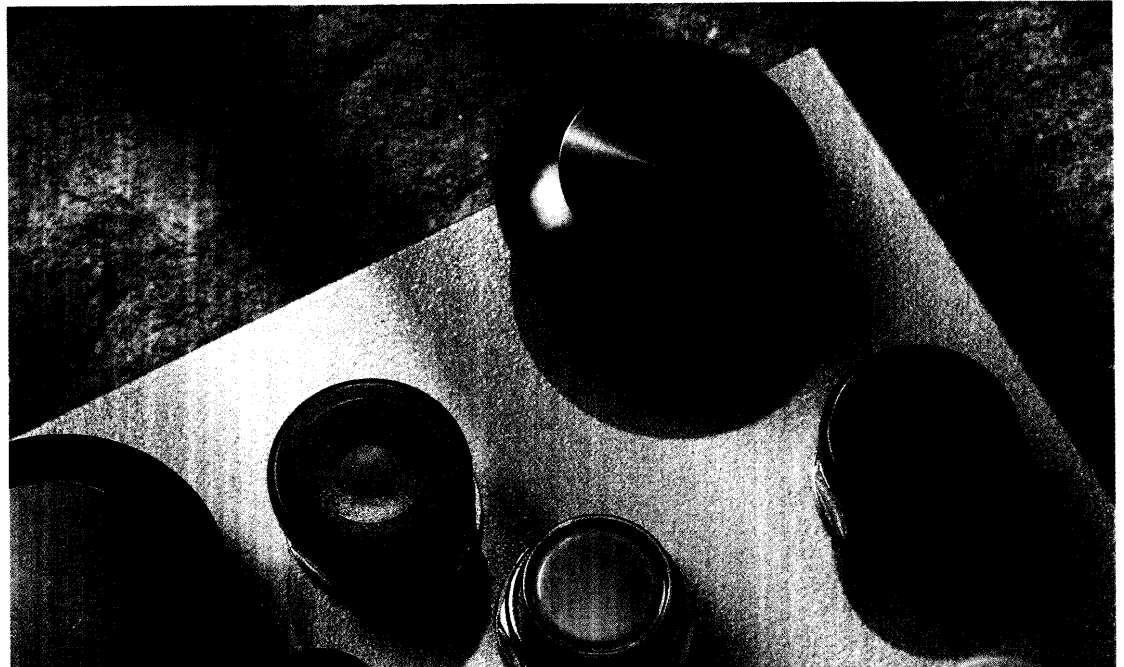


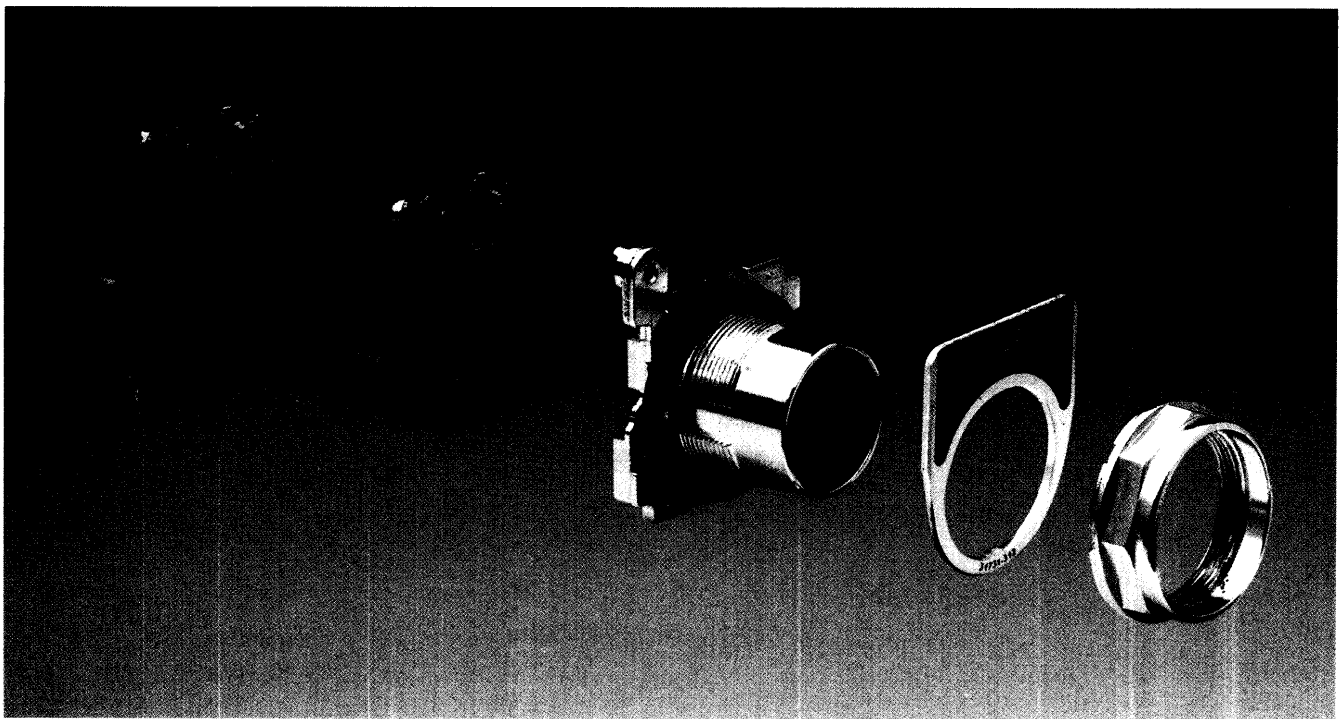
# Cutler-Hammer 30.5mm Pushbuttons, Indicating Lights & Selector Switches Type 91000T



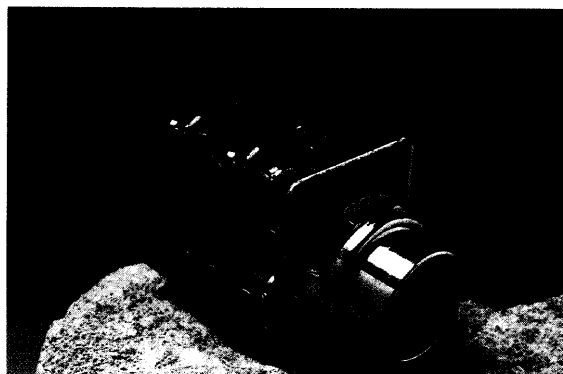
# ***Cutler-Hammer 30.5mm Pushbuttons are versatile, durable, flexible and last the test of time ...***

Even under the most hostile of environments

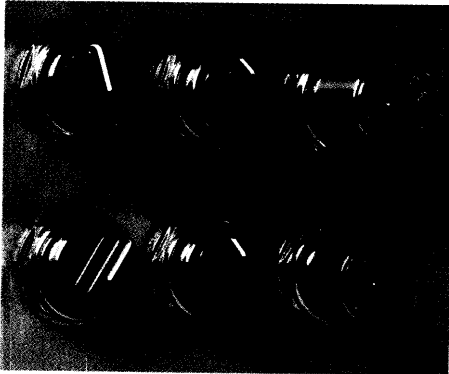
## **Modular in design**



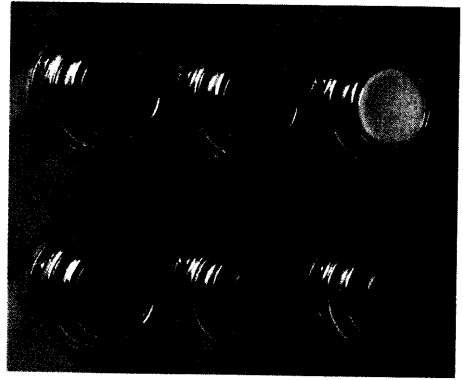
- Contact blocks contain up to 2 separate and distinct circuits and with the availability to stack up to 6 blocks per operator a total of 12 circuits can be achieved
- A diaphragm seal of neoprene ensures oiltightness for countless operations
- Smooth moulded plastic buttons with colour all



