

Size Selection Selección de talla Choix de taille Bestimmen der Zahngruppengröße



| BOF | 75 | 100 | 130 | 135 | 160 | 165 | 200 | 220 | 245 | 295 | 300 | 380 | 385 | 465 | 505 | 590 | 635 | 703 | 886 | 904 | 1055 | 1139 | 1357 | | | |
|----------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--|--|--|
| XHD. | 15 | | | 30 | | | | | | 50 | | | 120 | | | 240 | | | | | | | | | | |
| STD.-HD. | 15 | | | | | | 30 | | | 50 | | | 120 | | | 240 | | | | | | | | | | |
| | 20 | | | | | | | | | 40 | | | 60 | | | 180 | | | | | | | | | | |



| BOF | 50 | 65 | 85 | 105 | 110 | 120 | 140 | 155 | 160 | 175 | 180 | 185 | 225 | 250 | 260 | 280 | 300 | 310 | 335 | 400 | 477 | 499 | 613 | 775 | 910 | 1200 | | | |
|----------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|
| XHD. | 15 | | 30 | | | | 50 | | | | | | 120 | | | 240 | | | | | | | | | | | | | |
| STD.-HD. | 15 | | | 30 | | | | 50 | | | 120 | | | 240 | | | | | | | | | | | | | | | |
| | 20 | | | | | | 40 | | | 60 | | | 180 | | | 500 | | | | | | | | | | | | | |



| BOF | 170 | 305 | 365 | 375 | 452 | 563 | 591 | 704 | 863 | 1045 | 1376 | | | | |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|--|--|--|--|
| XHD. | 60 | | | 180 | | | | | | 500 | | | | | |
| STD.-HD. | 60 | | | | | | 180 | | | 500 | | | | | |
| | 120 | | | | | | | | | 240 | | | | | |
| | 120 | | | | | | 180 | | | 240 | | | | | |

Teeth Dientes Dents Zähne

| Diseño | 15 | 20 | 30 | 40 | 50 | 60 | 120 | 180 | 240 | 500 |
|--------|-------|-------|-------|-------|--------|--------|---------|---------|---------|---------|
| A | - | MA20A | MA30A | MA40A | MA50A | MA60A | MA120A | MA180A | MA240A | |
| D | - | - | - | - | MA50D | | | | MA240D | |
| H | | | | | | | MA120H1 | MA180H1 | MA240H1 | |
| L | | MA20L | MA30L | MA40L | MA50L | MA60L | | | | |
| I | | | | | MA50I | MA60I | MA120I | MA180I | | |
| E | MA15E | MA20E | MA30E | MA40E | MA50E | MA60E | MA120E1 | MA180E1 | MA240E1 | MA500E1 |
| EX | | | | | MA50EX | MA60EX | MA120EX | MA180EX | MA240EX | MA500EX |
| F | | MA20F | MA30F | MA40F | MA50F | MA60F | | | | |
| P | | | | | | | MA120P | MA180P | MA240P | MA500P |
| U | MA15U | MA20U | MA30U | MA40U | MA50U | MA60U | MA120U | MA180U | | |
| V | MA15V | MA20V | MA30V | MA40V | MA50V | MA60V | MA120V | MA180V | MA240V | MA500V |
| W | | MA20W | MA30W | MA40W | MA50W | MA60W | MA120W | MA180W | | |

Adapters Portadientes Porte-dents Zahnhalter

| Diseño | 15 | 20 | 30 | 40 | 50 | 60 | 120 | 180 | 240 | 500 |
|--------|-----------|-----------|-----------|-----------|------------|------------|----------------|----------------|--------------|-------------|
| FC | | 1MA20FC | 1MA30FC | 1MA40FC | 1MA50FC | 1MA60FC | | | | |
| WC | 1MA15WC32 | 1MA20WC35 | 1MA30WC40 | 1MA40WC40 | 1MA50WC65 | 1MA60WC70 | 1MA120WC90 | 1MA180WC100 | 1MA240WC120 | 1MA500WC140 |
| | | 1MA20WC40 | 1MA30WC45 | 1MA40WC45 | 1MA50WC60 | 1MA60WC65 | 1MA120WC80 | 1MA180WC90 | 1MA240WC100 | 1MA500WC130 |
| | | | 1MA40WC50 | 1MA50WC50 | 1MA60WC60 | 1MA120WC70 | 1MA180WC80 | | | 1MA500WC120 |
| | | 1MA20WC32 | | 1MA50WC45 | 1MA60WC50 | 1MA120WC65 | | | | 1MA500WC100 |
| WRD | | | | | 1MA50WRD50 | 1MA60WRD65 | 1MA120WRD70/80 | 1MA180WRD80/90 | 1MA240WRD100 | |
| WLD | | | | | 1MA50WLD50 | 1MA60WLD65 | 1MA120WLD70/80 | 1MA180WLD80/90 | 1MA240WLD100 | |
| WN | | | | | | | | | | 1MA500WN |
| WS | | | | | | | | 1MA180WS90 | 1MA240WS100 | 1MA500WS140 |
| | | | | | | | | | | 1MA500WS120 |
| M | | | | 4MA40M | 4MA50M | 4MA60M | 4MA120M | 4MA180M | 4MA240M | 4MA500M |
| MS | | | | | | | | 4MA180MS | | 4MA500MS |

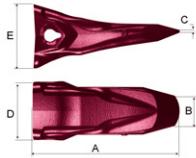
Locking system Anclajes Système de clavetage Sicherung

| Diseño | 15 | 20 | 30 | 40 | 50 | 60 | 120 | 180 | 240 | 500 |
|-------------------|-----------|-----------|-----------|-----------|------------|------------|------------|-------------|------------|------------|
| PIN | 2MA15PR | 2MA20PR | 2MA30PR | 2MA40PR | 2MA50PR | 2MA60PR | 2MA120PR | 2MA180PR | 2MA240PR | 2MA500PR |
| Retenedor / Tapón | | | | | 2MA50/60R | 2MA50/60R | 2MA120R | 2MA180/240R | | 2MA500R |
| | | | | | | | 2MA120 MR | | | |
| | 3MTWIST M | 3MTWIST M | 3MTWIST M | 3MTWIST M | 3MTWIST X2 | 3MTWIST X2 | 3MTWIST X2 | 3MTWIST X2 | 3MTWIST X2 | 3MTWIST X2 |

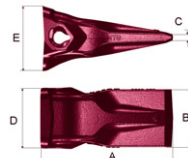
Construction Construcción Construction Schwerbau

Teeth **Dientes** Dents **Zähne**

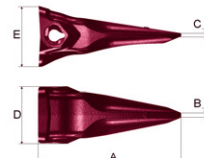
EXTRA (E)



UNIVERSAL (U)



