Chapter 1

Winches

Cable-Pulling-Winches 20-100 kN
KW 2000 KW 3000 KW 4000 KW 5000 KW 10

The approved and compact Bagela cable pulling winches are manufactured in the shock-resistant, recovering Terpolymer (ABS) housing on a hot-dip galvanized base frame.

The longevity of the winch aggregate in combination with this housing makes the winch a worth-stable construction machine. The plastic is solid-coloured and available in red, blue, orange and white. It can be painted in any RAL colour if desired.
For operation the soundproofed housing remains closed, only the cover of the control panel has to be opened.

The rope speed can be adjusted steplessly and absolutely without jerking from 0 - 70 m/min depending upon type of winch. The setting of the pulling operation is to be arranged on a user friendly touch screen. The recorded data could be exported via USB port or journalised by the provided thermo printer directly at the building site.

The winch is powered by a Diesel-Engine with an integrated infinitely controllable, hydrostatic gear.

The whole pulling force is generated by a grooved double capstan system.
The chassis is spring mounted and approved with **100 km/h** (depending on national road traffic regulations).

Specifications are subject to change without notice. Output details are depending on use conditions.

Cable Pulling Winches 20-100 kN
KW 2000 KW 3000 KW 4000 KW 5000 KW 10

Serial outfit:

Winch aggregate:

- Digital recording of pulling force operation via touch-screen, adjustable pulling force delimiter, odometer with progress bar, speed indicator, thermal printer, data output via USB port, recording of min. 50 reports, no additional software necessary.
- Elapsed hour counter
- Diesel engine with hydraulic gear
- Two single propelled, grooved capstan heads and storage drum
- Anti-twist-swivel
- 500 m steel rope (other lenghts on request)

Housing and chassis:

- lockable, sound proved ABS plastic housing
- hot-dip galvanized frame
- chassis with overrunning brake, with automatic return, parking brake, supporting wheel and safety hitch, 12 V lighting system and TÜV (Technical Control Board) approval according to German road traffic regulations
- 100 km/h.
- Central loading rail on top
- Backwards extendable and tensible rear props KW 5010 and KW 10 on height adjustable 80 km/h twin axle trailer

Optional outfit - Static pull system:

For cable pulling in combination with e.g. cable pushers an extreme sensitive winch operating is essential. The static pull system enables the winch to adapt automatically to variable resistances. With reaching the preselected pulling force the winch keeps the tension, when the strain is relived it pulls on automatically.

Winch-control with PC 310

Easy maintenance: If needed, the cover can be lifted totally.

Additional outfit:
Other type of engines, chassis, paintings and longer rope, Static pull system, (RKW), telescopic deflection boom.

Dimensions and weights may differ if extras are fitted

Order-No. 000.002.92

Technical Data:

Type	Max. Pulling force kN	Max. Pulling speed m/min.	Max. poss. rope length m	Rope diameter mm	Length mm	Width mm	Height mm	Weight kg	Order-No.
KW 2000	20	70	1550	8	3800	1650	1380	1350	**001.712.13**
KW 3000	30	60	1000	10	3800	1650	1380	1400	**001.713.06**
KW 4000	40	50	850	11	3800	1650	1380	1500	**001.713.26**
KW 5000	50	40	650	12	3800	1650	1380	1550	**001.714.03**
KW 5010	50	60	1500	12	5200	1850	1650	2600	**002.001.04**
KW 10	100	100	1000	16	5200	1850	1650	2850	**002.003.53**

Specifications are subject to change without notice. Output details are depending on use conditions.

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Cable Pulling Winches 20-100 kN
KW 5010 and KW 10

- Lockable, sound proved ABS plastic housing
- Interior freely accessible by upwards tiltable side parts
- Higher rope output speed up to 100 m/min possible
- Longer rope length possible
- Fully tinted ABS housing in red, blue, white and orange
- Deflection boom optional, stored in the housing with pivot mounting
- Front supports countersunk in the housing
- Minimal noise emission, operation of the winch with closed housing, only operation panel remains open

Specifications are subject to change without notice. Output details are depending on use conditions.

