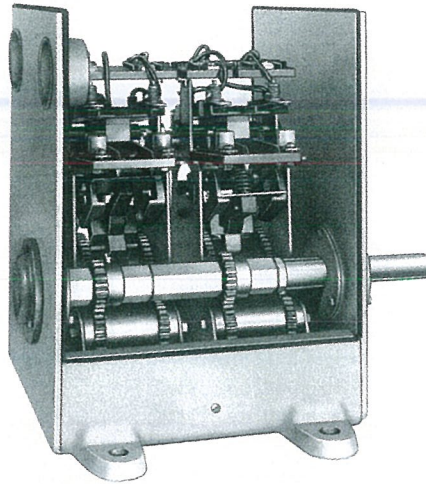


Cutler-Hammer Heavy Duty Switches

Limit Switches – Long Range Hunting Tooth Type

Application



Switch with cover removed

These switches permit the various limit switch function on a single machine to be conveniently grouped close to the drive mechanism, avoiding the need for individual limit switches dispersed about the machine or plant, each with its own mechanical operating mechanism and sometimes lengthy cable runs. Designed for use with reversing drives, the switch is particularly suitable for applications involving arduous duty. Single switches are available with up to six modules, each module being adjustable completely independently of the others. Most applications require a minimum of two modules to function as final forward and reverse limit switches and additional modules may be used, for example to control accelerating and decelerating contactors, to switch indicating lamps to denote the position of the controlled limit, or to provide electrical interlocking between the controlled drive and other processes. Applications requiring more than six units can be met by coupling the double shaft extension version of the 4 unit switch with combinations of 4 and 6 switches. An approved coupling is available for connecting the switches and is supplied as required.

Operation

Each module is operated from the switch input shaft by its own gear mechanism. This mechanism works on the hunting tooth principle in which two gear wheels having different numbers of teeth rotate at slightly different speeds, when driven by identical drive pinions rotating at the same speed. This slow relative rotation is utilised to operate the positive robust snap action contact mechanism. Each module resets to its pre-operated condition with approximately a quarter of a turn of the switch input shaft.

Contacts

Each module has 2 N.O. and 1 N.C. silver tipped, snap action and electrically separate circuits, (input shaft turning clockwise). Each module has an identification plate which can be marked on site with indication of its function when wiring up the switch.

Housing (IP54)

This comprises of a water and dust protecting sheet steel box and cover having four external fixing lugs. Two 33mm conduit entries are at both the driving and the non-driving end of the switch.

Setting

Each module can be individually set without uncoupling the switch from the drive. The maximum number of turns from the input shaft, including any possible overrun, should not exceed 170 and may be as low as half a turn. As sensitivity increases with the number of turns, it is advisable to gear the switch so that the maximum possible turns are used between final limits. The maximum recommended input speed including surges should not exceed 200 r.p.m. A pair of numbered scales is included in each module. The relative readings on these scales at any time denotes the setting of that module in relation to the input shaft.

Ratings

A.C continuous	D.C. non-inductive	D.C. inductive $\frac{1}{R}$ = 300 m/s
10A @ 100/230V	6A @ 110V	2A @ 110V
3.5A @ 440V	1.6A @ 230V	0.5A @ 230V
2.0A @ 550V	0.4A @ 440/550V	0.3A @ 440/550V

