LINEAR ACTUATORS

LS 1

Thrusts 0—200 Kgf

Strokes 0—600 mm

- All Electric
- Clean and Compact
- Easily Installed
- Simple Construction

ELECTRIC ACTUATOR
COMPANY LIMITED

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TECHNICAL DATA

SIZE	PUSH/PULL FORCE kgf	PUSH/PULL FORCE lb.	PUSH/PULL SPEED mm/sec.	PUSH/PULL SPEED ins/sec.	STROKE mm.	STROKE ins.	Motor POWER watts	Motor SPEED SYNCH. rpm	NETT WEIGHT kg	NETT WEIGHT lb.
LS 1	200	440	2·7	0·10	0—100	0—3·9	100	1500	11	22
					0—200	0—7·9			12	26
					0—300	0—11·8			13	29
			10	0·39	0—400	0—15·7	150		14	31
					0—600	0—23·6			16	35
	200	440	20	0·78	0—100	0—3·9	300	3000	11	22
					0—200	0—7·9			12	26
					0—300	0—11·8			13	29
					0—400	0—15·7			14	31
					0—600	0—23·6			16	35

Higher push/pull forces, longer strokes and slower or faster speeds are available.

OPTIONAL FEATURES

PACK 1 Two adjustable end-of-stroke limit switches.
PACK 2 Two adjustable signal switches.
PACK 3 Potentiometer for position indication or control.

Combinations
Pack 1 + 2
Pack 1 + 3
Pack 2 + 3
Pack 1 + 2 + 3

Hard-chromed Shaft — for abrasive or corrosive conditions.
Bellows — for protection of push/pull shaft.
Tropical finish — for working in high humidity or tropical areas.
High temperature — for high ambient temperatures and sustained switching.
Thermistors — for thermal protection of motor winding.
Current Sensor — to adjust to the thrust required and to switch off the actuator if the demand exceeds the selected thrust.
Hand winding — with electrical interlock.
Brake — electro-magnetic type for accurate positioning.

MOUNTING

Trunnion or flange.

CONSTRUCTION

Aluminium housings.

ENCLOSURES AVAILABLE

Dust and damp protected.
Weatherproof IP54.
Weatherproof and hoseproof IP55.
Dustproof and hoseproof IP65.
CSA ENC4.
Flameproof and explosion proof models to BS4683 part 2 1971 groups, I, IIA and IIB.
British Coal Electrical Acceptance Certificate No 1996.
CSA explosion proof to Class I group D and class II groups F and G.

PRINCIPLE

The actuator motors are fitted and combined with a worm gear drive to give increased torque and slower speed. The leadscrew is driven by the worm wheel and a drive nut and push/pull tube travel along the leadscrew providing linear motion.

The actuator can be stopped at any point of the stroke and will hold its position and maintain its rated thrust unless there is vibration present. In this case the brake option should be fitted.

Position switches, signal switches and potentiometer assemblies can be fitted on the back of the actuator gearbox and are driven through a spur gear train.

GENERAL INFORMATION

Advantages and economics of "All electric" installations —
No compressed air or hydraulic supply is required.
Quick response to control signals.
Maintains full thrust with power off.
No power consumption when not operating.
Can be mounted in any position.
Maintenance responsibilities are not duplicated due to all electric.
Electrical components for control are generally inexpensive.

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ELECTRICS

MOTOR — The motor is a squirrel cage type with die cast aluminium rotor, designed with a low starting current and low inertia. These characteristics have been chosen because an actuator is often required to start and stop frequently with accurate positioning.

THERMAL SWITCH — Provided in the motor winding to prevent overheating. The thermal switch has to be connected into the control circuit.

STARTING — This is by reversing contactors. These can be initiated by push buttons or from an automatic control system.

POTENTIOMETER — When fitted, will provide remote indication of the shaft position or can be used with proportional control units. Accurate positioning may require a brake to be fitted.

