	Harting connector plug (6-pole) for power supply for DC 16 - 25	720 265 45	0,950
2	Harting signal plug-in connector for attachment to the gearbox housing	720 170 45	0,540
3	Harting connector plug control cable mounting set for 2TY control cable	720 172 45	0,270
4	2TY control cable (10x1,5 mm^2) 1)	792 633 44	0,39 kg/m
Not shown	Harting connector plug for DC support sleeve (for 720 170 45) incl. mounting material	720 171 45	0,390

Harting connector plug for power supply

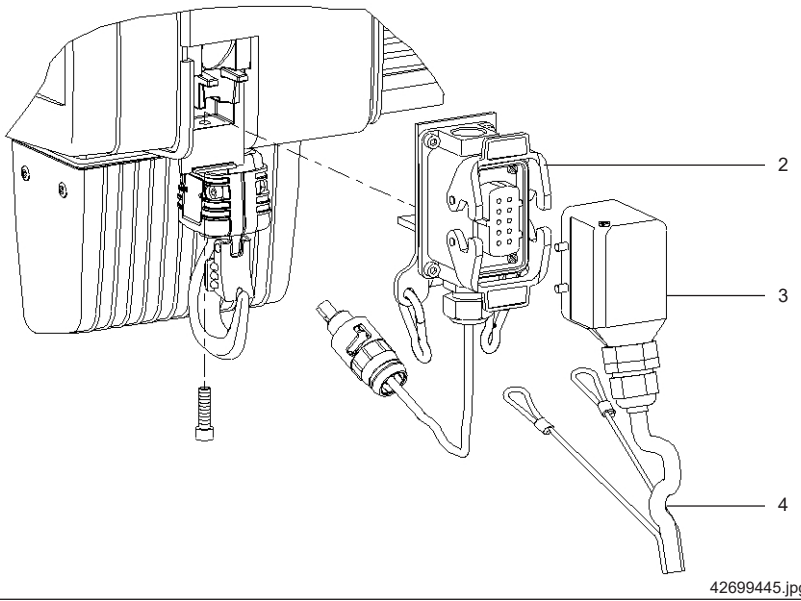


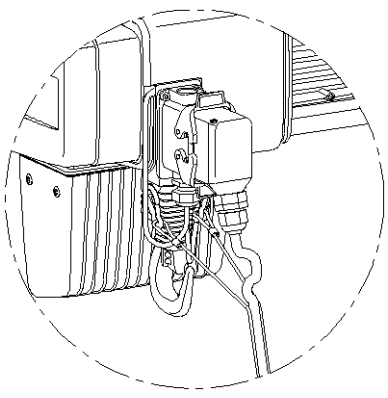
A Harting plug connection can also be used for the power supply as an option. This is fitted to the motor side of the chain hoist, provided no geared limit switch, DRC-DC radio control or electric enclosure is fitted there. Alternative mounting position on request.

Harting connector plug for control cable

The height of the standard control cable length is adjustable up to 9,8 m (hook path H11) and is connected to the DSC/DSC-S or DSE-10C/CS control pendant. 2TY control cable is used for longer control cable lengths than 9,8 m (hook path longer than H11). This is bolted to the gearbox housing by means of a Harting plug connection. DSK, DST or DSE-10 control pendants can be used.

Example for fitting a Harting connector plug to a DC 5 chain hoist with 2TY control cable

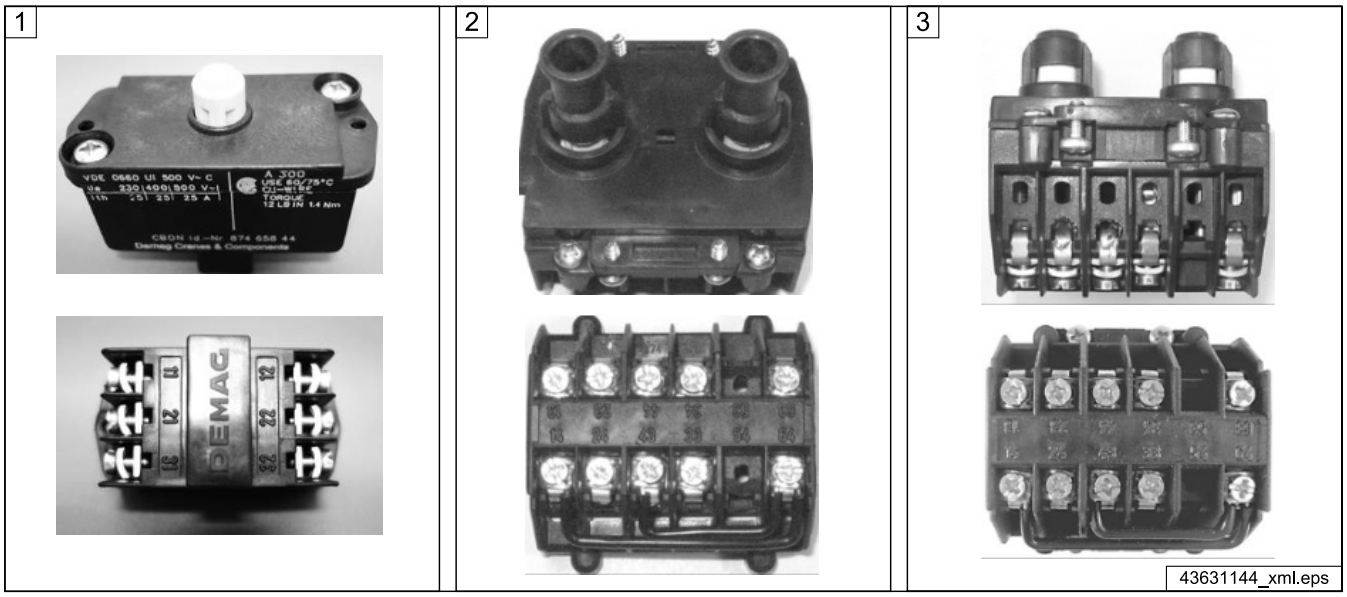


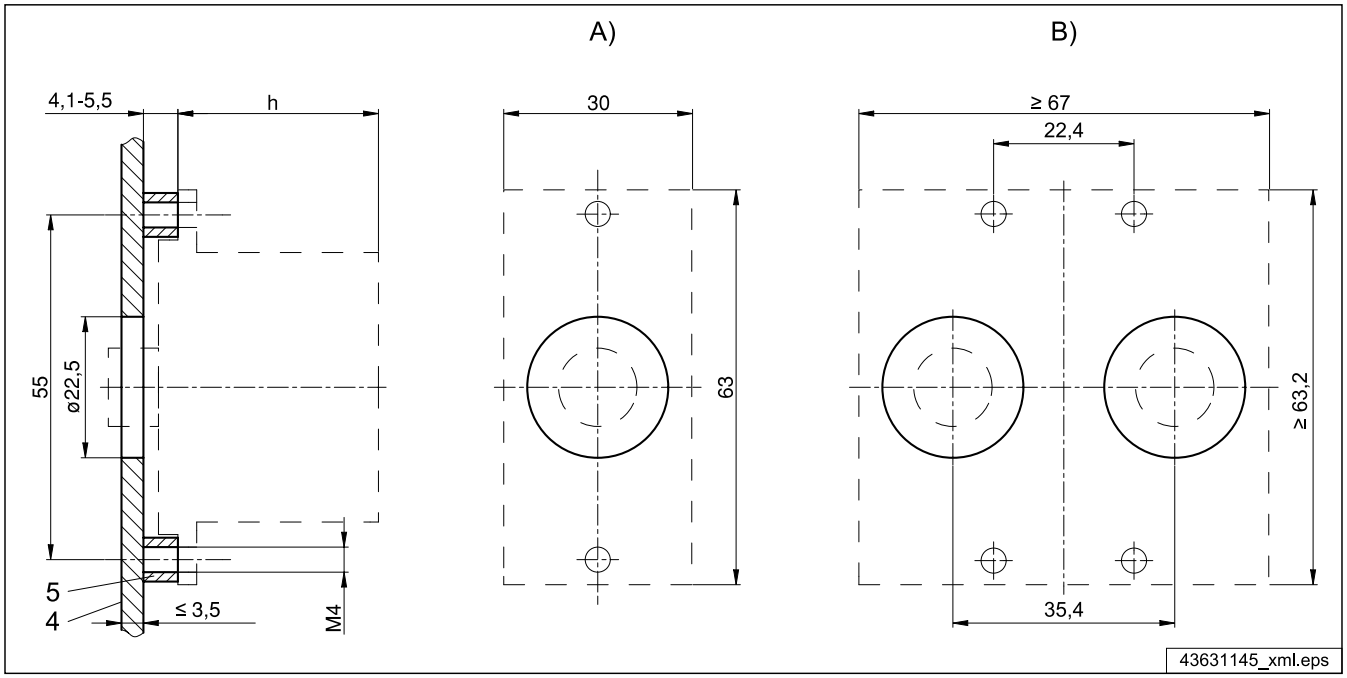


5.7 Control pendant accessories

5.7.1 DCS switching elements for plant manufacturers

The following DCS switching elements can be used for installation in customer control units (e.g. telescopic lifting masts):





Item	Designation	Remark	Dimension diagram	h [mm]	Part no.	Weight [kg]
1	CBDN 3OE switching element	Emergency stop	A)	32	874 658 44	0,060
2	CBDM-PWM2 switching element with integrated analogue/PWM converter	For DSM-CS	B)	41,6	772 207 44	0,110
3	CBD-PWM2 switching element with integrated analogue/PWM converter	For DSK-3CS	B)	41,6	772 208 44	0,110
4	Front panel for installation by the customer					
5	Washer for installation by the customer					

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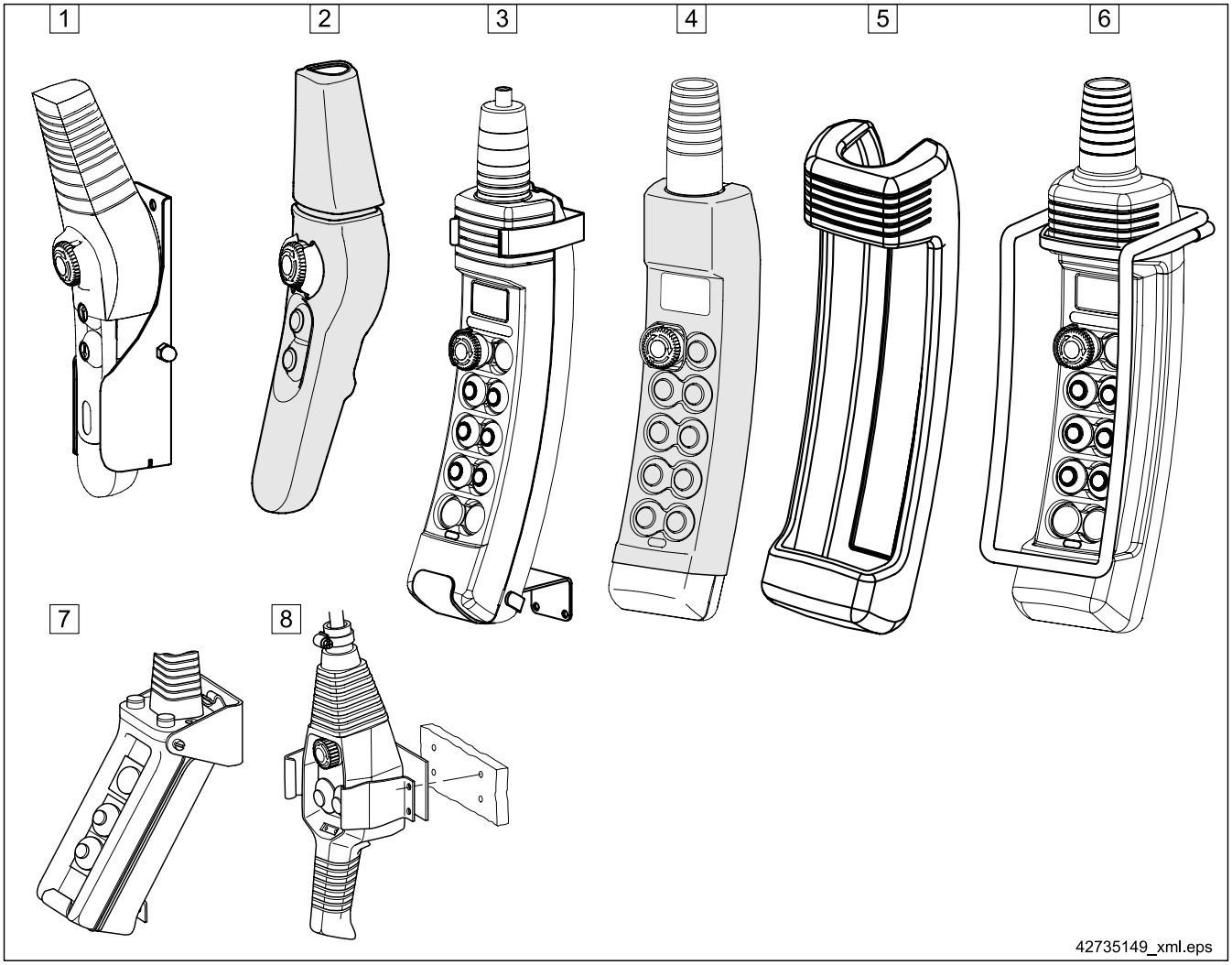
5.7.2 Wall bracket, bumper

