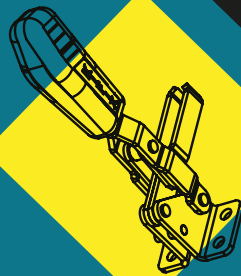
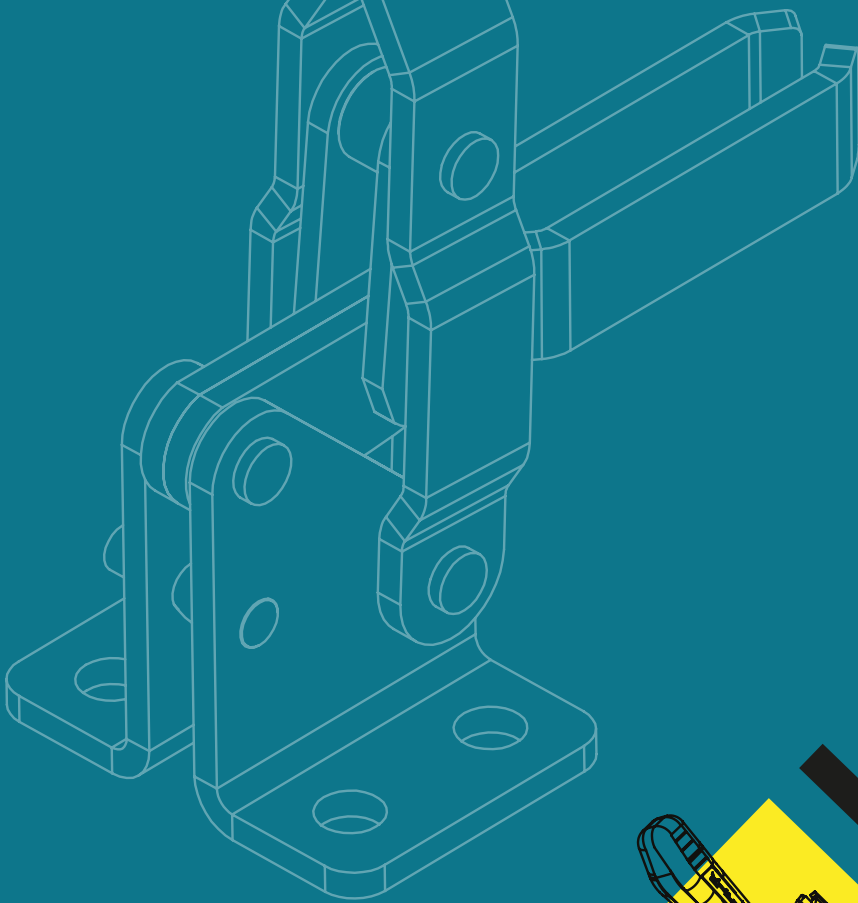


# 2020

CATÁLOGO//PRODUTOS



**Kifix**<sup>®</sup>  
GRAMPOS DE FIXAÇÃO

# I Empresa

A KIFIX INDÚSTRIA E COMÉRCIO LTDA., sediada no estado no Rio Grande do Sul, na cidade de Caxias do Sul, fabricando grampos de fixação rápida desde 2004, coloca à sua disposição mais de 600 produtos da mais alta qualidade, direcionados aos mais variados ramos de atividades industriais, tais como: ferramentas, serralherias, indústrias metalúrgicas, moveleiras, químicas, cosméticas, alimentícias, automobilísticas, autopeças, etc.

Conta com profissionais experientes e que estão a sua disposição para ajudá-lo a solucionar os seus problemas de fixação.

O sistema de fixação, chamado de “fixação rápida”, é uma ferramenta que pode ser acionada manualmente, pneumaticamente, hidraulicamente ou eletricamente. Foi fabricada pela primeira vez em 1936, e desde então vem solucionando problemas de fixação em processos industriais tais como: furar, rosquear, soldar, colar, montar, fresar, etc.

Os grampos de “fixação rápida” são fabricados nos tipos: vertical, horizontal, tensor, torpedo e alicate, em aço carbono zincado ou aço inox, com capacidade de retenção de 30 a 3.400Kgf força. Tamanhos e tipos especiais são fabricados sob encomenda.



|   |           |
|---|-----------|
| <b>SISTEMA DE FIXAÇÃO RÁPIDA / MECANISMO DE TRAVAMENTO / FORÇA DE RETENÇÃO</b>          | <b>03</b> |
| <b>GRAMPO VERTICAL</b>  | <b>04</b> |
| KF-718  |           |
| KF-631  |           |
| KF 010/ KF-012 / KF-017 / KF-018 / KF-016 / KF-011 / KF-111                             |           |
| KF-017 T  |           |
| KF-010F / KF-012F / KF-019 / KF-211 / KF-311 / KF-411                                   |           |
| KF-615 / KF-616 / KF-641 / KF-066 / KF-845 / KF-875                                     |           |
| KF-017 DS A / KF-011 DS A / KF-111 DS A / KF-211 DS A / KF-311 DS A / KF-411 DS A       |           |
| KF-MP / KF-JD   |           |
| KF-725 / KF-825   |           |
| KFU   |           |
| <b>GRAMPO HORIZONTAL</b>  | <b>14</b> |
| KF-105 / KF-106 / KF-152 / KF-732 / KF-511 / KF-512 / KF-521 / KF-522 / KF-532 / KF-534 |           |
| KF-522 F / KF-531 F   |           |
| KF-531 / KF-541 / KF-312 / KF-712 / KF-523 / KF-722 / KF-533                            |           |
| KF-102 / KF-101 / KF-103 / KF-104 / KF-515  |           |
| <b>GRAMPO TENSOR</b>  | <b>18</b> |
| KF-233 / KF-643 / KF-743 / KF-133 / KF-843 / KF-943 / KF-143                            |           |
| KF-033 / KF-353 / KF-153 / KF-453 / KF-553  |           |
| KF-063 / KF-163 / KF-263 / KF-423 / KF-433 / KF-443                                     |           |
| KF-473 / KF-310 / KF-314 / KF-326 / KF-320  |           |
| KF-375 / KF-385 / KF-330 / KF-350 / KF-340  |           |
| KFC3 / KF5C   |           |
| <b>GRAMPO TORPEDO</b>   | <b>23</b> |
| KF-305 / KF-405 / KF-505 / KF-605   |           |
| KF-061 / KF-057 / KF-051 / KF-054 / KF-053 / KF-052 / KF-056                            |           |
| KF-005 / KF-006 / KF-007 / KF-015 / KF-025 / KF-035                                     |           |
| BASES "L" GRAMPOS TORPEDOS / KFKT-012   |           |
| <b>FUSO RÁPIDO</b>  | <b>27</b> |
| KFRL-12 / KFRF-12 / KFRL-16 / KFRF-16 / KFRL-20 / KFRF-20                               |           |
| <b>MANÍPULOS</b>  | <b>27</b> |
| KFM-6 / KFM-8 / KFM-10 / KFM12 / KFM-16   |           |
| <b>GRAMPO SARGENTO</b>  | <b>27</b> |
| KFS-150 / KFS-300   |           |
| <b>GRAMPO COMPRESSOR</b>  | <b>28</b> |
| KF-035 34 / KF-035 60 / KF-035 3660 / KF-035 100  |           |
| <b>GRAMPO PNEUMÁTICO</b>  | <b>28</b> |
| KF-012 P / KF-017 P / KF-011 P / KF-111 P   |           |
| KF-057 P / KF-052 P / KF-066 P  |           |
| KF-019 P / KF-311 P / KF-411 P  |           |
| KF-718 P  |           |
| <b>GRAMPO PNEUMÁTICO PESADO</b>   | <b>31</b> |
| KFP-L40 / KFP-L63   |           |
| <b>DOBRADIÇA</b>  | <b>32</b> |
| KFD-14 / KFD-19   |           |
| <b>TRINCO</b>   | <b>32</b> |
| KFT-10 / KFT-14   |           |
| <b>ALICATE</b>  | <b>32</b> |
| KFA-300   |           |
| KFA-25 / KFA-35 / KFA-45 / KFA-70 / KFA-90 / KFA-100 / KFA-150                          |           |
| <b>ALÇA</b>   | <b>34</b> |
| KF-AL   |           |
| <b>PONTEIRAS</b>  | <b>34</b> |
| PP / PS / PSB / PA / ARP / ARB / PB / BRP / BRB / PBC / BRPC                            |           |
| PSD / PBD   |           |
| PC / PF   |           |



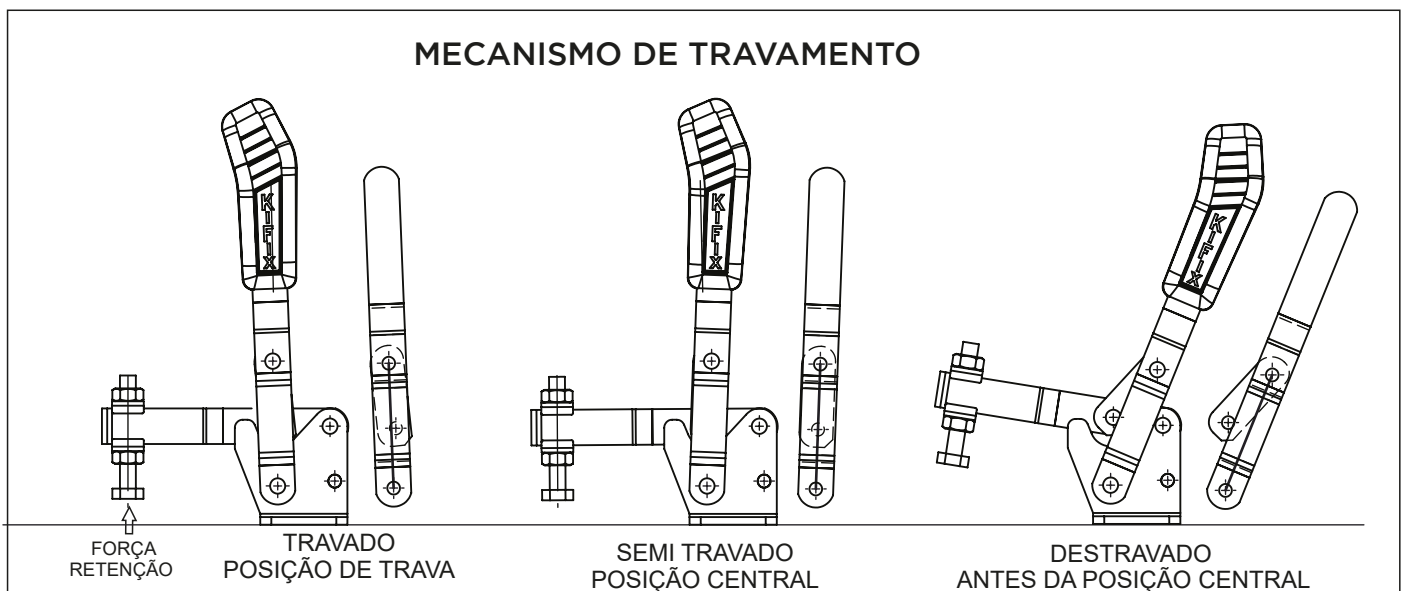
## SISTEMA DE FIXAÇÃO RÁPIDA

O sistema de fixação rápida recebeu denominações variadas através do tempo, por exemplo: presilha, prensa manual, fixador, grampo (CLAMP -USA).

Sua origem deu-se nos Estados Unidos da América em 1936. Hoje são mais de 100 fabricantes em todo mundo.

Esse mecanismo consiste em uma articulação de três pontos conhecida como “ação de joelho ou cotovelo”, a qual proporciona um travamento mecânico (veja a figura ao lado) que gera uma força de retenção contrária ao esforço aplicado e que só se destrava se acionado propositalmente.

Para evitar o destravamento aleatório, disponibilizamos também grampos de fixação rápida com trava de segurança.



## FORÇA DE RETENÇÃO

A força de retenção é proporcional a distância do ponto de giro(A) ao ponto de fixação da ponteira(B/C).

Quanto maior a distância entre o ponto A e o ponto de fixação da ponteira, menor será a força de retenção do fixador.

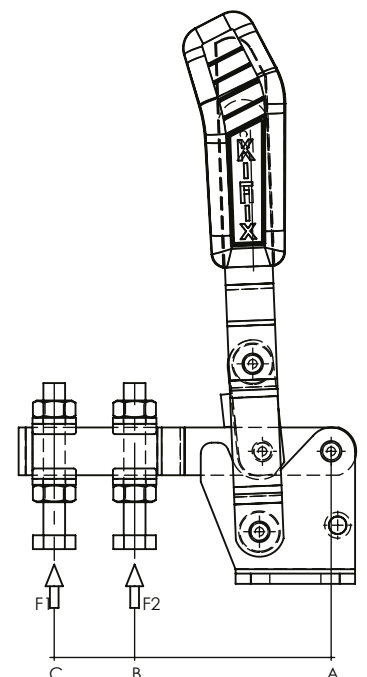
### EXEMPLO

#### FIXADOR X

A força de retenção é proporcional a distância do ponto de giro(A) ao ponto de fixação da ponteira(B/C)

distancia AC: 135mm F1(especificado no catálogo) = 680 Kgf

distancia AB: 90mm F2 =  $680 \times AC / AB = 680 \times 135 / 90 = 1.020$  Kgf



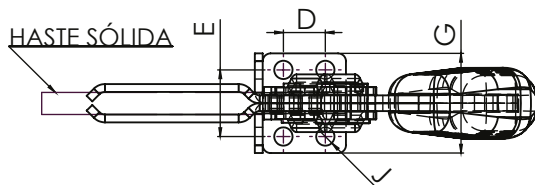
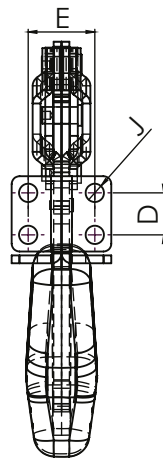
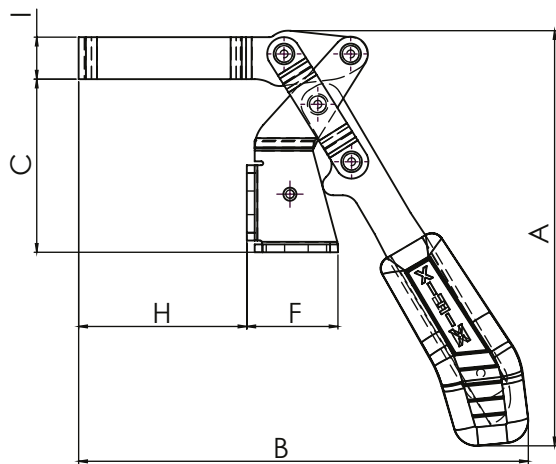
# GRAMPO VERTICAL



KF-718 DS



KF-718 DB



| BASES       | HASTES        | TR - Trava |
|-------------|---------------|------------|
| D - Dobrada | B - Bifurcada |            |
| R - Reta    | S - Sólida    |            |
|             | L - Longa     |            |

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A     | B     | C  | D  | E    | F  | G  | H  | I  | J | ÂNGULO DE ABERTURA | PESO Kg |
|------------|--------------------|-------|-------|----|----|------|----|----|----|----|---|--------------------|---------|
| KF-718 DB  | 170                | 158,3 | 171,5 | 66 | 16 | 25,4 | 35 | 38 | 64 | 16 | 7 | 185                | 0,500   |
| KF-718 DS  | 170                | 170,6 | 198,3 | 66 | 16 | 25,4 | 35 | 38 | 82 | 16 | 7 | 185                | 0,520   |

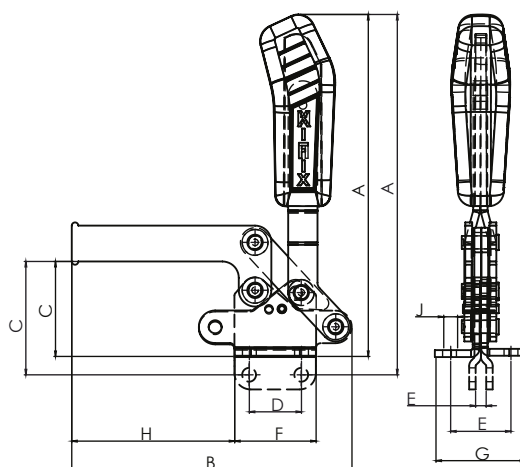
# GRAMPO VERTICAL



KF-631 DI TR



KF-631 RL



| REFERÊNCIA    | FORÇA RETENÇÃO Kgf | A   | B   | C  | D  | E   | F  | G  | H   | J   | ÂNGULO DE ABERTURA | PESO Kg |
|---------------|--------------------|-----|-----|----|----|-----|----|----|-----|-----|--------------------|---------|
| KF-631 D      | 400                | 210 | 129 | 28 | 32 | 37  | 50 | 55 | 57  | 8,5 | 85                 | 0,920   |
| KF-631 D TR   | 400                | 210 | 129 | 28 | 32 | 37  | 50 | 55 | 57  | 8,5 | 85                 | 1,050   |
| KF-631 DI     | 400                | 210 | 129 | 56 | 32 | 37  | 50 | 55 | 57  | 8,5 | 85                 | 0,920   |
| KF-631 DI TR  | 400                | 210 | 129 | 56 | 32 | 37  | 50 | 55 | 57  | 8,5 | 85                 | 1,050   |
| KF-631 R      | 400                | 221 | 129 | 40 | 32 | 6,5 | 50 |    | 57  | 8,5 | 85                 | 0,920   |
| KF-631 R TR   | 400                | 221 | 129 | 42 | 32 | 6,5 | 50 |    | 57  | 8,5 | 85                 | 1,050   |
| KF-631 RI     | 400                | 221 | 129 | 68 | 32 | 6,5 | 50 |    | 57  | 8,5 | 85                 | 0,920   |
| KF-631 RI TR  | 400                | 221 | 129 | 68 | 32 | 6,5 | 50 |    | 57  | 8,5 | 85                 | 1,050   |
| KF-631 DL     | 300                | 210 | 172 | 28 | 32 | 37  | 50 | 55 | 100 | 8,5 | 85                 | 0,980   |
| KF-631 DL TR  | 300                | 210 | 172 | 28 | 32 | 37  | 50 | 55 | 100 | 8,5 | 85                 | 1,110   |
| KF-631 DIL    | 300                | 210 | 172 | 56 | 32 | 37  | 50 | 55 | 100 | 8,5 | 85                 | 0,980   |
| KF-631 DIL TR | 300                | 210 | 172 | 56 | 32 | 37  | 50 | 55 | 100 | 8,5 | 85                 | 1,110   |
| KF-631 RL     | 300                | 221 | 172 | 40 | 32 | 6,5 | 50 |    | 100 | 8,5 | 85                 | 0,980   |
| KF-631 RL TR  | 300                | 221 | 172 | 40 | 32 | 6,5 | 50 |    | 100 | 8,5 | 85                 | 1,110   |
| KF-631 RIL    | 300                | 221 | 172 | 68 | 32 | 6,5 | 50 |    | 100 | 8,5 | 85                 | 0,980   |
| KF-631 RIL TR | 300                | 221 | 172 | 68 | 32 | 6,5 | 50 |    | 100 | 8,5 | 85                 | 1,110   |



KF-016 RS



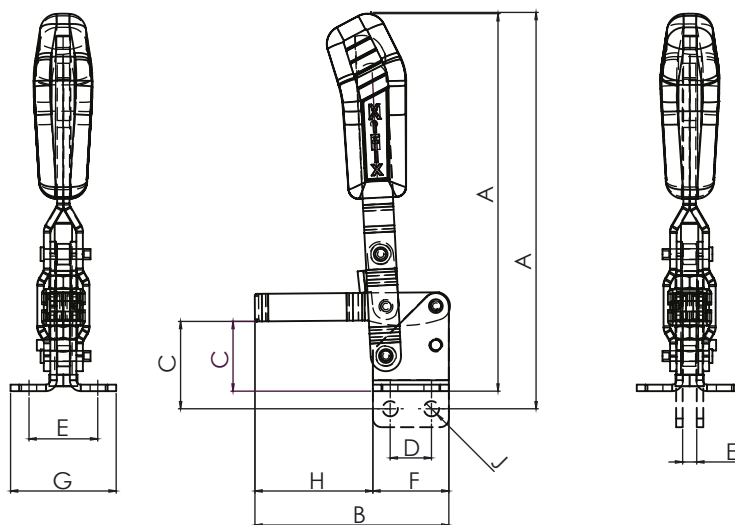
KF-018 DB TR



KF-017 DBL



KF-111 RBL



| BASES       | HASTES        | TR - Trava |
|-------------|---------------|------------|
| D - Dobrada | B - Bifurcada |            |
| R - Reta    | S - Sólida    |            |
|             | L - Longa     |            |