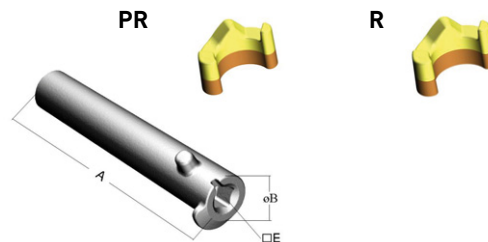
VECTOR (V)



| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|-------|--|-----|------|----|------|----|------|----|------|----|------|-----------|------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA15E | | 217 | 8.54 | 54 | 2.13 | 5 | 0.20 | 80 | 3.15 | 94 | 3.70 | 3,3 | 7.27 |
| MA15U | | 205 | 8.07 | 79 | 3.11 | 8 | 0.31 | 80 | 3.15 | 94 | 3.70 | 2,93 | 6.44 |
| MA15V | | 221 | 8.70 | 5 | 0.20 | 5 | 0.20 | 80 | 3.15 | 94 | 3.70 | 2,43 | 5.36 |

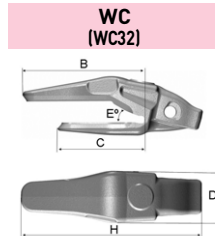
Locking system Anclajes Système de clavetage Sicherung






| Ref. | | A | | B | | E | | kgs / lbs | |
|------------|---|----|------|----|------|----|------|-----------|------|
| | | mm | inch | mm | inch | mm | inch | | |
| 1. 2MA15PR | - | 76 | 2.99 | 21 | 0.81 | - | 3/8 | 0,01 | 0.02 |



Construction Construcción Construction Schwerbau

Adapters **Portadientes** Porte-dents **Zahnhalter**



| Ref. |  |  | |  | | B | | C | | D | | E | H | |  |
|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-------------|-----|------|-----|------|----|------|---------|-----|-------|-------------------------------------------------------------------------------------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | ° | mm | inch | |
| 1MA15WC32 |  | 32 | 1 1/4 | 12+/-2 | 0.47+/-0.08 | 189 | 7.44 | 151 | 5.94 | 72 | 2.83 | 22.5-30 | 282 | 11.10 | 4,8 10.58 |

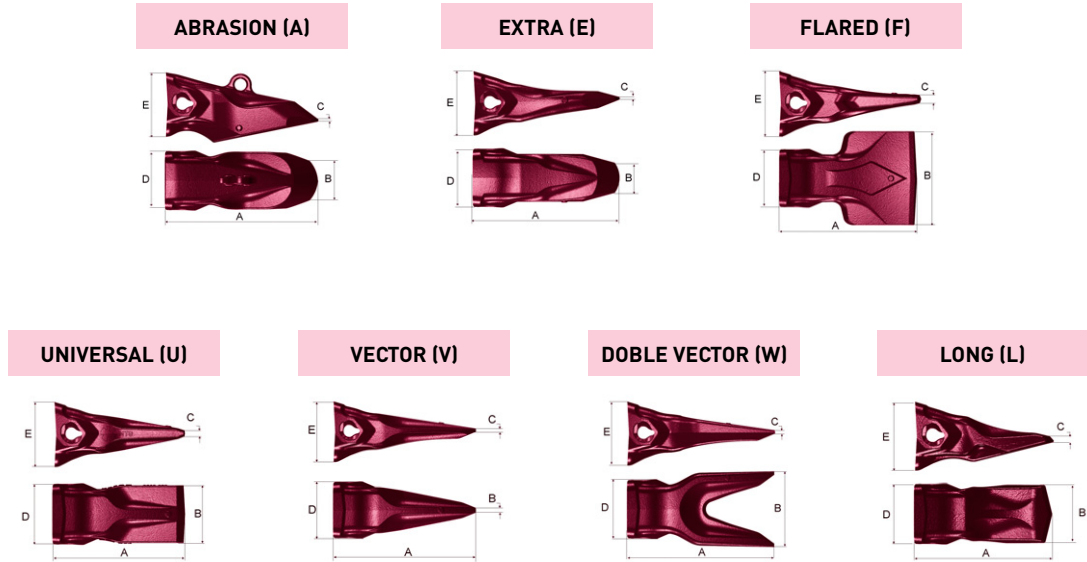
Removal tool **Extractor** Outil d'extraction **Bolzenentferner**



3MTWIST M

Construction Construcción Construction Schwerbau

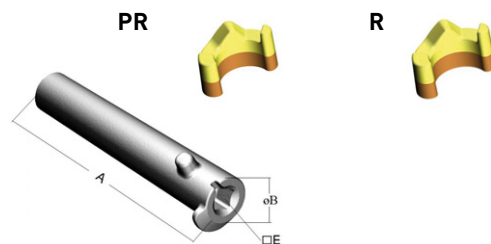
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | | |
|-------|--|-----|-------|-------|------|-----|------|----|------|-----|------|------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | kgs | lbs |
| MA20A | | 263 | 10.35 | 89 | 3.50 | - | - | 96 | 3.78 | 114 | 4.49 | 8 | 17.64 |
| MA20L | | 240 | 9.45 | 95 | 3.74 | - | - | 96 | 3.78 | 114 | 4.49 | 4,75 | 10.47 |
| MA20E | | 254 | 10.00 | 62 | 2.44 | 5 | 0.20 | 96 | 3.78 | 114 | 4.49 | 5,2 | 11.46 |
| MA20F | | 247 | 9.72 | 153 | 6.02 | 12 | 0.47 | 96 | 3.78 | 114 | 4.49 | 6,2 | 13.67 |
| MA20U | | 239 | 9.41 | 94 | 3.70 | 9 | 0.39 | 96 | 3.78 | 114 | 4.49 | 4,7 | 10.36 |
| MA20V | | 267 | 10.51 | 5.6 | 0.22 | 5.9 | 0.23 | 96 | 3.78 | 114 | 4.49 | 3,9 | 8.60 |
| MA20W | | 267 | 10.51 | 127.6 | 5.02 | 6.9 | 0.27 | 96 | 3.78 | 114 | 4.49 | 5,15 | 11.35 |

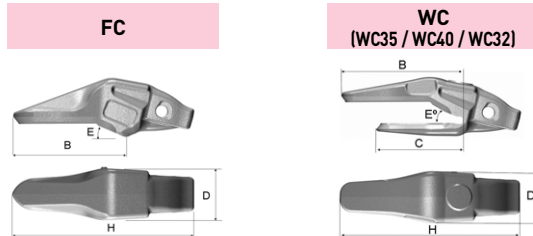
Locking system **Anclajes** Système de clavetage **Sicherung**









| Ref. | A | B | E | | | | | | |
|------------|----|------|------|------|------|------|-----|------|------|
| | mm | inch | mm | inch | mm | inch | kgs | lbs | |
| 1. 2MA20PR | - | 88 | 3.46 | 21 | 0.81 | - | 3/8 | 0,19 | 0.42 |



