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*Your Fastening Need Companion*

**ISO 9001:2015 Certified Company**

# SELF CLINCHING FASTENERS CATALOGUE -2023

**www.kbfasteners.in**

# KB Self-Clinch Fasteners

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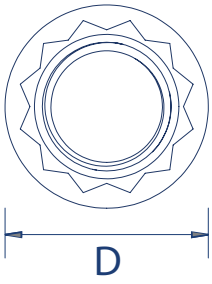
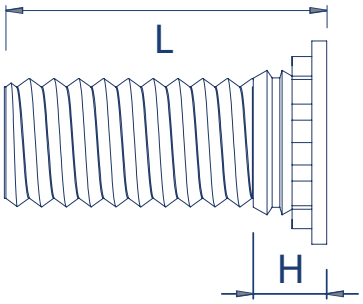
# Flush Head Studs
## KB-FH/KB-FHS/KB-FH4/KB-FHA

Zinc Plated Steel: KB-FH | Stainless Steel: KB-FHS | 400 Series Stainless Steel: KB-FH4 | Aluminium: KB-FHA



## Metric Dimensions

| Thread | M2 | M2.5 | M3 | M3.5 | M4 | M5 | M6 | M8 |
|---|---|---|---|---|---|---|---|---|
| D ±0.4 | 3.5 | 4.1 | 4.6 | 5.3 | 5.9 | 6.5 | 8.2 | 9.6 |
| H maximum | 1.95 | 1.95 | 2.1 | 2.2 | 2.4 | 2.7 | 3.0 | 3.7 |
| Minimum sheet thickness | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.6 | 2.4 |
| Recommended hole size +0.08 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 5.0 | 6.0 | 8.0 |
| Minimum distance to edge of sheet | 5.2 | 5.4 | 5.6 | 6.4 | 7.2 | 7.2 | 7.9 | 9.6 |

## Preferred Range

| Thread | | M2 | M2.5 | M3 | M3.5 | M4 | M5 | M6 | M8 |
|---|---|---|---|---|---|---|---|---|---|
| (L) Length ±0.4 | 5 | | | • | | • | | | |
| | 6 | • | • | • | | • | • | | |
| | 8 | • | • | • | • | • | • | • | • |
| | 10 | • | • | • | • | • | • | • | • |
| | 12 | • | • | • | • | • | • | • | • |
| | 15 | • | • | • | • | • | • | • | • |
| | 16 | • | | • | • | • | • | • | • |
| | 18 | • | • | • | | • | • | • | • |
| | 20 | • | • | • | • | • | • | • | • |
| | 22 | | | • | | • | • | • | • |
| | 25 | | | • | • | • | • | • | • |
| | 28 | | | | | • | • | • | • |
| | 30 | | | • | | • | • | • | • |
| | 35 | | | • | | • | • | • | • |
| | 38 | | | | | • | • | • | • |
| | 40 | | | | | • | • | • | • |
| | 45 | | | | | • | • | • | • |
| | 50 | | | | | • | • | • | • |

# Flush Head Studs

KB-FH/KB-FHS/KB-FH4/KB-FHA

## Metric Performance Data: KB-FH4

| Thread | M2.5 | M3 | M4 | M5 | M6 | M8 |
|---|---|---|---|---|---|---|
| Test sheet material | Stainless Steel-400 | | | | | |
| Sheet thickness | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 |
| Installation (kN) | 40.0 | 41.0 | 51.0 | 54.0 | 71.0 | 73.5 |
| Pushout (N) | 2000 | 2230 | 3300 | 3600 | 4210 | 5500 |
| Torque-out (Nm) | 14 | 1.8 | 6.6 | 10.8 | 15.9 | 30.0 |
| Pull through (N) | - | 3300 | 8010 | 10020 | 14950 | - |

## Metric Performance Data: KB-FHS

| Thread | M2 | M2.5 | M3 | M4 | M5 | M6 | M8 |
|---|---|---|---|---|---|---|---|
| Test sheet material | Stainless Steel | | | | | | |
| Sheet thickness | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 | 2.5 |
| Installation (kN) | 13.5 | 13.5 | 14.7 | 26.0 | 32.0 | 44.0 | 49.9 |
| Torsional resistance (Nm) | 0.45 | 0.8 | 1.4 | 2.9 | 6.4 | 10.0 | 17.0 |
| Pushout (N) | 740 | 740 | 820 | 1790 | 2000 | 2500 | 2800 |
| Pull through (N) | - | 1800 | 2450 | 4800 | 6000 | 10600 | 13600 |

## Metric Performance Data: KB-FH

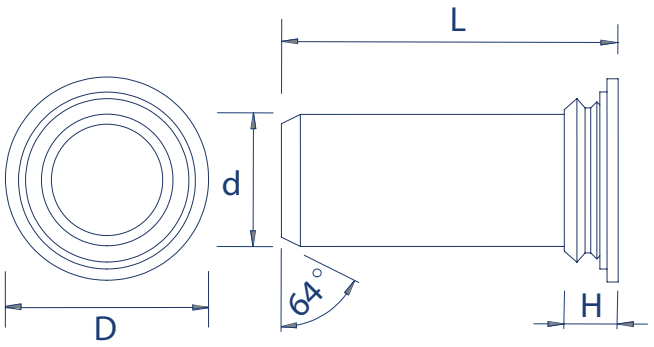
| Thread | M2 | M2.5 | M3 | M3.5 | M4 | M5 | M6 | M8 |
|---|---|---|---|---|---|---|---|---|
| Test sheet material | Steel | | | | | | | |
| Sheet thickness | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 | 2.5 |
| Installation (kN) | 9.0 | 11.0 | 14.7 | 22.3 | 28.0 | 33.5 | 45.0 | 45.0 |
| Torsional resistance (Nm) | 0.45 | 1.0 | 1.7 | 2.8 | 4.3 | 6.8 | 12.0 | 19.5 |
| Pushout (N) | 700 | 740 | 820 | 1335 | 1800 | 2100 | 2600 | 2900 |
| Pull through (N) | 1700 | 2800 | 3900 | 3780 | 5700 | 6300 | 11400 | 15500 |

KB-FH - Recommended for use in sheet hardness: HRB 80 or less
KB-FHS- Recommended for use in sheet hardness: HRB 70 or less
KB-FH4 - Recommended for use in sheet hardness: HRB 92 or less
KB-FHA- Recommended for use in sheet hardness: HRB 50 or less

# Flush Head Pins

KB-TP/KB-TPS/KB-TP4

## Zinc Plated Steel: KB-TP | Stainless Steel: KB-TPS | 400 Series Stainless Steel: KB-TP4



## Metric Dimensions

| (d) Pin diameter ±0.05 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|
| Minimum sheet thickness | 1.0 | | | |
| Recommended hole size | 3.5 | 4.5 | 5.5 | 6.5 |
| D ±0.4 | 5.20 | 6.12 | 7.19 | 8.13 |
| H maximum | 2.29 | 2.29 | 2.29 | 2.29 |
| Minimum distance to edge of sheet | 6.4 | 7.1 | 7.61 | 7.9 |

## Preferred Range

| Pin diameter ±0.05 | | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| (L) Length ±0.4 | 3 | • | | | |
| | 4 | • | | | |
| | 6 | • | • | | |
| | 8 | • | • | • | |
| | 10 | • | • | • | • |
| | 12 | • | • | • | • |
| | 16 | • | • | • | • |
| | 20 | | • | • | • |

## Metric Performance Data: KB-TP

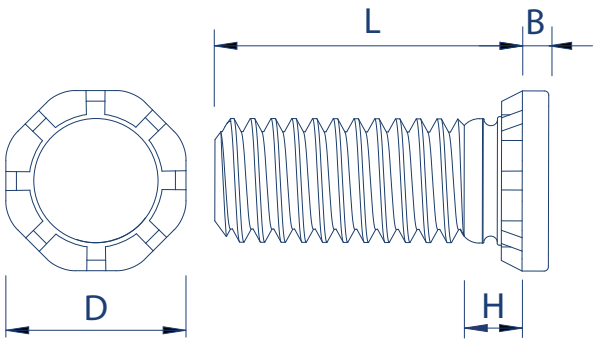
| Pin diameter | 3 | 4 | 5 | 6 |
|---|---|---|---|---|
| Test sheet material | Steel | | | |
| Installation (kN) | 23 | 27 | 35 | 40 |
| Pushout (kN) | 1 | 1.6 | 1.8 | 2.2 |

KB-TP - Recommended for use in sheet hardness: HRB 80 or less
KB-TPS - Recommended for use in sheet hardness: HRB 70 or less
KB-TP4 - Recommended for use in sheet hardness: HRB 92 or less

# High Strength Studs

KB-HFH/KB-HFHS

## Zinc Plated Steel: KB-HFH | Stainless Steel: KB-HFHS



## Metric Dimensions

| Thread | M5 | M6 | M8 | M10 |
|---|---|---|---|---|
| D ±0.25 | 7.8 | 9.4 | 12.5 | 15.7 |
| H maximum | 2.7 | 2.8 | 3.5 | 4.1 |
| B maximum | 1.14 | 1.27 | 1.78 | 2.29 |
| Minimum sheet thickness | 1.3 | 1.5 | 2.0 | 2.3 |
| Recommended hole size +0.13 | 5.0 | 6.0 | 8.0 | 10.0 |
| Minimum distance to edge of sheet | 10.7 | 11.5 | 12.7 | 13.7 |

## Preferred Range

| Thread | | M5 | M6 | M8 | M10 |
|---|---|---|---|---|---|
| (L) Length ±0.4 | 10 | | • | | |
| | 12 | • | • | • | |
| | 15 | • | • | • | • |
| | 16 | | | • | |
| | 18 | | | • | |
| | 20 | • | • | • | • |
| | 25 | | • | • | • |
| | 30 | • | • | • | • |
| | 35 | | • | • | • |
| | 40 | | • | • | • |
| | 45 | | | | |
| | 50 | | | • | • |

# High Strength Studs
KB-HFH/KB-HFHS

## Metric Performance Data: KB-HFH

| Thread | | M5 | M6 | M8 | M10 |
|---|---|---|---|---|---|
| Test sheet thickness | Aluminium | 1.5 | 1.5 | 2.3 | 2.4 |
| | Steel | | | | |
| Test sheet hardness (HRB) | Aluminium | 15 | 43 | 39 | 39 |
| | Steel | 65 | 59 | 58 | 58 |
| Installation (kN) | Aluminium | 14 | 30 | 36 | 41 |
| | Steel | 27 | 34 | 45 | 55 |
| Pushout (N) | Aluminium | 805 | 1280 | 1750 | 2450 |
| | Steel | 1550 | 1780 | 2210 | 3475 |
| Torque-out (Nm) | Aluminium | 5.4 | 14.5 | 30.1 | 36 |
| | Steel | 7.7 | 14.5 | 30.1 | 49.5 |