Cable Pulling Winches 10-30 kN
KW 1002 KW 2002 KW 3002

Standard design:

- Single-axle chassis with overrunning and automatic reversing brake system, straight tow-bar with ball type coupling, 12 V lighting system and TÜV-approval
- Lockable, soundproofed sheet metal hood PC 310 pulling force control and recording device
- Electronic meter counter
- Operating hour counter
- Petrol engine with hydrostatic gear system
- Twin capstan system with rope storage drum and 500 m rope
- Paint: traffic red RAL 3020

Extras: (on request)

- other types of engines, painting or rope lengths
- Telescopic deflection boom

Dimensions and weights may differ if extras are fitted.

The complete power pack including operation panel is frame mounted and fully enclosed by a lockable and sound proved steel sheet case. The overall length, including tow-bar, is just 2900 mm.

Technical Data:

Type	Max. pulling force kN	Max. pulling speed m/min.	Engine power kW	Rope dia. mm	Length mm	Width mm	Height mm	Weight kg	Order-No.
KW 1002	10	80	15	6	2900	1650	1320	1100	**001.711.21**
KW 2002	20	70	15	8	2900	1650	1320	1150	**001.712.37**
KW 3002	30	60	15	10	2900	1650	1320	1200	**001.713.46**

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Cable Pulling Winches 25-30 kN
W 2500 - W 3000 Pulljack

The winches of this series are ideal for all kind of cable laying projects, seasonal contracts in telecommunication applications and electricity supply cable network maintenance where reliability, mobility and low space requirements are essential.

A pulling force limit-switch stops line pull as soon as the preselected pulling force is reached. During pull the current force will be indicated on a gauge.

Tractions in angles up to 90° (e.g. in manholes) can be enabled by a deflection boom. It will be connected to the swivel pulley at the rear of the winch.

The winch is totally closed completely during operation; only the panel has to be lifted up.

The complete power pack including operation panel is frame mounted and fully enclosed by a lockable soundproofed steel sheet casing with an overall length, including tow-bar, of just 2900mm.

Specifications are subject to change without notice. Output details are depending on use conditions.

Cable Pulling Winches 25-30 kN
W 2500 W 3000 Pulljack

W 2500 (European version):

- Single-axle chassis with overrunning and automatic reversing brake system, straight tow-bar with ball type coupling, 12V lighting system and TÜV-approval
- Lockable, soundproofed sheet metal hood Measuring clockwork with adjustable
- pull limiting switch
- Operating hour counter
- Petrol engine with hydrostatic gear system
- Twin capstan system with rope storage drum and
- 500m rope
- Lifting hook
- Painting: traffic red RAL 3020

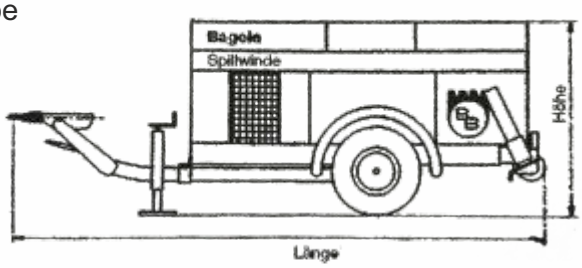
W 3000:

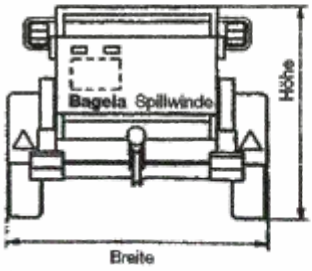
- Single-axle chassis with hand brake, straight tow bar with ball coupling, no lighting system and no TÜV
- Lockable soundproofed sheet metal hood Measuring clockwork with adjustable pull
- limiting switch
- Operating hour counter
- Petrol engine with hydrostatic gear system
- Twin capstan system with rope storage drum
- 500m rope
- Lifting hook
- Painting: traffic red RAL 3020

Additional equipment (on request):

- Other types of engines, painting or rope lengths
- Telescopic deflection boom

Dimensions and weights may differ if additional are fitted.





Technical Data:

Type	Max. pulling force kN	Max. pulling speed m/min	Engine power kW	Rope-dia. mm	Length mm	Width mm	Height mm	Weight kg	Order-No.
W 2500	25	40	15	10	2900	1650	1320	1100	**001.701.20**
W 3000	30	60	15	10	2900	1650	1320	1100	**001.701.21**

Specifications are subject to change without notice. Output details are depending on use conditions.

