Scandrive P50
Phase shifter

Perfect control of phase angle and roll speed



Using Scandrive's P50 you can position your driven roller at any point through 360° to an accuracy of 0,0003° – 0,0003 mm on a 100 mm diameter roller, or you can use this accuracy to control speed to within 10-5 rpm – 2·10-6% at a roller speed of 500 rpm. These adjustments are made whilst the machine is operating at full speed and under full load. The Scandrive P50 is ideal for applications where several rollers are directly coupled to a single drive (eg., control of registration or web tension in printing machinery). The Scandrive P50 is based upon a completely new, yet amazingly simple concept. The simplicity of the design leads to very few moving parts, minimal losses and minimal space requirement. Control is achieved through a stepper motor so the unit is suitable for remote, manual or automated control systems.

Robust design
Essentially, the Scandrive P50 fuctions as a direct-in-line coupling in which very small variations can be made to the output shaft speed. These variations are made intermittently to set and maintain phase angle or continuously for roller speed control.

Specific features include

- Precise 1:1 ratio when stepper not operating
- Register resolution in the sub-micron range
- Efficency greater than 99 %
- Virtually no wear or heat generation
- "Sealed for Life" reliability
- Multiple meshing teeth permit high torque through a very compact unit
- Ideal for retro fitting

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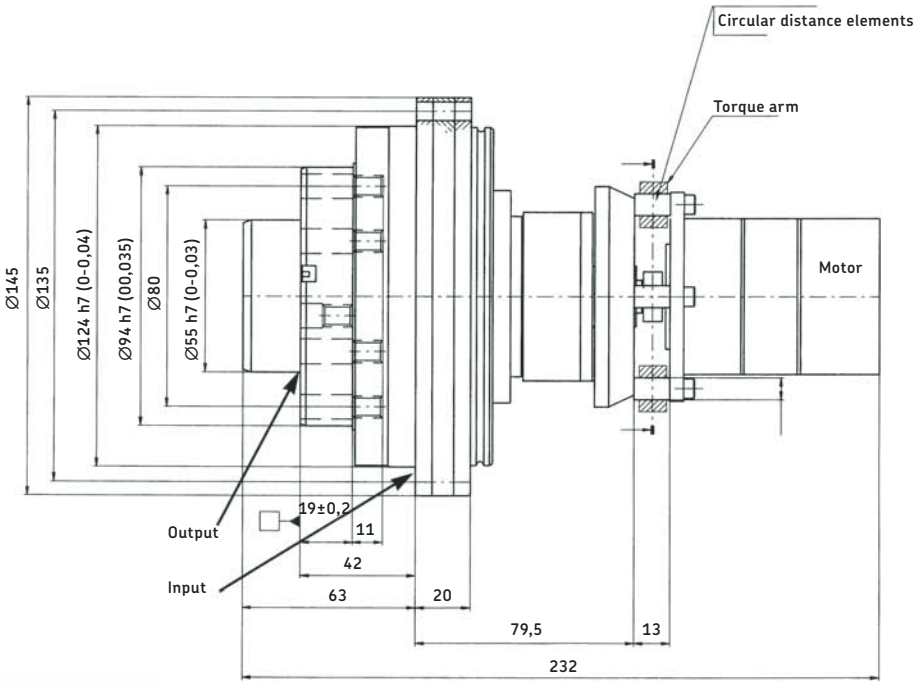
Technical features

The main drive enters via an input gear bolted on the gear housing of the Scandrive P50. It delivers the input speed n_1 rpm. The controlled cylinder is connected to the output flange of the Scandrive P50 via an adapter. The output speed delivered is n_2 rpm. The stepper servo motor is kept from rotating by a torque arm, but needs no other support.

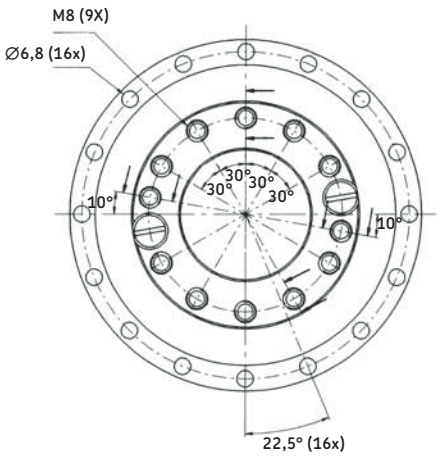
The correction speed input provided by the stepper is ns rpm. The speeds are related as follows:

$n_2 = n_1 + ns/i$

where i = 640, 1 920 or 5 760, the gear ratio chosen. When the servo motor is at rest, ns = 0, the Scandrive P50 transfers the input speed with exeactly 1:1 ratio to the controlled cylinder, at >99 % efficieny.







Technical data	Unit	Ratio 5760:1	Ratio 1920:1	Ratio 640:1
Rated input (through) torque	Nm	200	180	180
Max input speed	rpm	3 000	3 000	3 000
Max input power	kW	63	56	56
Max emergency braking torque	Nm	1 000	1 000	1 000
Ratio adjustment motor to speed difference	-	5760:1	1920:1	640:1
1 motor rev gives phase adjustment	degrees	0,0625	0,1875	0,5625
1 motor rev gives register change on surface of a dia 100 mm cylinder	mm	0,0545	0,1636	0,4905
Motor speed to give 0,1 mm/s register change rate on a dia 100 mm cylinder	rpm	110	37	11
Adjustment motor torque need at a rated input torque	Nmm	140	350	1 050
Power loss at 100 Nm, 1 500 rpm, steady-state operation	kW	0,0005	0,0015	0,0045

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