## Metric Performance Data: KB-HFHS

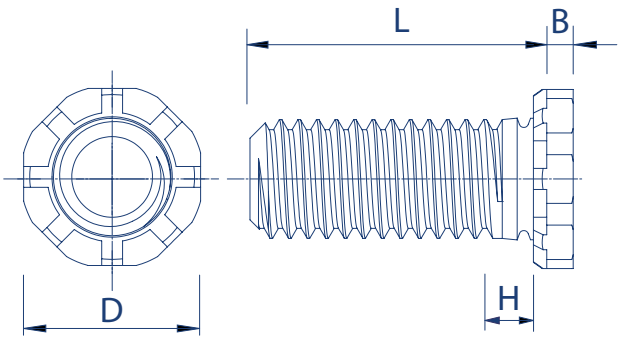
| Thread | | M5 | M6 | M8 | M10 |
|---|---|---|---|---|---|
| Test sheet thickness | Aluminium | 1.62 | 1.62 | 2.23 | 2.3 |
| | Steel | 1.5 | 1.6 | 2.48 | 2.3 |
| Test sheet hardness (HRB) | Aluminium | 35 | 35 | 44 | 44 |
| | Steel | 54 | 45 | 43 | 44 |
| Installation (kN) | Aluminium | 13 | 15.5 | 24.5 | 34 |
| | Steel | 22.5 | 25 | 38 | 47 |
| Pushout (N) | Aluminium | 805 | 1280 | 1700 | 2450 |
| | Steel | 1505 | 1780 | 2200 | 3500 |
| Torque-out (Nm) | Aluminium | 5.4 | 11.5 | 21 | 36.5 |
| | Steel | 6.5 | 11.5 | 21 | 36.5 |

KB-HFH - Recommended for use in sheet hardness: HRB 85 or less
KB-HFHS - Recommended for use in sheet hardness: HRB 70 or less

# High Strength Studs for Thin Sheets

KB-HFE

## Zinc Plated Steel: KB-HFE



## Metric Dimensions

| Thread | M5 | M6 | M8 |
|---|---|---|---|
| D ±0.25 | 9.60 | 11.35 | 15.30 |
| H maximum | 2.60 | 2.80 | 3.30 |
| B maximum | 1.35 | 1.52 | 2.13 |
| Minimum sheet thickness | 1.0 | 1.0 | 1.5 |
| Recommended Hole Size +0.13 | 5.0 | 6.0 | 8.0 |
| Minimum distance to edge of sheet | 10.00 | 11.50 | 14.50 |

## Preferred Range

| Thread | | M5 | M6 | M8 |
|---|---|---|---|---|
| (L) Length ±0.4 | 8 | • | | |
| | 15 | • | • | • |
| | 18 | | • | |
| | 20 | • | • | • |
| | 25 | | • | • |
| | 30 | | • | • |
| | 35 | | | • |
| | 40 | | | • |
| | 50 | | | • |

# High Strength Studs for Thin Sheets
KB-HFE

## Metric Performance Data: KB-HFE

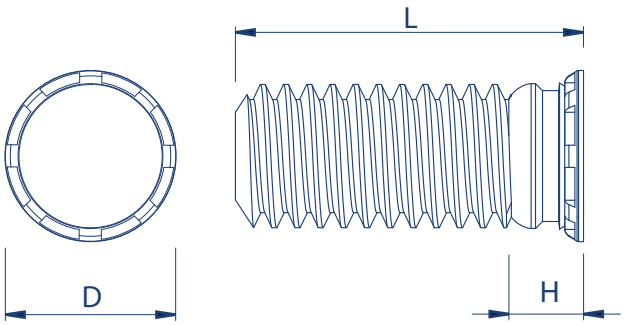
| Thread | M5 | M6 | M8 |
|---|---|---|---|
| Test sheet material | | Steel | |
| Test sheet thickness | 1.00 | 1.00 | 1.50 |
| Maximum nut tightening torque (Nm) | 4.40 | 10.00 | 21.70 |
| Installation (kN) | 51.10 | 60.00 | 71.10 |
| Pushout (N) | 1350 | 1400 | 2400 |
| Torque-out (Nm) | 8.10 | 14.40 | 33.90 |
| Tensile strength (kN) | 12.80 | 18.10 | 32.90 |
| Pull through (kN) | 10.60 | 15.50 | 27.50 |
| Bushing hole size for pull through (mm) | 7.40 | 8.20 | 10.30 |

KB-HFE - Recommended for use in sheet hardness: HRB 85 or less

# Low Displacement Flush Head Studs

KB-FHL/KB-FHLS

## Zinc Plated Steel: KB-FHL | Stainless Steel: KB-FHLS



## Metric Dimensions

| Thread | M2.5 | M3 | M4 | M5 |
|---|---|---|---|---|
| D ±0.4 | 3.15 | 3.65 | 4.65 | 5.9 |
| H maximum | 2.1 | 2.1 | 2.4 | 2.7 |
| Minimum sheet thickness | 1.0 | | | |
| Recommended hole size +0.08 | 2.5 | 3.0 | 4.0 | 5.0 |
| Minimum distance to edge of sheet | 2.8 | 3.3 | 4.3 | 5.6 |

## Preferred Range

| Thread | | M2.5 | M3 | M4 | M5 |
|---|---|---|---|---|---|
| (L) Length ±0.4 | 6 | • | • | • | • |
| | 8 | • | • | • | • |
| | 10 | • | • | • | • |
| | 12 | • | • | • | • |
| | 15 | • | • | • | • |
| | 18 | • | • | • | • |
| | 20 | | • | • | • |
| | 25 | | • | | • |
| | 30 | | | • | |

# Low Displacement Flush Head Studs
KB-FHL/KB-FHLS

## Metric Performance Data: KB-FHL/KB-FHLS

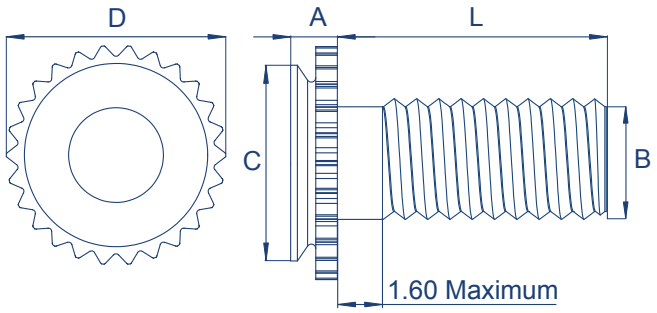
| Thread | | M2.5 | M3 | M4 | M5 |
|---|---|---|---|---|---|
| Test material sheet thickness | Aluminium | 1.2 | 1.2 | 1.2 | 1.2 |
| | Steel | 1.1 | 1.1 | 1.1 | 1.1 |
| Installation (kN) | Aluminium | 3.2 | 4.5 | 5.4 | 11.1 |
| | Steel | 5.4 | 5.4 | 6.7 | 20.1 |
| Pushout (N) | Aluminium | 286 | 286 | 370 | 535 |
| | Steel | 451 | 476 | 555 | 1010 |
| Torque-out (Nm) | Aluminium | 0.56 | 0.66 | 1.2 | 2.2 |
| | Steel | 1.2 | 1.3 | 2.2 | 4.5 |
| Pull through (N) | Aluminium | 1250 | 1300 | 1560 | 1900 |
| | Steel | 2290 | 2550 | 3350 | 3760 |

KB-FHL - Recommended for use in sheet hardness: HRB 80 or less
KB-FHLS - Recommended for use in sheet hardness: HRB 70 or less

# Concealed Head Studs

KB-CHC/KB-CFHC/KB-CHA/KB-CFHA

## Stainless Steel: KB-CHC/KB-CFHC | Aluminium: KB-CHA/KB-CFHA



## Metric Dimensions

| Thread | | M3 | M4 | M5 |
|---|---|---|---|---|
| D ±0.4 | | 5.21 | 8.33 | 8.89 |
| C maximum | | 4.35 | 7.35 | 7.9 |
| Blind mounting hole ±0.08 | | 4.37 | 7.37 | 7.93 |
| Minimum distance to edge of sheet | | 4.0 | 5.6 | 6.4 |
| Hole in mating part +0.08 | | 3.6 | 4.6 | 5.6 |
| Hole depth | KB-CHC / KB-CHA | 1.10 | | |
| | KB-CFHC / KB-CFHA | 1.91 | | |
| A maximum | KB-CHC / KB-CHA | 1.04 | | |
| | KB-CFHC / KB-CFHA | 1.80 | | |
| Minimum sheet thickness | KB-CHC / KB-CHA | 1.60 | | |
| | KB-CFHC / KB-CFHA | 2.40 | | |

## Preferred Range

| Thread | | M3 | M4 | M5 |
|---|---|---|---|---|
| (L) Length ±0.4 | 6 | • | • | |
| | 8 | • | • | |
| | 10 | • | • | |
| | 12 | • | • | • |
| | 16 | • | • | • |
| | 20 | • | • | |
| | 25 | • | | |

# Concealed Head Studs

KB-CHC/KB-CFHC/KB-CHA/KB-CFHA

## Metric Performance Data: KB-CHC/KB-CFHC/KB-CHA/KB-CFHA

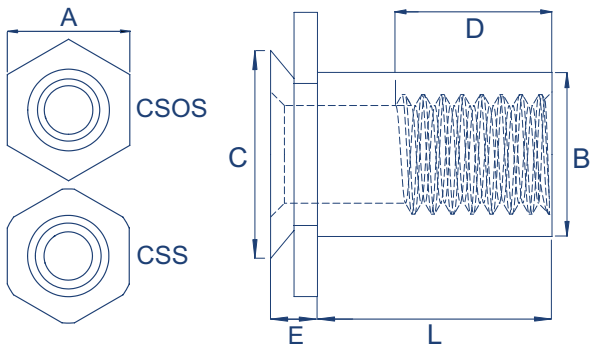
| Thread | | M3 | M4 | M5 |
|---|---|---|---|---|
| Installation (kN) | Stainless steel: KB-CHC | 8.0 | 17.8 | 22.2 |
| | Stainless steel: KB-CFHC | 8.9 | 14.7 | 17.8 |
| | Aluminium: KB-CHA | 6.2 | 12.5 | 17.8 |
| | Aluminium: KB-CFHA | 6.7 | 13.3 | 15.6 |
| Pushout (N) | Stainless steel: KB-CHC | 1065 | 1200 | 1290 |
| | Stainless steel: KB-CFHC | 1065 | 1955 | 3020 |
| | Aluminium: KB-CHA | 555 | 645 | 755 |
| | Aluminium: KB-CFHA | 845 | 1065 | 1330 |
| Maximum tightening torque | Stainless steel: KB-CHC | 0.5 | 2.0 | 3.6 |
| | Stainless steel: KB-CFHC | 0.5 | 2.0 | 3.6 |
| | Aluminium: KB-CHA | 0.3 | 1.2 | 2.16 |
| | Aluminium: KB-CFHA | 0.3 | 1.2 | 2.16 |

KB-CHC/CFHC - Recommended for use in sheet hardness: HRB 70 or less
KB-CHA/CFHA - Recommended for use in sheet hardness: HRB 50 or less

# Concealed Head Standoffs

KB-CSOS/KB-CSS

## Stainless Steel: KB-CSOS/KB-CSS



## Metric Dimensions

| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| A | | 6.35 | 8.73 | 9.53 | 11.11 |
| D | | 5.0 | 6.5 | 9.6 | 9.6 |
| B | | 4.2 | 6.23 | 7.37 | 9.0 |
| C | | 5.39 | 7.9 | 8.72 | 9.89 |
| Blind mounting hole ±0.8 | | 5.41 | 7.92 | 8.74 | 9.9 |
| Minimum distance to edge of sheet | | 4.8 | 6.4 | 7.2 | 9.5 |
| Hole in mating part +0.08 | | 5.41 | 7.92 | 8.73 | 9.9 |
| Hole depth | KB-CSOS | 1.91 | 1.91 | 1.91 | 1.91 |
| | KB-CSS | 1.09 | 1.09 | 1.09 | - |
| E Minimum depth of blind hole | KB-CSOS | 1.83 | 1.83 | 1.83 | 1.83 |
| | KB-CSS | 1.04 | 1.04 | 1.04 | - |
| Minimum sheet thickness | KB-CSOS | 2.4 | 2.4 | 2.4 | 2.4 |
| | KB-CSS | 1.6 | 1.6 | 1.6 | - |