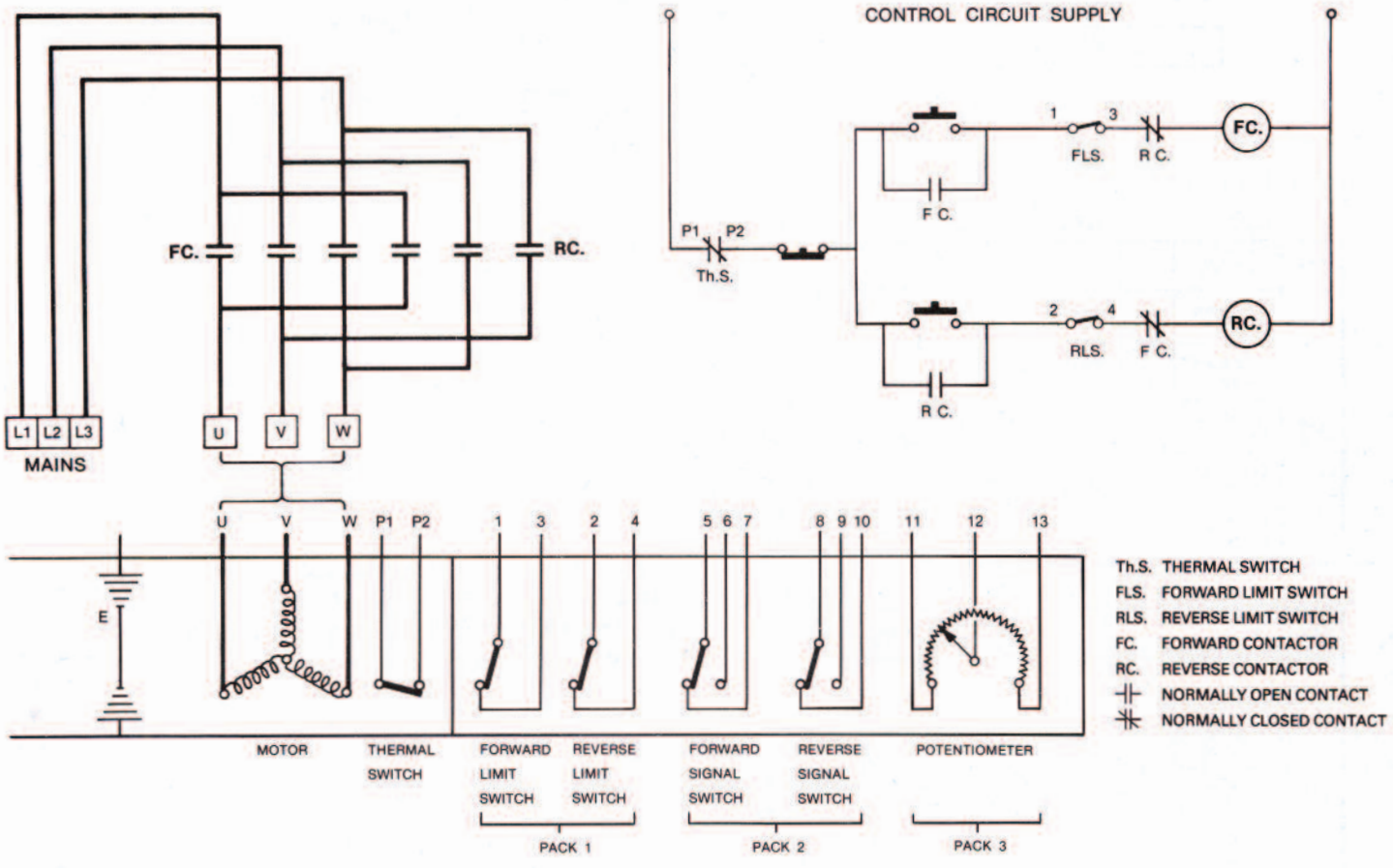
SWITCHES — For end-of-stroke and signalling; they are adjustable with locking cams.
Inductive Ratings: 10 amps at 110 volts A.C.
10 amps at 240 volts A.C.
5 amps at 415 volts A.C.
0·5 amps at 80 volts D.C.
The switch housing provides easy access for switch setting and potentiometer adjustment.

SUPPLY — A.C., 3-phase up to 600 volts; frequencies up to 60 Hz.

CABLES — Tapped holes provided for incoming cable glands. Mains and control connections are made in a weatherproof terminal box with ample space for cabling.

The Technical Data table shows motor speeds and linear speeds on 50 Hz supply — other frequencies give speeds pro rata.