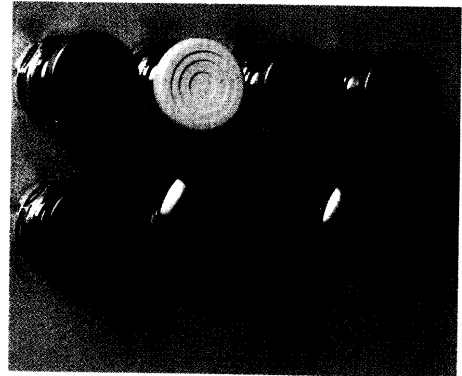
# Attractive in appearance



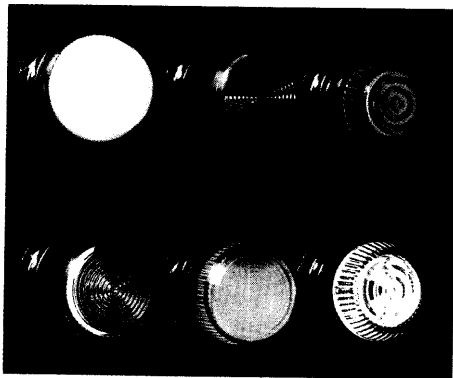
*Selector switches*



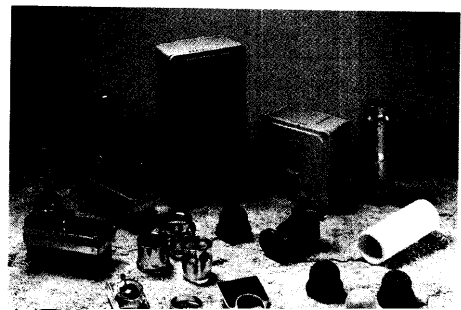
*Pushbuttons*



*Mushroom pushbuttons*



*Indicating lights*

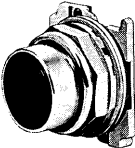
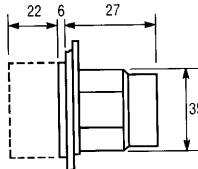
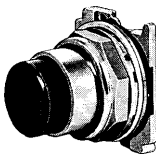
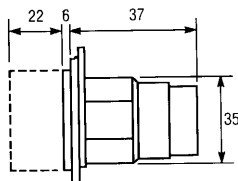
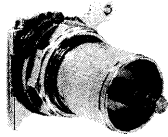
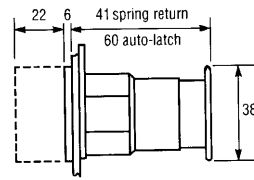
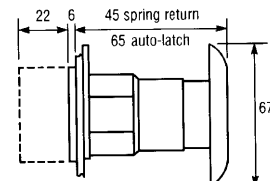


# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

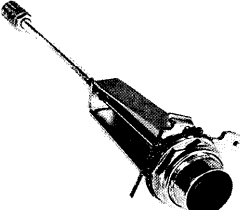
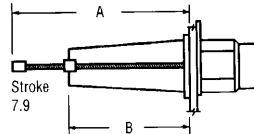
## Pushbutton Operators

### Pushbuttons

#### Operators

| Description                                                                                                       |                          | Button colour | Catalogue numbers | Overall dimensions (mm)                                                               | Weight (kg) |
|-------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|-------------------|---------------------------------------------------------------------------------------|-------------|
| <b>Flush button</b><br>          |                          | Black         | <b>91000T101</b>  |    | 0.093       |
|                                                                                                                   |                          | Red           | <b>91000T102</b>  |                                                                                       | 0.093       |
|                                                                                                                   |                          | Green         | <b>91000T103</b>  |                                                                                       | 0.093       |
|                                                                                                                   |                          | Yellow        | <b>91000T104</b>  |                                                                                       | 0.093       |
|                                                                                                                   |                          | White         | <b>91000T106</b>  |                                                                                       | 0.093       |
|                                                                                                                   |                          | Blue          | <b>91000T108</b>  |                                                                                       | 0.093       |
|                                                                                                                   |                          |               |                   |                                                                                       |             |
| <b>Extended button</b><br>       |                          | Black         | <b>91000T111</b>  |    | 0.093       |
|                                                                                                                   |                          | Red           | <b>91000T112</b>  |                                                                                       | 0.093       |
|                                                                                                                   |                          | Green         | <b>91000T113</b>  |                                                                                       | 0.093       |
| <b>Padlockable, lockdown</b><br>fitted with 38mm mushroom push                                                    |                          | Red           | <b>91000TA45</b>  |                                                                                       | 0.95        |
| <b>Bare shaft operator</b><br>for mushroom or palm push                                                           |                          |               |                   |                                                                                       |             |
|                                | Momentary, spring return |               | <b>91000T100</b>  |  | 0.095       |
|                                                                                                                   | Auto-latch               |               | <b>91000T140</b>  |                                                                                       | 0.095       |
|                                                                                                                   |                          |               |                   |                                                                                       |             |
| <b>Operating pushes for bare shaft operators</b>                                                                  |                          |               |                   |                                                                                       |             |
| <b>Mushroom 38.1mm</b><br>     |                          | Black         | <b>91000T281</b>  |                                                                                       |             |
|                                                                                                                   |                          | Red           | <b>91000T282</b>  |                                                                                       |             |
|                                                                                                                   |                          | Green         | <b>91000T283</b>  |                                                                                       |             |
|                                                                                                                   |                          | Yellow        | <b>91000T284</b>  |                                                                                       |             |
|                                                                                                                   |                          | Blue          | <b>91000T288</b>  |                                                                                       |             |
| <b>Palm 63.5mm</b><br>         |                          | Black         | <b>91000T291</b>  |                                                                                       |             |
|                                                                                                                   |                          | Red           | <b>91000T292</b>  |                                                                                       |             |
|                                                                                                                   |                          | Green         | <b>91000T293</b>  |                                                                                       |             |
| <b>Extended pushbutton</b><br> |                          | Red           | <b>91000T2820</b> |  |             |

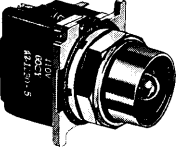
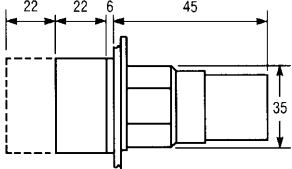
### Mechanical push operators

| Mechanical push operators                                                           |           |                   |                                                                                                                                                                                                                                                           |             |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|-------------------------------------------------------------------------------------|-----------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---|---|--|--|-----|-----|--|------------|----|-----|---|------------|-----|-----|----|-------|
| Description                                                                         | Colour    | Catalogue numbers | Overall dimensions (mm)                                                                                                                                                                                                                                   | Weight (kg) |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|  | Black     | <b>91000TA85</b>  |                                                                                                                                                                      | 0.015       |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|                                                                                     | Green     | <b>91000TA86</b>  |                                                                                                                                                                                                                                                           | 0.015       |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|                                                                                     | Red       | <b>91000TA87</b>  |                                                                                                                                                                                                                                                           | 0.015       |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
| Flush push, long reach, 217mm                                                       | Black     | <b>91000TA97</b>  | <table><tr><th>Dimension</th><th>A</th><th colspan="2">B</th></tr><tr><td></td><th>Min</th><th>Max</th><th></th></tr><tr><td>Std. reach</td><td>35</td><td>127</td><td>8</td></tr><tr><td>Long reach</td><td>118</td><td>217</td><td>85</td></tr></table> | Dimension   | A | B |  |  | Min | Max |  | Std. reach | 35 | 127 | 8 | Long reach | 118 | 217 | 85 | 0.015 |
|                                                                                     | Dimension | A                 |                                                                                                                                                                                                                                                           | B           |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|                                                                                     |           | Min               |                                                                                                                                                                                                                                                           | Max         |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
| Std. reach                                                                          | 35        | 127               | 8                                                                                                                                                                                                                                                         |             |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
| Long reach                                                                          | 118       | 217               | 85                                                                                                                                                                                                                                                        |             |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|                                                                                     | Green     | <b>91000TA98</b>  | 0.015                                                                                                                                                                                                                                                     |             |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |
|                                                                                     | Red       | <b>91000TA99</b>  | 0.015                                                                                                                                                                                                                                                     |             |   |   |  |  |     |     |  |            |    |     |   |            |     |     |    |       |