## Preferred Range

| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| (L) Length ±0.4 | 4 | • | | | |
| | 6 | • | • | | |
| | 8 | • | • | | |
| | 10 | • | | | |
| | 12 | • | | | |
| | 16 | • | | | |
| | 20 | • | | | |

# Concealed Head Standoffs
KB-CSOS/KB-CSS

## Metric Performance Data: KB-CSOS/KB-CSS

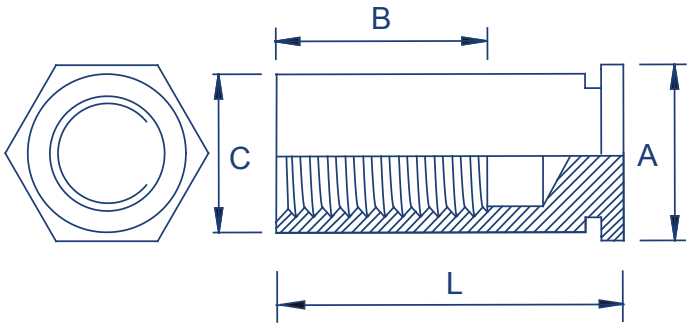
| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| Installation (kN) | Stainless steel: KB-CSS | 17.8 | 21.3 | 24.5 | - |
| | Stainless steel: KB-CSOS | 19.2 | 23.6 | 26.7 | 28.9 |
| Pushout (N) | Stainless steel: KB-CSS | 1330 | 1775 | 2000 | - |
| | Stainless steel: KB-CSOS | 1465 | 1955 | 2665 | 2860 |
| Maximum tightening torque | Stainless steel: KB-CSS | 0.55 | 2.0 | 3.6 | - |
| | Stainless steel: KB-CSOS | 0.44 | 1.6 | 2.9 | 7.2 |

KB-CSOS/CSS - Recommended for use in sheet hardness: HRB 70 or less

# Blind Standoffs

KB-BSO/KB-BSOS/KB-BSO4/KB-BSOA

Zinc Plated Steel: KB-BSO | Stainless Steel: KB-BSOS | 400 Series Stainless Steel: KB-BSO4 | Aluminium: KB-BSOA



## Metric Dimensions

| Thread | M2, M2.5, M3 | M3alt | M4 | M5 |
|---|---|---|---|---|
| C -0.13 | 4.2 | 5.39 | 7.12 | 7.12 |
| A Nom. | 4.8 | 6.4 | 7.9 | 7.9 |
| Minimum sheet thickness | 1.0 | 1.0 | 1.27 | 1.27 |
| Recommended hole size +0.08 | 4.22 | 5.41 | 7.14 | 7.14 |
| Minimum distance to edge of sheet | 6.0 | 6.8 | 8.0 | 8.0 |

| (L) Length +0.05/-0.13 | 5 | 6 | 7 | 8 | 10 | 12 | 14 | 15 | 16 | 18 | 20 | 22 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (B) Thread depth - Minimum | 2.8 | 3.2 | 3.6 | 4.0 | | 5.0 | 6.5 | | | 9.5 | | | |

## Metric Performance Data: KB-BSO/KB-BSOS

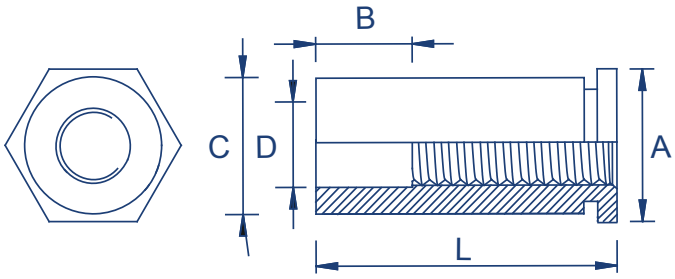
| Thread | | M2, M2.5, M3 | M3alt | M3.5, M4 | M5 |
|---|---|---|---|---|---|
| Test sheet material | | Steel | | | |
| Test sheet thickness | | 1.5 | | | |
| Installation | (kN) Steel + Stainless | 9.9 | 14.8 | 17.9 | 17.9 |
| Torsional resistance | (Nm) Steel + Stainless | 2.16 | 3.95 | 8.5 | 8.5 |
| Pushout | (N) Steel + Stainless | 1050 | 1870 | 2500 | 2500 |
| Pull-through | (N) Steel | 1470 | 1470 | 3180 | 3180 |
| | (N) Stainless | 1180 | 1180 | 2490 | 2490 |
| Maximum torque for mating screw | (Nm) Steel | 0.56 | 0.56 | 2.1 | 3.7 |
| | (Nm) Stainless | 0.45 | 0.45 | 1.7 | 2.9 |

KB-BSO - Recommended for use in sheet hardness: HRB 80 or less
KB-BSOS- Recommended for use in sheet hardness: HRB 70 or less
KB-BSO4 - Recommended for use in sheet hardness: HRB 88 or less
KB-BSOA- Recommended for use in sheet hardness: HRB 50 or less

# Through Standoffs

KB-SO/KB-SOS/KB-SO4/KB-SOA

Zinc Plated Steel: KB-SO | Stainless Steel: KB-SOS | 400 Series Stainless Steel: KB-SO4 | Aluminium: KB-SOA



## Metric Dimensions

| Thread | M2, M2.5, M3 | M3alt | M4 | M5 |
|---|---|---|---|---|
| C ± 0.13 | 4.2 | 5.39 | 7.12 | 7.12 |
| D counterbore diameter ± 0.13 | 3.2 | 3.2 | 4.8 | 5.35 |
| A Nom. | 4.8 | 6.4 | 7.9 | 7.9 |
| Minimum sheet thickness | 1.0 | 1.0 | 1.27 | 1.27 |
| Recommended hole size +0.08 | 4.22 | 5.41 | 7.14 | 7.14 |
| Minimum distance to edge of sheet | 6.0 | 6.8 | 8.0 | 8.0 |

| (L) Length +0.05/-0.13 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 14 | 15 | 16 | 18 | 20 | 22 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (B) Thread depth - Minimum | N/A | | | | | | 4 | | | | 8 | | | 11 | |

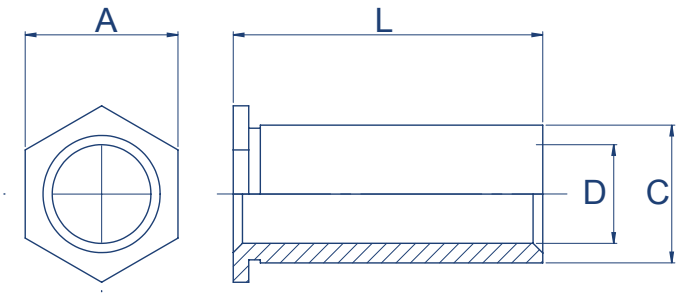
## Metric Performance Data: KB-SO/KB-SOS

| Thread | | M2, M2.5, M3 | M3alt | M3.5, M4 | M5 |
|---|---|---|---|---|---|
| Test sheet material | | Steel | | | |
| Test sheet thickness | | 1.5 | | | |
| Installation | Metric (kN) | 9.9 | 14.8 | 17.9 | 17.9 |
| Torsional resistance | Metric (Nm) | 2.16 | 3.95 | 8.5 | 8.5 |
| Pushout | Metric (N) | 1050 | 1870 | 2500 | 2500 |
| Pull-through | Metric (N) (Steel) | 1470 | 1470 | 3180 | 3180 |
| | (N) (st/st) | 1180 | 1180 | 2490 | 2490 |

KB-SO - Recommended for use in sheet hardness: HRB 80 or less
KB-SOS - Recommended for use in sheet hardness: HRB 70 or less
KB-SO4 - Recommended for use in sheet hardness: HRB 88 or less
KB-SOA - Recommended for use in sheet hardness: HRB 50 or less

# Clear Hole Standoffs
KB-SO

## Zinc Plated Steel: KB-SO



## Metric Dimensions

| Diameter code | 43.1 | 63.1 | 63.6 | 83.6 | 84.1 | 85.1 |
|---|---|---|---|---|---|---|
| D counterbore diameter ± 0.13 | 3.1 | 3.1 | 3.6 | 3.6 | 4.1 | 5.1 |
| C ± 0.13 | 4.2 | 5.39 | 5.39 | 7.12 | 7.12 | 7.12 |
| A Nom. | 4.8 | 6.4 | 6.4 | 7.9 | 7.9 | 7.9 |
| Minimum sheet thickness | 1.0 | 1.0 | 1.0 | 1.27 | 1.27 | 1.27 |
| Recommended hole size +0.08 | 4.22 | 5.41 | 5.41 | 7.14 | 7.14 | 7.14 |
| Minimum distance to edge of sheet | 6.0 | 6.8 | 6.8 | 8.0 | 8.0 | 8.0 |

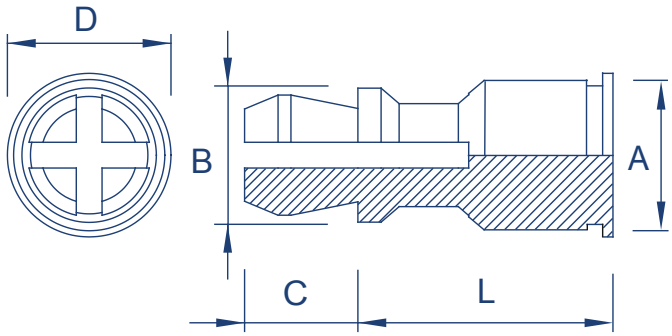
| (L) Length +0.05/-0.13 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|

KB-SO - Recommended for use in sheet hardness: HRB 80 or less

# Clip-on Standoffs

KB-SSS/KB-SSC/KB-SSA

## Zinc Plated Steel: KB-SSS | Stainless Steel: KB-SSC | Aluminium: KB-SSA



## Metric Dimensions

| Top panel mounting hole diameter | (L) Length code ±0.13 | | | | | | | | | A maximum | B ±0.13 | C ±0.13 | D ±0.13 | Hole size +0.08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metric 4mm | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 5.39 | 4.78 | 3.58 | 6.35 | 5.4 |

## Metric Performance Data: KB-SSS/KB-SSC/KB-SSA

| Type | Steel Zinc | Stainless Steel | Aluminium |
|---|---|---|---|
| Installation (kN) | 15.6 | 16.5 | 6.7 |
| Pushout (kN) | 1785 | 1785 | 881 |
| Test sheet material | Steel | Steel | Aluminium |
| Test sheet thickness | 1.5 | 1.5 | 1.0 |

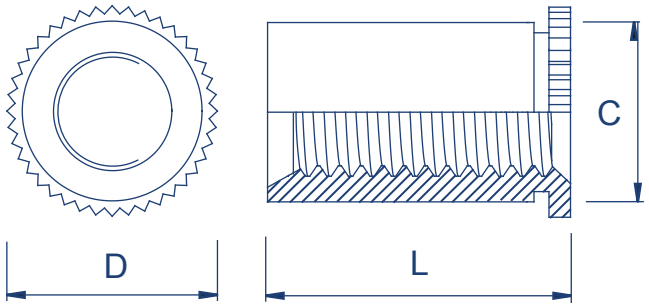
| Part number | Panel 1 - Metal HRB50 | | | | | Panel 2 - PC board or metal | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Bottom mounting hole +0.08 | Maximum hardness | Minimum thickness | Minimum distance to edge of sheet | Maximum location tolerance | Top mounting hole +0.08 | Maximum hardness | Thickness range | Minimum distance to edge of sheet |
| KB-SSS | 5.41 | HRB 60 | 1.0 | 6.6 | ±0.13 | 4.0 | No limit | 1-1.8 | 2.54 |
| KB-SSC | | HRB 70 | | | | | | | |
| KB-SSA | | HRB 50 | | | | | | | |

