



**BRANO a.s., 747 41 Hradec nad Moravicí
The Czech Republic**

tel.: +420/ 553 632 316, 553 632 303
<http://www.brano.eu>; zz-info@brano.eu; info@brano.eu

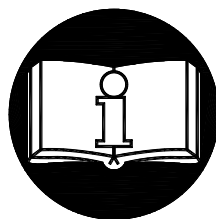
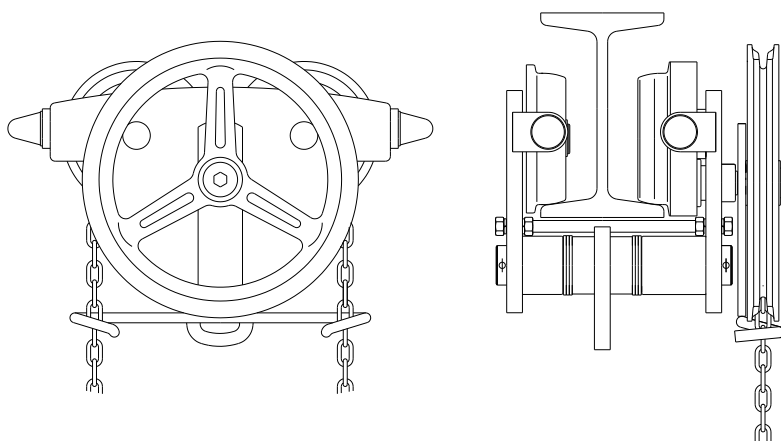
**OPERATION MANUAL
SAFETY PRINCIPLES, OPERATION AND MAINTENANCE
FOR**

SINGLE BEAM TROLLEYS

type Z420-A, Z420-B, Z420-C – lifting capacities 1t, 1,6t, 3,2t and 5t

type Z420R-A, Z420R-B – lifting capacity 1t

type Z420, Z420-C – lifting capacities 7,5t and 10t



Read this Operation Manual carefully before using these products. This manual contains important safety, operation, installation, and maintenance information on the product. Make this manual available to all responsible persons.

Keep for further use!

Edition 5th
January 2014
Evidence number 1-56799-0-0



CONTENT

1	DEFINITION	3
2	DEVICE PURPOSE.....	3
3	SAFETY PRINCIPLES	4
	3.1 SAFETY SUMMARY.....	4
	3.2 SAFETY PRINCIPLES.....	4
	3.2.1 Prior to use.....	4
	3.2.2 When in use	4
	3.2.3 After use.....	5
	3.2.4 Risk analysis	5
	3.2.5 Maintenance	5
4	PACKING, STORAGE AND MANIPULATION.....	5
	4.1 PACKING.....	5
	4.2 STORAGE	5
5	MAIN TECHNICAL PARAMETERS.....	6
	5.1 DIMENSIONS	6
	5.3 DIVISION	7
	5.3 MAIN TECHNICAL PARAMETERS	8
	5.4 MATERIAL AND DESIGN.....	8
	5.5 DATA ON PRODUCT	9
6	INSTALLATION OF THE TROLLEY.....	9
	CHECK PRIOR TO INSTALLATION.....	9
	6.1 LOAD CARRYING STRUCTURE	9
	6.2 TRAVELLING (CRANE) TRACK.....	9
	6.3 ASSEMBLY OF THE TROLLEY	9
	6.4 TEST PRIOR TO USE	11
7	OPERATION	12
	7.1 APPLICATION OF THE TROLLEY.....	12
	7.2 SAFE WORKING ENVIRONMENT.....	12
8	INSPECTION OF THE TROLLEY	13
	8.1 INSPECTION	13
	8.1.1 Inspection classifications.....	13
	8.1.2 Daily inspection.....	13
	8.1.3 Regular inspection	13
	8.1.4 The trolley occasionally used	13
	8.1.5 Inspection record.....	13
	8.1.6 Inspection procedure.....	14
9	LUBRICATION	15
	9.1 GENERALLY	15
	9.2 GEARINGS OF THE TROLLEY.....	15
10	MAINTENANCE	15
	10.1 SAFETY PRINCIPLES.....	15
	10.2 GENERAL INSTRUCTIONS.....	15
	10.3 CHECK	15
	10.4 REPAIR.....	16
	10.5 TEST.....	16
11	PUTTING OUT OF OPERATION – DISPOSAL	16
12	RELATED DOCUMENTATION	16
13	FINAL REQUIREMENTS OF THE MANUFACTURER TO THE CUSTOMER	16

1 DEFINITION

! DANGER

Danger is used to indicate the presence of a hazard, which will cause death or severe injury, if the operating staff does not avoid it.

! WARNING

Warning is used to indicate the presence of a hazard, which can cause death or severe injury, if the operating staff does not avoid it.

! CAUTION


Caution is used to indicate the presence of a hazard, which can cause minor injury, if the operating staff does not avoid it. Caution can also warn against dangerous practices.


Lifting capacity (Q): indicates maximum permitted mass (working load limit), which a trolley is designed to be loaded during operations under conditions specified in this manual.