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Pushbutton Operators

**Illuminated pushbuttons** BA9s bayonet fitting. For replacement bulbs see page 14.

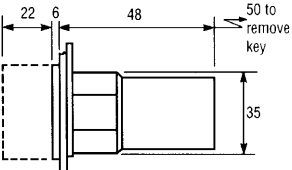
|                                                                                               | Description             | Supply voltage<br>50/60Hz | Catalogue<br>numbers | Overall<br>dimensions (mm)                                                          | Weight<br>(kg) |
|-----------------------------------------------------------------------------------------------|-------------------------|---------------------------|----------------------|-------------------------------------------------------------------------------------|----------------|
| <br>Operator | <b>Transformer type</b> | 110/120                   | <b>91000T411</b>     |  | 0.19           |
|                                                                                               | 6V 1W secondary.        | 220/240                   | <b>91000T412</b>     |                                                                                     | 0.19           |
|                                                                                               | Bulb supplied           | 380/415                   | <b>91000T413</b>     |                                                                                     | 0.19           |
|                                                                                               |                         | 440/480                   | <b>91000T414</b>     |                                                                                     | 0.19           |
|                                                                                               | <b>Direct voltage</b>   |                           |                      |                                                                                     |                |
|                                                                                               | Supplied without bulb   | 6 to 240                  | <b>91000T441</b>     |                                                                                     | 0.093          |
| <b>BA9s bayonet bulbs</b> (for use with 91000T441)                                            |                         |                           |                      |                                                                                     |                |
| <br>Lens     | <b>Filament type</b>    | 6V (1W) flasher           | <b>28-2225-26</b>    |                                                                                     |                |
|                                                                                               |                         | 6.3V (1W)                 | <b>28-2225-72</b>    |                                                                                     |                |
|                                                                                               |                         | 12V (1.2W)                | <b>28-2225-29</b>    |                                                                                     |                |
|                                                                                               |                         | 24V (1.2W)                | <b>28-2225-30</b>    |                                                                                     |                |
|                                                                                               |                         | 28V (1.12W)               | <b>28-2225-73</b>    |                                                                                     |                |
|                                                                                               |                         | 50V (1W)                  | <b>28-2225-31</b>    |                                                                                     |                |
|                                                                                               |                         | 60V (1.2W)                | <b>28-2225-32</b>    |                                                                                     |                |
|                                                                                               | <b>Neon type</b>        | 110V (2.2W)               | <b>28-2225-24</b>    |                                                                                     |                |
|                                                                                               |                         | 110V (0.8mA)              | <b>28-2225-48</b>    |                                                                                     |                |
|                                                                                               |                         | 240V (1.5mA)              | <b>28-2225-49</b>    |                                                                                     |                |

**Plastic lens** (for use with illuminated pushbuttons).

| Colour | Catalogue numbers | Colour | Catalogue numbers | Colour | Catalogue numbers |
|--------|-------------------|--------|-------------------|--------|-------------------|
| Red    | <b>91000TC21</b>  | Amber  | <b>91000TC43</b>  | Clear  | <b>91000TC25</b>  |
| Green  | <b>91000TC22</b>  | Blue   | <b>91000TC24</b>  | White  | <b>91000TC26</b>  |

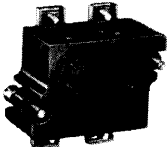
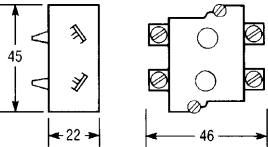
## Cylinder lock pushbuttons

**Operators** (Supplied with the standard lock and 2 keys, key ref. H661).

|  | Key position and pushbutton operation |        |              | Key<br>removal<br>positions | Catalogue<br>numbers |  | Weight<br>(kg) |
|-------------------------------------------------------------------------------------|---------------------------------------|--------|--------------|-----------------------------|----------------------|---------------------------------------------------------------------------------------|----------------|
|                                                                                     | Left                                  | Centre | Right        |                             |                      |                                                                                       |                |
|                                                                                     | Lock-up                               | Free   | Lock down    | All                         | <b>91000T430</b>     |                                                                                       | 0.185          |
|                                                                                     | Blocked                               | Free   | Push to lock | C & R                       | <b>91000T437</b>     |                                                                                       | 0.185          |

**Special lock selection:** Add the appropriate suffix code from page 7. eg 91000T430H620.

## Contact blocks

|                                                                                     | Description                        | Catalogue numbers:   |                  | Overall<br>dimensions<br>(mm)                                                         | Weight<br>(kg) |
|-------------------------------------------------------------------------------------|------------------------------------|----------------------|------------------|---------------------------------------------------------------------------------------|----------------|
|                                                                                     |                                    | One-hole<br>mounting | Base<br>mounting |                                                                                       |                |
|  | 1 N.O. 1 N.C.                      | <b>91000T1</b>       | <b>91000T6</b>   |  | 0.025          |
|                                                                                     | 2 N.O.                             | <b>91000T2</b>       | <b>91000T7</b>   |                                                                                       | 0.025          |
|                                                                                     | 2 N.C.                             | <b>91000T3</b>       | <b>91000T8</b>   |                                                                                       | 0.025          |
|                                                                                     | 1 N.C.                             | <b>91000T51</b>      | <b>91000T52</b>  |                                                                                       | 0.025          |
|                                                                                     | 1 N.O.                             | <b>91000T53</b>      | <b>91000T54</b>  |                                                                                       | 0.025          |
|                                                                                     | 2 N.O. 2 N.C.                      | <b>91000T44</b>      | –                |                                                                                       | 0.025          |
|                                                                                     | 1 N.O. 1 N.C.<br>make before break | <b>91000T55</b>      | –                |                                                                                       | 0.025          |

### Note:

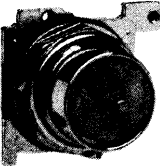
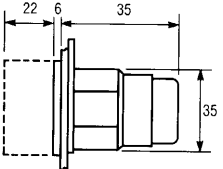
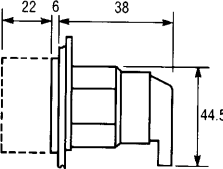
A maximum of 6 blocks (12 circuits) may be fitted to each operator except for 91000T44 where a maximum of 4 blocks (16 circuits) may be fitted.

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Selector Switches

### Knob operated selector switches

#### Bare shaft operator

|                                                                                   | Description                                                                                                         | Cam code | Catalogue numbers | Overall dimensions (mm)                                                             | Weight (kg) |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------|-------------------|-------------------------------------------------------------------------------------|-------------|
|  | <b>2-position</b>                                                                                                   |          |                   |                                                                                     |             |
|                                                                                   | Stayput                                                                                                             | 1        | <b>91000T4011</b> |  | 0.115       |
|                                                                                   | Spring return right to left                                                                                         | 1        | <b>91000T4081</b> |                                                                                     | 0.115       |
|                                                                                   | <b>3-position</b>                                                                                                   |          |                   |                                                                                     |             |
|                                                                                   | Stayput                                                                                                             | 2        | <b>91000T4022</b> |  | 0.115       |
|                                                                                   |                                                                                                                     | 3        | <b>91000T4023</b> |                                                                                     | 0.115       |
|                                                                                   |                                                                                                                     | 4        | <b>91000T4024</b> |                                                                                     | 0.115       |
|                                                                                   |                                                                                                                     | 6*       | <b>91000T4026</b> |                                                                                     | 0.115       |
|                                                                                   | Spring return from left, stayput centre and right                                                                   | 2        | <b>91000T4032</b> |                                                                                     | 0.115       |
|                                                                                   |                                                                                                                     | 3        | <b>91000T4033</b> |                                                                                     | 0.115       |
|                                                                                   | Spring return to centre from left and right                                                                         | 2        | <b>91000T4042</b> |                                                                                     | 0.115       |
|                                                                                   |                                                                                                                     | 3        | <b>91000T4043</b> |                                                                                     | 0.115       |
|                                                                                   | Stayput left and centre, spring return from right                                                                   | 2        | <b>91000T4052</b> |                                                                                     | 0.115       |
|                                                                                   |                                                                                                                     | 3        | <b>91000T4053</b> |                                                                                     | 0.115       |
|                                                                                   |  <b>Knob</b> (for any operator)  |          | <b>91000TKB</b>   |                                                                                     |             |
|                                                                                   |  <b>Lever</b> (for any operator) |          | <b>91000TLB</b>   |                                                                                     |             |