KB-SSS - Recommended for use in sheet hardness: HRB 60 or less
KB-SSC - Recommended for use in sheet hardness: HRB 70 or less
KB-SSA - Recommended for use in sheet hardness: HRB 50 or less

# Screw Lock Threaded Standoffs

KB-DSO/KB-DSOS

## Zinc Plated Steel: KB-DSO | Stainless Steel: KB-DSOS



## Metric Dimensions

| Thread | M3 | |
|---|---|---|
| (L) Length +0.05 -0.13 | 6.35 | 7.0 |
| C maximum | 4.2 | |
| D Nom. | 4.92 | |
| Sheet thickness | 0.94 - 6.35 | |
| Recommended hole size +0.08 | 4.2 | |
| Minimum distance to edge of sheet | 3.2 | |

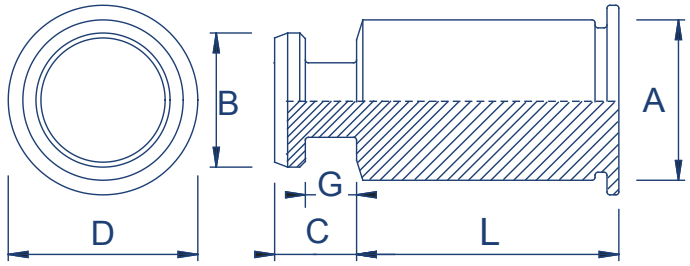
## Metric Performance Data: KB-DSO/KB-DSOS

| Thread | | M3 |
|---|---|---|
| Sheet thickness | Steel | 1.0 |
| | Aluminium | 1.0 |
| Installation (kN) | Steel | 5.85 |
| | Aluminium | 4.5 |
| Pushout (N) | Steel | 334 |
| | Aluminium | 225 |
| Torsional resistance (Nm) | Steel | 1.2 |
| | Aluminium | 1.1 |

KB-DSO - Recommended for use in sheet hardness: HRB 80 or less
KB-DSOS - Recommended for use in sheet hardness: HRB 70 or less

# Hole Slide Lock Standoffs
KB-SKC

## Stainless Steel: KB-SKC



## Metric Dimensions

| | | | |
|---|---|---|---|
| Body size - Sheet code | 61.5 | D Nom. | 6.35 |
| A maximum | 5.39 | G ± 0.08 | 1.73 |
| B ±0.08 | 4.5 | Recommended hole size + 0.08 | 5.5 |
| C maximum | 2.75 | | |

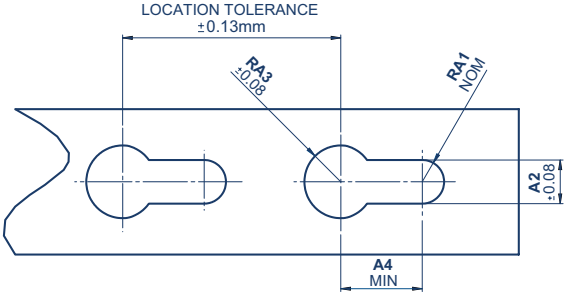
| Length code 'L' mm ±0.13 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 |

## Metric Performance Data: KB-SKC

| Test sheet material | Steel | | 5052-H34 Aluminium | |
|---|---|---|---|---|
| Test sheet thickness | 1.52 | | | |
| Body sheet code | Installation (kN) | Pushout (N) | Installation (kN) | Pushout (N) |
| 61.5 | 14.3 | 2650 | 7.0 | 1100 |

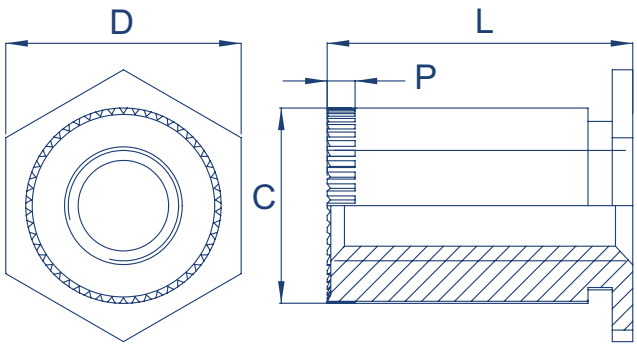
| Part number | Panel 1 - Metal HRB50 | | | | | Panel 2 - PC board or metal | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bottom mounting hole +0.08 | Maximum hardness | Minimum thickness | Minimum distance to edge of sheet | Maximum location tolerance | Top mounting hole +0.08 | | | | Thickness range | Minimum distance to edge of sheet |
| | | | | | | A1 Nom. | A2 ±0.08 | A3 ±0.08 | A4 Minimum. | | |
| KB-SKC | 5.4 | HRB 70 | 1.0 | 6.6 | ±0.13 | 1.5 | 3.0 | 5.0 | 3.75 | 1.45-1.62 | 4.1 |

KB-SKC - Recommended for use in sheet hardness: HRB 70 or less



# Grounding Standoffs
KB-SOSG

## Stainless Steel: KB-SOSG



## Metric Dimensions

| | |
|---|---|
| Thread | M3 |
| C ± 0.13 | 5.39 |
| D Nom. | 6.4 |
| Minimum sheet thickness | 1.0 |
| Knurling | 0.76 |
| Recommended hole size +0.08 | 5.4 |
| Minimum distance to edge of sheet | 6.8 |

## Metric Performance Data: KB-SOSG

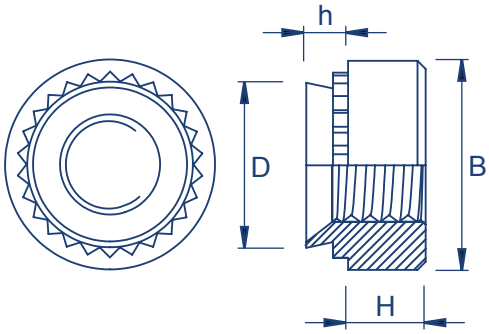
| Thread | Type | Length code 'L' mm ±0.13 | | | | | |
|---|---|---|---|---|---|---|---|
| M3 | KB-SOSG | 3 | 4 | 6 | 8 | 10 | 12 |

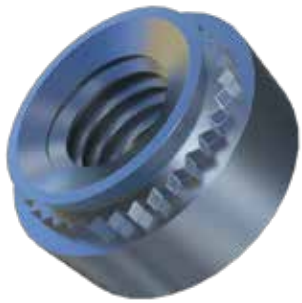
KB-SOSG - Recommended for use in sheet hardness: HRB 70 or less

# Nuts

KB-S/KB-CLS/KB-SP4/KB-SP2/KB-CLA/KB-H

Zinc Plated Steel: KB-S | Stainless Steel: KB-CLS | 400 Series Stainless Steel: KB-SP4 | A286 Stainless Steel: KB-SP2 |Aluminium: KB-CLA



## Metric Dimensions: KB-S/KB-CLS/KB-SP4/KB-SP2

| Thread | M2, M2.5, M3 | | | M3alt | | | M3.5 | | | M4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shank code | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 3 |
| D maximum | 4.20 | | | 4.73 | | | 4.73 | | | 5.38 | | | |
| B ±0.2 | 6.35 | | | 7.1 | | | 7.1 | | | 7.95 | | | |
| H ±0.25 | 1.5 | | | 1.5 | | | 1.5 | | | 2.0 | | | |
| h maximum | 0.77 | 0.97 | 1.38 | 0.77 | 0.97 | 1.38 | 0.77 | 0.97 | 1.38 | 0.77 | 0.97 | 1.38 | 2.21 |
| Minimum sheet thickness | 0.8 | 1.0 | 1.4 | 0.8 | 1.0 | 1.4 | 0.8 | 1.0 | 1.4 | 0.8 | 1.0 | 1.4 | 2.3 |
| Recommended hole size +0.08 | 4.22 | | | 4.75 | | | 4.75 | | | 5.41 | | | |
| Minimum distance to edge of sheet | 4.8 | | | 5.6 | | | 5.6 | | | 6.9 | | | |

| Thread | M5 | | | | M6 | | | | | M8 | | | M10 | | M12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shank code | 0 | 1 | 2 | 3 | 00 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 1 |
| D maximum | 6.33 | | | | 8.73 | | | | | 10.47 | | | 13.97 | | 16.95 |
| B ±0.2 | 8.75 | | | | 11.10 | | | | | 12.65 | | | 17.35 | | 20.55 |
| H ±0.25 | 2.0 | | | | 4.08 | | | | | 5.47 | | | 7.48 | | 8.5 |
| h maximum | 0.77 | 0.97 | 1.38 | 2.21 | 0.89 | 1.15 | 1.38 | 2.21 | 3.05 | 1.38 | 2.21 | 3.05 | 2.21 | 3.05 | 3.05 |
| Minimum sheet thickness | 0.8 | 1.0 | 1.4 | 2.3 | 0.92 | 1.2 | 1.4 | 2.3 | 3.2 | 1.4 | 2.3 | 3.2 | 2.31 | 3.18 | 3.18 |
| Recommended hole size +0.08 | 6.35 | | | | 8.75 | | | | | 10.5 | | | 14.0 | | 17.0 |
| Minimum distance to edge of sheet | 7.1 | | | | 8.6 | | | | | 9.7 | | | 13.5 | | 16.0 |

## Metric Dimensions: KB-H Non Locking Nuts - Zinc Plated Steel

| Thread | Type | h maximum | Minimum sheet thickness | Rec hole size +0.13 | D maximum | B ±0.25 | H ±0.13 | Minimum distance to edge of sheet |
|---|---|---|---|---|---|---|---|---|
| | Non locking | | | | | | | |
| M10 | H | 1.48 | 1.48 | 12.7 | 12.67 | 16.5 | 7.9 | 12 |

# Nuts

KB-S/KB-CLS/KB-SP4/KB-SP2/KB-CLA/KB-H

## Metric Dimensions: KB-CLA

| Thread | M2 | | M3 | | M3.5 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| D maximum | 4.22 | | 4.73 | | 5.38 | | 5.97 | | 7.47 | | 8.72 | |
| B ±0.2 | 6.3 | | 6.3 | | 7.1 | | 7.9 | | 9.5 | | 11.05 | |
| H ±0.25 | 1.5 | | 2.0 | | 2.0 | | 3.0 | | 3.8 | | 4.08 | |
| h maximum | 0.98 | 1.38 | 0.98 | 1.38 | 0.98 | 1.38 | 0.98 | 1.38 | 0.98 | 1.38 | 1.38 | 2.21 |
| Minimum sheet thickness | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 | 1.4 | 2.3 |
| Recommended hole size +0.08 | 4.25 | | 4.75 | | 5.4 | | 6.0 | | 7.5 | | 8.75 | |
| Minimum distance to edge of sheet | 4.8 | | 5.6 | | 6.9 | | 7.1 | | 7.9 | | 8.6 | |