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Technical data

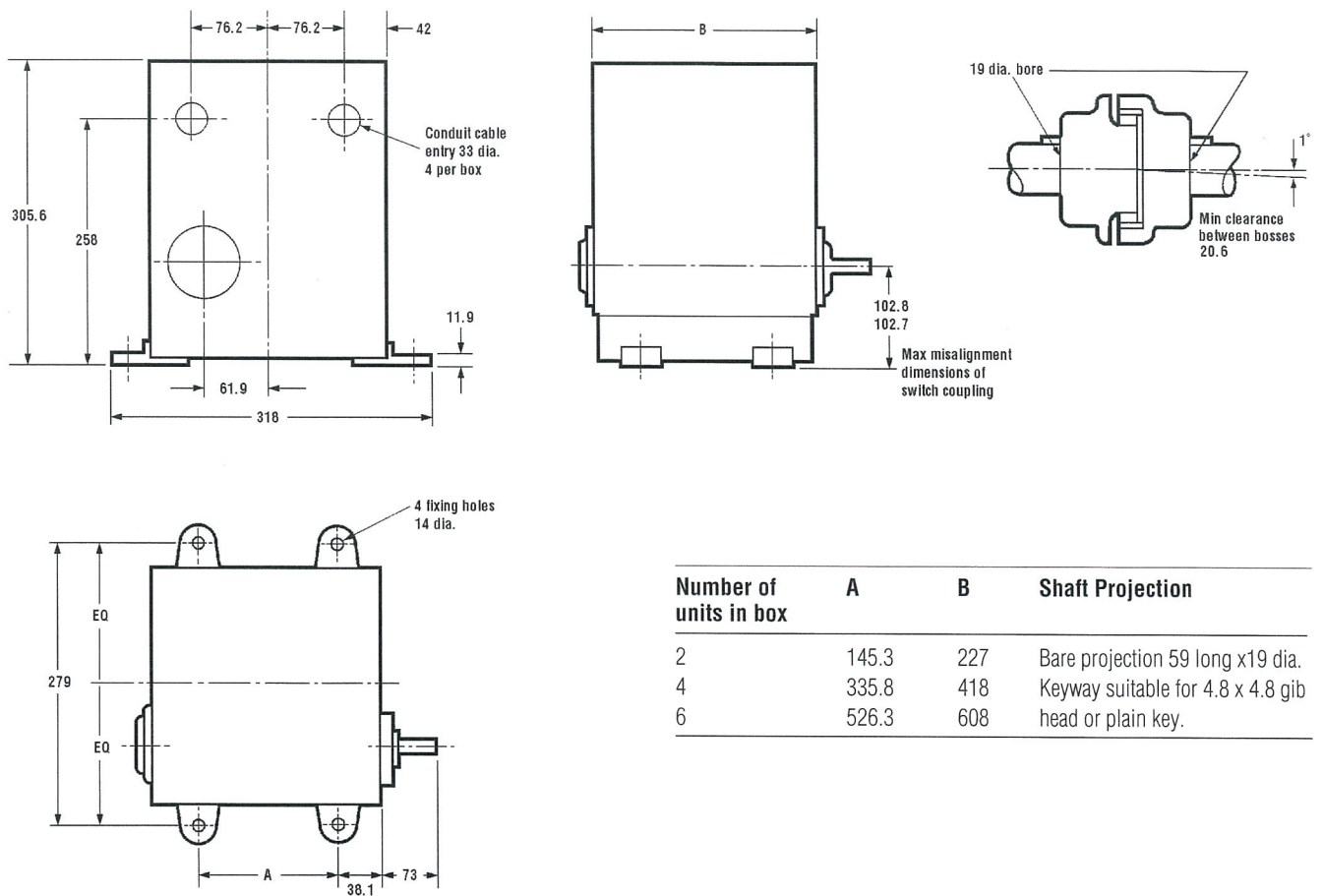
Torque

Running without tripping = 0.17 Nm ($\frac{1}{8}$ lbf ft)
 Tripping each unit = 1.36 Nm (1 lbf ft)

Example

6 unit switch, 2 units tripping together
 Running without tripping = $4 \times 0.17 = 0.68$ Nm
 2 tripping together = $2 \times 1.36 = 2.72$ Nm
Total torque required = 3.4 Nm (2.51 lbf ft)

Dimensions (mm)



Number of units in box	A	B	Shaft Projection
2	145.3	227	Bare projection 59 long x 19 dia.
4	335.8	418	Keyway suitable for 4.8 x 4.8 gib head or plain key.
6	526.3	608	

Catalogue numbers

Number of contact units	Catalogue number
2	93351H120
4 (with double shaft)	93351H320
4	93351H330
6	93351H520
Coupling	E803KE1