# GRAMPO VERTICAL

KF-011 DB TR



KF-012 RB



KF-111 DBL



|                         |  |                   |
|-------------------------|--|-------------------|
| <b>BASES</b>            | <b>HASTES</b>                            | <b>TR - Trava</b> |
| D - Dobrada<br>R - Reta | B - Bifurcada<br>S - Sólida<br>L - Longa |                   |

| REFERÊNCIA    | FORÇA RETENÇÃO<br>Kgf | A   | B     | C    | D    | E    | F    | G    | H     | J   | ÂNGULO DE<br>ABERTURA | PESO Kg |
|---------------|-----------------------|-----|-------|------|------|------|------|------|-------|-----|-----------------------|---------|
| KF-010 DB     | 32                    | 86  | 51,3  | 16   | 16   | 23,9 | 25,4 | 33,3 | 25,9  | 4,3 | 100                   | 0,090   |
| KF-010 RB     | 32                    | 93  | 51,3  | 23   | 16   | 4    | 25,4 |      | 25,9  | 4,3 | 100                   | 0,090   |
| KF-012 DB     | 90                    | 128 | 70    | 23   | 12,7 | 27   | 25   | 39,6 | 45    | 5,6 | 100                   | 0,210   |
| KF-012 DBL    | 70                    | 128 | 85    | 23   | 12,7 | 27   | 25   | 39,6 | 60    | 5,6 | 100                   | 0,215   |
| KF-012 RB     | 90                    | 132 | 70    | 29   | 12,7 | 6    | 25   |      | 45    | 5,6 | 100                   | 0,210   |
| KF-012 RBL    | 70                    | 132 | 85    | 29   | 12,7 | 6    | 25   |      | 60    | 5,6 | 100                   | 0,215   |
| KF-017 DB     | 170                   | 175 | 90    | 32   | 19   | 32   | 35   | 49   | 55    | 7,0 | 100                   | 0,400   |
| KF-017 DB TR  | 170                   | 175 | 90    | 32   | 19   | 32   | 35   | 49   | 55    | 7,0 | 100                   | 0,400   |
| KF-017 DBL    | 150                   | 175 | 120   | 32   | 19   | 32   | 35   | 49   | 85    | 7,0 | 100                   | 0,410   |
| KF-017 DBL TR | 150                   | 175 | 120   | 32   | 19   | 32   | 35   | 49   | 85    | 7,0 | 100                   | 0,410   |
| KF-017 DS     | 200                   | 175 | 120   | 32   | 19   | 32   | 35   | 49   | 85    | 7,0 | 100                   | 0,410   |
| KF-017 RB     | 170                   | 183 | 90    | 40   | 19   | 6,5  | 35   |      | 55    | 7,0 | 100                   | 0,400   |
| KF-017 RBL    | 150                   | 183 | 120   | 40   | 19   | 6,5  | 35   |      | 85    | 7,0 | 100                   | 0,410   |
| KF-017 RS     | 200                   | 183 | 120   | 40   | 19   | 6,5  | 35   |      | 85    | 7,0 | 100                   | 0,410   |
| KF-018 DB     | 250                   | 178 | 120   | 32   | 20   | 33,5 | 37   | 50,5 | 83    | 7,0 | 100                   | 0,430   |
| KF-018 DB TR  | 250                   | 178 | 120   | 32   | 20   | 33,5 | 37   | 50,5 | 83    | 7,0 | 100                   | 0,430   |
| KF-018 DS     | 250                   | 178 | 120   | 32   | 20   | 33,5 | 37   | 50,5 | 83    | 7,0 | 100                   | 0,430   |
| KF-018 RB     | 250                   | 186 | 120   | 40   | 20   | 6,5  | 37   |      | 83    | 7,0 | 100                   | 0,430   |
| KF-018 RS     | 250                   | 186 | 120   | 40   | 20   | 6,5  | 37   |      | 83    | 7,0 | 100                   | 0,430   |
| KF-016 DB     | 280                   | 175 | 90    | 31,5 | 19,5 | 32,5 | 35   | 50   | 55    | 7,5 | 100                   | 0,420   |
| KF-016 DBL    | 260                   | 175 | 137,4 | 31,5 | 19,5 | 32,5 | 35   | 50   | 102,4 | 7,5 | 100                   | 0,440   |
| KF-016 DS     | 310                   | 175 | 137,4 | 31,5 | 19,5 | 32,5 | 35   | 50   | 102,4 | 7,5 | 100                   | 0,440   |
| KF-016 RB     | 280                   | 183 | 90    | 39   | 19,5 | 6,7  | 35   |      | 55    | 7,5 | 100                   | 0,420   |
| KF-016 RBL    | 260                   | 183 | 137,4 | 39   | 19,5 | 6,7  | 35   |      | 102,4 | 7,5 | 100                   | 0,440   |
| KF-016 RS     | 310                   | 183 | 137,4 | 39   | 19,5 | 6,7  | 35   |      | 102,4 | 7,5 | 100                   | 0,440   |
| KF-011 DB     | 340                   | 211 | 140   | 41   | 32   | 44   | 48   | 60   | 92    | 8,5 | 100                   | 0,820   |
| KF-011 DB TR  | 340                   | 211 | 140   | 41   | 32   | 44   | 48   | 60   | 92    | 8,5 | 100                   | 0,820   |
| KF-011 DBL    | 315                   | 211 | 166   | 41   | 32   | 44   | 48   | 60   | 118   | 8,5 | 100                   | 0,850   |
| KF-011 DBL TR | 315                   | 211 | 166   | 41   | 32   | 44   | 48   | 60   | 118   | 8,5 | 100                   | 0,850   |
| KF-011 DS     | 360                   | 211 | 166   | 41   | 32   | 44   | 48   | 60   | 118   | 8,5 | 100                   | 0,830   |
| KF-011 RB     | 340                   | 223 | 140   | 53   | 32   | 8    | 48   |      | 92    | 8,5 | 100                   | 0,820   |
| KF-011 RBL    | 315                   | 223 | 166   | 53   | 32   | 8    | 48   |      | 118   | 8,5 | 100                   | 0,850   |
| KF-011 RS     | 360                   | 223 | 166   | 53   | 32   | 8    | 48   |      | 118   | 8,5 | 100                   | 0,830   |
| KF-111 DB     | 680                   | 258 | 155   | 50   | 32   | 45   | 55   | 67   | 100   | 8,5 | 100                   | 1,400   |
| KF-111 DB TR  | 680                   | 258 | 155   | 50   | 32   | 45   | 55   | 67   | 100   | 8,5 | 100                   | 1,400   |
| KF-111 DBL    | 650                   | 258 | 200   | 50   | 32   | 45   | 55   | 67   | 145   | 8,5 | 100                   | 1,440   |
| KF-111 DBL TR | 650                   | 258 | 200   | 50   | 32   | 45   | 55   | 67   | 145   | 8,5 | 100                   | 1,440   |
| KF-111 DS     | 700                   | 258 | 200   | 50   | 32   | 45   | 55   | 67   | 145   | 8,5 | 100                   | 1,420   |
| KF-111 RB     | 680                   | 268 | 155   | 60   | 32   | 9,5  | 55   |      | 100   | 8,5 | 100                   | 1,400   |
| KF-111 RBL    | 650                   | 268 | 200   | 60   | 32   | 9,5  | 55   |      | 145   | 8,5 | 100                   | 1,440   |
| KF-111 RS     | 700                   | 268 | 200   | 60   | 32   | 9,5  | 55   |      | 145   | 8,5 | 100                   | 1,420   |

# GRAMPO VERTICAL



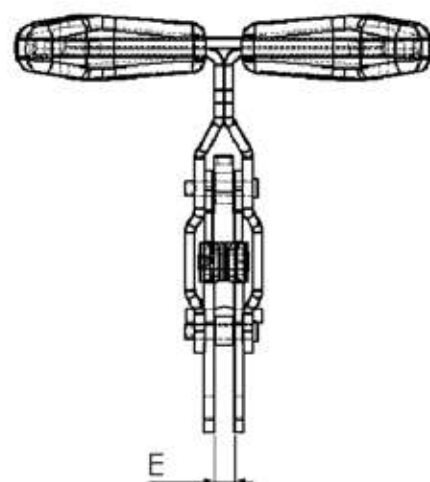
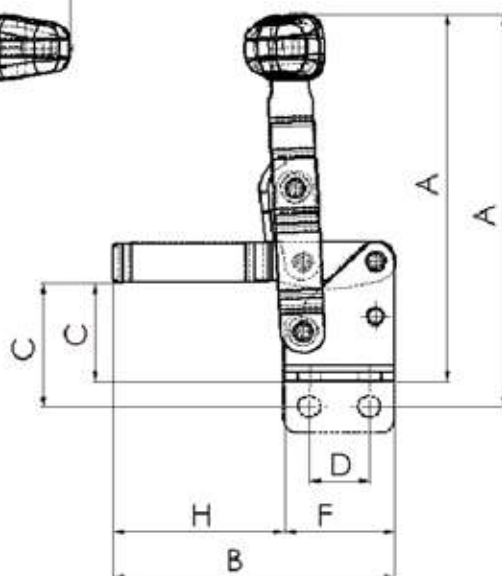
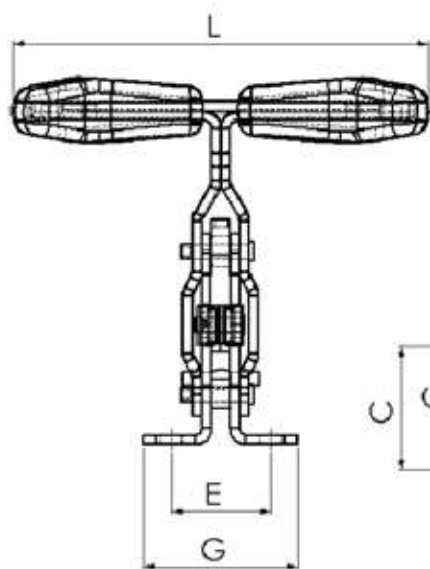
KF-017 DT



KF-017 DTS



KF-017 RTL



BASES  
D - Dobrada  
R - Reta

HASTES  
S - Sólida  
L - Longa

CABO  
T - Cabo "T"

| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A   | B   | C  | D  | E   | F  | G  | H  | J   | L   | ÂNGULO DE<br>ABERTURA | PESO Kg |
|------------|-----------------------|-----|-----|----|----|-----|----|----|----|-----|-----|-----------------------|---------|
| KF-017 DT  | 170                   | 120 | 90  | 32 | 19 | 32  | 35 | 49 | 55 | 7,0 | 132 | 100                   | 0,405   |
| KF-017 DTL | 150                   | 120 | 120 | 32 | 19 | 32  | 35 | 49 | 85 | 7,0 | 132 | 100                   | 0,415   |
| KF-017 DTS | 200                   | 120 | 120 | 32 | 19 | 32  | 35 | 49 | 85 | 7,0 | 132 | 100                   | 0,415   |
| KF-017 RT  | 170                   | 128 | 90  | 40 | 19 | 6,5 | 35 |    | 55 | 7,0 | 132 | 100                   | 0,405   |
| KF-017 RTL | 150                   | 128 | 120 | 40 | 19 | 6,5 | 35 |    | 85 | 7,0 | 132 | 100                   | 0,415   |
| KF-017 RTS | 200                   | 128 | 120 | 40 | 19 | 6,5 | 35 |    | 85 | 7,0 | 132 | 100                   | 0,415   |



# GRAMPO VERTICAL



KF-010 F



KF-311 RB



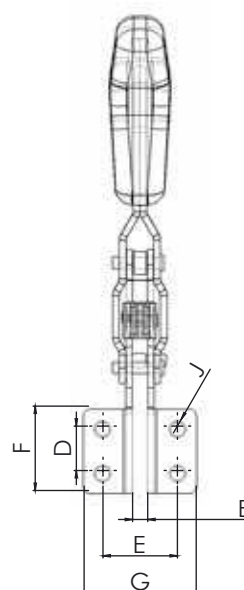
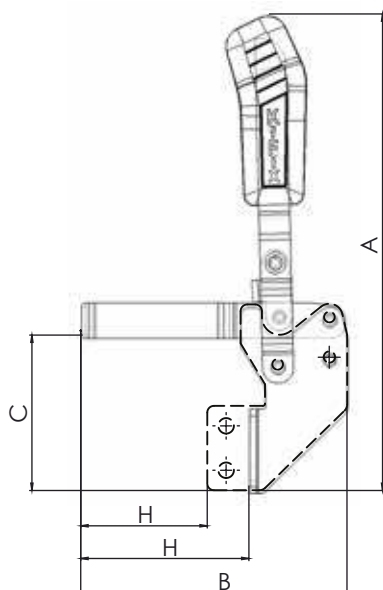
KF-211 DS



KF-411 RS



KF-019 DB



| BASES       | HASTES        | TR - Trava |
|-------------|---------------|------------|
| D - Dobrada | B - Bifurcada |            |
| R - Reta    | S - Sólida    |            |
|             | L - Longa     |            |

| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A   | B   | C   | D    | E    | F  | G    | H   | J   | ÂNGULO DE<br>ABERTURA | PESO Kg |
|------------|-----------------------|-----|-----|-----|------|------|----|------|-----|-----|-----------------------|---------|
| KF-010 F   | 32                    | 112 | 51  | 42  | 16   | 23,7 | 25 | 33   | 24  | 4,3 | 100                   | 0,100   |
| KF-012 F   | 90                    | 149 | 70  | 47  | 12,7 | 27   | 25 | 40   | 41  | 5,5 | 100                   | 0,230   |
| KF-019 DB  | 250                   | 215 | 120 | 70  | 20   | 33,5 | 38 | 50,5 | 76  | 7,0 | 100                   | 0,500   |
| KF-019 DS  | 250                   | 215 | 120 | 70  | 20   | 33,5 | 38 | 50,5 | 76  | 7,0 | 100                   | 0,500   |
| KF-019 RB  | 250                   | 215 | 120 | 70  | 20   | 6,5  | 38 |      | 57  | 7,0 | 100                   | 0,500   |
| KF-019 RS  | 250                   | 215 | 120 | 70  | 20   | 6,5  | 38 |      | 57  | 7,0 | 100                   | 0,500   |
| KF-211 DB  | 150                   | 207 | 120 | 65  | 19   | 32   | 35 | 46,5 | 79  | 7,0 | 100                   | 0,480   |
| KF-211 DS  | 200                   | 207 | 120 | 65  | 19   | 32   | 35 | 46,5 | 79  | 7,0 | 100                   | 0,480   |
| KF-211 RB  | 150                   | 207 | 120 | 65  | 19   | 6,5  | 35 |      | 69  | 7,0 | 100                   | 0,480   |
| KF-211 RS  | 200                   | 207 | 120 | 65  | 19   | 6,5  | 35 |      | 69  | 7,0 | 100                   | 0,480   |
| KF-311 DB  | 250                   | 260 | 166 | 90  | 32   | 44   | 49 | 60   | 106 | 8,5 | 100                   | 0,960   |
| KF-311 DS  | 300                   | 260 | 166 | 90  | 32   | 44   | 49 | 60   | 106 | 8,5 | 100                   | 0,930   |
| KF-311 RB  | 250                   | 260 | 166 | 90  | 32   | 8    | 49 |      | 97  | 8,5 | 100                   | 0,960   |
| KF-311 RS  | 300                   | 260 | 166 | 90  | 32   | 8    | 49 |      | 97  | 8,5 | 100                   | 0,930   |
| KF-411 DB  | 650                   | 321 | 200 | 113 | 32   | 45   | 55 | 67   | 134 | 8,5 | 100                   | 1,750   |
| KF-411 DS  | 700                   | 321 | 200 | 113 | 32   | 45   | 55 | 67   | 134 | 8,5 | 100                   | 1,700   |
| KF-411 RB  | 650                   | 321 | 200 | 113 | 32   | 10   | 55 |      | 126 | 8,5 | 100                   | 1,750   |
| KF-411 RS  | 700                   | 321 | 200 | 113 | 32   | 10   | 55 |      | 126 | 8,5 | 100                   | 1,700   |

# GRAMPO VERTICAL

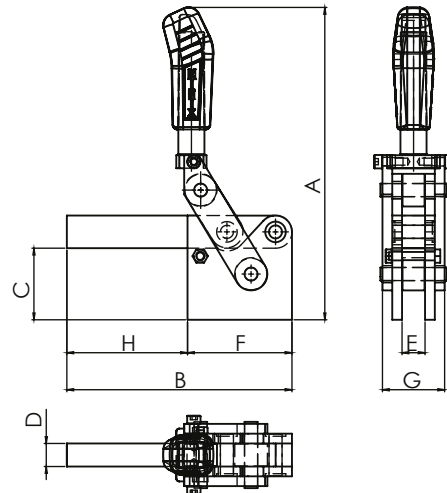
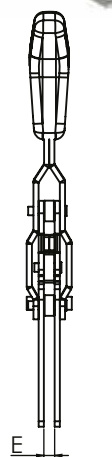
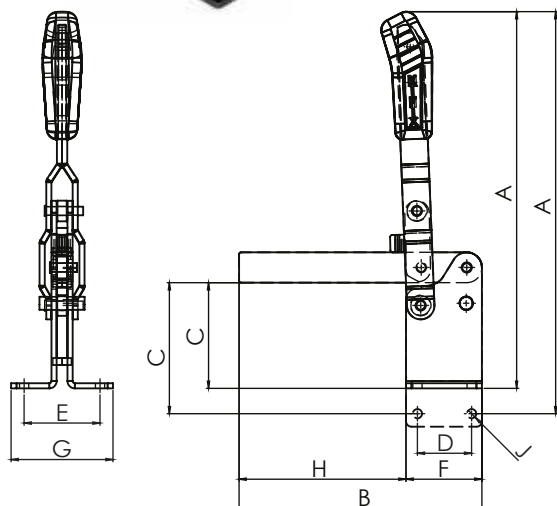
KF-615 B



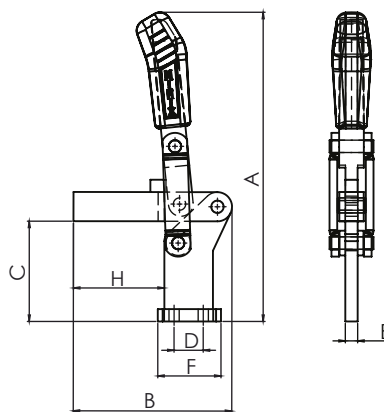
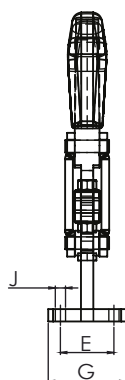
KF-641 DS



KF-875



KF-066 TS



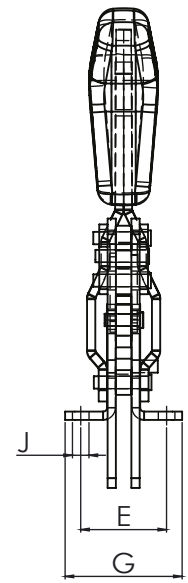
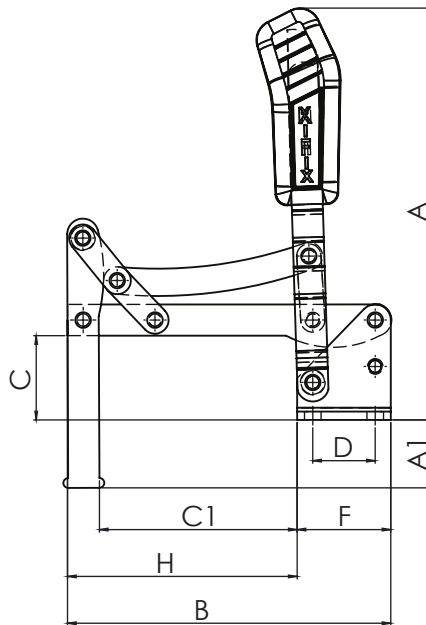
|              |               |                   |
|--------------|---------------|-------------------|
| <b>BASES</b> | <b>HASTES</b> | <b>TR - Trava</b> |
| D - Dobrada  | B - Bifurcada |                   |
| R - Reta     | S - Sólida    |                   |
|              | L - Longa     |                   |

| REFERÊNCIA  | FORÇA RETENÇÃO<br>Kgf | A   | B   | C    | D    | E    | F     | G    | H     | J    | ÂNGULO DE<br>ABERTURA | PESO Kg |
|-------------|-----------------------|-----|-----|------|------|------|-------|------|-------|------|-----------------------|---------|
| KF-615 B    | 340                   | 215 | 108 | 42   | 25,4 | 38,1 | 50,8  | 50,8 | 57    | 7,0  | 125                   | 0,920   |
| KF-615 BL   | 340                   | 215 | 191 | 42   | 25,4 | 38,1 | 50,8  | 50,8 | 140   | 7,0  | 125                   | 0,920   |
| KF-616 D    | 950                   | 249 | 155 | 50   | 32   | 45   | 53,5  | 67   | 101,5 | 7,0  | 125                   | 1,350   |
| KF-616 R    | 950                   | 257 | 155 | 58   | 32   | 9,5  | 53,5  |      | 101,5 | 7,0  | 125                   | 1,350   |
| KF-641 DB   | 800                   | 347 | 224 | 98   | 50   | 70   | 70    | 94   | 154   | 8,5  | 85                    | 2,250   |
| KF-641 RB   | 800                   | 371 | 224 | 121  | 50   | 10   | 70    |      | 154   | 8,5  | 85                    | 2,250   |
| KF-641 DS   | 800                   | 347 | 224 | 98   | 50   | 70   | 70    | 94   | 154   | 8,5  | 85                    | 2,250   |
| KF-641 RS   | 800                   | 371 | 224 | 121  | 50   | 10   | 70    |      | 154   | 8,5  | 85                    | 2,250   |
| KF-066 S    | 1400                  | 305 | 163 | 90   |      | 12,7 | 50    |      | 93    |      | 150                   | 3,300   |
| KF-066 STR  | 1400                  | 305 | 163 | 90   |      | 12,7 | 50    |      | 93    |      | 150                   | 3,800   |
| KF-066 TS   | 1400                  | 318 | 163 | 103  | 30   | 55   | 65    | 80   | 93    | 10,5 | 150                   | 3,800   |
| KF-066 TSTR | 1400                  | 318 | 163 | 103  | 30   | 55   | 65    | 80   | 93    | 10,5 | 150                   | 4,300   |
| KF-845      | 1150                  | 246 | 190 | 56,2 | 19   | 19   | 82    | 50,9 | 108   |      | 120                   | 3,350   |
| KF-875      | 1800                  | 304 | 219 | 69,7 | 22,4 | 22,4 | 101,6 | 60,5 | 117,4 |      | 200                   | 5,600   |

