

Development
of design
and technical
documentation

Manufacturing
and delivery
of technological
equipment

Installation,
maintenance
of technological
equipment

01 02 03



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01

Engineering

Development of design and technical documentation

- *development of devices schemes and flows of material*
- *calculation of equipment parameters based on initial requirements*
- *development of preliminary and technical projects*
- *conducting audits and operational tests*
- *development of working design documentation and preparation of a technical task*

02

Equipment

Manufacturing and delivery of technological equipment

- *foundry production*
- *production of metal structures*
- *manufacturing of forgings and machining process*
- *mechanical processing*
- *laboratory tests*

03

Maintenance

Installation, maintenance of technological equipment

- *technical audit of equipment*
- *industrial geodesy, alignment and centering of technological equipment*
- *repair and restoration works of process equipment*
- *construction of industrial facilities on the terms and conditions of general contractor*

A full cycle of work,
from the technical specification
to commissioning



Rod and ball ore-pulverizing mills are designed for wet grinding of ore and non-metallic minerals.



Ball mills with discharge through lattice (MШP)

Mill size MШP	Drum diameter, mm	Drum length, mm	Nominal volume of drum, m ³	Degree of filling with grinding bodies, % Not more	Electric motor power, kW
900×1800	900	1890	0,9	45	18,5
1500×1600	1500	1670	2,2	45	55,0
2100×1500	2100	1500	4,3	45	132
2100×2200	2100	2200	6,3	45	200
2100×3000	2100	3000	8,5	45	250
2700×2100	2700	2100	10,0	45	400
2700×3600	2700	3600	17,5	45	400
2700×4400	2700	4400	21,3	45	400
3200×3100	3200	3100	22,0	45	630
3200×3800	3200	3800	27,0	45	800
3200×4500	3200	4500	32,0	45	900
3600×4000	3600	4000	36,0	45	1000
3600×4500	3600	4520	40,0	45	1120
3600×5000	3600	5000	45,0	45	1250
4000×5000	4000	5010	55,0	45	2000
4500×5000	4430	5010	68,0	45	2500

Note: Ball mills with discharge through lattice are used at II and III stages of grinding.

36 352

tons of equipment manufactured according to CEMEQ design documentation



Ball mills with central discharge (MШЦ)

Mill size MШЦ	Drum diameter, mm	Drum length, mm	Nominal volume of drum, m ³	Degree of filling with grinding bodies, % Not more	Electric motor power, kW
900×1800	900	1800	0,9	42	22
1200×2400	1200	2400	2,0	42	45
1500×3000	1500	3100	4,2	42	100
2100×2200	2100	2200	6,3	42	200
2100×3000	2100	3000	8,5	42	200
2700×3600	2700	3600	17,5	42	400
3200×3100	3200	3100	22	42	630
3200×3800	3200	3800	27	42	630
3200×4500	3200	4520	32	42	800
3600×4000	3600	4000	36	42	1000
3600×4500	3600	4500	40	42	1120
3600×5000	3600	5000	44,5	42	1250
3600×5500	3600	5500	48	42	1250
3850×5000	3850	5000	58	42	1250
4000×5500	4000	5500	60	42	2000
4500×5500	4430	5510	74	42	2500
4500×6000	4500	6000	82	42	2500

Note: Ball mills with central discharge are used for re-grinding of the concentrate of the rough flotation.

Rod mills with central discharge (MCL)

Mill size MCL	Drum diameter, mm	Drum length, mm	Nominal volume of drum, m ³	Degree of filling with grinding bodies, % Not more	Electric motor power, kW
900×1800	900	1800	0,9	35	22
1200×2400	1200	2400	2,0	35	40
1500×3000	1500	3000	4,2	35	100
2100×3000	2100	3000	8,5	35	200
2700×3600	2700	3600	17,5	35	400
3200×4500	3200	4520	32,0	35	800
3600×4500	3600	4520	40,0	35	1000
3600×5000	3600	5000	45,0	35	1000
3600×5500	3600	5510	49,0	35	1000

Note: Rod mills are used for coarse grinding of enriched raw materials.



Wet autogenous grinding mills (MMC)

Wet autogenous grinding mills are designed for grinding ore and non-metallic minerals in the mining industry and in the production of building materials.



Mill size MMC	Drum diameter, mm	Drum length, mm	Nominal volume of drum, m ³	Electric motor power of the drive, kW
5000×2300	5000	2300	36,5	630
7000×2300	7000	2300	71,6	2000

Note: Wet autogenous grinding mills used at I stage of grinding, so it makes possible to exclude the crushing stage.

Tangential hammer mill (MMT)

Tangential hammer mills are designed for grinding up to pulverized condition and simultaneous pre-drying of coal, lignite, slate and milling peat.

- Mills are installed in the dust preparation systems of thermal power plants.
- Normal operation of the mill is ensured by feeding coal to the grinding with a piece size of no more than 22 mm
- Mills for lignite grinding are equipped with inertial separator; mills for coal grinding are equipped with centrifugal separator



Mill size MMT	Rotor diameter, mm	Rotor length, mm	Rotor speed, r/min	Electric motor power, kW
1300/830	1300	830	750 (1000)	110 (132)
1300/1310	1300	1310	750 (1000)	160 (200)
1300/2030/750	1300	2030	750	250
2000/2590/750	2000	2590	750 (600)	1000 (800)



Cement mill (ML)

Cement mills / raw mills are designed for grinding of raw materials and cement clinker with additives in cement production, grinding of different ore minerals and nonmetallic minerals in open cycle or in closed cycle. The mills are used also in manufacturing of construction materials, in mining and mining-and-chemical industry, some other industries for grinding of refractory materials, fertilizers, and ore dressing of ferrous and nonferrous metals.



Mill size ML	Drum diameter, mm	Drum length, mm	Productivity, t/h	Weight of grinding bodies, t	Electric motor power of the drive, kW
2,0×10,5	2000	10500	10	32	500
2,6×13,0	2600	13000	27	80	1000
3,2×15,0	3200	15000	50	150	2000
4,0×13,5	4000	13500	90	126	3150

Note: The mills productivity depends on the grinding materials properties (resistance, availability for grinding), size of the charged material, wetness, grinding fineness, uniformity of electricity supply and filling the barrel with grinding bodies and grinding material.