2 DEVICE PURPOSE

2.1 The single beam trolley types **Z420-A, Z420-B and Z420-C – lifting capacities 1t, 1,6t, 3,2t and 5t and its modifications types Z420R-A, Z420R-B – lifting capacity 1t and type Z420, Z420-C – lifting capacities 7,5t and 10t** (hereinafter referred to as „trolley“) is designed for horizontal travel on flanges of I-beam. It is intended mainly for suspending of BRANO hand operated lifting devices of the appropriate lifting capacity. The mass of a load must not exceed the nominal lifting capacity.

2.2 The product has been designed to meet requirements provided by the Directive 2006/42/EC of the European Parliament and of the Council as amended by the Czech technical regulation – ministerial order No. 176/2008 of the Coll. of Laws as amended as well as requirements of the ČSN EN ISO 12100 and ČSN EN 13157+A1 harmonized technical standards.

2.3 The product has been designed in compliance with the requirements stipulated by Directive 94/9/EC of the European Parliament and of the Council, as amended by the Czech technical regulation – Government Directive No. 23/2003 Coll., as amended. The product has been designed as  **IM2c** equipment pursuant to ČSN EN 13463-1:2009 and ČSN EN 13463-5:2012. It complies with the conditions stipulated for use in mining environments classed as “hazardous atmospheric conditions 2” pursuant to ČSN EN 1127-2.

2.4 The product has been designed in compliance with the requirements stipulated by Directive 94/9/EC of the European Parliament and of the Council, as amended by the Czech technical regulation – Government Directive No. 23/2003 Coll., as amended. The product has been designed as  **IIGDcT6** equipment pursuant to ČSN EN 13463-1:2009 and ČSN EN 13463-5:2012. It complies with the conditions stipulated for use in mining environments classed as „zone 1 and zone 21“, “ zone 2 and zone 22“ pursuant to ČSN EN 1127-1.

Note: The articles 2.3 and 2.4 apply for the trolley designed for use in an environment with explosion hazard.

3 SAFETY PRINCIPLES

3.1 SAFETY SUMMARY

Danger exists when traveling with a load, particularly when the trolley is not used properly or is poorly maintained. Since an accident or serious injury could result, special safety precautions must be observed in the course of work with the trolley during its assembly, maintenance and inspection.

! WARNING

- NEVER** use trolley for transporting people.
- NEVER** transport loads over or near people.
- NEVER** lift and transport more than lifting capacity shown on the trolley nameplate.
- ALWAYS** make sure the load carrying structure will provide the adequate support to handle fully loaded trolley and all other operations.
- ALWAYS** let people around to know when a lift is about to begin.
- ALWAYS** read operation manual and safety instructions.

Remember that proper rigging, lifting and pulling techniques are the responsibility of the operating staff. Therefore check all applicable national directions, regulations and standards for further information on the safety work of your trolley.

3.2 SAFETY PRINCIPLES

! WARNING

3.2.1 Prior to use

- ALWAYS** ensure physically fit, qualified and instructed persons older than 18 years of age, familiarized with this manual and trained in safety conditions and way of work, operate the trolley.
- ALWAYS** check the trolley before daily use according to the article 8.1.2 „Daily inspection“.
- ALWAYS** make sure that ends of rail girder are fitted with stop ends.
- NEVER** use damaged or worn out trolley.
- NEVER** use corroded, twisted or damaged hand chain.
- NEVER** use a trolley without a visible marking of lifting capacity on a nameplate.
- NEVER** use a trolley marked by the label „**OUT OF OPERATION**“.
- ALWAYS** consult with the manufacturer or his authorized representative use of the trolley in non-standard or extreme environment

3.2.2 When in use

- ALWAYS** use manual power only.
- ALWAYS** ensure two persons operate trolleys of lifting capacities 3,2 – 10t when loading them with loads approaching the nominal lifting capacity.
- NEVER** use a trolley as a part for tensioning, pulling or anchoring loads.
- NEVER** allow swinging the load, causing impacts or vibrations.

- NEVER** load a trolley by diagonal pull.
- NEVER** leave a suspended load without supervision.
- NEVER** weld, cut or make any other operations on a suspended load.

3.2.3 After use

- NEVER** leave a load suspended on the trolley.
- ALWAYS** ensure the trolley against any incompetent use.

3.2.4 Risk analysis

The analysis of possible risks in light of design, operation and environment of the trolley application is presented in freestanding document „Risk analysis“. This document can be required in service centers.

3.2.5 Maintenance

- ALWAYS** enable qualified persons to inspect the trolley regularly.
- ALWAYS** ensure the sliding parts were greased enough.

Only such interventions can be done when maintaining the trolley that are in compliance with requirements of the manufacturer specified in the chapters 10 and 13 of this manual.

IT IS NOT PERMITTED to carry out repairs and maintenance in other way than specified by the manufacturer. It concerns namely the forbiddance of using of unoriginal spare parts or carrying out modifications on the product without any approval of the manufacturer.

4 PACKING, STORAGE AND MANIPULATION

4.1 PACKING

4.1.1 Trolleys of lifting capacity 1t are supplied assembled, packed into paperboard boxes. Trolleys of lifting capacities 1,6t, 3,2t 7,5t and 10t are supplied assembled in bulk on pallets. The hand chain is ensured against unrolling by the wire.