# GRAMPO VERTICAL



KF-011 DS A



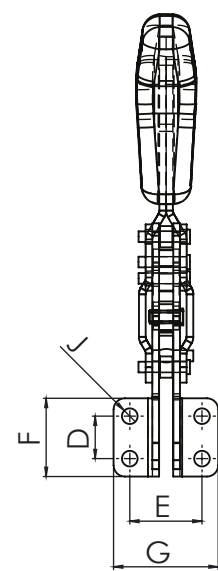
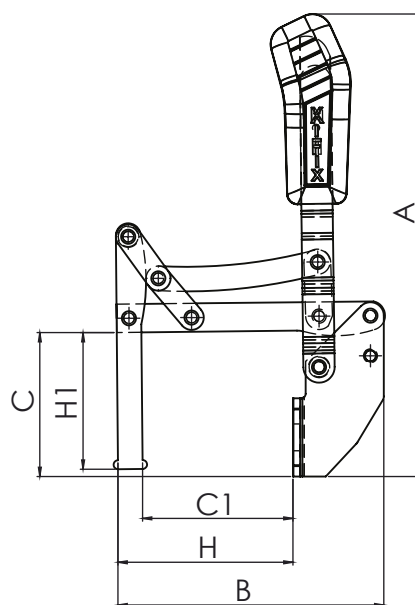
BASES  
D - Dobrada  
S - Sólida

HASTES  
S - Sólida

| REFERÊNCIA  | FORÇA RETENÇÃO<br>Kgf | A   | A1 | B   | C  | C1  | D  | E  | F  | G  | H   | J   | ÂNGULO DE<br>ABERTURA | PESO Kg |
|-------------|-----------------------|-----|----|-----|----|-----|----|----|----|----|-----|-----|-----------------------|---------|
| KF-017 DS A | 160                   | 175 | 29 | 120 | 32 | 73  | 19 | 32 | 35 | 49 | 85  | 7,0 | 90                    | 0,530   |
| KF-011 DS A | 240                   | 211 | 35 | 166 | 41 | 101 | 32 | 44 | 48 | 60 | 118 | 8,5 | 90                    | 1,150   |
| KF-111 DS A | 560                   | 258 | 43 | 200 | 50 | 125 | 32 | 45 | 55 | 67 | 145 | 8,5 | 90                    | 2,050   |



KF-211 DS A



BASES  
D - Dobrada  
S - Sólida

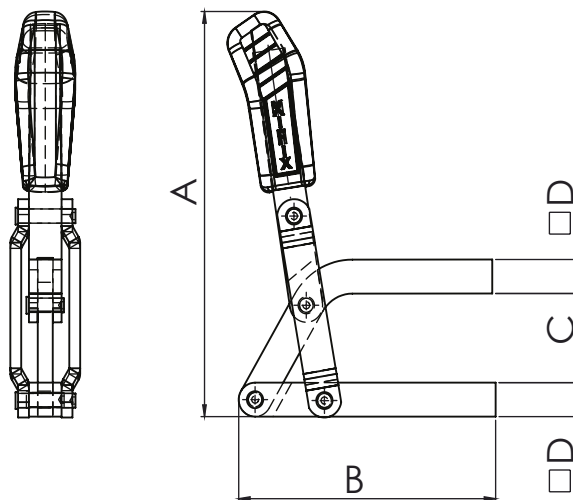
HASTES  
S - Sólida

| REFERÊNCIA  | FORÇA RETENÇÃO<br>Kgf | A   | B   | C   | C1   | D  | E  | F  | G    | H   | H1 | J   | ÂNGULO DE<br>ABERTURA | PESO Kg |
|-------------|-----------------------|-----|-----|-----|------|----|----|----|------|-----|----|-----|-----------------------|---------|
| KF-211 DS A | 160                   | 207 | 120 | 65  | 67,5 | 19 | 32 | 35 | 46,5 | 79  | 61 | 7,0 | 100                   | 0,560   |
| KF-311 DS A | 240                   | 260 | 166 | 90  | 90   | 32 | 44 | 49 | 60   | 106 | 78 | 8,5 | 100                   | 1,240   |
| KF-411 DS A | 560                   | 321 | 200 | 113 | 114  | 32 | 45 | 55 | 67   | 134 | 92 | 8,5 | 100                   | 2,250   |

# GRAMPO VERTICAL



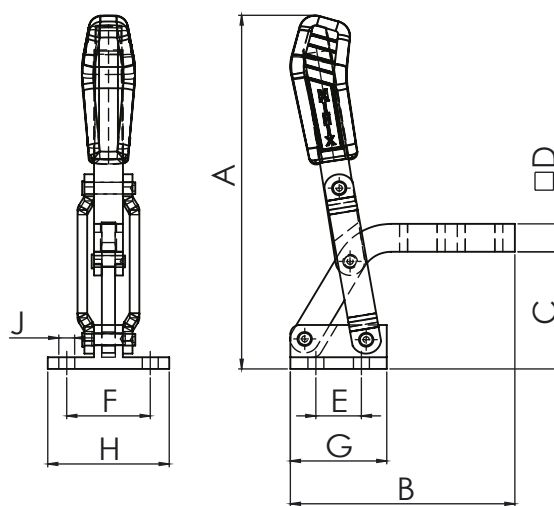
KF-MP



| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A   | B   | C  | D    | ÂNGULO DE ABERTURA | PESO Kg |
|------------|--------------------|-----|-----|----|------|--------------------|---------|
| KF-01 MP   | 160                | 125 | 70  | 15 | 12,7 | 120                | 0,320   |
| KF-02 MP   | 300                | 171 | 92  | 20 | 14,3 | 120                | 0,580   |
| KF-03 MP   | 450                | 191 | 101 | 30 | 15,8 | 120                | 1,350   |
| KF-05 MP   | 500                | 227 | 150 | 50 | 19,1 | 120                | 2,040   |
| KF-06 MP   | 500                | 247 | 161 | 60 | 19,1 | 120                | 2,135   |
| KF-09 MP   | 1800               | 324 | 200 | 90 | 25,4 | 120                | 4,250   |



KF-JD

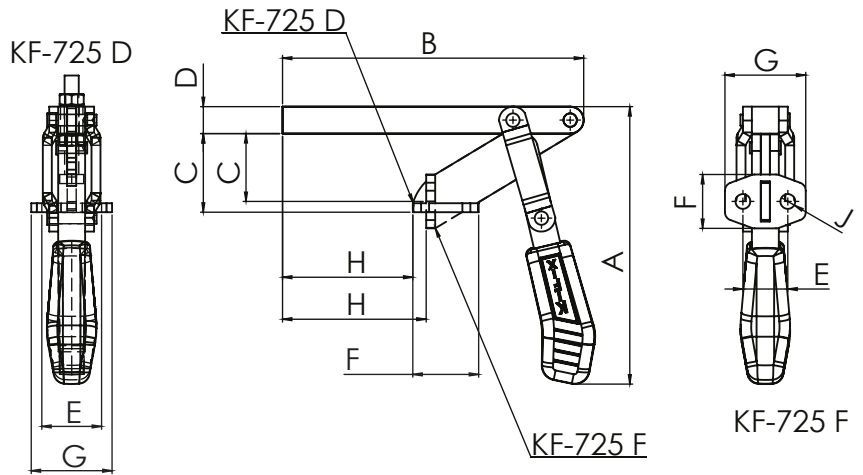


| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A   | B   | C  | D    | E  | F  | G    | H  | J    | ÂNGULO DE ABERTURA | PESO Kg |
|------------|--------------------|-----|-----|----|------|----|----|------|----|------|--------------------|---------|
| KF-03 JD   | 450                | 206 | 101 | 56 | 15,8 | 32 | 44 | 48   | 60 | 8,5  | 120                | 1,360   |
| KF-05 JD   | 500                | 241 | 148 | 80 | 19,1 | 30 | 55 | 63,5 | 80 | 10,5 | 120                | 2,100   |

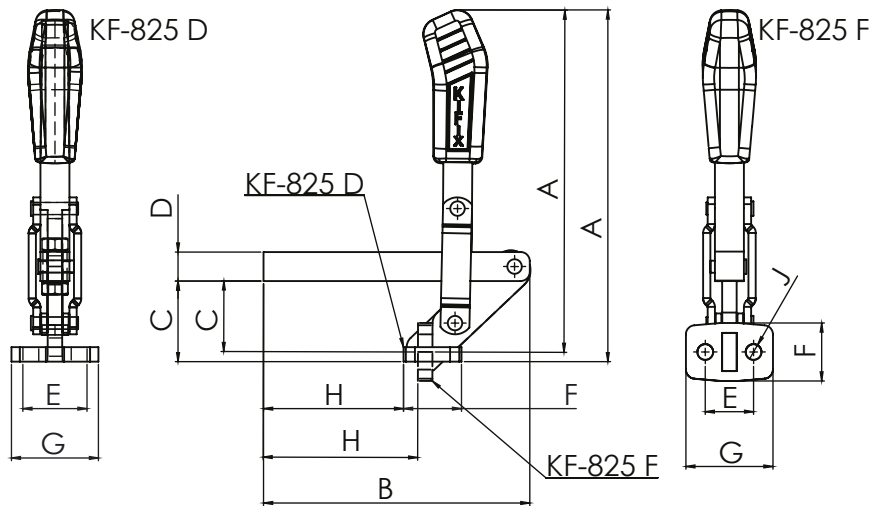
# GRAMPO VERTICAL



KF-725 F



KF-825 D

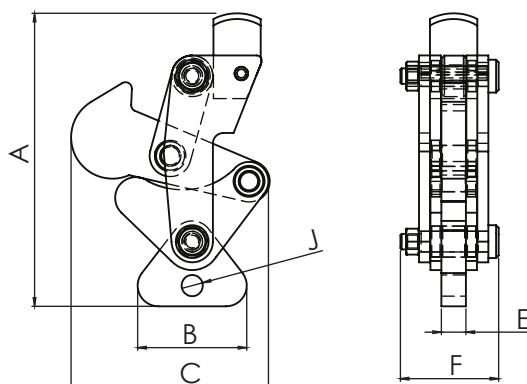


BASES  
D - Dobrada  
F - Frontal

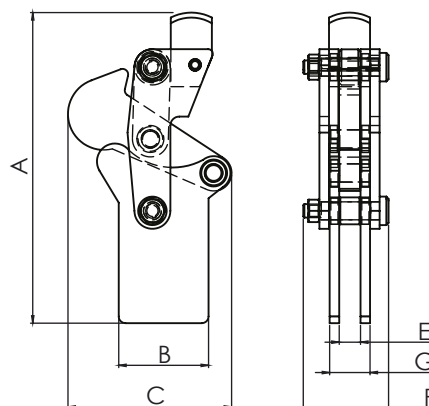
| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A   | B   | C    | D  | E  | F    | G    | H     | J    | ÂNGULO DE<br>ABERTURA | PESO Kg |
|------------|-----------------------|-----|-----|------|----|----|------|------|-------|------|-----------------------|---------|
| KF-725 D   | 450                   | 196 | 213 | 55,6 | 19 | 32 | 38,1 | 57,2 | 92,2  | 10,5 | 195                   | 2,030   |
| KF-725 F   | 450                   | 196 | 213 | 48   | 19 | 32 | 38,1 | 57,2 | 101,6 | 10,5 | 195                   | 2,030   |
| KF-825 D   | 450                   | 231 | 175 | 53   | 19 | 32 | 38,1 | 57,2 | 92,2  | 10,5 | 195                   | 1,850   |
| KF-825 F   | 450                   | 225 | 175 | 46,7 | 19 | 32 | 38,1 | 57,2 | 101,6 | 10,5 | 195                   | 1,850   |

# GRAMPO VERTICAL

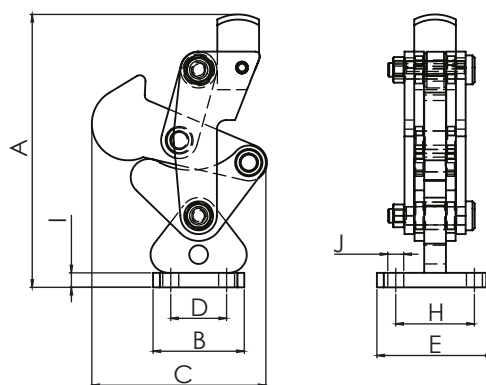
KFU A  
base triangular



KFU R  
base reta dupla



KFU D  
base T



| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A   | B    | C   | D    | E    | F    | G  | H    | I    | J    | ÂNGULO DE<br>ABERTURA | PESO Kg |
|------------|-----------------------|-----|------|-----|------|------|------|----|------|------|------|-----------------------|---------|
| KFU-03 A   | 680                   | 105 | 42   | 72  |      | 9,5  | 42   |    |      |      | 8,5  | 200                   | 0,670   |
| KFU-03 D   | 680                   | 112 | 40   | 72  | 24,5 | 51   | 42   |    | 34,5 | 6,35 | 7,0  | 200                   | 0,760   |
| KFU-03 R   | 680                   | 130 | 40   | 68  |      | 9,5  | 42   | 18 |      |      |      | 200                   | 0,730   |
| KFU-05 A   | 1000                  | 145 | 60   | 98  |      | 12,7 | 47   |    |      |      | 10,5 | 200                   | 1,170   |
| KFU-05 D   | 1000                  | 153 | 55   | 98  | 31,5 | 64   | 47   |    | 45   | 8    | 8,5  | 200                   | 1,380   |
| KFU-05 R   | 1000                  | 170 | 50   | 92  |      | 12,7 | 47   | 22 |      |      |      | 200                   | 1,240   |
| KFU-06 A   | 2200                  | 176 | 70   | 118 |      | 15,9 | 66   |    |      |      | 12,5 | 200                   | 2,720   |
| KFU-06 D   | 2200                  | 186 | 70   | 118 | 40   | 80   | 66   |    | 50   | 9,5  | 10,5 | 200                   | 3,110   |
| KFU-06 R   | 2200                  | 211 | 65   | 114 |      | 15,9 | 66   | 29 |      |      |      | 200                   | 2,900   |
| KFU-08 A   | 3500                  | 247 | 84   | 177 |      | 19   | 72,5 |    |      |      | 13,0 | 200                   | 6,440   |
| KFU-08 D   | 3500                  | 260 | 100  | 177 | 70   | 150  | 72,5 |    | 120  | 12,7 | 10,5 | 200                   | 7,830   |
| KFU-08 R   | 3500                  | 273 | 80,6 | 177 |      | 19   | 72,5 | 35 |      |      |      | 200                   | 6,270   |

# GRAMPO HORIZONTAL



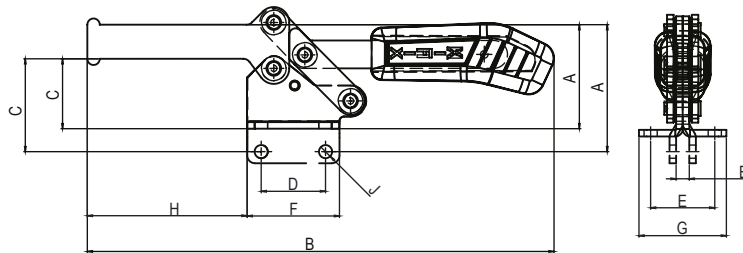
KF-105 D



KF-105 DU



KF-732 R



**BASES**  
D - Dobrada  
R - Reta  
DU - Dobrada  
única

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A    | B   | C  | D    | E    | F    | G  | H    | J   | ÂNGULO DE ABERTURA | PESO Kg |
|------------|--------------------|------|-----|----|------|------|------|----|------|-----|--------------------|---------|
| KF-105 D   | 30                 | 18   | 64  | 8  | 13,5 | 16   | 24   | 24 | 18,6 | 4,3 | 90                 | 0,030   |
| KF-105 DU  | 30                 | 21,3 | 64  | 8  | 13,5 | 8    | 24   | 12 | 18,6 | 4,3 | 90                 | 0,030   |
| KF-105 R   | 30                 | 24   | 64  | 12 | 13,5 |      | 24   |    | 18,6 | 4,3 | 90                 | 0,030   |
| KF-106 D   | 70                 | 35   | 112 | 20 | 13,5 | 18,3 | 25,5 | 28 | 35   | 4,5 | 90                 | 0,095   |
| KF-106 R   | 70                 | 40   | 112 | 24 | 13,5 | 4    | 25,5 |    | 35   | 4,5 | 90                 | 0,095   |
| KF-152 D   | 130                | 46   | 184 | 25 | 20   | 25,5 | 38   | 37 | 58   | 7,0 | 90                 | 0,280   |
| KF-152 R   | 130                | 54   | 184 | 32 | 20   | 6    | 38   |    | 58   | 7,0 | 90                 | 0,280   |
| KF-732 D   | 340                | 79   | 301 | 45 | 42   | 42   | 60   | 57 | 103  | 8,5 | 80                 | 1,030   |
| KF-732 R   | 340                | 93   | 301 | 60 | 42   | 8,5  | 60   |    | 103  | 8,5 | 80                 | 1,030   |



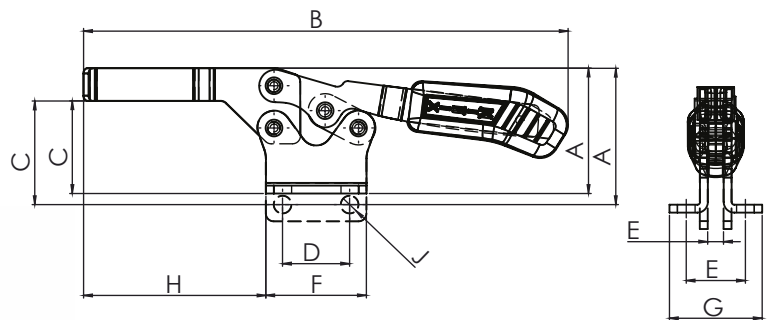
KF-511 D



KF-522 RE



KF-534 R



**BASES**  
D - Dobrada  
R - Reta  
F - Frontal

**HASTES**  
L - Longa

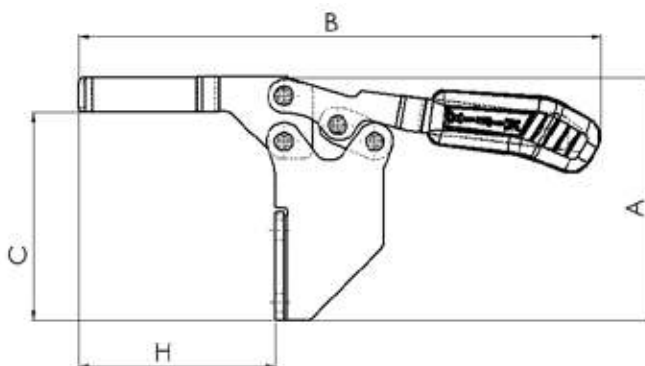
**TR - Trava**

| REFERÊNCIA  | FORÇA RETENÇÃO Kgf | A     | B   | C    | D    | E    | F    | G    | H     | J   | ÂNGULO DE ABERTURA | PESO Kg |
|-------------|--------------------|-------|-----|------|------|------|------|------|-------|-----|--------------------|---------|
| KF-511 D    | 90                 | 39    | 172 | 26   | 24   | 26   | 36   | 37   | 59    | 5,5 | 70                 | 0,240   |
| KF-511 R    | 90                 | 47    | 172 | 34   | 24   | 6,5  | 36   |      | 59    | 5,5 | 70                 | 0,240   |
| KF-512 D    | 90                 | 39    | 146 | 26   | 25,4 | 22,4 | 37   | 35   | 57    | 5,3 | 90                 | 0,150   |
| KF-512 R    | 90                 | 45    | 146 | 32   | 25,4 | 4,5  | 37   |      | 57    | 5,3 | 90                 | 0,150   |
| KF-521 D    | 130                | 49    | 208 | 36   | 25,4 | 24   | 45   | 42   | 68    | 7,0 | 70                 | 0,440   |
| KF-521 D TR | 130                | 49    | 235 | 36   | 25,4 | 24   | 45   | 42   | 68    | 7,0 | 70                 | 0,480   |
| KF-521 DL   | 100                | 49    | 243 | 36   | 25,4 | 24   | 45   | 42   | 103   | 7,0 | 70                 | 0,470   |
| KF-521 R    | 130                | 55    | 208 | 42   | 25,4 | 6,5  | 45   |      | 68    | 7,0 | 70                 | 0,440   |
| KF-521 RL   | 100                | 55    | 243 | 42   | 25,4 | 6,5  | 45   |      | 103   | 7,0 | 70                 | 0,470   |
| KF-522 D    | 230                | 48    | 184 | 35   | 25,4 | 22,4 | 38   | 35   | 69    | 6,7 | 90                 | 0,295   |
| KF-522 R    | 230                | 52    | 184 | 39   | 25,4 | 6    | 38   |      | 69    | 6,7 | 90                 | 0,295   |
| KF-522 RE   | 230                | 52    | 184 | 39   | 25,4 | 0    | 38   |      | 69    | 6,7 | 90                 | 0,295   |
| KF-532 D    | 340                | 65    | 294 | 45   | 41   | 42   | 57   | 58   | 105   | 8,5 | 90                 | 0,860   |
| KF-532 R    | 340                | 76    | 294 | 56   | 41   | 8,5  | 57   |      | 105   | 8,5 | 90                 | 0,860   |
| KF-532 DTR  | 340                | 65    | 294 | 45   | 41   | 42   | 57   | 58   | 105   | 8,5 | 90                 | 0,920   |
| KF-534 D    | 450                | 107,7 | 335 | 57,2 | 41,3 | 41,3 | 66,7 | 66,7 | 123,7 | 8,5 | 100                | 1,450   |
| KF-534 R    | 450                | 116   | 335 | 65,4 | 41,3 | 9,5  | 66,7 |      | 123,7 | 8,5 | 100                | 1,450   |