#### Cam selection chart showing contact sequence

To determine the number of the cam you require and the right contact block select the contact sequence desired from table below. O = contacts open, X = contacts closed. The cam number is shown at top of column. The catalogue number of the appropriate contact block is shown at extreme left of table.

| Catalogue numbers of contact block | Base mounting  | Circuit (see note (1) at foot of table) | 2-position selector switch | 3-position selector switch |                |                |                  |
|------------------------------------|----------------|-----------------------------------------|----------------------------|----------------------------|----------------|----------------|------------------|
|                                    |                |                                         | Cam code no. 1             | Cam code no. 2             | Cam code no. 3 | Cam code no. 4 | Cam code no. 6 † |
| <b>91000T1</b>                     | <b>91000T6</b> | A N.C.                                  | XO                         | OXO                        | OXX            | XOO            | XOO              |
|                                    |                | B N.O.                                  | OX                         | OOX                        | OOX            | OXO            | OXO              |
| <b>91000T1</b>                     | <b>91000T6</b> | A N.O.                                  | OX                         | XOX                        | XOO            | OXX            | OOX              |
|                                    |                | B N.C.                                  | XO                         | XXO                        | XXO            | XOX            | OOX              |
| <b>91000T2</b>                     | <b>91000T7</b> | A N.O.                                  | OX                         | XOX                        | XOO            | OXX            | OOX              |
|                                    |                | B N.O.                                  | OX                         | OOX                        | OOX            | OXO            | OXO              |
| <b>91000T3</b>                     | <b>91000T8</b> | A N.C.                                  | XO                         | OXO                        | OXX            | XOO            | XOO              |
|                                    |                | B N.C.                                  | XO                         | XXO                        | XXO            | XOX            | OOX              |

#### Switching angle.

60° between each position.

#### Note:

(1) Each contact block contains two contact circuits. The top set of contacts is identified as 'Circuit A' and the lower set as 'Circuit B' is indicated in the table. The chart shows the contact arrangements with the three contact blocks available and in each operator position. Additional contact combinations are obtainable by stacking contact blocks in tandem up to a maximum of 6 blocks (12 circuits).

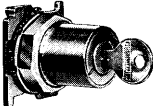
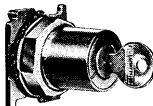
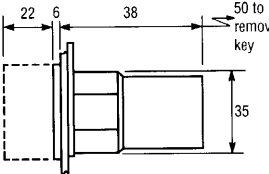
† A maximum of 2 are to be used with cam 6. Rated to A.C. only.

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Selector Switches

### Key operated selector switches

**Operators** (Supplied with the standard lock and 2 keys, key ref. H661)

| Description                                                                       |                                               | Cam code | Key removal position | Catalogue numbers<br>Vertical mounting * | Horizontal mounting * | Overall dimensions (mm)                                                             | Weight (kg) |
|-----------------------------------------------------------------------------------|-----------------------------------------------|----------|----------------------|------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-------------|
|  | <b>2-position</b>                             |          |                      |                                          |                       |                                                                                     |             |
|                                                                                   | Stayput                                       | 1        | Right & left         | <b>91000T15113</b>                       | <b>91000T16113</b>    |                                                                                     | 0.185       |
|                                                                                   | Spring return right to left                   | 1        | Left only            | <b>91000T15712</b>                       | <b>91000T15812</b>    |                                                                                     | 0.185       |
|  | <b>3-position</b>                             |          |                      |                                          |                       |                                                                                     |             |
|                                                                                   | Stayput                                       | 2        | Left, right & centre | <b>91000T15227</b>                       | <b>91000T16227</b>    |  | 0.185       |
|                                                                                   |                                               | 3        |                      | <b>91000T15237</b>                       | <b>91000T16237</b>    |                                                                                     | 0.185       |
|                                                                                   |                                               | 4        |                      | <b>91000T15247</b>                       | <b>91000T16247</b>    |                                                                                     | 0.185       |
|                                                                                   |                                               | 6        |                      | <b>91000T15267</b>                       | <b>91000T16267</b>    |                                                                                     | 0.185       |
|                                                                                   | Spring return from left                       | 2        | Right & centre       | <b>91000T15325</b>                       | <b>91000T16325</b>    |                                                                                     | 0.185       |
|                                                                                   |                                               | 3        |                      | <b>91000T15335</b>                       | <b>91000T16335</b>    |                                                                                     | 0.185       |
|                                                                                   | (spring return to centre from left and right) | 2        | Centre only          | <b>91000T15424</b>                       | <b>91000T16424</b>    |                                                                                     | 0.185       |
|                                                                                   |                                               | 3        |                      | <b>91000T15434</b>                       | <b>91000T16434</b>    |                                                                                     | 0.185       |
|                                                                                   | Spring return from right                      | 2        | Left & centre        | <b>91000T16526</b>                       | <b>91000T16626</b>    |                                                                                     | 0.185       |
|                                                                                   |                                               | 3        |                      | <b>91000T16536</b>                       | <b>91000T16636</b>    |                                                                                     | 0.185       |

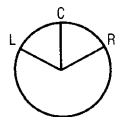
\* **Vertical mounting** means terminals are left & right of contact block.

**Horizontal mounting** means terminals are top & bottom of contact block. This allows close spacing of adjacent operators with easy access to terminals.

#### Alternative key removal position selection

To select an alternative key removal position change the last digit of the listed catalogue number with a code from the table below e.g. 91000T1522**6** is a 3 position stayput switch with key removal from left and centre.

| Key removal position | Suffix   |
|----------------------|----------|
| Right                | <b>1</b> |
| Left                 | <b>2</b> |
| Right and Left       | <b>3</b> |
| Centre               | <b>4</b> |
| Right and Centre     | <b>5</b> |
| Left and Centre      | <b>6</b> |
| All Positions        | <b>7</b> |



**Note:** Select one suffix number only. Key removal in a spring return position is not available.

#### Special lock selection

To select an alternative lock add the suffix code from the table below to the operator catalogue number e.g. 91000T15113**H621**

| Special lock Suffix | Suffix      |
|---------------------|-------------|
| <b>H620</b>         | <b>H654</b> |
| <b>H621</b>         | <b>H663</b> |
| <b>H634</b>         | <b>H675</b> |
| <b>H635</b>         | <b>H683</b> |
| <b>H639</b>         | <b>H688</b> |
| <b>H643</b>         | –           |

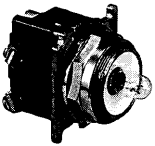
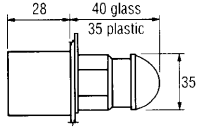
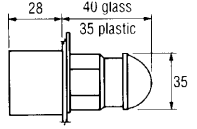
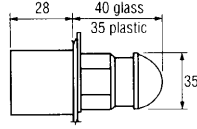
Special locks are supplied with two keys. Extra keys may be ordered, refer to accessories page 14.

