Version S.C.L.

Synchronous drives

without feedback

Version A.S.C.L.

Asynchronous drives

without feedback

COMBIVERT F5

…encoderless controlled drives

KEB

GB

COMBIVERT

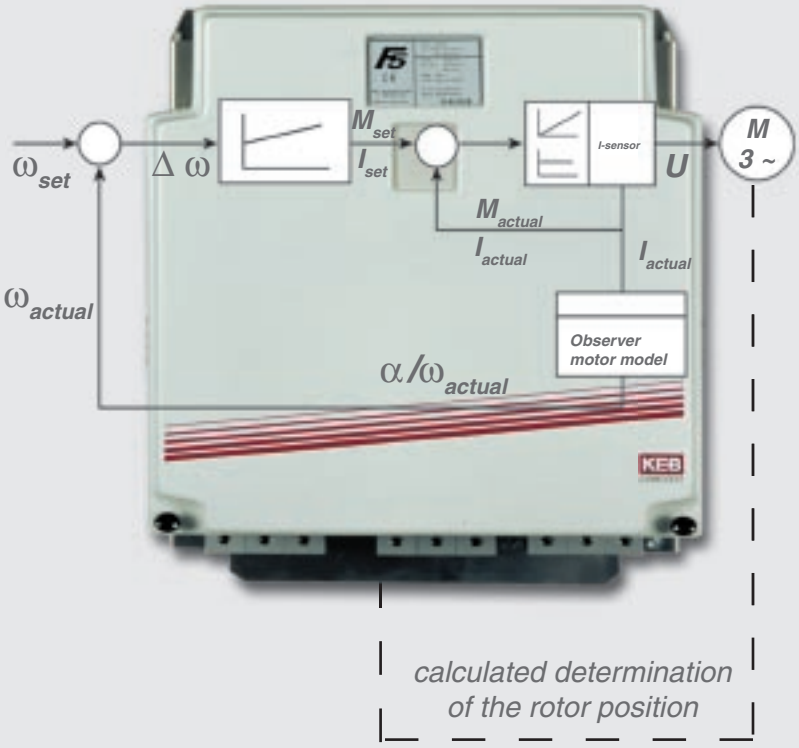
High End Open Loop ...

High speed stability and accuracy, together with reproducible torque, form the basis for process control, on which high-quality products are developed.

From our many years experience of advanced servo systems, KEB had developed advanced drive control algorithms to build a virtual rotor position within the control software; this is achieved ***without feedback of the motor shaft****.*

KEB developed solutions for both synchronous and asynchronous motors, for tasks requiring high speed and torque control.

The principle - genuine field operation without feedback



The advantages for the application are...

- *accurate speed and torque characteristics*
- *reduced costs due to omission of encoder, interface and cable*
- *robust system solution with increased operational reliability, since potential sources of interference from the encoder system are removed*
- *determined data directly transferable to similar drive systems*

- without feedback

F5-S.C.L. for Synchronous Motor Technology

has been designed for high performance speed and torque control in processes, where the system-related advantages of permanent magnet motors can be gained without feedback.

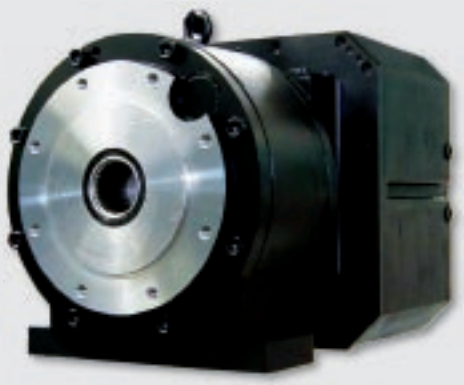
- *optimal degree of efficiency, high energy effectiveness*
- *wide speed range with slip-free control*
- *low rotor inertia and low thermal load*
- *reduced construction volume, smaller overall sizes with high power density*
- *high protection category, robust design*

F5-A.S.C.L. for Asynchronous Motor Technology

uses standard drives with a wide power range, for applications with demanding requirements for consistent speed and torque accuracy.