4.1.2 The following accompanying documentation is a part of the delivery:

- a) Operation Manual
- b) EC Declaration of Conformity
- c) Certificates of Quality and Completeness and Guarantee Card.
 - c1) Guarantee period is stated in the Guarantee Card.
 - c2) The guarantee does not apply to defects caused by infringement of the instructions stated in this Operation Manual and defects occurred owing to improper use and unskilled intervention.
 - c3) The guarantee does not apply also to modifications on the product or using of unoriginal spare parts without an approval of the manufacturer.
 - c4) A claim for defects in the product must be applied according to the relevant provisions of the Commercial Code or the Civil Code, as amended.
- d) List of service centers (for the Czech and Slovak Republics only).

4.2 STORAGE

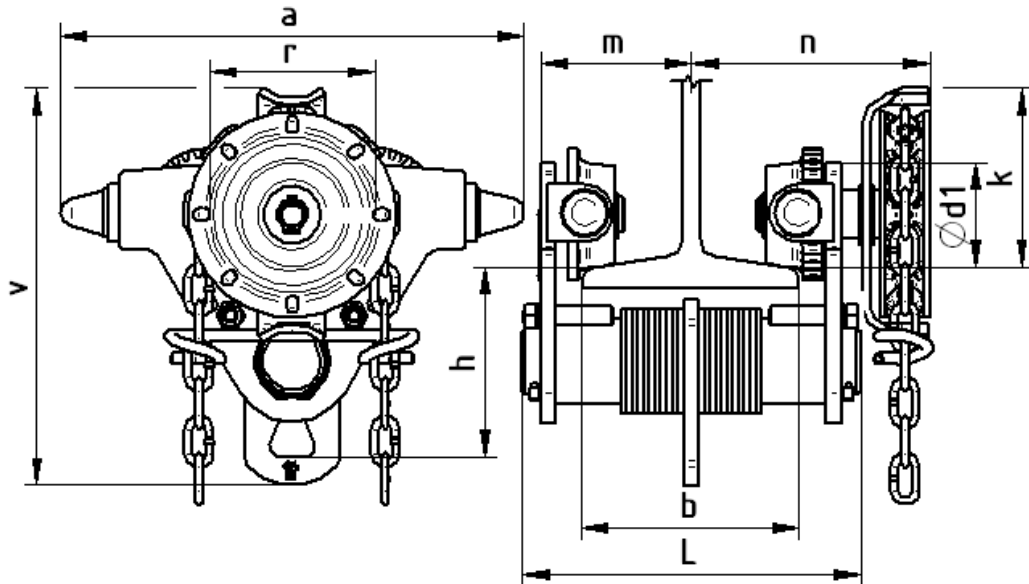
Store trolleys in dry and clean stocks free of chemical influences and vapours.

- (1) Always store a trolley without any suspended load.
- (2) Remove from the trolley all dust, water or impurities.
- (3) Lubricate the gear transmission and pivots of wheels.
- (4) During further use follow instructions of the article 8.1.2 „Daily inspection“ or 8.1.4 „Trolley occasionally used“.

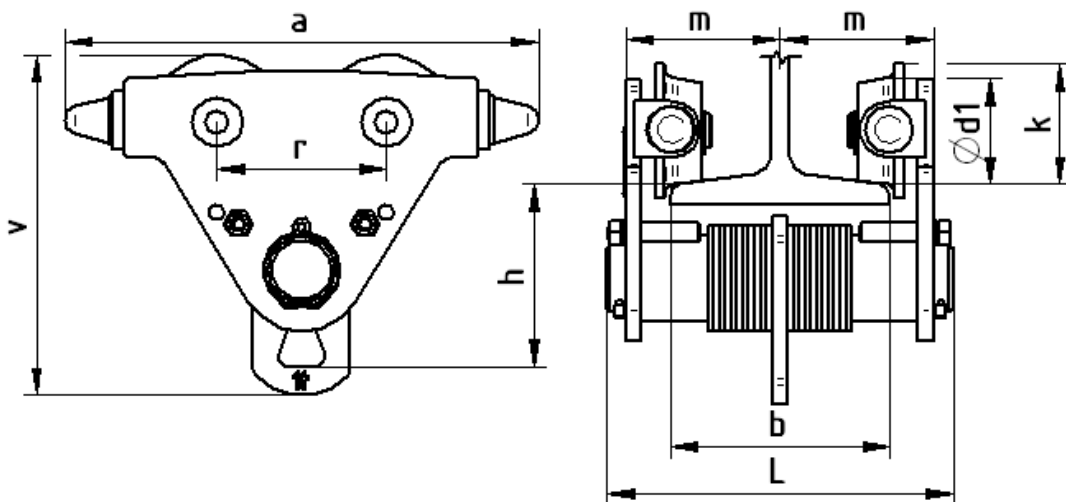
5 MAIN TECHNICAL PARAMETERS

5.1 DIMENSIONS

PIC. 5.1.1 SINGLE BEAM TROLLEYS , TYPES Z420-A, Z420-B, Z420-C
Lifting capacity 1 t