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Indicating Lights

### Standard indicating lights

**Lamp units** Bulbs supplied with units unless otherwise stated. For replacement light bulbs see page 14

|                                                                                     | Description                                               | Supply volts<br>50/60Hz | Catalogue<br>numbers | Overall<br>dimensions (mm)                                                            | Weight<br>(kg) |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------|----------------------|---------------------------------------------------------------------------------------|----------------|
|    | <b>Transformer type</b>                                   | 110/120                 | <b>91000T181N</b>    |    | 0.22           |
|                                                                                     | 6V 1W secondary BA9s                                      | 220/240                 | <b>91000T182N</b>    |                                                                                       | 0.22           |
|                                                                                     | bayonet bulb under rated by<br>10% for longer life.       | 380/415                 | <b>91000T183N</b>    |                                                                                       | 0.22           |
|                                                                                     |                                                           | 550/600                 | <b>91000T185N</b>    |                                                                                       | 0.22           |
|                                                                                     | <b>Resistor type</b>                                      |                         |                      |    |                |
|                                                                                     | 120V 2.2W                                                 | 110/120                 | <b>91000T201N</b>    |                                                                                       | 0.112          |
|                                                                                     | BA9s bayonet bulb                                         | 220/240                 | <b>91000T202N</b>    |                                                                                       | 0.112          |
|                                                                                     | <b>Direct voltage unit (MCC/MBC)</b>                      |                         |                      |                                                                                       |                |
|                                                                                     | Supplied without bulb. Suitable<br>for BA9s bayonet bulbs | 6 to 240                | <b>91000T197N</b>    |                                                                                       | 0.11           |
|                                                                                     | <b>BA9s bayonet bulbs</b> (for use with 91000T197N)       |                         |                      |                                                                                       |                |
|                                                                                     | <b>Filament type</b>                                      |                         |                      |                                                                                       |                |
|                                                                                     | 6V (1W) flasher                                           |                         | <b>28-2225-26</b>    |                                                                                       |                |
|                                                                                     | 6.3V (1W)                                                 |                         | <b>28-2225-72</b>    |                                                                                       |                |
|                                                                                     | 12V (1.2W)                                                |                         | <b>28-2225-29</b>    |                                                                                       |                |
|                                                                                     | 24V (1.2W)                                                |                         | <b>28-2225-30</b>    |                                                                                       |                |
|                                                                                     | 28V (1.12W)                                               |                         | <b>28-2225-73</b>    |                                                                                       |                |
|                                                                                     | 50V (1W)                                                  |                         | <b>28-2225-31</b>    |                                                                                       |                |
|                                                                                     | 60V (1.2W)                                                |                         | <b>28-2225-32</b>    |                                                                                       |                |
|                                                                                     | 110V (2.2W)                                               |                         | <b>28-2225-24</b>    |                                                                                       |                |
|                                                                                     | <b>Neon type</b>                                          |                         |                      |                                                                                       |                |
|                                                                                     | 110V (0.8mA)                                              |                         | <b>28-2225-48</b>    |                                                                                       |                |
|                                                                                     | 240V (1.5mA)                                              |                         | <b>28-2225-49</b>    |                                                                                       |                |
|  | <b>Direct voltage unit (SBC)</b>                          |                         |                      |  |                |
|                                                                                     | Supplied without bulb. Suitable<br>for BA15d bayonet bulb | 6 to 240                | <b>91000T200N</b>    |                                                                                       | 0.11           |
|                                                                                     | <b>BA15d bulbs (filament type)</b>                        |                         |                      |                                                                                       |                |
|                                                                                     | 6 – 10 watt.                                              |                         | <b>28-2225-18</b>    |                                                                                       |                |
|                                                                                     | For use with 91000T200N                                   |                         | <b>28-2225-19</b>    |                                                                                       |                |
|                                                                                     |                                                           | 12                      | <b>28-2225-20</b>    |                                                                                       |                |
|                                                                                     |                                                           | 24                      | <b>28-2225-21</b>    |                                                                                       |                |
|                                                                                     |                                                           | 48                      | <b>28-2225-22</b>    |                                                                                       |                |
|                                                                                     |                                                           | 130                     | <b>28-2225-23</b>    |                                                                                       |                |
|                                                                                     |                                                           | 240                     | <b>28-2225-23</b>    |                                                                                       |                |

### Lenses

| Colour | Catalogue numbers<br>Plastic |                                                                                     | Glass             |                                                                                       |
|--------|------------------------------|-------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|
| Red    | <b>91000TC1N</b>             |  | <b>91000TC7N</b>  |  |
| Green  | <b>91000TC2N</b>             |                                                                                     | <b>91000TC8N</b>  |                                                                                       |
| Amber  | <b>91000TC19N</b>            |                                                                                     | <b>91000TC9N</b>  |                                                                                       |
| Blue   | <b>91000TC4N</b>             |                                                                                     | <b>91000TC10N</b> |                                                                                       |
| Clear  | <b>91000TC5N</b>             |                                                                                     | <b>91000TC11N</b> |                                                                                       |
| White  | <b>91000TC6N</b>             |                                                                                     | <b>91000TC12N</b> |                                                                                       |

### L.E.D.s

| Description                                 | Operating<br>voltage | Catalogue numbers<br>Red | Green             | Yellow            |
|---------------------------------------------|----------------------|--------------------------|-------------------|-------------------|
| Multi-cluster for long<br>life (50,000 hrs) | 8/9V ac/dc           | <b>28-2225-60</b>        | <b>28-2225-61</b> | <b>28-2225-62</b> |
|                                             | 12V ac/dc            | <b>28-2224-63</b>        | <b>28-2225-64</b> | <b>28-2225-65</b> |
| BA9s bayonet fitting                        | 24V ac/dc            | <b>28-2225-66</b>        | <b>28-2225-67</b> | <b>28-2225-68</b> |

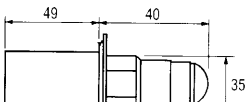
All LED's are suitable for light unit 91000T197N. 8/9V versions are also suitable for transformer type light units 91000T181N – 185N.

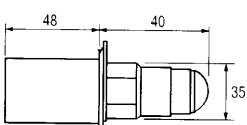
Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

Indicating Lights

Pretest indicating lights

Lamp units For replacement light bulbs see page 14.

|  | Description                                               | Supply volts<br>50/60Hz | Catalogue<br>numbers | Overall<br>dimensions (mm)                                                          | Weight<br>(kg) |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------|----------------------|-------------------------------------------------------------------------------------|----------------|
|                                                                                   | <b>Transformer type</b>                                   | 110/120                 | <b>91000T221N</b>    |  | 0.29           |
|                                                                                   | 6V 1W secondary                                           | 220/240                 | <b>91000T222N</b>    |                                                                                     | 0.29           |
|                                                                                   | BA9s bayonet bulb<br>underrated by 10%<br>for longer life | 380/415                 | <b>91000T223N</b>    |                                                                                     | 0.29           |

|                      |         |                   |                                                                                       |       |
|----------------------|---------|-------------------|---------------------------------------------------------------------------------------|-------|
| <b>Resistor type</b> | 110/120 | <b>91000T231N</b> |  | 0.185 |
| 120V 2.2W            | 220/240 | <b>91000T240N</b> |                                                                                       | 0.185 |
| BA9s bayonet bulb    |         |                   |                                                                                       |       |

|                                                     |              |                   |  |       |
|-----------------------------------------------------|--------------|-------------------|--|-------|
| <b>Direct voltage unit (MCC/MBC)</b>                |              |                   |  |       |
| Suitable for BA9s bayonet bulbs                     |              |                   |  |       |
|                                                     | 6 to 240     | <b>91000T230N</b> |  | 0.175 |
| <b>BA9s bayonet bulbs</b> (for use with 91000T230N) |              |                   |  |       |
| <b>Filament type</b>                                | 6.3V (1W)    | <b>28-2225-72</b> |  |       |
|                                                     | 12V (1.2W)   | <b>28-2225-29</b> |  |       |
|                                                     | 24V (1.2W)   | <b>28-2225-30</b> |  |       |
|                                                     | 50V (1W)     | <b>28-2225-31</b> |  |       |
|                                                     | 60V (1.2W)   | <b>28-2225-32</b> |  |       |
|                                                     | 110V (2.2W)  | <b>28-2225-24</b> |  |       |
| <b>Neon type</b>                                    | 110V (0.8mA) | <b>28-2225-48</b> |  |       |
|                                                     | 240V (1.5mA) | <b>28-2225-49</b> |  |       |

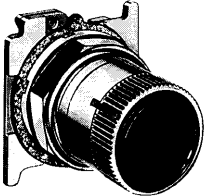
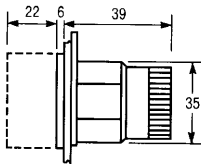
Lenses

|  | Colour | Catalogue numbers |                   |
|-------------------------------------------------------------------------------------|--------|-------------------|-------------------|
|                                                                                     |        | Plastic           | Glass             |
|                                                                                     | Red    | <b>91000TC21</b>  | <b>91000TC13N</b> |
|                                                                                     | Green  | <b>91000TC22</b>  | <b>91000TC14N</b> |
|                                                                                     | Amber  | <b>91000TC43</b>  | <b>91000TC15N</b> |
|                                                                                     | Blue   | <b>91000TC24</b>  | <b>91000TC16N</b> |
|                                                                                     | Clear  | <b>91000TC25</b>  | <b>91000TC17N</b> |

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Pushbutton Operators

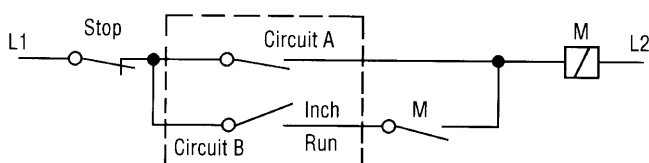
### Roto-push pushbutton (a combined selector switch and pushbutton)

| Description                                                                       | Button colour | Catalogue numbers |                     | Overall dimensions (mm)                                                             | Weight (kg) |
|-----------------------------------------------------------------------------------|---------------|-------------------|---------------------|-------------------------------------------------------------------------------------|-------------|
|                                                                                   |               | Vertical mounting | Horizontal mounting |                                                                                     |             |
|  | Black         | 91000T241*        | 91000T251*          |  | 0.128       |
|                                                                                   | Green         | 91000T243*        | 91000T253*          |                                                                                     | 0.128       |

\* Complete the catalogue number by adding the respective cam code number from the table below. Example: 91000T241**11** is a 2 position roto-push for use as shown below.