Raw mills (MC)

Mill size ML	Drum diameter, mm	Drum length, mm	Productivity, t/h	Weight of grinding bodies, t	Electric motor power of the drive, kW
2,0×10,5	2000	10500	17,6	32	500
2,6×13,0	2600	13000	41,0	80	1000
3,2×8,5	3200	8500	145,0	85	1000
3,2×15,0	3200	15020	70,0	140	2000
4,0×13,5	3970	13910	145,0	126	3150

Note: The mills productivity depends on the grinding materials properties (resistance, availability for grinding), size of the charged material, wetness, grinding fineness, uniformity of electricity supply and filling the barrel with grinding bodies and grinding material.



Drying drums

Drying drum is suitable for drying of various loose neutral and non-adhesive materials by hot air or fume gases.



Size	Drum diameter, mm	Drum length, mm	Electric motor power of the drive, kW
1,2×10,0	1200	10000	11
1,6×9,0	1600	9000	18,5
1,6×10,0	1600	10000	8/10/12,5
1,6×12,0	1600	12000	18,5
1,6×16,0	1600	16000	30
2,0×12,0	2000	12000	30
2,2×14,0	2200	14000	40/55
2,6×17,5	2600	17500	90
2,8×14,0	2800	14000	24/37,5/55/75
2,8×20,0	2800	20000	75
3,2×22,0	3200	22000	160
3,5×27,0	3500	27000	315
4,2×20,0	4200	20000	315
5,5×45,0	5500	45000	817
5,6×45,0	5600	45000	630

Drum pelletizers

Drum pelletizer is designed for pelletizing and additional moistening of sintering mixture.

Size	Drum diameter, mm	Drum length, mm	Electric motor power of the drive, kW
2,8×8,0	2800	8000	110
3,2×8,0	3200	8000	75
3,6×10,0	3600	10000	90
3,2×12,5	3200	12500	110-175
3,2×16,0	3200	16000	160
4,2×16,0	4200	16000	1000



Drum-conditioners (oiling drums)

Drum conditioner is designed for surface processing of mineral fertilizers granules by special substances, which protect from caking.

Size	Drum diameter, mm	Drum length, mm	Electric motor power of the drive, kW
1,2×3,6	1200	3600	11
1,2×6,0	1200	6000	37
1,6×5,0	1600	5000	22
1,6×5,0	1600	5000	18,5
2,0×8,0	2000	8000	22
2,2×5,0	2200	5000	45
2,2×6,0	2200	6000	45
2,2×5,0	2200	5000	22



Drum-granulators (БГС, БГСХ, АГ)

Drum granulator is designed for drying, cooling and granulation of various mineral fertilizers.

Size	Drum diameter, mm	Drum length, mm	Electric motor power of the drive, kW
1,0×5,0	1000	5000	7,5
2,8×14,0	2800	14000	55
3,2×22,0	3200	22000	150
3,5×7,0	3500	7000	250
3,5×18,0	3500	18000	200
4,0×8,0	4000	8000	250
4,2×20,0	4200	20000	315
4,5×8,7	4500	8700	355
4,5×16,0	4500	16000	630
4,5×35,0	4500	35000	500



Drum coolers

Drum coolers are designed for cooling of bulk explosion-proof materials.



Size	Drum diameter, mm	Drum length, mm	Supports number	Electric motor power of the drive, kW
1,0×5	1000	5000	2	7,5
2,0×12	2000	12000	2	22,0
2,2×19	2200	19000	2	37,0
2,2×20,5	2200	20500	2	37,0
2,5×25	2500	25000	2	735,0
2,5×37,45	2500	37450	2	37,0
3,3×35	3300	35000	2	110,0
3,3×40	3300	40000	2	110,0
2,5×25*	2500	25000	2	735,0
2,5×8*	2500	8000	2	
2,5×10	2500	10000	2	26,0
2,5×25	2500	25000	2	26,0
3,0×10*	3000	10000	2	45,0
3,6×20,5	3600	20500	2	45,0

Note: *Nodes of the drum pipe cooler

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tons of equipment manufactured by CEMEQ



Kilns for cement industry

Rotary kilns are used in the production of cement clinker, lime, magnesite, dolomite, fire clay, etc.



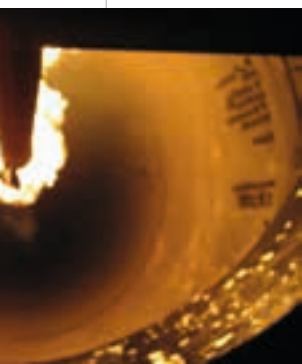
Size	Drum diameter, mm	Drum length, mm	Supports number	Electric motor power of the drive, kW
2,5×75	2500	75000	4	71
3,6×75	3600	75000	3	75
3,6×127	3600	127000	6	250
3,6×150	3600	150000	8	200
4,0×60	4000	60000	3	250
4,0×150	4000	150000	6	250
4,5×50	4500	50000	2	400
4,5×70	4500	70000	3	400
4,5×129	4500	129000	6	315
4,5×170	4500	170000	7	2×320
5,0×185	5000	185000	7	2×320

Note: Designed for burning of cement clinker

Kilns for mining and metallurgical industry

Size	Drum diameter, mm	Drum length, mm	Supports number	Electric motor power of the drive, kW
2,5×40	2500	40 000	2	37
3,0×60	3000	60 000	4	71
3,6×7,8*	3600	7 800	2	55
3,6×75	3600	75 000	5	118
3,6×100	3600	100 000	4	118
3,6×110	3600	110 000	5	118
4,0×60	4000	60 000	4	160
4,5×110	4500	110 000	5	250
5,0×100	5000	100 000	4	2×320
5,5×115	5500	115 000	5	2×500
6,0×115	6000	115 000	4	2×575

Note: Designed for burning of lime, magnesite, dolomite, nickel ores, chromium- and zinc-containing compounds.
* Designed for the disposal of batteries.



Jaw crushers with simple movement of the jaw (ЩДП)

Jaw crushers are intended for coarse and medium crushing of various materials in mining and other industries.



Parameter	ЩДП-9×12 СМД-111	ЩДП-12×15 СМД-118	ЩДП-15×21 СМД-117
Size of the receiving opening, mm			
<i>Width</i>	900	1200	1500
<i>Length</i>	1200	1500	2100
Maximum size of the source material, mm	750	1000	1300
Width of output slit in the opening phase, mm			
<i>nominal</i>	130	150	180
<i>regulating limit</i>	±35	±40	±45
Volume productivity at the nominal width of the output slit, m ³ /h	180	310	600
Motor power of the drive, kW	90	160	250
Weight, t (without electrical equipment and spare parts)	54,3	133,6	243,3

Note: Jaw crushers ЩДП 9×12 and ЩДП 12×15 can be manufactured both usual and sectional frame that makes it possible to assemble them, using cranes of limited lifting capacity and in the space-limited environment of underground mining. These crushers can be supplied with either standard or explosion-proof electric motors.