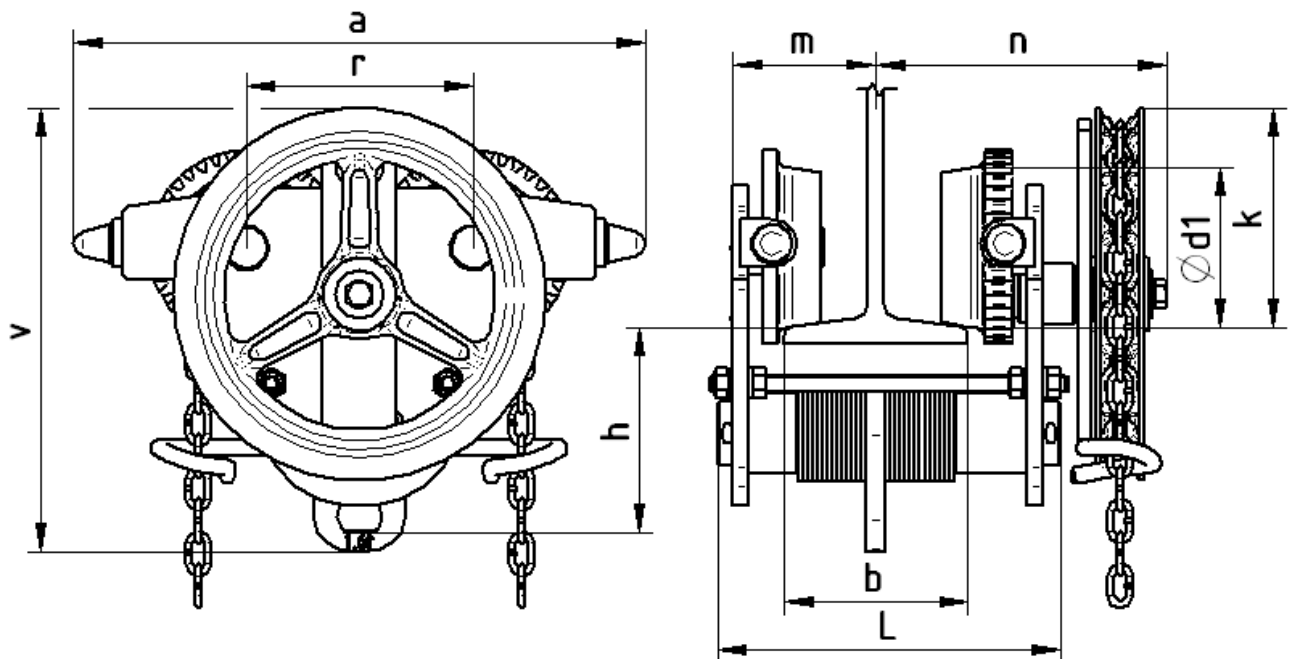
PIC. 5.1.2 SINGLE BEAM TROLLEYS , TYPES Z420R-A, Z420R-B
Lifting capacity 1 t



Type	Lifting capacity (t)	Main dimensions (mm)									I – beam (I, IPE, HEA, HEB)	
		a	~ h	L	v	d ₁	r	k	m	n	b	R ¹⁾
Z420-A	1 HEM	245	100	178	209	55	87	95	52 – 80	99 – 126	50 – 113	1000
Z420-B		245	100	286	209	55	87	95	52 – 134	99 – 180	50 – 226 pro I – b max 143	1000
Z420-C		245	100	372	209	55	87	95	90 – 177	136 – 223	125 – 300 pro I – b max 143	1000
Z420R-A		245	100	178	177	55	87	63	52 – 80	-	50 – 113	1000
Z420R-B		245	100	286	177	55	87	63	52 – 134	-	50 – 226 pro I – b max 143	1000

Notes: 1) R = minimal radius of the track curvature.

PIC. 5.1.3 SINGLE BEAM TROLLEYS , TYPES Z420-A, Z420-B, Z420-C
Lifting capacities 1,6 t ;3,2 t ;5t ;7,5 t and 10 t



Type	Lifting capacity (t)	Main dimensions (mm)									I – beam (I, IPE, HEA, HEB, HEM)	
		a	~ h	L	v	d ₁	r	k	m	n	b	R ¹⁾
Z420-A	1,6	350	121,5	212	269	100	140	136	80 – 91	168 – 175	58 – 113	1700
Z420-B		350	121,5	324	269	100	140	136	80 – 145	168 – 230	58 – 226	1700
Z420-C		350	121,5	396	269	100	140	136	129 – 181	214 – 266	137 – 300	1700
Z420-A	3,2	435	134	239	309	133	170	162	86 – 97	178 – 189	82 – 125	2500
Z420-B		435	134	340	309	133	170	162	86 – 146	178 – 238	82 – 226	2500
Z420-C		435	134	414	309	133	170	162	113 – 183	205 – 275	160 – 300	2500
Z420-A	5	505	149	275	391	148	218	227	101 – 116	199 – 214	90 – 137	2800
Z420-B		505	149	364	391	148	218	227	101 – 162	199 – 260	90 – 226	2800
Z420-C		505	149	436	391	148	218	227	133 – 198	231 – 296	170 – 300	2800
Z420	7,5	685	248	415	432,5	196	300	222	150 – 186	294 – 330	125 – 185 (I)	5000
Z420-C		685	248	518	432,5	196	300	222	161 – 238	301 – 382	170 – 300	5000
Z420	10	765	278	448	503,5	228	328	256	160 – 193	306 – 339	125 – 185 (I)	9000
Z420-C		765	278	552	503,5	228	328	256	185 – 245	331 – 391	180 – 300	9000

Notes: 1) R = minimal radius of the track curvature.

