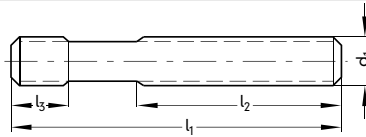


27003

Stud bolts



Type  
DIN 6379, rolled thread, tempered, strength category M 6 - M 12 = 10.9, M 14 - M 24 = 8.8.



27003



| d <sub>1</sub> x l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | 27003 | ... |
|---------------------------------------|----------------------|----------------------|-------|-----|
| M 6 x 32                              | 16                   | 9                    |       | 101 |
| M 6 x 50                              | 30                   | 9                    |       | 103 |
| M 6 x 80                              | 50                   | 9                    |       | 105 |
| M 8 x 40                              | 20                   | 11                   |       | 106 |
| M 8 x 63                              | 40                   | 11                   |       | 107 |
| M 8 x 63                              | 100                  | 11                   |       | 109 |
| M 8 x 75                              | 125                  | 11                   |       | 110 |
| M 8 x 100                             | 160                  | 11                   |       | 111 |
| M 10 x 25                             | 50                   | 13                   |       | 112 |
| M 10 x 80                             | 50                   | 13                   |       | 113 |
| M 10 x 125                            | 75                   | 13                   |       | 115 |
| M 10 x 160                            | 100                  | 13                   |       | 116 |
| M 10 x 200                            | 122                  | 13                   |       | 117 |
| M 12 x 50                             | 25                   | 15                   |       | 118 |
| M 12 x 63                             | 32                   | 15                   |       | 119 |
| M 12 x 80                             | 50                   | 15                   |       | 120 |
| M 12 x 100                            | 63                   | 15                   |       | 121 |
| M 12 x 125                            | 75                   | 15                   |       | 122 |
| M 12 x 160                            | 100                  | 15                   |       | 123 |
| M 12 x 200                            | 122                  | 15                   |       | 124 |
| M 14 x 63                             | 32                   | 17                   |       | 125 |
| M 14 x 63                             | 100                  | 17                   |       | 126 |
| M 14 x 160                            | 100                  | 17                   |       | 127 |
| M 14 x 200                            | 122                  | 17                   |       | 128 |
| M 14 x 250                            | 160                  | 17                   |       | 129 |

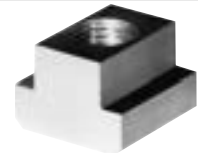
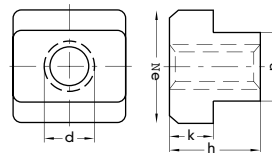
| d <sub>1</sub> x l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | 27003 | ... |
|---------------------------------------|----------------------|----------------------|-------|-----|
| M 16 x 63                             | 32                   | 19                   |       | 130 |
| M 16 x 80                             | 50                   | 19                   |       | 131 |
| M 16 x 100                            | 63                   | 19                   |       | 132 |
| M 16 x 125                            | 75                   | 19                   |       | 133 |
| M 16 x 160                            | 100                  | 19                   |       | 134 |
| M 16 x 200                            | 122                  | 19                   |       | 135 |
| M 16 x 250                            | 160                  | 19                   |       | 136 |
| M 16 x 315                            | 180                  | 19                   |       | 137 |
| M 16 x 315                            | 500                  | 19                   |       | 138 |
| M 20 x 32                             | 80                   | 27                   |       | 145 |
| M 20 x 70                             | 125                  | 27                   |       | 146 |
| M 20 x 100                            | 160                  | 27                   |       | 147 |
| M 20 x 122                            | 200                  | 27                   |       | 148 |
| M 20 x 160                            | 250                  | 27                   |       | 149 |
| M 20 x 200                            | 315                  | 27                   |       | 150 |
| M 20 x 250                            | 400                  | 27                   |       | 151 |
| M 20 x 315                            | 500                  | 27                   |       | 152 |
| M 24 x 100                            | 160                  | 35                   |       | 161 |
| M 24 x 122                            | 200                  | 35                   |       | 162 |
| M 24 x 160                            | 250                  | 35                   |       | 163 |
| M 24 x 200                            | 315                  | 35                   |       | 164 |
| M 24 x 250                            | 400                  | 35                   |       | 165 |
| M 24 x 315                            | 500                  | 35                   |       | 166 |
| M 24 x 315                            | 630                  | 35                   |       | 167 |

27004

T-keyway nuts



Type  
DIN 508 tempered, strength category 10.  
T-keyway nuts marked with A are produced in compliance with old norm 1928.



27004

| d x nominal<br>keyway size | a<br>mm | e<br>mm | h<br>mm | k<br>mm | 27004 | ... |
|----------------------------|---------|---------|---------|---------|-------|-----|
| M 5 x 6                    | 5.7     | 10      | 8       | 4       |       | 201 |
| M 6 x 6                    | 7.7     | 10      | 8       | 13      |       | 202 |
| M 8 x 6                    | 9.7     | 15      | 12      | 6       |       | 203 |
| M 10 x 12                  | 11.7    | 18      | 14      | 7       |       | 205 |
| M 10 x 14 A                | 13.7    | 22      | 16      | 8       |       | 207 |
| M 10 x 16 A                | 15.7    | 25      | 18      | 9       |       | 240 |
| M 10 x 18 A                | 17.7    | 28      | 20      | 10      |       | 243 |
| M 12 x 14                  | 13.7    | 22      | 16      | 8       |       | 208 |
| M 12 x 16 A                | 15.7    | 25      | 18      | 9       |       | 211 |
| M 14 x 16 A                | 15.7    | 25      | 18      | 9       |       | 212 |

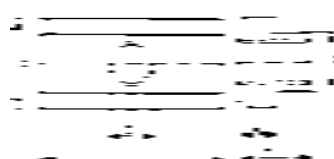
| d x nominal<br>keyway size | a<br>mm | e<br>mm | h<br>mm | k<br>mm | 27004 | ... |
|----------------------------|---------|---------|---------|---------|-------|-----|
| M 14 x 18 A                | 17.7    | 28      | 20      | 10      |       | 216 |
| M 16 x 18                  | 17.7    | 28      | 20      | 10      |       | 217 |
| M 16 x 20 A                | 19.7    | 32      | 24      | 12      |       | 218 |
| M 18 x 20 A                | 19.7    | 32      | 24      | 12      |       | 219 |
| M 16 x 22 A                | 21.7    | 35      | 28      | 14      |       | 220 |
| M 20 x 22                  | 21.7    | 35      | 28      | 14      |       | 222 |
| M 20 x 24 A                | 23.7    | 40      | 32      | 16      |       | 224 |
| M 20 x 28 A                | 27.7    | 44      | 36      | 18      |       | 227 |
| M 24 x 28                  | 27.7    | 44      | 36      | 18      |       | 229 |
| M 24 x 36 A                | 35.6    | 54      | 44      | 22      |       | 232 |

27005

T-keyway nuts, long



Type  
Tempered, strength category 10.  
Use  
This long form protects table grooves on precision machines.



27005

| d x nominal<br>keyway size | a<br>mm | e<br>mm | l<br>mm | h<br>mm | k<br>mm | 27005 | ... |
|----------------------------|---------|---------|---------|---------|---------|-------|-----|
| M 6 x 8                    | 7.7     | 13      | 26      | 10      | 6       |       | 202 |
| M 8 x 10                   | 9.7     | 15      | 30      | 12      | 6       |       | 203 |
| M 10 x 12                  | 11.7    | 18      | 36      | 14      | 7       |       | 204 |
| M 12 x 14                  | 13.7    | 22      | 44      | 16      | 8       |       | 205 |
| M 14 x 16                  | 15.7    | 25      | 50      | 18      | 9       |       | 206 |

| d x nominal<br>keyway size | a<br>mm | e<br>mm | l<br>mm | h<br>mm | k<br>mm | 27005 | ... |
|----------------------------|---------|---------|---------|---------|---------|-------|-----|
| M 16 x 18                  | 17.7    | 28      | 56      | 20      | 10      |       | 207 |
| M 18 x 20                  | 19.7    | 32      | 64      | 24      | 12      |       | 208 |
| M 20 x 22                  | 21.7    | 35      | 70      | 28      | 14      |       | 209 |
| M 24 x 28                  | 21.7    | 44      | 88      | 36      | 18      |       | 210 |

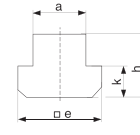
27006

T-keyway nuts, blanks



Type  
Tempered steel 0.35 - 0.45 % C.

Use  
These blanks allow economical manufacture of T-nuts with non-standard threads.



27006

| Nominal keyway size | a mm | e mm | h mm | k mm | 27006 | ... |
|---------------------|------|------|------|------|-------|-----|
| 8                   | 7.7  | 13   | 10   | 6    |       | 202 |
| 10                  | 9.7  | 15   | 12   | 6    |       | 203 |
| 12                  | 11.7 | 18   | 14   | 7    |       | 204 |
| 14                  | 13.7 | 22   | 16   | 8    |       | 205 |
| 16                  | 15.7 | 25   | 18   | 9    |       | 206 |
| 18                  | 17.7 | 28   | 20   | 10   |       | 207 |

| Nominal keyway size | a mm | e mm | h mm | k mm | 27006 | ... |
|---------------------|------|------|------|------|-------|-----|
| 20                  | 19.7 | 32   | 24   | 12   |       | 208 |
| 22                  | 21.7 | 35   | 28   | 14   |       | 209 |
| 24                  | 23.7 | 40   | 32   | 16   |       | 210 |
| 28                  | 27.7 | 44   | 36   | 18   |       | 211 |
| 32                  | 31.7 | 50   | 40   | 20   |       | 212 |
| 36                  | 35.6 | 54   | 44   | 22   |       | 213 |

27007

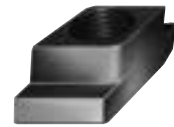
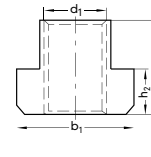
T-keyway nuts, rhombic



Type  
Tempered, strength M 10 - M 12 = 8.  
M 14 - M 20 = 6.

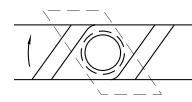
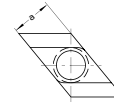
Use  
Inserted into T-keyway from above and turned.

Note:  
Additional clamping surface within clamping attachment. Another clamping section can easily be added even if the machine T-keyway is occupied.



27007

| d x nominal keyway size | a mm | b1 mm | h1 mm | h2 mm | 27007 | ... |
|-------------------------|------|-------|-------|-------|-------|-----|
| M 10 x 12               | 11,7 | 18    | 14    | 7     |       | 101 |
| M 12 x 14               | 13,7 | 22    | 16    | 8     |       | 102 |
| M 14 x 16               | 15,7 | 25    | 18    | 9     |       | 103 |
| M 16 x 18               | 17,7 | 28    | 20    | 10    |       | 104 |
| M 20 x 22               | 21,7 | 35    | 28    | 14    |       | 106 |



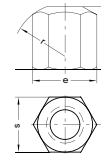
27008

Nuts, H = 1.5 x d



Type  
DIN 6330 B tempered, strength category 10.  
( ) = old standard.

Use  
For stud bolts and T-keyway bolts.  
Also suitable with concave conical-faced washers cat.-no. 27017 - 27018



27008

| Thread | s mm | e mm  | m 1.5 x d | r mm | 27008 | ... |
|--------|------|-------|-----------|------|-------|-----|
| M 6    | 10   | 11.05 | 9         | 9    |       | 301 |
| M 8    | 13   | 14.40 | 12        | 12   |       | 302 |
| M 10   | 16   | 17.80 | 15        | 15   |       | 303 |
| M 10   | (17) | 18.90 | 15        | 15   |       | 304 |
| M 12   | 18   | 20.03 | 18        | 17   |       | 305 |
| M 12   | (19) | 21.10 | 18        | 17   |       | 306 |
| M 14   | 21   | 23.40 | 21        | 20   |       | 307 |

| Thread | s mm | e mm  | m 1.5 x d | r mm | 27008 | ... |
|--------|------|-------|-----------|------|-------|-----|
| M 14   | (22) | 24.50 | 21        | 20   |       | 308 |
| M 16   | 24   | 26.80 | 24        | 22   |       | 309 |
| M 20   | 30   | 33.50 | 30        | 27   |       | 311 |
| M 22   | 30   | 37.70 | 33        | 34   |       | 313 |
| M 24   | 36   | 40.00 | 36        | 32   |       | 314 |
| M 27   | 36   | 45.60 | 40        | 41   |       | 315 |

27009 - 27010

Nuts with collar, H = 1.5 x d



Type  
DIN 6331 tempered, strength category 10.  
( ) = old standard.

Use  
For stud bolts and T-keyway bolts.

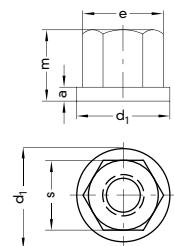
27009  
Type  
Turned and milled.

27010  
Type  
Forged.



27009

| Thread | s mm | e mm  | m 1.5 x d | a mm | d1 mm | 27009 | ... | 27010 | ... |
|--------|------|-------|-----------|------|-------|-------|-----|-------|-----|
| M 6    | 10   | 11,05 | 9         | 3,0  | 14    |       |     |       | 201 |
| M 8    | 13   | 14,40 | 12        | 3,5  | 18    |       | 202 |       | 202 |
| M 10   | 16   | 17,80 | 15        | 4,0  | 22    |       |     |       | 203 |
| M 10   | (17) | 18,90 | 15        | 4,0  | 22    |       | 204 |       |     |
| M 12   | 18   | 20,03 | 18        | 4,0  | 25    |       |     |       | 204 |
| M 12   | (19) | 21,10 | 18        | 4,0  | 25    |       | 206 |       |     |
| M 14   | 21   | 23,40 | 21        | 4,5  | 28    |       | 207 |       |     |
| M 14   | (22) | 24,50 | 21        | 4,5  | 28    |       | 208 |       |     |
| M 16   | 24   | 26,80 | 24        | 5,0  | 31    |       | 209 |       | 205 |
| M 18   | 27   | 30,10 | 27        | 5,0  | 34    |       |     |       | 206 |
| M 20   | 30   | 33,50 | 30        | 6,0  | 37    |       | 211 |       | 207 |
| M 22   | 34   | 37,70 | 33        | 6,0  | 40    |       | 213 |       |     |
| M 24   | 36   | 40,00 | 36        | 6,0  | 45    |       | 214 |       | 208 |
| M 27   | 41   | 45,60 | 40        | 8,0  | 50    |       | 215 |       | 209 |



## 27011

## Quick-action nut with collar



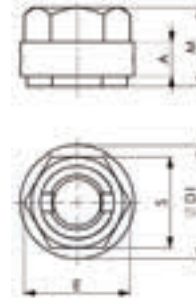
### Type

Forged and tempered, strength category 10. Easy assembly/disassembly at tight and non-obvious locations. No need to search for the thread, no seizing due to outside influences and no dirt-related problems.

### Use

For bridging long threads and clamping spindles.

27011



| Thread | A<br>mm | D1<br>mm | E<br>mm | M<br>mm | S<br>mm | 27011 | ... |
|--------|---------|----------|---------|---------|---------|-------|-----|
| M 16   | 10.4    | 35.5     | 30.68   | 23.4    | 27      |       | 101 |
| M 20   | 12.5    | 42.0     | 38.60   | 29.0    | 34      |       | 102 |
| M 24   | 16.0    | 50.4     | 46.72   | 34.8    | 41      |       | 103 |

## 27013

## Extension nuts, H = 3.0 x d



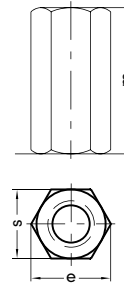
### Type

Tempered, strength category 10. ( ) = old standard.

### Use

The extension nut serves as connector between DIN 787 (screw for T-keyways cat.-no. 27015) and DIN 6379 (stud bolts cat.-no. 27003) and can not be screwed through. For function and safety both screws should match half the length of nut on either side. Minimum depth is 1 x diameter of thread.

27013



| Thread | s<br>mm | e<br>mm | m<br>3.0 x d | 27013 | ... |
|--------|---------|---------|--------------|-------|-----|
| M 6    | 10      | 11,05   | 18           |       | 101 |
| M 8    | 13      | 14,40   | 24           |       | 102 |
| M 10   | (17)    | 18,90   | 30           |       | 104 |
| M 12   | 18      | 20,03   | 36           |       | 105 |
| M 12   | (19)    | 21,10   | 36           |       | 106 |
| M 14   | 21      | 23,40   | 42           |       | 107 |
| M 14   | (22)    | 24,50   | 42           |       | 108 |
| M 16   | 24      | 26,80   | 48           |       | 109 |
| M 18   | 27      | 30,10   | 54           |       | 110 |
| M 20   | 30      | 33,50   | 60           |       | 111 |
| M 22   | 34      | 37,70   | 66           |       | 113 |
| M 24   | 36      | 40,00   | 72           |       | 114 |
| M 27   | 41      | 45,60   | 81           |       | 115 |

## 27014

## Washers



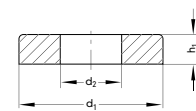
### Type

DIN 6340, extra thick and large, punched. Tempered 1200 - 1400 N/mm<sup>2</sup> strength.

### Note:

Dimensions in compliance with DIN, but punched out and stamped flat. ( ) DIN extended.