Construction **Construcción** Construction **Schwerbau**

Adapters **Portadientes** Porte-dents **Zahnhalter**



| Ref. |  |  | |  | | B | | C | | D | | E ° | H | |  kgs / lbs |
|-----------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----|------|-----|------|----|------|---------|-----|-------|--------------------------------------------------------------------------------------------------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | mm | inch | |
| 1MA20FC |  | - | - | - | - | 214 | 8.43 | - | - | 80 | 3.15 | 22.5-30 | 347 | 13.66 | 8,15 17.97 |
| 1MA20WC35 |  | 35 | - | 11 | - | 193 | 7.60 | 149 | 5.87 | 84 | 3.31 | 22.5-30 | 314 | 12.36 | 7,85 17.31 |
| 1MA20WC40 |  | 40 | 1.57 | - | - | 193 | 7.60 | 149 | 5.87 | 84 | 3.31 | 22.5-30 | 314 | 12.36 | 7,75 17.09 |
| 1MA20WC32 |  | 32 | - | 11 | - | 193 | 7.60 | 149 | 5.87 | 84 | 3.31 | 22.5-30 | 314 | 12.36 | 7,95 17.53 |

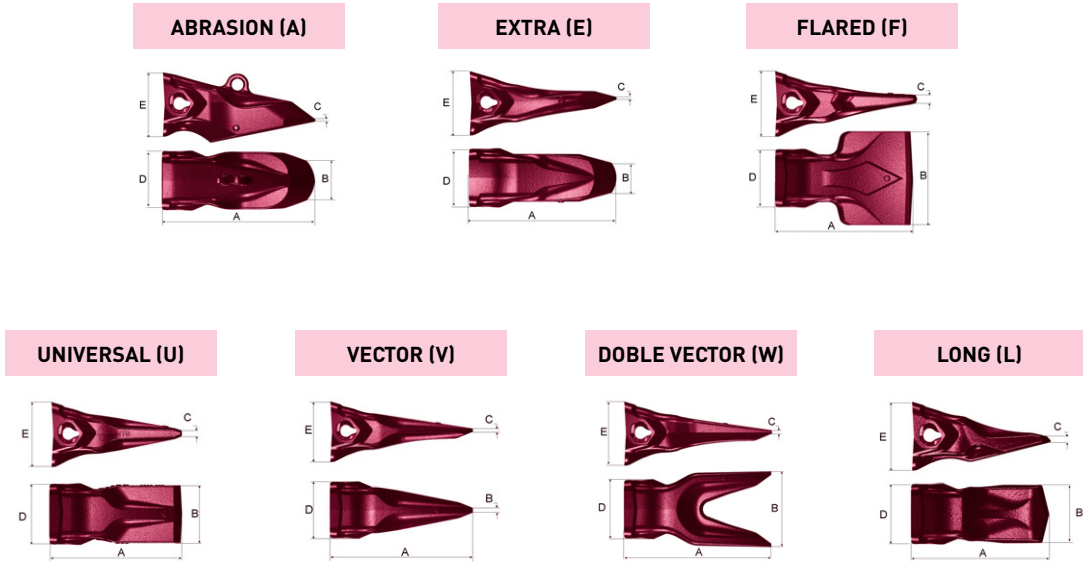
Removal tool **Extractor** Outil d'extraction **Bolzenentferner**



3MTWIST M

Construction **Construcción** Construction **Schwerbau**

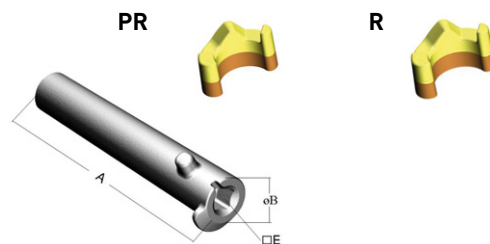
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | | |
|-------|--|-----|-------|------|------|-----|------|-----|------|-----|------|------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | kgs | lbs |
| MA30A | | 287 | 11.30 | 101 | 3.98 | - | - | 107 | 4.21 | 124 | 4.88 | 10,6 | 23.37 |
| MA30L | | 260 | 10.24 | 109 | 4.29 | - | - | 107 | 4.21 | 124 | 4.89 | 6,66 | 14.68 |
| MA30E | | 275 | 10.83 | 66 | 2.60 | 6 | 0.24 | 107 | 4.21 | 124 | 4.88 | 7,07 | 15.59 |
| MA30F | | 271 | 10.67 | 176 | 6.93 | 12 | 0.47 | 107 | 4.21 | 124 | 4.88 | 9,03 | 19.91 |
| MA30U | | 258 | 10.16 | 106 | 4.17 | 10 | 0.39 | 107 | 4.21 | 124 | 4.89 | 6,53 | 14.40 |
| MA30V | | 283 | 11.14 | 10.4 | 0.41 | 6.6 | 0.26 | 107 | 4.21 | 124 | 4.89 | 5,4 | 11.90 |
| MA30W | | 283 | 11.14 | 144 | 5.67 | 7 | 0.28 | 107 | 4.21 | 124 | 4.89 | 6,97 | 15.37 |

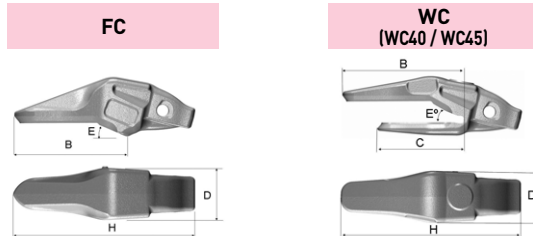
Locking system **Anclajes** Système de clavetage **Sicherung**








| Ref. | | A | | B | | E | | | |
|------------|---|-----|------|----|------|----|------|------|------|
| | | mm | inch | mm | inch | mm | inch | kgs | lbs |
| 1. 2MA30PR | - | 100 | 3.94 | 23 | 0.91 | - | 3/8 | 0,26 | 0.57 |



Construction **Construcción** Construction **Schwerbau**

Adapters **Portadientes** Porte-dents **Zahnhalter**



| Ref. |  |  | |  | | B | | C | | D | | E ° | H | |  | |
|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----|------|-----|------|----|------|---------|-----|-------|-------------------------------------------------------------------------------------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | mm | inch | kgs | lbs |
| 1MA30FC |  | - | - | - | - | 251 | 9.88 | - | - | 93 | 3.66 | 22.5-30 | 387 | 15.24 | 10,6 | 23.37 |
| 1MA30WC40 |  | 40 | 1.57 | - | - | 219 | 8.62 | 170 | 6.69 | 93 | 3.66 | 22.5-30 | 349 | 13.74 | 10,35 | 22.82 |
| 1MA30WC45 |  | 45 | 1.77 | - | - | 219 | 8.62 | 170 | 6.69 | 93 | 3.66 | 22.5-30 | 349 | 13.74 | 10,35 | 22.82 |