## Metric Performance Data: KB-S/KB-CLS

| Thread | M2, M2.5 | | | M3 | | | | M3alt | | | M3.5 | | | M4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test material | Steel | | | | | | | | | | | | | | | | |
| Shank code | 0 | 1 | 2 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 3 |
| Installation (kN) | 11.2 - 15.6 | | | 11.2 - 15.6 | | | | 13.4 - 26.7 | | | 13.4 - 26.7 | | | 18 - 27 | | | |
| Torsional resistance (Nm) | 1.5 | 1.75 | 2.0 | 1.5 | 1.75 | 2.0 | 2.1 | 1.8 | 2.4 | 2.4 | 1.8 | 2.4 | 2.4 | 3.0 | 4.0 | 5.0 | 4.2 |
| Pushout (N) | 480 | 560 | 1020 | 480 | 560 | 1020 | 1110 | 485 | 575 | 1200 | 485 | 575 | 1200 | 495 | 650 | 1255 | 1300 |

| Thread | M5 | | | | M6 | | | M8 | | | M10 | | M12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test material | Steel | | | | | | | | | | | | |
| Shank code | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 1 |
| Installation (kN) | 18 - 38 | | | | 27 - 36 | | | 27 - 36 | | | 32 - 50 | | 33-49 |
| Torsional resistance (Nm) | 3.7 | 4.5 | 6.9 | 6.0 | 17.1 | 17.1 | 16.4 | 18.8 | 20.4 | 18.1 | 36.1 | 36.1 | 73.9 |
| Pushout (N) | 535 | 801 | 1115 | 1500 | 1765 | 1765 | 1755 | 1870 | 1870 | 1860 | 2021 | 2021 | 3065 |

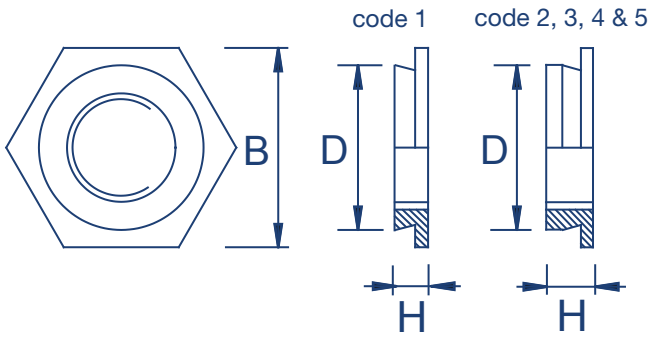
## Metric Performance Data: KB-SP4/SP2

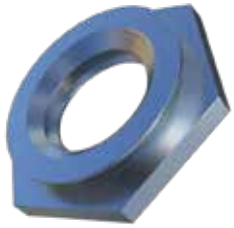
| Thread | M2, M2.5 | | | M3 | | | M4 | | | M5 | | | M6 | | M8 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test material | Stainless Steel | | | | | | | | | | | | | | | |
| Shank code | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 0 | 1 | 2 | 1 | 2 | 1 | 2 |
| Installation (kN) | 35 | 40 | 45 | 35 | 40 | 45 | 40 | 44 | 46 | 42 | 46 | 51 | 60 | 66 | 66 | 72 |
| Torsional resistance (Nm) | - | - | - | 1.6 | 2.0 | 2.3 | 3.4 | 4.2 | 5.1 | 4.0 | 5.1 | 6.7 | 17.0 | 19.0 | 19.0 | 21.8 |
| Pushout (N) | 580 | 720 | 1290 | 580 | 720 | 1290 | 650 | 800 | 1590 | 805 | 1030 | 1780 | 2005 | 2300 | 2100 | 2415 |

KB-S - Recommended for use in sheet hardness: HRB 80 or less
KB-CLS - Recommended for use in sheet hardness: HRB 70 or less
KB-SP4/SP2 - Recommended for use in sheet hardness: HRB 90 or less
KB-CLA - Recommended for use in sheet hardness: HRB 50 or less
KB-H - Recommended for use in sheet hardness: HRB 80 or less

# Flush Nuts
KB-F

## Stainless Steel: KB-F



## Metric Dimensions

| Thread | M2, M2.5 | | M3 | | M3alt | | M3.5 | | M4 | | M5 | | M6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| D maximum | 4.35 | | 4.35 | | 5.35 | | 5.35 | | 7.35 | | 7.90 | | 8.72 | | |
| B Nom. | 4.8 | | 4.8 | | 6.4 | | 6.4 | | 7.9 | | 8.7 | | 9.5 | | |
| H maximum | 1.53 | 2.3 | 1.53 | 2.3 | 1.53 | 2.3 | 1.53 | 2.3 | 1.53 | 2.3 | 1.53 | 2.3 | 3.05 | 3.84 | 4.63 |
| Sheet thickness | 1.53 - 2.3 | 2.32 min. | 1.53 - 2.3 | 2.32 min. | 1.53 - 2.3 | 2.32 min. | 1.53 - 2.3 | 2.32 min. | 1.53 - 2.3 | 2.32 min. | 1.53 - 2.3 | 2.32 min. | 3.18 - 3.94 | 3.96 - 4.72 | 4.75 min. |
| Recommended Hole size +0.08 | 4.37 | | 4.37 | | 5.4 | | 5.4 | | 7.37 | | 7.92 | | 8.74 | | |
| Minimum distance to edge of sheet | 6.0 | | 6.0 | | 6.5 | | 6.5 | | 7.2 | | 8.8 | | 8.8 | | |

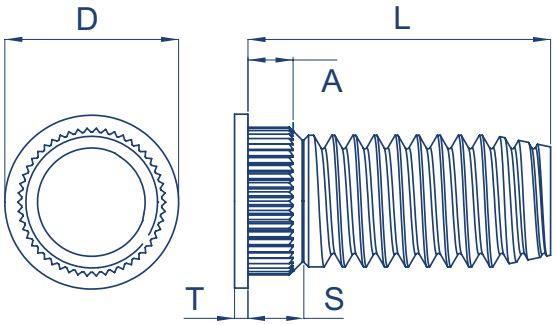
## Metric Performance Data: KB-F

| Thread | M2, M2.5 | | M3 | | M3alt | | M3.5 | | M4 | | M5 | | M6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Test sheet material | Steel | | | | | | | | | | | | | | |
| Test sheet thickness | 1.5 | 2.3 | 1.5 | 2.3 | 1.5 | 2.3 | 1.5 | 2.3 | 1.5 | 2.3 | 1.5 | 2.3 | 3.1 | 3.9 | 4.75 |
| Installation (kN) | 13.5 | | 13.5 | | 13.5 | | 13.5 | | 18.0 | | 18.0 | | 20.0 | | |
| Pushout (kN) | 0.9 | | 0.9 | | 1.1 | | 1.1 | | 1.2 | | 1.2 | | 3.7 | | |

KB-F - Recommended for use in sheet hardness: HRB 70 or less

# Broaching Studs
KB-KFH

## Electro-Tin Plated Phosphor Bronze: KB-KFH



## Metric Dimensions

| Thread | M2.5 | M3 | M4 | M5 |
|---|---|---|---|---|
| D ±0.25 | 4.10 | 4.58 | 5.74 | 6.6 |
| S maximum | 2.30 | 2.3 | 2.3 | 2.3 |
| A maximum | 1.65 | 1.65 | 1.65 | 1.65 |
| T ±0.13 | 0.51 | 0.51 | 0.51 | 0.51 |
| Minimum sheet thickness | 1.53 | 1.53 | 1.53 | 1.53 |
| Recommended hole size +0.08 | 2.60 | 3.0 | 4.2 | 5.0 |
| Minimum distance to edge of sheet | 3.30 | 3.8 | 5.1 | 5.3 |

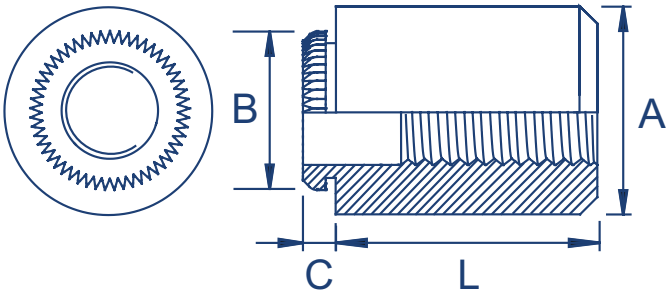
## Preferred Range

| Thread | | M2.5 | M3 | M4 | M5 |
|---|---|---|---|---|---|
| (L) Length ±0.25 | 6 | | • | | |
| | 8 | • | • | • | |
| | 10 | | • | • | • |
| | 12 | | • | • | • |
| | 15 | • | • | • | • |
| | 18 | | • | • | • |
| | 25 | | • | | |

KB-KFH - Recommended for use in sheet hardness: HRB 55 or less

# Broaching Standoffs
KB-KFE/KB-KFSE

## Electro Tin Plated Steel: KB-KFE | Stainless Steel: KB-KFSE



## Metric Dimensions - Length to suit customer requirements

| Thread or through hole size | M2 | M2.5 | M3 | 3.6 | M4 | 4.2 |
|---|---|---|---|---|---|---|
| C maximum | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 |
| B | 4.68 | 4.68 | 4.68 | 5.87 | 6.75 | 6.86 |
| A | 5.56 | 5.56 | 5.56 | 7.14 | 8.74 | 8.74 |
| Minimum sheet thickness | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 |
| Recommended hole size +0.08 | 4.22 | 4.22 | 4.22 | 5.41 | 6.4 | 6.4 |
| Minimum distance to edge of sheet | 4.4 | 4.4 | 4.4 | 5.5 | 6.4 | 7.1 |

## Preferred Range

| Thread | (L) Length ±0.13 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 |
| M2 | | • | | | | | | | |
| M2.5 | | | | • | | | | | • |
| M3 | • | • | • | • | • | • | • | • | |
| 3.6 | • | | | | | | | | |
| M4 | | • | | | | • | | | |
| 4.2 | | | | | | | | | |

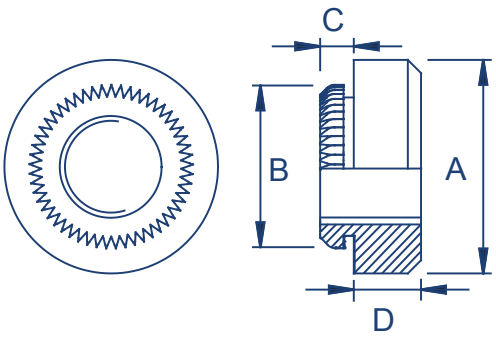
## Metric Performance Data: KB-KFE/KB-KFSE

| Thread | M2 | M2.5 | M3 & 3.6 | M4 & 4.2 |
|---|---|---|---|---|
| Test sheet material | FR4 fiberglass | | | |
| Test sheet thickness | 1.5 | | | |
| Installation (kN) | 2.2 | 2.2 | 2.2 | 2.2 |
| Torsional resistance (Nm) | 1.36 | 1.36 | 1.36 | 3.0 |
| Pushout (N) | 290 | 290 | 290 | 400 |

# Broaching Nuts

TR-KF2/TR-KFS2

## Electro Tin Plated Steel: KB-KF2 | Stainless Steel: KB-KFS2



## Metric Dimensions

| Thread | M2 | M2.5 | M3 | M3.5 | M4 | M5 |
|---|---|---|---|---|---|---|
| C maximum | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 |
| B ±0.08 | 4.19 | 4.68 | 4.68 | 5.88 | 6.86 | 7.37 |
| A ±0.13 | 5.56 | 5.56 | 5.56 | 7.0 | 8.74 | 9.53 |
| D ±0.13 | 1.5 | 1.5 | 1.5 | 1.6 | 2.0 | 3.0 |
| Minimum sheet thickness | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 | 1.53 |
| Recomeneded Hole size +0.08 | 3.73 | 4.22 | 4.22 | 5.5 | 6.40 | 6.90 |
| Minimum distance to edge of sheet | 4.2 | 4.4 | 4.4 | 5.5 | 6.4 | 7.1 |