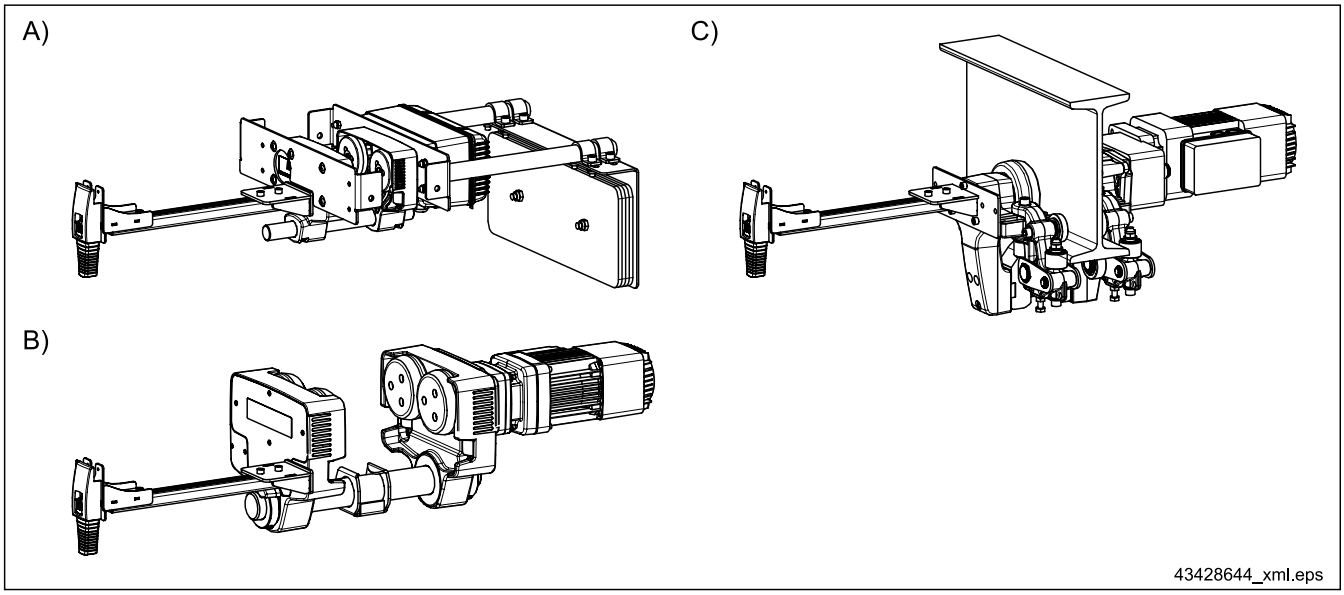
A **wall bracket** can be used for stationary chain hoists or as a parking position for the control pendant.

A **bumper** can be used to protect DSE-10C/CS units against impacts or a silicone protective sleeve for particularly arduous ambient conditions.



Item	Designation		Part no.	Weight [kg]
1	Wall bracket	DSC/DSC-S	773 570 44	0,245
2	Protective sleeve		773 308 44	0,093
3	Wall bracket	DSE-10C/CS	772 790 44	0,500
4	Protective sleeve		773 780 44	0,120
5	Rubber bumper		772 805 44	0,600
6	Guard for the pushbutton panel		720 095 45	1,200
7	Wall bracket	DST	874 400 44	0,800
8		DSK-3C/CS	874 768 44	0,155

5.7.3 Control pendant arm



Item	Designation		Part no.
A)	Control pendant arm	EU11 - EU34	748 561 46
B)		EU56	
C)		Articulated trolley	750 060 46

For frequent handling of awkward loads, a control pendant arm can be used to prevent the control cable from colliding with the load or even being damaged by the load.

The height-adjustable control cable, the DC support sleeve or the Harting connector plug fitting can be used with the control pendant arm. When selecting the control cable length, also consider the distance between the control cable attachment point and the chain hoist.

The length of the arm can vary between 300 mm and 2500 mm. Fit appropriate counterweights depending on the length of the arm.

Pay attention to the control cable type. If necessary, use a different control cable instead of the standard one, e.g. 2TY cable.

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5.8 Radio controls

Safety requirements

Optionally, an emergency control system in the form of a second hand-held transmitter or a separately connected control pendant can be fitted if the radio control system fails.

To satisfy the safety requirements of the Machinery Directive, the following additional equipment is required when radio control systems are used:

- Travel limit switches for the travelling hoist and crane,
- Travel path limiters, e.g. clamp-fitted buffers,
- Horn (already included in the standard DRC-DC scope of delivery),
- Crane identification,
- For DC chain hoists in crane systems: red warning lamp that is activated as long as the wireless control system is switched on.

The crane identification (the crane code/number in the form of coding labels) on the travelling hoist or crane must match the crane identification shown on the display of the hand-held transmitter. This is designed to clearly identify/assign the travelling hoist/crane to the hand-held transmitter.

To show a digit of the crane ID on the hoist/crane:

Black coding label part no. 895 639 44

7-segment coding label part no. 895 640 44.

Properties

Note the following when using radio control systems:

Up to 10 DRC-DC radio systems can be operated simultaneously and in parallel within a radius of approx. 300 m without the need for any further measures. Contact the manufacturer for operation of more than 10 radio systems.

Demag DRC radio control systems are designed for the wireless control of DC chain hoists. They are the man/machine interface for manually controlled DC chain hoists and DC crane installations.

DRC transmitters and receivers can be operated without any registration or operating fee.

DRC-DC and DRC-MP equipment can be supplied for the 433 MHz ISM band frequency range and there are versions for the 900 MHz ISM range, which is only for use in North and South America. Comply with relevant postal authority approval.

For further information, see "DRC-DC radio control system assembly instructions" document, refer to the table on page 19.

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5.8.1 Radio control accessories

Item	Designation	Part no.	Weight [kg]
1	Wall bracket for DRC-DC 6/DRC-DC 10 transmitter	773 688 44	0,164
2	Silicone protective sleeve for DRC-DC 6	773 680 44	0,085
	Silicone protective sleeve for DRC-DC 10	773 580 44	0,105
3	Bag for DRC-DC 6 with shoulder strap and belt clip	773 433 44	0,100
	Bag for DRC-DC 10 with shoulder strap and belt clip	773 434 44	0,120
4	Battery charger, complete	773 501 44	0,342
Not shown	Plug-in charger (no battery) with European plug, 110-230 V 50/60 Hz, 433 MHz frequency range	773 438 44	0,140
	Plug-in charger (no battery) with plug for USA, 110-230 V 50/60 Hz, 900 MHz frequency range	773 446 44	0,140
5	ReCyko rechargeable battery pack; 2x 2050 mAh	773 499 44	0,060

5.8.2 DRC-DC radio control system

The Demag DRC-DC chain hoist radio control system is the ideal solution for optimum ergonomic operation of pole-changing DC chain hoists. It offers much greater flexibility than cable-connected control systems and ensures that the operator can maintain a safe distance from the load at all times.

With transmitters available in two sizes, up to two (DRC-DC 6) or three motion axes (DRC-DC 10) can be controlled.

For chain hoist sizes DC 1 - DC 15, the receiver is integrated into a housing which is attached to the outside of the chain hoist. Pre-assembled cables facilitate fast and easy connection to the hoist, crab or crane electric equipment. For chain hoist sizes DC 16 and DC 25, the receiver is inserted into the corresponding slot beneath the chain hoist electric equipment cover.

The DRC-DC radio control system has the following properties:

- Simple wireless hand-held transmitter log-on,
- Reliable radio transmission thanks to frequency hopping (no fixed frequency),
- Display section for operating statuses and battery capacity,
- Stop function to safety category 3/EN 954.

The red warning lamp required by EN 15011 for crane installations, but not for travelling hoists, must be additionally ordered, as it is not included in the DRC-DC scope of supply.

Designation	Type	Chain hoist size	Part no.	
			433 MHz	900 MHz
Receiver set	DRC-DC 6	DC 1 - 15	773 740 44	773 830 44
Transmitter			773 400 44	773 800 44
Receiver set	DRC-DC 10	DC 1 - 15	773 745 44	773 840 44
Transmitter			773 700 44	773 810 44
Receiver	DRC-DC 6	DC 16 - 25	773 720 44	773 820 44
Transmitter			773 400 44	773 800 44
Dummy plug			720 348 45	
Horn			720 349 45	
Receiver	DRC-DC 10	DC 16 - 25	773 720 44	773 820 44
Transmitter			773 700 44	773 810 44
Dummy plug			720 348 45	
Horn			720 349 45	
Crane plug connector			720 365 45	

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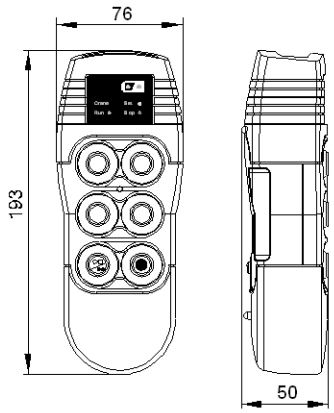
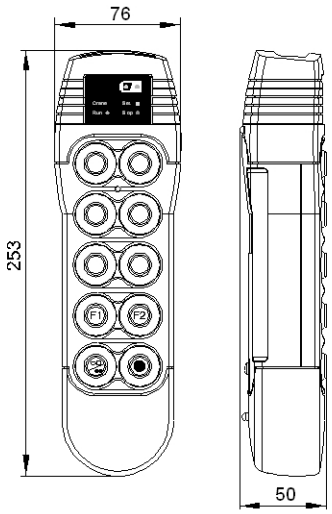
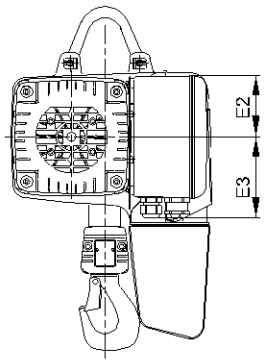
DRC-DC 6 hand-held transmitter

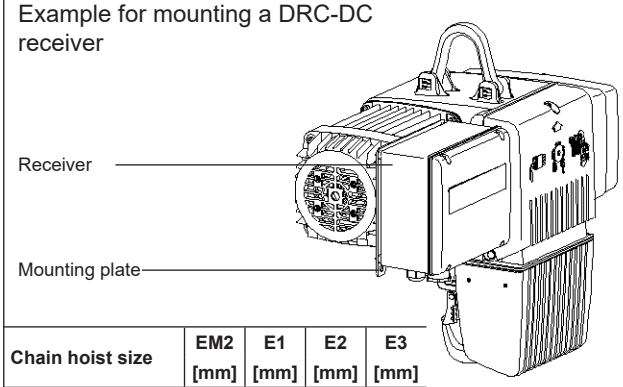


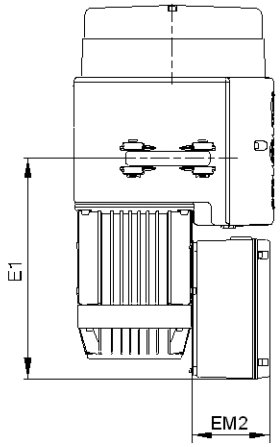
DRC-DC 10 hand-held transmitter





Example for mounting a DRC-DC receiver





Chain hoist size	EM2 [mm]	E1 [mm]	E2 [mm]	E3 [mm]
DC 1/2	105	286	66	123
DC 5		292	82	107
DC 10		294	102	87
DC 15				
DC 16 - 25			82	107