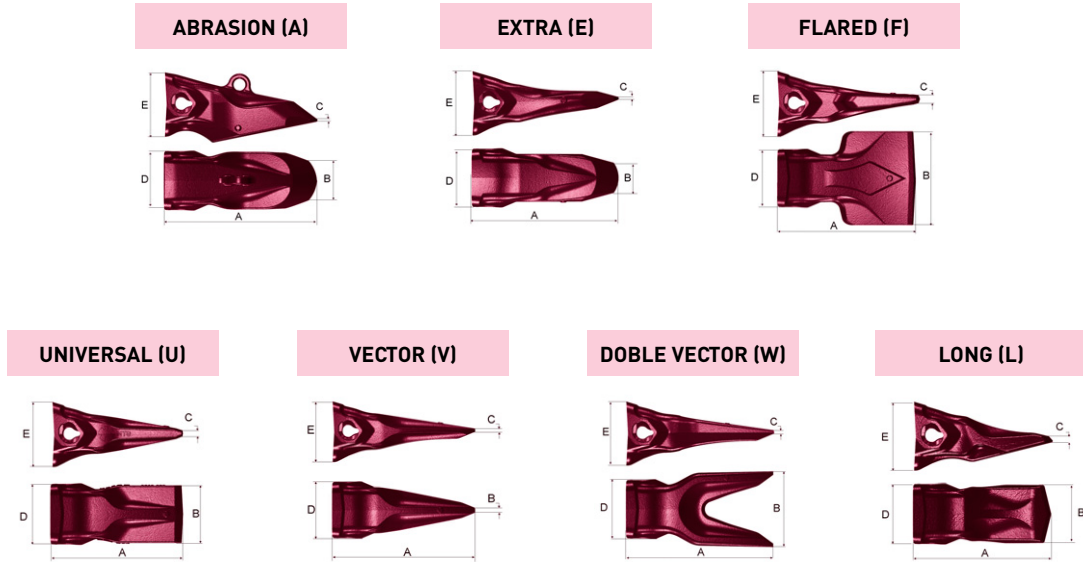
Removal tool **Extractor** Outil d'extraction **Bolzenentferner**



3MTWIST M

Construction **Construcción** Construction **Schwerbau**

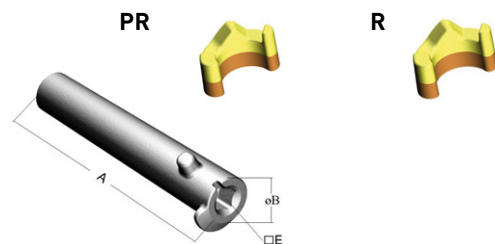
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | | |
|-------|--|-----|-------|-----|------|----|------|-----|------|-----|------|-------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | kgs | lbs |
| MA40A | | 328 | 12.91 | 113 | 4.45 | - | - | 126 | 4.96 | 141 | 5.55 | 15,37 | 33.88 |
| MA40L | | 297 | 11.69 | 130 | 5.12 | - | - | 126 | 4.96 | 141 | 5.55 | - | 0.00 |
| MA40E | | 321 | 12.64 | 70 | 2.76 | 6 | 0.24 | 126 | 4.96 | 141 | 5.55 | 10,4 | 22.93 |
| MA40F | | 306 | 12.07 | 202 | 7.95 | 12 | 0.47 | 126 | 4.96 | 141 | 5.55 | 11,83 | 26.08 |
| MA40U | | 293 | 11.54 | 122 | 4.80 | 10 | 0.39 | 126 | 4.96 | 141 | 5.55 | 9,26 | 20.41 |
| MA40V | | 332 | 13.07 | 8 | 0.31 | 8 | 0.31 | 126 | 4.96 | 141 | 5.55 | 8,13 | 17.92 |
| MA40W | | 332 | 13.07 | 163 | 6.42 | 8 | 0.31 | 126 | 4.96 | 141 | 5.55 | 10,63 | 23.43 |

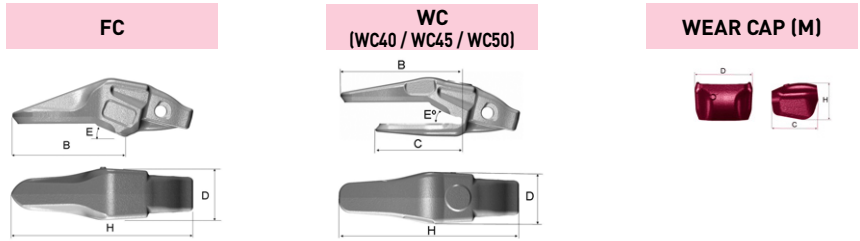
Locking system **Anclajes** Système de clavetage **Sicherung**

| Ref. | A | B | E | | | |
|------------|----|------|----|------|-----|------|
| | mm | inch | mm | inch | kgs | lbs |
| 1. 2MA40PR | - | - | - | - | 1 | 2.20 |



Construction Construcción Construction Schwerbau

Adapters **Portadientes** Porte-dents **Zahnhalter**



| Ref. | | | | | | B | | C | | D | | E | H | | | |
|-----------|--|----|------|----|------|-----|-------|-----|------|-----|------|---------|-----|-------|-------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | ° | mm | inch | kgs | lbs |
| 1MA40FC | | - | - | - | - | 265 | 10.43 | - | - | 113 | 4.45 | 22.5-30 | 456 | 17.95 | 15,76 | 34.74 |
| 1MA40WC40 | | - | - | 12 | 0.47 | 266 | 10.47 | 198 | 7.80 | 114 | 4.49 | 22.5-30 | 409 | 16.10 | 14,16 | 31.22 |
| 1MA40WC45 | | 45 | 1.77 | - | - | 266 | 10.47 | 198 | 7.80 | 114 | 4.49 | 22.5-30 | 409 | 16.10 | 13,9 | 30.64 |
| 1MA40WC50 | | 50 | 2.00 | - | - | 266 | 10.47 | 198 | 7.80 | 114 | 4.49 | 22.5-30 | 409 | 16.10 | 13,63 | 30.05 |
| 4MA40M | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,1 | 4.63 |