5.3 DIVISION

- Z420-A - basic design, with drive
- Z420-B - long cross beam, with drive
- Z420-C - long cross beam, with drive
- Z420R-A - basic design, without drive
- Z420R-B - long cross beam, without drive

Note: with drive = with chain wheel and hand chain.

5.3 MAIN TECHNICAL PARAMETERS

Type	Lifting capacity Q (t)	Operating force for travel ³⁾ (N)	Travelling speed ¹⁾ (m/min)	Range of working temperature	Basic length of chain ²⁾ (m)	Weight (kg)	
Z420-A	1	250	4,8	-20°C to + 50°C	3	8,7	
Z420-B		250	4,8			10,4	
Z420-C		250	4,8			11,4	
Z420R-A		-	-			6,4	
Z420R-B		-	-			7,8	
Z420-A	1,6	150	2,25		-20°C to + 50°C	3	21
Z420-B		150	2,25				22,8
Z420-C		150	2,25				24
Z420-A	3,2	280	2,3				35,9
Z420-B		280	2,3				37,8
Z420-C		280	2,3				39,5
Z420-A	5	350	1,8				52,9
Z420-B		350	1,8				54,7
Z420-C		250	1,8				58
Z420	7,5	500	5,97				124,2
Z420-C		500	5,97	128,2			
Z420	10	500	7,3	179,5			
Z420-C		500	7,3	187			

Note:

- 1) Calculated on the presumption of winding off 30m of hand chain per minute.
- 2) Trolleys with hand chain longer than 3m can be ordered separately.
- 3) At trolleys with lifting capacities 3,2 – 10t it is necessary when loading with loads approaching nominal lifting capacity to ensure the operation by two persons

5.4 MATERIAL AND DESIGN

5.4.1 All parts of the trolley are made of steel and cast iron.

5.4.2. Materials inclinable to creation of an incendiary spark in terms of the annex No. 2 article 1.3.1 to the ministerial order No. 23/2003 of the Coll. of Laws and the ČSN EN 1127-2 article 6.4.4, ČSN EN 1127-1 article 6.4.7 and ČSN EN 13 463-1 article 8.1 harmonized technical standards are not used in the trolley design.

5.4.3. Materials with dangerous effects of static electricity within the meaning of the ČSN EN 1127-2 article 6.4.7, ČSN EN 1127-1 article 6.4.7, ČSN EN 13463-1 article 7.4.3 and ČSN 33 2030 are not used in the trolley.

5.4.4 The product does not exceed the noise values specified in the annex 1 article 1.7.4.2 letter u of the MO No. 176/2008 of the Coll. of Laws (EP and RE directive No. 2006/42/EC)

Note: The articles 5.4.2 and 5.4.3 apply for a trolley design for use in an environment with explosion risk.

5.5 DATA ON PRODUCT

Every product is fitted with label with specified data as follows:

Standard design:	Design to environment with explosion risk:
Manufacturer's identification	Manufacturer's identification
Address of the manufacturer	Address of the manufacturer
Type of product	Type of product
Lifting capacity	Lifting capacity
Serial number	Serial number
Year of production	Year of production
CE marking	CE marking
	Symbol of protection type(IM2c for group I, II2GDcT6 for group II)

6 INSTALLATION OF THE TROLLEY

CHECK PRIOR TO INSTALLATION

Prior to installation, check carefully whether the trolley is not damaged.

6.1 LOAD CARRYING STRUCTURE

Travelling (crane) track and related load carrying structure (parts of buildings, etc.), destined for the trolley operation must be documented by the drawing and stress analysis.

! WARNING

ALWAYS make sure the travelling track and related load carrying structure are firm enough to support the weight of the load and trolley. The installation shall not be carried out onto the structure, where the carrying capacity cannot be verified.

ALWAYS make sure the travelling track is plane.

ALWAYS make sure the ends of the travelling track are equipped with firm stop blocks.

ALWAYS the user is responsible for the load carrying structure!

6.2 TRAVELLING (CRANE) TRACK

! CAUTION

Trolleys can be installed onto girders with the angle of the lower flange up to 20% or with a flat flange. The range of lower flange width (b) and minimum radius of the travelling track curvature (R) for particular lifting capacities are mentioned in the article 5.1 DIMENSIONS.

! WARNING

The permitted maximum deflection of the travelling track caused by loading by the actual weight and nominal lifting capacity is 1/500 of distance between suspensions (supports).

The permitted maximum gradient of traveled surface is 0,3%.

The maximum height of the travelling track above the floor is 20m. Any application on higher travelling tracks is necessary to be consulted with the manufacturer.

6.3 ASSEMBLY OF THE TROLLEY

! CAUTION

Prior to installation of the trolley, inspect it carefully for the possible damage.

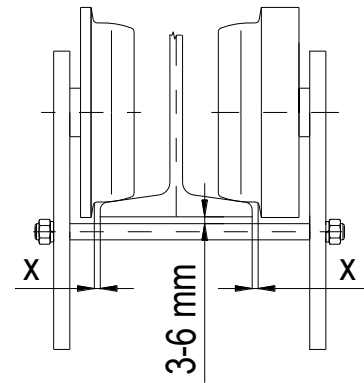
Only qualified persons can perform assembly of the trolley.

Be careful during assembly of the trolley to the travelling track and ensure appropriate conditions for assembly according to the environment character, to avoid endanger or injury of people. Use safety equipment when assembling the trolley in heights to avoid falls from height.