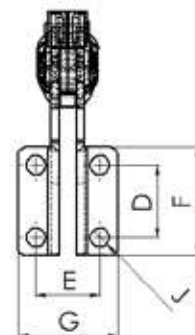
# GRAMPO HORIZONTAL



KF-522 F

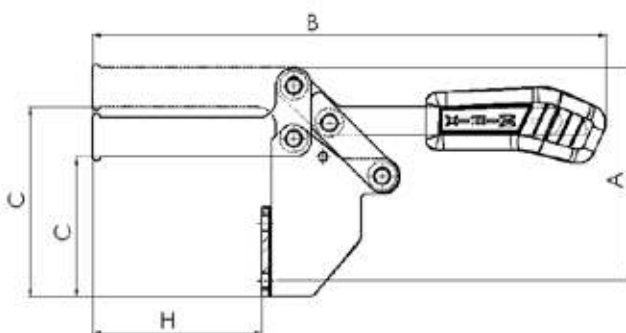


KF-106 / KF-152 / KF-522

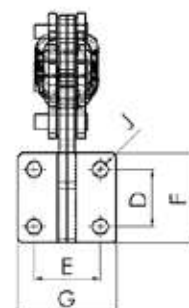


KF-531 FI TR

KF-106 F



KF-531



KF-531 FL



KF-152 F

|              |               |            |
|--------------|---------------|------------|
| <b>BASES</b> | <b>HASTES</b> |            |
| F - Frontal  | L - Longa     | TR - Trava |

| REFERÊNCIA    | FORÇA RETENÇÃO<br>Kgf | A   | B   | C   | D    | E    | F    | G  | H  | J   | ÂNGULO DE<br>ABERTURA | PESO Kg |
|---------------|-----------------------|-----|-----|-----|------|------|------|----|----|-----|-----------------------|---------|
| KF-106 F      | 70                    | 56  | 112 | 40  | 13,5 | 18,3 | 25,5 | 28 | 35 | 4,5 | 90                    | 0,110   |
| KF-152 F      | 130                   | 95  | 184 | 74  | 20   | 25,5 | 32   | 37 | 52 | 7,0 | 90                    | 0,340   |
| KF-522 F      | 230                   | 85  | 184 | 73  | 25,4 | 22,4 | 38   | 35 | 69 | 6,7 | 90                    | 0,335   |
| KF-522 FL     | 200                   | 85  | 214 | 73  | 25,4 | 22,4 | 38   | 35 | 99 | 6,7 | 90                    | 0,350   |
| KF-531 F      | 400                   | 119 | 245 | 78  | 32   | 37   | 50   | 55 | 52 | 8,5 | 80                    | 1,035   |
| KF-531 FI     | 400                   | 119 | 245 | 106 | 32   | 37   | 50   | 55 | 52 | 8,5 | 80                    | 1,035   |
| KF-531 FL     | 300                   | 119 | 287 | 78  | 32   | 37   | 50   | 55 | 95 | 8,5 | 80                    | 1,095   |
| KF-531 FIL    | 300                   | 119 | 287 | 106 | 32   | 37   | 50   | 55 | 95 | 8,5 | 80                    | 1,095   |
| KF-531 F TR   | 400                   | 119 | 245 | 78  | 32   | 37   | 50   | 55 | 52 | 8,5 | 80                    | 1,070   |
| KF-531 FI TR  | 400                   | 119 | 245 | 106 | 32   | 37   | 50   | 55 | 52 | 8,5 | 80                    | 1,070   |
| KF-531 FL TR  | 300                   | 119 | 287 | 78  | 32   | 37   | 50   | 55 | 95 | 8,5 | 80                    | 1,130   |
| KF-531 FIL TR | 300                   | 119 | 287 | 106 | 32   | 37   | 50   | 55 | 95 | 8,5 | 80                    | 1,130   |



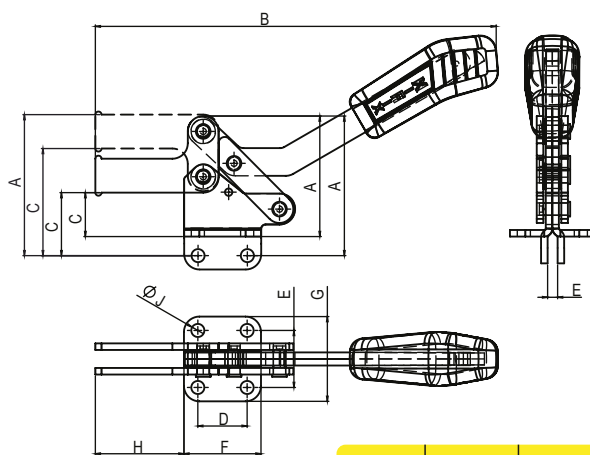
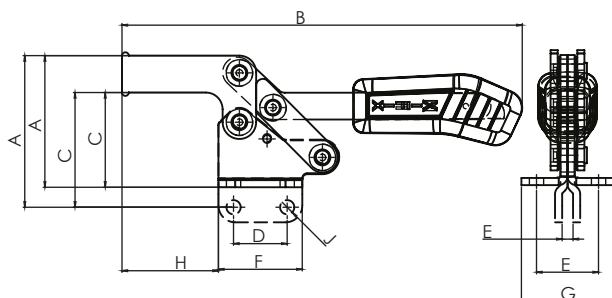
# GRAMPO HORIZONTAL



KF-531 D TR



KF-541 DIL



BASES  
D - Dobrada  
R - Reta

HASTES  
L - Longa  
TR - Trava

| REFERÊNCIA    | FORÇA RETENÇÃO Kgf | A  | B   | C  | D  | E   | F  | G  | H   | J   | ÂNGULO DE ABERTURA | PESO Kg |
|---------------|--------------------|----|-----|----|----|-----|----|----|-----|-----|--------------------|---------|
| KF-531 D      | 400                | 78 | 239 | 28 | 32 | 37  | 50 | 55 | 57  | 8,5 | 80                 | 0,870   |
| KF-531 DI     | 400                | 78 | 239 | 56 | 32 | 37  | 50 | 55 | 57  | 8,5 | 80                 | 0,870   |
| KF-531 R      | 400                | 91 | 239 | 41 | 32 | 6,5 | 50 |    | 57  | 8,5 | 80                 | 0,870   |
| KF-531 RI     | 400                | 91 | 239 | 69 | 32 | 6,5 | 50 |    | 57  | 8,5 | 80                 | 0,870   |
| KF-531 DL     | 300                | 78 | 281 | 28 | 32 | 37  | 50 | 55 | 100 | 8,5 | 80                 | 0,940   |
| KF-531 DIL    | 300                | 78 | 281 | 56 | 32 | 37  | 50 | 55 | 100 | 8,5 | 80                 | 0,940   |
| KF-531 RL     | 300                | 91 | 281 | 41 | 32 | 6,5 | 50 |    | 100 | 8,5 | 80                 | 0,940   |
| KF-531 RIL    | 300                | 91 | 281 | 69 | 32 | 6,5 | 50 |    | 100 | 8,5 | 80                 | 0,940   |
| KF-531 D TR   | 400                | 78 | 245 | 28 | 32 | 37  | 50 | 55 | 57  | 8,5 | 80                 | 0,920   |
| KF-531 DI TR  | 400                | 78 | 245 | 56 | 32 | 37  | 50 | 55 | 57  | 8,5 | 80                 | 0,920   |
| KF-531 DL TR  | 300                | 78 | 287 | 28 | 32 | 37  | 50 | 55 | 100 | 8,5 | 80                 | 0,980   |
| KF-531 DIL TR | 300                | 78 | 287 | 56 | 32 | 37  | 50 | 55 | 100 | 8,5 | 80                 | 0,980   |
| KF-541 D      | 400                | 78 | 261 | 28 | 32 | 37  | 50 | 55 | 57  | 8,5 | 80                 | 0,920   |
| KF-541 DI     | 400                | 78 | 261 | 56 | 32 | 37  | 50 | 55 | 57  | 8,5 | 80                 | 0,920   |
| KF-541 R      | 400                | 91 | 261 | 41 | 32 | 6,5 | 50 |    | 57  | 8,5 | 80                 | 0,920   |
| KF-541 RI     | 400                | 91 | 261 | 69 | 32 | 6,5 | 50 |    | 57  | 8,5 | 80                 | 0,920   |
| KF-541 DL     | 300                | 78 | 304 | 28 | 32 | 37  | 50 | 55 | 100 | 8,5 | 80                 | 0,960   |
| KF-541 DIL    | 300                | 78 | 304 | 56 | 32 | 37  | 50 | 55 | 100 | 8,5 | 80                 | 0,960   |
| KF-541 RL     | 300                | 91 | 304 | 41 | 32 | 6,5 | 50 |    | 100 | 8,5 | 80                 | 0,960   |
| KF-541 RIL    | 300                | 91 | 304 | 69 | 32 | 6,5 | 50 |    | 100 | 8,5 | 80                 | 0,960   |



KF-523 R



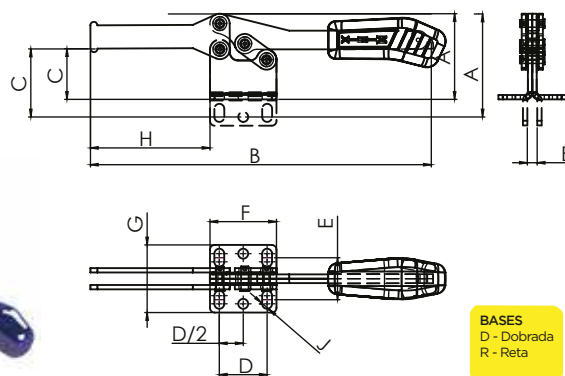
KF-533 D



KF-312 D



KF-722 R



BASES  
D - Dobrada  
R - Reta

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A    | B   | C    | D    | E    | F    | G    | H     | J   | ÂNGULO DE ABERTURA | PESO Kg |
|------------|--------------------|------|-----|------|------|------|------|------|-------|-----|--------------------|---------|
| KF-312 D   | 70                 | 35   | 112 | 19   | 13,5 | 17,3 | 25,4 | 27,2 | 36    | 4,3 | 90                 | 0,085   |
| KF-312 R   | 70                 | 39   | 112 | 23   | 13,5 | 4,2  | 25,4 |      | 36    | 4,3 | 90                 | 0,085   |
| KF-712 D   | 120                | 50   | 183 | 26   | 26,2 | 26,1 | 37,3 | 40   | 59    | 5,5 | 90                 | 0,205   |
| KF-712 R   | 120                | 64   | 183 | 35   | 26,2 | 5,2  | 37,3 |      | 59    | 5,5 | 90                 | 0,205   |
| KF-523 D   | 180                | 57   | 221 | 33   | 25,7 | 26,9 | 50   | 44,5 | 66    | 6,5 | 90                 | 0,410   |
| KF-523 R   | 180                | 74   | 221 | 41   | 25,7 | 0    | 50   |      | 66    | 6,5 | 90                 | 0,410   |
| KF-722 D   | 230                | 61   | 192 | 34   | 26,2 | 28,4 | 39,6 | 43,2 | 68,5  | 7,0 | 90                 | 0,355   |
| KF-722 R   | 230                | 70   | 192 | 42   | 26,2 | 6,2  | 39,6 |      | 68,5  | 7,0 | 90                 | 0,355   |
| KF-533 D   | 340                | 73,5 | 305 | 43,5 | 41   | 36   | 57   | 58   | 102,5 | 8,5 | 90                 | 0,800   |
| KF-533 R   | 340                | 88,3 | 305 | 58,3 | 41   | 8,5  | 57   |      | 102,5 | 8,5 | 90                 | 0,800   |

# GRAMPO HORIZONTAL



KF-102 D



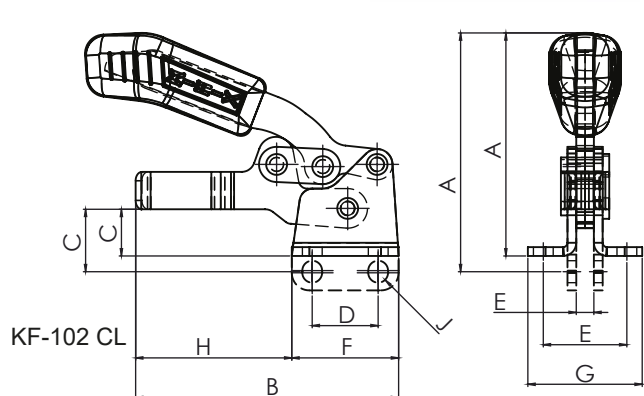
KF-102 R CL



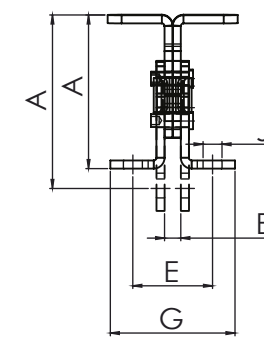
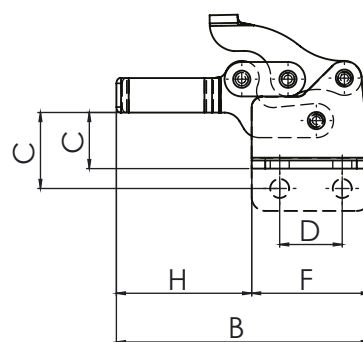
KF-103 D TR



KF-104 D



KF-102 CL



KF- 101 / 102 / 103 / 104

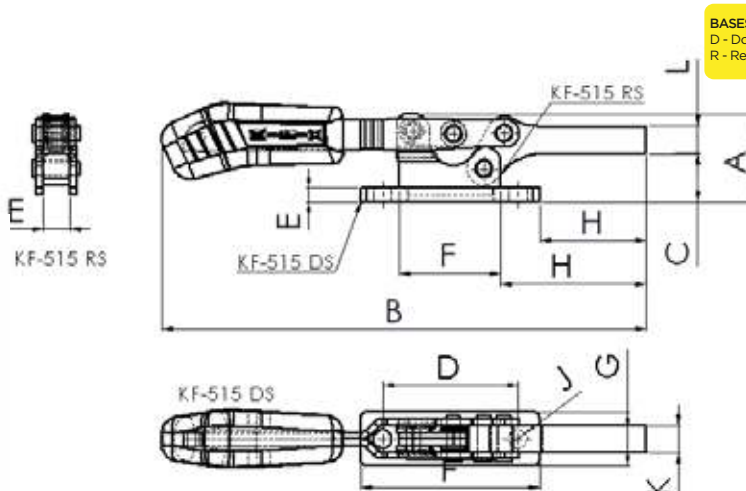
| REFERÊNCIA  | FORÇA RETENÇÃO Kgf | A    | B     | C    | D    | E    | F  | G    | H    | J   | ÂNGULO DE ABERTURA | PESO Kg |
|-------------|--------------------|------|-------|------|------|------|----|------|------|-----|--------------------|---------|
| KF-102 D    | 50                 | 38   | 60    | 11   | 15   | 19   | 24 | 26   | 36   | 4,5 | 75                 | 0,075   |
| KF-102 R    | 50                 | 42   | 60    | 14   | 15   | 4    | 24 |      | 36   | 4,5 | 75                 | 0,075   |
| KF-102 D CL | 50                 | 54   | 80    | 11   | 15   | 19   | 24 | 26   | 36   | 4,5 | 75                 | 0,085   |
| KF-102 R CL | 50                 | 58   | 80    | 14   | 15   | 4    | 24 |      | 36   | 4,5 | 75                 | 0,085   |
| KF-101 D    | 65                 | 40   | 61    | 12,2 | 13,5 | 16   | 26 | 26   | 35   | 4,5 | 75                 | 0,075   |
| KF-101 R    | 65                 | 43   | 61    | 15   | 13,5 | 4    | 26 |      | 35   | 4,5 | 75                 | 0,075   |
| KF-103 D    | 75                 | 57   | 94    | 21   | 23   | 29   | 44 | 46   | 50   | 7,0 | 85                 | 0,260   |
| KF-103 D TR | 75                 | 57   | 94    | 21   | 23   | 29   | 44 | 46   | 50   | 7,0 | 85                 | 0,275   |
| KF-103 R    | 75                 | 64   | 94    | 28   | 23   | 6    | 44 |      | 50   | 7,0 | 85                 | 0,260   |
| KF-104 D    | 340                | 85,6 | 131,8 | 31,3 | 35   | 38,1 | 64 | 62,7 | 67,8 | 8,5 | 90                 | 0,670   |
| KF-104 R    | 340                | 95,9 | 131,8 | 41,6 | 35   | 7,5  | 64 |      | 67,8 | 8,5 | 90                 | 0,670   |



KF-515 DS



KF-515 RS



| BASES                   | CABO                        | TR - Trava |
|-------------------------|-----------------------------|------------|
| D - Dobrada<br>R - Retã | CL - Cabo Longo<br>R - Retã |            |

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A    | B   | C    | D    | E    | F    | G    | H    | J   | K    | L    | ÂNGULO DE ABERTURA | PESO Kg |
|------------|--------------------|------|-----|------|------|------|------|------|------|-----|------|------|--------------------|---------|
| KF-515 DS  | 360                | 40,8 | 228 | 22,3 | 63,5 | 6,35 | 84   | 25,4 | 50   | 8,5 | 12,7 | 12,7 | 85                 | 0,520   |
| KF-515 RS  | 360                | 40,8 | 228 | 22,3 |      | 12,7 | 47,8 |      | 68,2 |     | 12,7 | 12,7 | 85                 | 0,450   |

| BASES                   | HASTES     |
|-------------------------|------------|
| D - Dobrada<br>R - Retã | S - Sólida |

