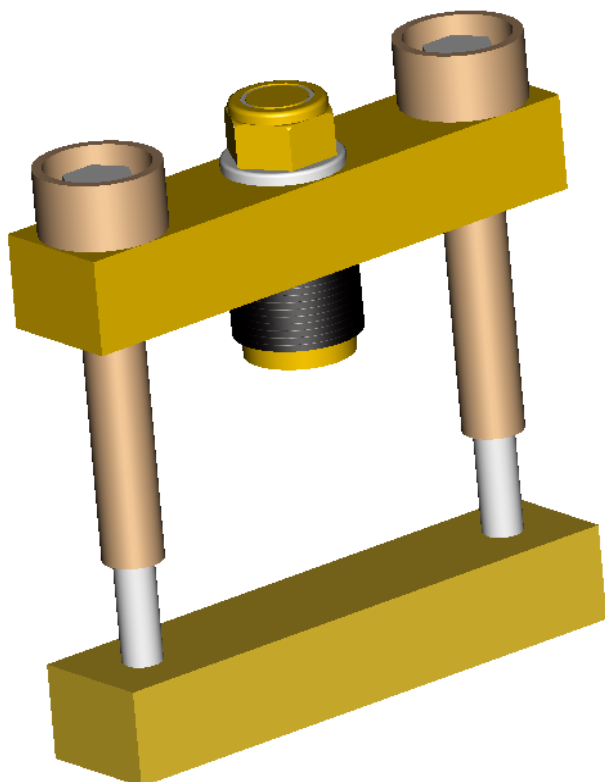




## GC89...F

### BAR CLAMP FOR HOCKEY PUK DEVICES

Clamping total thickness of assembly from

29mm to 128mm

Pre-loaded to the specific clamping

force (12 ÷ 24 kN)

Maximum device diameter: 76mm

Surface passivation to provide extra protection

Hexagon head bolt partially

threaded M8x1.25, UNI5737, 8.8 steel

Various lengths of bolts and insulators

Flat clamping head for optimal clamping

force application

Four styles available

User friendly clamping force indicator

UL94 certified insulation material

| Parameter                | Unit             | Types      | Testing conditions | Notes                       | Values |       |      |
|--------------------------|------------------|------------|--------------------|-----------------------------|--------|-------|------|
|                          |                  |            |                    |                             | Min    | Typ   | Max  |
| Weight                   | g                | GC89S...F  |                    |                             | 590    |       | 720  |
|                          |                  | GC89B...F  |                    |                             | 980    |       | 1150 |
| Clamping Force*          | kN               | GC89...12F |                    |                             |        | 12    |      |
|                          |                  | GC89...16F |                    |                             |        | 16    |      |
|                          |                  | GC89...20F |                    |                             |        | 20    |      |
|                          |                  | GC89...24F |                    |                             |        | 24    |      |
| Clamping Force tolerance |                  |            |                    |                             |        | ± 10% |      |
| Insulation Voltage       | V <sub>RMS</sub> |            | 1 min              |                             |        | 3000  |      |
| Insulating Material      |                  |            |                    | Noryl ® **                  |        |       |      |
| UL File                  |                  |            |                    | E121562                     |        |       |      |
| Max. working temperature | °C               |            |                    |                             | -30    |       | 110  |
| Creepage distance:       | mm               |            |                    |                             |        | 28    |      |
| Clearance distance:      | mm               |            |                    |                             |        | 20.3  |      |
| Storage temperature      | °C               |            |                    |                             | -40    |       | 110  |
| Flammability             | mm               |            |                    | UL94 V-1 Flame class rating |        | 1.5   |      |
|                          | mm               |            |                    | UL94 V-0 Flame class rating |        | 8.00  |      |
|                          | mm               |            |                    | CSA Flammability            |        | 1.00  |      |