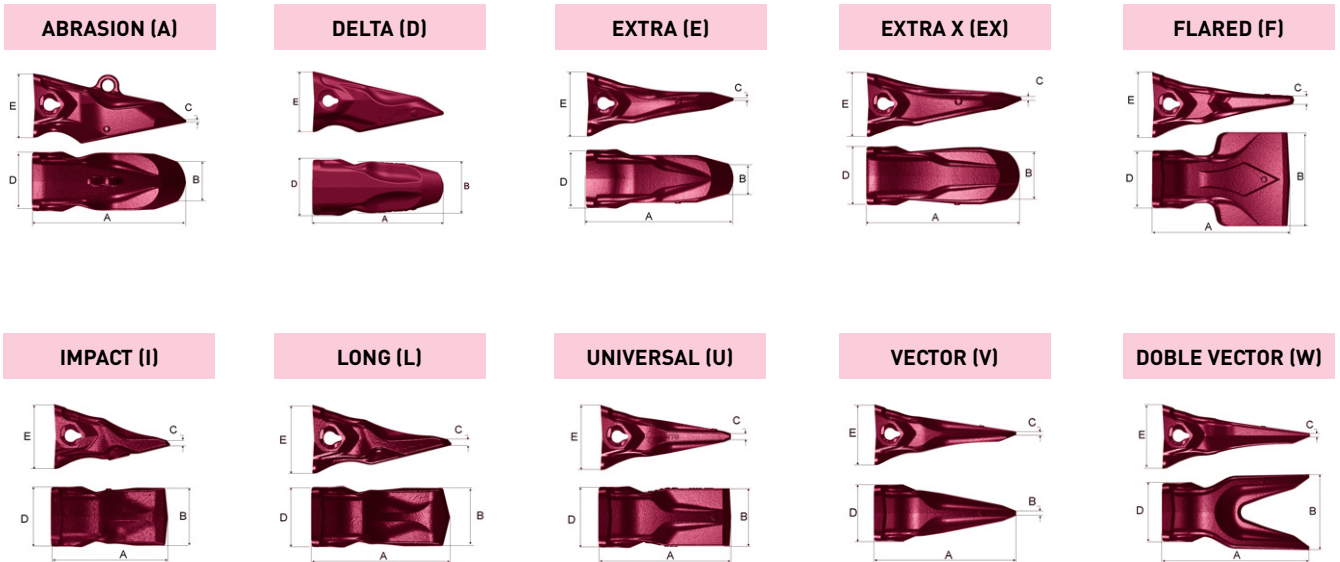
Removal tool **Extractor** Outil d'extraction **Bolzenentferner**



3MTWIST M

Heavy construction Construcción Pesada Construction Lourde Schwerbau

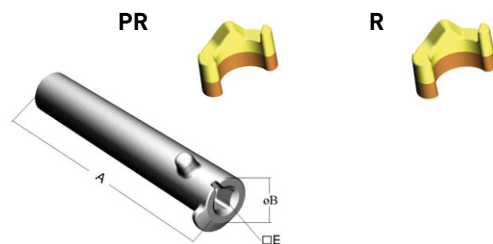
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|--------|--|-----|-------|-----|------|----|------|-----|------|-----|------|-----------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA50A | | 364 | 14.33 | 95 | 3.74 | 7 | 0.28 | 139 | 5.47 | 153 | 6.02 | 23,73 | 52.32 |
| MA50D | | 331 | 13.03 | 130 | 5.12 | - | - | 142 | 5.59 | 153 | 6.02 | 18,1 | 39.68 |
| MA50E | | 347 | 13.66 | 73 | 2.87 | 8 | 0.31 | 139 | 5.47 | 153 | 6.02 | 12,50 | 27.56 |
| MA50EX | | 367 | 14.45 | 115 | 4.53 | 9 | 0.35 | 139 | 5.47 | 153 | 6.02 | 16,93 | 37.32 |
| MA50F | | 335 | 13.19 | 228 | 8.98 | 20 | 0.79 | 139 | 5.47 | 153 | 6.02 | 16,80 | 37.04 |
| MA50I | | 273 | 10.75 | 135 | 5.31 | 14 | 0.55 | 139 | 5.47 | 153 | 6.02 | 11,10 | 24.47 |
| MA50L | | 314 | 12.36 | 138 | 5.43 | 15 | 0.59 | 139 | 5.47 | 156 | 6.14 | 12,57 | 27.71 |
| MA50U | | 309 | 12.17 | 133 | 5.24 | 14 | 0.55 | 139 | 5.47 | 153 | 6.02 | 12,25 | 27.01 |
| MA50V | | 359 | 14.13 | 13 | 0.51 | 8 | 0.31 | 139 | 5.47 | 153 | 6.02 | 10,13 | 22.33 |
| MA50W | | 359 | 14.13 | 181 | 7.13 | 8 | 0.31 | 139 | 5.47 | 153 | 6.02 | 13,70 | 30.20 |

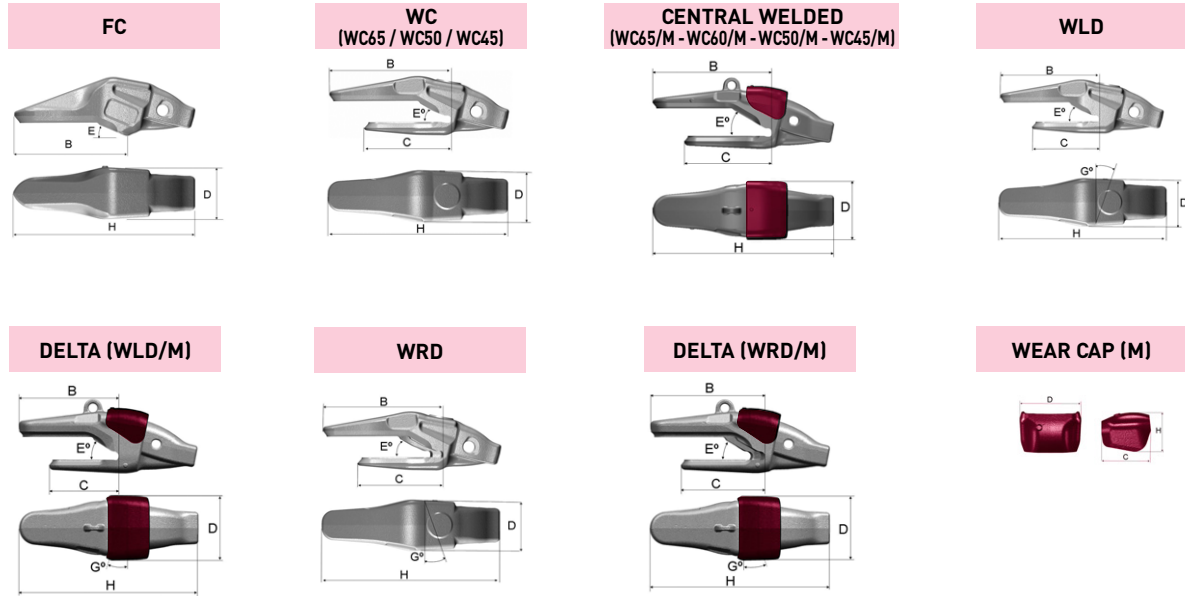
Locking system **Anclajes** Système de clavetage **Sicherung**

| Ref. | | A | | B | | E | | kgs / lbs | |
|--------------|---|-----|------|----|------|----|------|-----------|------|
| | | mm | inch | mm | inch | mm | inch | | |
| 1. 2MA50PR | - | 132 | 5.20 | 28 | 1.10 | - | 1/2 | 0.53 | 1.17 |
| 2. 2MA50/60R | - | | | | | | | | |