# GRAMPO TENSOR



KF-133 D



KF-743 DC

IMAGEM DO CADEADO APENAS ILUSTRATIVA  
NÃO ACOMPANHA O GRAMPO



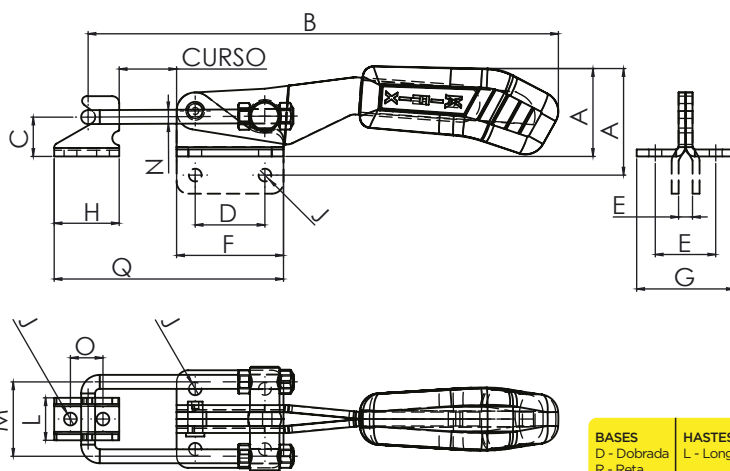
KF-843 D TR



KF-743 R



KF-943 DL



|              |               |                      |
|--------------|---------------|----------------------|
| <b>BASES</b> | <b>HASTES</b> | <b>TR - Trava</b>    |
| D - Dobrada  | L - Longa     | C - Opção de cadeado |
| R - Retá     |               |                      |

| REFERÊNCIA  | FORÇA RETENÇÃO Kgf | CURSO | A    | B min | B max | C    | D    | E    | F    | G    | H  | J   | L    | M  | N | O  | Q min | Q max | PESO Kg |
|-------------|--------------------|-------|------|-------|-------|------|------|------|------|------|----|-----|------|----|---|----|-------|-------|---------|
| KF-233 D    | 160                | 14    | 31   | 112   | 126   | 10   | 16   | 19   | 26   | 28   | 20 | 4,3 | 13   | 19 | 4 | 10 | 46    | 60    | 0,120   |
| KF-233 R    | 160                | 14    | 40   | 112   | 126   | 10   | 16   | 4    | 26   |      | 20 | 4,3 | 13   | 19 | 4 | 10 | 46    | 60    | 0,120   |
| KF-233 D TR | 160                | 14    | 37   | 122   | 136   | 10   | 16   | 19   | 26   | 28   | 20 | 4,3 | 13   | 19 | 4 | 10 | 46    | 60    | 0,140   |
| KF-643 D    | 200                | 16    | 56   | 139   | 155   | 14   | 24   | 22   | 36   | 33   | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 75    | 0,230   |
| KF-643 DL   | 150                | 70    | 56   | 139   | 210   | 14   | 24   | 22   | 36   | 33   | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 130   | 0,240   |
| KF-643 R    | 200                | 16    | 62   | 139   | 155   | 14   | 24   | 6    | 36   |      | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 75    | 0,230   |
| KF-643 RL   | 150                | 70    | 62   | 139   | 210   | 14   | 24   | 6    | 36   |      | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 130   | 0,240   |
| KF-643 DTR  | 200                | 16    | 59   | 139   | 155   | 14   | 24   | 22   | 36   | 33   | 23 | 5,5 | 16   | 25 | 5 | 11 | 74    | 90    | 0,290   |
| KF-743 D    | 200                | 16    | 37   | 137   | 153   | 14   | 24   | 22   | 36   | 33   | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 75    | 0,210   |
| KF-743 DL   | 150                | 70    | 37   | 137   | 208   | 14   | 24   | 22   | 36   | 33   | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 130   | 0,220   |
| KF-743 DC   | 200                | 16    | 37   | 137   | 153   | 14   | 24   | 22   | 36   | 33   | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 75    | 0,200   |
| KF-743 R    | 200                | 16    | 42   | 137   | 153   | 14   | 24   | 6    | 36   |      | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 75    | 0,210   |
| KF-743 RL   | 150                | 70    | 42   | 137   | 208   | 14   | 24   | 6    | 36   |      | 23 | 5,5 | 16   | 25 | 5 | 11 | 59    | 130   | 0,220   |
| KF-133 D    | 300                | 27    | 54   | 196   | 223   | 13   | 19   | 32   | 40   | 44   | 28 | 7,0 | 22,5 | 31 | 6 | 14 | 68    | 95    | 0,440   |
| KF-133 DTR  | 300                | 27    | 57   | 196   | 223   | 13   | 19   | 32   | 40   | 44   | 28 | 7,0 | 22,5 | 31 | 6 | 14 | 68    | 95    | 0,530   |
| KF-843 D    | 340                | 25    | 38   | 177   | 202   | 17   | 30   | 26   | 46   | 42   | 28 | 5,5 | 19   | 32 | 6 | 14 | 74    | 99    | 0,360   |
| KF-843 DC   | 340                | 25    | 38   | 177   | 202   | 17   | 30   | 26   | 46   | 42   | 28 | 5,5 | 19   | 32 | 6 | 14 | 74    | 99    | 0,400   |
| KF-843 R    | 340                | 25    | 55   | 177   | 202   | 17   | 30   | 6    | 46   |      | 28 | 5,5 | 19   | 32 | 6 | 14 | 74    | 99    | 0,360   |
| KF-843 DTR  | 340                | 25    | 40   | 169   | 194   | 17   | 30   | 26   | 46   | 42   | 28 | 5,5 | 19   | 32 | 6 | 14 | 74    | 99    | 0,420   |
| KF-943 D    | 680                | 45    | 60   | 241   | 286   | 21   | 40   | 36   | 60   | 56   | 38 | 7,0 | 26   | 40 | 8 | 19 | 98    | 143   | 0,790   |
| KF-943 DC   | 680                | 45    | 60   | 241   | 286   | 21   | 40   | 36   | 60   | 56   | 38 | 7,0 | 26   | 40 | 8 | 19 | 98    | 143   | 0,810   |
| KF-943 DL   | 450                | 120   | 60   | 241   | 361   | 21   | 40   | 36   | 60   | 56   | 38 | 7,0 | 26   | 40 | 8 | 19 | 98    | 218   | 0,850   |
| KF-943 R    | 680                | 45    | 72   | 241   | 286   | 21   | 40   | 8    | 60   |      | 38 | 7,0 | 26   | 40 | 8 | 19 | 98    | 143   | 0,790   |
| KF-943 RL   | 450                | 120   | 72   | 241   | 361   | 21   | 40   | 8    | 60   |      | 38 | 7,0 | 26   | 40 | 8 | 19 | 98    | 218   | 0,850   |
| KF-943 DTR  | 680                | 45    | 60   | 241   | 286   | 21   | 40   | 36   | 60   | 56   | 38 | 7,0 | 26   | 40 | 8 | 19 | 98    | 143   | 0,830   |
| KF-143 D    | 890                | 18    | 73,4 | 207,4 | 225,4 | 21,3 | 41,3 | 38,1 | 60,5 | 53,8 | 38 | 8,5 | 25,5 | 40 | 8 | 19 | 98,6  | 116,6 | 0,720   |
| KF-143 D TR | 890                | 18    | 73,4 | 207,4 | 225,4 | 21,3 | 41,3 | 38,1 | 60,5 | 53,8 | 38 | 8,5 | 25,5 | 40 | 8 | 19 | 98,6  | 116,6 | 0,720   |

# GRAMPO TENSOR



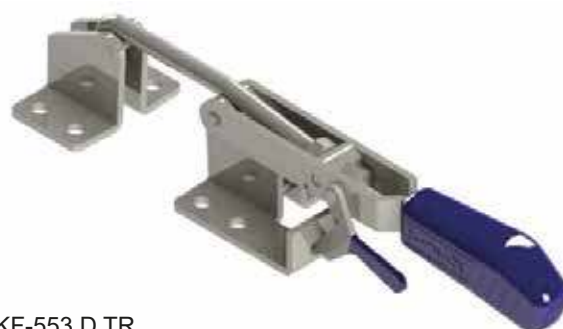
KF-453 D



KF-453 R



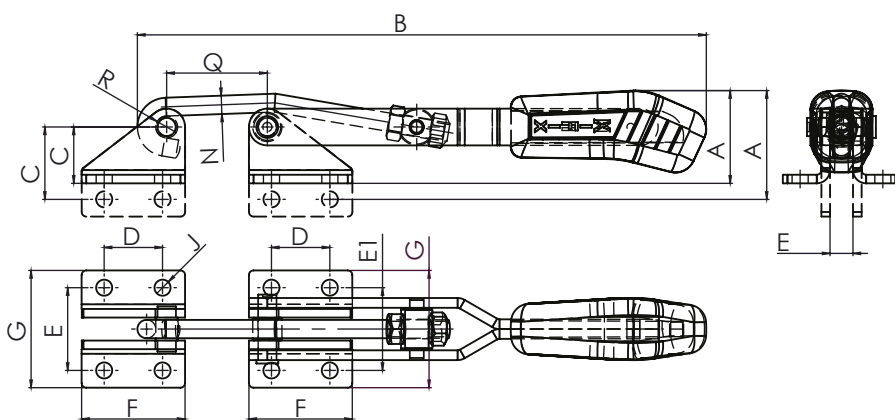
KF-033 D



KF-553 D TR



KF-153 D



|              |               |                   |
|--------------|---------------|-------------------|
| <b>BASES</b> | <b>HASTES</b> | <b>TR - Trava</b> |
| D - Dobrada  | L - Longa     |                   |
| R - Reta     |               |                   |

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A    | B   | C  | D    | E    | F    | G    | J    | N    | Q   | R    | PESO Kg |
|------------|--------------------|------|-----|----|------|------|------|------|------|------|-----|------|---------|
| KF-033 D   | 90                 | 26   | 163 | 12 | 16   | 25,4 | 25,4 | 34   | 5,5  | 5,0  | 46  | 8,0  | 0,160   |
| KF-033 DL  | 65                 | 30   | 240 | 12 | 16   | 25,4 | 25,4 | 34   | 5,5  | 5,0  | 124 | 8,0  | 0,180   |
| KF-353 D   | 120                | 35   | 215 | 18 | 25,4 | 25   | 35   | 38   | 5,5  | 6,0  | 40  | 8,0  | 0,300   |
| KF-353 R   | 120                | 39   | 215 | 23 | 25,4 | 6,4  | 35   |      | 5,5  | 6,0  | 40  | 8,0  | 0,300   |
| KF-353 DTR | 120                | 35   | 215 | 18 | 25,4 | 25   | 35   | 38   | 5,5  | 6,0  | 40  | 8,0  | 0,310   |
| KF-153 D   | 170                | 35   | 265 | 19 | 19,1 | 35   | 38,1 | 49,3 | 5,5  | 8,0  |     | 5,0  | 0,330   |
| KF-153 R   | 170                | 44,2 | 265 | 28 | 19,1 | 8    | 25,4 |      | 5,5  | 8,0  |     | 5,0  | 0,330   |
| KF-453 D   | 340                | 40   | 248 | 25 | 25,4 | 36   | 45   | 51   | 7    | 8,0  | 44  | 10,0 | 0,550   |
| KF-453 R   | 340                | 48   | 248 | 32 | 25,4 | 10   | 45   |      | 7    | 8,0  | 44  | 10,0 | 0,550   |
| KF-453 DTR | 340                | 40   | 248 | 25 | 25,4 | 36   | 45   | 51   | 7    | 8,0  | 44  | 10,0 | 0,570   |
| KF-553 D   | 900                | 72   | 367 | 51 | 28,5 | 60,5 | 54   | 85,5 | 10,6 | 12,0 | 90  | 10,0 | 1,550   |
| KF-553 R   | 900                | 88   | 367 | 67 | 28,5 | 13,5 | 54   |      | 10,6 | 12,0 | 90  | 10,0 | 1,550   |
| KF-553 DTR | 900                | 72   | 367 | 51 | 28,5 | 60,5 | 54   | 85,5 | 10,6 | 12,0 | 90  | 10,0 | 1,650   |

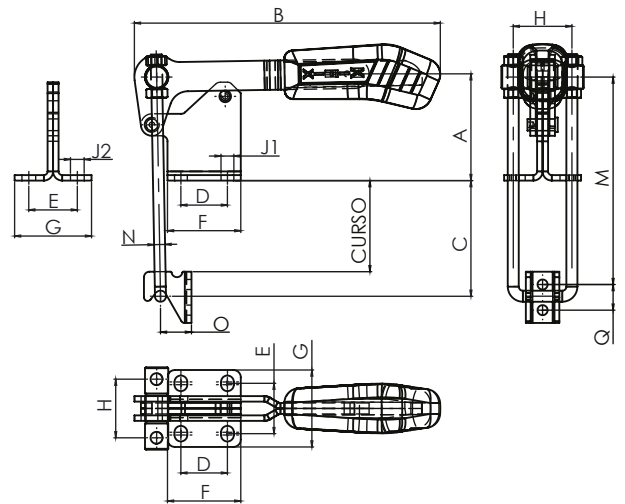
# GRAMPO TENSOR



KF-163



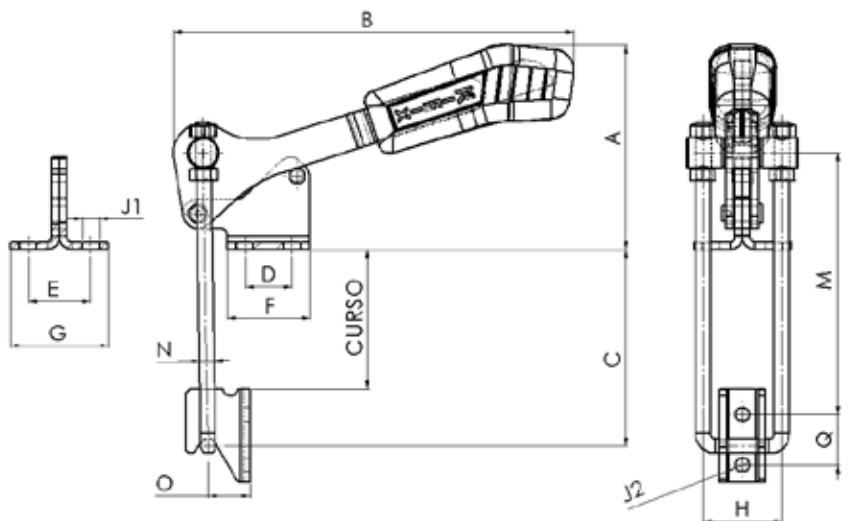
KF-263 TR



| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | CURSO | A  | B   | C max | D    | E    | F  | G    | H  | J1  | J2   | M min | M max | N | O  | Q  | PESO<br>Kg |
|------------|-----------------------|-------|----|-----|-------|------|------|----|------|----|-----|------|-------|-------|---|----|----|------------|
| KF-063     | 200                   | 60    | 41 | 129 | 72    | 24   | 26   | 35 | 37,5 | 25 | 6,0 | 8,0  | 45    | 105   | 5 | 13 | 11 | 0,250      |
| KF-063 TR  | 200                   | 60    | 44 | 137 | 76    | 24   | 26   | 35 | 37,5 | 25 | 6,0 | 8,0  | 45    | 105   | 5 | 13 | 11 | 0,320      |
| KF-163     | 340                   | 45    | 58 | 167 | 58    | 25,4 | 27,5 | 40 | 42   | 32 | 7,0 | 8,5  | 63    | 108   | 6 | 16 | 14 | 0,430      |
| KF-263     | 680                   | 60    | 52 | 213 | 78    | 32   | 33   | 50 | 55   | 38 | 8,5 | 12,0 | 67    | 127   | 8 | 22 | 19 | 0,930      |
| KF-263 TR  | 680                   | 56    | 55 | 228 | 74    | 32   | 33   | 50 | 55   | 38 | 8,5 | 12,0 | 71    | 127   | 8 | 22 | 19 | 1,090      |



KF-433



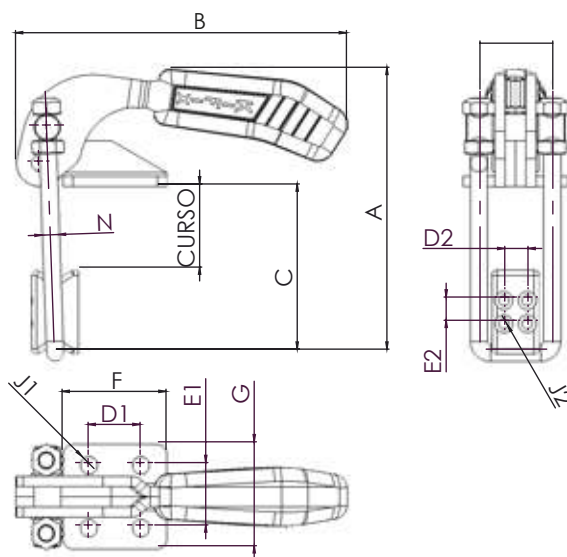
KF-423 / 433 / 443

| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | CURSO | A  | B   | C max | D    | E    | F    | G    | H  | J1  | J2  | M min | M max | N | O  | Q    | PESO<br>Kg |
|------------|-----------------------|-------|----|-----|-------|------|------|------|------|----|-----|-----|-------|-------|---|----|------|------------|
| KF-423     | 220                   | 67    | 77 | 122 | 83    | 12,7 | 22,4 | 25,4 | 35,1 | 25 | 5,1 | 4,3 | 35    | 102   | 5 | 14 | 14,2 | 0,230      |
| KF-433     | 450                   | 57    | 84 | 162 | 80    | 19,1 | 25,4 | 33,3 | 39,6 | 32 | 7,1 | 5,6 | 50    | 107   | 6 | 17 | 20,6 | 0,400      |
| KF-443     | 890                   | 54    | 93 | 194 | 88    | 31,8 | 36,6 | 49,3 | 53,8 | 38 | 8,6 | 8,6 | 65    | 119   | 8 | 21 | 27   | 0,890      |

# GRAMPO TENSOR



KF-473 D



| REFERÊNCIA | FORÇA RETENÇÃO Kgf | CURSO | A   | B   | C   | D1   | D2   | E1   | E2   | F    | G    | H    | J1   | J2  | N  | PESO Kg |
|------------|--------------------|-------|-----|-----|-----|------|------|------|------|------|------|------|------|-----|----|---------|
| KF-473 D   | 1800               | 51    | 172 | 202 | 101 | 31,8 | 14,2 | 38,1 | 14,2 | 63,5 | 63,5 | 44,5 | 10,3 | 6,4 | 10 | 1,500   |



KF-326 R



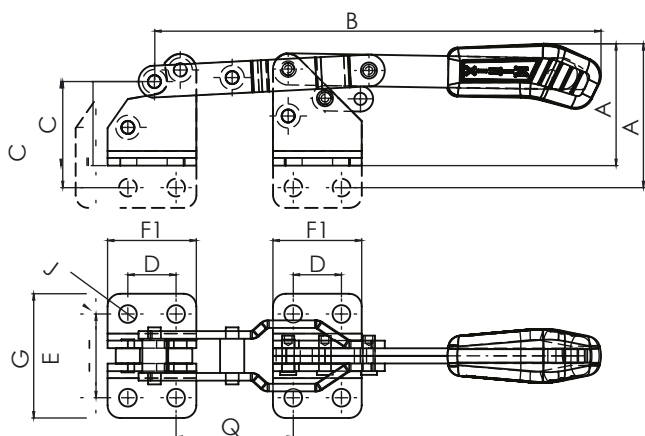
KF-314 D



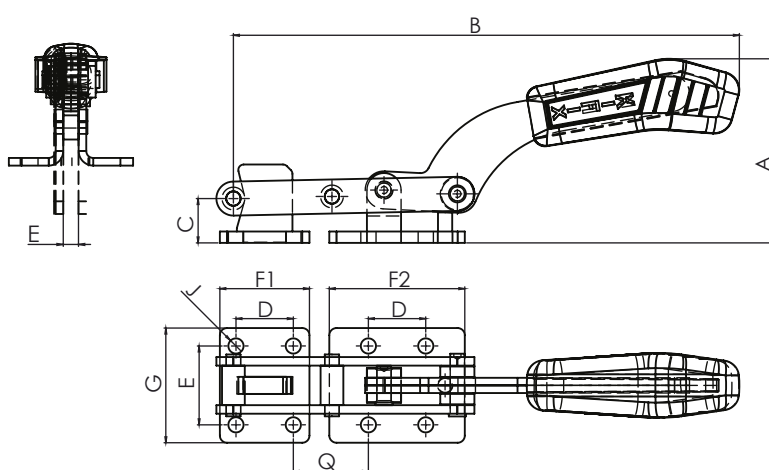
KF-310 D



KF-320



KF-310 / 314 / 326



KF-320

BASES  
D - Dobrada  
R - Retá

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A   | B   | C  | D  | E  | F1 | F2 | G  | J   | Q  | PESO Kg |
|------------|--------------------|-----|-----|----|----|----|----|----|----|-----|----|---------|
| KF-310 D   | 170                | 48  | 176 | 33 | 19 | 33 | 35 |    | 49 | 7   | 46 | 0,350   |
| KF-310 R   | 170                | 57  | 176 | 42 | 19 | 6  | 35 |    |    | 7   | 46 | 0,350   |
| KF-314 D   | 340                | 60  | 263 | 47 | 32 | 44 | 48 |    | 60 | 8,5 | 74 | 0,830   |
| KF-314 R   | 340                | 73  | 263 | 60 | 32 | 8  | 48 |    |    | 8,5 | 74 | 0,830   |
| KF-326 D   | 340                | 60  | 263 | 47 | 32 | 44 | 48 |    | 60 | 8,5 | 74 | 0,830   |
| KF-326 R   | 340                | 73  | 263 | 60 | 32 | 8  | 48 |    |    | 8,5 | 74 | 0,830   |
| KF-320     | 800                | 103 | 282 | 25 | 32 | 44 | 50 | 76 | 64 | 8,5 | 42 | 1,250   |