In both versions the current controller provides a load-dependent current supply with:

- *excellent overload capacity*
- *without additional losses in idle-run mode*
- *fast correction of load peaks*
- *precise torque control*



S . C . L .

Sensorless Closed Loop for Syn

Conventional solution	F5 - S.C.L.
	
with feedback	***without feedback***
➔ *installation space for encoder*	-
➔ *encoder cable*	-
➔ *encoder interface in the inverter*	-

Characteristics with F5 - S.C.L.

- *improved speed stability in relation to "vector control" units*
- *identical performance during sudden load variation compared to closed loop drives*
- *torque accuracy typical < 3 % T_N*
- ***display values** with*
  - ➔ *correction alignment in the system "on the fly"*
- *standstill position detection (calibration without rotation)*
- *operation with output filters*

Dynamic correction performance of a load

chronous Motors

F5 - S.C.L.

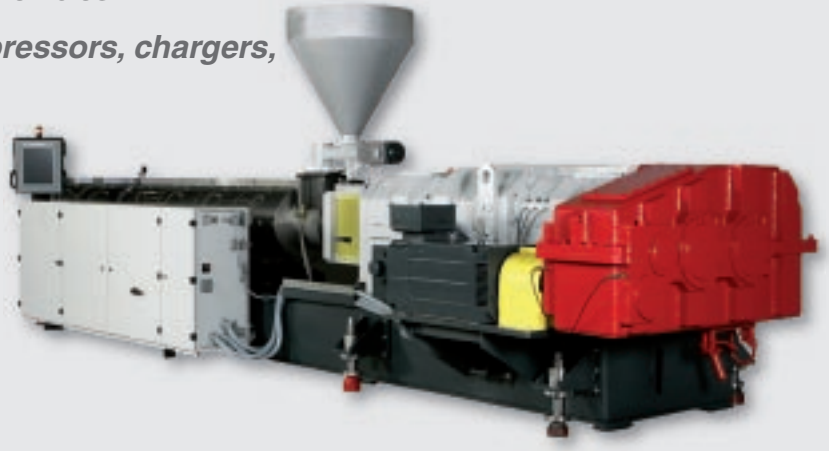
available power range 0.37 kW … 900 kW
in the voltage classes
1/3ph. 230 V; 3ph. 400 V, 3ph. 690 V
Order code: F5-E

Characteristics

- *low installation costs due to the omission of*
  - *- the encoder cable*
  - *- the encoder*
  - *- the encoder interface*
- *high dynamics*
- *slip-free motion*
- *less space required*
- *low weight*
- *high efficiency*
- *high availability*

Applications

- ***powered tools in machining centres***
- ***synchronous processing in textile machines***
- ***hybrid drives***
  - *- diesel electric traction drives in conveyor systems*
  - *- electric drives in boats, yachts and vehicles*
- ***high frequency pump drives in compressors, chargers, screws, vacuum pumps***
- ***synchronous extruder***
- ***injection moulding technology***
- ***blow moulding technology***



A.S.C.L.