The user is responsible for creating conditions for installation and performing the installation.

6.3.1 Condition for the correct travel of the trolley

- A) The tolerance (x) between tyres of the travelling wheels and flange of beam shall be approximately 2 mm. For curved tracks it is necessary to increase the tolerance appropriately.
- B) The suspension shackle must be in the centre of the beam.
- C) Place coupling screws (at lifting capacities 1,6 – 10t) into openings in side plates, so that the condition of tolerance between screw and lower flange of the beam was 3 - 6mm.



6.3.2 Assembly of lifting capacity 1 t

- 1) Dismantle the side plates of the trolley.
- 2) Put on the bottom flange of the I – beam the side plate with geared travelling wheels and hand chain wheel. (At type Z420R you can put on any side plate).
- 3) Put the cross beam to the bushing of the side plate and secure by the cotter pin.
- 4) Put on the cross beam the relevant number of distance washers, so that the suspension shackle was in the axe of the beam and the condition for the correct function according to the article 6.3.1 was fulfilled.
- 5) Put the same number and the same size of distance washers on the other side of the suspension shackle.
- 6) Place the other side plate on the cross beam and all the remaining washers and secure by the cotter pin.
- 7) Stretch the ends of both cotter pins so that they cannot fall out.
- 8) Straighten the hand chain.

6.3.3 Assembly of lifting capacities 1,6 t; 3,2 t; 5 t; 7,5t and 10t

- 1) Dismantle the side plate of the trolley (on side free of gear travel wheels and hand chain wheel) as follows:
 - dismantle outer nuts of the distance bolts and take out split washers,
 - dismantle the split pin of the cross beam,
 - remove the side plate,
 - take out the distance washers and shackle from the cross beam.
- 2) By the help of distance washers set the side plate on the cross beam so that the shackle was in the axe of beam and the condition for the correct function was fulfilled according to 6.3.1.
- 3) The same number and the same size of distance washers put on the opposite side of the shackle.
- 4) Hang up the side plate with the cross beam on the beam and put the other side plate on the cross beam and on the distance bolts.
- 5) Set on the remaining distance washers onto the cross beam and secure by the cotter pin.

- 6) Put spring washers on the distance bolts and screw on the nuts. Tighten up properly all nuts of distance bolts.
- 7) Stretch the ends of both cotter pins so that they cannot fall out.
- 8) Straighten the hand chain.
- 9) For the assembly of the trolleys of the lifting capacities 7,5 and 10t use an appropriate load carrying structure (auxiliary lifting device, etc.).

6.3.4 SETTING OF THE HAND CHAIN

After the installation of the trolley in the workplace we check the position of the hand chain. The distance of the end of bottom loop of the hand chain over the level of the surface, on which the operation staff stands during the operation, must be in the range of 500 –1000mm. Trolleys are supplied with hand chains, the length of which is proportional to the lift height of the chain block or lifting device used for suspending on the trolley, and which during the standard installation meet condition of correct setting of the chain end.

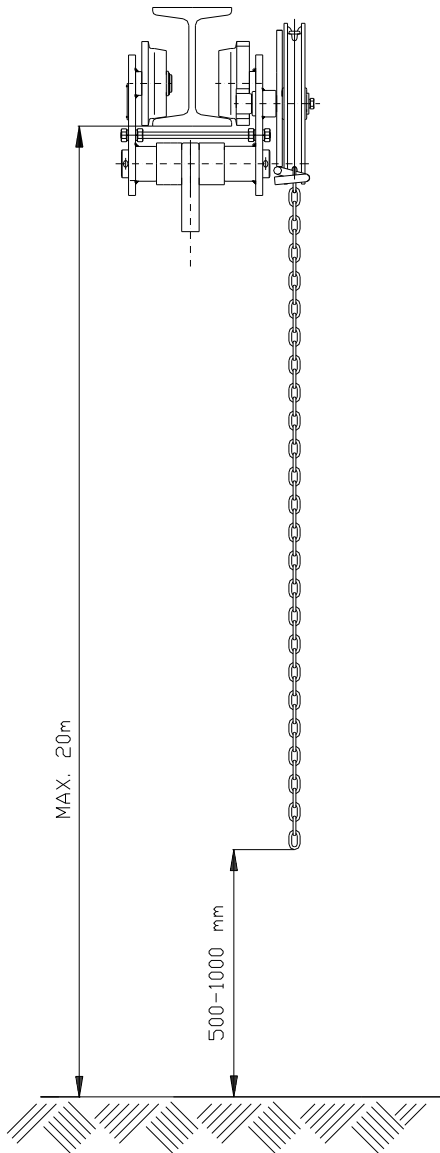
In other cases, where regarding the way of use of the chain block, the length of the hand chain does not meet specified conditions, the chain must be shortened or lengthened.

Shortening of the chain: we disconnect the chain in place of the coupling link by buckling free ends of the links. We shorten the chain by required length and connect again by coupling link. Free ends of the coupling link we bend to one another.

Lengthening of the chain: we disconnect the chain in place of the coupling link by buckling free ends of the links. We attach other part of chain of required length by means of two coupling links. Free ends of coupling links we bend to one another.

The coupling links and hand chain of required length can be bought as spare parts.

Note: the requirement for control chains of other length than standard one can be made just in the order.



