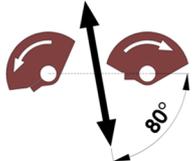
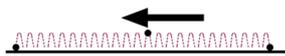
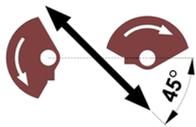
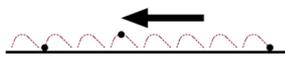


interVIB – Vario-Gearbox-Unit VGU for Shake Outs and Picking Lines

Comparison servo-technology to standard 3-phase motors



The electronic control VGU for unbalanced drives finds its application for continuous shake outs SOC or picking lines when conveying various shapes and dimensions of castings onto the same production line.

Pre-selected programs for each individual casting ensures a perfect moulding sand separation in accordance with fragility, separation characteristics and many more.

Each electronic control, servo or 3-phases, is identical in operation – adjustment of throwing angle, frequency, number of pre-selectable programs, energy recovery or accumulation etc..

The servo drive technology is the state of the art nowadays and becomes more common in all fields of industry.

The biggest advantage is the energy saving potential and the easy operation.

General benefits controlling vibratory equipment by the Vario-Gearbox-Unit VGU:

- individual and continuous adjustment of the throwing angle
- individual and continuous adjustment of the revolution speed
- gentle conveying by adjusting the throwing angle and frequency to the needs of the fragile product
- buffering of conveying good resulting from vertical throwing angle adjustment
- pre-selectable programs according to independent product groups
- energy saving through reduction of drive frequency during no-load operation
- matching the oscillation parameters in reference to problematic conveying characteristics (e.g. hooking)
- visualization of the actual parameters of the vibrating equipment
- simple specification of the oscillation parameters by using a touch panel
- data transfer to the master PLC via profinet / profibus
- energy recovery possible; reduction of heat generation by braking resistor
- energy accumulation possible
- digital data storage for quality analysis
- performance level PLC or PLd is our standard
- remote maintenance inclusive

Following both concepts, servo-technology and standard 3-phase technology, are compared to each other in specific technical details.

The model calculations are carried out by taking a Continuous Shake Out (SOC) of the dimensions SOC 1.200 x 5.700 (width x length in [mm]) which is operated as casting-sand-separator in a foundry.

Operating time 368 hours per month (2-shift), regular throwing angle and frequency adjustments and an electricity rate of 0,12 €/kWh are the taken reference parameters.

		Servo-Technology	3-phase Technology
power electric motor:	[kW]	5,50 (30 Nm)	11,0
Electricity consumption:	[kWh]	24.288	48.576
Energy costs per year:	[€/a]	2.915	5.829
Price electric motor:	[%]	125	100
Lead time spare motor:	[h]	24 – Standard	72 – Express
Annovation lead time:		Standard off-the-shelf item	Modifications of standard motor required; longer drive shaft plus extra threads for rotary encoder
Price electric inverter:	[%]	52	100
Lead time electric inverter:	[h]	24	24
Price rotary encoder:	[€]	Not needed, included into the motor, environment protected	~400–600
Lead time rotary encoder:	[h]	entfällt	Standard 2–3 weeks; express delivery 24hr possible
Energy recovery possible:		yes	yes
Energy accumulation possible:		yes	yes

Further details / advantages of the servo-technology:

Dynamic revolution regulation:		Integrated standard	External rotary encoder with modified drive motor connection
Gear reducer:		Toothed belt raising the torque	
External fan:		Not needed, low noise	Included, to be kept dust free
Electric inverter:		approx. 50% smaller unit, standard part	Standard part
Configuration electric motor:		Compact design, less required space, approx. 50% less power required	
Weight electric motor:		Less weight, easier handling	