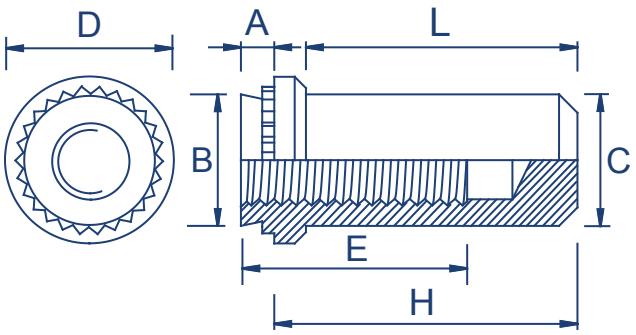
## Metric Performance Data: KB-KF2/KB-KFS2

| Thread | M2 | M2.5 | M3 | M3.5 | M4 | M5 |
|---|---|---|---|---|---|---|
| Test sheet material | FR4 fiberglass | | | | | |
| Test sheet thickness | 1.5 | | | | | |
| Installation (kN) | 2.2 | 2.2 | | 2.2 | 2.2 | 2.2 |
| Torsional resistance (Nm) | 1.36 | 1.36 | | 2.06 | 3.75 | 4.55 |
| Pushout (N) | 200 | 200 | | 210 | 335 | 355 |

KB-KF2 - Recommended for use in sheet hardness: HRB 60 or less
KB-KFS2 - Recommended for use in sheet hardness: HRB 70 or less

# Blind Nuts
KB-B/KB-BS

## Zinc Plated Steel: KB-B | Stainless Steel: KB-BS



## Metric Dimensions

| Thread | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| A maximum | 0.97 | 1.38 | 0.97 | 1.38 | 0.97 | 1.38 | 1.38 | 2.21 |
| Minimum sheet thickness | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 | 1.4 | 2.29 |
| Recommended hole size +0.08 | 4.22 | | 5.41 | | 6.35 | | 8.75 | |
| B maximum | 4.20 | | 5.38 | | 6.33 | | 8.73 | |
| C maximum | 3.84 | | 5.2 | | 6.02 | | 7.8 | |
| D ±0.25 | 6.35 | | 7.95 | | 8.75 | | 11.1 | |
| E minimum | 5.3 | | 7.1 | | 7.1 | | 7.8 | |
| H ±0.25 | 9.6 | | 11.2 | | 11.2 | | 14.3 | |
| L maximum | 8.5 | | 9.8 | | 9.8 | | 12.7 | |
| Minimum distance to edge of sheet | 4.8 | | 6.9 | | 7.1 | | 8.6 | |

## Metric Performance Data: KB-B/KB-BS

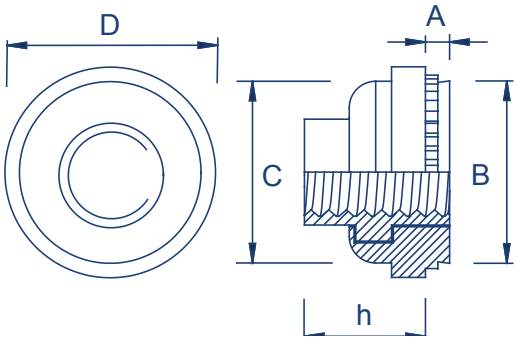
| Thread | M3 | | M4 | | M5 | | M6 | |
|---|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Test sheet material | Steel | | | | | | | |
| Sheet thickness | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 | 1.4 | 2.3 |
| Installation (kN) | 11.5 | 14.0 | 16.0 | 21.0 | 18.0 | 25.0 | 26.0 | 26.0 |
| Pushout (N) | 572 | 1021 | 604 | 1256 | 631 | 1419 | 1782 | 1782 |
| Torque-out (Nm) | 1.7 | 2.15 | 3.5 | 5.1 | 4.1 | 6.9 | 11.9 | 12.0 |

KB-B - Recommended for use in sheet hardness: HRB 80 or less
KB-BS - Recommended for use in sheet hardness: HRB 70 or less

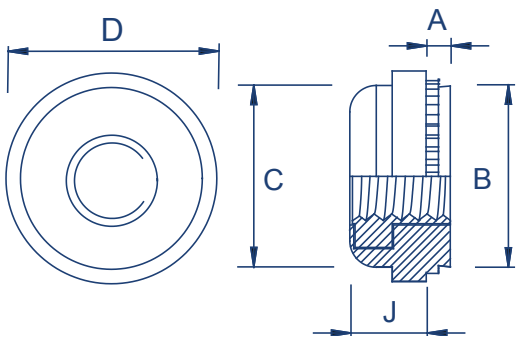
# Floating Fasteners (Locking & Non-Locking)

KB-LAS/KB-AS/KB-LAC/KB-AC

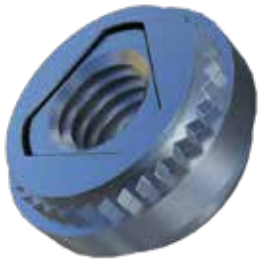
## Zinc Plated Steel: KB-LAS/KB-AS | Stainless Steel: KB-LAC/KB-AC




Locking




Non Locking



## Metric Dimensions

| Thread | M3 | | M4 | | M5 | | M6 |
|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 2 |
| A maximum | 0.97 | 1.38 | 0.97 | 1.38 | 0.97 | 1.38 | 1.38 |
| Minimum sheet thickness | 0.97 | 1.38 | 0.97 | 1.38 | 0.97 | 1.38 | 1.38 |
| Recommended hole size +0.08 | 7.37 | | 9.35 | | 10.31 | | 13.08 |
| B maximum | 7.35 | | 9.33 | | 10.29 | | 13.06 |
| C maximum | 7.37 | | 9.28 | | 10.29 | | 12.96 |
| D ±0.4 | 9.14 | | 11.18 | | 11.94 | | 15.24 |
| h maximum | 4.83 | | 5.34 | | 6.86 | | 7.88 |
| J maximum | 3.31 | | 3.31 | | 4.32 | | 5.34 |
| Minimum distance to edge of sheet | 7.62 | | 8.64 | | 9.14 | | 10.67 |

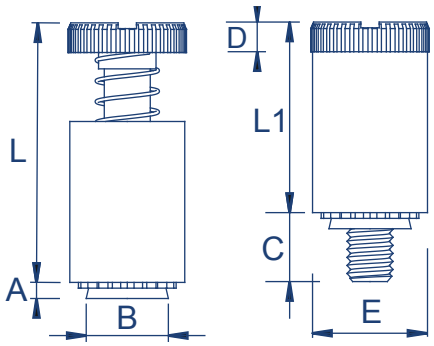
## Metric Performance Data: KB-LAS/KB-LAC

| Thread | | M3 | | M4 | | M5 | | M6 |
|---|---|---|---|---|---|---|---|---|
| Shank code | | 1 | 2 | 1 | 2 | 1 | 2 | 2 |
| Test sheet material | | Steel | | | | | | |
| Sheet thickness | | 1.0 | 1.6 | 1.0 | 1.6 | 1.0 | 1.6 | 1.6 |
| Installation (kN) | KB-LAS & KB-LAC | 13.3 | 13.3 | 13.3 | 13.3 | 15.6 | 15.6 | 22.2 |
| Pushout (N) | KB-LAS & KB-LAC | 1341 | 1340 | 1338 | 1784 | 1789 | 2009 | 2226 |
| Torque-out (Nm) | KB-LAS & KB-LAC | 9.7 | 17.0 | 17.1 | 22.8 | 16.9 | 22.9 | 36.9 |

KB-LAS/AS - Recommended for use in sheet hardness: HRB 70 or less
KB-LAC/AC - Recommended for use in sheet hardness: HRB 70 or less

# Panel Fasteners
KB-PFS2/KB-PFC2

## Zinc Plated Steel: KB-PFS2 | Stainless Steel: KB-PFC2



## Metric Dimensions

| Thread | M3 | | M4 | | | M5 | | | M6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Screw length code | 40 | 62 | 50 | 72 | 94 | 50 | 72 | 94 | 60 | 82 | 04 |
| A maximum | 1.53 | | 1.53 | | | 1.53 | | | 1.53 | | |
| B maximum | 6.71 | | 7.9 | | | 8.72 | | | 10.47 | | |
| C ±0.4 | 6.4 | 9.5 | 7.9 | 11.1 | 14.3 | 7.9 | 11.1 | 14.3 | 9.5 | 12.7 | 15.9 |
| D ±0.13 | 1.83 | | 2.08 | | | 2.08 | | | 2.46 | | |
| E ±0.25 | 7.92 | | 9.53 | | | 10.31 | | | 11.89 | | |
| L Nom. | 13.72 | | 17.53 | | | 17.53 | | | 22.35 | | |
| L1 maximum | 9.14 | | 11.43 | | | 11.47 | | | 14.73 | | |
| Minimum sheet thickness | 1.53 | | 1.53 | | | 1.53 | | | 1.53 | | |
| Recommended hole size +0.08 | 6.73 | | 7.90 | | | 8.74 | | | 10.49 | | |
| Screw protrusion before installation ±0.64 | 0 | 3.2 | 0 | 3.2 | 6.4 | 0 | 3.2 | 6.4 | 0 | 3.2 | 6.4 |
| Minimum distance to edge of sheet | 6.35 | | 7.87 | | | 8.63 | | | 9.65 | | |

## Metric Performance Data: KB-PFS2/KB-PFC2

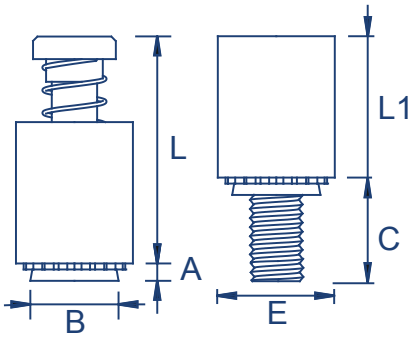
| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| Installation (kN) | Aluminium | 10.8 | 13.0 | 13.4 | 15.6 |
| | Steel | 13.4 | 17.0 | 17.9 | 22.3 |
| Pushout (N) | Aluminium | 1070 | 1335 | 1780 | 1780 |
| | Steel | 1335 | 1780 | 2230 | 2670 |

KB-PFS2 - Recommended for use in sheet hardness: HRB 80 or less
KB-PFC2 - Recommended for use in sheet hardness: HRB 70 or less

# Recess Panel Fasteners

KB-PFC2P

## Stainless Steel: KB-PFC2P



## Metric Dimensions

| Thread | M3 | | M4 | | | M5 | | | M6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Screw length code | 40 | 60 | 50 | 72 | 94 | 50 | 72 | 94 | 62 | 82 | 04 |
| A maximum | 1.53 | | 1.53 | | | 1.53 | | | 1.53 | | |
| B maximum | 6.71 | | 7.9 | | | 8.72 | | | 10.47 | | |
| C ±0.4 | 6.4 | 9.5 | 7.9 | 11.1 | 14.3 | 7.9 | 11.1 | 14.3 | 9.5 | 12.7 | 15.9 |
| Driver size | No. 1 | | No.2 | | | No.2 | | | No.3 | | |
| E ±0.25 | 7.92 | | 9.53 | | | 10.31 | | | 11.89 | | |
| L Nom. | 13.72 | | 17.91 | | | 17.91 | | | 22.99 | | |
| L1 maximum | 9.4 | | 12.19 | | | 12.45 | | | 15.75 | | |
| Minimum sheet thickness | 1.53 | | 1.53 | | | 1.53 | | | 1.53 | | |
| Recommended hole size +0.08 | 6.73 | | 7.92 | | | 8.74 | | | 10.49 | | |
| Screw protrusion before installation ±0.64 | 0 | 3.2 | 0 | 3.2 | 6.4 | 0 | 3.2 | 6.4 | 0 | 3.2 | 6.4 |
| Minimum distance to edge of sheet | 6.35 | | 7.87 | | | 8.63 | | | 9.65 | | |