#### Typical application run-inch, start-inch

2 position roto-push 91000T24111 + 91000T1



With the roto-push sleeve turned to Inch depression of the push energises coil M through circuit A only so long as the push is pressed i.e. the motor will inch. With the roto-push sleeve turned to Run, the roto-push contact connected to the maintaining contact of M through circuit B is permanently closed, thus when the push is pressed (circuit A) M will close and maintain itself and the motor will run.

#### Cam selection chart showing contact sequence

O = contacts open, X = contacts closed. The catalogue number of the appropriate contact block is shown at extreme left of table.

| Catalogue number of contact block |               | Button position | Circuit + | 2 position operators |    |    |    |    |    |    |    | 3 position operators |     |     |
|-----------------------------------|---------------|-----------------|-----------|----------------------|----|----|----|----|----|----|----|----------------------|-----|-----|
| One hole mounting                 | Base mounting |                 |           | Cam code number      |    |    |    |    |    |    |    | 7                    | 8   | 9   |
|                                   |               |                 |           | 1                    | 2  | 3  | 4  | 5  | 6  | 10 | 11 |                      |     |     |
| 91000T1                           | 91000T6       | N               | A N.C.    | XX                   | XX | XO | XX | XX | XO | XX | XX | XXX                  | XOX | XOO |
|                                   |               | N               | B N.O.    | OO                   | OO | OX | OX | OX | OX | OX | OX | XXX                  | XOX | XOO |
|                                   |               | D               | A N.C.    | XO                   | XO | OO | OO | XO | XO | OX | OO | OXO                  | OOX | XOO |
|                                   |               | D               | B N.O.    | XO                   | XX | XX | XX | OX | XX | OX | OX | OXO                  | OXO | OXO |
| 91000T1§                          | 91000T6§      | N               | A N.O.    | OO                   | OO | OX | OO | OO | OX | OO | OO | OOO                  | OXO | OOX |
|                                   |               | N               | B N.C.    | XX                   | XX | XO | XO | XO | XO | XO | XO | XOO                  | XOX | XXO |
|                                   |               | D               | A N.O.    | OX                   | OX | XX | XX | OX | OX | XO | XX | XOX                  | XXO | OXO |
|                                   |               | D               | B N.C.    | OX                   | OO | OO | OO | XO | OO | XO | XO | XOO                  | XOO | XXO |
| 91000T2                           | 91000T7       | N               | A N.O.    | OO                   | OO | OX | OO | OO | OX | OO | OO | OOO                  | OXO | OOX |
|                                   |               | N               | B N.O.    | OO                   | OO | OX | OX | OX | OX | OX | OX | OXO                  | OXO | OOX |
|                                   |               | D               | A N.O.    | OX                   | OX | XX | XX | OX | OX | XO | XX | XOX                  | XXO | OXO |
|                                   |               | D               | B N.O.    | XO                   | XX | XX | XX | OX | XX | OX | OX | OXO                  | OXO | OXO |
| 91000T3                           | 91000T8       | N               | A N.C.    | XX                   | XX | XO | XX | XX | XO | XX | XX | XXX                  | XOX | XOO |
|                                   |               | N               | B N.C.    | XX                   | XX | XO | XO | XO | XO | XO | XO | XOO                  | XOX | XXO |
|                                   |               | D               | A N.C.    | XO                   | XO | OO | OO | XO | XO | OX | OO | OXO                  | OOX | XOO |
|                                   |               | D               | B N.C.    | OX                   | OO | OO | OO | XO | OO | XO | XO | XOO                  | XOO | XXO |

**Note:** Cam codes 6 & 7 are for ac use only.

† Each contact block contains two contact circuits. The top set of contacts is identified as 'circuit A' and the lower set as 'B'. The table shows contact arrangement of each contact block with the operating button in normal and depressed positions and in each rotary sleeve position. Additional combinations are obtainable by stacking contact blocks in tandem.

§ These contact blocks are the same as the ones above except rotated 180° when assembled to the operator.

**Switching angle:** 60°

N = Button in free or normal position

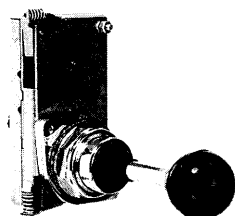
D = Button depressed

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

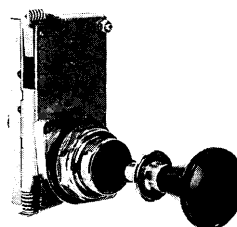
## Joystick Controllers

### Operators

Eight circuit  
Non-latched operator



Latched operator



- ☐ Supplied with 4 position gate fitted
- ☐ 3 additional gates supplied which allows conversion to 2, 3 or 8 positions. (T1030, T1050, T1020)
- ☐ Up to eight switching positions
- ☐ Up to twelve circuits.
- ☐ Each circuit N.O. or N.C. as required a.c. or d.c.

| Description                               | Catalogue numbers<br>Without latch: | With off position latch: |
|-------------------------------------------|-------------------------------------|--------------------------|
| Spring return only                        | 91000T450                           | 91000T460                |
| Field adjustable spring return to stayput | 91000T451                           | 91000T461                |

#### Contact blocks

| Description                    | Catalogue numbers |
|--------------------------------|-------------------|
| 1 N.O. – N.C.                  | 91000T1           |
| 2 N.O.                         | 91000T2           |
| 2 N.C.                         | 91000T3           |
| 1 N.O. 1N.C. make before break | 91000T55          |

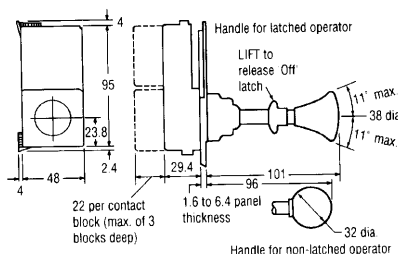
#### Legend plates

| Description | Catalogue numbers |
|-------------|-------------------|
| Blank       | 91000TJS1         |
| Engraved    | 91000TJS2         |
| Hole plug   | 91000TA700        |

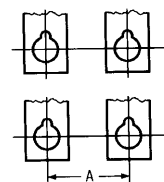
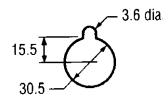
#### Positioning gate 91000T1010 is fitted as standard to each operator

The arrows shown in the 'Handle positions' column A indicates the handle positions and movements available when the indent mark on the gate is adjacent to the letter A on the handle assembly base casting. (No indent mark is provided on gates 91000T1010 and T1020).