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DRC-DC 6 pushbutton transmitter

- Six buttons for two-stage control of up to two motion axes
- Horn test button
- Stop button
- Weight incl. rechargeable battery 410 g
- IP 55 enclosure
- Temperature range -20 to +50 °C
- Max. range 50 m
- Frequency range 433.100-434.750 MHz and 900 MHz for USA/Canada
- 10 mW (ERP) transmission output

DRC-DC 10 pushbutton transmitter

- Ten buttons for two-stage control of up to three motion axes
- Horn test button
- Stop button
- 2 buttons for special functions
- Weight incl. rechargeable battery 490 g
- IP 55 enclosure
- Temperature range -20 to +50 °C
- Max. range 50 m
- Frequency range 433.100-434.750 MHz and 900 MHz for USA/Canada
- 10 mW (ERP) transmission output

DRC-DC receiver for external attachment to a DC 1 - 15 chain hoist

- Electric enclosure incl. transformer board
- Adapter plate and installation material
- Pre-assembled power and control cables for connection to the chain hoist or crane
- Integrated horn
- 24 V AC supply voltage
- IP 55 enclosure
- Temperature range -20 to +60 °C

DRC-DC receiver for DC 16 - 25

- Receiver board for installation in DC chain hoists
- Integrated horn
- Power supply via the DC 16 - 25 electric system
- Dummy plug for electric equipment cover
- Crane connector plug (only for crane axis)

5.8.3 DRC-MP radio control system

The Demag DRC-MP multi-purpose radio control system can be used as an alternative to the DRC-DC system for the following applications:

- For infinitely variable control of up to three motion axes. The receiver has a PWM interface for each motion axis to control the variable-speed chain hoist or the travel drives,
- If a DRC-J joystick transmitter is to be used instead of a pushbutton transmitter,
- For installations with crane/crab switchover via F1 or F2 function keys that each control a changeover contact (relay) on the receiver side,
- For use of up to 3 digital feedback channels to display status information (select crab 1/2) or warning information.

The DRC-MP radio control system gives you the choice between a DRC-10 pushbutton transmitter or a DRC-J joystick transmitter, which can be conveniently carried on a strap over your shoulders.

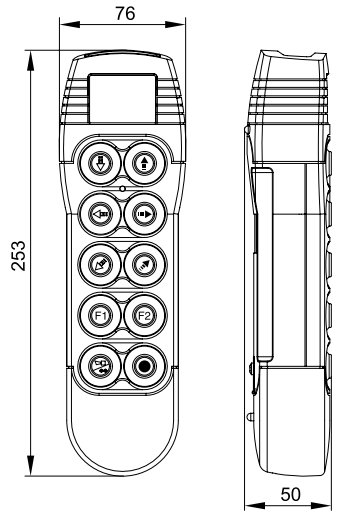
Both are suitable for universal application to control installations with up to three motion axes.

The radio control system has the following properties:

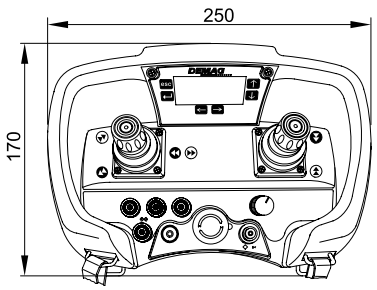
- Automatic adaptive frequency management,
- Bi-directional signal transmission,
- Graphic display showing battery capacity and installation status or warning messages,
- Stop function to Cat 3 and PL d to DIN EN ISO 13849-1,
- Infinitely variable pushbuttons or infinitely variable joystick elements,
- Wireless transmitter log-on.

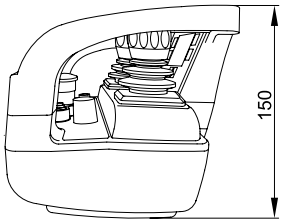
For further information, see “DRC-MP radio control system assembly instructions” document, refer to the table on page 19.

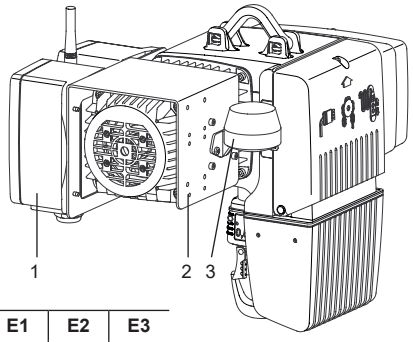
DRC-10



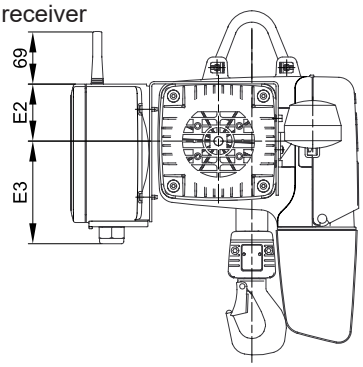
DRC-J

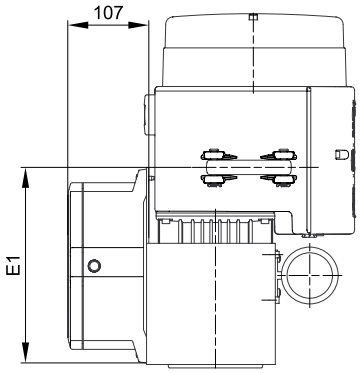






Example for mounting a DRC-MP receiver





1) Receiver
2) Mounting plate
3) Horn

There are many possibilities for mounting DRC-MP receivers.

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Chain hoist size	E1 [mm]	E2 [mm]	E3 [mm]
DC 1/2	255	62	149
DC 5	260	78	133
DC 10 1/1	268	98	113
DC 10 2/1	234		
DC 15	283		
DC 16 - 25	262	78	133

DRC-10 pushbutton transmitter

- 6 infinitely variable pushbuttons (for infinitely variable or 2-stage control of up to three axes)
- Horn/limit switch test button
- Stop button
- 2 buttons for special functions
- Weight incl. rechargeable battery 500 g
- IP 55 enclosure
- Temperature range -20 to +50 °C
- Max. range 100 m
- Frequency range 433.100-434.750 MHz and 900 MHz for USA/Canada
- 10 mW (ERP) transmission output

DRC-J joystick transmitter

- 1 joystick for the lifting/lowering axis
- 1 joystick for two motion axes (long and cross travel)
- 1 horn/start button
- 1 check limit switch button
- 2 buttons for special functions
- Mechanical key-operated switch to turn the transmitter on and off
- Weight incl. rechargeable battery 1800 g
- IP 55 enclosure
- Temperature range -20 to +70 °C
- Max. range 100 m
- Frequency range 433.100-434.750 MHz and 900 MHz for USA/Canada
- 10 mW (ERP) transmission output

DRC-MP receiver

- Supply voltage 42-240 V AC, +/- 10%, 50/60 Hz
- Output relay for 250 V, 8 A, AC11
- PWM outputs
- 3 digital feedback channels
- Power consumption rating 12 VA
- IP 65 enclosure
- Temperature range -20 to +60 °C
- Horn, not included in the scope of delivery (separate power supply required)
- Receiver enclosure fitted to the chain hoist, crab or crane bridge enclosure
- Enclosure size, width x depth x height in mm: 256 x 104 x (183 + 70 mm aerial)

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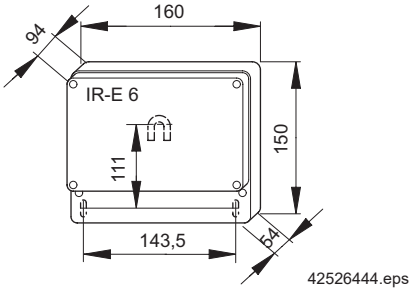
5.9 DIR infrared control system

The DIR infrared control system is an alternative to DRC-DC and DRC-MP radio control systems and offers the following properties:

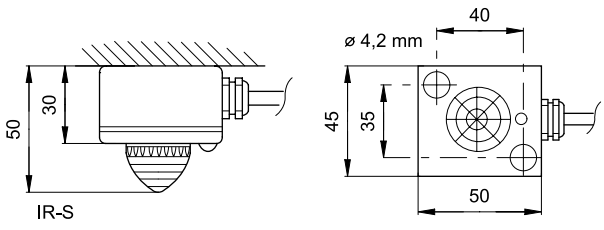
- Safety thanks to limited range (max. 40 m),
- No alignment of the transmitter with the sensor is needed at close range (up to 15 m),
- Users are not exposed to high frequencies,
- No problem with overlap of transmission frequencies when radio controls operate on the same frequencies,
- In most cases, no travel limit switches are required owing to the limited range (the operator walks alongside during operation).

For further information, see "DIR infrared control system assembly instructions" document, refer to the table on page 19.

Receiver enclosure



IR-S infrared sensor



		Voltages	17 - 51 V AC	94 - 240 V AC	115/230 V AC	42/48 V AC	24 V DC
Transmitter	**Part no.**		**IR receiver part no.**				
DIR H6	773 890 44		792 622 44	792 623 44	-	-	-
DIR H10	773 895 44		-	-	895 711 44	895 713 44	895 706 44

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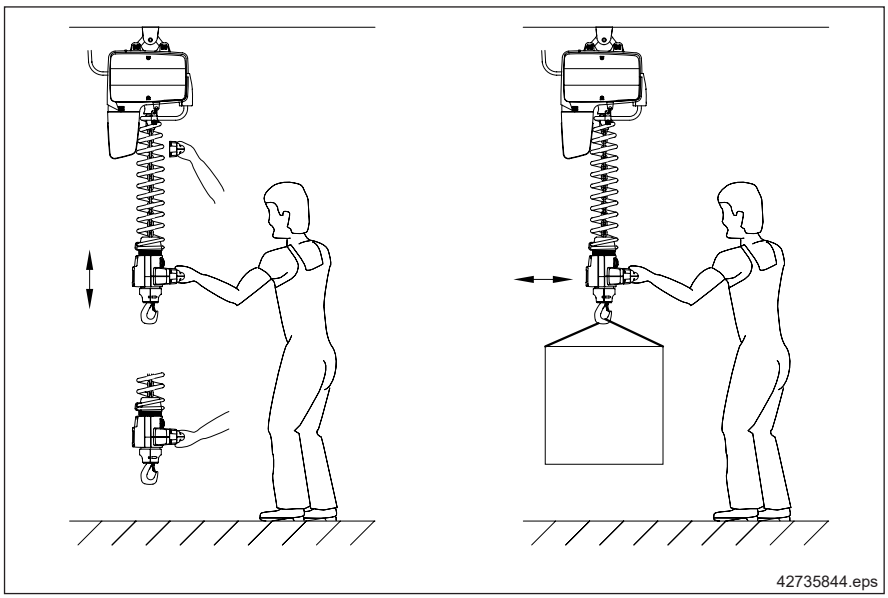
6 Manulift

6.1 Selection criteria

Manulift	**DCM-Pro 1 - 5**
	DCMS-Pro 1 - 2
Rocker switch	**DCRS-Pro 1 - 2**



DSM-C/CS control handle

Hand in horizontal position

Maximum possible range and, therefore, lifting path.