27014



| for<br>Screws | d <sub>2</sub><br>mm | d <sub>1</sub><br>mm | h <sub>1</sub><br>mm | 27014 | ... |
|---------------|----------------------|----------------------|----------------------|-------|-----|
| M 6           | 6.4                  | 17                   | 3                    |       | 201 |
| M 8           | 8.4                  | 23                   | 4                    |       | 202 |
| M 10          | 10.5                 | 28                   | 4                    |       | 203 |
| M 12          | 13.0                 | 35                   | 5                    |       | 204 |
| (M 14)        | 15.0                 | 40                   | 5                    |       | 205 |
| M 16          | 17.0                 | 45                   | 6                    |       | 206 |
| (M 18)        | 19.0                 | 45                   | 6                    |       | 207 |
| M 20          | 21.0                 | 50                   | 6                    |       | 208 |
| (M 22)        | 23.0                 | 50                   | 8                    |       | 209 |
| M 24          | 21.0                 | 60                   | 8                    |       | 210 |
| (M 27)        | 28.0                 | 68                   | 10                   |       | 211 |
| M 30          | 31.0                 | 68                   | 10                   |       | 212 |

27015

T-keyway bolts (clamping screws)



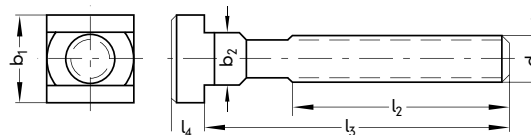
Type

**DIN 787.** Assembly with nut and washer DIN 6340 and tail nut DIN 6330 D. Forged, tempered, strength category M 8 - M 12 = 10.9, M 14 - M 28 = 8.8, head and screw made from one piece. Rolled thread, exactly milled guide-face.

Note:

T-keyway screws DIN 787 of other lengths and thread sizes, bolts (also without nuts and washers) and in strength category 12.9 can be supplied on request.

27015



| Nominal keyway size | d <sub>1</sub> x l <sub>3</sub> mm | l <sub>2</sub> mm | b <sub>2</sub> mm | b <sub>1</sub> mm | l <sub>4</sub> mm | 27015 | ... |
|---------------------|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------|-----|
| 8                   | M 8 x 32                           | 22                | 7.7               | 13                | 6                 | 304   |     |
| 8                   | M 8 x 50                           | 35                | 7.7               | 13                | 6                 | 305   |     |
| 8                   | M 8 x 80                           | 50                | 7.7               | 13                | 6                 | 306   |     |
| 10                  | M 10 x 63                          | 45                | 9.7               | 15                | 6                 | 308   |     |
| 10                  | M 10 x 100                         | 60                | 9.7               | 15                | 6                 | 309   |     |
| 12                  | M 12 x 50                          | 35                | 11.7              | 18                | 7                 | 310   |     |
| 12                  | M 12 x 63                          | 40                | 11.7              | 18                | 7                 | 311   |     |
| 12                  | M 12 x 80                          | 55                | 11.7              | 18                | 7                 | 312   |     |
| 12                  | M 12 x 125                         | 75                | 11.7              | 18                | 7                 | 313   |     |
| 12                  | M 12 x 200                         | 120               | 11.7              | 18                | 7                 | 314   |     |
| 14                  | M 12 x 50                          | 35                | 13.7              | 22                | 8                 | 315   |     |
| 14                  | M 12 x 63                          | 45                | 13.7              | 22                | 8                 | 316   |     |
| 14                  | M 12 x 80                          | 55                | 13.7              | 22                | 8                 | 317   |     |
| 14                  | M 12 x 125                         | 75                | 13.7              | 22                | 8                 | 318   |     |
| 14                  | M 12 x 200                         | 120               | 13.7              | 22                | 8                 | 319   |     |
| 16                  | M 14 x 63                          | 45                | 15.7              | 25                | 9                 | 320   |     |
| 16                  | M 14 x 100                         | 65                | 15.7              | 25                | 9                 | 321   |     |
| 16                  | M 14 x 160                         | 100               | 15.7              | 25                | 9                 | 322   |     |
| 16                  | M 14 x 250                         | 120               | 15.7              | 25                | 9                 | 323   |     |
| 16                  | M 16 x 63                          | 45                | 15.7              | 25                | 9                 | 324   |     |
| 16                  | M 16 x 80                          | 55                | 15.7              | 25                | 9                 | 325   |     |
| 16                  | M 16 x 100                         | 65                | 15.7              | 25                | 9                 | 326   |     |

| Nominal keyway size | d <sub>1</sub> x l <sub>3</sub> mm | l <sub>2</sub> mm | b <sub>2</sub> mm | b <sub>1</sub> mm | l <sub>4</sub> mm | 27015 | ... |
|---------------------|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------|-----|
| 16                  | M 16 x 160                         | 100               | 15.7              | 25                | 9                 | 327   |     |
| 16                  | M 16 x 200                         | 125               | 15.7              | 25                | 9                 | 328   |     |
| 16                  | M 16 x 250                         | 150               | 15.7              | 25                | 9                 | 329   |     |
| 18                  | M 16 x 63                          | 45                | 17.7              | 28                | 10                | 330   |     |
| 18                  | M 16 x 100                         | 65                | 17.7              | 28                | 10                | 332   |     |
| 18                  | M 16 x 160                         | 100               | 17.7              | 28                | 10                | 333   |     |
| 18                  | M 16 x 200                         | 125               | 17.7              | 28                | 10                | 334   |     |
| 18                  | M 16 x 250                         | 150               | 17.7              | 28                | 10                | 335   |     |
| 20                  | M 20 x 80                          | 55                | 19.7              | 32                | 12                | 336   |     |
| 20                  | M 20 x 125                         | 85                | 19.7              | 32                | 12                | 337   |     |
| 20                  | M 20 x 160                         | 110               | 19.7              | 32                | 12                | 338   |     |
| 20                  | M 20 x 200                         | 125               | 19.7              | 32                | 12                | 339   |     |
| 22                  | M 20 x 100                         | 65                | 21.7              | 35                | 14                | 342   |     |
| 22                  | M 20 x 125                         | 85                | 21.7              | 35                | 14                | 343   |     |
| 22                  | M 20 x 160                         | 110               | 21.7              | 35                | 14                | 344   |     |
| 22                  | M 20 x 200                         | 125               | 21.7              | 35                | 14                | 345   |     |
| 24                  | M 24 x 160                         | 110               | 23.7              | 40                | 16                | 346   |     |
| 24                  | M 24 x 200                         | 125               | 23.7              | 40                | 16                | 347   |     |
| 28                  | M 24 x 100                         | 70                | 27.7              | 44                | 18                | 348   |     |
| 28                  | M 24 x 160                         | 110               | 27.7              | 44                | 18                | 350   |     |
| 28                  | M 24 x 250                         | 150               | 27.7              | 44                | 18                | 352   |     |

27016

Spherically-faced washers



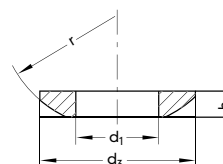
Type

**DIN 6319 C,** case-hardened and phosphated.

Note:

Dishes and spherical seat washers are used for clamping force transmission where compensation for uneven faces is needed. Matching of spherical seat washers resp. fixture nuts DIN 6330 with dished washers allow for decline compensation of 3° for the involved clamping bolts.

27016



| for Screws | d <sub>1</sub> mm | d <sub>3</sub> mm | h <sub>2</sub> mm | r mm | 27016 | ... |
|------------|-------------------|-------------------|-------------------|------|-------|-----|
| M 6        | 6.4               | 12                | 2.3               | 9    | 101   |     |
| M 8        | 8.4               | 17                | 3.2               | 12   | 102   |     |
| M 10       | 10.5              | 21                | 4.0               | 15   | 103   |     |
| M 12       | 13.0              | 24                | 4.6               | 17   | 104   |     |

| for Screws | d <sub>1</sub> mm | d <sub>3</sub> mm | h <sub>2</sub> mm | r mm | 27016 | ... |
|------------|-------------------|-------------------|-------------------|------|-------|-----|
| M 14       | 15.0              | 28                | 5.0               | 22   | 105   |     |
| M 16       | 17.0              | 30                | 5.3               | 22   | 106   |     |
| M 20       | 21.0              | 36                | 6.3               | 27   | 107   |     |
| M 24       | 25.0              | 44                | 8.2               | 32   | 108   |     |

27017

Concave-faced washers



Type

**DIN 6319 D,** case-hardened and phosphated. Suitable for screws with a strength similar to 8.8.

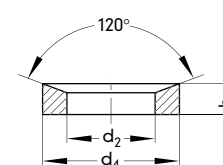
Use

Only for use on flat closed ring areas (not allowed for elongated holes, we recommend cat.-no. 27018 for those).

Note:

See cat.-no. 27016.

27017



| for Screws | max. (kN) | d <sub>2</sub> mm | d <sub>4</sub> mm | h <sub>3</sub> mm | 27017 | ... |
|------------|-----------|-------------------|-------------------|-------------------|-------|-----|
| M 6        | 9         | 7.1               | 12                | 2.8               | 101   |     |
| M 8        | 17        | 9.6               | 17                | 3.5               | 102   |     |
| M 10       | 26        | 12.0              | 21                | 4.2               | 103   |     |
| M 12       | 38        | 14.2              | 24                | 5.0               | 104   |     |

| for Screws | max. (kN) | d <sub>2</sub> mm | d <sub>4</sub> mm | h <sub>3</sub> mm | 27017 | ... |
|------------|-----------|-------------------|-------------------|-------------------|-------|-----|
| M 14       | 53        | 16.5              | 28                | 5.6               | 105   |     |
| M 16       | 73        | 19.0              | 30                | 6.2               | 106   |     |
| M 20       | 117       | 23.2              | 36                | 7.5               | 107   |     |
| M 24       | 168       | 28.0              | 44                | 9.5               | 108   |     |

27018

Concave-faced washers

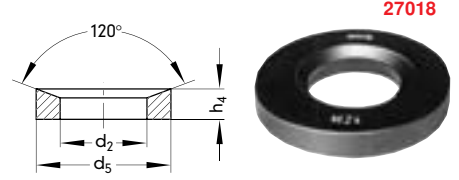


Type  
DIN 6319 G, punched, stamped, and tempered.

Use  
Thanks to the large diameter and thickness these washers are particularly suitable to match slotted clamps.

Note:  
Dishes and spherical seat washers are used for clamping force transmission where compensation for uneven faces is needed. Matching of spherical seat washers resp. fixture nuts DIN 6330 with dished washers allow for decline compensation of 3° for the involved clamping bolts.

| for Screws | d <sub>2</sub> mm | d <sub>5</sub> mm | h <sub>4</sub> mm | 27018 | ... |
|------------|-------------------|-------------------|-------------------|-------|-----|
| M 6        | 7.1               | 17                | 4                 |       | 101 |
| M 8        | 9.6               | 24                | 5                 |       | 102 |
| M 10       | 12.0              | 30                | 5                 |       | 103 |
| M 12       | 14.2              | 36                | 6                 |       | 104 |
| M 14       | 16.5              | 40                | 6                 |       | 105 |
| M 16       | 19.0              | 44                | 7                 |       | 106 |
| M 20       | 23.2              | 50                | 8                 |       | 107 |
| M 24       | 28.0              | 60                | 10                |       | 108 |



27020

Clamping Bolt Kits for T-Keyways



Type  
All parts tempered, strengths 8 resp. 10. With the help of extension nuts cat.-no. 27013 and stud bolts cat.-no. 27003 you can achieve any desired clamping height.  
In wooden case.

27020

| Nominal keyway size | thread | 27020 | ... |
|---------------------|--------|-------|-----|
| 10                  | M 10   |       | 101 |
| 12                  | M 12   |       | 102 |
| 14                  | M 12   |       | 103 |
| 16                  | M 14   |       | 104 |
| 18                  | M 16   |       | 106 |
| 22                  | M 20   |       | 108 |



| Set contents: | Keyways-size | Threads metric      | Cat. No. 27015<br>T-keyway screws<br>DIN 787<br>quant./length mm | Cat. No. 27003<br>4 x per stud-metricbolts<br>DIN 6379<br>length mm | Cat. No. 27004<br>Keyway pads<br>DIN 508<br>quant. | Cat. No. 27008<br>Hexagon nuts<br>DIN 6330 B<br>quant. | Cat. No. 27013<br>Extension-nuts<br>quant. | Cat. No. 27014<br>Washer discs<br>DIN 6340<br>quant. | Cat. No. 27016 + 018<br>Ball discs<br>concave washers<br>DIN 6319 C + G<br>set |
|---------------|--------------|---------------------|--|---|--|--|--|--|--|
| 10            | M 10         | 2/40 , 4/63 , 4/100 | 50 , 80 , 200  | -   | 4  | 4  | 4  | 4  | 4  |
| 12            | M 12         | 2/50 , 4/80 , 4/125 | 63 , 100 , 200   | -   | 4  | 4  | 4  | 4  | 4  |
| 14            | M 12         | 2/50 , 4/80         | 63 , 100 , 125 , 200   | 4   | 4  | 4  | 4  | 4  | 4  |
| 16            | M 14         | 2/63 , 4/100        | 63 , 100 , 160 , 250   | 4   | 4  | 4  | 4  | 4  | 4  |
| 18            | M 16         | 2/63 , 4/100        | 80 , 125 , 160   | 4   | 4  | 4  | 4  | 4  | 4  |
| 22            | M 20         | 2/80 , 4/125        | 80 , 125 , 200 , 315   | 4   | 4  | 4  | 4  | 4  | 4  |

27023

Clamping Screws Basic Assortments

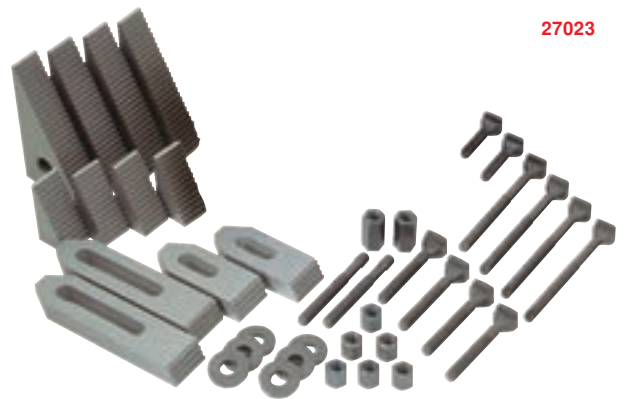


Type  
All parts made of tempered steel, T-keyway bolts tempered, rolled thread.

Use  
Ideal set for toolroom, manufacturing and training purposes.

27023

| Nominal keyway size | Thread | 27023 | ... |
|---------------------|--------|-------|-----|
| 14                  | M 12   |       | 101 |
| 16                  | M 14   |       | 102 |
| 18                  | M 16   |       | 103 |



| Set contents: | Keyway nominal size | washer metric | Cat. No. 27103<br>Plain clamps | Cat. No. 27125<br>Step blocks | Cat. No. 27015<br>T-keyway screws<br>DIN 787 | Cat. No. 27003<br>Pin screws<br>DIN 6379 | Cat. No. 27008<br>Hexagon nuts<br>DIN 6330 B | Cat. No. 27013<br>Extension nuts | Cat. No. 27014<br>Washer discs<br>DIN 6340 |
|---------------|---------------------|---------------|--------------------------------|-------------------------------|--|--|--|----------------------------------|--|
| 14            | M 12                | 2/100 , 2/160 | 4/Gr. 2 , 4/Gr. 3              | 2/50 , 4/80 , 4/125           | 2/100  | 6  | 2  | 6                                |  |
| 16            | M 14                | 2/100 , 2/160 | 4/Gr. 2 , 4/Gr. 3              | 2/63 , 4/100 , 4/160          | 2/100 , 2/160                                | 6  | 2  | 6                                |  |
| 18            | M 16                | 2/125 , 2/200 | 4/Gr. 2 , 4/Gr. 3              | 2/63 , 4/100 , 4/160          | 2/100 , 2/160                                | 6  | 4  | 6                                |  |

**27024 Thread paste**



**Type**  
Paste based on mineral fat, with a synergic combination of high-performance white solid lubricants. Heat-resistant, cannot be washed out.

**Use**  
For lubricating often used screws or nuts of clamping fixtures, especially when aggressive cooling lubricants are used.



27024

| Content ml | Temperature application range °C | 27024 | ... |
|------------|----------------------------------|-------|-----|
| 75         | -25 - +125                       |       | 101 |

**27038 Loose tenons**

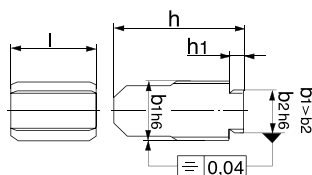


**Type**  
DIN 6323, case-hardened and ground.  
**Use**

After rough alignment of fixture, the tenons are pushed into T-keyway from the side. No protruding fixed T-nuts can obstruct the transport of fixtures and no damage to machine tables can occur.