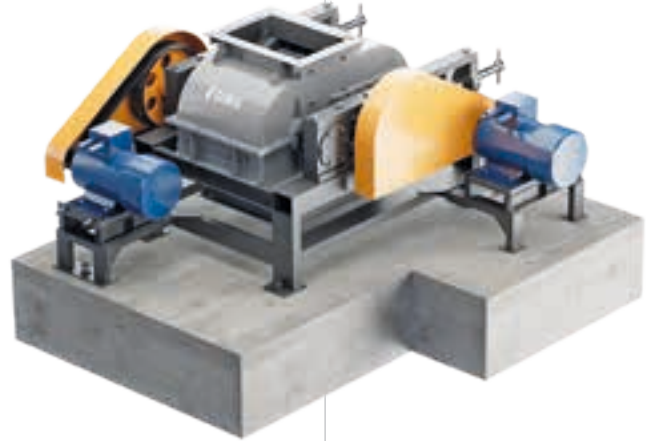
Jaw crushers with complex movement of the jaw (ЩДС)

Parameter	ЩДС-4×9 СМД-109	ЩДС-6×9 СМД-110	ЩДС-9×12 СМД-221
Size of the receiving opening, mm			
<i>Width</i>	400	600	900
<i>Length</i>	900	900	1200
Maximum size of the source material, mm	340	500	750
Width of output slit in the opening phase, mm			
<i>nominal</i>	60	100	150
<i>regulating limit</i>	+30-20	+30-25	±50
Volume productivity at the nominal width of the output slit, m ³ /h	35	75	230
Motor power of the drive, kW	45	75	110
Weight, t (without electrical equipment and spare parts)	11,2	18,8	41



Roll / toothed disk crushers

The main working element of the roller crusher is a roll rotating on a horizontal axis. The material to be crushed is fed from above, tightened between the roll and the lining of the crushing chamber and as a result it is crushed. The surfaces of the rolls can be smooth, fluted and toothed. Crushers with smooth or fluted rolls are used for crushing of medium strength materials ($\sigma_{\text{сжк}} = 150$); toothed roll crushers are used for crushing of black coal and other low-strength materials. The size of the crushing product of a roller crusher depends both on the size of the output gap between the rolls and on the type of surface of the working bodies.



Parameter	ДДЗ-1000	ДДЗ Ø400×300*	ДВ Ø650×450	ДВ Ø500×500
Roll diameter, mm	1200	400	650	500
Rolls length, mm	1000	300	450	500
Maximum size of lump to be fed, mm	400	100	25	100
Productivity, m ³ /h	500	5	50	30
Motor power of the drive, kW	2×30	2×12	2×15	2×7,5
Weight, t (without electrical equipment and spare parts)	12,2	1,7	3,2	2,2

Note: Lime crusher

Hammer crushers

Hammer crushers are intended for crushing fragile and soft low-abrasive materials: coal, limestone, some ores with humidity at which the grates are not covered.



Parameter	M-13-16	M-20-20	M-20-30	ДМ 17×14,5*	ДМС 2000×2000**
Rotor diameter (working position), mm					
<i>diameter</i>	1300	2000	2000	1700	2000
<i>length</i>	1600	2000	3000	1450	2000
Maximum size of lump to be fed, mm	400	600	600	600	600
Size of output slits of the grates, mm	20	20	20	23...183	20-180
Productivity, m ³ /h	210	600-800	1100-1500	150-500	200-660
Motor power of the drive, kW	250	800	1250	400	800
Weight, t (without electrical equipment and spare parts)	13,5	52	74,6	71	61,5

Note: *Hammer crusher ДМ 17×14,5 is intended for crushing of rock mass of low and medium hardness with high humidity and a significant clay content.

**Single-rotor self-cleaning hammer crusher ДМС 2000×2000 is designed for crushing of sticky and wet low-abrasive materials of medium hardness, coal, marl, limestone and etc.



Cone crushers of medium crushing (КСД)

Cone crushers of medium crushing are used in the processing of a wide variety of ores and materials, both in terms of the size of the crushed material and in terms of a variety of physical and mechanical properties. The exception should be considered the materials and ores having a limestone structure or containing clay fractions of high humidity.



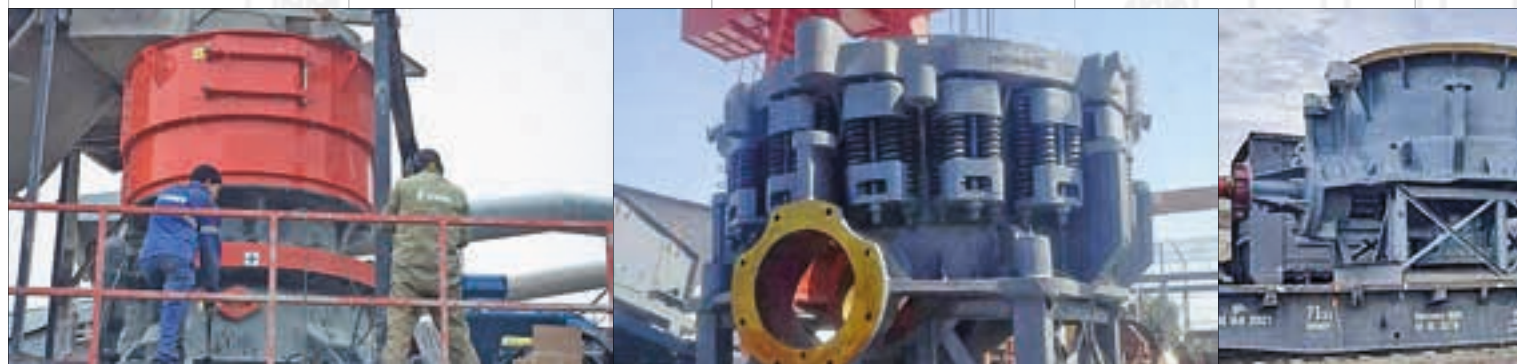
Parameter	КСД-1200Гр	КСД-1200Т	КСД-1750Гр	КСД-1750Т	КСД-2200Гр	КСД-2200Т
Receiving slit, mm	185	125	250	200	350	275
Discharge slit, mm	20-50	10-25	25-60	15-30	30-60	15-30
Maximum size of the material, mm						
<i>feeding</i>	150	100	200	160	300	250
<i>product</i>			65	42	70	42
Productivity at open circuit, m ³ /h	83-125	46-100	180	105-190	360-610	180-360
Motor power of the drive, kW	75	75	160	160	315	250
Weight without electrical, lubricating, hydraulic equipment and spare parts coarse crushing fine crushing	21	21	51	51	93,5	93,5