Heavy construction **Construcción Pesada** Construction Lourde **Schwerbau**

Adapters **Portadientes** Porte-dents **Zahnhalter**



| Ref. | | | | | | B | | C | | D | | E° | G | H | | | |
|--------------|--|-------|--------|--------|-------------|-----|-------|-----|------|-----|------|---------|----|-----|-------|-------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | | kgs | lbs | | |
| 1MA50FC | | 45-50 | 1,75-2 | - | - | 283 | 11.14 | - | - | 127 | 5 | 22.5 | - | 445 | 17.52 | 20,6 | 45.42 |
| 1MA50WC65 | | 65 | 2.5 | 18+/-3 | 0.7+/-0,12 | 292 | 11.5 | 209 | 8.23 | 127 | 5 | 22.5-30 | - | 440 | 17.32 | 18,3 | 40.34 |
| 1MA50WC65/M | | 65 | 2.5 | 18+/-3 | 0.7+/-0,12 | 292 | 11.5 | 209 | 8.23 | 127 | 5 | 22.5-30 | - | 440 | 17.32 | 20,56 | 45.33 |
| 1MA50WC60 | | 60 | 2.25 | 18+/-3 | 0.7+/-0,12 | 292 | 11.5 | 209 | 8.23 | 127 | 5 | 22.5-30 | - | 440 | 17.32 | 18,3 | 40.34 |
| 1MA50WC60/M | | 60 | 2.25 | 18+/-3 | 0.7+/-0,12 | 292 | 11.5 | 209 | 8.23 | 127 | 5 | 22.5-30 | - | 440 | 17.32 | 20,56 | 45.33 |
| 1MA50WC50 | | 50 | 2.00 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 127 | 5 | 22.5-30 | - | 441 | 17.36 | 18,55 | 40.90 |
| 1MA50WC50/M | | 50 | 2.00 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 127 | 5 | 22.5-30 | - | 441 | 17.36 | 20,81 | 45.88 |
| 1MA50WC45 | | 45 | 1.75 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 126 | 4.98 | 22.5-30 | - | 441 | 17.36 | 18,8 | 41.45 |
| 1MA50WC45/M | | 45 | 1.75 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 127 | 5.00 | 22.5-30 | - | 440 | 17.32 | 21,06 | 46.43 |
| 1MA50WLD50 | | 50 | 2.00 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 126 | 4.96 | 22.5-30 | 15 | 441 | 17.36 | 18,75 | 41.34 |
| 1MA50WLD50/M | | 50 | 2.00 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 127 | 5.00 | 22.5-30 | 15 | 441 | 17.36 | 21,01 | 46.32 |
| 1MA50WRD50 | | 50 | 2.00 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 127 | 5.00 | 22.5-30 | 15 | 441 | 17.36 | 18,75 | 41.34 |
| 1MA50WRD50/M | | 50 | 2.00 | 14+/-2 | 0.55+/-0.08 | 297 | 11.69 | 213 | 8.39 | 127 | 5.00 | 22.5-30 | 15 | 441 | 17.36 | 21,0 | 46.30 |
| 4MA50M | | - | - | - | - | - | - | 75 | 2.95 | 150 | 5.91 | - | - | 96 | 3.78 | 2,26 | 4.98 |

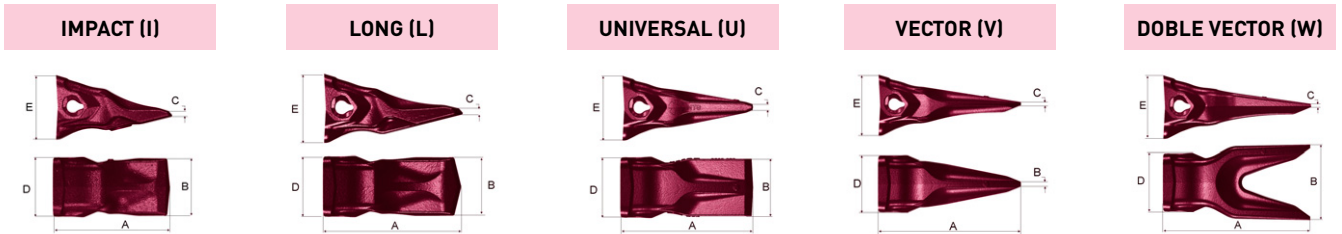
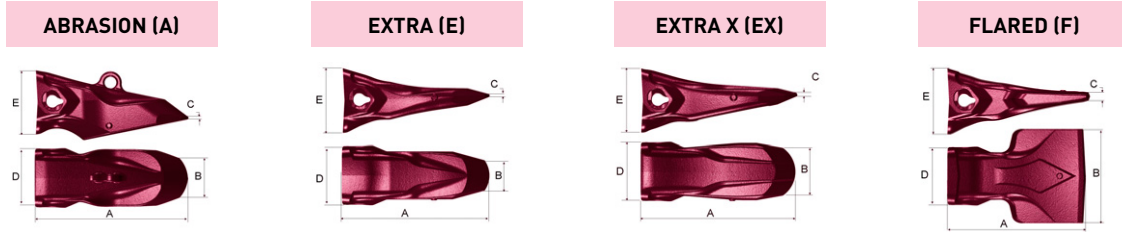
Removal tool **Extractor** Outil d'extraction **Bolzenentferner**



3MTWIST X2

Heavy construction Construcción Pesada Construction Lourde Schwerbau

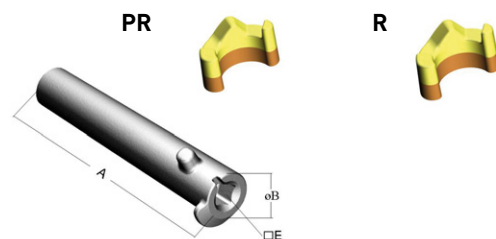
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|--------|--|-----|-------|-----|------|----|------|-----|------|-----|------|-----------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA60A | | 383 | 15.08 | 143 | 5.63 | 5 | 0.2 | 161 | 6.34 | 176 | 6.93 | 29,3 | 64.60 |
| MA60E | | 391 | 15.39 | 123 | 4.84 | - | - | 161 | 6.34 | 176 | 6.93 | 19,55 | 43.10 |
| MA60EX | | 409 | 16.1 | 130 | 5.12 | 13 | 0.51 | 161 | 6.34 | 176 | 6.93 | 24,0 | 52.91 |
| MA60F | | 375 | 14.76 | 245 | 9.65 | 19 | 0.75 | 161 | 6.34 | 176 | 6.93 | 24,8 | 54.67 |
| MA60I | | 305 | 12.01 | 157 | 6.18 | 12 | 0.47 | 161 | 6.34 | 176 | 6.93 | 15,9 | 35.05 |
| MA60L | | 351 | 13.82 | 158 | 6.22 | 18 | 0.71 | 161 | 6.34 | 176 | 6.93 | 19,45 | 42.88 |
| MA60U | | 350 | 13.78 | 139 | 5.47 | - | - | 161 | 6.34 | 176 | 6.93 | 17,53 | 38.65 |
| MA60V | | 407 | 16.02 | 15 | 0.59 | 10 | 0.39 | 161 | 6.34 | 176 | 6.93 | 15,70 | 34.61 |
| MA60W | | 407 | 16.02 | 205 | 8.07 | 10 | 0.39 | 161 | 6.34 | 176 | 6.93 | 19,60 | 43.21 |