**27038 106-113**  
Suitable for large machines:  
Device groove 20.

**27038 101-102**  
Suitable for small machines:  
Device groove 12.



Nominal size of the keyways at the

| Machine b <sub>1</sub> mm | Fixture b <sub>2</sub> mm | h mm | h <sub>1</sub> mm | l mm | 27038 | ... |
|---------------------------|---------------------------|------|-------------------|------|-------|-----|
| 10                        | 12                        | 12.0 | 3.6               | 20   |       | 101 |
| 12                        | 12                        | 28.6 | 5.5               | 20   |       | 102 |
| 12                        | 20                        | 14.0 | 5.5               | 32   |       | 106 |
| 14                        | 20                        | 14.0 | 5.5               | 32   |       | 107 |
| 16                        | 20                        | 14.0 | 5.5               | 32   |       | 108 |

Nominal size of the keyways at the

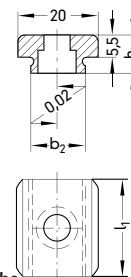
| Machine b <sub>1</sub> mm | Fixture b <sub>2</sub> mm | h mm | h <sub>1</sub> mm | l mm | 27038 | ... |
|---------------------------|---------------------------|------|-------------------|------|-------|-----|
| 18                        | 20                        | 14.0 | 5.5               | 32   |       | 109 |
| 20                        | 20                        | 45.5 | 7.0               | 32   |       | 110 |
| 22                        | 20                        | 50.5 | 7.0               | 40   |       | 111 |
| 24                        | 20                        | 55.5 | 7.0               | 40   |       | 112 |
| 28                        | 20                        | 61.5 | 7.0               | 40   |       | 113 |

**27040 Fixed tenons**



**Type**  
DIN 6322 A, case-hardened and ground.

**Use**  
These fixed type tenons are screwed in pairs into the standard 20 mm wide set keyways of vises or fixtures. Because of the possibility to exchange the tenons, you can work on the machines with different keyway sizes. For especially suitable heavy-duty fixtures we recommend our loose tenons DIN 6323 (cat.-no. 27038).



27040

Nominal size of the keyways at the

| machine b <sub>2</sub> mm | fixture mm | h <sub>1</sub> mm | l <sub>1</sub> mm | Cheese head screws | 27040 | ... |
|---------------------------|------------|-------------------|-------------------|--------------------|-------|-----|
| 10                        | 20         | 10                | 22                | M 6 x 10           |       | 301 |
| 12                        | 20         | 10                | 22                | M 6 x 10           |       | 302 |
| 14                        | 20         | 10                | 25                | M 6 x 16           |       | 303 |
| 16                        | 20         | 10                | 25                | M 6 x 16           |       | 304 |
| 18                        | 20         | 10                | 25                | M 6 x 16           |       | 305 |

Nominal size of the keyways at the

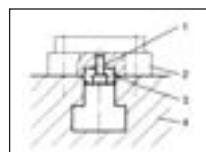
| machine b <sub>2</sub> mm | fixture mm | h <sub>1</sub> mm | l <sub>1</sub> mm | Cheese head screws | 27040 | ... |
|---------------------------|------------|-------------------|-------------------|--------------------|-------|-----|
| 22                        | 20         | 12                | 32                | M 6 x 16           |       | 306 |
| 24                        | 20         | 12                | 32                | M 6 x 16           |       | 307 |
| 28                        | 20         | 12                | 32                | M 6 x 16           |       | 308 |
| 36                        | 20         | 12                | 32                | M 6 x 16           |       | 309 |

**27041 Flat tenons**



**Type**  
DIN 6322 B, case-hardened and ground.  
**Use**

Low-type tenons are useful and inexpensive to use, when a fixture is always used on the same machine. For especially suitable heavy-duty fixtures we recommend loose tenons DIN 6323 (cat.-no. 27038).



**Note:**  
1 = screw,  
2 = fixtures,  
3 = T-keyway nut,  
4 = machine tables.



27041

| b mm | h mm | l mm | str. screws | 27041 | ... |
|------|------|------|-------------|-------|-----|
| 10   | 8    | 20   | M 4 x 10    |       | 301 |
| 12   | 8    | 20   | M 5 x 12    |       | 302 |
| 14   | 10   | 22   | M 6 x 16    |       | 303 |
| 16   | 10   | 22   | M 6 x 16    |       | 304 |

| b mm | h mm | l mm | str. screws | 27041 | ... |
|------|------|------|-------------|-------|-----|
| 18   | 10   | 22   | M 6 x 16    |       | 305 |
| 20   | 10   | 22   | M 6 x 16    |       | 306 |
| 22   | 12   | 32   | M 6 x 16    |       | 307 |
| 24   | 12   | 32   | M 6 x 16    |       | 308 |



## 27062

## T-Keyway Caps

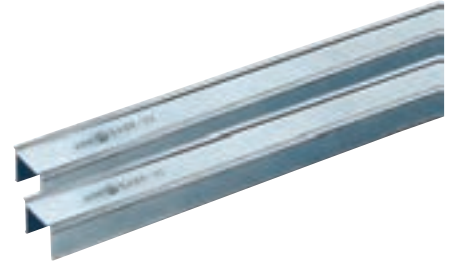
### Type

Made of resilient aluminium sections. For cutting the caps to the desired length, use a fine-toothed sawblade. **Length 1000 mm.**

### Use

The thorough subsequent cleaning of the keyway on the machine table is no longer required. Always cover free keyways before starting with machining. The T-keyway caps can easily be removed after machining.

27062



| for T-keyways<br>mm | 27062 | ... |
|---------------------|-------|-----|
| 12                  |       | 101 |
| 14                  |       | 102 |
| 16                  |       | 103 |
| 18                  |       | 104 |
| 20                  |       | 105 |
| 22                  |       | 106 |
| 28                  |       | 107 |
| 36                  |       | 108 |



## 27063

## T-keyway cleaner



27063 101

| Suitable for T-keyways<br>mm | 27063 | ... |
|------------------------------|-------|-----|
| 14 - 20                      |       | 101 |
| 22 - 32                      |       | 102 |



## 27101

## Clamp, single

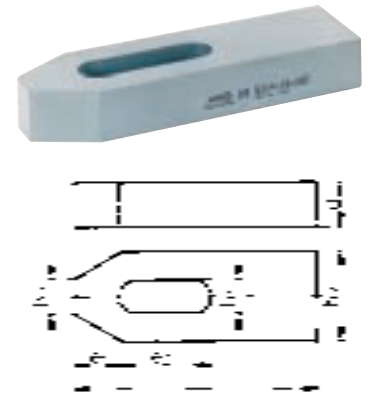


### Type

DIN 6314, tempered steel, lacquered.

27101

| b <sub>1</sub><br>mm | l<br>mm | for<br>screws | a<br>mm | b <sub>2</sub><br>mm | b <sub>3</sub><br>mm | e <sub>1</sub><br>mm | e <sub>2</sub><br>mm | 27101 | ... |
|----------------------|---------|---------------|---------|----------------------|----------------------|----------------------|----------------------|-------|-----|
| 9                    | 60      | M 10          | 8       | 25                   | 12                   | 13                   | 22                   |       | 102 |
| 11                   | 80      | M 10          | 15      | 30                   | 12                   | 15                   | 30                   |       | 103 |
| 14                   | 100     | M 12 / M 14   | 20      | 40                   | 14                   | 21                   | 40                   |       | 104 |
| 14                   | 125     | M 12 / M 14   | 20      | 40                   | 14                   | 21                   | 50                   |       | 105 |
| 18                   | 125     | M 16 / M 18   | 25      | 18                   | 26                   | 45                   | 50                   |       | 106 |
| 18                   | 160     | M 16 / M 18   | 25      | 50                   | 18                   | 26                   | 65                   |       | 107 |
| 22                   | 160     | M 20 / M 22   | 30      | 60                   | 22                   | 30                   | 60                   |       | 108 |
| 22                   | 200     | M 20 / M 22   | 30      | 60                   | 22                   | 30                   | 80                   |       | 109 |



## 27103

## Clamps with stepped end



### Type

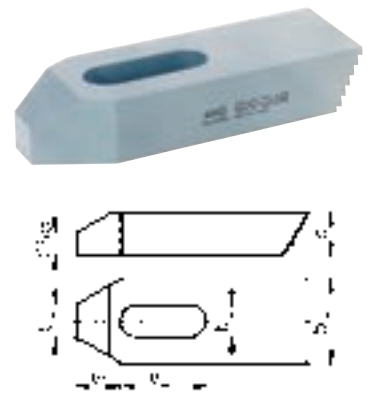
With stepped end, tempered steel, lacquered.

### Note:

Can only be used in combination with stepped clamping blocks cat.-no. 27124 - 27125.

27103

| b <sub>1</sub><br>mm | l<br>mm | for<br>screws | a<br>mm | b <sub>2</sub><br>mm | b <sub>3</sub><br>mm | e <sub>1</sub><br>mm | e <sub>2</sub><br>mm | 27103 | ... |
|----------------------|---------|---------------|---------|----------------------|----------------------|----------------------|----------------------|-------|-----|
| 9                    | 60      | M 8           | 12      | 25                   | 10                   | 13                   | 22                   |       | 102 |
| 11                   | 80      | M 10          | 15      | 30                   | 12                   | 15                   | 30                   |       | 103 |
| 14                   | 100     | M 12 / M 14   | 20      | 40                   | 14                   | 21                   | 40                   |       | 104 |
| 18                   | 125     | M 16 / M 18   | 25      | 50                   | 18                   | 26                   | 45                   |       | 105 |
| 22                   | 160     | M 20 / M 22   | 30      | 60                   | 22                   | 30                   | 60                   |       | 106 |



# U-shaped clamp with pin end | Clamping claw sets

27105

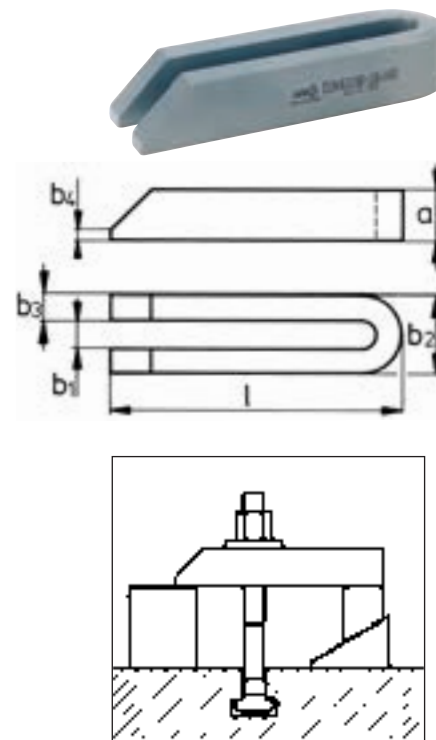
## U-shaped clamp, bevelled



Type  
DIN 6315 B, bevelled, tempered steel, lacquered.

27105

| b <sub>1</sub><br>mm | l<br>mm | for<br>screws | a<br>mm | b <sub>2</sub><br>mm | b <sub>3</sub><br>mm | b <sub>4</sub><br>mm | 27105 | ... |
|----------------------|---------|---------------|---------|----------------------|----------------------|----------------------|-------|-----|
| 6,6                  | 60      | M 6           | 12      | 19                   | 6                    | 3                    | 201   |     |
| 9                    | 80      | M 8           | 15      | 25                   | 8                    | 4                    | 202   |     |
| 11                   | 100     | M 10          | 20      | 31                   | 10                   | 5                    | 203   |     |
| 14                   | 125     | M 12 / M 14   | 25      | 38                   | 12                   | 6                    | 204   |     |
| 14                   | 160     | M 12 / M 14   | 25      | 38                   | 12                   | 6                    | 205   |     |
| 14                   | 200     | M 12 / M 14   | 25      | 38                   | 12                   | 6                    | 206   |     |
| 18                   | 160     | M 16 / M 18   | 30      | 48                   | 15                   | 8                    | 207   |     |
| 18                   | 200     | M 16 / M 18   | 30      | 48                   | 15                   | 8                    | 208   |     |
| 18                   | 250     | M 16 / M 18   | 40      | 48                   | 15                   | 10                   | 209   |     |
| 22                   | 200     | M 20 / M 22   | 40      | 52                   | 15                   | 10                   | 210   |     |
| 22                   | 250     | M 20 / M 22   | 40      | 62                   | 20                   | 10                   | 211   |     |
| 22                   | 315     | M 20 / M 22   | 40      | 62                   | 20                   | 10                   | 212   |     |
| 22                   | 500     | M 20 / M 22   | 50      | 62                   | 20                   | 10                   | 213   |     |
| 26                   | 200     | M 24          | 40      | 66                   | 20                   | 10                   | 214   |     |
| 26                   | 250     | M 24          | 40      | 66                   | 20                   | 10                   | 215   |     |
| 26                   | 315     | M 24          | 40      | 66                   | 20                   | 10                   | 216   |     |
| 26                   | 500     | M 24          | 50      | 66                   | 20                   | 10                   | 217   |     |
| 33                   | 250     | M 30          | 50      | 74                   | 20                   | 12                   | 218   |     |
| 33                   | 315     | M 30          | 50      | 74                   | 20                   | 12                   | 219   |     |
| 33                   | 400     | M 30          | 50      | 74                   | 20                   | 12                   | 220   |     |
| 33                   | 600     | M 30          | 50      | 74                   | 20                   | 12                   | 221   |     |



27106

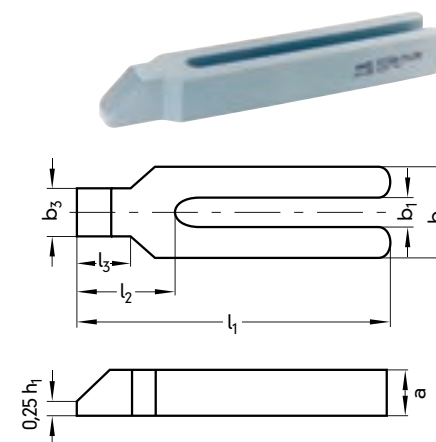
## Open-ended clamping iron with lug



Type  
With lug, tempered steel, painted.

27106

| b <sub>1</sub><br>mm | l <sub>1</sub><br>mm | for<br>screws | a<br>mm | b <sub>2</sub><br>mm | b <sub>3</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | 27106 | ... |
|----------------------|----------------------|---------------|---------|----------------------|----------------------|----------------------|----------------------|-------|-----|
| 9                    | 100                  | M 15          | 30      | 16                   | 32                   | 18                   | 8                    | 101   |     |
| 11                   | 125                  | M 20          | 30      | 20                   | 38                   | 24                   | 10                   | 102   |     |
| 14                   | 160                  | M 12 / M 14   | 40      | 25                   | 30                   | 47                   | 24                   | 103   |     |
| 14                   | 200                  | M 12 / M 14   | 25      | 40                   | 24                   | 47                   | 30                   | 104   |     |
| 18                   | 200                  | M 16 / M 18   | 50      | 28                   | 57                   | 36                   | 30                   | 105   |     |
| 18                   | 250                  | M 16 / M 18   | 30      | 50                   | 28                   | 57                   | 36                   | 106   |     |
| 22                   | 250                  | M 20 / M 22   | 40      | 60                   | 35                   | 68                   | 45                   | 107   |     |
| 22                   | 315                  | M 20 / M 22   | 40      | 60                   | 35                   | 68                   | 45                   | 108   |     |
| 26                   | 250                  | M 40          | 70      | 43                   | 83                   | 56                   | 24                   | 109   |     |
| 26                   | 315                  | M 40          | 70      | 43                   | 83                   | 56                   | 24                   | 110   |     |
| 33                   | 315                  | M 50          | 80      | 50                   | 88                   | 56                   | 30                   | 111   |     |
| 33                   | 400                  | M 30          | 50      | 80                   | 50                   | 88                   | 56                   | 112   |     |



27108

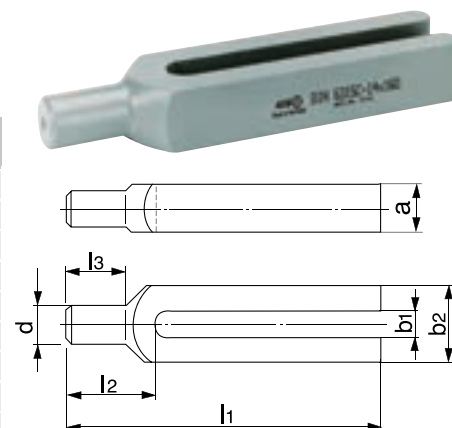
## U-shaped clamp with pin end



Type  
DIN 6315 C with round clamping attachment,  
tempered steel, painted.

27108

| b <sub>1</sub><br>mm | l <sub>1</sub><br>mm | for<br>screws | a<br>mm | b <sub>2</sub><br>mm | d<br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | 27108 | ... |
|----------------------|----------------------|---------------|---------|----------------------|---------|----------------------|----------------------|-------|-----|
| 9                    | 100                  | M 8           | 15      | 30                   | 12      | 30                   | 18                   | 101   |     |
| 11                   | 125                  | M 10          | 20      | 30                   | 16      | 36                   | 24                   | 102   |     |
| 14                   | 160                  | M 12 / M 14   | 30      | 40                   | 20      | 45                   | 25                   | 103   |     |
| 14                   | 200                  | M 12 / M 14   | 25      | 40                   | 20      | 45                   | 30                   | 104   |     |
| 18                   | 200                  | M 16 / M 18   | 50      | 24                   | 55      | 36                   | 30                   | 105   |     |
| 18                   | 250                  | M 16 / M 18   | 30      | 50                   | 24      | 55                   | 36                   | 106   |     |
| 22                   | 250                  | M 20 / M 22   | 30      | 60                   | 40      | 65                   | 45                   | 107   |     |
| 22                   | 315                  | M 20 / M 22   | 40      | 60                   | 30      | 65                   | 45                   | 108   |     |
| 26                   | 250                  | M 40          | 70      | 38                   | 80      | 56                   | 24                   | 109   |     |





27110

Clamp, gooseneck type

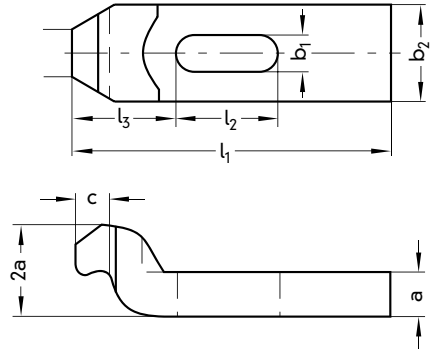


Type  
 DIN 6316 single-crank, tempered steel,  
 painted. ( ) not in compliance with DIN.