#### Overall dimensions (mm)



#### Panel drilling dimensions (mm)



With controllers mounted adjacent to each other  
A = 101.6 B = 111.1  
With 91000T pushbuttons or indicating light mounted adjacent to joystick controller  
A = 60.3 B = 95.2

| Gate profile | Handle position |   |   |   | Catalogue numbers |
|--------------|-----------------|---|---|---|-------------------|
|              | A               | B | C | D |                   |

| Gate profile | Handle position |   |   |   | Catalogue numbers |
|--------------|-----------------|---|---|---|-------------------|
|              | A               | B | C | D |                   |

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Legend Plates

### Catalogue numbers



Medium



Large

| Legend        | Catalogue numbers |        | Legend         | Catalogue numbers |        | Legend            | Catalogue numbers |        |
|---------------|-------------------|--------|----------------|-------------------|--------|-------------------|-------------------|--------|
|               | Medium            | Large  |                | Medium            | Large  |                   | Medium            | Large  |
| Auto off hand | 91000T            | 91000T | Inch Run       | 91000T            | 91000T | Raise             | 91000T            | 91000T |
| (Blank)       | M49               | J49    | Inch Safe Run  | M41               | J41    | Raise Lower       | M28               | J28    |
| (Blank)§      | M36               | J36    | Jog            | M52               | J52    | Ready             | M76               | J76    |
| (Blank)       | M37               | J37    | Left           | M19               | J19    | Reset             | M78               | J78    |
| (Blank)§      | M95†              | J95†   | Left Right     | M73               | J73    | Reverse           | M29               | J29    |
| Close         | M96†              | J96†   | Local Off      | M74               | J74    | Right             | M30               | J30    |
| Down          | M11               | J11    | Remote         | M66               | J66    | Run               | M79               | J79    |
| Emerg Stop§   | M12               | J12    | Local Remote   | M63               | J63    | Run Inch          | M31               | J31    |
| Emergency     | M13               | –      | Low            | M22               | J22    | Safe Run          | M44               | J44    |
| Stop§         | –                 | J13    | Lower          | M23               | J23    | Seq. Test         | M45               | J45    |
| Fast          | M14               | J14    | Man Auto       | M27               | J27    | Slow              | M62               | J62    |
| For Off Rev   | M50               | J50    | Man Off Auto   | M67               | J67    | Slow Fast         | M32               | J32    |
| For Rev       | M38               | J38    | Motor Run      | M68               | J68    | Slow Off Fast     | M84               | J84    |
| Forward       | M38               | J38    | Motor Running  | M58               | J58    | Start             | M85               | J85    |
| Hand Auto     | M15               | J15    | Motor Stop§    | M56               | J56    | Start Inch        | M33               | J33    |
| Hand Off Auto | M39               | J39    | Motor Stopped  | M59               | J59    | Start Stop        | M46               | J46    |
| High          | M51               | J51    | O§             | M57               | J57    | Stop§             | M47               | J47    |
| High Low      | M16               | J16    | Off§           | M64               | J64    | Stop Reset§       | M34               | J34    |
| I             | M40               | J40    | Off On         | M24               | J24    | Stop (Turn barrel | M88               | J88    |
| In            | M65               | J65    | On             | M42               | J42    | to release)§      | M90               | –      |
| Inch          | M17               | J17    | Open           | M25               | J25    | Supply On         | M61               | J61    |
| Inch For      | M18               | J18    | Open Close     | M26               | J26    | Test              | M60               | J60    |
| Inch Forward  | M20               | –      | Open Off Close | M43               | J43    | Up                | M35               | J35    |
| Inch Rev      | –                 | J20    | Out            | M53               | J53    | Up Down           | M48               | J48    |
| Inch Reverse  | M21               | –      | Power On       | M27               | J27    | Up Off Down       | M54               | J54    |
|               | –                 | J21    |                | M55               | J55    |                   |                   |        |

The standard colour field is black, except for those legends marked § for which the standard colour is red. Legends marked thus † are of brass. All other legends are of aluminium.

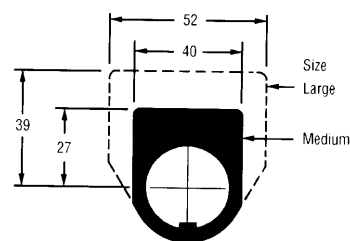
#### Non-standard legends

If a legend not quoted above is required, give the blank catalogue number for the size/colour and add the suffix 'X' to the code, indicating (e.g. by dashes not to be reproduced on the plate) the number of positions to be catered for, e.g. M36X JET-OFF-SPRAY (medium, black, 3-position).

The following table gives the maximum number of letters of a certain size which can be engraved on standard legend plates.

#### Dimensions (mm)

**Note:** Two large size legend plates cannot be mounted one above the other on standard enclosures.



| Type   | Letter size (mm) |                | 3.2          |                | 4.8          |                | 6.4          |                | 8            |                | 9.5          |                | 12.7         |                |
|--------|------------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|
|        | No. of lines     | No. of letters | No. of lines | No. of letters | No. of lines | No. of letters | No. of lines | No. of letters | No. of lines | No. of letters | No. of lines | No. of letters | No. of lines | No. of letters |
| Medium | 3                | 24             | 2            | 12             | 1            | 8              | 1            | 6              | 1            | 4              | 1            | 4              | –            | –              |
| Large  | 6                | 30             | 4            | 15             | 3            | 10             | 2            | 7              | 2            | 5              | 1            | 5              | 1            | 3              |

Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

Accessories

Catalogue numbers

|                                                                                   | Description                                                                                                      | Catalogue numbers |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------|
| Padlock attachments                                                               |                                                                                                                  |                   |
|  | Padlock attachment for stop button. Permits locking N.C. contacts in open position, prevents operation of button | 91000TA2          |
|  | Padlock attachment with hinged transparent flap, for flush or extended pushbuttons, and                          | 91000TA38         |

Boots

|                                                                                     |                                                                                                 |        |           |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------|-----------|
|  | Protective boot for flush pushbutton operators                                                  | Blue   | 91000TA46 |
|                                                                                     |                                                                                                 | Black  | 91000TA47 |
|                                                                                     |                                                                                                 | Red    | 91000TA48 |
|                                                                                     |                                                                                                 | Green  | 91000TA49 |
|                                                                                     |                                                                                                 | Yellow | 91000TA50 |
|  | Protective boot for mushroom and palm pushbutton operators. Not suitable for use with 91000T140 | Black  | 91000TA88 |
|  | Protective boot for extended pushbutton operators                                               | Black  | 91000TA3  |

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Accessories

### Catalogue numbers (continued)

#### Trip and reset attachment

| Description                                                                                                                                                                                                                                     | Catalogue number |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Trip and reset attachment. Use with two pushbutton operators and one or more contact blocks. The contact blocks are mounted under the reset or stop push which latches in the depressed position until released by depression of the trip push. | <b>91000TA1</b>  |



#### Replacement light bulbs \*

| Type                  | Voltage | Used on                                                   | Catalogue numbers |
|-----------------------|---------|-----------------------------------------------------------|-------------------|
| BA9s flasher filament | 6       | 91000T181N – 185N<br>91000T221N – 223N<br>91000T411 – 414 | <b>28-2225-26</b> |
| BA9s filament         | 6.3     | 91000T181N – 185N<br>91000T221N – 223N<br>91000T411 – 414 | <b>28-2225-72</b> |
| BA9s filament         | 110/120 | 91000T201N, T202N<br>91000T231N, T240N                    | <b>28-2225-24</b> |

\* **Note:** Replacement bulbs are for use with current series 'B' operators. For replacement bulbs for series 'A' (round bezelled) operators contact Cutler-Hammer.

#### Bulb removal tool

|                           |                  |
|---------------------------|------------------|
| BA9s and BA15d type bulbs | <b>91000TA65</b> |
|---------------------------|------------------|

#### Other accessories

| Description                                                                                                                                                                                                  | Catalogue numbers |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|  Wobble stick complete with locking ring for mounting on a flush pushbutton. Designed for emergency or hurried operation. | <b>91000TA5</b>   |
|  Plug for unused hole in cover. Finish in light grey (RAL 7032).                                                          | <b>91000TA7</b>   |
|  Protective washer, used as substitute when legend plate is not required. Prevents locking ring from scratching paint.    | <b>91000TA8</b>   |
|  Double ended box spanner for easy installation of control units on panel. (Will not fit over selector switch levers).    | <b>E22CW</b>      |

| Description                                                                                                                                                                 | Catalogue numbers                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
|  2 spare keys for special locks, state key 'H' code as suffix e.g. 91000TA151H620        | <b>91000TA151H*</b>              |
|  2 spare keys for standard lock ref. no. H661                                            | <b>91000TA152</b>                |
| 4BA stacking screws for series A operators                                                                                                                                  | <b>91000TA89</b><br>(pack of 10) |
| 6-32 stacking screws for series B operators                                                                                                                                 | <b>91000TA79</b><br>(pack of 10) |
|  Round bezel with 24 T.P.I. to convert octagonal style pushbutton operators to round     | <b>91000TA201</b>                |
|  Octagonal bezel with 26 T.P.I. to convert round style pushbutton operators to octagonal | <b>91000TA202</b>                |