Note: Гр – coarse crushing; Т – fine crushing

Cone crushers of fine crushing (КМД)

Parameter	КМД-1200Гр	КМД-1200Т	КМД-1750Гр	КМД-1750Т	КМД-2200Гр	КМД-2200Т
Receiving slit, mm	100	50	130	80	140	100
Discharge slit, mm	5-15	3-12	9-20	5-15	10-20	5-15
Maximum size of the material, mm						
<i>feeding</i>	80	40	100	70	110	85
<i>product</i>			32	21	35	21
Productivity at open circuit, m ³ /h	50-65	30-55	100-150	85-110	220-260	160-220
Motor power of the drive, kW	75	75	160	160	250	250
Weight without electrical, lubricating, hydraulic equipment and spare parts	21	21	51	51	94	94

Note: Гр – coarse crushing; Т – fine crushing



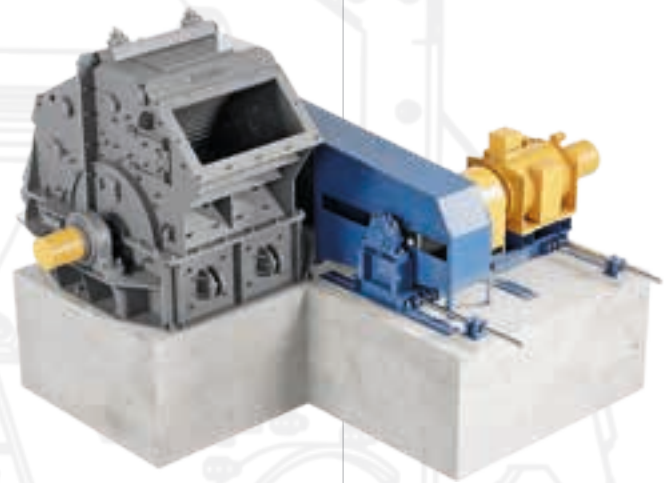
Cone crushers of coarse crushing (ККД, КРД)

Parameter	ККД-1200/150	ККД-1500/180	КРД-700/100
Receiving slit, mm	1200	1500	700
Discharge slit, mm	150	180	100
Maximum size of the material, mm	1000	1200	550
Productivity at the nominal width of the output slit, m ³ /h	730	1520	780
Motor power of the drive, kW	315	400	400
Weight without electrical, lubricating, hydraulic equipment and spare parts	240	405	237

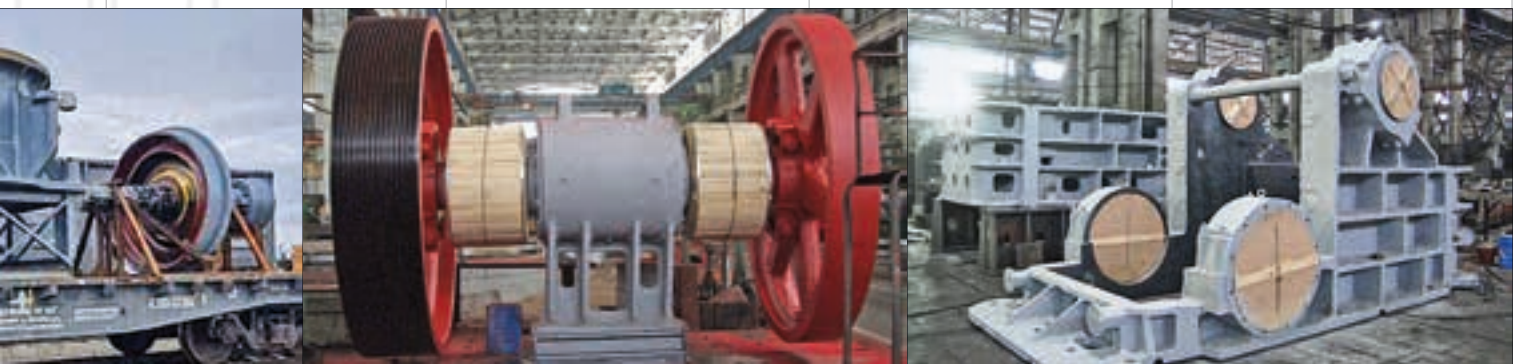
Note: Cone crusher of reduction crushing КРД 700/100 is intended for secondary coarse crushing of ores and non-metallic minerals.

Rotary crushers

Rotary crushers are intended for impact crushing of various materials with the help of bars, rigidly fixed on a rotor, rotating around a horizontal axis. These crushers are used in a wide variety of industries. According to technological characteristics, rotary crushers are divided, depending on the size of the raw material, into crushers of coarse, medium and fine crushing.



Parameter	ДРС-12×12 (СМД-94Б)	ДРК-16×12 (СМД-95Б)	ДРК-20×16 (СМД-87Б)
Rotor size, mm			
<i>diameter</i>	1250	1600	200
<i>length</i>	1250	1250	1600
Maximum size of raw material, mm	375	800	1100
Productivity, m ³ /h	210	210	380
Adjustable size of the output slits, mm			
<i>S1 min/max</i>	250/250	32/320	40/400
<i>S2 min/max</i>	20/185	32/200	40/250
Motor power of the drive, kW	200	160	250
Weight, t (without electrical equipment and spare parts)	23,2	36,5	66



Capacitive equipment

Capacitive equipment is intended for using in technological processes of separation, mixing, heating, storage, chemical reaction or other processes with liquids and gases in various industries. The capacitive equipment is used both as the main and auxiliary equipment of the technological unit. Capacitive equipment is manufactured in various sizes up to 300 m³, in a wide range of constructions (with flat, elliptical, conical bottoms, horizontal or vertical design, with removable lids, with coils for heating or cooling of the product).



Heat-exchange equipment

Heat exchange equipment is intended for using both as the main and as auxiliary equipment in technological processes of various industries for the implementation of heat exchange between two or more media through the structural elements of the devices. Heat-exchange shell and tube equipment is manufactured in various sizes, construction (with floating head, with fixed tube sheet, with a compensator on the body, with U-shaped tubes, horizontal or vertical design).