27110



| b <sub>1</sub><br>mm | l <sub>1</sub><br>mm | for<br>screws | a<br>mm | b <sub>2</sub><br>mm | c<br>mm | l <sub>3</sub><br>mm | l <sub>2</sub><br>mm | 27110 | ... |
|----------------------|----------------------|---------------|---------|----------------------|---------|----------------------|----------------------|-------|-----|
| 6,6                  | 60                   | M 6           | 10      | 20                   | 8       | 22.0                 | 20                   |       | 101 |
| 9                    | 80                   | M 12          | 25      | 9                    | 8       | 27,5                 | 25                   |       | 102 |
| 11                   | 100                  | M 10          | 12      | 30                   | 15      | 36.0                 | 32                   |       | 103 |
| 14                   | 125                  | M 12 / M 14   | 40      | 20                   | 16      | 44.0                 | 40                   |       | 104 |
| 18                   | 125                  | M 16 / M 50   | 20      | 40                   | 18      | 51,5                 | 25                   |       | 105 |
| 18                   | 160                  | M 16 / M 18   | 25      | 50                   | 20      | 51,5                 | 50                   |       | 106 |
| 22                   | 160                  | M 20 / M 22   | 30      | 60                   | 24      | 59.0                 | 55                   |       | 107 |
| 22                   | 200                  | M 20 / M 22   | 30      | 60                   | 24      | 59.0                 | 70                   |       | 108 |
| 26                   | 200                  | M 24          | (35)    | 70                   | 25      | 76.5                 | 60                   |       | 109 |
| 26                   | 250                  | M 24          | (35)    | 70                   | 25      | 76.5                 | 80                   |       | 110 |
| 33                   | 250                  | M 40          | 40      | 30                   | 80      | 96.0                 | 80                   |       | 111 |
| 33                   | 315                  | M 30          | 40      | 80                   | 50      | 96.0                 | 100                  |       | 112 |



27111

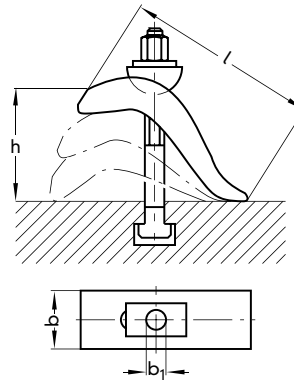
Clamping claw sets



Type  
 Infinitely adjustable, steel, forged, tempered, and  
 galvanised. Strength 8. With T-bolt DIN 787 (8.8),  
 nut and washer.

Use  
 Stepless clamp for fast coverage of several ranges  
 of work height without additional supports. Low  
 space requirement on machine table.

27111



| Nominal<br>keyway size | b <sub>1</sub><br>mm | screw Ø x length<br>mm | clamping height h<br>mm | W x L<br>mm | 27111 | ... |
|------------------------|----------------------|------------------------|-------------------------|-------------|-------|-----|
| 12                     | 17                   | M 12 x 125             | 0 - 50                  | 50 x 140    |       | 101 |
| 14                     | 17                   | M 12 x 125             | 0 - 50                  | 50 x 140    |       | 102 |
| 16                     | 17                   | M 16 x 160             | 0 - 75                  | 50 x 140    |       | 103 |
| 18                     | 17                   | M 16 x 160             | 0 - 75                  | 50 x 140    |       | 104 |
| 22                     | 21                   | M 20 x 200             | 0 - 85                  | 60 x 175    |       | 107 |

27112

Clamps, Short Type



Type  
 With U-section, infinite adjustment ragen, gal-  
 vanised and blue-passivised. **Without clamping  
 screw-bolt.**

Note:  
 Detent clamp lever for clamps  
 see cat.-no. 27117.

27112



| b <sub>1</sub><br>mm | mClamping height<br>mm | W x L<br>mm | c<br>mm  | d<br>mm | e<br>mm | f<br>mm | k<br>mm | suitable screws<br>DIN 787 no. 27015 | suitable flange nuts<br>no. 27008 | 27112 | ... |     |
|----------------------|------------------------|-------------|----------|---------|---------|---------|---------|--------------------------------------|-----------------------------------|-------|-----|-----|
| 13                   | 30 - 55                | 0 - 35      | 38 x 88  | 28      | 48      | 23      | 65      | 14                                   | 12 M 12 x 100/14 M 12 x 100       | M 12  |     | 101 |
| 18                   | 42 - 84                | 0 - 55      | 56 x 130 | 38      | 74      | 29      | 101     | 18                                   | 16 M 16 x 160/18 M 16 x 160       | M 16  |     | 102 |
| 22                   | 50 - 100               | 0 - 65      | 66 x 140 | 46      | 80      | 32      | 108     | 20                                   | 20 M 20 x 200/22 M 20 x 200       | M 20  |     | 103 |
| 26                   | 54 - 111               | 0 - 75      | 76 x 174 | 52      | 100     | 39      | 135     | 24                                   | 24 M 24 x 200/28 M 24 x 200       | M 24  |     | 104 |

**27115 Adjustable clamp**



**Type**  
**Straight**, with adjusting screw, with T-bolt  
 DIN 787 (8.8), nut and washer. Tempered steel,  
 painted.

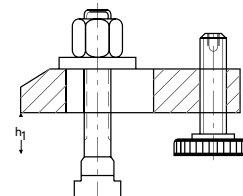
**Use**  
 For low workpieces.

**Note:**  
 Detent clamp lever for clamps  
 see cat.-no. 27117.



27115

| Nominal keyway size | Chucking capacity h1 mm | Clamp dimensions see also no. 27101 | T-keyway screw DIN 787 no. 27015 | Support screw | 27115 | ... |
|---------------------|-------------------------|-------------------------------------|----------------------------------|---------------|-------|-----|
| 10                  | 8 - 32                  | 11 x 80                             | 10 M 10 x 80                     | M 10 x 39     |       | 101 |
| 10                  | 10 - 40                 | 14 x 100                            | 12 M 12 x 100                    | M 12 x 49     |       | 102 |
| 10                  | 10 - 38                 | 14 x 100                            | 14 M 12 x 100                    | M 12 x 49     |       | 103 |
| 10                  | 13 - 48                 | 18 x 125                            | 16 M 16 x 125                    | M 16 x 55     |       | 104 |
| 10                  | 13 - 46                 | 18 x 125                            | 18 M 16 x 125                    | M 16 x 55     |       | 105 |
| 10                  | 16 - 65                 | 22 x 160                            | 20 M 20 x 160                    | M 20 x 69     |       | 106 |
| 10                  | 16 - 65                 | 22 x 160                            | 22 M 20 x 160                    | M 20 x 69     |       | 107 |



**27116 Adjustable clamp, gooseneck type**



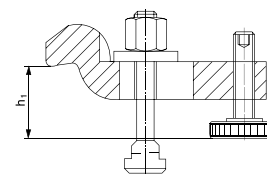
**Type**  
**Goose-neck type**, with adjustable support screw,  
 with T-bolt DIN 787 (8.8), nut and washer. Tempered  
 steel, painted.

**Note:**  
 Detent clamp lever for clamps  
 see cat.-no. 27117.



27116

| Nominal keyway size | Chucking capacity h1 mm | Clamp dimensions see also no. 27101 | T-keyway screw DIN 787 no. 27015 | Support screw | 27116 | ... |
|---------------------|-------------------------|-------------------------------------|----------------------------------|---------------|-------|-----|
| 10                  | 22 - 46                 | 11 x 100                            | 10 M 10 x 80                     | M 10 x 39     |       | 101 |
| 12                  | 28 - 58                 | 14 x 125                            | 12 M 12 x 100                    | M 12 x 49     |       | 102 |
| 14                  | 28 - 56                 | 14 x 125                            | 14 M 12 x 100                    | M 12 x 49     |       | 103 |
| 16                  | 36 - 71                 | 18 x 160                            | 16 M 16 x 125                    | M 16 x 55     |       | 104 |
| 18                  | 36 - 69                 | 18 x 160                            | 18 M 16 x 125                    | M 16 x 55     |       | 105 |
| 20                  | 43 - 92                 | 22 x 200                            | 20 M 20 x 160                    | M 20 x 69     |       | 106 |
| 22                  | 43 - 92                 | 22 x 200                            | 22 M 20 x 160                    | M 20 x 69     |       | 107 |



**27118 Adjustable clamp, recessed**



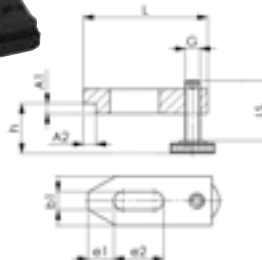
**Type**  
**Recessed**, with adjustable support screw. Clamps  
 without clamping screws are of one size for the sizes  
 12 and 14, 16 and 18 as well as 20 and 22.  
 Tempered steel, painted.

**Note:**  
 Detent clamp lever for clamps  
 see cat.-no. 27117.



27118

| Nominal keyway size | chucking capacity h mm | clamps b1 x L mm see no. 27101 | support screw G x LS mm | A1 x A2 mm | e1 mm | e2 mm | 27118 | ... |
|---------------------|------------------------|--------------------------------|-------------------------|------------|-------|-------|-------|-----|
| 12 + 14             | 10 - 55                | 14 x 100                       | M 12 x 49               | 8 x 10.0   | 21    | 40    |       | 101 |
| 16 + 18             | 13 - 62                | 18 x 125                       | M 16 x 55               | 10 x 12.5  | 26    | 45    |       | 102 |
| 20 + 22             | 16 - 77                | 22 x 160                       | M 20 x 69               | 12 x 15.0  | 30    | 60    |       | 103 |



**27117 Detent Clamp Levers**



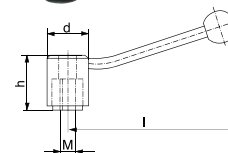
**Type**  
 Steel burnished. Thread of the clamping lever  
**M 12**, suitable for nominal size of flutes 12 and 14,  
**M 16** suitable for nominal size of flutes 16 and 18.

**Use**  
 For clamps and clamping claws  
 cat.-no. 27112 - 27116 + 27118.



27117

| Size | l mm | d mm | h mm | 27117 | ... |
|------|------|------|------|-------|-----|
| M 12 | 135  | 33   | 48   |       | 101 |
| M 16 | 158  | 40   | 64   |       | 102 |



27123

Clamping Fixture Kits



Type

With low height clamping jaws and thread paste.

These case assortments are for machine tools with T-keyway tables and contain all necessary elements for fast clamping of dies, fixtures or work-pieces. All parts are made of tempered steel, in compliance with DIN or work standard. Screw items strength 8 resp. 10. Wooden box with removable lid.

Note:

The hold-down clamping jaws are complete sets with T-Keyway Nuts DIN 508, screws DIN 912 and 2 socket keys DIN 911. Items also available separately.

27123



| Nominal keyway size x thread | T 10 x M 10                             | T 12 x M 12            | T 14 x M 12            | T 18 x M 16             |
|------------------------------|---|------------------------|------------------------|-------------------------|
| Clamping height 2 x          | 2-230                                   | 2-270                  | 2-270                  | 2-270                   |
| or 4 x                       | 2-140                                   | 2-160                  | 2-160                  | 2-160                   |
| Set contents:                | Cat. No. 27123 101                      | Cat. No. 27123 102     | Cat. No. 27123 103     | Cat. No. 27123 105      |
| 4 ea. step blocks            | size 1 + 2                              | size 2 + 3             | size 2 + 3size 2 + 3   | Gr. 2 + 3               |
| 2 step blocks each           | size 3                                  | -                      | -                      | -                       |
| 4 clamps                     | M 11 x 80                               | M 14 x 100             | M 14 x 100             | M 18 x 125              |
| 4 ea. T-keyway bolts         | M 10 x 63 / M10 x 100                   | M 12 x 80 / M 12 x 125 | M 12 x 80 / M 12 x 125 | M 16 x 100 / M 16 x 160 |
| 2 ea. T-keyway bolts         | M 10 x 40M 12 x 50M 12 x 50M 16 x 63    | M 12 x 50              | M 12 x 50              | M 16 x 63               |
| 4 stud bolts                 | M 10 x 80M 12 x 100M 12 x 100M 16 x 125 | M 12 x 100             | M 12 x 100             | M 16 x 125              |
| 6 tail nut                   | M 10M 12M 12M 16                        | M 12                   | M 12                   | M 16                    |
| 4 extension nuts             | M 10M 12M 12M 16                        | M 12                   | M 12                   | M 16                    |
| 6 concave-faced washers      | M 10M 12M 12M 16                        | M 12                   | M 12                   | M 16                    |
| 4 hold-down clamping jaws    | flute 12flute 12flute 14flute 18        | Nute 12                | Nute 14                | Nute 18                 |
| 1 keyway cleaner             | -                                       | -                      | 14 - 20                | 14 - 20                 |
| 1 combination wrench         | 16 x 1618 x 1818 x 1824 x 24            | 18 x 18                | 18 x 18                | 24 x 24                 |
| 1 thread paste               | 1                                       | 1                      | 1                      | 1                       |

| Keyway size x thread | 27123 | ... | 27123 | ... | 27123 | ... | 27123 | ... |
|----------------------|-------|-----|-------|-----|-------|-----|-------|-----|
| T 10 x M 10          |       | 101 |       |     |       |     |       |     |
| T 12 x M 12          |       |     |       | 102 |       |     |       |     |
| T 14 x M 12          |       |     |       |     |       | 103 |       |     |
| T 18 x M 16          |       |     |       |     |       |     |       | 105 |

27124

Universal Step Blocks



Type

Tempered steel, painted,

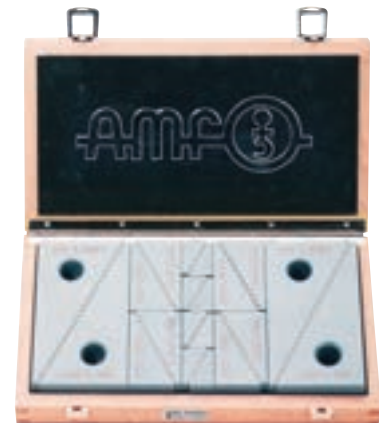
Contents:

4 pairs of each, size 1 and 2,  
2 pairs, size 3,  
in wooden crate.

Use

Can be used horizontally or vertically, step height: vertical 4.65 mm, horizontal 2.3 mm.

27124



| Size | 27124 | ... |
|------|-------|-----|
| 1    |       | 101 |

27125

Universal Step Blocks



Type

Tempered steel, painted. **Single.**

Use

Can be used horizontally and vertically. Step height: vertical 4.65 mm, horizontal 2.3 mm.

Note:

The multi-purpose step blocks can be combined, in pairs, with all clamps cat.-no. 27101, 27105 - 27110 and, by themselves, with the serrated clamps cat.-no. 27103.

27125

| Size | Height x Width x Thickness mm | Rest height min. mm | Rest height max. mm | 27125 | ... |
|------|-------------------------------|---------------------|---------------------|-------|-----|
| 1    | 33 x 19.0 x 30                | 23                  | 51                  |       | 101 |
| 2    | 66 x 35.5 x 30                | 39                  | 107                 |       | 102 |
| 3    | 131 x 68.0 x 30               | 71                  | 208                 |       | 103 |



27135

Screw jacks



Type

With flat rest, centre hole 12 mm Ø, trapezoidal thread self-locking, with end lock. Lower block and spindle tempered steel, lacquered.

Note:

Aluminium- and magnetic body screw jacks available on request. Setting pads see cat.-no. 27145.

27135 201

Light-duty screw jack without centring hole.

27135 202-204

Medium-duty screw jacks.

27135 205-207

Heavy-duty screw jacks.

Use

For aligning and supporting.

27135 208

Ultra-heavy-duty screw jack.