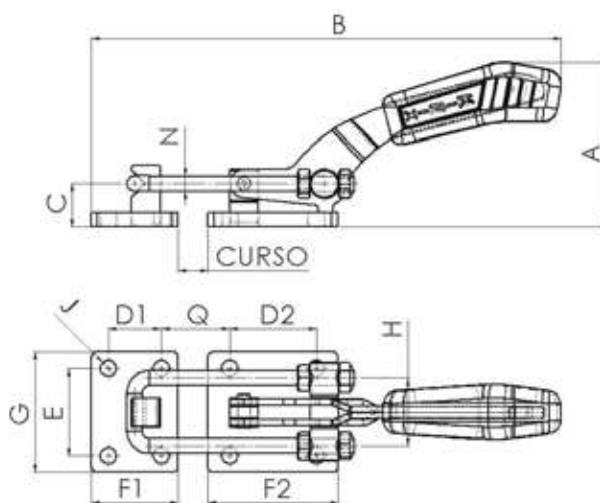
# GRAMPO TENSOR



KF-375 TR



KF-385



| REFERÊNCIA | FORÇA RETENÇÃO Kgf | CURSO | A   | B max | C  | D1 | D2   | E    | F1 | F2 | G  | H  | J    | N  | Q  | PESO Kg |
|------------|--------------------|-------|-----|-------|----|----|------|------|----|----|----|----|------|----|----|---------|
| KF-375     | 1500               | 20    | 109 | 310   | 29 | 35 | 57,2 | 57,2 | 57 | 86 | 80 | 45 | 10,5 | 10 | 45 | 1,800   |
| KF-375 TR  | 1500               | 20    | 117 | 326   | 29 | 35 | 57,2 | 57,2 | 57 | 86 | 80 | 45 | 10,5 | 10 | 45 | 2,140   |
| KF-385     | 3400               | 25    | 106 | 310   | 29 | 35 | 57,2 | 57,2 | 57 | 86 | 80 | 54 | 10,5 | 12 | 50 | 2,200   |

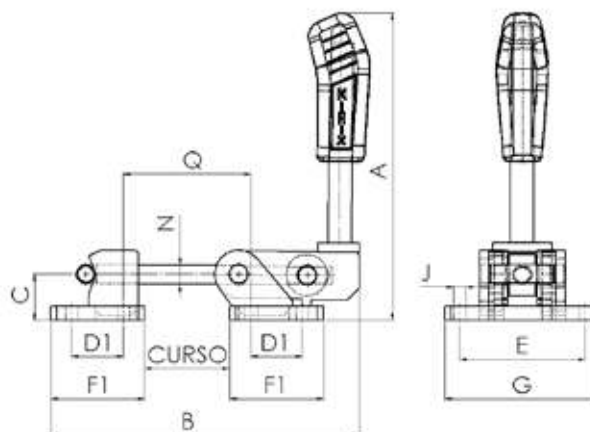
TR - Trava



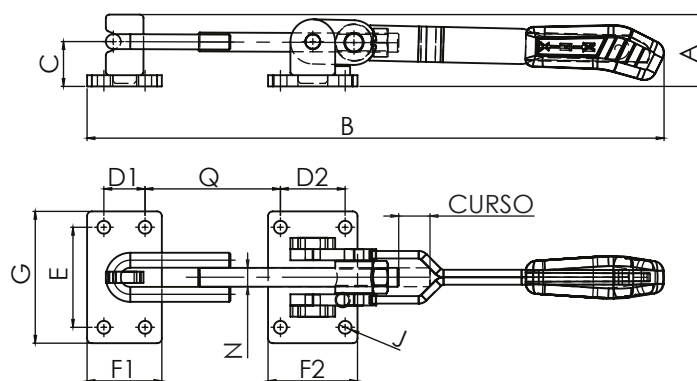
KF-330



KF-350



KF-340



| REFERÊNCIA | FORÇA RETENÇÃO Kgf | CURSO | A   | B max | C    | D1 | D2 | E  | F1   | F2 | G   | J   | N    | Q   | PESO Kg |
|------------|--------------------|-------|-----|-------|------|----|----|----|------|----|-----|-----|------|-----|---------|
| KF-330     | 1500               | 58    | 208 | 209   | 31   | 35 |    | 85 | 63,5 |    | 105 | 8,5 | 12,7 | 86  | 2,960   |
| KF-350     | 1800               | 54    | 246 | 239   | 44   | 35 |    | 94 | 60   |    | 120 | 11  | 16   | 80  | 3,970   |
| KF-340     | 2500               | 27    | 61  | 490   | 38,1 | 35 | 55 | 85 | 63,5 | 76 | 112 | 11  | 16   | 115 | 3,200   |

# GRAMPO TENSOR

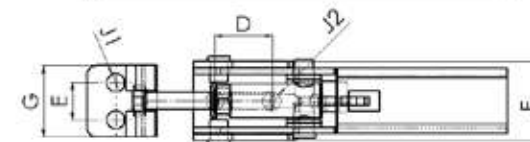
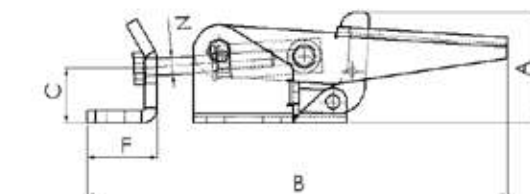
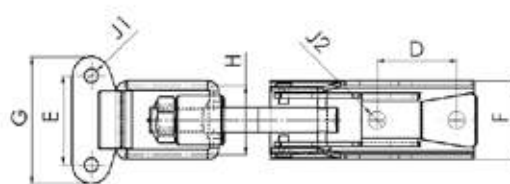
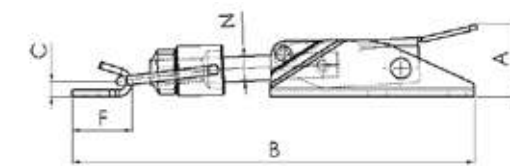


IMAGEM DO CADEADO APENAS ILUSTRATIVA  
NÃO ACOMPANHA O GRAMPO

KFC3



KFC5



| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | CURSO | A    | B   | C    | D    | E    | F    | G    | H  | J1  | J2  | N | PESO Kg |
|------------|-----------------------|-------|------|-----|------|------|------|------|------|----|-----|-----|---|---------|
| KFC3       | 3                     | 15    | 23   | 128 | 5    | 25,5 | 28,5 | 19   | 40,5 | 22 | 4,4 | 5,5 | 8 | 0,130   |
| KFC5       | 180                   | 12    | 38,9 | 148 | 17,5 | 20   | 13   | 24,5 | 25   | 0  | 6,4 | 6,4 | 6 | 0,235   |

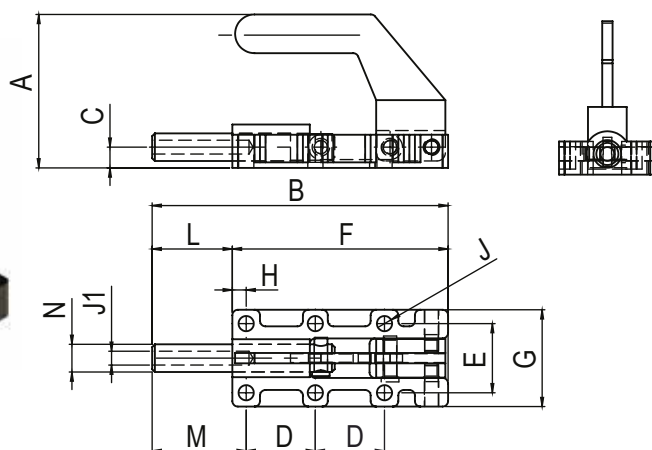
# GRAMPO TORPEDO



KF-605



KF-305



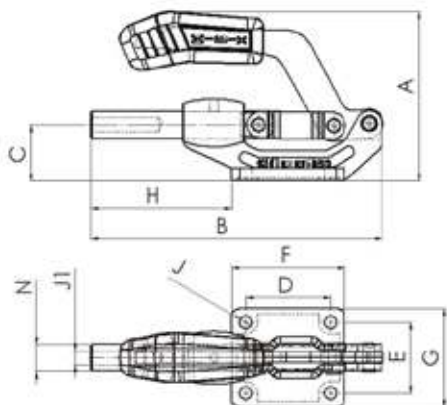
| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | CURSO | A  | B   | C   | D  | E  | F   | G  | H   | J    | J1       | L    | M  | N  | PESO Kg |
|------------|-----------------------|-------|----|-----|-----|----|----|-----|----|-----|------|----------|------|----|----|---------|
| KF-305     | 250                   | 25    | 60 | 105 | 7,5 | 25 | 25 | 78  | 35 | 5   | 5,5  | M6X1,00  | 26,5 | 32 | 10 | 0,350   |
| KF-405     | 500                   | 35    | 73 | 148 | 10  | 35 | 35 | 111 | 51 | 8,5 | 6,5  | M8X1,25  | 37   | 46 | 14 | 1,100   |
| KF-505     | 750                   | 50    | 78 | 190 | 14  | 45 | 45 | 141 | 66 | 10  | 8,5  | M12X1,75 | 50   | 60 | 19 | 1,820   |
| KF-605     | 1200                  | 60    | 84 | 238 | 16  | 55 | 55 | 171 | 76 | 10  | 10,5 | M12X1,75 | 67   | 77 | 22 | 2,870   |



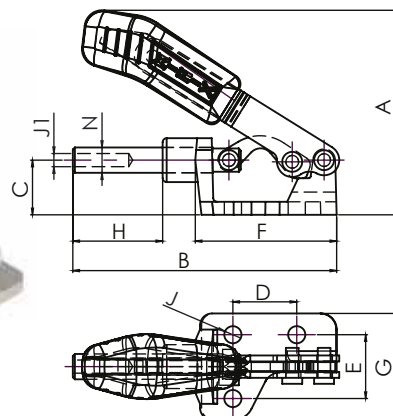
# GRAMPO TORPEDO



KF-057 TR



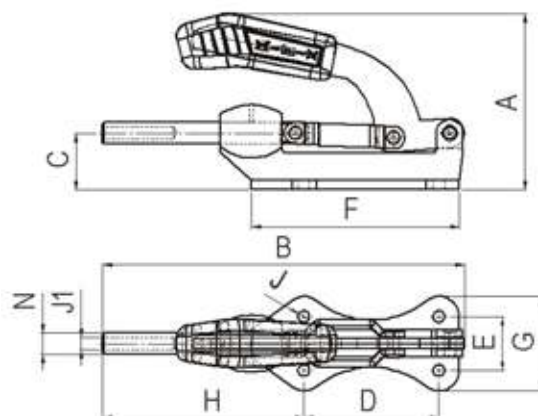
KF-061



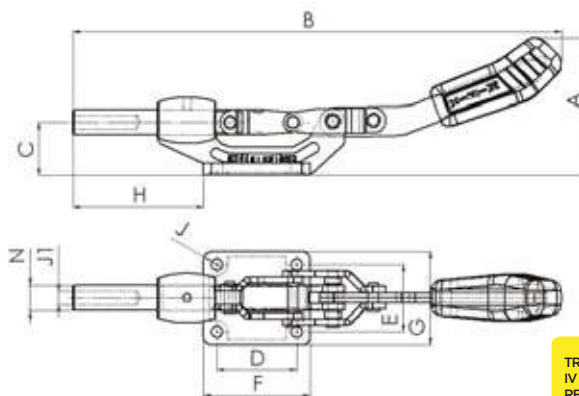
KF-051



KF-053



KF-052 IV



TR - TRAVA  
IV - AÇÃO INVERTIDA  
RF - BASE REFORÇADA

| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | CURSO | A     | B    | C    | D    | E    | F    | G    | H    | J    | J1       | N    | PESO Kg |
|------------|-----------------------|-------|-------|------|------|------|------|------|------|------|------|----------|------|---------|
| KF-061     | 50                    | 16    | 51,3  | 66,1 | 13,7 | 16   | 16   | 35,4 | 26,7 | 22,5 | 4,3  | M4X0,70  | 6,35 | 0,070   |
| KF-057     | 230                   | 36    | 82    | 144  | 25   | 35   | 40   | 50   | 55   | 71   | 7,0  | M8X1,25  | 12   | 0,400   |
| KF-057 TR  | 230                   | 36    | 98    | 144  | 25   | 35   | 40   | 50   | 55   | 71   | 7,0  | M8X1,25  | 12   | 0,420   |
| KF-057 IV  | 230                   | 35    | 34    | 239  | 25   | 35   | 40   | 50   | 55   | 71   | 7,0  | M8X1,25  | 12   | 0,395   |
| KF-051     | 270                   | 35    | 92,2  | 125  | 24,8 | 36,6 | 33,3 | 58   | 48   | 57   | 6,3  | M8X1,25  | 12   | 0,390   |
| KF-054     | 380                   | 41    | 107,9 | 154  | 31,8 | 41,4 | 41,4 | 58,7 | 57,2 | 42,2 | 8,5  | M10X1,50 | 16   | 0,890   |
| KF-053     | 500                   | 83    | 127   | 268  | 42   | 100  | 40   | 154  | 70   | 149  | 8,5  | M10X1,50 | 16   | 2,150   |
| KF-053 TR  | 500                   | 83    | 134   | 268  | 42   | 100  | 40   | 154  | 70   | 149  | 8,5  | M10X1,50 | 16   | 2,220   |
| KF-052     | 700                   | 50    | 116   | 205  | 40   | 60   | 50   | 80   | 70   | 99   | 8,5  | M12X1,75 | 19   | 1,280   |
| KF-052 TR  | 700                   | 50    | 137   | 205  | 40   | 60   | 50   | 80   | 70   | 99   | 8,5  | M12X1,75 | 19   | 1,710   |
| KF-052 IV  | 700                   | 52    | 103   | 368  | 40   | 60   | 50   | 80   | 70   | 98   | 8,5  | M12X1,75 | 19   | 1,590   |
| KF-052 RF  | 1200                  | 50    | 120   | 205  | 40   | 60   | 50   | 80   | 70   | 99   | 8,5  | M16X2,00 | 19   | 1,660   |
| KF-056     | 1800                  | 78    | 150   | 287  | 57   | 100  | 60   | 162  | 86   | 162  | 10,5 | M16X2,00 | 25   | 3,500   |

# GRAMPO TORPEDO FRONTAL



KF-005



KF-006



KF-007 TR



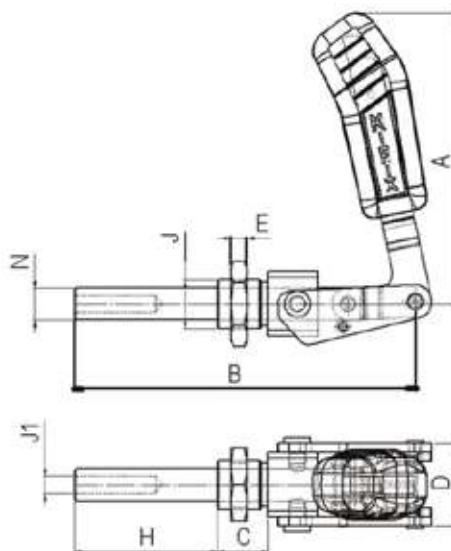
KF-015 TR



KF-025 L



KF-035



TR - Trava  
L - Haste Longa

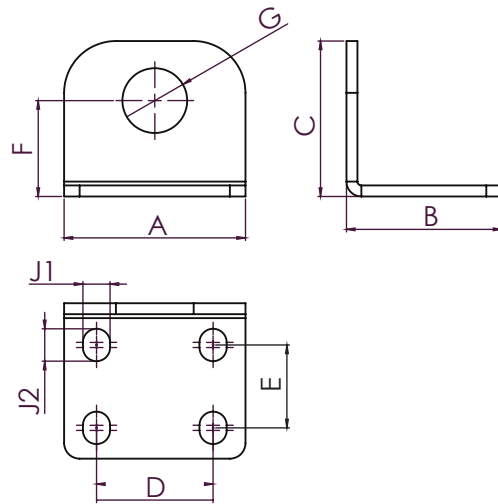
| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | CURSO | A   | B   | C  | D    | E | H   | J        | J1       | N    | PESO Kg |
|------------|-----------------------|-------|-----|-----|----|------|---|-----|----------|----------|------|---------|
| KF-005     | 90                    | 20    | 79  | 60  | 12 | 23   | 6 | 21  | M16X1,50 | M6X1,00  | 9,5  | 0,190   |
| KF-006     | 120                   | 39    | 107 | 105 | 16 | 31   | 7 | 39  | M20X1,50 | M8X1,25  | 12   | 0,420   |
| KF-007     | 200                   | 41    | 125 | 125 | 18 | 25,4 | 7 | 42  | M20X1,50 | M8X1,25  | 12,7 | 0,490   |
| F-007 TR   | 200                   | 41    | 135 | 125 | 18 | 25,4 | 7 | 42  | M20X1,50 | M8X1,25  | 12,7 | 0,515   |
| KF-015     | 250                   | 34    | 115 | 137 | 20 | 25   | 7 | 35  | M20X1,50 | M8X1,25  | 12   | 0,470   |
| F-015 TR   | 250                   | 34    | 142 | 137 | 20 | 25   | 7 | 35  | M20X1,50 | M8X1,25  | 12   | 0,540   |
| KF-025     | 500                   | 40    | 132 | 180 | 25 | 32   | 8 | 47  | M24X2,00 | M10X1,50 | 16   | 0,990   |
| F-025 TR   | 500                   | 40    | 132 | 180 | 25 | 32   | 8 | 47  | M24X2,00 | M10X1,50 | 16   | 1,020   |
| KF-025 L   | 300                   | 99    | 151 | 316 | 25 | 32   | 8 | 102 | M24X2,00 | M10X1,50 | 16   | 1,400   |
| KF-035     | 320                   | 66    | 143 | 175 | 25 | 40   | 8 | 70  | M24X2,00 | M10X1,50 | 16   | 0,920   |
| F-035 TR   | 320                   | 66    | 143 | 175 | 25 | 40   | 8 | 70  | M24X2,00 | M10X1,50 | 16   | 0,980   |

# ACESSÓRIOS BASE L PARA TORPEDOS FRONTAIS

KF-025/035 BASE L

KF-006/007/015 BASE L

KF-005 BASE L



| REFERÊNCIA            | A  | B  | C  | D  | E  | F  | G    | J1   | J2   | PESO Kg |
|-----------------------|----|----|----|----|----|----|------|------|------|---------|
| KF-005 BASE L         | 60 | 40 | 40 | 40 | 16 | 24 | 16,5 | 8,5  | 8,5  | 0,075   |
| KF-006/007/015 BASE L | 65 | 44 | 50 | 40 | 20 | 33 | 20,5 | 8,5  | 10,5 | 0,140   |
| KF-025/035 BASE L     | 70 | 60 | 60 | 45 | 32 | 37 | 25   | 10,5 | 12,5 | 0,250   |

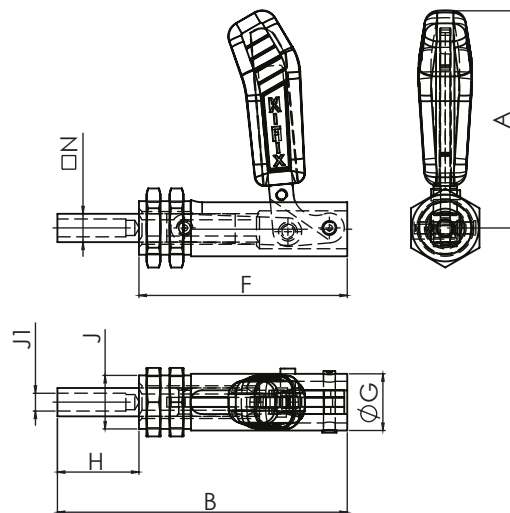
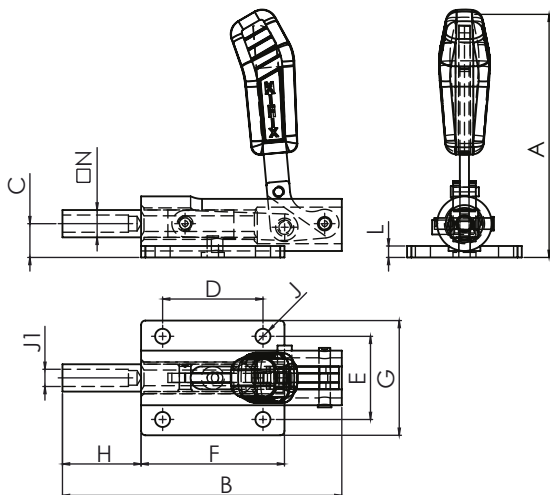
## TORPEDO COM HASTE QUADRADA