6.4 TEST PRIOR TO USE

! CAUTION

- 1) Inspect visually load bearing structure, whether it is without defects.
- 2) First look again through the previous articles of this manual and make sure all steps were correctly done and all parts are safely assembled.
- 3) Check especially, whether the cotter pins on both sides of the cross beam are properly secured against falling out.
- 4) By pulling the hand chain of the trolley (or by the move of the trolley at the type Z420R) check the travel on the travelling track.

7 OPERATION

7.1 APPLICATION OF THE TROLLEY

The trolley has been designed entirely for the horizontal travel on flanges of I-beams under normal atmospheric conditions in the workplace and in environments with an explosion risk as well, if there is a symbol of the protection type on the label – see articles 2.3 and 2.4 of this operation manual. The trolley is destined for suspension of the chain block or other lifting equipment always of the appropriate lifting capacity manufactured by the BRANO. When suspending the lifting device of other manufacturer the upper hook shall correspond to the opening in the suspension shackle of the trolley.

Consult with the manufacturer other application of the trolley.

The type Z420 is with travel drive by means of the hand chain and makes possible moving loads in the working area of the travelling track.

The type Z420R is destined for travel by the application of a direct force on the trolley. The travel of the trolley is possible as well by the application of a force on the load (when observing the safety principles specified in the chapter 3 and in the article 7.2), whereas the operating staff pushes the load – we do not recommend to pull the load.

It is destined for organizations and private persons as well.

When installing in outside room protect the trolley against direct climatic influences (shelter).

Since handling with heavy loads may involve unexpected danger, all the „Safety instructions“ according to the chapter 3 must be followed.

! WARNING

NEVER suspend a lifting device of a greater lifting capacity than the nominal lifting capacity of the trolley.

NEVER suspend a lifting device, the hook of which does not go freely through the opening in the suspension shackle.

7.2 SAFE WORKING ENVIRONMENT

! WARNING

- (1) The operating staff must be demonstrably familiarized with this operation manual, must observe applicable safety and hygienic regulations and must be qualified for operation of this equipment.
- (2) The operating staff must be equipped with helmet and gloves when operating the trolley.
- (3) When more persons take a part in the operation, always one person must be designated, trained in safety work, that is responsible for handling with the trolley.
- (4) He must have a clear and unobstructed view of the whole working area still before starting the work. If it is not possible, one or more persons must help him to supervise in the nearby area of the trolley.
- (5) The operating staff must check the entire work place is safe and whether there is a possibility of escaping in case of endanger before starting to operate the trolley.
- (6) For travel of the trolley the sufficient space for the operating staff shall be ensured.
- (7) When operating the trolley the adequate distance of the operating staff from the suspended load must be kept. It is forbidden to transport bulky loads not allowing keeping the sufficient distance.

8 INSPECTION OF THE TROLLEY

8.1 INSPECTION

8.1.1 Inspection classifications

(1) Initial inspection: precedes first use. All new or repaired trolleys shall be inspected by a responsible qualified person to ensure the qualified fulfillment of requirements of this operation manual.

(2) Inspections of trolleys operated regularly are generally divided into two classifications based on the intervals at which should be performed. The intervals depend on the condition of the critical components of the trolley and the degree of the wear, deterioration or malfunction. The two general classifications are here classed as daily and regular ones. The respective intervals are defined as follows:

(a) Daily inspection: visual inspection carried out by the operating staff designated by the user at the beginning of each application.

(b) Regular inspection: visual inspection carried out by the qualified person designated by the user.

1) normal operation – once per year

2) heavy operation – twice per year

3) special or infrequent operation – according to the recommendation of the qualified person at first usage and according to the directions of the qualified employees (maintenance workers).

8.1.2 Daily inspection

Regarding parts such as those recommended in section 8.1.6(1) „Daily inspection“ verify whether the trolleys are without any defect. Provide this inspection also during operation in the intervals between regular inspections. Qualified employees will determine whether any defect or damage can constitute a hazard or whether more detailed inspection is necessary.

8.1.3 Regular inspection

Complete inspections of the trolley perform as recommended regular inspections. These inspections may be performed with the trolley in its normal location and do not require dismantling of the trolley. Recommended regular inspection specified in the section 8.1.6 (2) shall be performed under the supervision of qualified persons that will determine, whether the complete disassembly of the trolley is necessary. These inspections shall include the requirements of the daily inspection as well.

8.1.4 The trolley occasionally used

(1) The trolley, which has been idle for a period of one month or longer but less than one year, remit to the inspection conforming to the requirements of the section 8.1.2 before follow-up putting it into operation.

(2) The trolley, which has been idle for a period of one year, remit to the inspection conforming to the requirements of the section 8.1.3 before follow-up putting it into operation.

8.1.5 Inspection record

Always keep the record of the performed tests, repairs, inspections and maintenance of trolleys. Dated inspection records perform in time intervals specified in the section 8.1.1 (2) (b) and such records store in an accessible place designated by the user. Defects found by the inspection or recorded during the operation must be announced to the person responsible for safety and designated by the user.