Use

For supporting large workpieces.

| Size | Adjustable height mm | Head Ø mm | Lower block Ø mm | Load capacity kN | for clamps Keyway width mm | 27135 | ... |
|------|----------------------|-----------|------------------|------------------|----------------------------|-------|-----|
| 50   | 38 - 50              | 31        | 31               | 15               | to 14                      |       | 201 |
| 52   | 42 - 52              | 50        | 50               | 60               | 14 - 22                    |       | 202 |
| 70   | 50 - 70              | 50        | 50               | 60               | 14 - 22                    |       | 203 |
| 100  | 70 - 100             | 50        | 50               | 60               | 14 - 22                    |       | 204 |
| 140  | 100 - 140            | 68        | 68               | 100              | 20 - 40                    |       | 205 |
| 210  | 140 - 210            | 70        | 80               | 170              | 20 - 40                    |       | 206 |
| 300  | 190 - 300            | 80        | 100              | 350              | 20 - 40                    |       | 207 |
| 200  | 140 - 200            | 80        | 100              | 350              | 20 - 40                    |       | 208 |



27135

27138

Atlas Screw Jacks

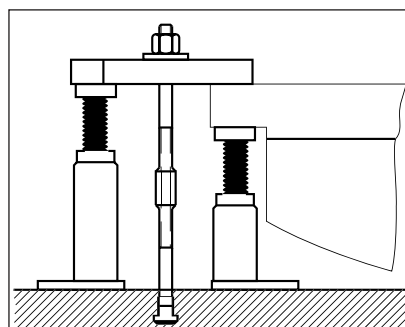


Type

- With lock-nut
- Centring bore Ø 12 mm
- Spindle complete: Tempered steel, with trapezoidal thread
- Spindle head, painted
- Base unit: Grey cast iron, lacquered.

Note:

Heavy-duty screw jacks with fine setting screw, aligning and support jacks available on request. Setting pads see cat.-no. 27145. For safety reasons, when using clamping iron cat.-no. 27105, 27108 and 27106 109-112 we recommend the use of a locating set (cat.-no. 27145 103-104).



| Size | Adjustable height mm | Base plate mm | Load capacity kN | 27138 | ... |
|------|----------------------|---------------|------------------|-------|-----|
| 140  | 100 - 140            | 75 x 110      | 60               |       | 101 |
| 200  | 140 - 200            | 75 x 110      | 60               |       | 102 |
| 320  | 200 - 320            | 90 x 160      | 40               |       | 103 |
| 550  | 320 - 550            | 90 x 160      | 25               |       | 104 |



27138

27140

Quoins HERKULES



Type

Centre hole Ø 12 mm. A ball-pad (cat.-no. 27145 101) is included with every quoin.

Use

Up to a load of max. 1/3 F, the quoin can be adjusted manually. The precision machined surfaces of the quoin allow for easy and accurate adjustment, better than 1/10 mm, either by means of knurled thumbscrew or with socket key. Thanks to the double quoin effect, the result is a large stroke with an accurate vertical movement, without lateral movement.

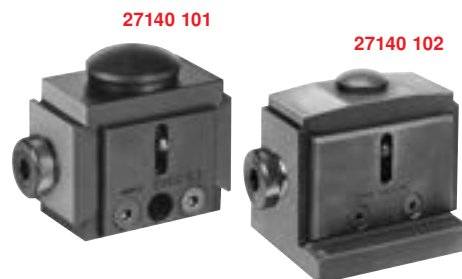
Quality

Spheroidal cast iron and tempered and burnished steel. Quoin surface precision-machined.

Note:

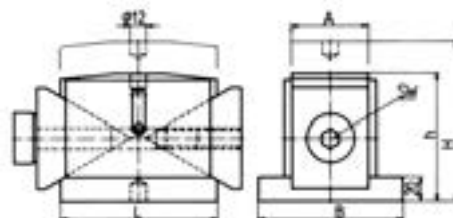
\*H mm U = Height adjustment per turn. Setting pads see cat.-no. 27145 101, 102+106.

| Size | h - H mm  | A mm | B mm | L mm | size mm | *H mm U | F max. kN | 27140 | ... |
|------|-----------|------|------|------|---------|---------|-----------|-------|-----|
| 63   | 50 - 63   | 40   | -    | 63   | 8       | 0.86    | 40        |       | 101 |
| 125  | 100 - 125 | 60   | 115  | 125  | 14      | 1.16    | 100       |       | 102 |



27140 101

27140 102



27145

Accessories for Screw Jacks



**Type**  
Tempered steel, burnished.  
**Use**  
For screw jacks cat.-no. 27135 - 27140.

**27145 101**  
**Ball-pad**

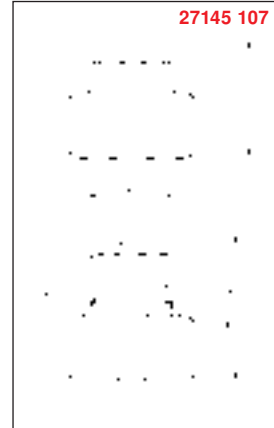
**27145 102**  
**Prism attachment.**

**27145 103-104**  
**Locating attachments for open-ended clamps**

**27145 105**  
**With pivotable ball, hardened.**

**27145 106**  
**Centring-pad**  
To adjust screw jacks to all setting elements with centring hole.

**27145 107**  
**Alignment Screw Jacks**  
**Type**  
With pivotable ball, hardened.  
**Use**  
Especially suitable for supporting and aligning of free-form surfaces. Adjustment accuracy approx. 0.1 mm.



|                      | Outside Ø mm | Pilot-Ø mm | Load capacity kN | 27145 | ... |
|----------------------|--------------|------------|------------------|-------|-----|
| Ball attachment      | 37           | -          | -                | 101   | 101 |
| Prism attachment     | 45           | -          | -                | 102   | 102 |
| Locating attachment  | -            | 14         | -                | 103   | 103 |
| Locating attachment  | -            | 25         | -                | 104   | 104 |
| Attachment with ball | -            | -          | 30               | 105   | 105 |
| Centring plate       | 45           | -          | -                | 106   | 106 |
| Straightening vise   | -            | -          | 30               | 107   | 107 |

27191 - 27193

Compact BAS-C tensioners



**27191**  
**Type**  
- Compact design  
- Tempered, stainless steel housing  
- Clamping force adjustable across infinitely variable range of up to 16 kN  
- With automatic clamping and release mechanism.  
**Use**  
For rational clamping of workpieces on the machine table. For greater clamping heights, use -BASO-plinth.

**Note:**  
Suitable T-keyway nuts DIN 508, M 10 see cat.-no. 27004 205 / 207 / 240 + 243.

**27192 201**  
**Socket wrench**  
Hexagon socket jaw opening 11, ball-end Allen key jaw opening 8 and jaw opening 10.

**27193 201**  
**Clamping Base BASO**  
Open fixing hole. Incl. Cheese head screws M 10 x 25 DIN 912.



| Clamping height mm | Overhang mm | with aluminium pressure shoe | Weight kg | Clamping height extension mm | Thread | for cheese head screws DIN 912 | Tensioners |     | Wrenches |     | Bases |     |
|--------------------|-------------|------------------------------|-----------|------------------------------|--------|--------------------------------|------------|-----|----------|-----|-------|-----|
|                    |             |                              |           |                              |        |                                | 27191      | ... | 27192    | ... | 27193 | ... |
| 88                 | 40          | x                            | 1.3       | -                            | -      | -                              | 101        |     |          |     |       |     |
| 97                 | 60          | x                            | 1.3       | -                            | -      | -                              | 102        |     |          |     |       |     |
| 97                 | 60          | -                            | 1.3       | -                            | -      | -                              | 103        |     |          |     |       |     |
| -                  | -           | -                            | -         | -                            | -      | -                              |            |     |          | 201 |       |     |
| -                  | -           | -                            | -         | 80                           | M 10   | M 10 / M 12                    |            |     |          |     |       | 201 |

Clamping Technology



27195

Mounting bolt

27195 101-103

Mounting bolt

Type

The bolts are mounted on the machine table using T-keyway nuts. The cushioning disc prevents damage to the machine table and movement during fastening. Clamping action via tempered steel screw. The circlip made of brass prevents damage to the workpiece. Delivery with mounting bolt and standard clamping screw (8 - 40 mm).

Use

In order to shorten cycle times, for an optimal use of the machine table, few projecting edges, free through-hole for milling and drilling.

Note:

Cat.-no. 27195 103 is different from the diagram.

Rest  $\varnothing$  39.5 mm cone-shaped downwards to  $\varnothing$  64 mm.

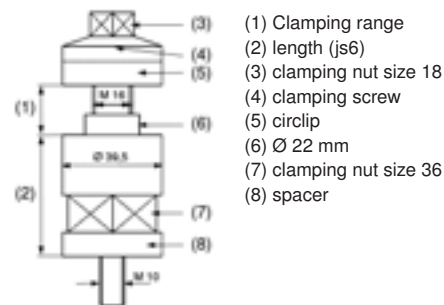
27195 104-105

Extension screws for mounting bolts



27195

| Length (js6)<br>mm | clamping width<br>mm | for clamping range<br>mm | 27195 | ... |
|--------------------|----------------------|--------------------------|-------|-----|
| 50                 | 8 - 40               | -                        |       | 101 |
| 100                | 8 - 40               | -                        |       | 102 |
| 150                | 8 - 40               | -                        |       | 103 |
| -                  | -                    | 40 - 67                  |       | 104 |
| -                  | -                    | 65 - 87                  |       | 105 |



27210

Low Height Clamping Jaws



Type

Model -Bulle-

Pairs, tempered steel, hardened and burnished.

Fastening screws ISO 4762, 10.9., included. T-nuts DIN 508 and socket key ISO 2936.

Use

For clamping thin plates.

Note:

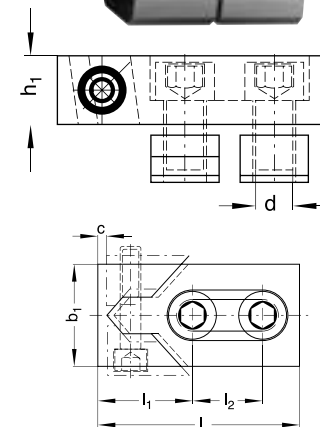
Reliable clamping effect forwards and down simultaneously by wedge-action when the screw on the side of the sliding jaws is tightened.

No protruding clamping bolts!

| Nominal<br>keyway size | c<br>mm | $h_1$<br>mm | $b_1$<br>mm | l<br>mm | $l_1$<br>mm | $l_2$<br>mm | d<br>mm | F1<br>kN | F2<br>kN | 27210 | ... |
|------------------------|---------|-------------|-------------|---------|-------------|-------------|---------|----------|----------|-------|-----|
| 12                     | 3       | 20          | 40          | 80      | 39          | 26          | M 10    | 16       | 0,6      |       | 101 |
| 14                     | 3       | 20          | 40          | 80      | 39          | 26          | M 12    | 22       | 0,9      |       | 102 |
| 16                     | 3       | 20          | 40          | 80      | 39          | 26          | M 12    | 22       | 0,9      |       | 103 |
| 16                     | 4       | 25          | 50          | 100     | 46          | 34          | M 14    | 32       | 1,2      |       | 104 |
| 18                     | 4       | 25          | 50          | 100     | 46          | 34          | M 16    | 36       | 1,4      |       | 105 |
| 20                     | 4       | 25          | 50          | 100     | 46          | 34          | M 16    | 36       | 1,4      |       | 106 |
| 22                     | 5       | 30          | 78          | 140     | 65          | 50          | M 20    | 36       | 1,4      |       | 107 |
| 24                     | 5       | 30          | 78          | 140     | 65          | 50          | M 20    | 36       | 1,4      |       | 108 |
| 28                     | 5       | 30          | 78          | 140     | 65          | 50          | M 24    | 40       | 1,6      |       | 109 |



27210



27212

Hold-Down Clamps



Type

Model -Mini-Bulle-

Pairs, tempered steel, hardened and burnished.

Fastening screws ISO 4762, 8.8 and socket key ISO 2936 included.

Use

Insert directly into T-keyway of machine table. Ideal for clamping very thin workpieces. The workpiece is pressed firmly and reliably down onto the -machine table by wedge action. For lower clamping heights, x mm can be ground off the clamping piece.

| Nominal<br>keyway size | c<br>mm | h<br>min. | h<br>max. | x<br>mm | l<br>max. | b<br>mm | $h_1$<br>mm | $h_2$<br>mm | F1<br>kN | F2<br>kN | 27212 | ... |
|------------------------|---------|-----------|-----------|---------|-----------|---------|-------------|-------------|----------|----------|-------|-----|
| 12                     | 1.8     | 2.5       | 13.5      | 5       | 52        | 18      | 7           | 11          | 5.0      | 0.6      |       | 101 |
| 14                     | 1.8     | 1.5       | 13.5      | 5       | 55        | 22      | 8           | 11          | 5.5      | 0.7      |       | 102 |
| 16                     | 2.5     | 2.5       | 17.0      | 6       | 68        | 25      | 9           | 15          | 8.0      | 0.9      |       | 103 |
| 18                     | 2.5     | 1.5       | 16.0      | 6       | 71        | 28      | 10          | 15          | 9.0      | 1.0      |       | 104 |
| 22                     | 3.0     | 4.5       | 21.5      | 9       | 89        | 35      | 14          | 20          | 16.0     | 1.9      |       | 105 |



27212





27213

Strong jaws



Type

Chuck jaws rotatable,

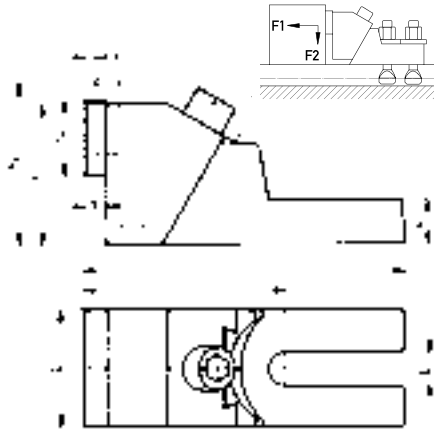
high design with precise prism guidance.

Basic body: Malleable cast iron.

Jaws: case-hardened steel, case-hardened. Jaws reversible, with smooth face for machine workpiece and corrugated face for raw clamping areas.

Use

Due to their large clamping faces these clamping jaws are suitable for lateral clamping of high workpieces. For mounting the jaws to the machine table, we recommend using 2 clamping screws! Dependent upon the T-keyway width in use, 2 T-keyway bolts DIN 787 for each clamp (cat.-no. 27015) are required.



27213



| for nominal keyway size | b <sub>1</sub> mm | c mm | h mm | h <sub>1</sub> mm | h <sub>2</sub> mm | h <sub>3</sub> mm | b mm | l mm | l <sub>1</sub> mm | e mm | F1 kN   | F2 kN     | 27213 | ... |
|-------------------------|-------------------|------|------|-------------------|-------------------|-------------------|------|------|-------------------|------|---------|-----------|-------|-----|
| 12 - 18                 | 19                | 8    | 85   | 38                | 85 - 99           | 40                | 65   | 179  | 112.5             | 12   | 8 - 28  | 1.2 - 4.2 |       | 101 |
| 20 - 30                 | 26                | 11   | 100  | 45                | 100 - 118         | 40                | 75   | 230  | 138.5             | 12   | 25 - 36 | 4.5 - 5.4 |       | 102 |
| 32 - 42                 | 38                | 15   | 120  | 56                | 120 - 145         | 40                | 90   | 265  | 158.0             | 12   | 50      | 7.5       |       | 103 |

27217

Double Wedge type tensioners

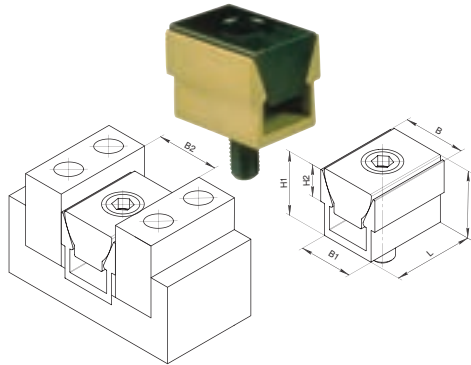
Type

A simple and great solution. With one clamping element 2 workpieces can be clamped at the same time.

- Space-saving multiple clamping reduces downtimes and unit costs.
- Cost-effective clamping fixture.
- For round and right-angled parts.
- Clamping force up to 27 kN.

Comprising:

Aluminium profile section and double wedge made of case-hardened steel.



27217



| Clamping force kN | Tightening torque Nm | Screw mm | Allen mm | B mm | H mm | H <sub>1</sub> mm | L mm | B <sub>1</sub> mm | H <sub>2</sub> mm | B <sub>2</sub> mm | Pack = Unit | 27217 | ... |
|-------------------|----------------------|----------|----------|------|------|-------------------|------|-------------------|-------------------|-------------------|-------------|-------|-----|
| 2,2               | 3,4                  | M 4      | 3        | 12,3 | 14,5 | 12,70             | 15,9 | 10,4              | 5,6               | 12,7              | 8           |       | 101 |
| 6,7               | 14,3                 | M 6      | 5        | 18,6 | 19,0 | 19,05             | 23,8 | 16,1              | 9,5               | 19,0              | 6           |       | 102 |
| 8,9               | 14,5                 | M 8      | 6        | 24,8 | 25,9 | 25,40             | 31,7 | 20,8              | 12,7              | 25,4              | 4           |       | 103 |
| 15,6              | 38,4                 | M 10     | 10       | 37,3 | 38,6 | 38,10             | 47,6 | 30,8              | 19,0              | 38,1              | 2           |       | 104 |
| 26,7              | 74,6                 | M 12     | 14       | 49,7 | 51,5 | 50,80             | 63,5 | 41,2              | 25,4              | 50,8              | 2           |       | 105 |

27219

Sectional Double Wedge type tensioners

Type

Double wedge clamp with extra-wide jaws. Thanks to special milled sections, workpieces in different shapes can be clamped absolutely safe and free of tension. Due to the low-space construction design it is possible to clamp 2 workpieces at the same time. Low non-productive times and low costs increase the ROI of the production.

