4. TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATION OF THE CONVEYOR B 1200 (H-D1)		
Manufacturer's number		1/14
Material to be transported		coal
Capacity	[t/h]	1200
Material density	[t/m^3]	0,85
Max grain size	[mm]	350x350x350
Belt width	mm	1200
Troughing angle	[°]	35°
Belt speed	[m/s]	3,15
Max conveyor length	[m]	4982
Main drive power	[kW]	2x315
Tail drive power	[kW]	1x160
Sound pressure level A - 1m from the drive side 1,6 m above ground	[dBA]	85
Average angle of the pit inclination	α [°]	+0,04°
Length of accumulated belt	[m]	~ 48m
Belt strength	[kN/m]	1250
Max belt elongation at nominal (rated) load	[%]	2
Belt type		ST1250 7+7 X+L100 (4.4-8.4)

5. STRUCTURE DESCRIPTION – CONVEYOR CONFIGURATION

The B1200 conveyor has been configured from the subassemblies described as follows.

Pos.	Subassemblies/components	Description
1.	Main drive unit	Point 5.1.
2.	Discharge station	Point 5.2.
3.	Loop	Point 5.3.
4.	Tensioning tower	Point.5.4
5.	Winch	Point.5.5
6.	Tail station	Point 5.6

7.	Tail drive unit	Point 5.6.1
8.	Transfer point	Point 5.6.2
9.	Loading point	Point.5.6.3
10.	Route	Point 5.7
11.	Conveyor structural elements	Point 5.8
12.	Auxiliary equipment	Point 5.9
13.	Electrical equipment	Point 5.10
14.	Fire protections	Point 5.11
15.	Flame retardant belt	Point 5.12

H-D1 conveyor is a stationary equipment intended for transportation of coal on the rubber belt and is one of machines in the process line of the open-pit mine. It's the first segment in the mine handling (transportation) system. Under a hopper where the excavated coal is accumulated, a transfer point is mounted intended for straight transfer of the material onto the conveyor.

5.1. CONVEYOR DRIVE.

In the B1200 conveyor the following main drive unit has been applied, as reported in the table below:

Denomination	Drum diameter [mm]	Installed power [kW]	Drawing no.
Main drive unit,	Ø830	2x315	P16-001-01.01

5.1.1. MAIN DRIVE UNIT.

The main drive unit of the conveyor is located in the end part of the conveyor between the flyover (L=31,5m) with discharge module and the loop. The drive is composed of two one-motor drive units (one in ver.Left and one in ver. Right), the drive frame and two assemblies of drive drums diam. ø830. The drive assemblies rest on frames whereby one of them is in-built on a low frame and another one on a high frame.

Each of drive assemblies is made of the following main components:

- drive frame (low or high)
- gearbox W2PZ-315-21,
- electric motor,
- disc brake,
- flexible coupling SET
- coupling housing,

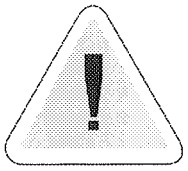
Motor and gearbox are mounted on the drive frame (low or high one) and screwed to it.

5.4. TENSIONING TOWER.

In order to ensure proper operation of the conveyor and prevent the belt from sliding/slipping on drive and tail drums and to ensure permanent tensioning of the belt the tensioning device has been applied – the tensioning tower according to the drawing 7153095/00. This tower is located near the loop in proximity of the KPG winch. Inside the tower there are installed guides for weights (quantity of weights is selected and decided in accordance with the belt tensioning strength). The weights are hung on a rope running through the upper system of rope pulleys and the lower pulley directing the the rope to the rope pulleys on the loop car and then to the KPG winch drum. The car moving on the loop track towards the tower (and moving away from the drive drum axis) results in tensioning of the belt which is necessary for the frictional contact (engagement) on the drive drum.

5.5. AUXILIARY WINCH KPG.

Auxiliary winch KPG 15/500/300 is mounted behind the loop and by means of the rope ø16 connected to the loop car (and then with weights on the tensioning tower). The winch is intended to move the loop car allowing for obtainment of pre-tension in the belt which prevents from formation of the belt overhang on all the conveyor length.

	***All area of the rope passing is particularly dangerous.*** ***It is forbidden to stay in this place during the conveyor operation.***

KPG 15/500/300	
Rope speed	0,214 up to 0,297 m/s
Rope diameter	16 mm
Drum capacity	~ 300 m
Installed power	15 kW

5.5.1. DESIGN AND OPERATION

The auxiliary winch is composed of the following subassemblies:

- Drive assembly (motor 15 kW with approx.1450 r/min , tared voltage 380V, 50Hz and worm gearbox);
- Internal toothed gearbox (gear);
- Smooth rope pulley fi 500 with borders;

- Rope holder driven from the rope pulley;
- Compression roller, compressing the rope wound on the pulley.
- rope ø16 (length of 120m approx.) connecting the auxilary winch with the loop car and with the tensioning tower,
- frame

The winch may be compatible with loops of conveyors manufactured in series with the mar track length exceeding the operation range of typical tensioning stations with grooved drums.

