

TECHNOLOGIC LINE FOR PUMPING FROM MINE SECTIONAL SUMPS AND FLOODED OPENINGS

Use and description:

This technology is destined for pumping of dirty liquids or thickened mixtures (e-g- coal slurries) from the mine sectional sumps and flooded downward openings through piping up to the dumping area (most frequently to sump crosscuts).

Main technology equipment-assembly example:

Pump set type KTX 80, monorail transport system type ZD 24 with a couple of carrying trolleys, hand operated pulley block, load chains and discharge piping with accessories.

The set drive is optional:

with electrical motor – **KTX 80 Ne**, with pneumatic motor – **KTX 80 Nv** or with hydraulic motor – **KTX 80 N**.

I example the pump set is hanged on chains on two carrying trolleys travelling on monorail transport system profile. The pump set is shifted forwards and backwards by hand. The inclination of the pump set is adjusted through the chain hangers through the inserted pulley block. The pump set can pump the slurry with volume concentration of up to $C_v = 0.50$. The slurry is transported in existing piping system into the sump crosscut. In case of max. slurry concentration it is possible to transport the slurry to the raw extracted coal on the belt conveyor.

The advantage of this technology is the reducing of physically demanding work, increasing of work productivity and removal of other handling with slurries both underground and also on mine surface so, that the principles of environmental friendly liquidation of coal slurries met.

Characteristics:

Type		KTX 80 Ne	KTX 80 Nv	KTX 80 N
Max. aggregate transport capacity	$m^3 \cdot h^{-1}$	12	12	12
Max. pressure of pumped mixture	MPa	0.6	1.2	1.2
Nominal ID of the discharge branch DN	mm	80	80	80
Max. grain size in the pumped mixture	mm	5	5	5
Max. length of fibriform particles	mm	60	60	60
Max. volume concentration C_v		0.5	0.50	0,5
Drive		electrical motor	pneumatic motor	hydraulic motor
Motor output	kW	5.50	7.5	7
Voltage of electrical motor feeding	V	500	–	–
Hydraulic motor – pressure liquid: Mineral oil for hydrostatic mechanisms	viscosity	–	–	$46 \text{ mm}^2 \cdot \text{s}^{-1}$ at 40°C
Max. hydraulic oil pressure	MPa	–	–	16
Oil filtration	μm	–	–	25
Pneumatic motor – compressed air	–	–	–	–
Required air pressure	MPa	–	0.4 – 0.6	–
Weight	kg	231.0	418.0	228.0

The technologic line equipments have been designed and constructed as the equipment group I (mine), category M2 according to the Directive 94/9/EC of the European Parliament and the Council and meets the requirements for using in areas “dangerous atmospheric conditions 2” according to EN 1127-2+A1 on condition that all national regulations are fulfilled by the employer.

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