Comprising:

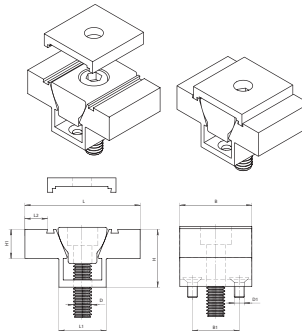
Double wedge made of case-hardened steel, aluminium pressed bar steel, clamping screw, locking plate for clamp stop during profile milling.

Use

Clamping of workpieces on milling and drilling machines, machining centres.

Note:

A means distance between workpieces. Tapping hole for l should be positioned accurately in centre of A. F is that dimension, which is available for the milling.



27219



| Clamping force kN | Tightening torque Nm | L mm  | H mm | B mm | B <sub>1</sub> mm | L <sub>1</sub> mm | H <sub>1</sub> mm | D <sub>1</sub> mm | D mm | Pack = Units | 27219 | ... |
|-------------------|----------------------|-------|------|------|-------------------|-------------------|-------------------|-------------------|------|--------------|-------|-----|
| 2.2               | 3.4                  | 28.6  | 12.7 | 15.7 | 4.6               | 10.67             | 6.3               | M 2               | M 4  | 1            |       | 101 |
| 6.7               | 14.3                 | 38.1  | 19.1 | 23.9 | 6.6               | 16.05             | 9.4               | M 4               | M 6  | 1            |       | 102 |
| 8.9               | 14.5                 | 50.8  | 25.4 | 31.8 | 9.9               | 20.83             | 12.7              | M 4               | M 8  | 1            |       | 103 |
| 15.6              | 38.4                 | 76.2  | 38.1 | 47.5 | 15.7              | 30.86             | 19.1              | M 5               | M 12 | 1            |       | 104 |
| 26.7              | 74.6                 | 101.6 | 50.8 | 63.5 | 20.3              | 41.28             | 25.4              | M 6               | M 16 | 1            |       | 105 |

**27222** Eccentric clamping claws for fixtures

**Type**

The patent of this clamping device is the screw with an eccentric head. The eccentric head effects clamping movements and clamping force (up to 27 Kp). The hexagonal brass nut is used as the clamping piece. By using the stop pins and 1 or 2 clamping screws you can clamp workpieces of any shape.

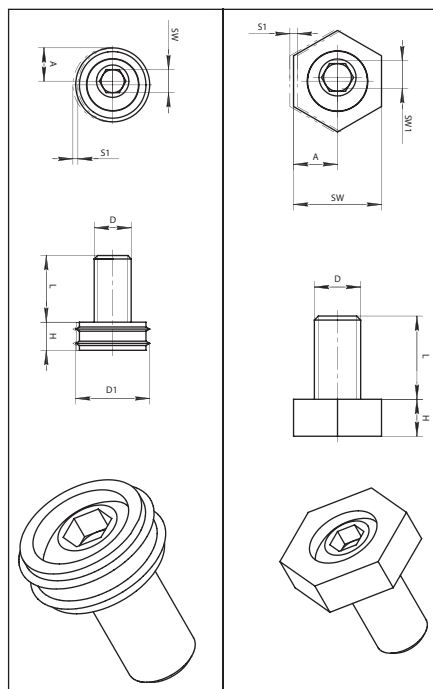
- The low build height enables problem-free machining of the workpiece surface.
- With CNC programming no account needs to be taken of the position of the clamping brackets.
- Space-saving multiple clamping thanks to compact dimensions.

**Use**

For clamping device base plates.

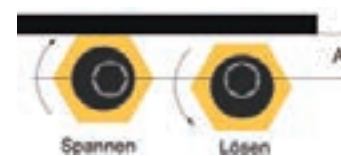
**Note:**

Spare screws and hexagon nuts see cat.-no. 27225 - 27226.



27222

Size A = distance of workpiece to centre hole  
 M 4 = 3.8 mm, M 10 = 10.2 mm,  
 M 6 = 7.8 mm, M 12 = 12.7 mm,  
 M 8 = 10.2 mm, M 16 = 15.0 mm.



| Clamping force<br>kN | Internal hex<br>SW1 (mm) | Thread<br>D (mm) | Thread length<br>L (mm) | Hex disc<br>SW (mm) | Disc height<br>H (mm) | Eccentric travel<br>S1 (mm) | Pack =<br>Unit | 27222 | ... |
|----------------------|--------------------------|------------------|-------------------------|---------------------|-----------------------|-----------------------------|----------------|-------|-----|
| 2.2                  | 3.4                      | 28.6             | 12.7                    | 15.7                | 4.6                   | 10.67                       | 10             | 102   | 102 |
| 6.7                  | 14.3                     | 38.1             | 19.1                    | 23.9                | 6.6                   | 16.05                       | 12             | 103   | 103 |
| 8.9                  | 14.5                     | 50.8             | 25.4                    | 31.8                | 9.9                   | 20.83                       | 10             | 104   | 104 |
| 15.6                 | 38.4                     | 76.2             | 38.1                    | 47.5                | 15.7                  | 30.86                       | 8              | 105   | 105 |
| 26.7                 | 74.6                     | 101.6            | 50.8                    | 63.5                | 20.3                  | 41.28                       | 4              | 106   | 106 |

**27225 - 27226** Spare Screws / Spare Hexagonal Nuts

**27225**

Spare screws

**Use**

For cat.-no. 27222.

**27226**

Spare hexagonal nuts

**Use**

For cat.-no. 27222.

27225

27226



| Thread | Pack =<br>Unit | 27225 | ... | 27226 | ... |
|--------|----------------|-------|-----|-------|-----|
| M 6    | 10             | 102   |     | 102   | 102 |
| M 8    | 8              | 104   |     | 104   | 104 |
| M 10   | 4              | 105   |     | 105   | 105 |
| M 12   | 4              | 106   |     | 106   | 106 |
| M 16   | 4              | 107   |     | 107   | 107 |

**27230** Eccentric Clamping Screws for T-Keyways

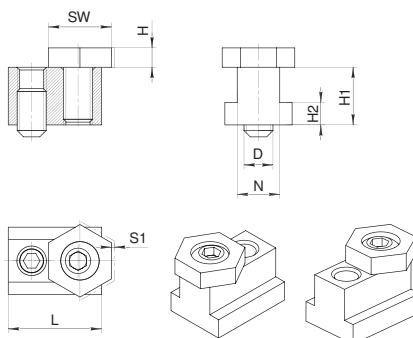
**Type**

The combination of regular clamping elements with eccentric screws (with hexagonal head made of brass) and one T-nut allows an inexpensive clamping solution on machine tables and clamping plates with T-keyways. The T-nut is fastened by means of a screw in the T-flute.

- Low build height, also flat parts can be surface-machined.
- Fast adjustment to suit different workpiece sizes and parts of any shape. No rectangular lateral clamping face necessary.
- Clamping force up to 18 kN.

**Scope of supply:**

With brass nut and T-nut.



27230

| for T-keyway<br>N (mm) | Clamping force<br>kN | Internal hex<br>SW1 (mm) | Thread<br>D (mm) | Disc<br>SW (mm) | Disc height<br>H (mm) | Eccentric travel<br>S1 (mm) | Pack =<br>Unit | 27230 | ... |
|------------------------|----------------------|--------------------------|------------------|-----------------|-----------------------|-----------------------------|----------------|-------|-----|
| 10                     | 3.4                  | 4                        | M 6              | 16              | 4.8                   | 1.0                         | 2              | 102   | 102 |
| 10                     | 3.6                  | 5                        | M 8              | 21              | 4.8                   | 1.0                         | 2              | 103   | 103 |
| 14                     | 9.0                  | 7                        | M 10             | 21              | 6.4                   | 1.6                         | 2              | 104   | 104 |
| 16                     | 18.0                 | 8                        | M 12             | 25              | 9.5                   | 2.0                         | 2              | 105   | 105 |
| 18                     | 18.0                 | 8                        | M 12             | 25              | 9.5                   | 2.0                         | 2              | 106   | 106 |

27234

Miniature hold-down clamps

Type

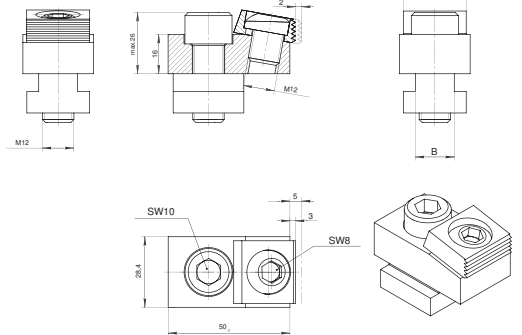
Body and clamping insert case-hardened. Clamping insert with smooth edge for machined parts, the opposite edge serrated for clamping unfinished parts. Eccentric clamping screws M 12 for a clamping force of up to 18 kN.

Use

The hold-down effect will force the workpiece down to table. The clamping insert automatically adapts to the angle position of the workpiece, i.e. the workpiece does not have to be rectangular. For T-keyways sizes 14, 16 and 18 mm and for direct mounting on clamping plate.



27234



|                       |       |     |
|-----------------------|-------|-----|
| T-keyway mm           | 27234 | ... |
| 14                    |       | 102 |
| 16                    |       | 103 |
| 18                    |       | 104 |
| without T-fulcrum pad |       | 105 |

27242

Fixating foil Power-Grip

Type

POWER-GRIP is a special composite, imbedded in a 0.0125 mm thick base medium. This accurate base medium is a precise workpiece base and ensures parallelism of your workpieces. The chucking force (30-100 N/qcm, depending on the type of contact surface) allows for the machining of thin or hard-to-clip parts and it also features 5-side machining without a clamping claw. POWER-GRIP is also used for reinforcing walls of thin workpieces during machining. POWER-GRIP can be easily removed after use by heating the workpiece. POWER-GRIP can be used on steel, non-ferrous metals, glass, wood, most kind of plastics and many other materials. Does not contain any harmful chemicals. Delivery with operation manual.

Use

For clamping sensitive workpieces, which, due to their shape or non-magnetic characteristics could not be clamped otherwise. POWER-GRIP reduces cost, solves problems in clamping difficult workpieces, is perfect for small series.

27242



|            |       |     |
|------------|-------|-----|
| Roll mm    | 27242 | ... |
| 300 x 1500 |       | 101 |

27313

Vertical Action Toggle-Joint Clamps

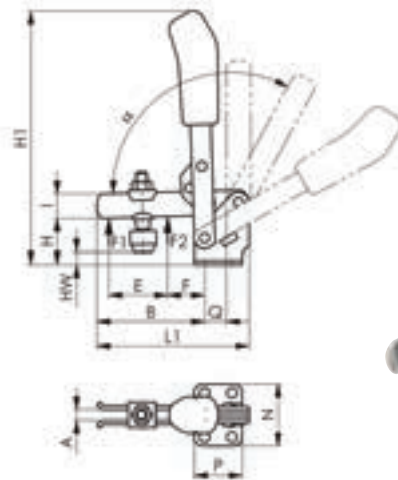
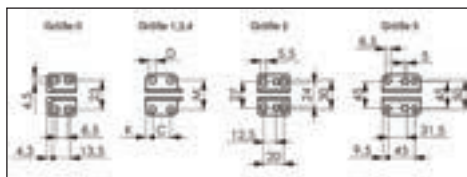


Type

With horizontal base. Galvanised and passivised, plastic handle working with knee-operated lever system. Pressure can be adjusted easily with tempered spindles. Rubber cap to prevent damage to sensitive workpieces.

Note:

Supporting arms see cat.-no. 27345. Size 0 - 4 also available in stainless steel.



27313



| Size | Holding force kN outer F1 | Holding force kN inner F2 | Total height H1 mm | Total length L1 mm | Contact pressure screw | c mm     | d mm | e mm | h mm | a mm | 27313 | ... |
|------|---------------------------|---------------------------|--------------------|--------------------|------------------------|----------|------|------|------|------|-------|-----|
| 0    | 0.5                       | 0.7                       | 81.0               | 49                 | M 4 x 25               | 8.5-13.5 | 4.5  | 14   | 18.0 | 4    |       | 101 |
| 1    | 0.6                       | 1.1                       | 98.5               | 61                 | M 5 x 30               | 16.0     | 4.5  | 18   | 19.0 | 5    |       | 102 |
| 2    | 0.8                       | 1.2                       | 139.5              | 78                 | M 6 x 35               | 20.0     | 5.5  | 25   | 23.0 | 6    |       | 103 |
| 3    | 1.2                       | 2.5                       | 186.0              | 112                | M 8 x 45               | 20.0     | 7.5  | 37   | 33.0 | 8    |       | 104 |
| 4    | 1.7                       | 3.0                       | 221.0              | 141                | M 8 x 65               | 32.0     | 8.6  | 54   | 42.5 | 10   |       | 105 |
| 5    | 3.0                       | 5.0                       | 281.0              | 195                | M 12 x 80              | 45.0     | 8.5  | 73   | 55.8 | 14   |       | 106 |

# Vertical Action Toggle-Joint Clamps | Horizontal Action Toggle-Joint Clamps | Push-Pull Type Toggle Clamps

## 27315 Vertical Action Toggle-Joint Clamps



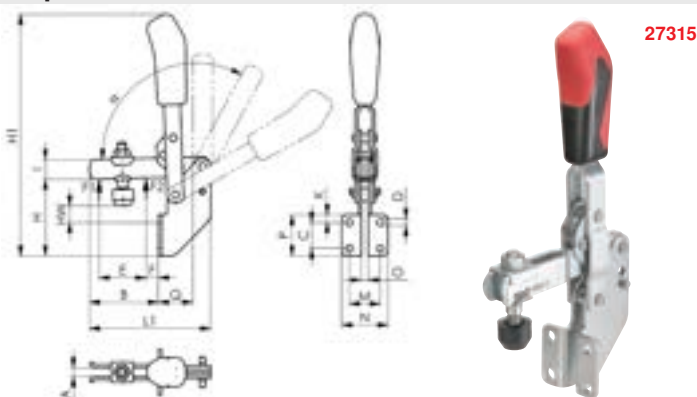
Type

With open retaining arm and angled foot.

Galvanised and passivised. Rivets made of stainless steel, running in case-hardened bushes (due to space-restrictions not possible with size 1). Greased bearing spots. Ergonomic handle made of red high-quality oil-resistant plastics. Complete with tempered, galvanised forcing screw.

Note:

All sizes also available made of stainless steel.



| Size | A  | B    | C  | D   | E  | F  | H  | H1  | HW      | HW      | I  | K  | L1  | M    | N    | O  | P  | Q  | alpha   | 27315 | ... |
|------|----|------|----|-----|----|----|----|-----|---------|---------|----|----|-----|------|------|----|----|----|---------|-------|-----|
|      | mm | mm   | mm | mm  | mm | mm | mm | mm  | min. mm | max. mm | mm | mm | mm  | mm   | mm   | mm | mm | mm | degrees |       |     |
| 1    | 5  | 34,5 | 14 | 4,5 | 18 | 7  | 45 | 125 | 2,5     | 9,0     | 10 | 10 | 61  | 20,0 | 30,0 | 5  | 30 | 16 | 98      |       | 101 |
| 2    | 6  | 41,0 | 20 | 6,1 | 25 | 6  | 60 | 167 | 7,5     | 15,5    | 12 | 6  | 77  | 25,5 | 37,0 | 5  | 32 | 24 | 105     |       | 102 |
| 3    | 8  | 63,0 | 24 | 6,5 | 37 | 11 | 71 | 223 | 9,0     | 17,5    | 18 | 7  | 111 | 28,5 | 42,5 | 6  | 38 | 31 | 105     |       | 103 |

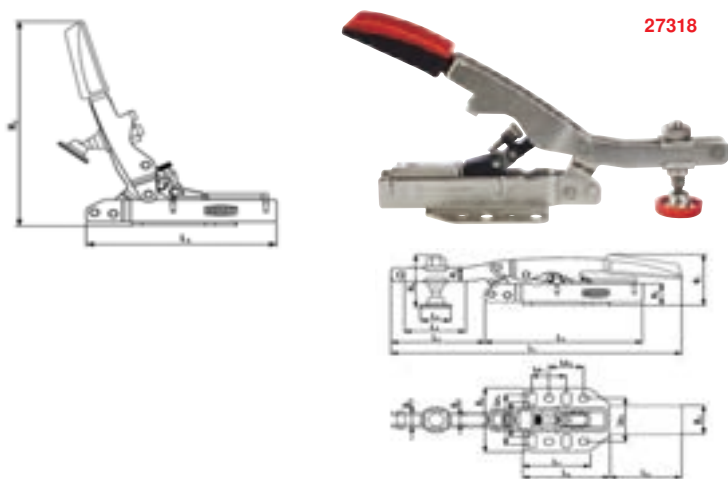
## 27318 Variable horizontal tensioner



Einfach besser.