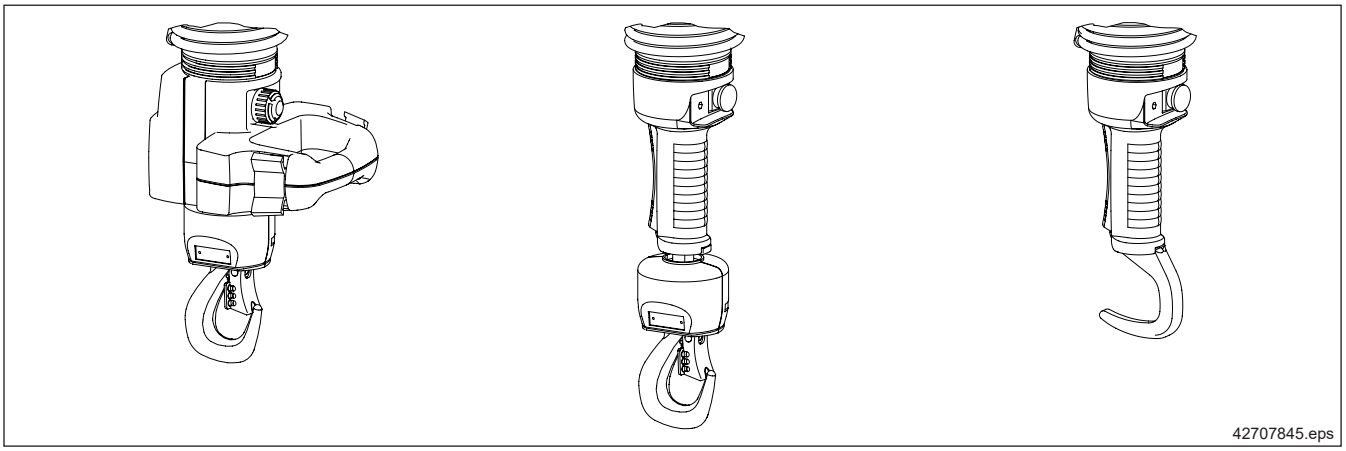
Large forces can be easily applied for pulling and pushing suspended loads.

DCRS-Pro rocker switch

Hand in vertical position

Loads and load handling attachments can be precisely guided, particularly for rigid arrangements, e.g. with C-hooks or similar equipment, which enables loads to be quickly attached.

The control element of the DCRS-Pro rocker switch is designed with IP 34 type of enclosure.



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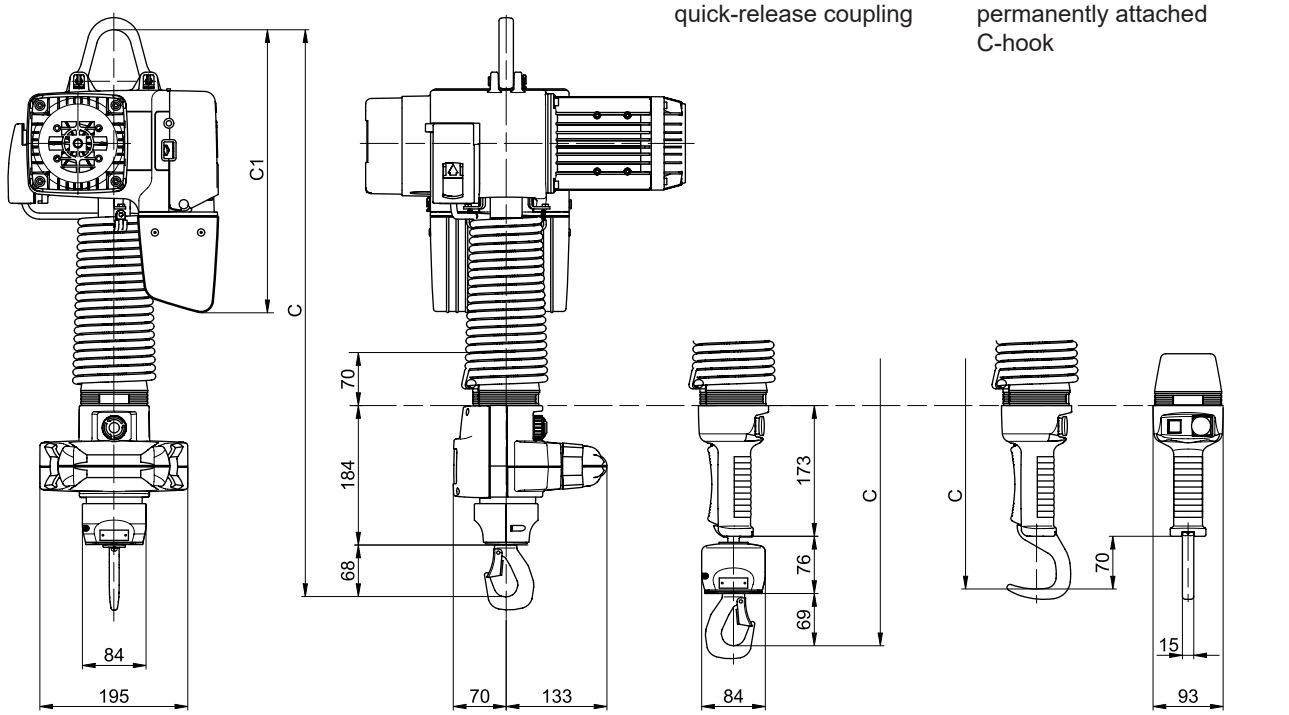
6.2 Dimensions

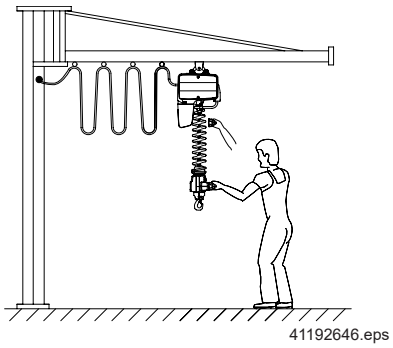


1) For chain hoists fitted with a short suspension bracket, dimension C is reduced by 38 mm.

Chain hoist size	C1 Chain collector box H5	C 1) for hook path 2,8 m	C 1) for hook path 4,3 m
DCM-Pro 1 - 2, DCMS-Pro 1 - 2	373	694	764
DCM-Pro 5 (up to 250 kg)	435	746	816
DCM-Pro 5-500	Dimensions on request		
DCRS-Pro 1 - 2 with quick-release coupling	373	754	824
DCRS-Pro 1 - 2 with permanently attached hook		685	755

Pillar and wall-mounted slewing jib crane for Manulift

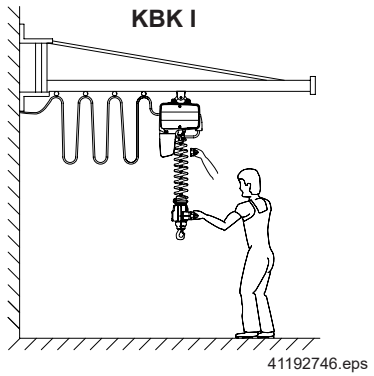
KBK 100



Slewing range **KBK 100 : 270°**
KBK I : 300°

DCM-Pro, DCMS-Pro Manulift, DCRS-Pro					
SWL up to [kg]	DCM-Pro	DCMS-Pro	DCRS-Pro	Out-reach [m]	Jib profile section
80	1 - 5	1	1	3 7	KBK 100 KBK I
125				4 7	KBK I KBK II
200	2 - 5	2	2	3 7	KBK I KBK II
250					
500	5	5	-	6	KBK II

KBK I



Slewing range **KBK 100 : 270°**
KBK I : 270°

For further information, see “Slewing jib crane technical data” and “KBK classic technical data” documents, refer to the table on page 19.

Visit www.demag-designer.com for all important facts and data on slewing jib cranes.

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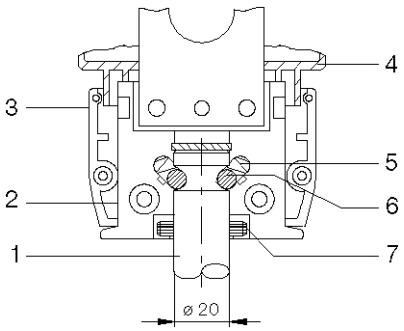
6.3 Accessories for DC units with quick-release coupling

Max. load capacity 250 kg

6.3.1 Load handling attachments

The quick-release coupling on **DSM-C/CS** and **DCRS-Pro** control units can be used for quickly swapping various load handling attachments.



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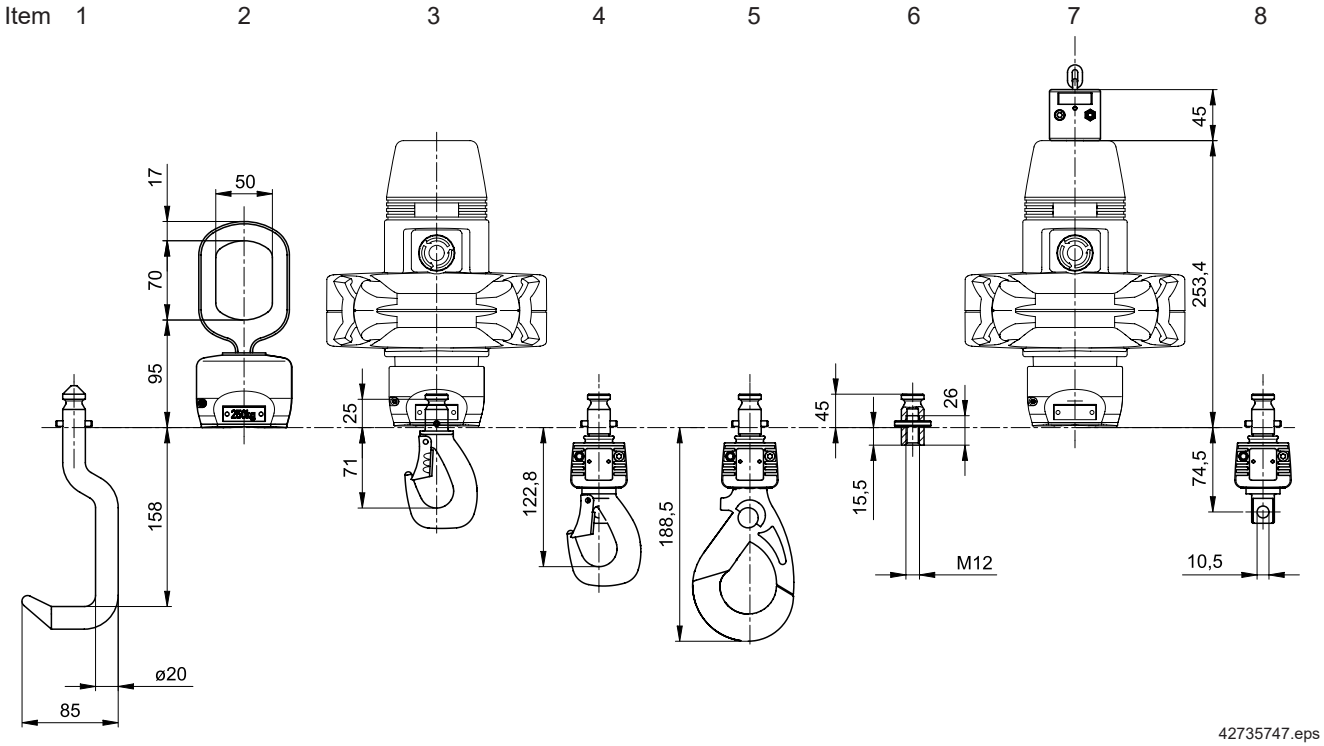
1 Load hook
2 Load retainer
3 Unlocking sleeve
4 **DSM-C/CS** control unit housing lower section
5 Pressure spring
6 Cylindrical pins (2x) to retain the load
7 Swivel lock