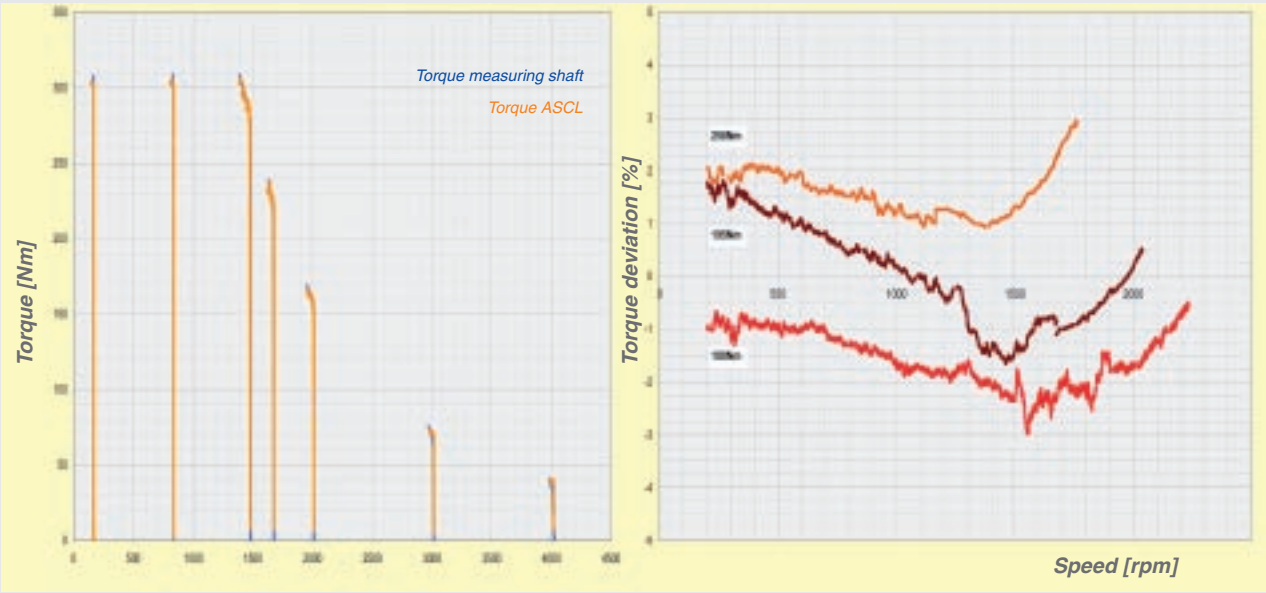
Asynchronous - Sensorless - Cl

Universal, asynchronous drives for high end tasks with the following characteristics:

F5-A.S.C.L.

- ***Automatic motor data***
  - ➔ *automatic measurement and modelling, of motor charcteristics combine to give excellent control.*
  - ➔ *motor model includes thermal computation.*
- ***Controller Integration ➔ Symmetrical Optimum (SO)***
  - ➔ *only 1 parameter for the optimisation of the drive Ki / Kp*
  - ➔ *simplifies the Ki/Kp alignment of the automatic speed control loop*
  - ➔ *speed regulator pilot control*
- ***Accurate torque indication** through, amongst other things*
  - ➔ *the determination of torque offsets.*
  - ➔ *adjustment of the system's idle run torque (optional)*

F5-A.S.C.L. *Torque characteristics*



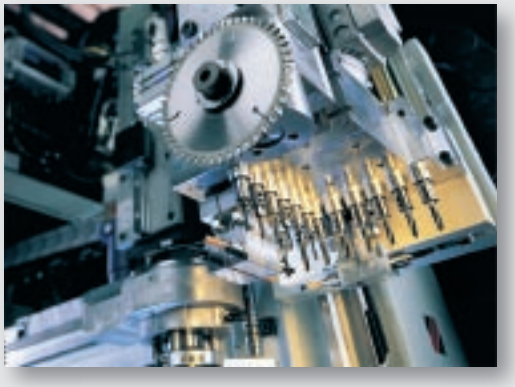
Torque accuracy typical < 3 % T_N

F5 - A.S.C.L.

available power range 0.37 kW … 900 kW
in the voltage classes
1/3ph. 230 V; 3ph. 400 V, 3ph. 690 V
Order code: F5-H

Applications

- *Extruder main drives*
- *Crusher drives / Shredder*
- *Centrifuges*
- *Test stands / test systems*
- *Agitators and mixers*
- *Cutter and passing machines*
- *Processing machines for wood, plastic, metal, …*
- *Mixers*
- *Heat pumps*
- *…*



people in motion

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