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Cable Pulling Winches 5-10 kN
KTW 500 and KTW 1005

KTW 1005 with wheels, towing bar, automatic rope layer and triple beam (extra equipment) for sewerage cleaning jobs.

The cable winch KTW 500 is a universal tool for a wide range of applications.

In underground pipe renewal, the winch may be used for pulling and positioning measuring instruments or cameras or for pulling heavy winch ropes into pipes.

For cable pulling, the winch may be equipped with a pulling force measuring clockwork. The winch is specially suited for laying light power and control cable on ships, and in industrial power plants. Owing to its compactness and light weight it may be used as part of the outfit of any normal workshop van.

The winch is extremely easy to operate. For rope payout, the drum is disengaged from the chain drive. For pulling, the chain drive is re-engaged, the engine is started by hand and the pulling speed is controlled by the hydraulic control lever, which ensures jerkless pulling.
By means of the hand-wheel on top, the rope can easily and neatly be stacked on to the drum during pulling.

Special equipment for KTW 500 and KTW 1005:
Hydraulically pulling force measuring clockwork without pull limiting switch

Order-No. 013.550.90

Painting: traffic red RAL 3020

Technical Data

Type	Max. pulling Force kN	Max. pulling Speed m/min	Engine power hand launching	Rope- dia. mm	Rope- Length mm	Length mm	Width mm	Height mm	Weight kg	Order-No.
KTW 500	5	0-20	Petrol 3.6 kW	6	200	1040	600	550	220	**013.500.00**
KTW 1005	10	0-15	Diesel 4.6 kW	8	230	1040	600	550	290	**013.500.12**

Specifications are subject to change without notice. Output details are depending on use conditions.

Softliner winch 15 kN
RW 1500

The winch Type RW 1500 is ideal for pulling inline hoses into sewers. Owing to its compactness it may be used as part of the outfit of most types of workshop vans. It can easily be moved over sewer pits on its castor wheels.
For vertical pulling over sewer pits, the four props are drawn out and fixed. A gasoline engine drives the hydraulic gear and a hand wheel between 0 and max controls the pulling speed. 8m/min. The rope is automatically stacked onto the drum. For payout, the drum is disengaged from its drive. Upon request the winch will be delivered with electric motor for use in closed rooms.

The winch will be delivered with 200m of steel rope of 8mm diameter for a maximum pulling force of 15kN. Upon request a rope of max. 250m will be furnished.

Order-No. 007.700.06

Manhole tensioning pulley

There is hardly ever space enough between the tube exit and the deflection pulley when cleaning appliances or cameras are pulled through. Using the Bagela tensioning pulley the space of the whole cross section of the manhole may be used. The deflection pulley is set against the manhole wall and tightened with two threaded spindles. Due to the inclined position of the spindles the pulley is increasingly pressed against the manhole wall with increasing pulling force. The groove and size of the pulley allow it to be used also for camera cable. The rope or cable is held on the pulley by means of three pins.

Max.Zugbelastg. 20kN - Gewicht: 29,2 kg Bestell-Nr. 004.224.00
Max.Zugbelastg. 50kN - Gewicht: 52,0 kg Bestell-Nr. 004.224.50

Technical Data:

	Max. pulling		Engine power	Rope-						
Type	Force kN	Speed m/min	Hand launching	Dia. mm	Length mm	Length mm	Width mm	Height mm	Weight kg	**Order-No.**
RW 1500	15	0-8	Petrol 3.6 KW	8	200	1000	910	800	340	**007.700.06**

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This auxiliary winch, Type 30/11, has been mainly designed for jobs in telecommunication network maintenance. A piston may be connected to the front end of the wire rope (4mm dia.) and be blown by compressed air through ducts of up to 1000m length. The piston may also be used for gauging the cross section of the duct. When the reel is disengaged from the drive, the rope may be freely pulled off, although the reel may at any time be braked by means of the V-belt.
This handy winch may be used for pulling heavy steel wire ropes of larger cable winches or cables of small diameter.

The tension of the V-belt may be increased or decreased as required by hand lever or foot pedal. The rope is neatly stacked on to the reel via a hand-operated stacking mechanism. This type of winch has proved to be easy to handle, especially for long hauls.