## Metric Performance Data: KB-PFC2P

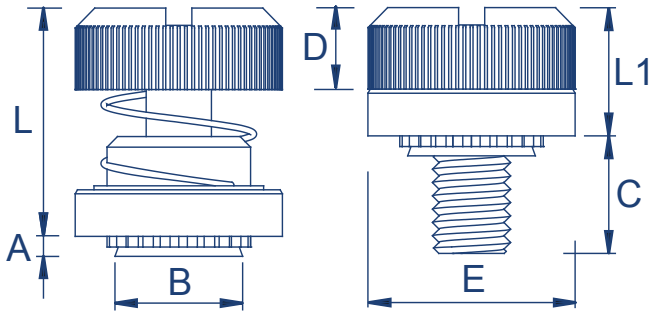
| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| Installation (kN) | Aluminium | 10.8 | 13.0 | 13.4 | 15.6 |
| | Steel | 13.4 | 17.0 | 17.9 | 22.3 |
| Pushout (N) | Aluminium | 1070 | 1335 | 1780 | 1780 |
| | Steel | 1335 | 1780 | 2230 | 2670 |

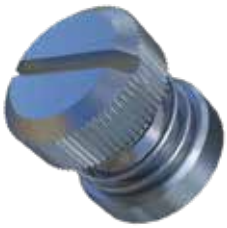
KB-PFC2P - Recommended for use in sheet hardness: HRB 70 or less

# Low Profile Panel Fasteners

KB-PF31/KB-PF32

## Nickel Plated Steel: KB-PF31 | Nickel Plated Steel: KB-PF32



## Metric Dimensions

| Thread | M3 | | M4 | | M5 | | M6 |
|---|---|---|---|---|---|---|---|
| Type | KB-PF31 | KB-PF32 | KB-PF31 | KB-PF32 | KB-PF31 | KB-PF32 | KB-PF32 |
| Screw length code | 30 | | 30 | | 30 | | 35 |
| A maximum | 0.97 | 1.48 | 0.97 | 1.48 | 0.97 | 1.48 | 1.48 |
| Minimum sheet thickness | 1.0 | 1.5 | 1.0 | 1.5 | 1.0 | 1.5 | 1.5 |
| Recommended hole size +0.08 | 5.5 | | 6.4 | | 8.0 | | 9.5 |
| B maximum | 5.48 | | 6.38 | | 7.98 | | 9.48 |
| L Nom. | 15.11 | | 15.24 | | 15.37 | | 17.15 |
| D ±0.13 | 5.13 | | 5.26 | | 5.59 | | 6.12 |
| E ±0.25 | 10.31 | | 11.89 | | 13.46 | | 15.88 |
| C ±0.4 | 7.62 | | 7.62 | | 7.62 | | 8.89 |
| L1 maximum | 8.26 | | 8.38 | | 8.51 | | 9.78 |
| Minimum distance to edge of sheet | 6.6 | | 7.37 | | 8.38 | | 9.65 |

## Metric Performance Data: KB-PF31/KB-PF32

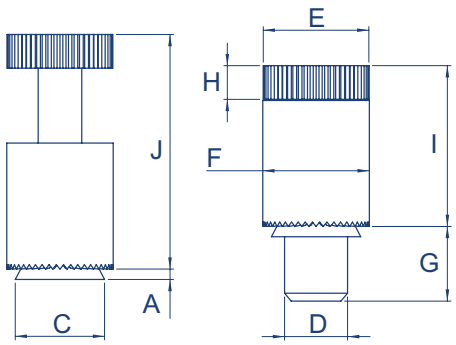
| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| Test sheet material | | Aluminium | | | |
| Installation (kN) | KB-PF31 | 9.9 | 12.6 | 15.6 | 19.2 |
| | KB-PF32 | | | | |

*Can be used in cold rolled provided hardness does not exceed rockwell B30
KB-PF31 - Recommended for use in sheet hardness: HRB 60 or less
KB-PF32 - Recommended for use in sheet hardness: HRB 60 or less

# Locating Pin Panel Fasteners

KB-PTL2/KB-PSL2

## Zinc Plated Steel: KB-PTL2 | KB-PSL2



## Metric Dimensions

| Type | KB-PTL2 | KB-PSL2 |
|---|---|---|
| Plunger diameter code | 04 | 04 |
| Plunger length code | 4.0 | 4.0 |
| A maximum | 1.47 | 1.47 |
| Minimum sheet thickness | 1.53 | 1.53 |
| Recommended hole size+0.08 | 8.33 | 8.33 |
| C maximum | 8.31 | 8.31 |
| D -0.13 | 6.35 | 6.35 |
| E ±0.25 | 12.7 | 12.7 |
| F ±0.25 | 10.3 | 10.3 |
| G ±0.25 | 7.87 | 7.87 |
| H ±0.25 | 4.32 | 4.32 |
| I ±0.25 | 15.11 | 12.95 |
| J Nom. | 22.73 | 19.81 |
| Minimum distance to edge of sheet | 8.64 | 8.64 |

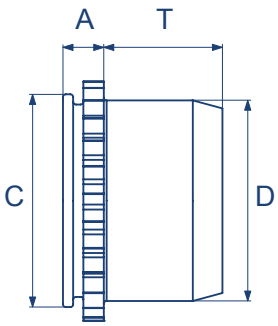
## Metric Performance Data

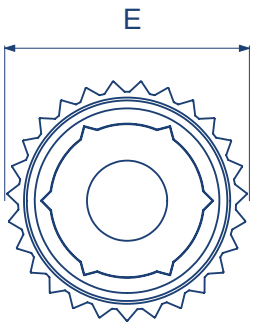
| Aluminium | | Steel | |
|---|---|---|---|
| Installation (Kn) | Pushout (N) | Installation (Kn) | Pushout (N) |
| 13.3 | 1779 | 17.8 | 2224 |

KB-PTL2 - Recommended for use in sheet hardness: HRB 80 or less
KB-PSL2 - Recommended for use in sheet hardness: HRB 80 or less

# Nylon Lock Nuts
KB-PL/KB-PLC

## Zinc Plated Steel: KB-PL | Stainless Steel: KB-PLC



## Metric Dimensions

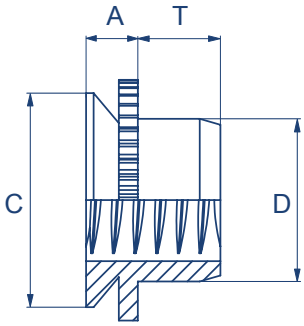
| Thread | M3 | M4 | M5 |
|---|---|---|---|
| A maximum | 1.53 | 1.53 | 1.53 |
| Sheet thickness | 1.0 - 1.78 | 1.0 - 1.78 | 1.0 - 1.78 |
| Recommended hole size +0.08 | 6.0 | 7.5 | 8.0 |
| C maximum | 5.98 | 7.48 | 7.98 |
| D maximum | 5.52 | 7.01 | 7.52 |
| E maximum | 7.01 | 8.54 | 9.0 |
| T maximum | 3.56 | 4.2 | 4.45 |
| Minimum distance to edge of sheet | 4.32 | 5.59 | 6.35 |
| Maximum hole in attached parts | 3.5 | 4.5 | 5.5 |

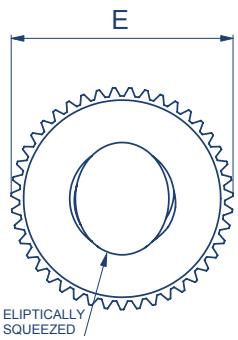
KB-PL - Recommended for use in sheet hardness: HRB 70 or less
KB-PLC- Recommended for use in sheet hardness: HRB 70 or less

# Self-Locking Mini Squeezed Nuts

KB-UL/KB-FE/KB-FEO

## Stainless Steel: KB-UL/KB-FE/KB-FEO



## Metric Dimensions: KB-UL

| Thread | M2 |
|---|---|
| E | 4.07 |
| A | 0.79 |
| C | 3.60 |
| D | 2.50 |
| T | 1.65 |
| Sheet thickness | 0.76 - 0.91 |
| Recommended hole size +0.08 | 3.61 |
| Minimum distance to edge of sheet | 2.80 |

## Metric Dimensions: KB-FE/KB-FEO

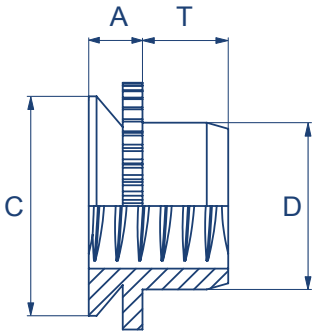
| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| E | | 4.88 | 8.17 | 8.17 | 9.74 |
| A | FE | 1.53 | 1.52 | 1.53 | 1.53 |
| | FEO | 1.02 | 1.02 | 1.02 | |
| C | | 4.37 | 7.37 | 7.37 | 8.72 |
| D | | 3.96 | 5.23 | 6.48 | 7.72 |
| T | | 1.9 | 2.55 | 3.05 | 3.3 |
| Sheet thickness | FE | 1.5 - 1.78 | 1.5 - 1.78 | 1.5 - 1.78 | 1.5 - 1.78 |
| | FEO | 0.99 - 1.14 | 0.99 - 1.14 | 0.99 - 1.14 | |
| Hole size in sheet +0.08 | | 4.39 | 7.39 | 7.39 | 8.74 |
| Minimum distance to edge of sheet | | 3.6 | 5.2 | 5.2 | 7.1 |

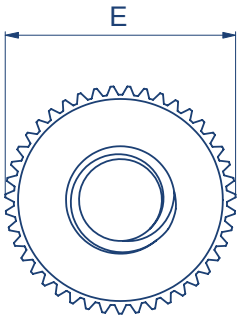
KB-UL/FE/FEO - Recommended for use in sheet hardness: HRB 70 or less

# Non-Locking Mini Squeezed Nuts

KB-U/TR-FEX/KB-FEOX

## Stainless Steel: KB-U/KB-FEX/KB-FEOX



## Metric Dimensions: KB-U

| Thread | M2 |
|---|---|
| E | 4.07 |
| A | 0.79 |
| C | 3.60 |
| D | 2.50 |
| T | 1.65 |
| Sheet thickness | 0.76 - 0.91 |
| Recommended hole size +0.08 | 3.61 |
| Minimum distance to edge of sheet | 2.80 |