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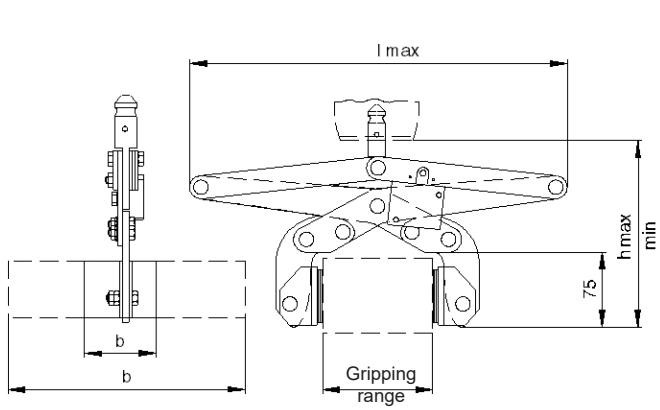
Item	Designation	Description	Load capacity [kg]	Part no.	Weight [kg]
1	Open hook		125	565 695 44	0,651
2	Crane hook adapter with quick-release coupling	The crane hook adapter also enables Manulift load handling attachments to be used on other hoists.	125	718 332 45	0,950
			250	718 333 45	
3	Load hook	Included in the standard scope of delivery	250	835 665 44	0,317
4	Swivelling load hook		250	835 584 44	0,608
5	Swivelling safety hook	Not suitable for galvanizing, electroplating, pickling facilities	250	835 584 44 + 716 450 45	1,1
6	Coupling pin	For fitting individual load handling attachments	250	835 580 44	0,084
7	Manulift swivel joint, chain swivel unit	The swivel joint prevents the chain from twisting between the chain hoist and the Manulift control unit (included in the standard scope of delivery).	DCM 1+2	717 306 45	0,300
			DCM 5	718 306 45	0,300
8	Pantograph tongs swivel adapter	The swivel adapter for SZ 1 + 2 pantograph tongs enables the tongs to be turned freely on the DSM-C/CS Manulift control unit.	250	717 330 45	0,419

6.4 Pantograph tongs

Load capacity up to 125 kg



SZ 1/SZ 2

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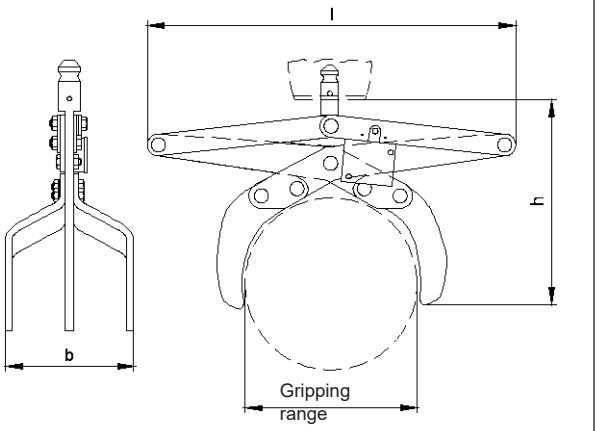

SZ 1 - R/SZ 2 - R

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Range	Gripping range	b	l max	h min	h max	Size	Part no.	Weight
		[mm]						[kg]
SZ 1	60 - 80	60	368	190	265	**SZ 1-08-1**	565 701 44	3,5
	80 - 105					**SZ 1-10-1**	565 601 44	
	105 - 130					**SZ 1-13-1**	565 702 44	
	130 - 155					**SZ 1-15-1**	565 602 44	3,7
	155 - 180					**SZ 1-18-1**	565 703 44	
	180 - 205					**SZ 1-20-1**	565 603 44	
	60 - 80	200		190	265	**SZ 1-08-2**	565 704 44	4,3
	80 - 105					**SZ 1-10-2**	565 604 44	
	105 - 130					**SZ 1-13-2**	565 705 44	
	130 - 155					**SZ 1-15-2**	565 605 44	4,5
	155 - 180					**SZ 1-18-2**	565 706 44	
	180 - 205					**SZ 1-20-2**	565 606 44	
	40 - 150 dia.	120		225	420	**SZ 1-R-15**	565 608 44	4,0
SZ 2	140 - 210	60	519	190	415	**SZ 2-21-1**	565 712 44	4,7
	210 - 275					**SZ 2-27-1**	565 612 44	
	275 - 340					**SZ 2-34-1**	565 613 44	
	140 - 210	200		190	415	**SZ 2-21-2**	565 715 44	5,4
	210 - 275					**SZ 2-27-2**	565 615 44	
	275 - 340					**SZ 2-34-2**	565 616 44	5,7
	100 - 300 dia.	160		325	620	**SZ 2-R-30**	565 618 44	5,3

Example

1 x SZ 1-10-1 pantograph tongs part no. 565 601 44

Order for a set of pantograph tongs comprising pantograph hinges 1, clamping lever size 10 for 80 - 105 mm gripping range and clamping jaws 1, width b = 60 mm.

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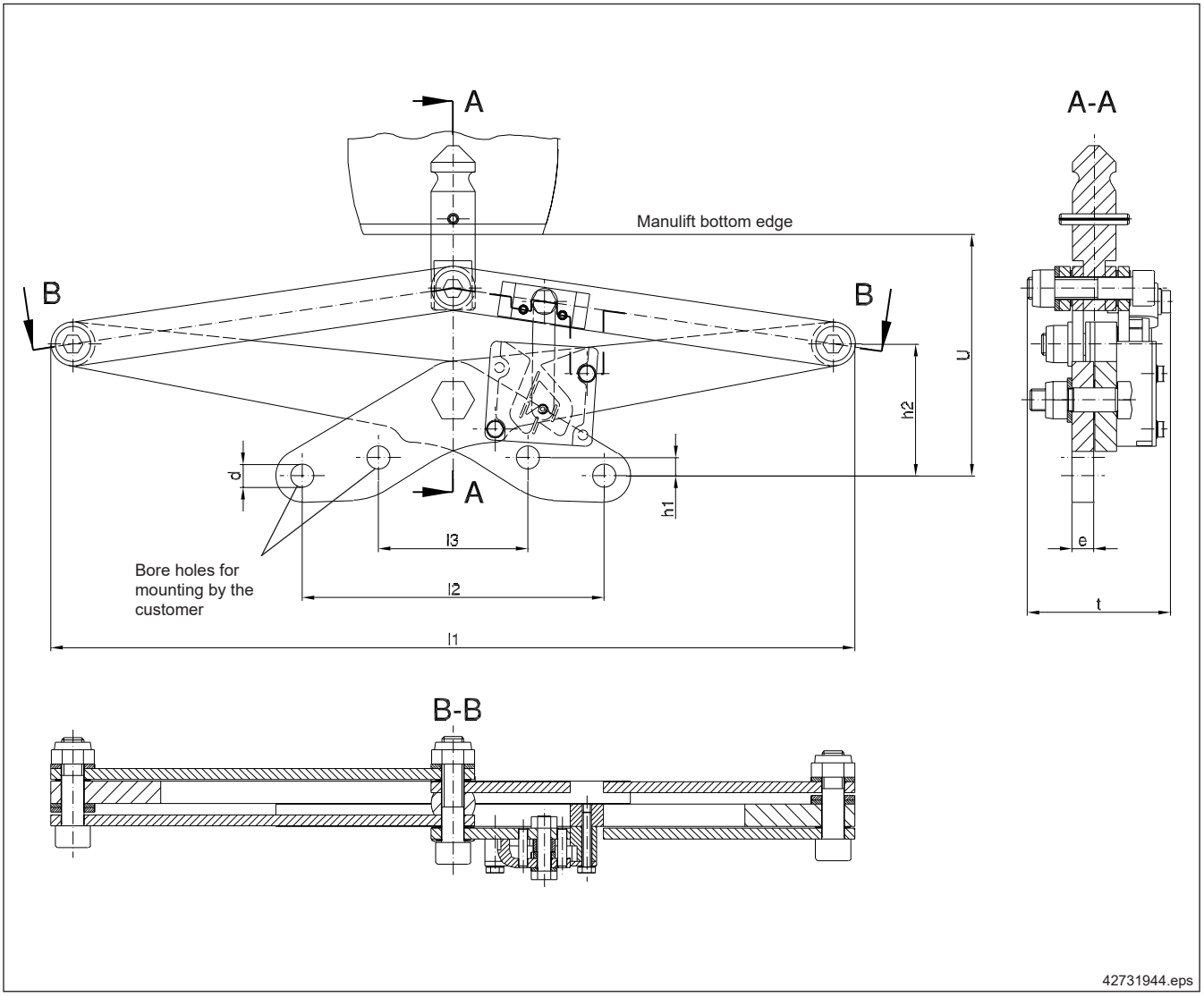
Pantograph tongs basic module for 125 kg/250 kg load capacity

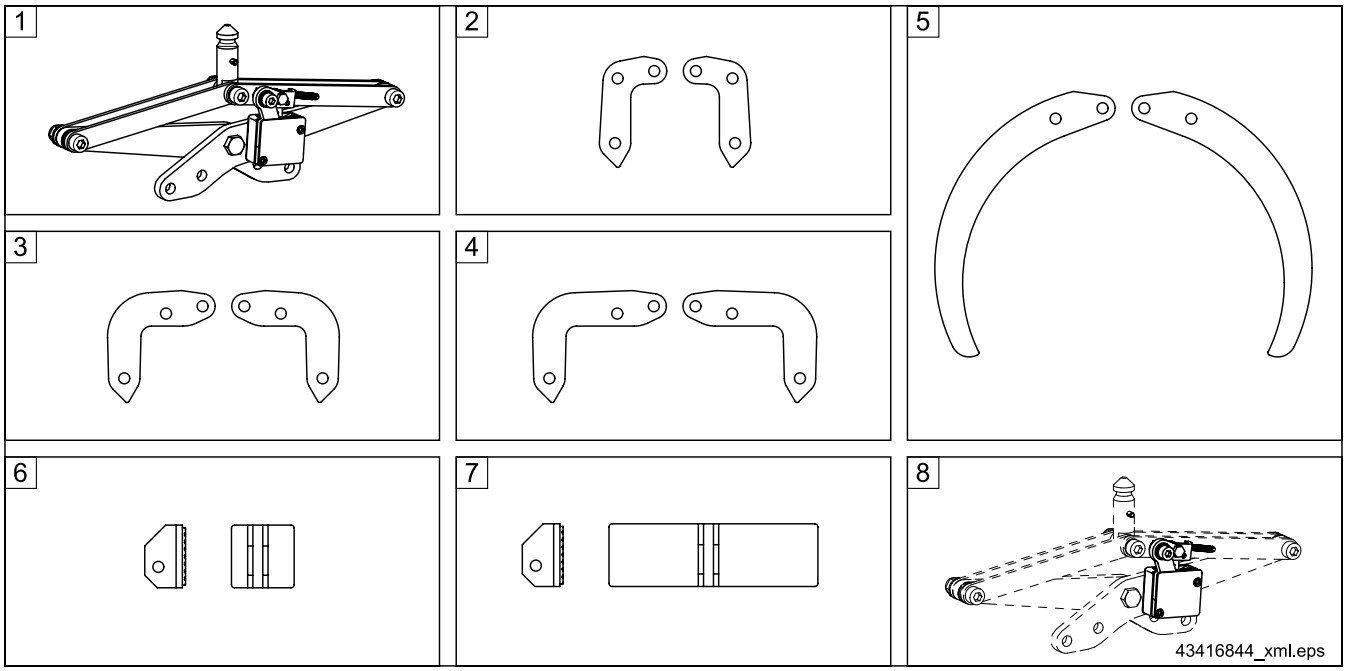


Range	Load capacity [kg]	l1 [mm]	l2 [mm]	l3 [mm]	d [mm]	e [mm]	t [mm]	h1 [mm]	h2 [mm]	U [mm]	Part no.	Weight [kg]
SZ 1	125	278 - 368	75 - 140	27 - 70	10,5	10	65	26 - 7	186 - 52	330 - 111	565 620 44	2,450
	250	312 - 372	111 - 160	28 - 60	12,5	12	79	28 - 5	166 - 52	292 - 117	588 272 46	3,600
SZ 2	125	318 - 519	69 - 194	25 - 104	10,5	10	65	41 - 11	299 - 55	526 - 110	565 630 44	3,100

Properties

The basic module enables customers to fit load handling attachments to meet individual load pick-up requirement.