8.1.6 Inspection procedure

(1) Daily inspection (carried out by the operating staff or qualified person)

PART	INSPECTION METHOD	LIMIT/CRITERIA FOR DISCARD	REMEDY
1. Function of the trolley	Visual, hearing	Excessive operating force. Travel goes hard.	Clean and lubricate the gear transmission of the travel, lubricate pins of the travel wheels
2. Fastening parts	Visual check of cotter pins and nuts.	Damaged cotter pins. Insufficiently ensuring against falling out.	Cotter pins replacement. Proper stretching of ends of cotter pin.s Tightening nuts
2. Hand chain	Visual	Chain is kinked or twisted. Chain is deformed or damaged and does not enter the chain wheel correctly.	Straight up the chain and set it to the normal position. Replacement of the chain.
3. Side plate of the trolley	Visual	Visible deformation of the side plate.	Replacement of the side plate.

(2) Regular inspection (carried out by qualified person)

PART	INSPECTION METHOD	LIMIT/CRITERIA FOR DISCARD	REMEDY
1. Fastening parts	Visual check of cotter pins and nuts.	Defective cotter pins, inadequate ensured against dropping out.	Exchange of cotter pins, proper stretching of cotter pin ends. Tightening the nuts.
2. All parts	Visual check	Worn or damage parts. Fouled and non lubricated parts.	Replace by new ones. Dismantle, clean up, lubricate and assemble again.
3. Name plate – lifting capacity marking	Visual check	Lifting capacity is illegible.	Repair or replace with the new one. Point up the lifting capacity.
4. Deformation of side plate	Visual check	Visible deformation of parallelism of the side plates.	Repair or replace
5. Deformation and wear of the crossbeam and suspension shackle	Visual check or check by the help of the slide caliper.	Bent or worn out cross beam or suspension shackle by more than 10%.	Trolley revision. Replacement of the cross beam or the suspension shackle. Putting out of operation.

9 LUBRICATION

9.1 GENERALLY

Before the application of a new lubricant, remove the old one, clean parts by the acid solution and put the new lubricant. Use the lubricant specified by the manufacturer.

9.2 GEARINGS OF THE TROLLEY

Remove the old lubricant from the gear transmission of the trolley and replace by a new one. Use PM-A2 grease or its equivalent.

10 MAINTENANCE

10.1 SAFETY PRINCIPLES

! WARNING

Only qualified persons (service organizations) trained in safety and maintenance of these trolleys can carry out maintenance, specialized inspections and tests.

ALWAYS use entirely parts supplied by the manufacturer.

It is not permitted to perform repairs and maintenance in other way than specified by the manufacturer. It concerns especially the forbiddance of using of unoriginal parts or performing modifications on the product without any approval of the manufacturer.

ALWAYS check the function of the trolley after performing maintenance.

ALWAYS mark the defective trolley or trolley under repair by an appropriate sign (e.g.: „OUT OF OPERATION“).

NEVER carry out maintenance when a load is suspended on the trolley.

NEVER use trolley, which is under repair!

10.2 GENERAL INSTRUCTIONS

The following instructions give general important information on dismantling, inspection, repair and assembly. If the trolley was dismantled from any reason, proceed according to the following directions.

1. Carry out the maintenance in a clean environment.
2. **NEVER** dismantle trolley more than necessary to perform the needful repair.
3. **NEVER** use excessive power during dismantling of parts.
4. **NEVER** use heat as a means during dismantling parts, when parts are determined for further use.
5. Keep the workplace clean and free of foreign compounds that could come to bearings or other moving parts.
6. If the part is clamped in a vice, always use suitable inserts to protect the surface of the parts.

10.3 CHECK

Check all dismantled parts, whether they are suitable for further use.

1. Check all gearings including the shaft, whether they are not worn out and have no scratches or cracks.
2. Check, whether the side plates are not deformed.
3. Check, whether the cross beam and suspension shackle are not worn out or damaged.
4. Check, whether the travelling wheels rotate free.

10.4 REPAIR

Worn out or damaged parts shall be replaced. Small burrs and scratches or other small surface defects remove and smooth by the fine abrasive stone or an abrasive cloth.

10.5 TEST

The loading test with load exceeding the lifting capacity by 50% shall be done at all repaired trolleys by a qualified person to verifying the trolley function.

11 PUTTING OUT OF OPERATION – DISPOSAL

Trolley does not contain any harmful substances; its parts are made of steel and cast iron. After putting it out of operation, hand over it to a firm dealing with disposal of the waste metal.

12 RELATED DOCUMENTATION

of Law as amended

12.1 EC declaration of conformity

12.2 This Operation Manual was elaborated in accordance with the following technical regulations, technical standards and national regulations:

- Ministerial order No.176/2008 of the Coll. of Law as amended (EP and Council directive 2006/42/EC)
- Ministerial order No.23/2003 of the Coll. of Laws as amended (EP and Council directive 94/9/EC)
- ČSN EN ISO 12100
- ČSN EN 13157+A1
- ČSN EN 1127 - 2
- ČSN EN 1127 - 1
- ČSN EN 13463 - 1
- Regulation of CBM (Czech Bureau of Mine) No.22/89 of the Coll. of Laws
- ČSN 33 2030.

13 FINAL REQUIREMENTS OF THE MANUFACTURER TO THE CUSTOMER

Any changes of the product, eventually usage of unoriginal spare parts can be implemented only based on the approval of the manufacturer.

When not observing this condition the producer does not guarantee safety of his product. In this case, any manufacturer's guarantees do not apply to the product.