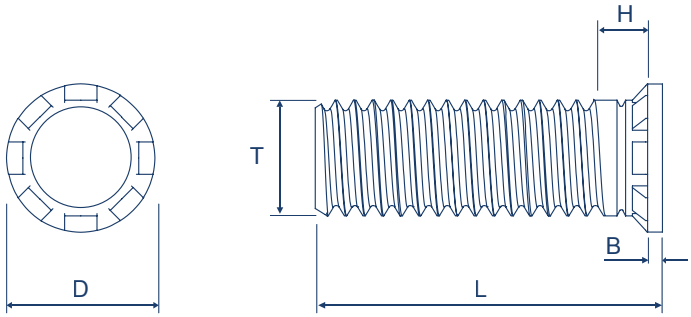
## Metric Dimensions: KB-FEX/KB-FEOX

| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| E | | 4.88 | 8.17 | 8.17 | 9.74 |
| A | FEX | 1.53 | 1.53 | 1.53 | 1.53 |
| | FEOX | 1.02 | 1.02 | 1.02 | |
| C | | 4.37 | 7.37 | 7.37 | 8.72 |
| D | | 3.96 | 5.23 | 6.48 | 7.72 |
| T | | 1.9 | 2.55 | 3.05 | 3.3 |
| Sheet thickness | FEX | 1.5 - 1.78 | 1.5 - 1.78 | 1.5 - 1.78 | 1.5 - 1.78 |
| | FEOX | 0.99 - 1.14 | 0.99 - 1.14 | 0.99 - 1.14 | |
| Hole size in sheet +0.08 | | 4.39 | 7.39 | 7.39 | 8.74 |
| Minimum distance to edge of sheet | | 3.6 | 5.2 | 5.2 | 7.1 |

KB-U/FEX/FEOX - Recommended for use in sheet hardness: HRB 70 or less

# Thin Sheet Studs
KB-TFH/KB-TFHS

## Zinc Plated Steel: KB-TFH | Stainless Steel: KB-TFHS



## Metric Dimensions

| Thread | M3 | M4 | M5 |
|---|---|---|---|
| D ±0.25 | 4.5 | 5.8 | 6.4 |
| H maximum | 1.8 | 1.8 | 2.3 |
| B maximum | 0.64 | 0.64 | 0.64 |
| Minimum sheet thickness | 0.51 | 0.51 | 0.51 |
| Recommended Hole Size +0.08 | 3.0 | 4.0 | 5.0 |

## Preferred Range

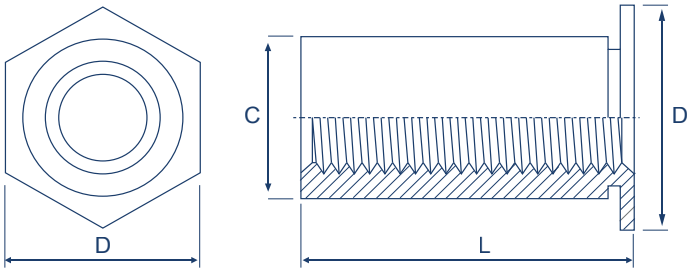
| Thread | | M3 | M4 | M5 |
|---|---|---|---|---|
| (L) Length ±0.4 | 6 | • | | |
| | 8 | • | • | |
| | 10 | • | • | |
| | 12 | • | • | |
| | 15 | • | • | |
| | 18 | | | |
| | 20 | | • | |

KB-TFH - Recommended for use in sheet hardness: HRB 80 or less
KB-TFHS - Recommended for use in sheet hardness: HRB 70 or less

# Thin Sheet Standoffs

KB-TSO/KB-TSOS

## Zinc Plated Steel: KB-TSO | Stainless Steel: KB-TSOS



## Metric Dimensions

| Thread | M2.5 | M2.5 Alt | M3 | M3 Alt | M3.5 |
|---|---|---|---|---|---|
| C -0.13 | 4.2 | 5.39 | 4.2 | 5.39 | 5.39 |
| D ±0.25 | 4.8 | 6.4 | 4.8 | 6.4 | 6.4 |
| Minimum sheet thickness | 0.63 | | | | |
| Recommended hole size +0.08 | 4.22 - 4.30 | 5.41 - 5.49 | 4.22 - 4.30 | 5.41 - 5.49 | 5.41 - 5.49 |
| Minimum distance to edge of sheet | 5.8 | 7.1 | 5.8 | 7.1 | 7.1 |

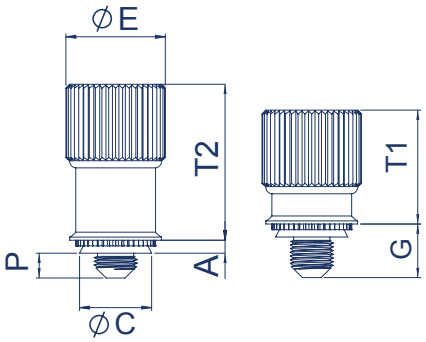
## Preferred Range

| Thread | | M2.5 | M2.5 Alt | M3 | M3 Alt | M3.5 |
|---|---|---|---|---|---|---|
| (L) Length | 2mm | | | • | | |
| | 3mm | • | | • | | |
| | 4mm | • | | • | | |
| | 6mm | • | • | • | | |
| | 8mm | • | • | • | | |
| | 10mm | Blind | • | • | | |
| | 12mm | | | Blind | | |
| | 14mm | Blind | | Blind | | |
| | 16mm | | | | | |
| | 18mm | | | | | |
| | 19mm | | | | | |

KB-TSO - Recommended for use in sheet hardness: HRB 60 or less
KB-TSOS - Recommended for use in sheet hardness: HRB 70 or less

# Captive Panel Screws
KB-PF11

## Nickel Plated Heat Treated Steel (Retainer), Aluminium (Knob), Stainless Steel (Screw & Spring): KB-PF11



## Metric Dimensions

| Thread | M3 | | M4 | | | M5 | | | M6 |
|---|---|---|---|---|---|---|---|---|---|
| Screw length code | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 2 |
| A maximum | 0.92 | | 0.92 | | | 0.92 | | | 0.92 |
| Minimum sheet thickness | 0.92 | | 0.92 | | | 0.92 | | | 0.92 |
| Recommended hole size +0.08 | 5.56 | | 7.92 | | | 7.92 | | | 9.53 |
| C maximum | 5.54 | | 7.90 | | | 7.90 | | | 9.50 |
| E ±0.25 | 10.59 | | 13.06 | | | 13.06 | | | 14.61 |
| G ±0.64 | 4.32 | 5.84 | 5.84 | 7.37 | 8.89 | 5.84 | 7.37 | 8.89 | 10.41 |
| P ±0.64 | 0 | 1.52 | 0 | 1.52 | 3.05 | 0 | 1.52 | 3.05 | 3.05 |
| T1 Nom. | 7.87 | | 11.43 | | | 11.43 | | | 13.46 |
| T2 Nom. | 11.43 | | 16.26 | | | 16.26 | | | 20.07 |
| Driver size | #1 | | #2 | | | #2 | | | #3 |
| Minimum distance to edge of sheet | 7.11 | | 8.38 | | | 8.38 | | | 11.68 |

## Metric Performance Data: KB-PF11

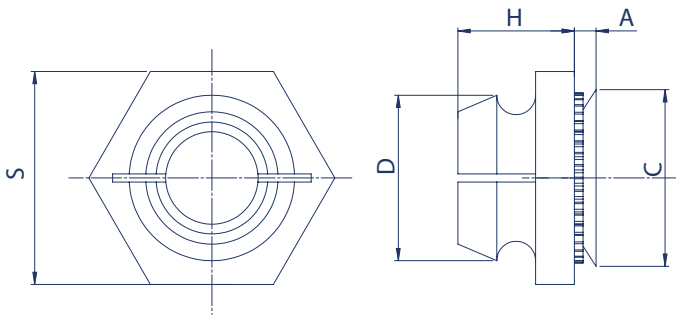
| Thread | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|
| Installation (kN) | Aluminium | 6.7 | 13.3 | 13.3 | 15.6 |
| | Steel | 11.1 | 20.0 | 20.0 | 22.2 |
| Pushout (N) | Aluminium | 355 | 445 | 445 | 465 |
| | Steel | 645 | 710 | 710 | 865 |

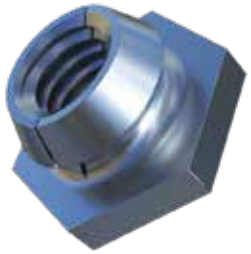
KB-PF11 - Recommended for use in sheet hardness: HRB 80 or less.

# Self Clinch Locking Nuts

KB-LK/KB-LKS

## Zinc Plated Steel: KB-LK | Stainless Steel: KB-LKS



## Metric Dimensions

| Thread | M2.5 | | M3 | | M4 | | M5 | |
|---|---|---|---|---|---|---|---|---|
| Shank code | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| A shank maximum | 0.97 | 1.38 | 0.97 | 1.38 | 0.97 | 1.38 | 0.97 | 1.38 |
| Minimum sheet thickness | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 | 1.0 | 1.4 |
| Recommended hole size +0.08 | 4.37 | | 4.75 | | 6.76 | | 7.92 | |
| C maximum | 4.35 | | 4.73 | | 6.73 | | 7.90 | |
| D maximum | 4.45 | | 4.85 | | 6.20 | | 7.40 | |
| S Nom. | 6.35 | | 6.35 | | 8.73 | | 9.53 | |
| H ±0.25 | 3.43 | | 3.43 | | 4.45 | | 5.21 | |
| Minimum distance to edge of sheet | 3.90 | | 4.00 | | 5.20 | | 5.60 | |

## Preferred Range

| Shank Code | Thread | | | |
|---|---|---|---|---|
| | M2.5 | M3 | M4 | M5 |
| 1 | • | • | • | • |
| 2 | • | • | • | • |

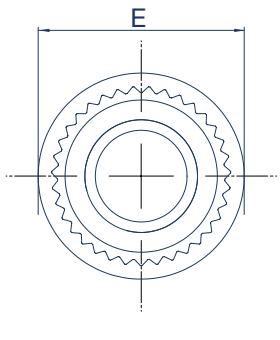
## Metric Performance Data: KB-LK/KB-LKS

| Thread | | M2.5 | | M3 | | M4 | | M5 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Installation (kN) | Aluminium | 7.1 | 8.9 | 7.1 | 8.9 | 12.0 | 13.3 | 14.2 | 14.2 |
| | Steel | 13.3 | 13.3 | 13.3 | 13.3 | 17.8 | 19.1 | 17.8 | 19.1 |
| Pushout (N) | Aluminium | 578 | 667 | 578 | 890 | 667 | 1112 | 667 | 1112 |
| | Steel | 667 | 711 | 667 | 1112 | 845 | 1334 | 1112 | 1334 |

KB-LK/LKS - Recommended for use in sheet hardness: HRB 70 or less

# Thin Sheet Nuts
KB-SMPS

## Zinc Plated Steel: KB-SMPS



## Metric Dimensions

| Thread | M2.5 | M3 | M3.5 |
|---|---|---|---|
| A shank maximum | | 0.61 | |
| Minimum sheet thickness | | 0.64 | |
| Recommended hole size +0.08 | 3.8 | 4.24 | 4.75 |
| C maximum | 3.79 | 4.22 | 4.73 |
| E ±0.25 | 5.6 | 5.6 | 6.4 |
| T ±0.25 | | 1.4 | |
| Minimum distance to edge of sheet | 3.7 | 4.3 | 5.1 |

## Preferred Range

| Thread | M2.5 | M3 | M3.5 |
|---|---|---|---|
| | • | • | |

## Metric Performance Data: KB-SMPS

| Thread | M2.5 | M3 | M3.5 |
|---|---|---|---|
| Test sheet material | | Steel | |
| Installation (kN) | 6.7 | 8.0 | 8.8 |
| Pushout (N) | 156 | 267 | 289 |
| Torque-Out (Nm) | 1.13 | 1.35 | 1.58 |

KB-SMPS - Recommended for use in sheet hardness: HRB 70 or less

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