6.4.1 Clamping lever and clamping jaws, load capacity 125 kg



Item	Designation	Load capacity [kg]	Type	Gripping range	Part no.
1	Pantograph tongs basic module	125	SZ 1		565 620 44
			SZ2		565 630 44
2	Clamping lever for SZ 1		08	60 - 80	565 740 44
			10	80 - 105	565 640 44
			13	105 - 130	565 744 44
3			15	130 - 155	565 644 44
4			18	155 - 180	565 748 44
			20	180 - 205	565 648 44
5			R15	40 - 150 dia.	565 652 44
3	Clamping lever for SZ 2		21	140 - 210	565 760 44
4			27	210 - 275	565 660 44
			34	275 - 340	565 664 44
5			R30	100 - 300 dia.	565 668 44
6	Retaining clamps		1	565 675 44	
7			2	565 680 44	
8	Coupling mechanism			565 638 44	

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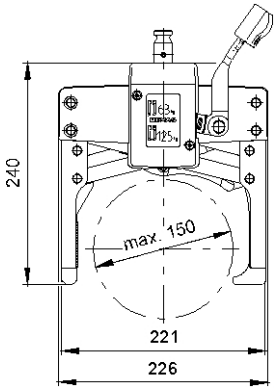
6.5 PGS parallel gripper system

For further information, see “PGS parallel gripper operating instructions” document, refer to the table on page 19.

6.5.1 Parallel gripper system for shafts, W1 - W3 range

W1 range

The sliding jaw (left) is not fitted with a load support and is only approx. 17 mm thick. This range is therefore suitable for picking-up shafts which are positioned close together.



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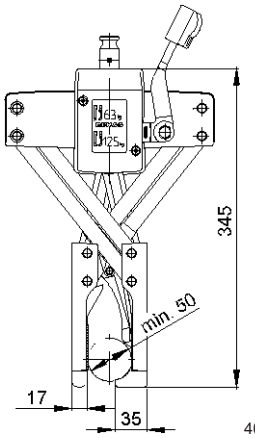

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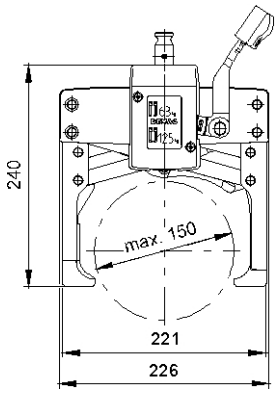
W2 range

Loads weighing up to 125 kg can be handled with this gripper; due to the wide jaws the load can also be lifted safely, even if it is picked up off-centre.



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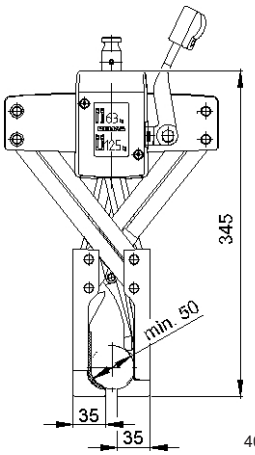

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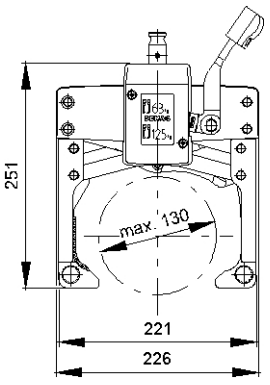
W3 range

With bore hole for splined shafts

Loads weighing up to 125 kg can be handled with this gripper. The load is picked up symmetrically. Long shafts and shafts with various diameters can be handled when used together with extension set 1.



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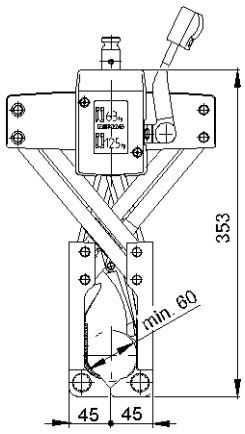

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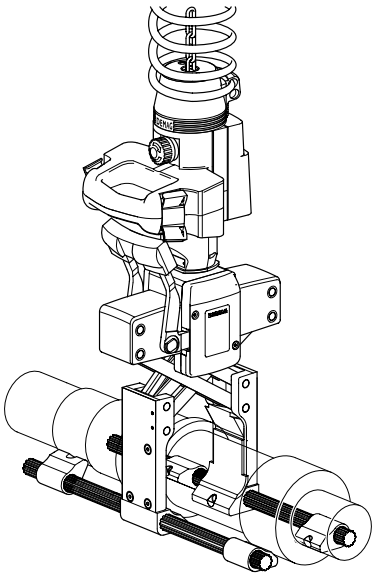
Range	Load capacity [kg]	Shaft diameter [mm]	Gripper jaw width [mm]	Max. shaft length [mm]	Load support	Part no.	Weight [kg]
W1	63	50 - 150	60	600	On one side	840 850 44	7,65
W2	125		120	-	On both sides	840 848 44	7,92
W3	125	60 - 130	60	-		840 849 44	7,77

Extension set 1 for shaft grippers

Example for fitting W3 shaft gripper with extension set 1



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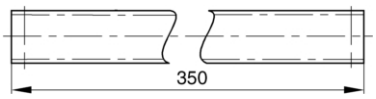
The working range of the parallel gripper system W3 range can be extended by using the accessory set shown below.

By inserting the support shafts into the gripper jaws, fitting the support jaws to the support shafts and securing these items using grub screws, shafts with various diameters can also be handled in a horizontal position. Differences in diameter of up to 30 mm can be compensated by sliding and turning the support jaws on the shaft.

Support shaft



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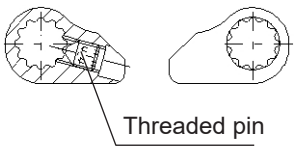
Support jaws



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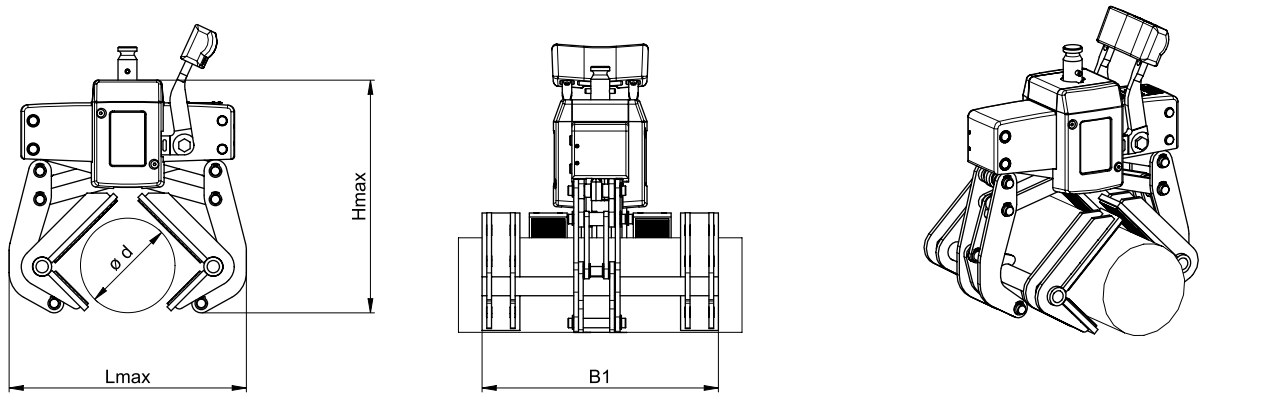
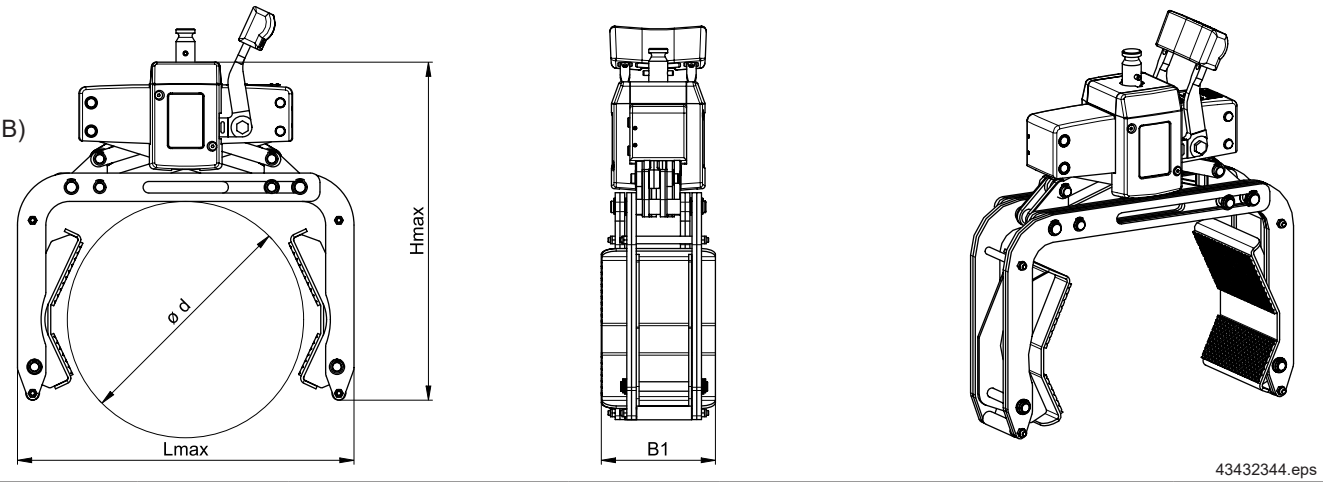
Designation	Part no.	Weight [kg]
PGS125 extension set	840 870 44	1,874

6.5.2 Parallel gripper system for shafts, special gripping range

A)



B)



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Item	Load capacity [kg]	Shaft diameter [mm]	B1 [mm]	Hmax [mm]	Lmax [mm]	Part no.	Weight [kg]
A)	125	30 - 100	250	253	230	588 776 46	11,0
B)		180 - 280	120	379	360	588 718 46	12,1

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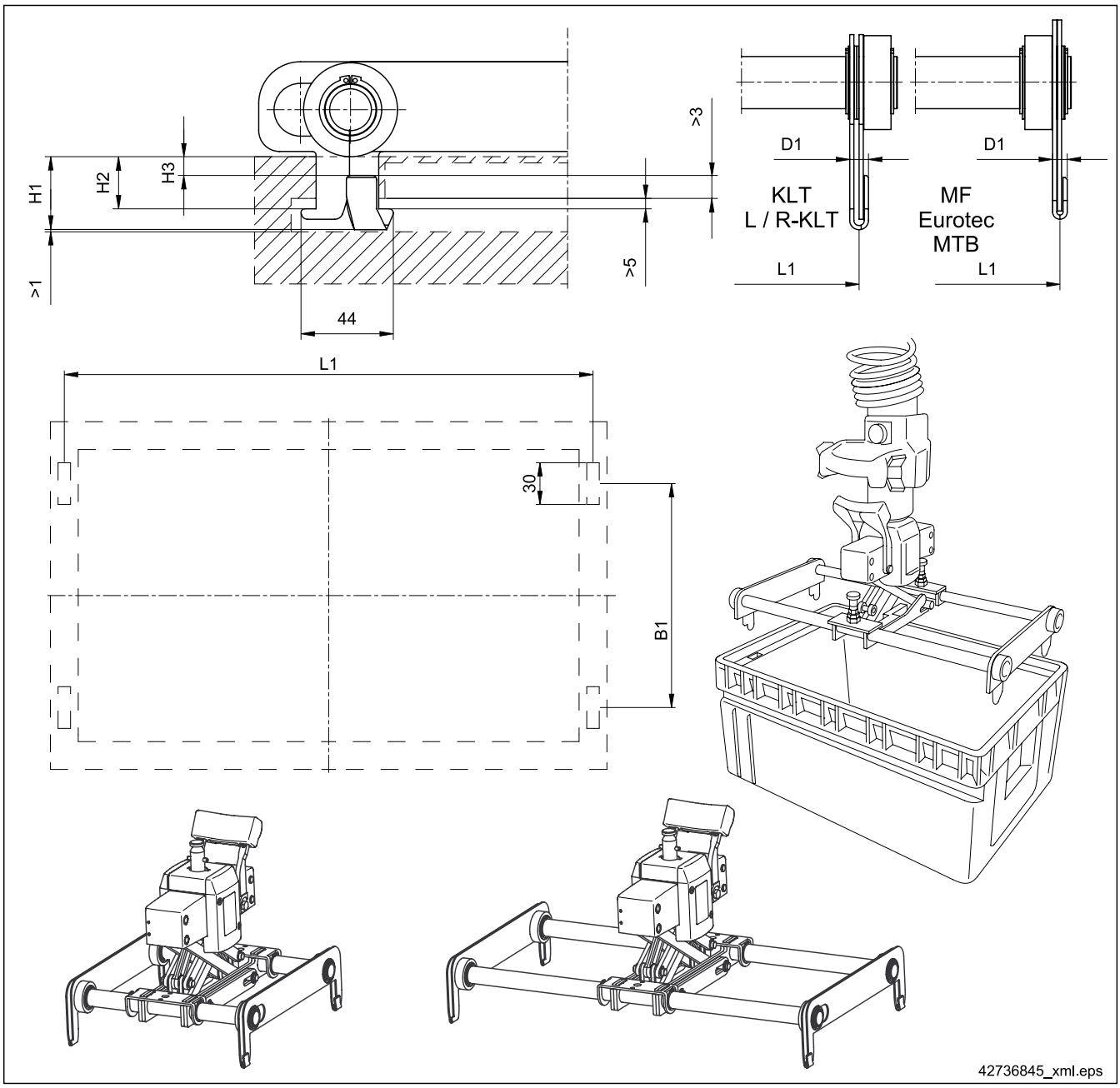
6.5.3 Parallel gripper system for containers with lifting slots