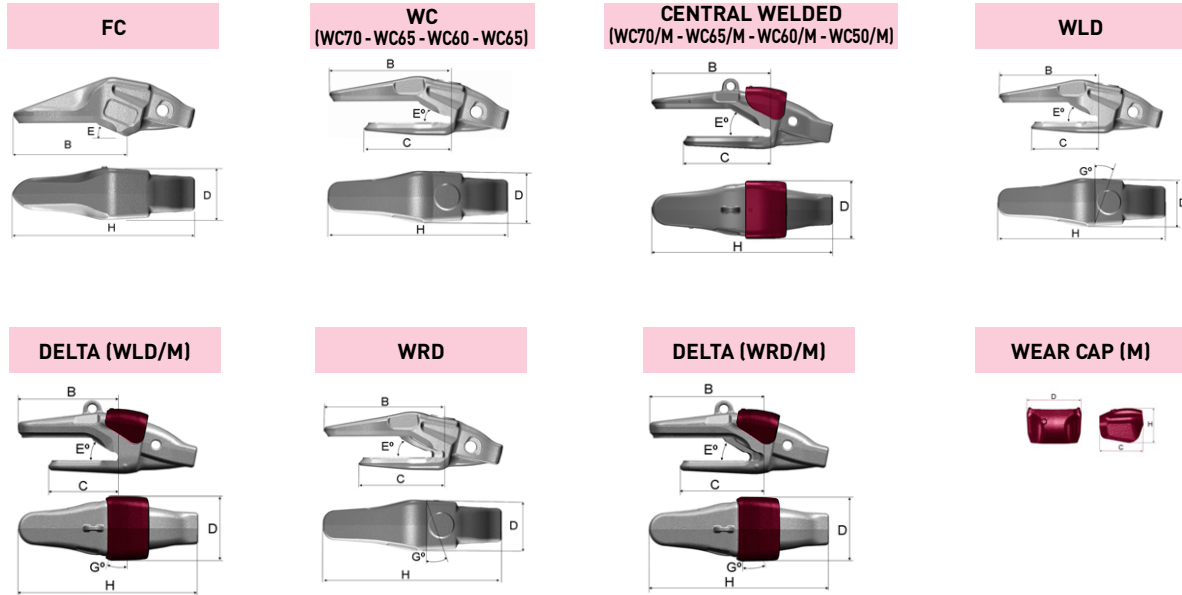
Locking system **Anclajes** Système de clavetage **Sicherung**



















| Ref. | | A | | B | | C | | kgs / lbs | |
|--------------|---|-----|------|----|------|----|------|-----------|------|
| | | mm | inch | mm | inch | mm | inch | | |
| 1. 2MA60PR | - | 150 | 5.2 | 32 | 1.26 | - | 1/2 | 0,8 | 1.76 |
| 2. 2MA50/60R | - | | | | | | | | |



Heavy construction **Construcción Pesada** Construction Lourde **Schwerbau**

Adapters **Portadientes** Porte-dents **Zahnhalter**



| Ref. |  |  | |  | | B | | C | | D | | E | G | H | |  | |
|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|-------------|-----|-------|-----|-------|-----|------|---------|----|-----|-------|---------------------------------------------------------------------------------------|-------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | ° | mm | mm | inch | kgs | lbs |
| 1MA60FC |  | 60-65 | 2.25-2.5 | - | - | 340 | 13.39 | - | - | 145 | 5.71 | 22.5 | - | 521 | 20.51 | 29,95 | 66.03 |
| 1MA60WC70 |  | 70 | 2.75 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 203 | 7.99 | 144 | 5.67 | 22.5-30 | - | 486 | 19.13 | 27,8 | 61.29 |
| 1MA60WC70/M |  | 70 | 2.75 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 204 | 8.03 | 144 | 5.67 | 22.5-30 | - | 486 | 19.13 | 32 | 70.55 |
| 1MA60WC65 |  | 65 | 2.5 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 486 | 19.13 | 145 | 5.71 | 22.5-30 | - | 204 | 8.03 | 28,4 | 62.61 |
| 1MA60WC65/M |  | 65 | 2.5 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 486 | 19.13 | 145 | 5.71 | 22.5-30 | - | 486 | 19.13 | 29,6 | 65.26 |
| 1MA60WC60 |  | 60 | 2.25 | 19+/-2 | 0.75+/-0.08 | 314 | 12.36 | 206 | 8.11 | 145 | 5.71 | 22.5-30 | - | 486 | 19.13 | 28,6 | 63.05 |
| 1MA60WC60/M |  | 60 | 2.25 | 19+/-0 | 0.75+/-0.08 | 314 | 12.36 | 206 | 8.11 | 145 | 5.71 | 22.5-30 | - | 486 | 19.13 | 32,8 | 72.31 |
| 1MA60WC50 |  | 50 | 2 | 18+/-2 | 0.7+/-0.08 | 314 | 12.36 | 206 | 8.11 | 145 | 5.71 | 22.5-30 | - | 486 | 19.13 | 29,5 | 65.04 |
| 1MA60WC50/M |  | 50 | 2 | 18+/-2 | 0.7+/-0.08 | 314 | 12.36 | 206 | 8.11 | 145 | 5.71 | 22.5-30 | - | 486 | 19.13 | 33,7 | 74.30 |
| 1MA60WLD65 |  | 65 | 2.5 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 204 | 8.03 | 145 | 5.71 | 22.5-30 | 15 | 486 | 19.13 | 28,7 | 63.27 |
| 1MA60WLD65/M |  | 65 | 2.5 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 204 | 8.03 | 145 | 5.71 | 22.5-30 | 15 | 486 | 19.13 | 32,91 | 72.55 |
| 1MA60WRD65 |  | 65 | 2.5 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 204 | 8.03 | 144 | 5.67 | 22.5-30 | 15 | 486 | 19.13 | 28,7 | 63.27 |
| 1MA60WRD65/M |  | 65 | 2.5 | 20+/-2 | 0.8+/-0.08 | 313 | 12.32 | 204 | 8.03 | 144 | 5.67 | 22.5-30 | 15 | 486 | 19.13 | 32,91 | 72.55 |
| 4MA60M |  | - | - | - | - | - | - | 102 | 4.02 | 178 | 7.01 | - | - | 112 | 4.41 | 4,2 | 9.26 |