\* Other clamping forces available: contact factory

\*\* Noryl ® is a registered trade mark of General Electric

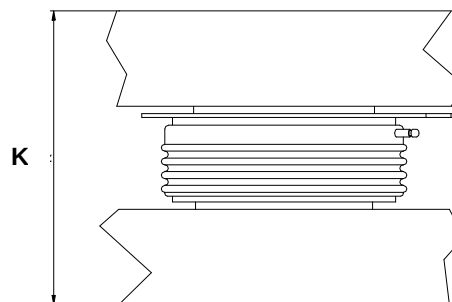


## ORDERING INFORMATION TABLE

Clamps can be ordered using the following part numbering system

| GC89 | B   | N   | B   | A   | 20  | F | S   |
|------|-----|-----|-----|-----|-----|---|-----|
|      | (1) | (2) | (3) | (4) | (5) |   | (6) |

|                             |                                                |
|-----------------------------|------------------------------------------------|
| (1) Construction type:      | B = with double bar<br>S = with single bar     |
| (2) Insulator position:     | N = upper side<br>R = lower side               |
| (3) Insulator code:         | see table below                                |
| (4) Bolt code:              | see table below                                |
| (5) Clamping force (in kN): | 12<br>16<br>20<br>24                           |
| (6) Special accessories     | blank = no accessories<br>S = extra bar spacer |



K: Total thickness of the assembly to be clamped

For thicknesses  $S'_{Min} < K < S_{Min}$  an additional 4mm thick bar spacer is needed (see list of special accessories)

### Type GC89BN...F: suggested insulator/bolt types

| Allowed clearance S |                |                | Insulator choice |                  | Bolt choice |                  | Max height |
|---------------------|----------------|----------------|------------------|------------------|-------------|------------------|------------|
| $S'_{Min}$ [mm]**   | $S_{Min}$ [mm] | $S_{Max}$ [mm] | (3)              | Ins. Length [mm] | (4)         | Bolt Length [mm] | T [mm]     |
| 29                  | 33             | 48             | A                | 50               | Z           | 100              | 117        |
| 39                  | 43             | 58             | B                | 70               | A           | 110              | 127        |
| 49                  | 53             | 68             | B                | 70               | B           | 120              | 137        |
| 59                  | 63             | 78             | C                | 95               | C           | 130              | 147        |
| 69                  | 73             | 88             | C                | 95               | D           | 140              | 157        |
| 79                  | 83             | 98             | C                | 95               | E           | 150              | 167        |
| 89                  | 93             | 108            | D                | 120              | F           | 160              | 177        |

\*\* with additional bar spacer only

### Type GC89BR...F: suggested insulator/bolt types

| Allowed clearance S |                |                | Insulator choice |                  | Bolt choice |                  | Max height |
|---------------------|----------------|----------------|------------------|------------------|-------------|------------------|------------|
| $S'_{Min}$ [mm]**   | $S_{Min}$ [mm] | $S_{Max}$ [mm] | (3)              | Ins. Length [mm] | (4)         | Bolt Length [mm] | T [mm]     |
| 29                  | 33             | 48             | A                | 50               | Z           | 100              | 129        |
| 39                  | 43             | 58             | A                | 50               | A           | 110              | 139        |
| 49                  | 53             | 68             | B                | 70               | B           | 120              | 149        |
| 59                  | 63             | 78             | B                | 70               | C           | 130              | 159        |
| 69                  | 73             | 88             | B                | 70               | D           | 140              | 169        |
| 79                  | 83             | 98             | C                | 95               | E           | 150              | 179        |
| 89                  | 93             | 108            | C                | 95               | F           | 160              | 189        |

\*\* with additional bar spacer only

### Type GC89SN...F: suggested insulator/bolt types

| Allowed clearance S |                |                | Insulator choice |                  | Bolt choice |                  | Max height |
|---------------------|----------------|----------------|------------------|------------------|-------------|------------------|------------|
| $S'_{Min}$ [mm]**   | $S_{Min}$ [mm] | $S_{Max}$ [mm] | (3)              | Ins. Length [mm] | (4)         | Bolt Length [mm] | T [mm]     |
| 29                  | 33             | 48             | A                | 50               | Z           | 100              | 110        |
| 39                  | 43             | 58             | B                | 70               | A           | 110              | 120        |
| 49                  | 53             | 68             | B                | 70               | B           | 120              | 130        |
| 59                  | 63             | 78             | C                | 95               | C           | 130              | 140        |
| 69                  | 73             | 88             | C                | 95               | D           | 140              | 150        |
| 79                  | 83             | 98             | C                | 95               | E           | 150              | 160        |
| 89                  | 93             | 108            | D                | 120              | F           | 160              | 170        |