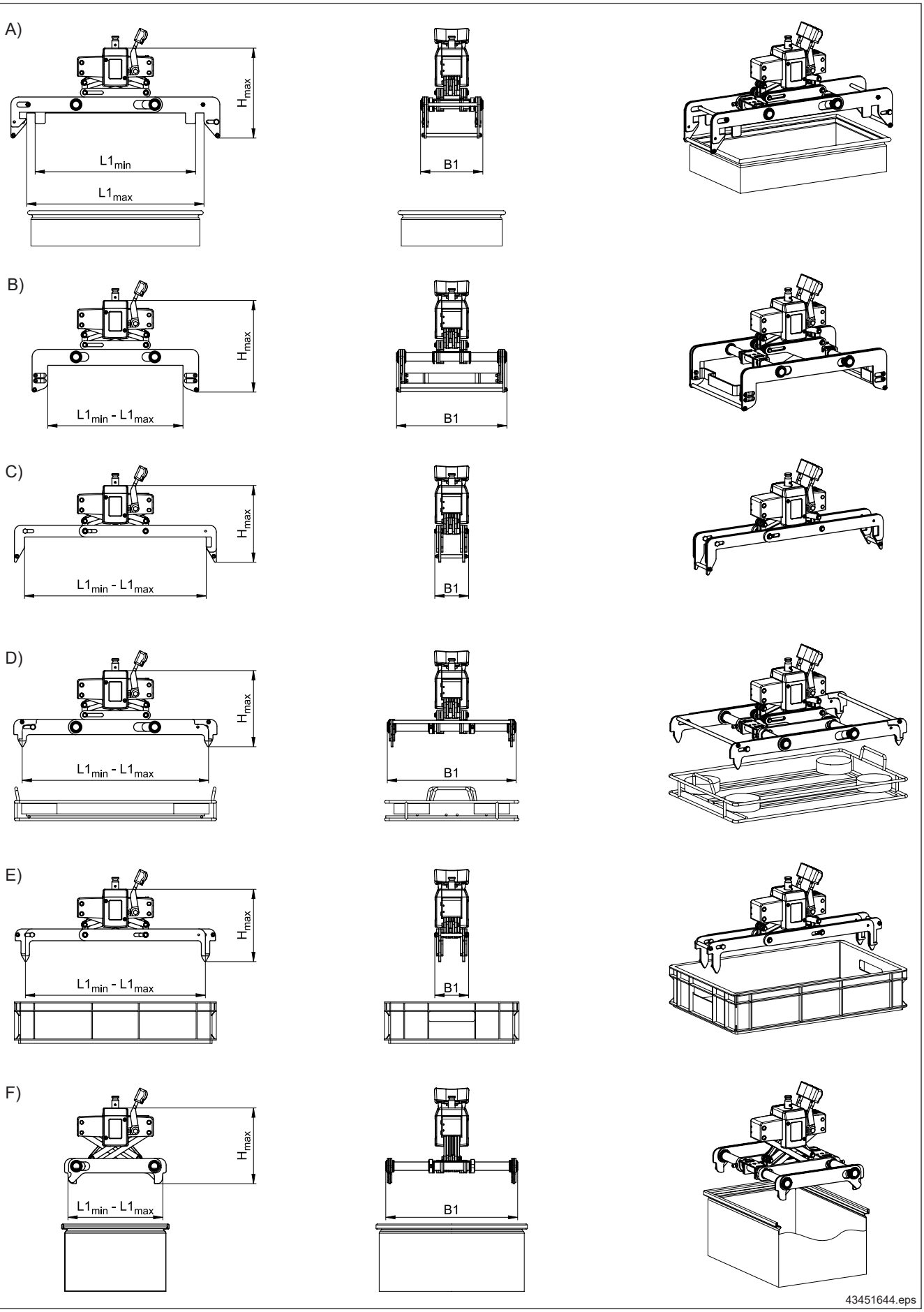


Container type	Load capacity [kg]	Container size [mm]		L1 [mm]	B1 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	D1 [mm]	Part no.	Weight [kg]
MF	63	600 x 400	Rigid	579	283	43	34	23	7	840 901 44	11,3
Eurotech				583		34	25	14	9	840 903 44	
KLT				553	211	48	38	22	9	840 905 44	11,8
L / R-KLT				565						840 907 44	11,5
MF		400 x 300		282	283	43	34	23	7	840 991 44	10,5
Eurotech				283		34	25	14	9	840 993 44	
KLT				355	211	48	38	22	9	840 995 44	11,2
L / R-KLT				367						840 997 44	11,0
KLT		400 x 300/ 600 x 400	Adjustable	553						840 906 44	12,3
L / R-KLT				565						840 908 44	12,1

Dimensions > 1, > 3 and > 5 apply when the gripper rollers rest on the edge of the container.

Other container types on request.

6.5.4 Parallel gripper system for containers without lifting slots



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Item	Load capacity [kg]	Type	Description	B1 [mm]	H_{max} [mm]	$L1_{min}$ - $L1_{max}$ [mm]	Part no.	Weight [kg]
A)	63	Outside gripper	For containers with a rim/edge to grip under. Length, width and height can be adapted.	185	267	300 - 810	588 772 46	10 - 15
B)			For containers with a rim to grip under, in particular also for wire mesh baskets. Length, width and height can be adapted. With wide support on the gripper so that several wires on baskets can be gripped.	330	273	350 - 400	588 729 46	
C)			For containers with handle openings. Length and height can be adapted.	100	228	300 - 825	588 899 46	
D)		Inside gripper	For containers with a rim to grip under, in particular also for wire mesh baskets. Length, width and height can be adapted.	383	227	300 - 810	588 680 46	
E)			For containers with handle openings. Length and height can be adapted.	100	215	300 - 810	588 720 46	
F)		Special containers	For 14/6 and 14/7 series Schäfer-Fix2 metal containers with an outside width of 300 mm on their base surface.	392	225	280 - 306	588 981 46	

Containers that do not have any lifting slots may measure 300 - 800 mm in length and 200 - 800 mm in width. A minimum clearance of 50 mm to the right and left is required for outside grippers.

Since grippers for these containers need to be configured specifically for the order, all load dimensions and the clearance around the load must be specified.

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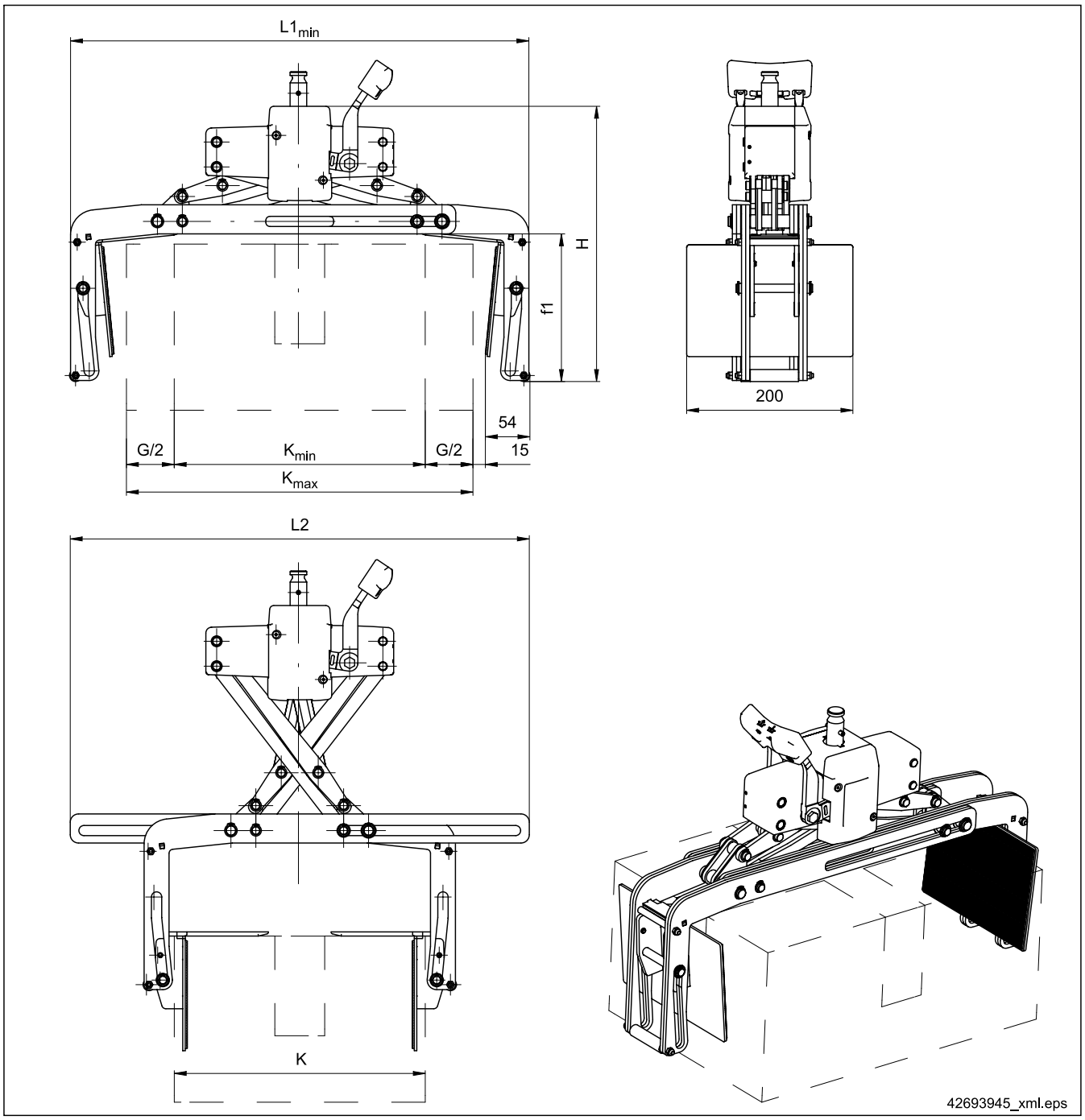
6.5.5 Parallel gripper system for blocks and cartons



Load capacity	Carton			Useful gripping range per gripper	Length		Height		Part no.	Weight
	Min. height	K_{min}	K_{max}	G	L1	L2	H	f1		
[kg]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[kg]
63	200	240 1)	800	max. 150	K + 138	437 - 683	331 - 344	178	588 843 46	12 - 15,5
	150						296 - 309	143	588 763 46	

1) Gripping range < 240 mm on request

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For design reasons, each gripper has a useful gripping range of 150 mm.

Possible carton sizes are 240 - 800 mm. For design reasons, each gripper only has a useful gripping range G of 150 mm. For this reason, the gripper should not be selected any larger than actually necessary.

