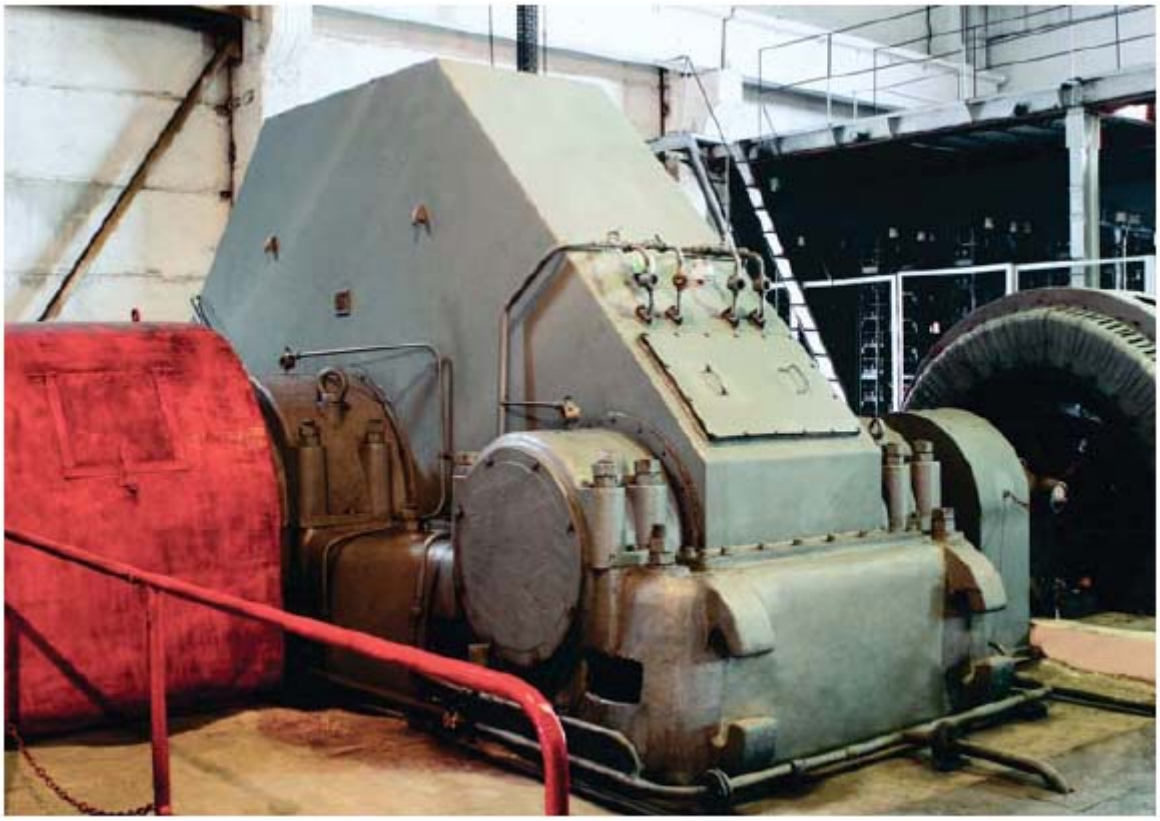
Technical characteristics

Sinking equipment
Mine winder gearboxes

To drive mine winders, either the Single-stage parallel-shaft reverse gearboxes of ЦО type with involute gearings and a pair of drive shafts or the Double-stage parallel-shaft gearboxes of ЦД type with one drive shaft may be used.
The ЦО type gearboxes have gear ratio between 10,5 and 11,5 and center distances of 2200 mm, 1800 mm, 1600 mm and 1400 mm.
A special gearbox of the ЦО-22 type is made with a gear ratio of 9.5. It is supported by roller bearings or, as an exception, by plain bearings.
Gearboxes provide motion transmission at the maximum rope travel speed as the relevant "Safety Rules".



Type of hoist mechanism gearbox	Gear ratio, μ	Parameters, sizes and indicators		
		Mcr , kN x m:		Weight, t
		with one-motor drive	with double-motor drive	
ЦО-14	10,5	185	370	24
ЦО-14	11,5	160	320	24
ЦО-16	10,5	215	430	29
ЦО-16	11,5	186	372	29
ЦО-18	10,5	320	640	38
ЦО-18	11,5	290	580	38
ЦО-22	10,5	570	1140	64
ЦО-22	11,5	500	1000	64
ЦД-20	20	380	-	28

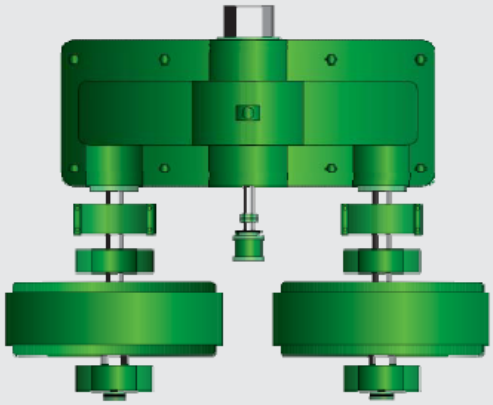
We are ready to consider manufacturing of machines of any other sizes (at customers' options).

Sinking equipment

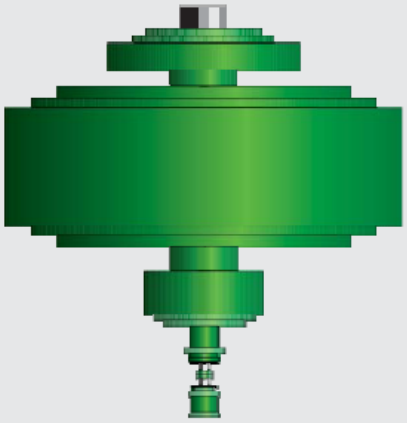
MINE WINDER ELECTRIC MOTORS

- DC circuit-operated frequency converter - synchronous (asynchronous) motor.
- Direct frequency converter (cycloconverter) - synchronous motor.
- Thyristor-based converter - DC motor.

Depending upon the type of electric drive, transformers, reactors, quick-response switches and filtering-and-compensating devices may be included in the scope of supply.



Gearbox drive



Gearless drive

Electric drive for mine winder motors powering

Drive Type	Electric motor	
	Type	Power, kW
Gearbox	Asynchronous	315-1250 (2x315-1250)
Gearless	Asynchronous	800-2000
	Synchronous	2000-8000
Gearbox	Direct-current	500-5000
Gearless		

SHAFT WARNING AND COMMUNICATION SYSTEM

The mine shaft warning system comprises of the following subsystems:

- Date acquisition, processing and transmission subsystem.
- Operator's coded warning, alarm and interlocking subsystem.
- Telephone communication subsystem.
- Industrial loud-speaking communication subsystem.
- Radio communication subsystem.

Depending upon the customers' requirements, electric accessories supplied by SIEMENS, ABB, FHF or by manufacturers from the CIS may be provided.