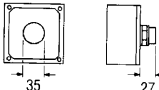
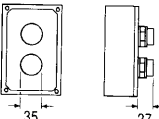
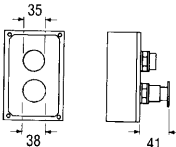
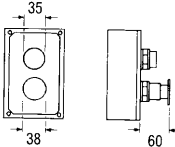
# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Pushbutton Stations

### Assembled pushbutton stations

#### Features and characteristics

- |                                                  |                                                                        |                                                                   |
|--------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------|
| <input type="checkbox"/> Oiltight stations       | <input type="checkbox"/> Surface mounted die-cast aluminium enclosures | <input type="checkbox"/> Powder coat painted light grey (RAL7032) |
| <input type="checkbox"/> IP65 ingress protection | <input type="checkbox"/> Threaded conduit entry                        |                                                                   |

| Description                                                                                                      | Operator                                  | Contact arrangement                | Catalogue numbers | Weight (kg) | Operator dimensions (mm)                                                              |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------|-------------------|-------------|---------------------------------------------------------------------------------------|
| <b>Single way station</b><br>   | Start                                     | N.O. – N.C.                        | <b>91000T3516</b> | 0.68        |    |
| <b>Two way stations</b><br>     | Start                                     | N.O. – N.C.                        | <b>91000T3525</b> | 0.98        |    |
|                                                                                                                  | Stop                                      | N.C.                               |                   |             |                                                                                       |
|                                                                                                                  | Start<br>Mushroom stop<br>(spring return) | N.O. – N.C.<br>N.C.                | <b>91000T3526</b> | 0.98        |   |
| <b>Three way stations</b><br> | Start<br>Mushroom stop<br>(auto latch)    | N.O. – N.C.<br>N.C.                | <b>91000T3630</b> | 0.98        |  |
|                                                                                                                  | Forward<br>Reverse<br>Stop                | N.O. – N.C.<br>N.O. – N.C.<br>N.C. | <b>91000T3532</b> | 1.2         |  |

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

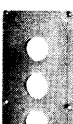
## Aluminium Alloy Enclosures

### Catalogue numbers

| Description<br>Painted light grey<br>(RAL7032) textured finish                    | Operator<br>capacity per<br>enclosure | Catalogue numbers<br>One contact<br>block deep: | Two contact<br>blocks deep: | Three contact<br>blocks deep: |
|-----------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------|-----------------------------|-------------------------------|
|  | 1                                     | 91000TN1                                        | 91000TN11                   | –                             |
|                                                                                   | 1†                                    | 91000TN100                                      | –                           | –                             |
|                                                                                   | 2                                     | 91000TN2                                        | 91000TN12                   | –                             |
|                                                                                   | 3                                     | 91000TN3                                        | 91000TN13                   | –                             |
|                                                                                   | 4                                     | 91000TN4                                        | 91000TN14                   | –                             |
|                                                                                   | 6                                     | –                                               | 91000TN15                   | –                             |
|                                                                                   | 9                                     | –                                               | 91000TN16                   | –                             |
|                                                                                   | 12                                    | –                                               | –                           | 91000TN17                     |
|                                                                                   | 16                                    | –                                               | –                           | 91000TN18                     |
|                                                                                   | 4 operator enclosure                  |                                                 |                             |                               |

† Enclosure has yellow lid

### Covers only

| Description                                                                        | No. of operators<br>per cover | Catalogue numbers<br>Flat plate | Raised plate |
|------------------------------------------------------------------------------------|-------------------------------|---------------------------------|--------------|
|  | 1                             | 91000TF1                        | 91000TF11    |
|                                                                                    | 2                             | 91000TF2                        | 91000TF12    |
|                                                                                    | 3                             | 91000TF3                        | 91000TF13    |
|                                                                                    | 4                             | 91000TF4                        | 91000TF14    |
|                                                                                    | 6                             | 91000TF5                        |              |

# Cutler-Hammer 30.5mm Pushbuttons – Type 91000T

## Technical Data

### Technical data

#### Standards and approvals

IEC 947-5-1, MTTA\*  
CSA C22-2 no. 14, UL508

#### Ingress protection (IP ratings to IEC144 (BS5420))

IP65  
IP66, NEMA 4 on pushbuttons when fitted with a rubber boot  
IP65 on enclosures

#### Max. frequency of operations

All pushbuttons: 6000 ops/hr.  
Key and lever selector switch: 3000 ops/hr.  
Auto-latch devices: 1200 ops/hr.

#### Mechanical life

Pushbuttons: 10 x 10<sup>6</sup> operations  
Contact blocks: 10 x 10<sup>6</sup> operations  
Pretest units: 1 x 10<sup>6</sup> operations  
Lever & key sel. sw.: 0.25 x 10<sup>6</sup> operations  
Twist to release p/btns: 0.3 x 10<sup>6</sup> operations

#### Climatic conditions

Operating: Max 60°C at 95% RH.  
Temp. -17°C to +66°C  
Altitude 2000 metres  
Storage: Max. 60°C at 95% RH.  
Temp. -40°C to +80°C

#### Shock resistance

Shock duration: 20 ms ≥ 5g

#### Electrical ratings

Rated insulation:  $U_i = 660V$  ac or dc  
Rated thermal:  $I_{th} = 10A$   
Short circuit (IEC947-5-1): 1000A with a 6A (NIT) fuse (to BS88)  
NEMA, UL rating: A600, P600  
AC load life duty cycle 1200 ops/hr  
10A 110V pf 0.4 - 1 x 10<sup>6</sup> operations  
5A 250V pf 0.4 - 1 x 10<sup>6</sup> operations  
2A 660V pf 0.4 - 1 x 10<sup>6</sup> operations

#### Switching capacity

AC15 rated make/break (11 x  $I_e$  at 1.1 x  $U_e$ )  
6A 120V pf 0.7  
4A 240V pf 0.7  
2A 660V pf 0.7  
DC13 rated make/break (1.1 x  $I_e$  at 1.1 x  $U_e$ )  
1.0A 120V L/R ≥ 0.95 at 300ms  
0.5A 240V L/R ≥ 0.95 at 300ms  
0.1A 660V L/R ≥ 0.95 at 300ms  
10A 110V pure resistive

#### Light units

Transformers will withstand short circuit for 1 hour per IEC947-5-1.  
Bulbs average life:  
Transformer type = 20,000 hrs.  
Resistor/direct voltage type = 2,500 hrs min. at rated voltage.

#### Low voltage switching

Conical shaped points or "reliability nibs" improve performance in dry circuit, corrosive, fine dust and other contaminated atmospheres. Under normal environmental conditions, the minimum operational voltage is 5V and the minimum operational current is 1mA, ac/dc.

#### Contact operation

Slow make and break. All normally closed contacts have positive opening operation. i.e. normally closed contacts are forced open in the event of contact weld or spring breakage.

#### Terminal marking

Dual marking system 1 – 2 for normally closed 3 – 4 normally open to meet BS5472 (Cenelec EN50 005) and N.C. – N.O. moulded in the contact block to meet the NEMA requirements.

#### Terminal clamps

Terminals are saddle clamp types for 1 x 0.5mm<sup>2</sup> to 2 x 3mm<sup>2</sup> conductors.

#### Panel thickness

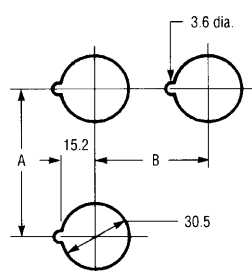
Maximum = 8mm including legend plate.  
Minimum = 1.6mm.

#### \*M.T.T.A. (Machine Tool, Trades Association)

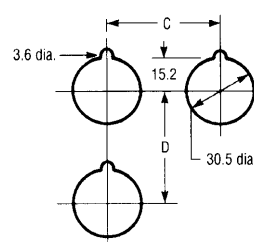
A range of pushbutton operators to meet the requirements of M.T.T.A. standard "Electrical Equipment of Machine tools and other industrial machines and equipment for the automobile industry" are included in the 91000T range.

#### Mounting matrix

| Legend plate | A  | B  | C  | D  |
|--------------|----|----|----|----|
| Medium       | 57 | 45 | 45 | 57 |
| Large        | 57 | 57 | 57 | 57 |



Horizontal mounting



Vertical mounting

Vertical mounting means terminals are left & right of contact block. Horizontal mounting means terminals are top & bottom of contact block. This allows close spacing of adjacent operators with easy access to terminals.