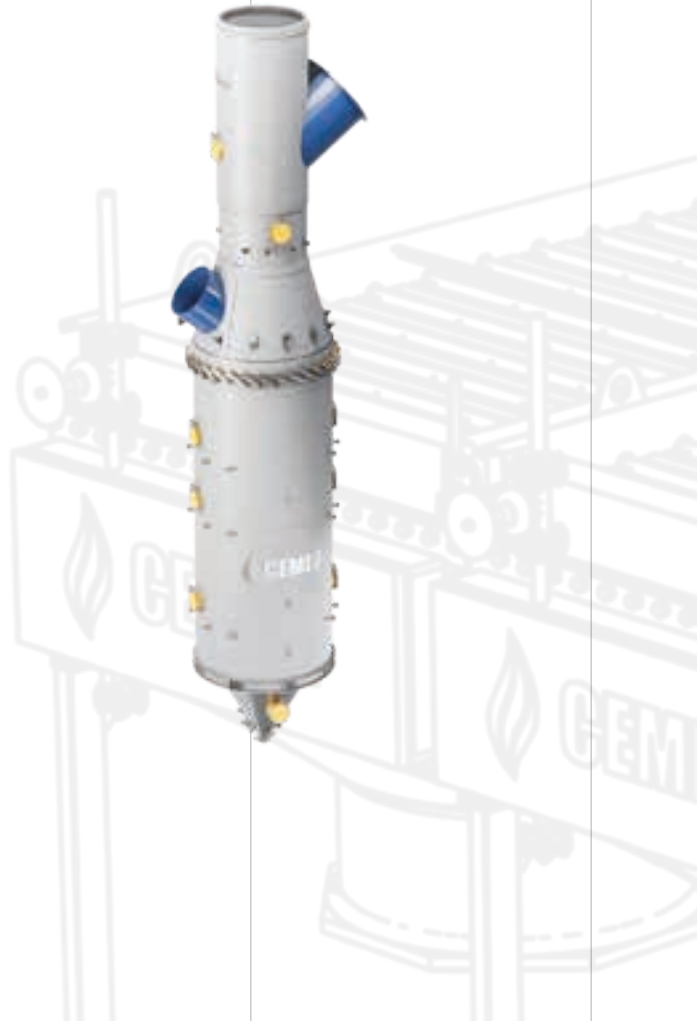


Column equipment

Column equipment is intended for conducting heat and mass transfer processes in contact with various media (gases, liquids), also in the presence of a dispersed solid phase in technological processes of absorption, desorption, rectification, extraction, cooling and separation of gases, purification of gases, and capture of harmful products.

Column equipment is structurally cylindrical vertical vessels of constant or variable cross-section. Column devices are equipped, depending on the technological process, with bubble-cap or valve trays, distribution and rectification plates, mass exchange devices, regular and dump packing, as well as auxiliary nodes (liquid and steam distributors, liquid and steam input nodes, devices for placing packing elements, etc.).

Column devices are manufactured according to individual technical projects (tasks).



Air cooling devices

Air cooling devices refer to heat exchange equipment and are intended for condensation and cooling of vaporous, gaseous and liquid media, used in technological processes of different industries.

The air cooling unit consists of one or more heat exchange sections mounted on a common frame of ventilators that pump air flows through the heat exchange section and ventilator drives.

Air cooling devices are manufactured in different sizes, design (horizontal, zigzag, low-flow, for viscous products, for high-viscosity products) and are designed depending on the operating conditions with louver devices, recirculators, sprinklers and air heaters.



Non-standard equipment

Non-standard equipment is manufactured according to the requirements, questionnaires and technical specifications of the customer.

Primary gas coolers

Primary gas coolers are intended for primary cooling of crude coke gas coming from the gas collectors of coke batteries of coke-chemical enterprises.

Structurally, primary gas refrigerators are a shell-and-tube heat exchanger with a rectangular body and horizontally arranged pipes.

Depending on the required performance, primary gas coolers are manufactured with different values of the heat exchange surface area.



Steel ladle cars

Steel ladle cars are intended for transportation loaded and empty steel-teeming ladles with a capacity from 50 to 500 tons from under the converter to the teeming bay and back, as well as for cleaning the inter-rail space from slag.



Model range	Ladle capacity, t	Carrying capacity of steel ladle car, t	Track gage, mm	Speed, m/min, max	Total power of drives of moving, kW	Weight of steel ladle car, t
CC-120-3100	60; 90	120	3100	14	15	22,5
CC-130-3190	90	130	3190	26,6	12	27
CC-170-4800	130	170	4800	14	37	99
CC-215-3600	160	215	3600	48	94	44,7
CC-230-2500	175	230	2500	53,5	94	63
CC-230-3600	160	230	3600	50	110	42
CC-320-5700	175	320	5700	50	37	92
CC-495-4800	450	495	4800	48	94	120
CC-500-4800	383	500	4800	50	94	122

Slag cars

Slag cars are intended for transportation slag from blast furnaces and steel furnaces to the granulation basin or to the dump using traction railway means.



Technical characteristics	Value			
Model range	16СП	16,5СП	16ВП	16,5 ВП
Ladle capacity, m³	16	16,5	16	16,5
Drive	sector	sector	screw	screw
Angle of ladle tipping, degree	118	118	118	118
Time of ladle tipping, sec	1,5	1,5	1,5	1,5
Static load per axle, t	up to 40	up to 40	up to 40	up to 40
Speed, km/h	up to 15	up to 15	up to 15	up to 15

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completed projects on equipment supply

Hot-metal ladle cars

Hot-metal ladle cars are intended for transportation of liquid cast iron in a ladle from the blast furnace to the charging bay of the converter shop using traction railway means.



Technical characteristics	Value	
Model range	Hot-metal ladle car 100 tons	Hot-metal ladle car 140 tons
Ladle capacity, t	100	140
Static load per axle, t	40	52
Speed, km/h	up to 15	up to 5
Length of hot-metal ladle car on axes of auto couplers, mm	8200	9000
Number of loaded hot-metal ladle cars in train, Pc	up to 5	up to 6

Ladles for copper, matte and slag

Ladles for copper, matte and slag are intended for reception, temporary storage and transportation of liquid melts of non-ferrous metals and slags in the smelting shops of metallurgical plants.

Slag ladles are intended for reception, temporary storage and transportation of slag using electric bridge cranes in smelting workshops of metallurgical plants.