Type

Automatically infinitely variable adjustment of clamping height/adjustment travel with approximately uniform level of clamping force without manual reduction in pressure for forcing screw position. Clamping force of up to 2500 N. The clamping force can be adjusted simply by turning the adjusting screw in the joint of the tensioners to suit requirements. Removable protective cap on pressure plate. Hole pattern in baseplate suitable for mm and inch. 2-component plastic handle with padded insert.



| Type     | waf  | L1  | L2 | L3 | L4 | L5  | L6 | L7 | L8 | H1 | H2  | H3 | H4 | H5 | Lo1+2 | Lo3 | Lo4   | hole Ø | 27318 | ... |
|----------|------|-----|----|----|----|-----|----|----|----|----|-----|----|----|----|-------|-----|-------|--------|-------|-----|
|          | mm   | mm  | mm | mm | mm | mm  | mm | mm | mm | mm | mm  | mm | mm | mm | mm    | mm  | mm    | mm     |       |     |
| STC-HH50 | 0-45 | 210 | 67 | 40 | 23 | 116 | 64 | 50 | 54 | 46 | 155 | 13 | 47 | 20 | 25.4  | 39  | 32-44 | 6      |       | 301 |
| STC-HH70 | 0-65 | 210 | 67 | 40 | 23 | 116 | 64 | 50 | 54 | 70 | 175 | 13 | 65 | 38 | 25.4  | 39  | 32-44 | 6      |       | 302 |

## 27317 Horizontal Action Toggle-Joint Clamps



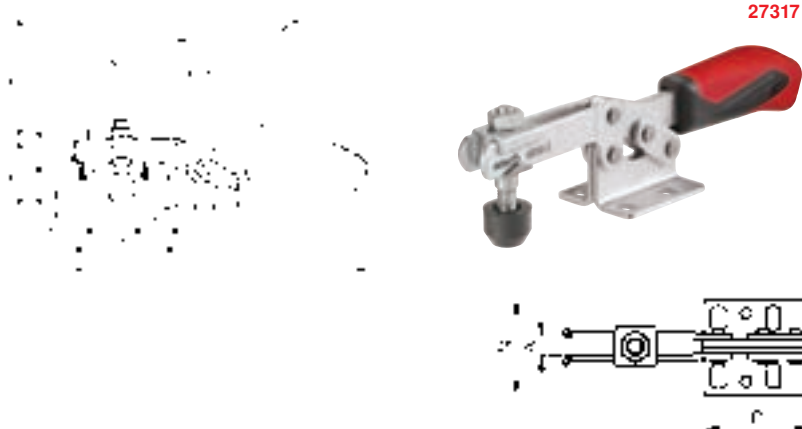
Type

With horizontal base. Galvanised and passivised, plastic handle, operating on the knee-operated lever system. Pressure can be adjusted easily with tempered spindles. Rubber cap to prevent damage to sensitive workpieces.

Note:

Supporting arms see cat.-no. 27345.

All sizes also available made of stainless steel.



| Size | A  | B     | C         | D   | D1  | E    | F    | H    | H1   | H2  | HW      | HW      | I    | K    | L    | L1  | M         | M1   | N    | P    | Alpha   | 27317 | ... |
|------|----|-------|-----------|-----|-----|------|------|------|------|-----|---------|---------|------|------|------|-----|-----------|------|------|------|---------|-------|-----|
|      | mm | mm    | mm        | mm  | mm  | mm   | mm   | mm   | mm   | mm  | min. mm | max. mm | mm   | mm   | mm   | mm  | mm        | mm   | mm   | mm   | degrees |       |     |
| 0    | 4  | 28.0  | 11.5-15.5 | 4.6 | -   | 9.0  | 5.5  | 14.5 | 23.0 | 34  | -5.5    | 0.0     | 7.5  | 6.3  | -    | 79  | 16.0      | -    | 25.0 | 25.5 | 90      |       | 101 |
| 1    | 5  | 42.0  | 13.0-14.5 | 5.2 | -   | 18.7 | 8.0  | 19.0 | 30.0 | 49  | -3.0    | 2.5     | 10.0 | 5.5  | -    | 120 | 18.0-21.5 | -    | 34.0 | 34.0 | 90      |       | 102 |
| 2    | 6  | 64.0  | 26.0      | 5.6 | 5.6 | 32.0 | 16.0 | 24.0 | 45.0 | 68  | -1.5    | 5.0     | 13.2 | 6.0  | 12.7 | 162 | 19.5-29.5 | 28.5 | 42.0 | 38.0 | 90      |       | 103 |
| 3    | 8  | 73.0  | 25.7      | 6.5 | 5.1 | 38.0 | 14.0 | 32.0 | 48.5 | 86  | -2.0    | 9.0     | 15.0 | 7.0  | 13.0 | 206 | 22.0-31.8 | 31.6 | 45.5 | 50.0 | 90      |       | 104 |
| 4    | 10 | 113.0 | 41.0      | 8.5 | 8.5 | 63.0 | 27.0 | 45.0 | 75.0 | 126 | -4.0    | 24.0    | 20.0 | 8.0  | 20.5 | 287 | 29.0-43.0 | 43.0 | 58.0 | 57.0 | 90      |       | 105 |
| 5    | 10 | 123.0 | 41.5      | 8.5 | -   | 78.0 | 16.0 | 46.0 | 73.0 | 128 | +1.7    | 25.0    | 25.0 | 12.5 | -    | 321 | 41.5      | -    | 58.0 | 77.0 | 90      |       | 106 |



27319

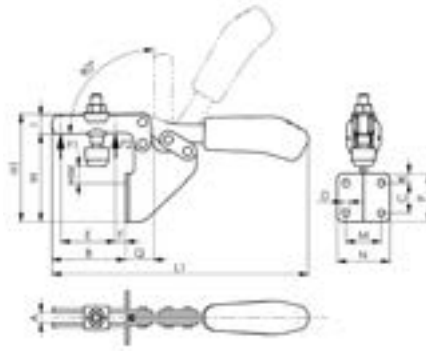
Horizontal Action Toggle-Joint Clamps



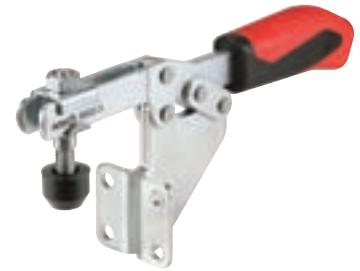
Type

With open retaining arm and angled foot.

Galvanised and passivated. Rivets made of stainless steel, running in case-hardened bushes. Greased bearing spots. Ergonomic handle made of red high-quality oil-resistant plastics. Complete with tempered, galvanised forcing screw.



27319



| Size | A   | B  | C  | D   | E  | F    | H  | H1   | HW      | HW      | I    | K  | L1  | M    | N    | P  | 27319 | ... |
|------|-----|----|----|-----|----|------|----|------|---------|---------|------|----|-----|------|------|----|-------|-----|
|      | mm  | mm | mm | mm  | mm | mm   | mm | mm   | min. mm | max. mm | mm   | mm | mm  | mm   | mm   | mm |       |     |
| 2    | 6.2 | 52 | 20 | 5.6 | 32 | 10.5 | 73 | 94.0 | 22      | 29.5    | 13.2 | 6  | 162 | 25.5 | 37.0 | 32 |       | 101 |
| 3    | 8.0 | 59 | 24 | 6.8 | 37 | 6.5  | 70 | 86.5 | 5       | 16.0    | 15.0 | 7  | 206 | 28.5 | 42.5 | 38 |       | 102 |

27345

Supporting Arms for Toggle Clamps



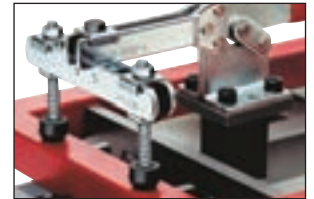
Type

Galvanised and passivated, with tempered clamping screw and fastening screw.

Use

For cat.-no. 27313, 27315, 27317, and 27319.

27345



| Size | Screw    | Clamping width | Length | 27345 | ... |
|------|----------|----------------|--------|-------|-----|
|      | DIN 933  | mm             | mm     |       |     |
| 0    | M 4 x 25 | 18 - 60        | 70     |       | 101 |
| 1    | M 5 x 30 | 22 - 72        | 85     |       | 102 |
| 2    | M 6 x 35 | 28 - 85        | 100    |       | 103 |
| 3    | M 8 x 45 | 34 - 100       | 120    |       | 104 |

| Size | Screw     | Clamping width | Length | 27345 | ... |
|------|-----------|----------------|--------|-------|-----|
|      | DIN 933   | mm             | mm     |       |     |
| 4    | M 8 x 65  | 40 - 125       | 150    |       | 105 |
| 5    | M 8 x 65  | 40 - 125       | 150    |       | 106 |
| 6    | M 12 x 80 | 54 - 200       | 240    |       | 107 |

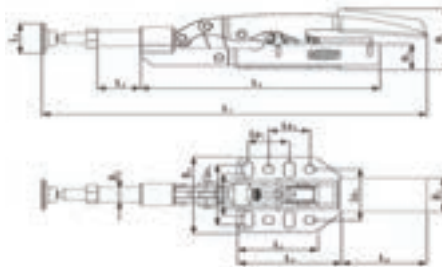
27329

Variable push-rod tensioner



Type

Automatically infinitely variable adjustment of clamping height/adjustment travel with approximately uniform level of clamping force without manual reduction in pressure for forcing screw position. Clamping force of up to 2500 N. The clamping force can be adjusted simply by turning the adjusting screw in the joint of the tensioners to suit requirements. Removable protective cap on pressure plate. Hole pattern in baseplate suitable for mm and inch. 2-component plastic handle with padded insert.



27329



| Type      | waf | L1      | L3 | L4 | L5  | L6 | L7 | L8 | H1 | H2  | H5 | Lo1+2 | Lo3 | Lo4   | hole Ø | 27329 | ... |
|-----------|-----|---------|----|----|-----|----|----|----|----|-----|----|-------|-----|-------|--------|-------|-----|
|           | mm  | mm      | mm | mm | mm  | mm | mm | mm | mm | mm  | mm | mm    | mm  | mm    | mm     |       |     |
| STC-IHH25 | 25  | 225-245 | 25 | 23 | 150 | 64 | 50 | 54 | 47 | 160 | 20 | 25.4  | 39  | 32-44 | 6      |       | 101 |

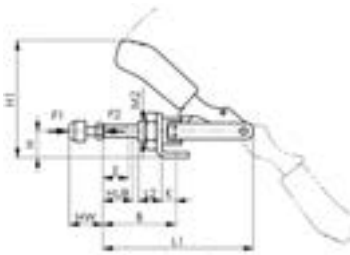
27330

Push-Pull Type Toggle Clamps



Type

With small angle base. Push/hold clamps with long push-rod guideway. Equal action of rod and lever. Plastic handle can be set at any angle to the base surface. The clamps can be mounted in sheet metal walls without the angled iron base or screwed into fixture bodies by the threaded nose. Complete with tempered, galvanised forcing screw and protective cap.



27330



| Size | A    | B       | B       | D   | E  | H  | H1    | Hub | HW      | HW      | K    | L1    | L2 | M       | M       | M2         | N  | P  | 27330 | ... |
|------|------|---------|---------|-----|----|----|-------|-----|---------|---------|------|-------|----|---------|---------|------------|----|----|-------|-----|
|      | mm   | min. mm | max. mm | mm  | mm | mm | mm    | mm  | min. mm | max. mm | mm   | mm    | mm | min. mm | max. mm | mm         | mm | mm |       |     |
| 0    | 6.5  | 17.0    | 33.0    | 4.5 | 13 | 12 | 49.3  | 16  | 12      | 20      | 6.5  | 66.5  | 10 | -       | 16.0    | M 10 x 1.0 | 25 | 16 |       | 101 |
| 1    | 8.0  | 24.5    | 44.5    | 4.5 | 20 | 15 | 60.5  | 20  | 12      | 20      | 7.0  | 91.0  | 16 | 16.0    | 19.5    | M 12 x 1.5 | 30 | 20 |       | 102 |
| 2    | 10.0 | 32.5    | 58.5    | 5.6 | 20 | 20 | 85.5  | 26  | 17      | 25      | 12.5 | 114.0 | 19 | 31.8    | 36.0    | M 16 x 1.5 | 50 | 34 |       | 103 |
| 3    | 12.0 | 37.0    | 69.0    | 6.5 | 30 | 25 | 108.0 | 32  | 22      | 35      | 13.0 | 140.0 | 22 | 29.5    | 42.5    | M 20 x 1.5 | 60 | 30 |       | 104 |
| 5    | 16.0 | 41.5    | 81.5    | 8.5 | 50 | 30 | 129.5 | 40  | 30      | 50      | 15.5 | 171.5 | 25 | 29.0    | 46.0    | M 24 x 1.5 | 65 | 35 |       | 105 |

27340

Push-Pull Type Toggle Clamps

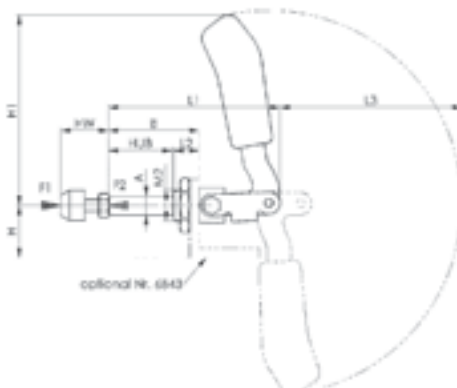


Type

Short version. For push and pull clamping, long rod-guide with attaching thread and nut. Push rod galvanised and passivated. Bearing spots are greased. Rivet made of stainless steel, screws tempered. Ergonomic handle made of red high-quality oil-resistant plastics. Complete with tempered, galvanised forcing screw.

Note:

Diagram shows push-pull type toggle clamps with angle base AMF-no. 6843.



| Size | A mm | B mm | H mm | H1 mm | Stroke mm | HW min. mm | HW max. mm | E mm | L1 mm | L2 mm | L3 mm | M    | M2         | N mm | 27340 | ... |
|------|------|------|------|-------|-----------|------------|------------|------|-------|-------|-------|------|------------|------|-------|-----|
| 2    | 10   | 36   | 24   | 73    | 21.5      | 17         | 25         | 15   | 68.5  | 13    | 68    | M 6  | M 16 x 1.5 | 30.5 |       | 101 |
| 3    | 12   | 57   | 33   | 123   | 40.0      | 22         | 35         | 25   | 108.0 | 16    | 115   | M 8  | M 20 x 1.5 | 33.0 |       | 102 |
| 5    | 16   | 92   | 37   | 149   | 67.0      | 30         | 50         | 45   | 175.0 | 24    | 139   | M 12 | M 24 x 1.5 | 49.0 |       | 103 |

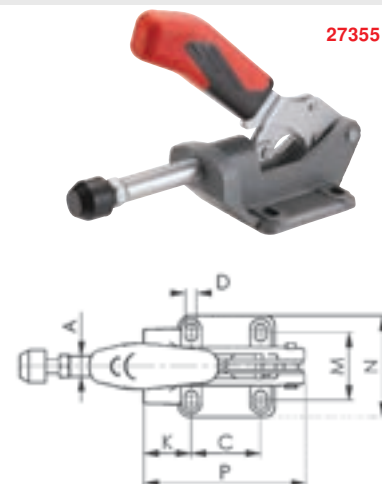
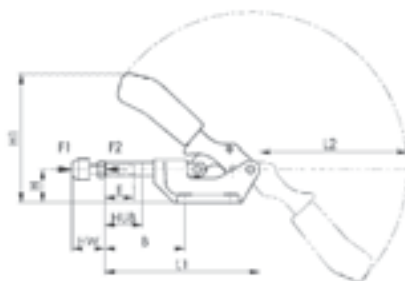
27355

Heavy-Duty Push-Pull Type Toggle Clamps



Type

Heavy-duty type with long rod guide. Equal action of rod and lever. Base unit made of tempered casting, lever parts and push-rod made of galvanised and passivated tempered casting. Handle made of red, oil-resistant plastics. Rivets made of stainless steel, for size 3 running in case-hardened bushes. Bearing spots are greased. Complete with tempered, galvanised forcing screw.



| Size | Pressure/tension (F1/F2) kN | Contact pressure-screw | A mm | B min. mm | B max. mm | C mm | D mm | E mm | H mm | H1 mm | Stroke mm | HW min. mm | HW max. mm | K mm | L1 mm | L2 mm | M mm  | N mm | P mm | 27355 | ... |
|------|-----------------------------|------------------------|------|-----------|-----------|------|------|------|------|-------|-----------|------------|------------|------|-------|-------|-------|------|------|-------|-----|
| 3    | 4                           | M 8 x 35               | 12   | 40        | 72        | 41   | 6.5  | 30   | 30   | 116.0 | 32        | 22         | 35         | 28   | 139   | 135   | 36-44 | 60   | 95   |       | 101 |
| 5    | 10                          | M 12 x 50              | 16   | 58        | 98        | 41   | 8.5  | 50   | 38   | 137.5 | 40        | 30         | 50         | 45   | 174   | 156   | 41-50 | 71   | 121  |       | 102 |
| 7    | 25                          | M 12 x 50              | 22   | 59        | 105       | 70   | 11.0 | 50   | 55   | 179.0 | 50        | 30         | 50         | 45   | 218   | 192   | 57-65 | 93   | 158  |       | 103 |

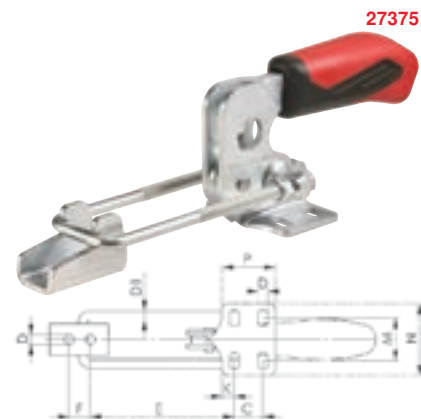
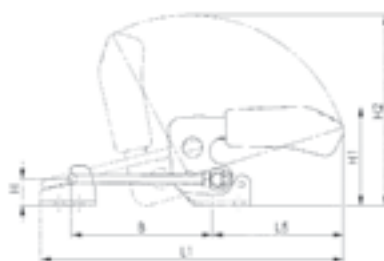
27375

Hook Type Toggle Clamps



Type

Horizontal, galvanised and passivated. Rivets made of stainless steel, running in case-hardened bushes. Tempered hooks. Greased bearing spots. Handle made of red, oil-resistant plastics, counter support included.



| Size | Tension kN | B min. mm | B max. mm | C mm | D mm | D1 mm | E min. mm | E max. mm | F mm | H mm | H1 mm | H2 mm | K mm | L1 min. mm | L1 max. mm | L5 mm | M mm      | N mm | P mm | 27375 | ... |
|------|------------|-----------|-----------|------|------|-------|-----------|-----------|------|------|-------|-------|------|------------|------------|-------|-----------|------|------|-------|-----|
| 2    | 1.6        | 42.0      | 76        | 13   | 5.2  | 4     | 38.0      | 72        | 11   | 12   | 47.0  | 99.0  | 6.4  | 125        | 159        | 69    | 19.5-23.5 | 38.0 | 26.0 |       | 101 |
| 3    | 3.2        | 53.5      | 101       | 19   | 6.5  | 6     | 48.6      | 96        | 14   | 19   | 70.0  | 135.5 | 8.0  | 169        | 216        | 93    | 24.5-32.0 | 48.0 | 35.0 |       | 102 |
| 4    | 7.0        | 66.0      | 130       | 32   | 8.5  | 8     | 59.0      | 123       | 19   | 26   | 94.5  | 171.5 | 9.5  | 209        | 273        | 111   | 35.0-46.0 | 64.3 | 53.5 |       | 103 |

Clamping Technology





**27360**

**Quick-Action Clamps (Machine Table Clamps)**



**Use**  
For drilling and light milling jobs.



**Type**  
With quick-action lever action. The tension is released by depressing the clamping lever. The locking mechanism then disengages easily. Insert into T-keyway with corresponding fulcrum pad DIN 508. Pivotable and infinitely height-adjustable.

