OPTIONS AND CALCULATIONS

OPTIONS

A wide variety of special features have been supplied on SMA motors. The following does not attempt to be a complete list, but to give some idea of what is possible. Please contact ROTARY POWER for individual application requirements.

OUTPUT SHAFTS

- Male keyed and splined shafts to special, metric and inch standards
- Female plain, keyed and splined shafts to metric and inch standards for flange, shrink disk and through bolt mounting.

CASE MOUNTING

- Non standard spigot in standard position or for rear mounting
- Re-profiled casings for installation clearance

PERFORMANCE

- Extra high power
- Uni-directional timing

SEALS

- Viton material
- High pressure shaft seal
- Mechanical shaft seal also in combination with lip seal and dirt excluder (for type E1), with inter-seal lubrication.
- Back to back shaft seal
- Lip seal and dirt excluder
- Stainless steel shaft sleeve

PORT BLOCKS FOR E1 MOTORS

For motor capacities 720 cm3 and below an integral port block is fitted.
For motor capacities 750 cm3 and above, the base motor is supplied with plain ports for use with a customer supplied port block. Further options as follows:

- Tapped ports in crankshaft end.
- Standard port block with SAE ports.
- High flow port block with SAE ports.

OTHER

- Special porting
- Multi- plate brakes
- Mechanical, proximity, induction and d.c. generator tacho drives
- Special paint and corrosion inhibition

CALCULATIONS

DETERMINATION OF MOTOR SIZE

Output torque $= \dfrac{\text{Motor displacement} \times \Delta \text{ pressure} \times \eta m}{20\pi}$

Flow required for rotational speed:

Flow $= \dfrac{\text{Motor displacement} \times \text{rotational speed}}{1000 \times \eta v}$

Output power $= \dfrac{\text{Motor torque} \times \text{rotational speed}}{9550}$

Units

Torque	=	Nm.
Flow	=	L/min.
Power	=	kW.
ΔPressure	=	Bar
Speed	=	Rev/min.
Motor displacement	=	cm3 per revolution
ηm	=	Mechanical efficiency.
ηv	=	Volumetric efficiency.

For approximate estimates of performance ηm = 0.95; ηv = 0.95. These can be assumed as typical values for 50% of maximum continuous speed and 275 bar Δpressure.