The auxiliary winch, Type 50/03, is mainly used for pipe renewal jobs, where high pulling forces, low line speeds and short rope lengths are required.

It is equipped with an 6mm dia. steel wire rope of 300 m length.

Both winches may be equipped with a meter counter. All steel parts of the winches are galvanised.

Technical Data:

Type	Max. Pulling		Drive Engine	Rope-		Length	Width	Height	Weight	
	Force kN	Speed m/min	Hand Launching	dia. mm	Length m	mm	mm	mm	kg	Order-No.
30/11	3	17-72	Petrol, 4 kW	4	1100	1100	650	700	215	**007.950.00**
50/03	5	10-40	Petrol, 4 kW	6	300	1100	650	700	158	**007.960.00**

Specifications are subject to change without notice. Output details are depending on use conditions.

Automatic pull hold-on (static pull) system with pulling force preselector and measuring

As soon as the actual pulling force reaches the preselected level, the pump will divert the hydraulic flow automatically to the overflow path and will thus keep a static pull on the line.

Order-No. 000.002.92

Measuring dial with preselectable limiting switch

As soon as the preselected pulling force is reached, the pull will be interrupted.

Order-No. 104.500.90

Pulling force control and recording device PC 310

A robust and closed for the rental park suitable pulling force control and recording device.

The PC 310 is characterised by a very simple operation, based on symbols on the touch screen. Via USB-Port the recorded data could be journalised by the provided printer directly at the building site or transferred to data logger without additional software.

Order-No. 110.521.00

Display

- **Date / Time**
- **Pulling force / Shut-off Value**
- **Pulling speed**
- **Bar chart in relation to the rope length**
- **Settings**
- **Record**
- **Start / Stop (recording)**
- **Odometer**

Specifications are subject to change without notice. Output details are depending on use conditions.

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Pipe Renewal Winch RW10

Bagela Pipe Renewal Winch type RW10 mounted on a crawler

Pipe Renewal Winch RKW5

Bagela Pipe Renewal Winch type RKW5 mounted on a crawler

The crawler has to be operated with a remote control, connected with the crawler by a wire.

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Overhead-Line Winches
KW 3F / KW 4F

KW 3F at deconstruction of overhead lines

Overhead line construction demands a maximum of reliability and operating precision of the winches.. To remove the fixing clamps of the insulators, the cable has to be lifted exactly to a point where the insulators are relieved from the cable load, but at the same time are no longer pressed against the fittings.
If the operating lever is set to neutral or if pressing the emergency switch stops operation or if the engine stalls, the multiple disk brake will apply, preventing the rope tension from slackening. For lowering or pull on the brakes are released by hydraulic pressure.
The overhead line winch of Type KW 3F is equipped with a PC 310 electronic data-printer and may also be used for pulling underground cables without the need for any refitting.

Serial outfit: Winch aggregate:

- Digital recording of pulling force (USB-port) adjustable pulling force delimiter, odometer with progress bar, speed indicator, thermal printer
- Elapsed hour counter
- Diesel engine with hydraulic gear
- Two single propelled, grooved capstan heads, storage drum with multi-disc brake and 500m rope

Housing and Chassis

- Lockable, sound proved ABS plastic housing
- Hot-dip galvanized base frame
- Height adjustable chassis with overrunning brake, with automatic return, parking brake, supporting wheel and safety hitch, 12V lightening system und TÜV (Technical Control Board) approval according to German road traffic regulations 100km/h, Aluminium rims
- Central loading rail on top
- Backwards extendable and tensible rear props

Additional outfit:

- Other type of engines, chassis, paintings and more rope if needed
- Static pull system, telescopic deflection boom.

Dimensions and weights may differ if additionals are fitted.

Technical Data:

Type	Max. Pulling Force kN	Max. Pulling Speed /min	kW	Rope Dia. mm	Brake	Length mm	Width mm	Height mm	Weight kg	Lift load kN	Pulling Force kN	Order-No.
KW 3F	30	60	16.5	10	overrun	4450	1650	1380	1450	15	30	**001.713.59**
KW 4F	40	50	16.5	11	overrun	4450	1650	1380	1550	20	40	**001.713.79**

Specifications are subject to change without notice. Output details are depending on use conditions.