Provided 6 layers it is possible to wind approx.300m of rope onto the drum. In this conveyor manual control with visual inspection of the tension (check manometer indications) has been applied. The value of tensioning strength is determined on the basis of the manometer incorporated in the thrust assembly. The winch control is carried out locally from the control panel located next to the winch. The rope holder is based on the system of a shaft with bidirectional grooved screw channel. With the rope holder the rope is wound precisely reeling (coil) close to reeling (coil). The compression roller assembly keeps the rope on the drum, preventing from its unreeling (loosening of coils) after the system is released. The worm gearbox mounted in the winch if filled up to the level indicated by a plug inserted in the lateral cover.

It is forbidden to exceed operational parameters indicated in the equipment technical specification.

Before proceeding with activation it is required:

- fill the worm gearbox up with oil Transol 130 (~8 l)
- fill the hydraulic cylinder up with hydraulic oil L-HL40÷60 (~2,5 l)
- lubricate the rope pulley bearing chambers with grease ŁT43,
- wind the rope from the tensioning tower through the loop car rope pulleys and to fit it to the rope drum in the KPG winch.

5.6. TAIL STATION .

The tail station is initial part of the conveyor. It is made of the following assemblies:

- tail drive
- transfer point,
- load point.

5.6.1. TAIL DRIVE.

The tail drive of the conveyor is located in initial part of the conveyor ahead the transfer point and the load point. The drive is composed of one single-motor drive assembly, drive frame, drive drum assembly diam. ø830, drum assembly diam. ø530mm and slow speed flexible coupling SEK . The drive assembly 160kW is mounted on a high frame.

Pos./ Poz.	Qty./ Szt.	Unit/Part description Nazwa zespołu/części	Index Indeks
1	1	**Bed 7120025/10** Łoże 7120025/10	433-000441-N
2	1	**Bracket 7120030/10** Wspornik 7120030/10	433-000442-N
3	2	**Wall 7120035/00** Ściana 7120035/00	433-000443-N
4	1	**Drum 3007750** Bęben 3007750	432-002147-N
5	1	**Clutch 4014720** Sprzęgło 4014720	242-000060-N
6	1	**Cover 4014730** Pokrywa 4014730	208-004708-N
7	2	**Mounting 4014740** Oprawa 4014740	226-000261-N
8	1	**Cover 4014750** Pokrywa 4014750	208-004709-N
9	1	**Roll 4014790** Rolka 4014790	238-000132-N
10	1	**Shield 4014800** Osłona 4014800	209-002933-N
11	1	**Plate 4014820** Płytka 4014820	222-002262-N
12	2	**BEARING 23218 CC W33 SKF** ŁOŻYSKO 23218 CC W33 SKF	129-002761-N
13	2	**SIMMER RING A 100x125x12** PIERŚCIEŃ SIMMER A 100x125x12	126-011375-N
14	1	**SIMMER RING A 90x115x12** PIERŚCIEŃ SIMMER A 90x115x12	126-002545-N
15	1	**Parallel key A20-12-110** Wpust pryzmatyczny A20-12-110	233-000512-N
16	1	**Engine frame 7319830/00** Rama silnika 7319830/00	433-000255-N
17	1	**Worm gear ver. III G21.008-07.16/C** Przekładnia ślimakowa wyk. III G21.008-07.16/C	433-000349-N
18	1	**Electric motor 15kW U=380V/50Hz SIEMENS** Silnik elektryczny 15kW U=380V/50Hz SIEMENS	121-016687-N
19	1	**Clutch unit 7319950/00** Zespół sprzęgła 7319950/00	433-000265-N
20	1	**Clutch cover 7319955/00** Osłona sprzęgła 7319955/00	433-000266-N
21	8	**BOLT M 16x70** ŚRUBA M 16x70	124-025224-N
22	8	**NUT M 16** NAKRĘTKA M 16	124-024137-N
23	10	**SPRING WASHER z 16,3 (M16)** PODKŁADKA SPRĘŻ. z 16,3 (M16)	124-024496-N
24	6	**BOLT M 24x40**	124-025267-N

		ŚRUBA M 24x40	
25	4	**BOLT M 24x65** ŚRUBA M 24x65	124-024950-N
26	14	**NUT M 24** NAKRĘTKA M 24	124-024170-N
27	14	**SPRING WASHER M24** PODKŁADKA SPRĘŻ. M24	124-024489-N
28	34	**BOLT M 12x40** ŚRUBA M 12x40	124-029095-N
29	34	**SPRING WASHER z 12,2 (M 12)** PODKŁADKA SPRĘŻ. z 12,2 (M 12)	124-024494-N
30	4	**NUT M12** NAKRĘTKA M12	124-024127-N
31	2	**BOLT M 16x45** ŚRUBA M 16x45	124-024884-N
32	4	**BOLT M 24x65** ŚRUBA M 24x65	124-024738-N