Example:

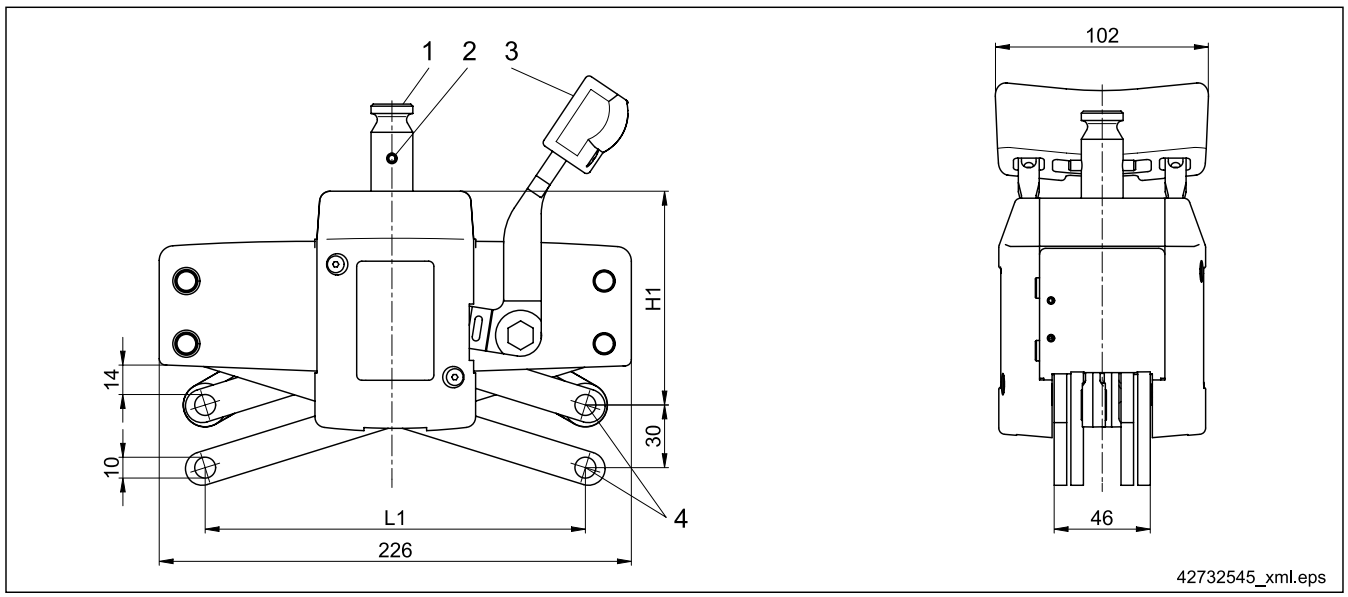
Cartons measuring 240 mm, 300 mm and 420 mm need to be moved using the parallel gripper system. Two grippers are required due to the useful gripping range, since the difference between the largest and the smallest carton measures 180 mm, which exceeds useful gripping range G of 150 mm.

Load dimensions must be specified.

This gripper must not be used with a pneumatic balancer.

To maintain a stable carton shape, both halves of the carton cover must be in contact with each other and the tape used to close the carton must be arranged at right angles to the gripping direction when cartons are gripped.

6.5.6 Parallel gripper system basic module



1) Coupling pin
2) Swivel lock
3) Operating lever
4) Bore holes for mounting by the customer

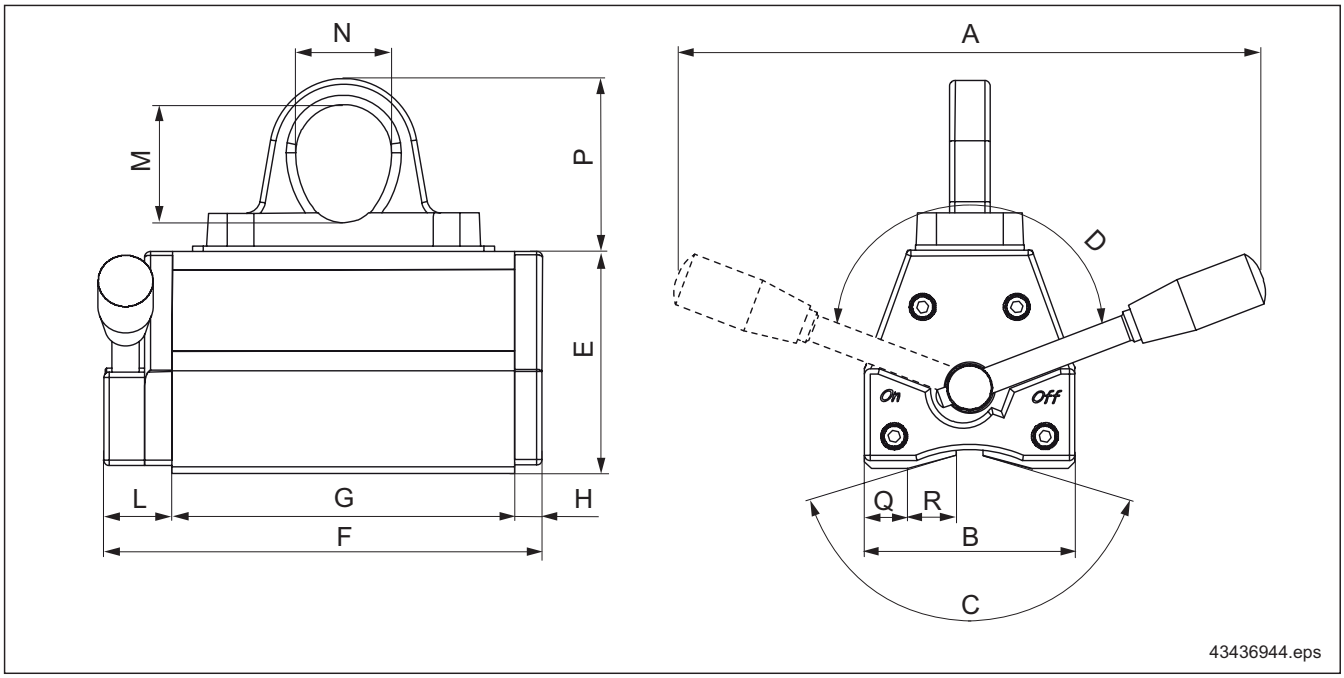
Gripper type	Load capacity [kg]	L1 min. - max. [mm]	H1 min. - max. [mm]	Part no.	Weight 1) [kg]
PGS125 basic module	63 - 125	39 - 187	93 - 203	840 800 44	6,5

Properties

The basic module enables customers to fit load handling attachments to meet individual load pick-up requirement.

7 Load handling attachments

7.1 DPM permanent magnet



DPM permanent magnets operate independently of a power supply. The magnet must be suspended from the load hook to pick up loads.

Size	Dimensions [mm]													
	A	B	C	D	E	F	G	H	L	M	N	P	Q	R
DPM 125	220	78	150°	140°	81	160	125	10	25	43	35	63	16	18
DPM 250	374	118		150°	115	196	143	13	40				24	30
DPM 500	380			155°		296	243			60	52	92	31	23
DPM 1000	420	148	160°		145	355	300	15					42	27
DPM 2000	550	177		140°	190	544	480			87	64	130	59	25

Size			DPM 125	DPM 250	DPM 500	DPM 1000	DPM 2000
Part no.			819 906 44	819 907 44	819 908 44	819 909 44	819 910 44
Max. permissible load capacity with safety factor of 3:1	Flat load	[kg]	125	250	500	1000	2000
	Round load	[kg]	60	125	250	500	1000
Min. material diameter 1)		[mm]	35	35	35	40	40
Max. material diameter 1)		[mm]	180	270	220	360	340
Max. material length for flat loads 1)		[mm]	2000	2000	2500	3000	3000
Max. material thickness for flat loads 1)		[mm]	10	15	20	30	30
Magnetic area		[mm]	78 x 125	118 x 143	118 x 243	148 x 300	177 x 480
Min./max. suspension eye diameter		[mm]	40/100	40/160	40/220	80/300	80/400
Weight		[kg]	6	14	26	45	95

1) Generally applicable maximum material lengths cannot be specified. The maximum transportable material depends on two factors:
a) the maximum permissible load capacity,
b) the load must not bend or “peel off” when it is raised.

For further information, see “DPM permanent magnet operating instructions” document, refer to the table on page 19.

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DC chain hoist project engineering sheet

Please configure your DC chain hoist and send the project engineering sheet to your next Demag sales office or to your relevant agent, an authorised reseller or head office in Wetter.

Customer:		**Project no.:**	
		Customer no.:	
		Visit/call/fax dated:	
Contact:		**Quotation submission date:**	
Telephone/mobile:		**Filled in by (name)/dept.:**	
Fax:		**Date:**	
E-mail:			

O Consultation by telephone	O With acceptance	O Customer has forklift	O With installation
O Customer requests visit	O Test weight available	O Customer has platform	O In normal working hours
			O At the weekend
Delivery date	Delivery location		

Please enter model code:

Trolley type Trolley size	Chain hoist type Chain hoist size	Load capacity [kg]	Reeving	Hook path [m]	Lifting speed [v/min]	Oper. voltage/ frequency [V/Hz]	Travel speed [m/min]	Flange width [mm]

Number of chain hoists:

Type:

O Stationary
O Travelling
O KDC low-headroom trolley
O Low-headroom trolley in long KLDC design
Grid dimension
O DC-Wind
O Double chain hoist
O LDC-D (with connecting shaft)
O KLDC-D (short model)
Finish O 2/4 O 3/4 O 4/5
Hook distance L1
L2 (only for 3/4)

Ambient conditions:

O Electroplating, pickling, galvanizing plant
O Clean room, class
O Foundry
O Foodstuffs sector
O Special ambient temperature < -20 °C / > +45 °C:
Other ambient conditions:

Special chain: O Corrud chain O HS7 chain O RS 6 V4A stainless steel chain

Paint finish: O Special colour in RAL

Suspension:

O Standard
O ZMS
O Short suspension bracket
O Suspension ring turned 90°
O Suspension bracket for KBK III (only for DC 15 - 16)
O Suspension hook

Trolley:

O Click-fit push-travel trolley
O EU electric-travel trolley
Travel speed
O U push-travel trolley
O EUD articulated trolley
Curve radius
Girder type/size
O Suitable for KBK size
O for straight track
O for curved track

Trolley options:

O U11 steel travel rollers
O Supporting roller fittings
O Current collector
O Trolley buffer
O Mechanically coupled at distance of
O Clamp-fitted buffer
O Thoraxol paint finish for EU56 travel motor/articulated trolley

Motor: CSA design O Microtherm

Load handling attachment (LHA) for Manulift/rocker switch:

O LHA to ident. no.
O LHA w/o ident. no.
Ident. no.:
Container/load:

Control units: O None O Standard O DSK O DST Radio control O DRC-DC O DRC-MP

Control cable: O None O Standard O DC support sleeve O 2TY O Mobile

Control cable length:

O for H5 (0,8-3,8 m)
O for H8 (3,9-6,8 m)
O for H11 (6,9-9,8 m)
Cable length longer than H11:

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Additional plug connection:	O Harting main power supply	O Harting control cable	
Limit switches:	O Lifting/lowering (DC-Com 1/1 only)		
	O Cross-travel limit switches		
	Geared limit switch	O 3 contacts	O 4 contacts (for external use)
			O 8 contacts (for external use)
Additional electric equipment:	O Control of the DC unit via floating contacts with 24 V AC (DC terminal box/diode)		
	O Control of the DC unit via conventional control signals/contacts for 42-230 V AC, 50/60 Hz (KT3/DT3 signal converter)		
	O Control of an AC travel motor (Polubox)		
	O Generation of conventional control signals/contacts for 42-230 V AC, 50/60 Hz (3TK signal converter)		
	O 2 chain hoists in tandem operation		
	O Overload cut-off with ZMS and electric evaluation device		
	O Rotary encoder fitting type _____		
	O Double brake		
Power supply:	O KBK 25 trailing cable power supply	O DCL-Pro conductor line	
For chain hoist supplied with trolley:	O Chain hoist completed with trolley		
Further special features, e.g.:	O Canopy	O Chain hoist rated to DGUV (BGV-D8+)	
	O Heat deflection shield	O IP 65 enclosure (DC 1 - 15 only)	
	O Oil drip tray	O Control pendant arm length _____	

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