KFKT-012



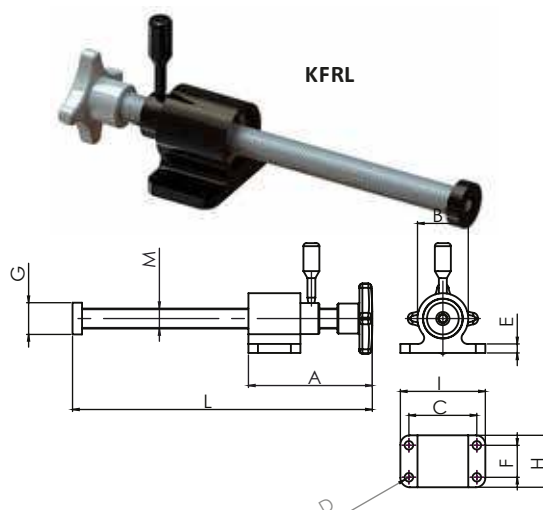
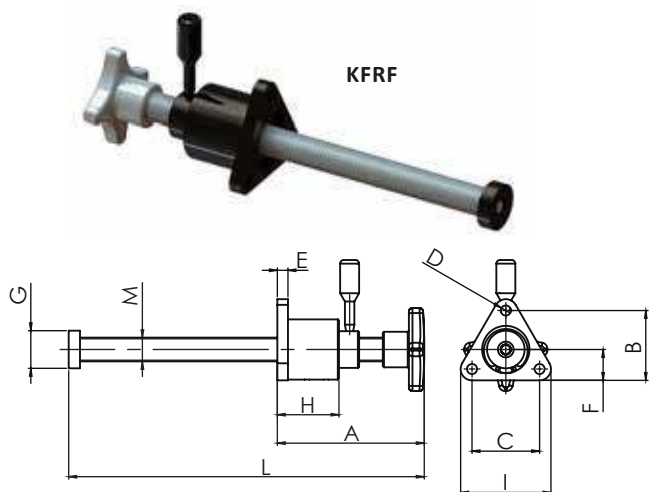
KFKT-012 F



BASES  
F - Frontal

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | CURSO | A   | B   | C    | D  | E  | F   | G    | H  | J       | J1       | L | N  | PESO Kg |
|------------|--------------------|-------|-----|-----|------|----|----|-----|------|----|---------|----------|---|----|---------|
| KFKT-012   | 900                | 48    | 173 | 195 | 23,6 | 70 | 58 | 100 | 80   | 55 | 10,5    | M12X1,75 | 8 | 19 | 1,850   |
| KFKT-012 F | 900                | 48    | 146 | 195 |      |    |    | 140 | 38,1 | 55 | M36X1,5 | M12X1,75 |   | 19 | 1,530   |

# FUSO RÁPIDO

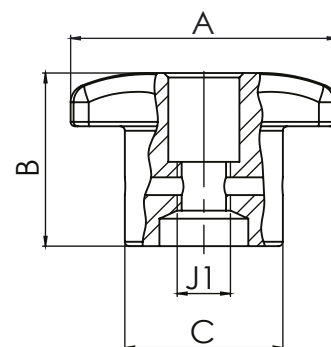


BASES  
KFRL - Base Lateral  
KFRF - Base Frontal

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A    | B    | C    | D   | E | F    | G  | H  | I    | L     | M        | PESO Kg |
|------------|--------------------|------|------|------|-----|---|------|----|----|------|-------|----------|---------|
| KFRL-12    | 500                | 64,5 | 35   | 45   | 5,5 | 6 | 20   | 19 | 32 | 55   | 175,4 | M12x1,75 | 0,480   |
| KFRF-12    | 500                | 64,5 | 38,9 | 38   | 5,5 | 6 | 17   | 19 | 32 | 50   | 175,4 | M12x1,75 | 0,420   |
| KFRL-16    | 750                | 93,7 | 40   | 53   | 7   | 8 | 28   | 25 | 40 | 65   | 249   | M16X2,00 | 0,920   |
| KFRF-16    | 750                | 93,7 | 50   | 48,5 | 7   | 8 | 22   | 25 | 40 | 64,5 | 249   | M16X200  | 0,820   |
| KFRL-20    | 1500               | 116  | 50,8 | 68   | 8,5 | 9 | 32   | 32 | 52 | 85   | 292   | M20X2,0  | 1,950   |
| KFRF-20    | 1500               | 116  | 59   | 57   | 8,5 | 9 | 26,1 | 32 | 52 | 76   | 292   | M20X2,0  | 1,750   |

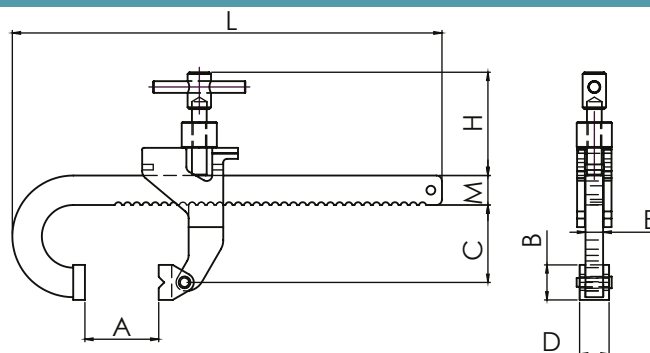
# MANÍPULOS

Acabamentos Disponíveis:  
Zincado Branco  
Oxidado Preto



| REFERÊNCIA | A  | B  | C    | J1       | PESO Kg |
|------------|----|----|------|----------|---------|
| KFM-6      | 30 | 16 | 16   | M6X1,0   | 0,055   |
| KFM-8      | 41 | 20 | 19,5 | M8X1,25  | 0,105   |
| KFM-10     | 48 | 24 | 22   | M10X1,5  | 0,165   |
| KFM-12     | 67 | 30 | 26   | M12X1,75 | 0,305   |
| KFM-16     | 80 | 45 | 40   | M16X2,00 | 0,575   |

# GRAMPO SARGENTO



| REFERÊNCIA | A       | B    | C  | D  | E   | H  | L   | M  | PESO Kg |
|------------|---------|------|----|----|-----|----|-----|----|---------|
| KFS-150    | 0-150mm | 19   | 42 | 16 | 9,5 | 50 | 233 | 16 | 0,600   |
| KFS-300    | 0-320mm | 25,4 | 81 | 19 | 9,5 | 85 | 472 | 22 | 1,900   |

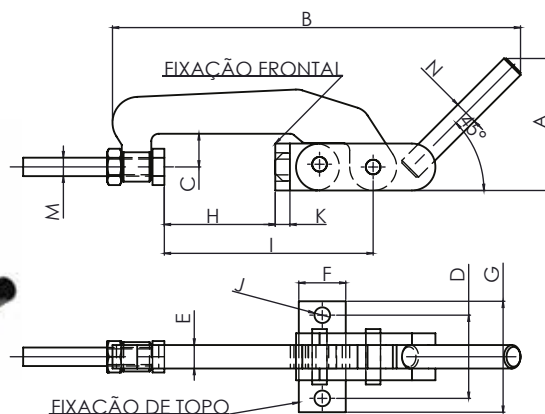
# GRAMPO COMPRESSOR



KF-035-60



KF-035-34



| REFERÊNCIA  | FORÇA RETENÇÃO Kgf | A   | B   | C  | D  | E    | F    | G  | H   | I   | J    | K    | M   | N    | PESO Kg |
|-------------|--------------------|-----|-----|----|----|------|------|----|-----|-----|------|------|-----|------|---------|
| KF-035 34   | 1000               | 71  | 195 | 36 | 45 | 12,7 | 25,4 | 60 | 34  | 87  | 8,5  | 7,94 | M10 | 12,7 | 0,910   |
| KF-035 60   | 1000               | 71  | 221 | 18 | 45 | 12,7 | 25,4 | 60 | 60  | 113 | 8,5  | 7,94 | M10 | 12,7 | 0,890   |
| KF-035 3660 | 1000               | 71  | 221 | 36 | 45 | 12,7 | 25,4 | 60 | 60  | 113 | 8,5  | 7,94 | M10 | 12,7 | 0,955   |
| KF-035 100  | 2000               | 101 | 318 | 70 | 68 | 15,9 | 40   | 88 | 100 | 164 | 10,5 | 12,7 | M10 | 15,9 | 2,215   |

# GRAMPO PNEUMÁTICO



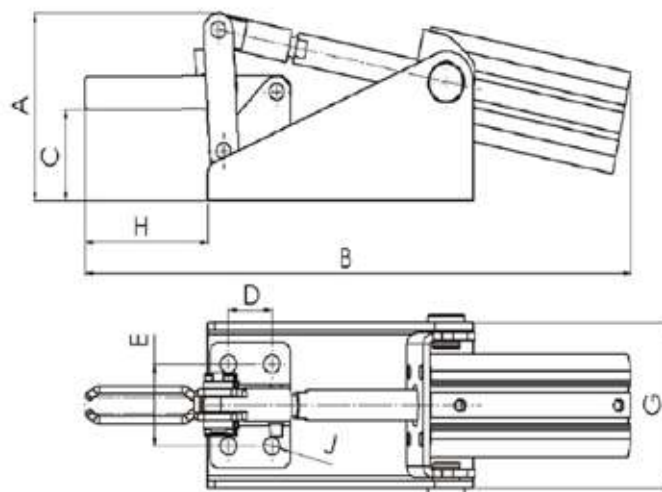
KF-011 DB P



KF-017 DBL P



KF-011 DS P



BASES  
D - Dobrada  
HASTES  
B - Bifurcada  
S - Sólida  
L - Longa

| REFERÊNCIA   | FORÇA RETENÇÃO Kgf | A   | B   | C  | D    | E  | G    | H   | J   | ROSCA CIL | ÂNGULO DE ABERTURA | PESO Kg |
|--------------|--------------------|-----|-----|----|------|----|------|-----|-----|-----------|--------------------|---------|
| KF-012 DB P  | 90                 | 53  | 235 | 26 | 12,7 | 27 | 50   | 42  | 5,6 | 1/8" NPT  | 70                 | 0,630   |
| KF-017 DB P  | 170                | 72  | 238 | 35 | 19   | 32 | 64   | 53  | 7,0 | M5        | 100                | 1,510   |
| KF-017 DBL P | 150                | 72  | 268 | 35 | 19   | 32 | 64   | 83  | 7,0 | M5        | 100                | 1,530   |
| KF-017 DS P  | 200                | 72  | 268 | 35 | 19   | 32 | 64   | 83  | 7,0 | M5        | 100                | 1,530   |
| KF-011 DB P  | 280                | 97  | 328 | 47 | 32   | 44 | 79   | 86  | 8,5 | 1/8" NPT  | 100                | 2,830   |
| KF-011 DBL P | 250                | 97  | 354 | 47 | 32   | 44 | 79   | 112 | 8,5 | 1/8" NPT  | 100                | 2,860   |
| KF-011 DS P  | 300                | 97  | 354 | 47 | 32   | 44 | 79   | 112 | 8,5 | 1/8" NPT  | 100                | 2,850   |
| KF-111 DB P  | 680                | 119 | 393 | 55 | 32   | 45 | 89,5 | 100 | 8,5 | 1/8" NPT  | 100                | 4,700   |
| KF-111 DS P  | 700                | 119 | 438 | 55 | 32   | 45 | 89,5 | 145 | 8,5 | 1/8" NPT  | 100                | 4,700   |

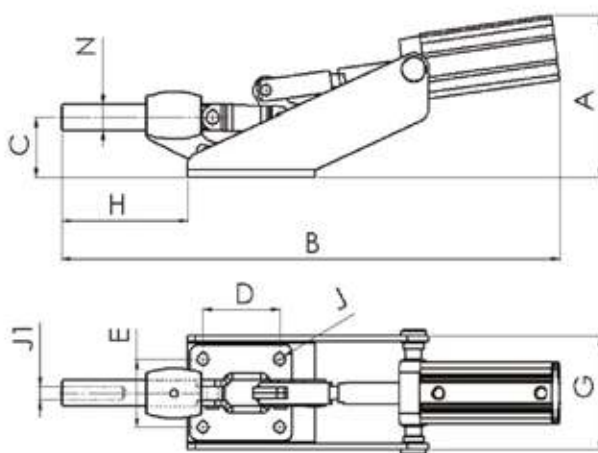
# GRAMPO PNEUMÁTICO



KF-052 P



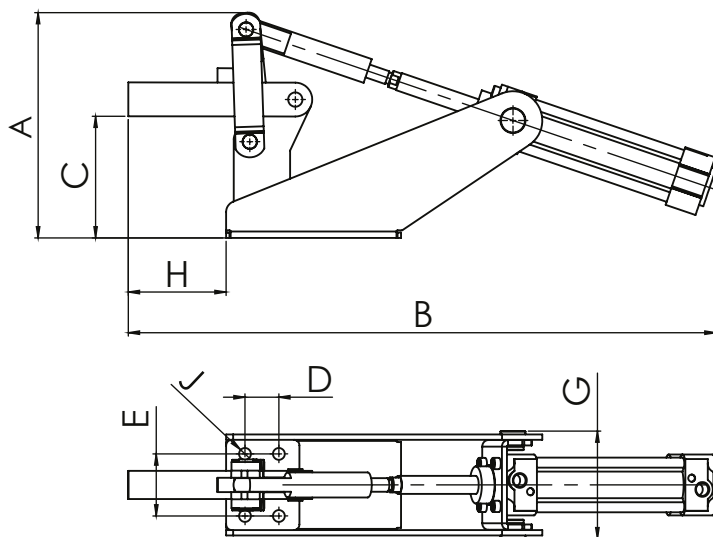
KF-057 P



| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A   | B   | C  | D  | E  | G    | H  | J   | J1       | N  | ROSCA CIL | PESO Kg |
|------------|-----------------------|-----|-----|----|----|----|------|----|-----|----------|----|-----------|---------|
| KF-057 P   | 230                   | 80  | 284 | 25 | 35 | 40 | 65   | 68 | 7,0 | M8X1,25  | 12 | M5        | 1,500   |
| KF-052 P   | 700                   | 119 | 390 | 44 | 60 | 50 | 83,5 | 99 | 8,5 | M12X1,75 | 19 | 1/8" NPT  | 3,700   |



KF-066 TS P



| REFERÊNCIA  | FORÇA RETENÇÃO<br>Kgf | A   | B   | C   | D  | E  | G    | H  | J    | ROSCA CIL | ÂNGULO DE<br>ABERTURA | PESO Kg |
|-------------|-----------------------|-----|-----|-----|----|----|------|----|------|-----------|-----------------------|---------|
| KF-066 TS P | 1400                  | 200 | 521 | 108 | 30 | 55 | 95,5 | 87 | 10,5 | 1/8" NPT  | 55                    | 7,700   |

# GRAMPO PNEUMÁTICO



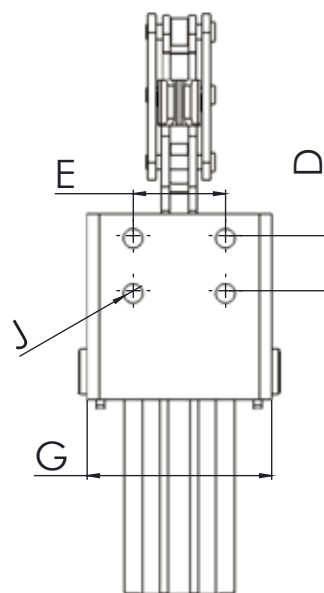
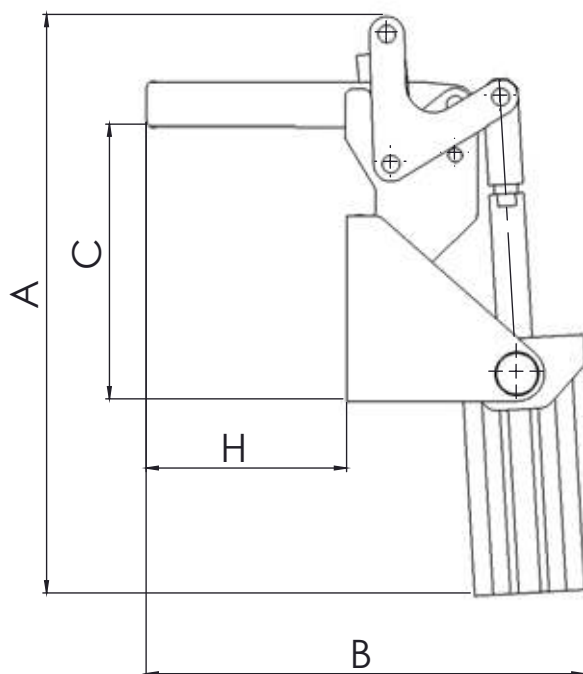
KF-019 DS P



KF-311 DB P



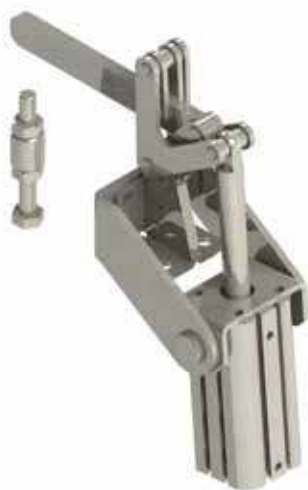
KF-411 DB P



BASES  
D - Dobrada  
HASTES  
B - Bifurcada  
S - Sólida

| REFERÊNCIA  | FORÇA RETENÇÃO<br>Kgf | A   | B   | C   | D  | E    | G  | H   | J   | ROSCA CIL | ÂNGULO DE<br>ABERTURA | PESO Kg |
|-------------|-----------------------|-----|-----|-----|----|------|----|-----|-----|-----------|-----------------------|---------|
| KF-019 DB P | 250                   | 210 | 159 | 97  | 20 | 33,5 | 67 | 73  | 7,0 | M5        | 100                   | 1,600   |
| KF-019 DS P | 280                   | 210 | 159 | 97  | 20 | 33,5 | 67 | 73  | 7,0 | M5        | 100                   | 1,600   |
| KF-311 DB P | 250                   | 282 | 216 | 130 | 32 | 44   | 75 | 102 | 8,5 | 1/8" NPT  | 100                   | 2,830   |
| KF-311 DS P | 300                   | 282 | 216 | 130 | 32 | 44   | 75 | 102 | 8,5 | 1/8" NPT  | 100                   | 2,800   |
| KF-411 DB P | 650                   | 305 | 260 | 156 | 32 | 45   | 90 | 128 | 8,5 | 1/8" NPT  | 100                   | 4,800   |
| KF-411 DS P | 700                   | 305 | 260 | 156 | 32 | 45   | 90 | 128 | 8,5 | 1/8" NPT  | 100                   | 4,800   |

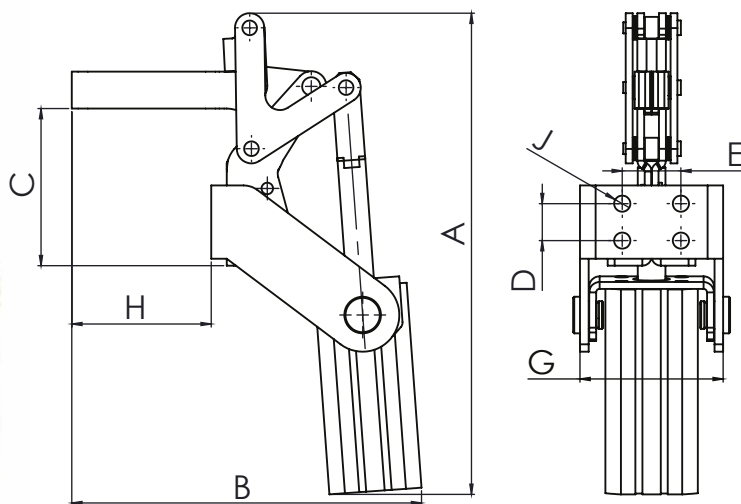
# GRAMPO PNEUMÁTICO



KF-718 S P



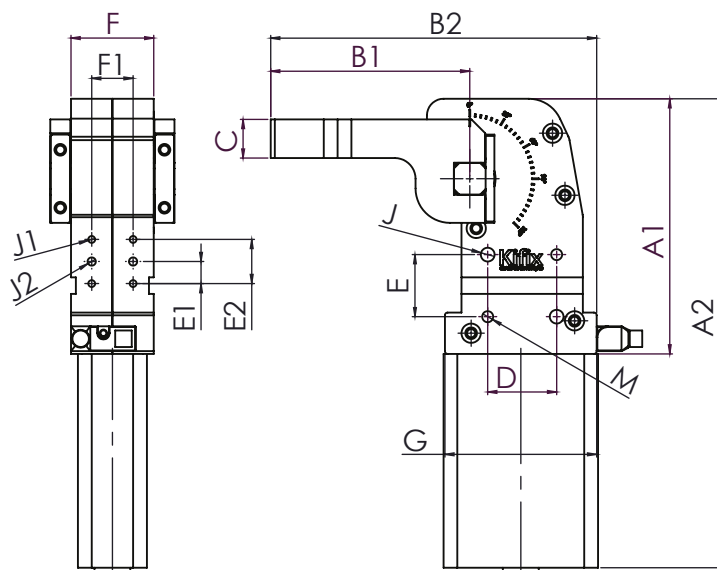
KF-718 B P



HASTES  
B - Bifurcada  
S - Solida

| REFERÊNCIA | FORÇA RETENÇÃO Kgf | A   | B   | C  | D  | E    | G  | H    | J   | ROSCA CIL | PESO Kg |
|------------|--------------------|-----|-----|----|----|------|----|------|-----|-----------|---------|
| KF-718 B P | 200                | 203 | 152 | 68 | 16 | 25,4 | 62 | 60,4 | 7,0 | M5        | 1,500   |
| KF-718 S P | 200                | 203 | 169 | 68 | 16 | 25,4 | 62 | 78   | 7,0 | M5        | 1,500   |

