

Antrieb für eine grüne Zukunft

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Drives & Generators

Technologies/Applications

Asynchronous

Areas of application:

- ▶ conveyor technology
- ▶ fans and air conditioning
- ▶ compressors
- ▶ pumps
- ▶ mixers and kneading machines
- ▶ hoisting technology
- ▶ machine tools
- ▶ traction drives



Torque

Areas of application:

- ▶ radar systems
- ▶ rotary plate for machine tools
- ▶ powerful rotary drives
- ▶ construction machinery
- ▶ tunnel boring machine



Synchronous

Areas of application:

- ▶ paper industry
- ▶ cleaning facilities
- ▶ belt drives
- ▶ synchronism
- ▶ parallel operation w/o feedback



Servo

Areas of application:

- ▶ machine tools
- ▶ for very limited installation space
- ▶ compressor / extruder
- ▶ highly dynamic applications
- ▶ travel drives



Direct current

Areas of application:

- ▶ wind power industry
- ▶ textile industry



Geared motors

Areas of application:

- ▶ cleaning facilities
- ▶ rail vehicles
- ▶ conveyor technology
- ▶ textile industry



Technologies/Applications

Drives & Generators

	drive motors					generators
parameters	synchronous	asynchronous	servo	torque	direct current	a-/synchronous
power [p]	up to 1MW	up to 600 kW	up to 1 MW	application-specific	up to 20 kW	up to 500 kW
rotational speed	20.000 rpm	30.000 rpm	20.000 rpm	application-specific	application-specific	up to 1.800 rpm
voltage	0-500 VAC	0-500 VAC	0-500 VAC	0-500 VAC	0-500 VAC	application-specific
torque	1 Nm-10 kNm	1 Nm-10 kNm	1 Nm-10 kNm	20 kNm	application-specific	application-specific
efficiency	up to 97%	up to 95%	up to 97%	application-specific	application-specific	up to 97%
Torque density	high	good	high	very high	low	high
advantages	<ul style="list-style-type: none"> + light and compact design + efficient in relation to size + high efficiency with small rotational speeds + grid operation possible 	<ul style="list-style-type: none"> + cost-effective + very long service life + low maintenance + high rotational speed + can deliver 3 times the rated capacity for a short time 	<ul style="list-style-type: none"> + high positioning accuracy + high acceleration capacity + light and compact design + efficient in relation to size 	<ul style="list-style-type: none"> + very high rotational speed + compact design (packet lengths) + high positioning accuracy 	<ul style="list-style-type: none"> + direct battery emergency operation in case of power failure + high starting torque 	<ul style="list-style-type: none"> + high efficiency (synchronous) + rotational speed independent of load (synchronous) + low maintenance
limits	<ul style="list-style-type: none"> - frequency inverter required for rotational speed variance - limited rotational speed due to rotor design 	<ul style="list-style-type: none"> - size - no braking torque in case of power failure - no speed stability without recirculation 	<ul style="list-style-type: none"> - frequency inverter required - limited rotational speed due to rotor design - peripheral costs (permanent magnets) 	<ul style="list-style-type: none"> - high iron losses - expensive periphery - peripheral costs (permanent magnets) 	<ul style="list-style-type: none"> - relatively maintenance-intensive - limited rotational speed due to collector - limited efficiency 	<ul style="list-style-type: none"> - expensive permanent magnets necessary - increased acquisition costs - peripheral costs (permanent magnets)

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