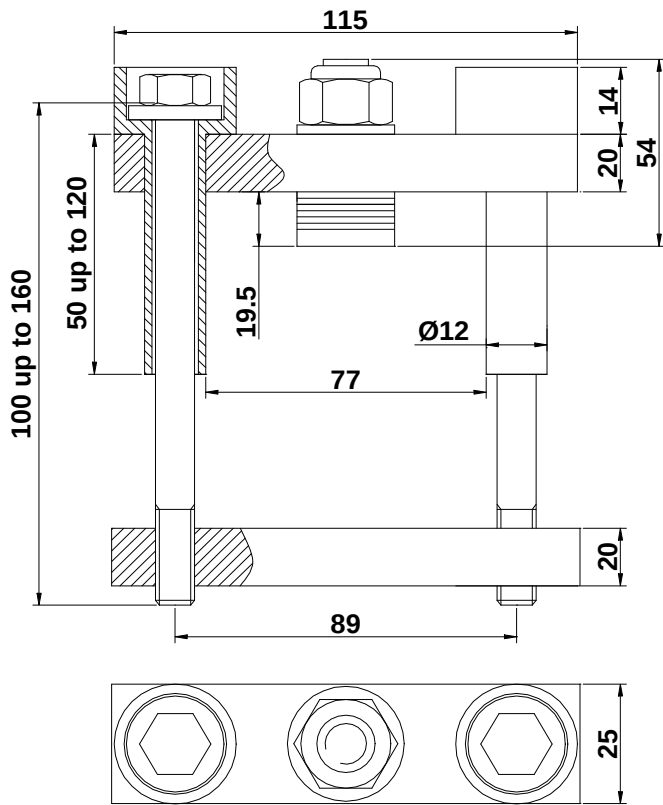
\*\* with additional bar spacer only

### Type GC89SR...F: suggested insulator/bolt types

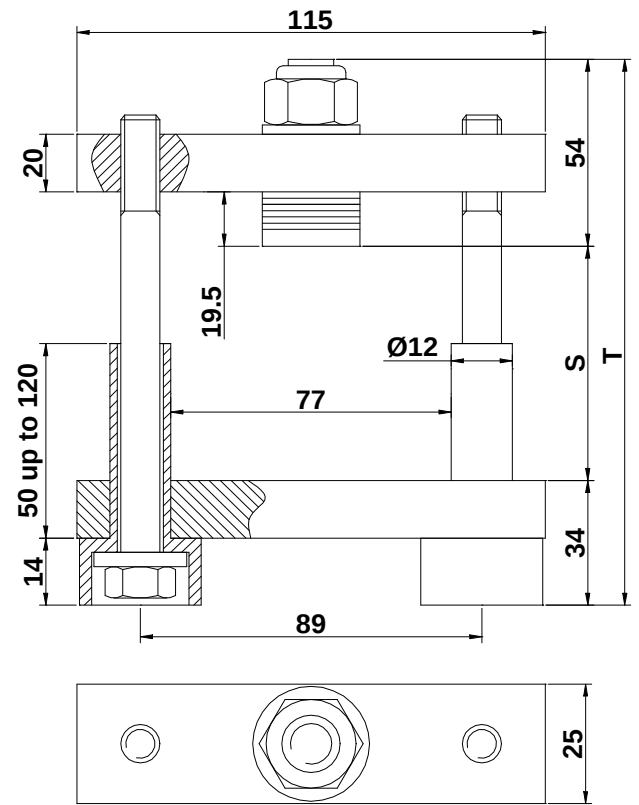
| Allowed clearance S |                |                | Insulator choice |                  | Bolt choice |                  | Max height |
|---------------------|----------------|----------------|------------------|------------------|-------------|------------------|------------|
| $S'_{Min}$ [mm]**   | $S_{Min}$ [mm] | $S_{Max}$ [mm] | (3)              | Ins. Length [mm] | (4)         | Bolt Length [mm] | T [mm]     |
| 49                  | 53             | 68             | B                | 70               | Z           | 100              | 129        |
| 59                  | 63             | 78             | B                | 70               | A           | 110              | 139        |
| 69                  | 73             | 88             | B                | 70               | B           | 120              | 149        |
| 79                  | 83             | 98             | C                | 95               | C           | 130              | 159        |
| 89                  | 93             | 108            | C                | 95               | D           | 140              | 169        |
| 99                  | 103            | 118            | D                | 120              | E           | 150              | 179        |
| 109                 | 113            | 128            | D                | 120              | F           | 160              | 189        |