Ladle	Capacity, cubic m	Weight, t
KMШ-2	2	4,7
KMШ-3,4	3,4	8,4
KMШ-5	5	10,5
KMШ-6	6	14,7
KMШ-10,8	10,8	21
KШШ-7	7	16,5
KШШ-8	8	18
KШШ-10,8	10,8	21,7

Steel-teeming / cast iron-teeming ladles

Steel-teeming / cast iron-teeming ladles are intended for reception, transportation of extra-furnace processing and casting of liquid steel / cast iron. Ladles capacity is from 40 to 380 tons.

Slag pots

Slag pots are intended for transportation of liquid slag from the melting unit to the slag car. Capacity of pots is from 11 to 27 cubic meters.

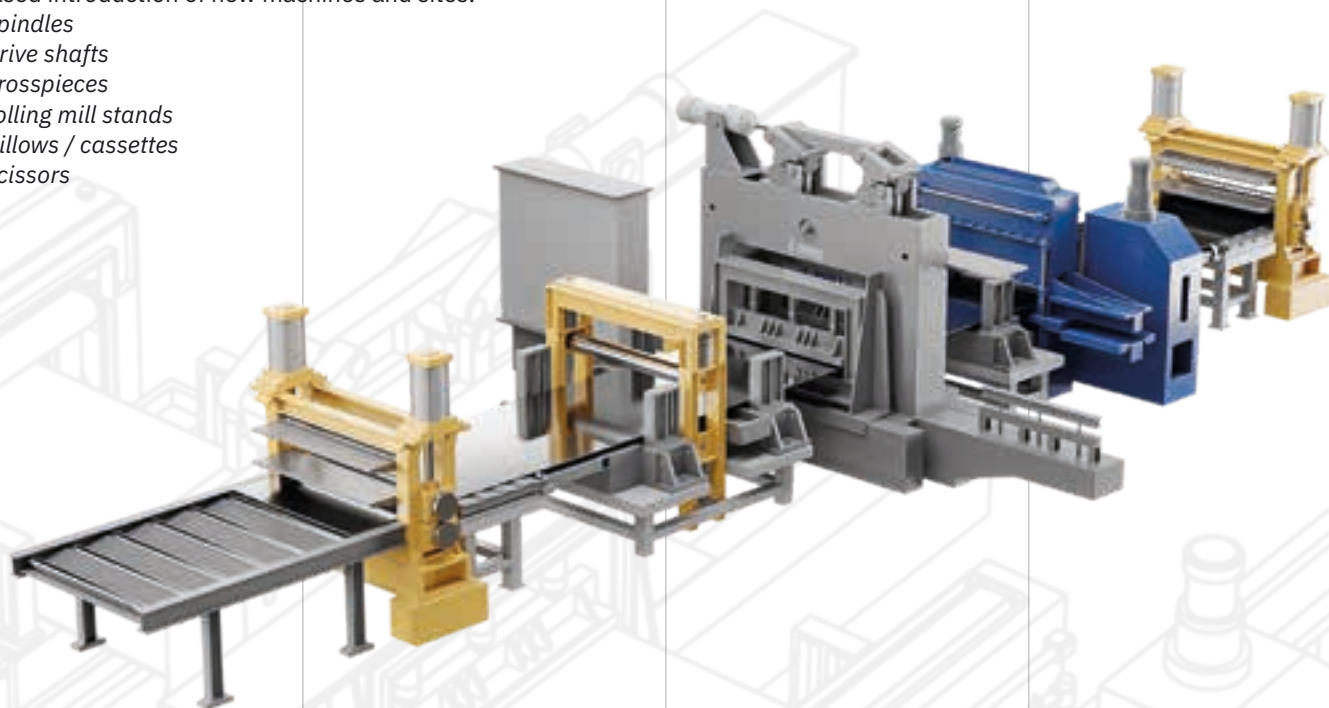


Rolling equipment

Our Company designs and supplies complete units and machines for cold and hot rolling mills, and also upgrades previously supplied equipment, supplies changeable equipment and spare parts.

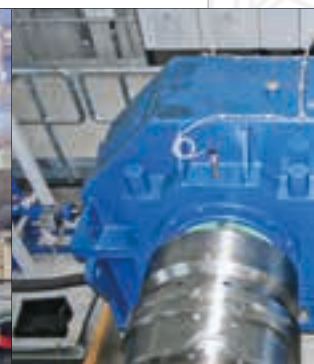
We offer a comprehensive approach to current problems and "bottlenecks" of production, minimization the cost of reconstruction and modernization through a flexible approach and phased introduction of new machines and sites:

- *spindles*
- *drive shafts*
- *crosspieces*
- *rolling mill stands*
- *pillows / cassettes*
- *scissors*



24 535

tons of equipment installed
by CEMEQ



Reduction gears

Reduction gears are designed to reduce the rotation frequency of the electric motor to the device and to increase torque moment.

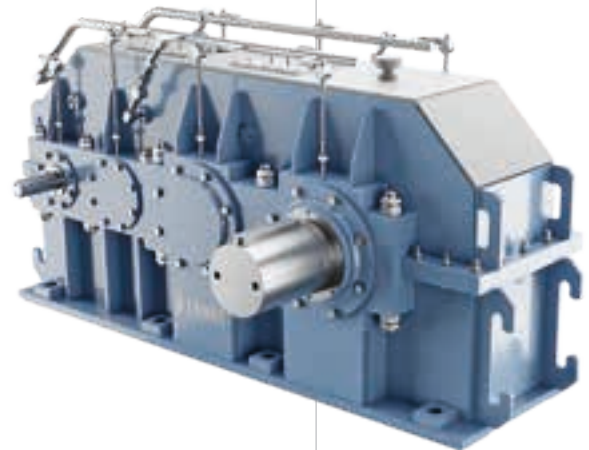
They are used in all industries, including: in drive units of rotary kilns, drum coolers, tube mills and others.

Most of such reduction gears are outdated and the CEMEQ Company makes their modernization in two directions:

- *replacement of the reduction gear in the same dimensions, preserving mounting dimensions with the processing of constructive solutions of these reduction gears to more modern ones;*
- *development of compact reduction gears with extra-hard and smoothed gear sets made with high accuracy.*

Each of them is used depending on the specific case and the preferences of the customer, because the first type gives the opportunity to avoid construction and foundation works, and the second type allows to reduce the weight of the reduction gear and to increase service life.

In addition, the gearboxes can be equipped with modern means of control the most important parameters, such as the temperature in the bearings and the lubricant in the gear.