# GRAMPO PNEUMÁTICO PESADO



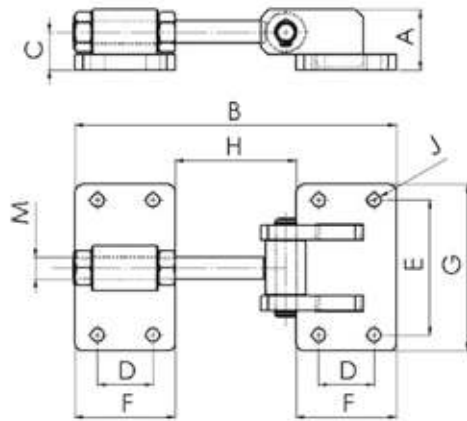
| REFERÊNCIA | FORÇA RETENÇÃO Kgf | ABERTURA (REGULÁVEL) | A1  | A2  | B1  | B2  | C  | D  | D1 | E  | E1 | E2 | F  | F1 | G   | J  | J1 | J2 | M     | PESO Kg |
|------------|--------------------|----------------------|-----|-----|-----|-----|----|----|----|----|----|----|----|----|-----|----|----|----|-------|---------|
| KFP-L40    | 400                | 0° - 135°            | 146 | 325 | 110 | 170 | 22 | 35 | 25 | 25 | 20 | 48 | 24 | 65 | 6   | M6 | M6 |    | 6,000 |         |
| KFP-L63    | 1.100              | 0° - 135°            | 185 | 340 | 144 | 236 | 28 | 50 | 30 | 45 | 16 | 32 | 60 | 30 | 110 | 10 | M6 | 6  | M8    | 6,500   |



# DOBRADIÇA



KFD-14

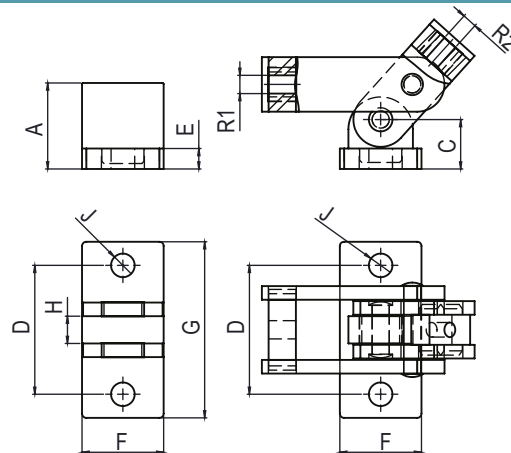


| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A    | B     | C    | D  | E  | F    | G   | H    | J   | M        | PESO Kg |
|------------|-----------------------|------|-------|------|----|----|------|-----|------|-----|----------|---------|
| KFD-14     | 900                   | 33   | 156   | 21   | 26 | 60 | 50   | 76  | 56   | 5,5 | M14X2,00 | 1,040   |
| KFD-19     | 1400                  | 38,1 | 203,5 | 23,8 | 35 | 85 | 63,5 | 105 | 76,5 | 8,5 | M14X2,00 | 1,750   |

# TRINCO



KFT-10

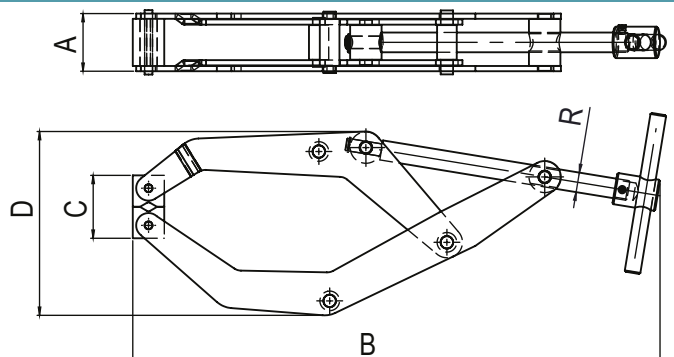


| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A  | C  | D  | E   | F  | G  | H    | J    | R1       | R2       | PESO Kg |
|------------|-----------------------|----|----|----|-----|----|----|------|------|----------|----------|---------|
| KFT-10     | 900                   | 40 | 23 | 60 | 9,5 | 38 | 82 | 12,7 | 11   | M10X1,50 | M8X1,25  | 1,040   |
| KFT-14     | 1400                  | 40 | 25 | 70 | 9,5 | 38 | 90 | 16   | 12,5 | M14X2,00 | M14X2,00 | 1,370   |

# ALICATES



KFA-300



| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A  | B   | C (FECHADO) | C (ABERTO) | D   | ROSCA    | PESO Kg |
|------------|-----------------------|----|-----|-------------|------------|-----|----------|---------|
| KFA-300    | 150                   | 47 | 432 | 60          | 300        | 148 | M16X2,00 | 2,750   |

# ALICATES



KFA-25



KFA-35



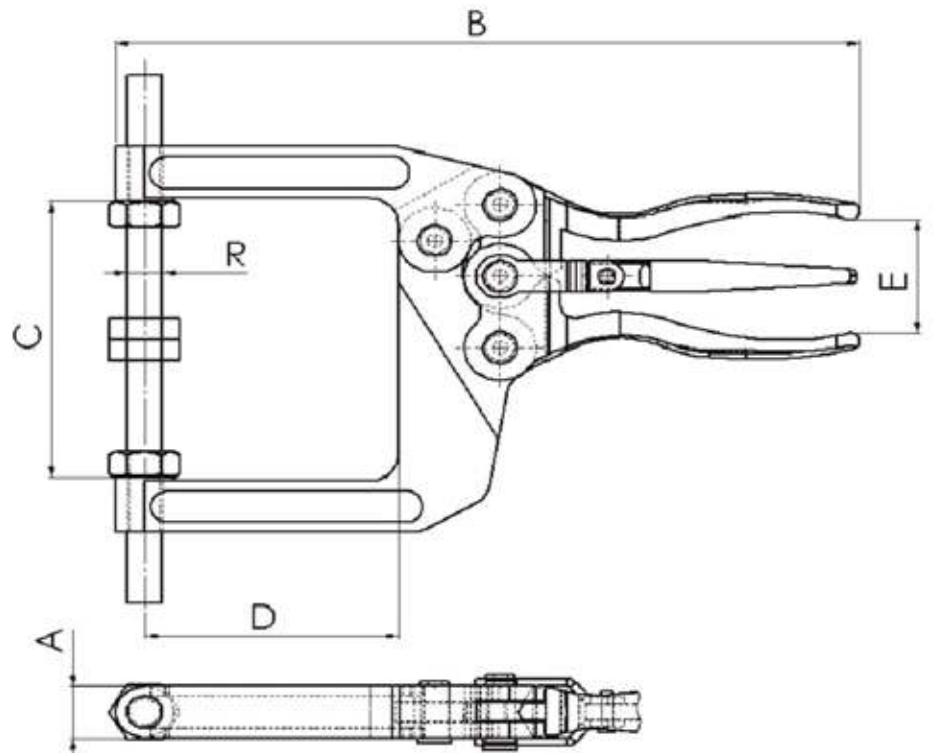
KFA-45



KFA-70 CA



KFA-150



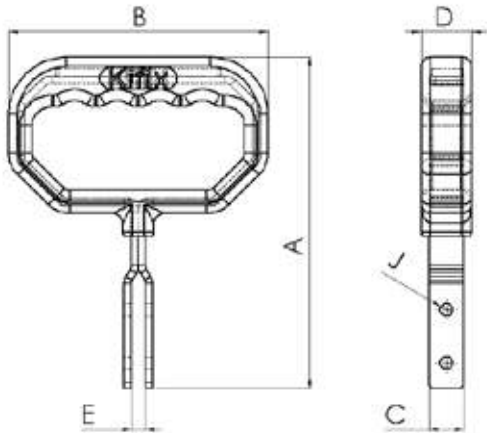
HASTES  
L - Longa CA - Cabo Aberto

| REFERÊNCIA | FORÇA RETENÇÃO<br>Kgf | A  | B   | C   | D     | E    | ROSCA    | PESO Kg |
|------------|-----------------------|----|-----|-----|-------|------|----------|---------|
| KFA-25     | 250                   | 10 | 140 | 28  | 46,5  | 21,4 | M6X1,00  | 0,240   |
| KFA-35     | 250                   | 10 | 140 | 45  | 46,5  | 21,4 | M6X1,00  | 0,250   |
| KFA-45     | 900                   | 16 | 205 | 53  | 70    | 35,2 | M10X1,50 | 0,890   |
| KFA-45 CA  | 900                   | 16 | 205 | 53  | 70    | 80,2 | M10X1,50 | 1,010   |
| KFA-70     | 900                   | 16 | 205 | 85  | 70    | 35,2 | M10X1,50 | 0,980   |
| KFA-70 CA  | 900                   | 16 | 205 | 85  | 70    | 80,2 | M10X1,50 | 1,100   |
| KFA-90     | 900                   | 16 | 205 | 93  | 71,5  | 35,2 | M10X1,50 | 1,120   |
| KFA-90 CA  | 900                   | 16 | 205 | 93  | 71,5  | 80,2 | M10X1,50 | 1,240   |
| KFA-90 L   | 250                   | 16 | 305 | 93  | 171,5 | 35,2 | M10X1,50 | 1,490   |
| KFA-100    | 900                   | 16 | 205 | 103 | 71,5  | 35,2 | M10X1,50 | 1,150   |
| KFA-100 CA | 900                   | 16 | 205 | 103 | 71,5  | 80,2 | M10X1,50 | 1,270   |
| KFA-150    | 900                   | 16 | 205 | 153 | 71,5  | 35,2 | M10X1,50 | 1,290   |
| KFA-150 CA | 900                   | 16 | 205 | 153 | 71,5  | 85,2 | M10X1,50 | 1,410   |

# ALÇA



| REFERÊNCIA | A   | B   | C  | D  | E   | J   | PESO Kg |
|------------|-----|-----|----|----|-----|-----|---------|
| KF-AL      | 174 | 134 | 18 | 26 | 7,5 | 6,4 | 0,460   |

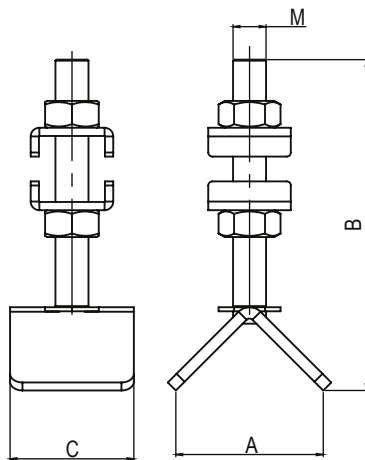


**UTILIZÁVEL  
EM VÁRIOS  
TIPOS DE GRAMPO**

# PONTEIRAS



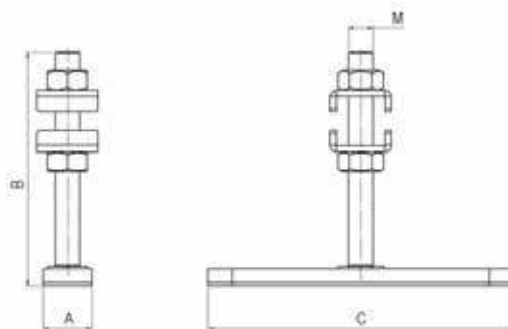
PC-M8



| REFERÊNCIA   | A  | B   | C   | M   |
|--------------|----|-----|-----|-----|
| PC-M6        | 36 | 80  | 30  | M6  |
| PC-M8        | 36 | 100 | 30  | M8  |
| PC-M10       | 36 | 91  | 30  | M10 |
| PF-M6 35x40  | 16 | 35  | 40  | M6  |
| PF-M6 51x40  | 16 | 51  | 40  | M6  |
| PF-M6 51x100 | 16 | 51  | 100 | M6  |
| PF-M6 66x100 | 16 | 66  | 100 | M6  |
| PF-M8        | 16 | 77  | 100 | M8  |
| PF-M10       | 16 | 77  | 100 | M10 |



PF-M8



# PONTEIRAS



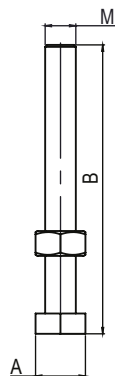
PSB-M8



PS-M8



PP-M8



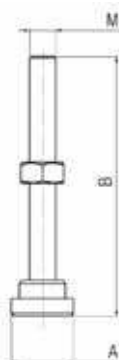
ARB-M8



ARP-M8



PA-M8



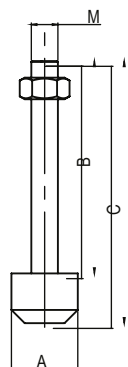
PB-M8



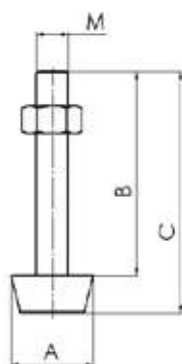
BRP-M8



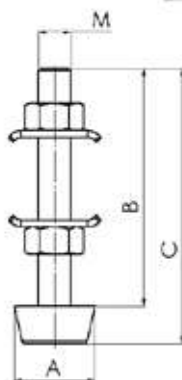
BRB-M8



PBC-M5x35



BRPC-M5x35



| REFERÊNCIA | A  | B  | M   |
|------------|----|----|-----|
| PP-M6      | 10 | 49 | M6  |
| PP-M8      | 13 | 45 | M8  |
| PP-M10     | 17 | 51 | M10 |
| PP-M12     | 19 | 47 | M12 |
| PP-M16     | 24 | 79 | M16 |
| PS-M6      | 10 | 64 | M6  |
| PS-M8      | 13 | 75 | M8  |
| PS-M10     | 17 | 77 | M10 |
| PSB-M6     | 10 | 64 | M6  |
| PSB-M8     | 13 | 75 | M8  |
| PSB-M10    | 17 | 77 | M10 |
| PSB-M12    | 19 | 87 | M12 |

| REFERÊNCIA | A  | B   | M   |
|------------|----|-----|-----|
| PA-M6      | 19 | 67  | M6  |
| PA-M8      | 19 | 80  | M8  |
| PA-M10     | 19 | 80  | M10 |
| PA-M16     | 32 | 118 | M16 |
| ARP-M6     | 19 | 67  | M6  |
| ARP-M8     | 19 | 80  | M8  |
| ARP-M10    | 19 | 80  | M10 |
| ARB-M6     | 19 | 67  | M6  |
| ARB-M8     | 19 | 80  | M8  |
| ARB-M10    | 19 | 80  | M10 |
| ARB-M16    | 32 | 118 | M16 |

| REFERÊNCIA | A    | B  | C  | M   |
|------------|------|----|----|-----|
| PB-M6      | 15   | 57 | 69 | M6  |
| PB-M8      | 18,5 | 63 | 78 | M8  |
| PB-M10     | 23   | 63 | 82 | M10 |
| BRP-M6     | 15   | 57 | 69 | M6  |
| BRP-M8     | 18,5 | 63 | 78 | M8  |
| BRP-M10    | 23   | 63 | 82 | M10 |
| BRB-M6     | 15   | 57 | 69 | M6  |
| BRB-M8     | 18,5 | 63 | 78 | M8  |
| BRB-M10    | 23   | 63 | 82 | M10 |

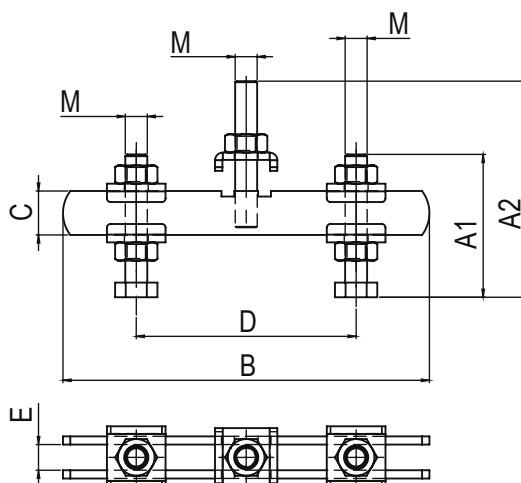
| REFERÊNCIA | A    | B  | C  | M  |
|------------|------|----|----|----|
| PBC-M4X20  | 11,2 | 19 | 24 | M4 |
| PBC-M4X30  | 18,5 | 29 | 34 | M4 |
| PBC-M5X25  | 12,7 | 25 | 30 | M5 |
| PBC-M5X30  | 12,7 | 30 | 35 | M5 |
| PBC-M5X35  | 12,7 | 35 | 40 | M5 |
| PBC-M6X30  | 15,8 | 29 | 36 | M6 |
| PBC-M6X40  | 15,8 | 39 | 46 | M6 |
| PBC-M6X45  | 15,8 | 39 | 46 | M6 |

| REFERÊNCIA | A    | B  | C  | M  |
|------------|------|----|----|----|
| BRPC-M5X25 | 12,7 | 25 | 30 | M5 |
| BRPC-M5X30 | 12,7 | 30 | 35 | M5 |
| BRPC-M5X35 | 12,7 | 35 | 40 | M5 |
| BRPC-M6X30 | 15,8 | 39 | 36 | M6 |
| BRPC-M6X40 | 15,8 | 39 | 46 | M6 |
| BRPC-M6X45 | 15,8 | 49 | 51 | M6 |

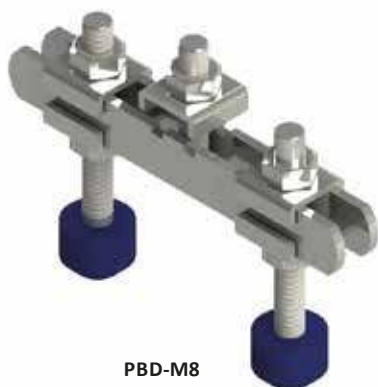
# PONTEIRAS



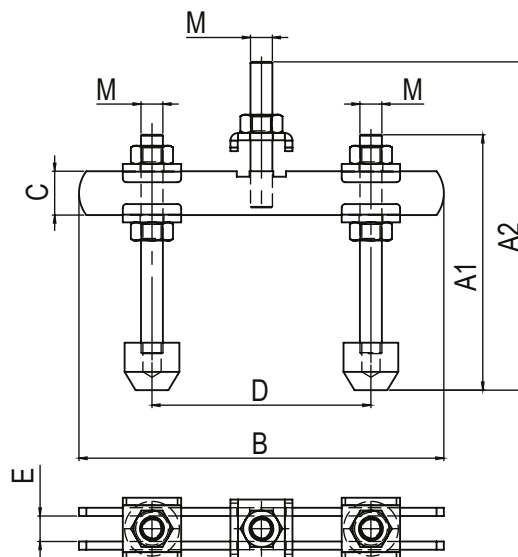
PSD-M8



| REFERÊNCIA | A1 | A2 | B   | C  | D mín | D máx | E  | M   |
|------------|----|----|-----|----|-------|-------|----|-----|
| PSD-M6     | 49 | 59 | 100 | 12 | 30    | 80    | 7  | M6  |
| PSD-M8     | 75 | 86 | 120 | 15 | 35    | 92    | 9  | M8  |
| PSD-M10    | 76 | 90 | 180 | 20 | 42    | 148   | 11 | M10 |



PBD-M8



| REFERÊNCIA | A1 | A2 | B   | C  | D mín | D máx | E  | M   |
|------------|----|----|-----|----|-------|-------|----|-----|
| PBD-M6     | 69 | 89 | 100 | 12 | 30    | 80    | 7  | M6  |
| PBD-M8     | 78 | 89 | 120 | 15 | 35    | 92    | 9  | M8  |
| PBD-M10    | 82 | 95 | 180 | 20 | 42    | 148   | 11 | M10 |

| REFERÊNCIA | LEGENDA                                       |
|------------|---|
| PP         | Ponteira Sextavada com Porca                  |
| PS         | Ponteira Sextavada com Anilha                 |
| PSB        | Ponteira Sextavada com Bucha                  |
| PB         | Ponteira Borracha com Porca                   |
| BRP        | Ponteira Borracha com Anilha                  |
| BRB        | Ponteira Borracha com Bucha                   |
| PBC        | Ponteira Borracha Cônica com Porca            |
| BRPC       | Ponteira Borracha Cônica com Anilhas Redondas |
| PA         | Ponteira Articulada com Porca                 |
| ARP        | Ponteira Articulada com Anilha                |
| ARB        | Ponteira Articulada com Bucha                 |
| PC         | Ponteira Cantoneira com Anilha                |
| PF         | Ponteira Feltro com Anilha                    |
| PBD        | Ponteira Dupla de Borracha                    |
| PSD        | Ponteira Dupla Parafuso Sextavado             |



KF-105 D



KF-532 R



KF-052



KF-643 D



KF-843 D



KF-405



KFS-300



KFA-90L



KF-631 D



KF-010 DB



KF-011 RS



KF-111 DS A



KF-845



KF-411 DS A



KF-825 F



KF-725 D



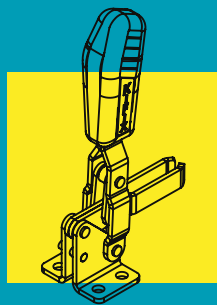
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