\*\* with additional bar spacer only

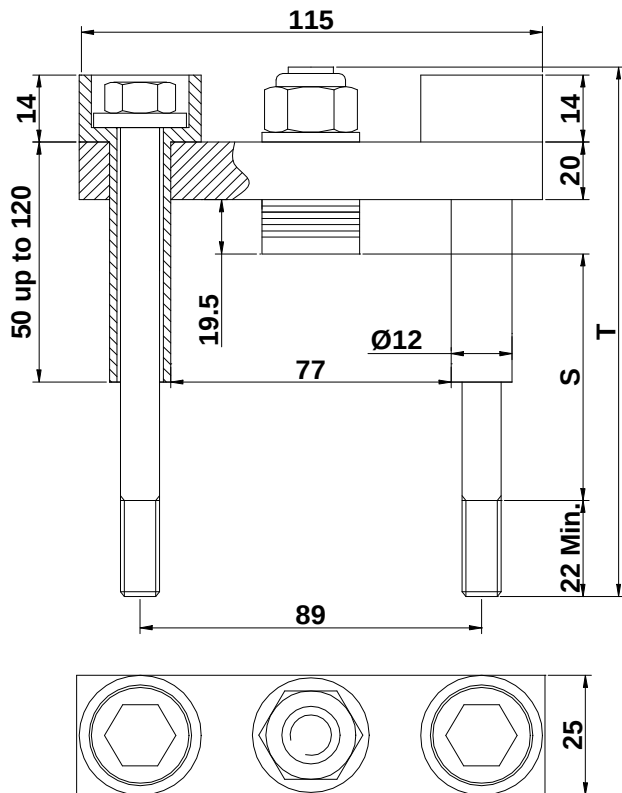
## BAR CLAMP OUTLINES



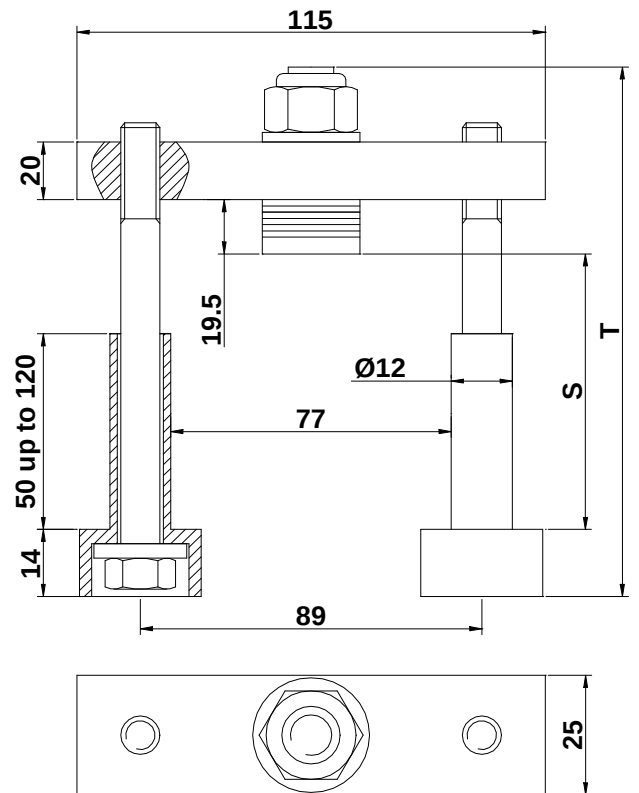
**GC89BN...F**



**GC89BR...F**

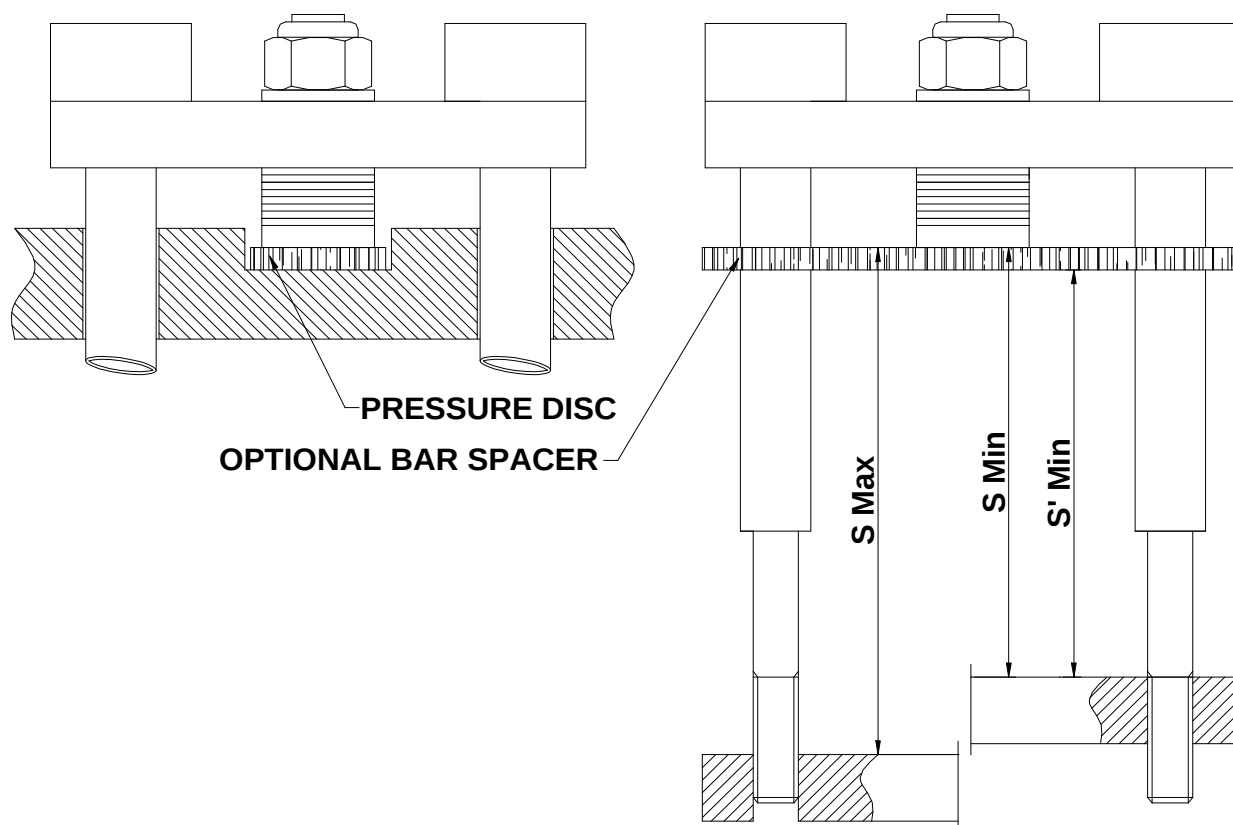


**GC89SN...F**



**GC89SR...F**

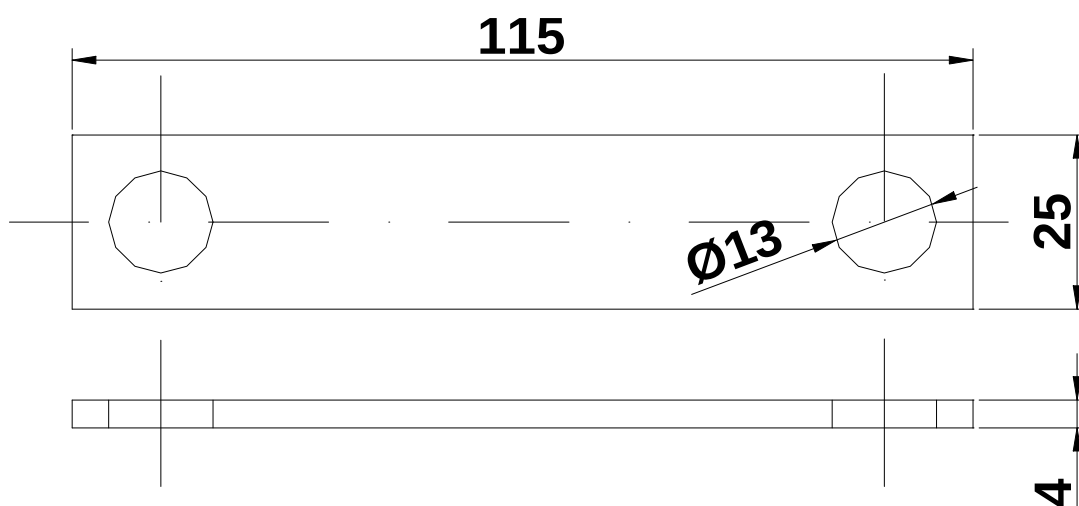
Dimensions in mm - Tolerances according to ISO 2768 MK



## SPECIAL ACCESSORIES

The following special accessories are available on request (see ordering information table)

### Bar spacer



Dimensions in mm - Tolerances according to ISO 2768 MK

In the interest of product improvement Green Power Solutions reserves the right to change any specification given in this data sheet without notice.