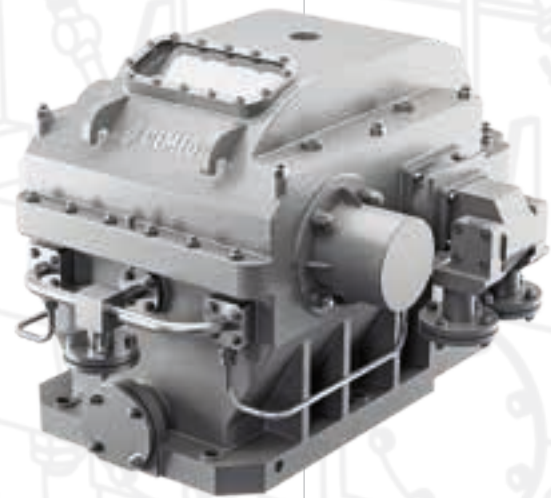
Turbo gearboxes

Turbo gearboxes are used in electric-power, chemical and other industries and they are part of such devices as gas turbines, steam turbines, pumps and compressors. Turbo gearbox works with high frequency load, which creates additional requirements and determines the specific character of the technical solutions that are used in these products.

Turbo gearboxes features:

- *only slide bearings are used;*
- *intensive forced feed lubrication in bearings and gearings is provided;*
- *gear sets of reduction gear with high-precision machining of high-strength materials;*
- *all rotating components and parts of the gearbox are subjected to accurate dynamic balancing;*
- *assembling of gear sets and bearings is a responsible and complex operation requiring high qualifications, due to the ultra-high accuracy with this device.*

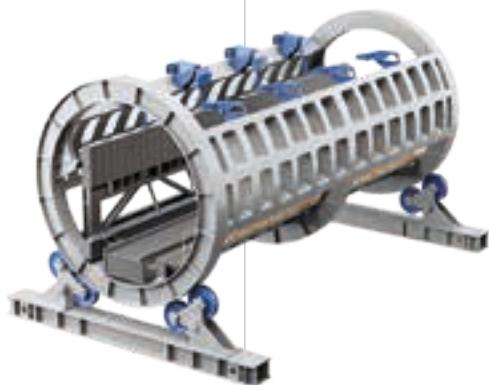
CEMEQ Company successfully mastered this complex production and today can deliver qualitative turbo gearboxes and spare parts for them.



Stationary rotary car dumper BPC 110Г

Stationary rotary two-support car dumper with a hydraulic drive of mechanisms of mating walls and clamps is intended for unloading of bulk materials (coal, iron ore concentrates, lump iron ore, limestone, slurries, etc.) from four-axis gondola cars into receiving hoppers located under the car dumper.

Technical characteristics	Value
Productive capacity, tons per year	up to 6 000 000
Intensity of unloading, gondola cars / hour	up to 23
Parameters of unloaded gondola cars:	
<i>gross weight, t</i>	up to 110
<i>height from rail head level, mm</i>	3295-4100
<i>width, mm</i>	3120-3340



Stationary rotary car dumper BPC 100Л

Rotary stationary two-support car dumper is intended for unloading of bulk materials (coal, iron ore concentrates, lump iron ore, limestone, slurries, etc.) from four-axle gondola cars into receiving hoppers located under the car dumper.

Technical characteristics	Value
Productive capacity, tons per year	up to 6 000 000
Intensity of unloading, gondola cars / hour	up to 23
Parameters of unloaded gondola cars:	
<i>gross weight, t</i>	up to 100
<i>height from rail head level, mm</i>	3295-3950
<i>ширина, мм</i>	3120-3281

Stationary rotary car dumper BPC 110ГC, BPC 220ГC

Stationary rotary two-support car dumpers with a hydraulic drive of mechanisms of mating walls and clamps are intended for unloading of bulk materials (coal, iron ore concentrates, lump iron ore, limestone, slurries, etc.) from four-axis gondola cars into receiving hoppers located under the car dumper.

Technical characteristics	Value
Productive capacity, tons per year	
BPC 110ГC	up to 6 000 000
BPC 220ГC	up to 12 000 000
Intensity of unloading, gondola cars / hour	
BPC 110ГC	up to 25
BPC 220ГC	up to 50
Parameters of unloaded gondola cars:	
<i>gross weight, t</i>	
BPC 110ГC	up to 110
BPC 220ГC	up to 2×110
<i>height from rail head level, mm</i>	3295-4100
<i>width, mm</i>	3120-3340

Stationary rotary car dumpers

Rotary stationary four-support car dumpers are intended for unloading bulk materials (coal, iron ore concentrates, lump iron ore, limestone, slurries, etc.) from gondola cars into receiving hoppers located under the car dumper.

Technical characteristics	Value
Productive capacity, tons per year	up to 6 000 000
Intensity of unloading, gondola cars / hour	up to 23
Parameters of unloaded gondola cars:	
<i>Load capacity, t:</i>	
BPC 93	up to 93
BPC 93-110	up to 110
BPC 125	up to 125
BPC 134	up to 134
<i>height from rail head level, mm</i>	3295-3950
<i>width, mm</i>	3120-3300



Stationary side car dumper B5C 100

Stationary side car dumper is intended for unloading of bulk materials (coal, iron ore concentrates, lump iron ore, limestone, slurries, etc.) from four-axis gondola cars into receiving hoppers located at side of the car dumper.



Technical characteristics	Value
Productive capacity, tons per year	up to 6 000 000
Intensity of unloading, gondola cars / hour	up to 20
Parameters of unloaded gondola cars:	
gross weight, t	up to 100
height from rail head level, mm	3295-3950
width, mm	3120-3281

Stationary side car dumper B5C 100F

Stationary side car dumper with a hydraulic drive of clamps is intended for unloading of bulk materials (coal, iron ore concentrates, lump iron ore, limestone, slurries, etc.) from four-axis gondola cars into receiving hoppers located at side of the car dumper.

Technical characteristics	Value
Productive capacity, tons per year	up to 6 000 000
Intensity of unloading, gondola cars / hour	up to 20
Parameters of unloaded gondola cars:	
gross weight, t	up to 100
height from rail head level, mm	3295-3950
width, mm	3120-3281

Car pushers, positioners, transborderers

Car pushers are intended for feeding the coupling of loaded gondola cars and placing the next loaded gondola car into stationary car dumpers.

Car pushers are available two- and four-axle with swivel and fixed wheel bogies.

Car pushers with swivel bogies are used for movement on curved tracks, with a minimum radius up to 90 m. Car pushers with non-rotating bogies are used for movement on curved tracks, with a minimum radius 250 m.