RWF 1500

Capstan winches used for contact-line laying or renewal have to meet widely varying requirements, such as high rope speeds on the one hand and an automatic and sensitive approach to the tensile limit of the contact line on the other hand.
Here again the automatic pull hold-on (static pull) and pull preselection system, common in pipe renewal winches, renders excellent pulling service. This feature allows the rope to be brought to the desired tension and be held in static pull condition for a long time as well as to increase or lessen the tension as desired.

If the operating lever is set to neutral or if pressing the emergency switch stops operation or if the engine stalls, the multiple disk brake will apply, preventing the rope tension from slackening.

Serial equipment:

- Single-axle chassis with overrunning and automatic reversing brake system, straight tow-bar with ball type coupling, 12V lighting system and TÜV-approval
- Backwards extendable and tensible rear props
- Lockable, sound proofed thermoplastic (ABS) housing
- Hot-dip galvanized base frame
- Hydraulic pulling force measuring clockwork
- Working hour counter
- Diesel engine with hydrostatic gear system
- Twin capstan system with rope storage drum and 1500m braided rope
- Pull hold-on system with pulling force preselection system
- Multiple disk brake

Painting: Traffic red RAL 3020

Additional equipment:

Other type of engines, chassis, paintings,
Pulling force control and recording device PC 310 and more rope if needed.
Static pull system, telescopic deflection boom

Dimensions and weights may differ if additionals are fitted.

Technical Data:

Type	Max. pulling Force kN	Max. pulling speed m/min	Engine power kW	Rope Dia. mm	Rope Length m	Length mm	Width mm	Height mm	Weight mm	Order-No.
RWF 1500	15	60	12	8	1500	3800	1650	1380	1500	**001.001.70**

Specifications are subject to change without notice. Output details are depending on use conditions.

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Overhead line roller with neoprene liner
Aluminium roller

Technical data: Other sizes upon request

Roller-Ø	440 mm	620 mm	770 mm
Grooves	48 mm	68 mm	68 mm
Work. load	20 kN	30 kN	40 kN
Break. load	60 kN	90 kN	120 kN
Height	570 mm	750 mm	900 mm
Weight	10 kg	23 kg	29 kg
Order-No.	**009.750.30**	**009.750.40**	**009.750.50**

Overhead line roller with neoprene liner Ø 240 mm
Aluminium roller

Technical data:

Roller-Ø	240 mm
Grooves	66 mm
Work. load	8 kN
Break. load	24 kN
Height	410 mm
Weight	4 kg
Order-No.	**009.752.00**

Overhead line roller Ø 246 mm
Plastic roller

Technical data:

Roller-Ø	246 mm
Grooves	70 mm
Work. load	5 kN
Break. load	15 kN
Height	370 mm
Weight	2,8 kg
Order-No.	**009.751.10**

Overhead line Roller Ø 148 mm
Plastic Roller

Technical data:

Roller-Ø	148 mm
Grooves	46 mm
Work. load	2 kN
Break. load	6 kN
Height	370 mm
Weight	2 kg
Order-No.	**009.751.00**

Specifications are subject to change without notice. Output details are depending on use conditions.

Suspension Roller, Ø 150 mm

Technical Data:

Cable-Ø	15-26 mm	25-36 mm	35-46 mm
Grooves	26 mm	36 mm	46 mm
Weight	1,0 kg	1,1 kg	1,2 kg
Order-No.	**009.595.00**	**009.595.10**	**009.595.20**

Guy Clamp

Range (mm)	5.5-9.5	8.5-13.5	12.5-17.5	16.5-24	22.5-32
Length (mm)	190	250	300	420	540
Width (mm)	48	67	80	116	150
Weight (kg)	0.16	0.40	0.70	1.75	3.20
Order-No.	**009.594.00**	**009.594.10**	**009.594.20**	**009.594.30**	**009.594.40**

Anti-twist Swivel FOR OVERHEAD LINES

with ball bearing and socket-joint, galvanized steel

Technical Data:

Max. Pulling force	10 kN	30 kN	60 kN
Diameter	20 mm	32 mm	45 mm
Weight	0.1 kg	0.5 kg	1.5 kg
Order-No.	**009.567.00**	**009.567.10**	**009.567.20**

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