TYPICAL SCHEMATIC



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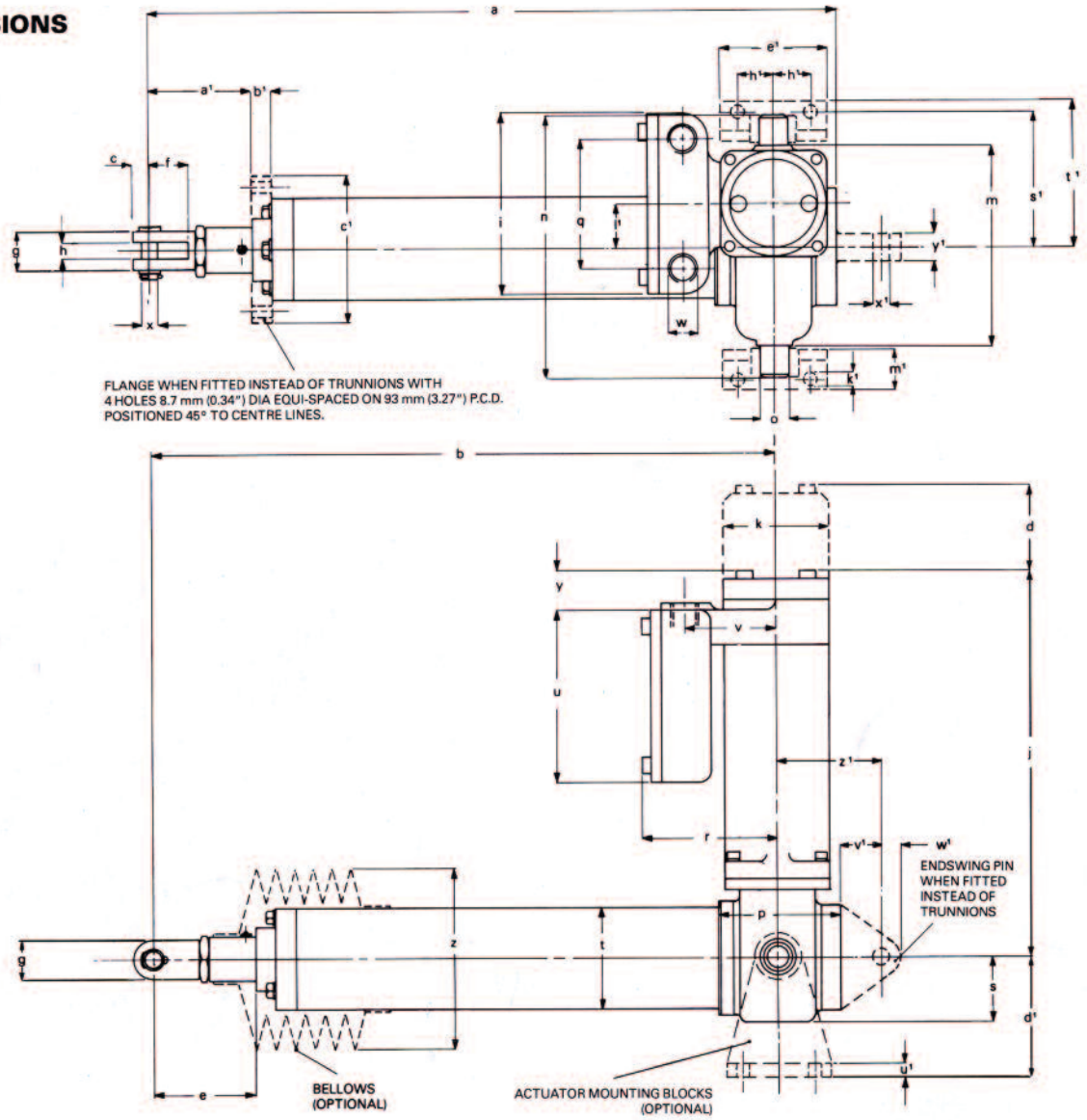
DIMENSIONS



TYPE	STROKE	a	b	c	e	f	g	h	i	j	k	m	n	o	p	q	r	s	t	u	v	w	x	y	z
LS1	0—100 mm 0—3·9"	369 14·53	292 11·50	14 0·55	75 2·95	30 1·18	28 1·1	12 0·47	134 5·28	288 11·34	83 3·27	150 5·91	194 7·64	22 0·87	91 3·58	80 3·15	100 3·9	50 1·97	75 2·95	128 5·04	65 2·56	20mm conduit	12 0·47	23 0·91	134 5·28
	0—200 mm 0—7·9"	469 18·46	392 15·43																						
	0—300 mm 0—11·8"	569 22·40	492 19·37																						
	0—400 mm 0—15·7"	669 26·34	592 23·31																						
	0—600 mm 0—23·6"	907 35·71	830 32·68																						

TYPE	STROKE	a¹	b¹	c¹	d¹	e¹	h¹	k¹	l¹	m¹	s¹	t¹	u¹	v¹	w¹	x¹	y¹	z¹
LS1	0—100 mm 0—3·9"	75 2·95	15 0·59	108 4·25	90 3·54	78 3·07	27 1·06	10·5 0·41	31·75 1·25	30 1·18	99 3·90	108 4·25	10 0·39	30 1·18	14 0·55	12 0·47	20 0·79	77 3·03
	0—200 mm 0—7·9"																	
	0—300 mm 0—11·8"																	
	0—400 mm 0—15·7"																	
	0—600 mm 0—23·6"																	

LUBRICATION

Retract the shaft and inject grease Rocol grade MTS 1000 through grease nipple provided on push/pull shaft every 200,000 operations or every 12 months.

The gearbox is packed with Rocol Grease Grade MTS 2000. Inspect periodically by removing the motor unit. Replenish if necessary.

Add the following dimensions 'd' for extras.

TYPE	Pack 1 Pack 2 Pack 3	Pack 1 + 2 Pack 1 + 3 Pack 2 + 3 Pack 1 + 2 + 3
LS 1	74 2·91	113 4·44

When the Brake Option is fitted, add 53 mm (2·09") to dimension 'j'.