

## Matched system for "plant construction" WATT MAS geared motors with WATT frequency inverters

Watt Drive provides full drive technology - MAS shaft-mounted geared motors and Watt Drive frequency inverters PROFI-Line P6000- for large-diameter pipes. Drives are used for the pipe conveyor system and for the pipe rotary mechanisms. Plant construction and engineering was realised by W&K Industrial Engineering based in Dortmund. Electro-construction, software and switch cabinet construction was performed by Dressel GmbH based in Unna. The drives supplied by Watt Drive constitute a matched mechatronical drive system from a single source consisting in reliable components that meet customers' high technical requirements.



Picture 1: Switch cabinets

### Plant description:

Spiral seam tubes with diameters of 508 mm (20 inch) – 2540 mm (100 inch) and a maximum length of 18 m are conveyed via the conveyor system. The largest pipe weighs approx. 27 tons. Conveying speed is up to 30 m/min and is kept constant in all pipe diameters with a geared motor fed by a frequency inverter. Large-diameter pipes are turned with pipe rotary mechanisms and subject to quality control and re-working if necessary.

### WATT project scope:

1. Pipe conveyor system with Diabolo rollers (Picture 2)  
223 shaft-mounted gear units  
**ASA 65A 81N4 TH**
2. Pipe rotary mechanisms  
52 shaft-mounted gear units  
**ASA 65A 81N4 BR5 TH**

### Gear data:

Power: 0,75 kW  
 Output speed: 15 U/min  
 Voltage/Frequency/Connection: 230/400V, 50Hz, D/Y  
 Protection class/Isolation class: IP55/F  
 Winding protection: TH

The geared motors are driven by **83 frequency inverter units P6000 – 0075 TDW1 (7.5 kW)** combined into different groups.



Picture 2: Diagram of pipe conveyor system with WATT geared motors ASA 65A 81N4 TH

### WATT frequency inverter PROFI-line P6000:

Between 3 and 7 geared motors run on a single inverter. Subdistribution to the respective motors occurs via terminal boxes with motor protection switches on the machine.

All inverters are equipped with a network base filter (pipe lengths up to approx. 150 m) and have a braking resistor. (see picture 1 and 3)

### Drive concept:

The throughput speed is kept constant for all pipe diameters.

Drives are operated in the range of 5 – 50 Hz with a constant torque and in the range of 50 – 110 Hz in field weakening mode (constant output). This is necessary due to different contact diameters (see picture 2).

Large pipe diameter – heavy weight and high necessary torque at low speed. Small pipe diameter – low weight and low necessary torque at high speed.



Picture 3: Switch cabinet with WATT inverters P6000

The Watt Drive matched components enable smooth transport and positioning of these masses in the individual machine parts.

Further information related to Watt's production programme is available on our website [www.wattdrive.com](http://www.wattdrive.com).