

METALLURGICAL AND ENGINEERING GROUP



**UNEX**®

# MINING TECHNOLOGY

MINING EQUIPMENT



TRANSPORT DEVICES



STOCK MACHINERY





**UNEX®**

## **MINING TECHNOLOGY**

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**UNEX is a traditional manufacturer of machinery for continuous open-pit mining of large volumes of materials and also of stocking machinery for power stations. We have over 60 years' experiences in development and manufacturing. The UNEX team of well-trained specialists is able and ready to react to all its customers' individual requirements.**

Complex deliveries of technology sets for open-pit mining include manufacturing of classical and compact bucket wheel excavators as well as conveyors (both stationary and movable), technology for transport, dispatch and diversion of the transported material.

We cooperate with leading Czech firms and perform all types of engineering activities

connected with the projection and supply machinery for use in both old and new pit-mines.

Thanks to our large team of well-trained professionals, UNEX is able to offer qualified consulting services and help its customers in all of the planning and realisation stages of their business plans - project development, technical help, manufacturing, assembly, general repairs, liquidation of machinery etc.

More than 130 custom-built excavators and reclaimers can be found except Czech Republic also in Russia and the Ukraine, in Bosnia and Herzegovina, Macedonia, Bulgaria, Poland and Slovakia.

UNEX has also supplied stocking machines to major Czech power stations.

**UNEX PRODUCED DOZENS OF BUCKET WHEEL EXCAVATORS FOR THE CZECH AND EAST EUROPEAN MARKET.**

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## MINING EQUIPMENT

Mining technologies are represented by bucket wheel excavators. They fall into two categories depending on assembly and disassembly: Compact and Classical.

### Classical bucket wheel excavators

- Not possible to be assembled and disassembled again.
- Excavator movement is ensured by caterpillar or walking undercarriage.
- Their capacity ranges from 1 200 to 5 800 m<sup>3</sup>/hr and the specific cutting force from 90 to 168 kN/m.

### Compact bucket wheel excavators

- Can be repeatedly assembled and disassembled.
- Their capacity ranges from 200 to 2 800 m<sup>3</sup>/hr and the specific cutting force from 25 to 150 kN/m.

		Kompakt bucket wheel excavator	Classic bucket wheel excavators		
type		K 650	KU 300	KU 800	K 2000
theoretical capacity	m <sup>3</sup> /hr	1 850	1 800	5 800	5 500
specific cutting force	kN/m	95	110	145	168
action radius - upwards	m	15	19,6	32	35
weight	t	550	1 240	4 500	5 700
bucket wheel diameter	m	8,8	7,6	13	13,2
travelling speed	m/min	9,5	6	3	2,5-10



## TRANSPORT DEVICES

Transport devices are intended for continuous transport of overburden, coal or extracted rock in open-pit mine conditions. All parameters of transport devices are in-tune with a series of bucket wheel excavators fabricated in UNEX. Together with additional equipment for loading, directing and deflecting material flow they form complete technological complexes. The conveyors are able to work in fully or semi-automatic mode.

### Discharging wagons

- Discharging wagons are designed to continuously convey or discharge transported material at any place on the transport line.
- Their capacity is calculated in accordance with the belt width.
- Discharging wagons move either on a rail undercarriage (supplied including trackage) or caterpillar undercarriage (for belt widths of 1 800 mm and more).

### Long-distance belt conveying

- Used for continuous transport of large amounts of different materials, e.g. overburden, coal, ores, phosphates etc., for long distances.
- Form inseparable parts of mining complexes, starting with the mining or loading machine and finishing with the stacker served to remove the overburden, coal or substrate into bulk stores, railway carriages, ships etc.
- Depending on the mining technology conveyors can be designed in two versions: stationary or moveable.

Belt width (mm)	Maximal belt speed (m/s)	Maximal transported volume (m <sup>3</sup> /hr)
1 200	5,0	3 000
1 400	5,0	3 500
1 600	5,0	5 000
1 800	5,0	6 300
2 000	5,0	8 200
2 200 (2 250)	5,7	10 000

## Belt wagons

- Designed for conveying material from the excavating machine to a transport device (conveying belt wagons) or for stacking material out of the charging hopper (stacking belt wagons).
- They enable the transport lines to be temporarily enlarged or shortened and the difference in height of the overburden and coal seam to be resolved.
- They are also suitable for transcurrent transport and stacking and conveying material to removal facilities.



## Mobile hoppers

- Designed for loading transported material on belt conveyors at any place on the transport line.
- Hopper parameters comply with the conveyor in use.
- Mobile hoppers move either on a rail undercarriage (supplied including trackage) or caterpillar undercarriage (for belt widths of 1 800 mm and more).
- Hoppers are armoured and equipped with a shock damping shear.



## STOCK MACHINERY

Coal stock machines are used during the last stage of coal mining: mining–transport–stocking. Stackers create the coal stock and reclaimers or scrapers take the coal off the stock.

### Stacking machines

- There is no loading device – they consist of a hopper and one or more conveyors (ZPD 250).

### Reclaimers

- Material is taken from the bulk storage by means of the loading device, which is usually buckets on a wheel (KN 160), on bucket chain inside a bucket boom (N 35) or on a bridge moving above the bulk storage (N 2000, N 1250).

- Material is continuously loaded onto belt conveyors leading directly to the material consumption place.
- Reclaimers handle mined bulk material. Thus their construction is lighter in comparison with excavators of the same capacity.

### Scrapers

- Similar construction to reclaimers but instead of buckets they have scraper bars, which do not shovel the material but only scrape it onto conveyor (N 15).

Reclaimer		KN160	N1250	N2000	N35
<b>theoretical output</b>	m <sup>3</sup> /hr	1 000	1 700	2 000	90
<b>maximum height</b>	m	11,0	-	-	11,0
<b>storage height</b>	m	-	11	11	-
<b>span</b>	m	-	50	50	-
<b>weight</b>	t	130	300	305	64





## N 2000

Bucket wheel reclaimer N 2000 on rail truck is designed for loading coal from compacting stocks mainly in thermal power stations.



## KN 160

Bucket wheel reclaimer KN 160 on belt truck is designed for loading loose material of particle size up to 40 × 50 mm (mainly coal) stored in outdoor stocks.



## K 650

Compact non-extendable excavator K 650 on crawler undercarriage designed for mining spoil material with high resistance in restricted work areas.



## K 2000

Classical non-extendable excavator K 2000 on crawler undercarriage designed for mining spoil material with high digging resistance, high mining output of up to 5 500 m<sup>3</sup>/hr.



## KU 800

Classical extendable excavator KU 800 with walking undercarriage designed for mining spoil material, high mining output as standard.



## KU 300

Classical extendable excavator KU 300 on crawler undercarriage designed for mining materials in coal basins of opencast mines. Excavator is designed for coal mining as well as fine mining of overburden directly above the coal seam.

## CONTACTS



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