Power supply to the car pusher is carried out by one of the types of current collecting devices:

- *symmetrical pantograph;*
- *side pantograph;*
- *side vertical current collector;*
- *side horizontal current collector;*
- *flexible cable.*



Technical characteristics	Value			
Model	BT 20-2П	BT20-2	BT 25-4/ BT 25-4П	BT 40-4/ BT 40-4П
Number of pulled loaded gondola cars, pcs	20	20	25	40
Weight of the transported train, t, no more	2000	2000	2500	4000
Adhesive weight, t, not less	80	80	110	150
Force on the rails from each axis, t, not more	40	40	27,5	37,5
Minimum radius of track curvature, m	90	250	250/90	250/90



Positioners

Positioners are intended for precise installation of loaded gondola cars into stationary car dumpers, pulling the loaded train and pushing out empty gondola car when installing the next one for unloading. Positioners operate in automatic and manual modes.

Advantages of positioners in comparison with car pushers:

- *precise positioning of the wagon in the car dumper (50... 100 mm);*
- *higher productivity compared to the car pusher due to a higher degree of automation of technological process.*

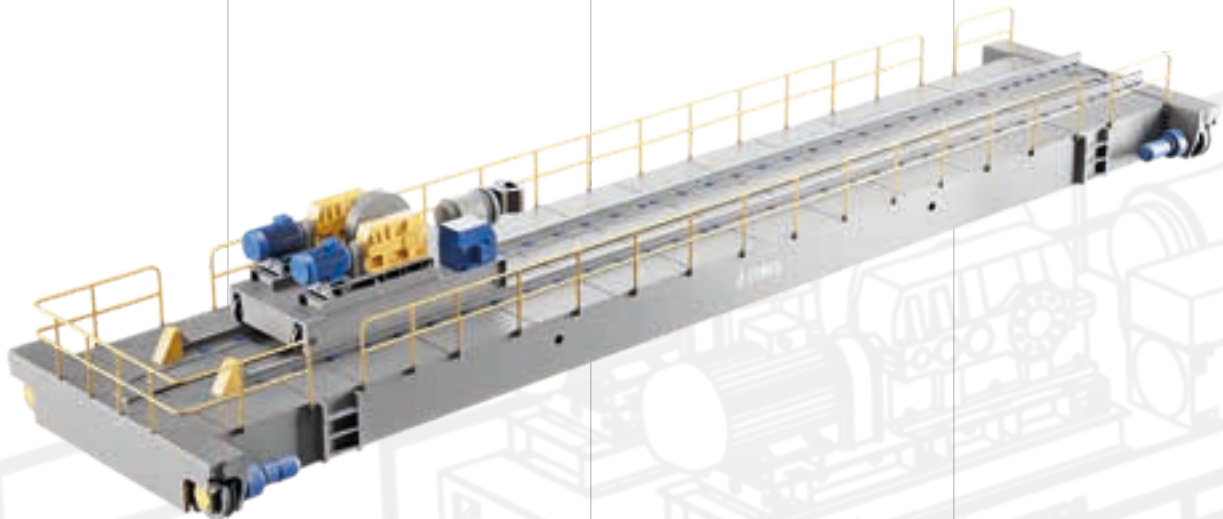
Technical characteristics	Value		
Model	П20	П30	П40
Number of pulled loaded gondola cars, pcs	20	30	40
Weight of the transported train, t, no more	2000	3000	4000
Theoretical number of cycles of supplied gondola cars for unloading to the car dumper, gondola cars / hour	20	25	25

Transborders

Transborders are intended for transferring empty gondola cars from one railway track to another, located in parallel. Transborder is used when it is impossible to organize formation of train of empty gondola cars behind the car dumper. Transborders are available in two versions: for one and two gondola cars. The tractive effort of the tractor, moving on a transborder, is calculated on formation of train up to 40 empty gondola cars.

Technical characteristics	Value	
Model	T1	T2
Number of transported empty gondola cars, PCs.	1	2
Number of transported loaded gondola cars, PCs.	1	1
Load capacity, t, not more	110	110

All equipment is designed to operate at ambient temperatures from -40 °C to +45 °C. Control system of the equipment is based on programmable controllers.

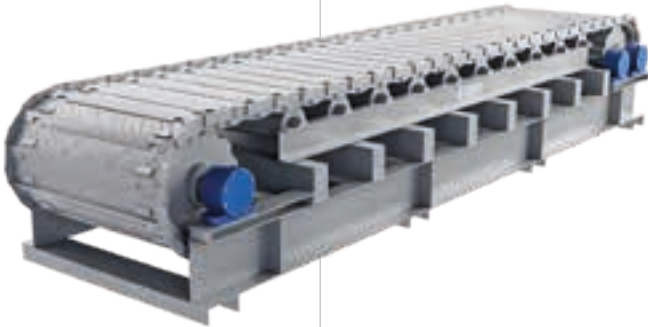


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objects are on service

Belt feeders

Belt feeders are intended for regulation of the flow of bulk materials. Equable unloading is necessary when feeding material from hoppers or other storage tanks to belt conveyors, crushers, screens, mills, sorting plants, etc.



Technical characteristics	Value	
Model	ПЛ500	ПЛ1750
Productive capacity, up to, t/h	750	1750
Length, up to, m	15	15
Length of loading hopper, up to, m	1,5	11,5

Drilling and milling machines

Drilling and milling machine is intended for recovery of flowability of frozen, caked material located in the railway gondola car, by means of drilling vertical wells in it along the entire height of the gondola car before it is fed into the defrosting device or car dumper.

Technical characteristics	Value	
Model	МБФ-4П	МБФ-4С
Productive capacity, wagon/h	до 5	до 5
Number of drills, pcs	4	4
Type	moving	stationary

The control system of the equipment is based on programmable controllers.

Crushing and milling machine

Crushing and milling machines (МДФ) are intended for crushing large pieces or frozen lumps of unloaded material on the grids of receiving hoppers of stationary car dumpers. Destruction of lumps (large pieces) is made by teeth of the rotating cutters at advancing movement of the crushing and milling machine. The inclined-screw arrangement of the teeth on drum of the cutter reduces the dynamic loads when crushing the material.

Technical characteristics	Value			
Model	МДФ-3/1-К	МДФ-5,4/1-К	МДФ-5,4/1,6-Ц	МДФ-6.7/1-Ц
Active zone of crushing, mm	3000	5400	5400	6750
Size of crushed material, up to, mm	1000	1000	1600	1000
Track gage, mm	2800	5810	5810	5810
Type of overthrust	wheel	wheel	chain	chain

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projects
of engineering


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