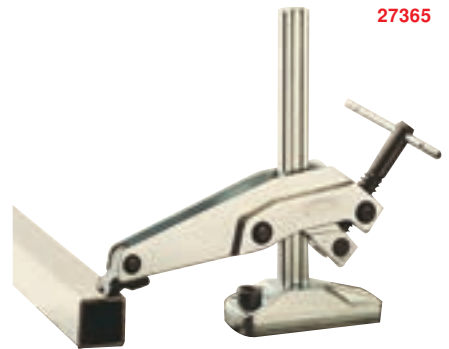
| Overhang x clamping mm | attainable clamping force at 50 mm clamping height approx. N | Rod mm      | Weight approx. kg | 27360 | ... |
|------------------------|--|-------------|-------------------|-------|-----|
| 100 x 200              | 3500   | 19.5 x 9.5  | 1.35              |       | 122 |
| 120 x 200              | 5500   | 22.0 x 10.5 | 1.55              |       | 123 |
| 120 x 200              | 7500   | 28.0 x 11.0 | 2.65              |       | 124 |
| 140 x 240              | 10000  | 30.0 x 15.0 | 3.30              |       | 125 |

**27365**

**Gripping Arm Spanners**



**Use**  
For drilling and light milling jobs.



**Type**  
Rugged all-steel construction, with wear-resistant spindle and t-handle for powerful, quick and secure clamping. Pivotable and infinitely height-adjustable. Mounted by T-keyway nut and hexagonal head screw on machine table.

| Overhang x clamping mm | attainable clamping force at 50 mm clamping height approx. N | Rod mm  | Weight approx. kg | 27365 | ... |
|------------------------|--|---------|-------------------|-------|-----|
| 123-140 x 200          | 6500   | 28 x 11 | 3.0               |       | 101 |

**27407 - 27408**

**Workpiece stops 3-dimensional**

**27407**  
**Type**  
5 axes infinitely adjustable 360°. 2 and/or 3 step adjustment.  
**Material:** Aluminium anodized.  
**Use**  
For use with drilling and milling machines.

**27407 101**  
**Single type**  
  
**27407 102**  
**Double type**  
  
**27408**  
**Suitable tenons**



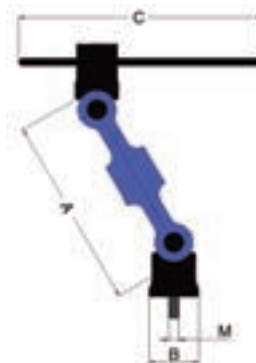
| Type single | Type double | T-flute size | 27407 | ... | 27408 | ... |
|-------------|-------------|--------------|-------|-----|-------|-----|
| x           | -           | -            |       | 101 |       |     |
| -           | x           | -            |       | 102 |       |     |
| -           | -           | 10           |       |     |       | 101 |
| -           | -           | 12           |       |     |       | 102 |
| -           | -           | 14           |       |     |       | 103 |
| -           | -           | 16           |       |     |       | 104 |
| -           | -           | 18           |       |     |       | 105 |

**27410**

**Workpiece detent**



**Type**  
Adjustable in 5 axes, quick, flexible, sturdy, with T-keyway nuts 12 and 14 mm, for sizes T16 and T18 see cat.-no. 27408 104 + 105.  
**Use**  
For use with drilling and milling machines.



| A mm | B mm | C mm | M | 27410 | ... |
|------|------|------|---|-------|-----|
| 150  | 39   | 190  | 8 |       | 101 |

27895

Chuck jaws with positioning pins

**NEW**

27895

**ATORN®**

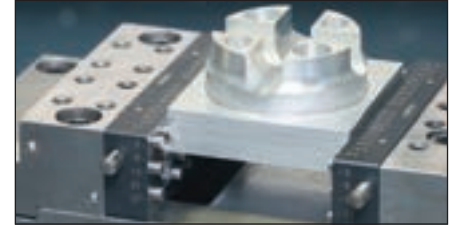
- Type**
- Patented bench vise chuck system
  - Mechanical pressing in and out of studs/pins
  - Nomenclature for predefined limit stop points

**Advantages:**

- Precise work, reproducible at any time
- Major time saving
- Absolute repeat precision

**Use**

Fast, uncomplicated positioning, without large tooling costs.



| Jaw width mm | for bench vise | brand  | stud dimensions for retaining bore (b x h) | Fixed chucks |     | movable chucks |     |
|--------------|----------------|--|--|--------------|-----|----------------|-----|
|              |                |  |  | 27895        | ... | 27895          | ... |
| 125          | Allmatic:      | TC, LC, HD, Basic  | M 10 x 18 (1 bore)                         | 101          |     | 102            |     |
| 125          | Hilma:         | NC 125, NC 125 H, EL 125, KNC 125                                | 80 x 14                                    | 105          |     | 106            |     |
| 125          | ATORN:         | MM-G 125, 5-axis tensioner                                       |  | 109          |     | 110            |     |
|              | Kesel:         | CNC 125, Bull 125  | 80 x 15                                    |              |     |                |     |
|              | Röhm:          | RKE 125, RKE-L 125, RKE-U 125, RKE-UL 125, RKG-L 125, RKE-LV 125 |  |              |     |                |     |
| 160          | Allmatic:      | TC, LC, HD, Basic  | M 10 x 20 (1 bore)                         | 103          |     | 104            |     |
| 160          | Hilma:         | NC 160, NC 160 H, EL 160, KNC 160                                | 100 x 17                                   | 107          |     | 108            |     |
| 160          | ATORN:         | MM-G 160   |  | 111          |     | 112            |     |
|              | Kesel:         | CNC 160, Bull 160  | 100 x 19.6                                 |              |     |                |     |
|              | Röhm:          | RKE 160, RKE-L 160, RKE-U 160, RKG-L 160, RKE-LV 160             |  |              |     |                |     |

27890

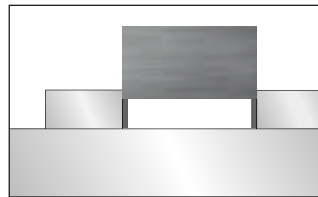
Magnetic parallel support sets

**ATORN®**

- Type**
- Made of hardened, burnished and distortion-free tool steel
  - **Height tolerance +/- 0.01 mm**
  - High holding force for magnets

**Advantage:**

Strip width 2.5 mm, so machining close to edges is possible.



| Length mm | Content Pairs | Content Height in mm | 27890 | ... |
|-----------|---------------|----------------------|-------|-----|
| 100       | 5             | 20, 27, 29, 31, 32   |       | 101 |
| 125       | 5             | 15, 30, 35, 37, 39   |       | 102 |
| 160       | 5             | 22, 30, 37, 42, 47   |       | 103 |



27890

36600

Precision parallel support sets

**AMF®**

- Type**
- In pairs, plan-parallel precision-ground. Dimensions on face. The sets result in a large range with 1 mm increments Case-hardened. **Pair tolerance IT 5, nominal dimension tolerance +/- 0.01 mm.** Remaining dimensions acc. to DIN ISO 2768 m. In wooden stand.

**Use**

For clamping and positioning of different sized workpieces, e.g. for grinding, milling, eroding, measuring and scribing. Can be used in conjunction with clamping tools and for parallel positioning workpieces in toolmaker's vises and on test plates.

**Note:**

Versions of special dimensions, with higher precision levels or as individual pairs, can all be supplied on request.

36600 101

**Type**  
**Length 100 mm.**

Box contents, all in pairs:  
2 x 5 / 2 x 10 / 2 x 15 / 2 x 20 / 3 x 6 / 3 x 11 / 3 x 16 / 3 x 21 / 4 x 7 / 4 x 12 / 4 x 17 / 4 x 22 / 5 x 8 / 5 x 13 / 5 x 18 / 5 x 23 / 6 x 9 / 6 x 14 / 6 x 19 / 6 x 24 mm.

36600 103

**Type**  
**Interlock(tm) mechanism to prevent opening of both blades at the same time. Length 125 mm.**

Box contents, all in pairs:  
8 x 11 / 8 x 16 / 8 x 21 / 8 x 26 / 8 x 31 / 8 x 36 / 10 x 13 / 10 x 18 / 10 x 23 / 10 x 28 / 10 x 33 / 10 x 38 / 12 x 15 / 12 x 20 / 12 x 25 / 12 x 30 / 12 x 35 / 12 x 40 / 14 x 17 / 14 x 22 / 14 x 27 / 14 x 32 / 14 x 37 / 14 x 42 mm.

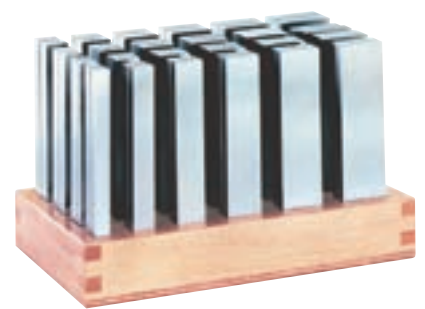
36600 102

**Type**  
**Interlock(tm) mechanism to prevent opening of both blades at the same time. Length 150 mm.**

Box contents, all in pairs:  
8 x 11 / 8 x 16 / 8 x 21 / 8 x 26 / 8 x 31 / 8 x 36 / 10 x 13 / 10 x 18 / 10 x 23 / 10 x 28 / 10 x 33 / 10 x 38 / 12 x 15 / 12 x 20 / 12 x 25 / 12 x 30 / 12 x 35 / 12 x 40 / 14 x 17 / 14 x 22 / 14 x 27 / 14 x 32 / 14 x 37 / 14 x 42 mm.

36600

| Length mm | Content Pairs | 36600 | ... |
|-----------|---------------|-------|-----|
| 100       | 20            |       | 101 |
| 125       | 24            |       | 103 |
| 150       | 24            |       | 102 |



36602

## Set of Parallels



## Type

Case-hardened and ground Support surfaces precision-ground. **Pair tolerance in terms of height 0.010 mm.** Nominal dimensions also **ISO 2768 m.** Nominal dimension tolerance up to height of 30 mm = +/- 0.2 mm, above height of 35 mm = +/- 0.3 mm.

## Contents:

Each in pairs (=14 pairs). Parallels 150 mm long, 10 mm wide. Height of contact surfaces mm: 14 / 16 / 18 / 20 / 22 / 24 / 26 / 28 / 30 / 32 / 35 / 40 / 45 / 50.  
In wooden case with removable swing cover.



36602

| Length mm | Content Pairs | 36602 | ... |
|-----------|---------------|-------|-----|
| 150       | 14            |       | 101 |

36604

## Sets of Parallels DIN 6346



## Type

Case-hardened and ground, accuracy grade 1 in compliance with DIN 876, Section 2.2.1, Tab. 3, tolerance in pairs IT 5. Nominal sizes in compliance with ISO 2768 m. In wooden box with removable swing cover.

## Use

Can be used as supports, stops or spacers on machine tools. A must for parallel positioning workpieces in toolmaker's vises. Thanks to ideal stepping and high accuracy grade suitable as well for scribing. High accuracy allows stacking of parallels with two different sizes.

## 36604 101

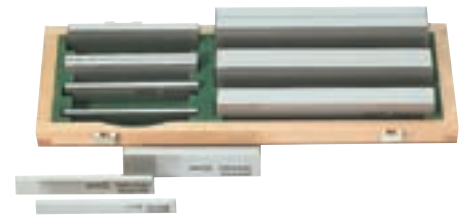
## Set contents 9 pairs:

8 x 2.5 x 63 / 10 x 3.2 x 63 / 12 x 4 x 63 / 16 x 5 x 63 / 20 x 6.3 x 63 / 12 x 4 x 100 / 16 x 5 x 100 / 20 x 6.3 x 100 / 25 x 8 x 100 mm.

## 36604 102

## Set contents 7 pairs:

12 x 4 x 100 / 16 x 5 x 100 / 20 x 6.3 x 100 / 25 x 8 x 100 / 25 x 8 x 160 / 32 x 10 x 160 / 40 x 12 x 160 mm.



36604

| Set size mm | Content Pairs | 36604 | ... |
|-------------|---------------|-------|-----|
| 2.5 - 25    | 9             |       | 101 |
| 4.0 - 40    | 7             |       | 102 |

36605

## Parallels DIN 6346



## Type

Case-hardened and ground, **accuracy grade 1 in compliance with DIN 876**, Section 2.2.1, Tab. 3, **in pairs, tolerance IT 5 in height and width.** Nominal sizes in compliance with **ISO 2768 m.**

## Use

Can be used as supports, stops or spacers on machine tools. A must for parallel positioning workpieces in toolmaker's vises. Thanks to ideal stepping and high accuracy grade suitable as well for scribing. High accuracy allows stacking of parallels with two different sizes.



36605

| H x W mm | Length mm | Width tolerance mm | Height tolerance mm | 36605 | ... |
|----------|-----------|--------------------|---------------------|-------|-----|
| 8 x 2.5  | 63        | 0.004              | 0.006               |       | 102 |
| 10 x 3.2 | 63        | 0.005              | 0.006               |       | 104 |
| 12 x 4.0 | 100       | 0.005              | 0.008               |       | 106 |
| 16 x 5.0 | 100       | 0.005              | 0.008               |       | 108 |
| 20 x 6.3 | 100       | 0.006              | 0.009               |       | 110 |
| 25 x 8.0 | 100       | 0.006              | 0.009               |       | 111 |

| H x W mm  | Length mm | Width tolerance mm | Height tolerance mm | 36605 | ... |
|-----------|-----------|--------------------|---------------------|-------|-----|
| 25 x 8.0  | 160       | 0.006              | 0.009               |       | 112 |
| 32 x 10.0 | 100       | 0.006              | 0.011               |       | 113 |
| 32 x 10.0 | 160       | 0.006              | 0.011               |       | 114 |
| 40 x 100  | 12.0      | 0.008              | 0.011               |       | 115 |
| 40 x 100  | 160       | 0.008              | 0.011               |       | 116 |
| 50 x 16.0 | 160       | 0.008              | 0.011               |       | 117 |

36615

## Set of Parallels



## Type

Case-hardened and ground, support surfaces precision ground. **Pair tolerance in height terms 0.004 mm.** Nominal dimension tolerance in height terms +/- 0.004 mm. Nominal dimensions length and width acc. to **ISO 2768 m.** 150 mm long, 10 mm wide, in wooden crate with removable folding lid.

## Set contents 14 pairs:

Height of measuring surfaces 14 / 16 / 18 / 20 / 22 / 24 / 26 / 28 / 30 / 32 / 35 / 40 / 45 / 50 mm.

## Use

As supports for workpieces during a vast array of machining processes. Thanks to constant width, the parallels can be stacked in height. The swing cover is removable so that the box can be open stored in a tool cabinet.



36615

| Contents Pairs | 36615 | ... |
|----------------|-------|-----|
| 14             |       | 101 |



# Performance requires quality.

For example, with the video measurement microscope from ATORN.

- Universal implementation possibilities
- With motorised zoom lens 0.7x to 4.5x
- Intuitive software operation via touch screen PC

**ATORN**<sup>®</sup>