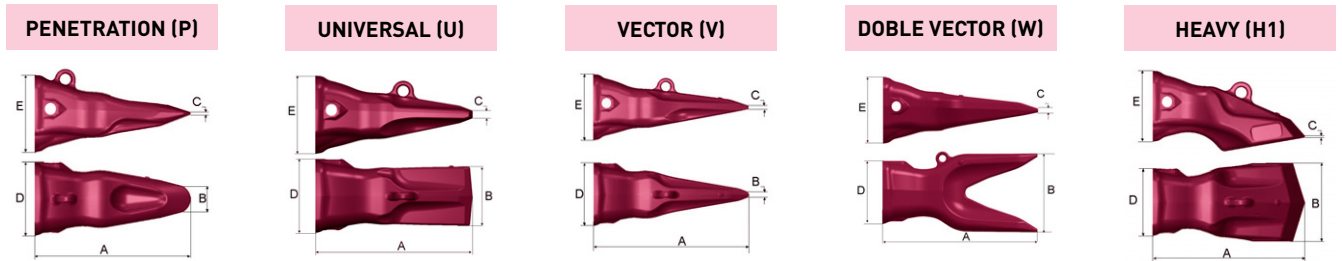
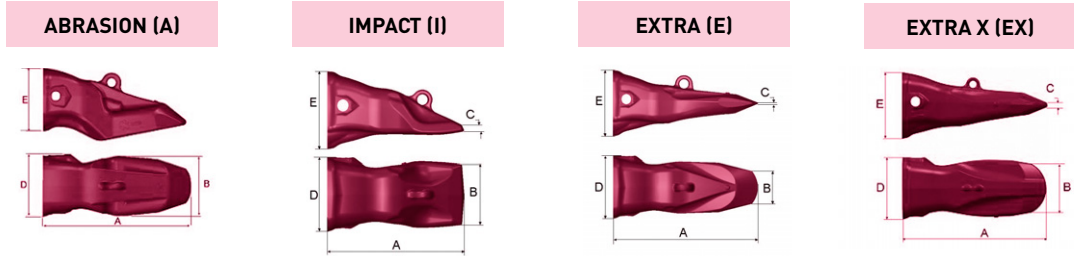
Removal tool **Extractor** Outil d'extraction **Bolzenentferner**



3MTWIST X2

Mining Minería Mine Bergbau

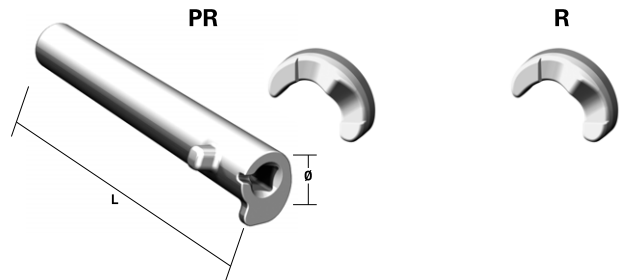
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|---------|--|-----|-------|-----|------|----|------|-----|------|-----|------|-----------|--------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA120A | | 463 | 18.23 | 188 | 7.40 | - | - | 191 | 7.52 | 202 | 7.95 | 48,4 | 106.7 |
| MA120I | | 355 | 13.98 | 158 | 6.22 | 19 | 0.75 | 191 | 7.52 | 202 | 7.95 | 23,95 | 52.80 |
| MA120E1 | | 441 | 17.36 | 100 | 3.94 | 5 | 0.20 | 191 | 7.52 | 202 | 7.95 | 29,00 | 63.93 |
| MA120EX | | 443 | 17.44 | 151 | 5.94 | 16 | 0.63 | 191 | 7.52 | 202 | 7.95 | 33,83 | 74.58 |
| MA120P | | 403 | 15.87 | 66 | 2.60 | 8 | 0.31 | 191 | 7.52 | 202 | 7.95 | 22,43 | 49.45 |
| MA120U | | 397 | 15.63 | 153 | 6.02 | 22 | 0.87 | 191 | 7.52 | 202 | 7.95 | 24,51 | 54.23 |
| MA120V | | 475 | 18.70 | 18 | 0.71 | 12 | 0.47 | 191 | 7.52 | 202 | 7.95 | 23,45 | 51.70 |
| MA120W | | 475 | 18.70 | 241 | 9.49 | 12 | 0.47 | 191 | 7.52 | 202 | 7.95 | 31,00 | 68.34 |
| MA120H1 | | 432 | 17.01 | 224 | 8.82 | 52 | 2.05 | 191 | 7.52 | 202 | 7.95 | 48,30 | 106.48 |

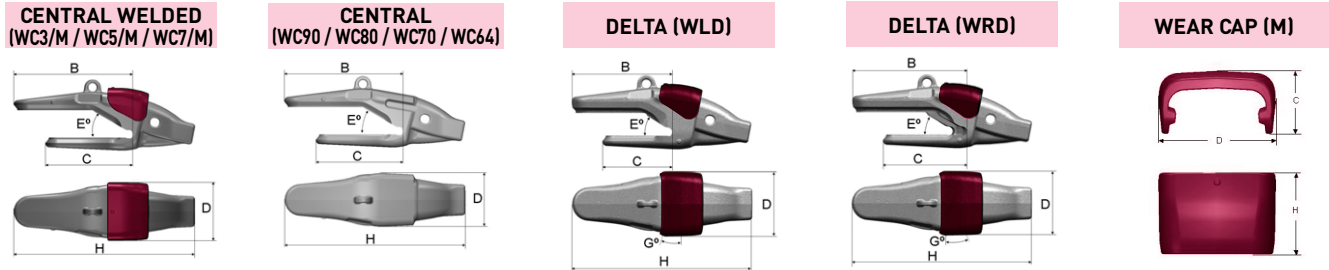
Locking system **Anclajes** Système de clavetage **Sicherung**

| Ref. | mm | ∅ inch | mm | L inch |
|-------------|----|--------|-----|--------|
| 1. 2MA120PR | 30 | | 177 | |
| 2. 2MA120R | | | | |



Mining Minería Mine Bergbau

Adapters Portadientes Porte-dents Zahnhalter



| Ref. | | | | | | B | | C | | D | | E° | H | | | |
|---------------|--|----|------|----|------|-----|-------|-----|-------|-----|------|----|-----|-------|-------|--------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | mm | inch | kgs | lbs |
| 1MA120WC90 | | 90 | 3.54 | 19 | 0.74 | 433 | 17.05 | 326 | 12.83 | 180 | 7.09 | 30 | 678 | 26.69 | 55 | 121.25 |
| 1MA120WC* | | 90 | 3.5 | 19 | 0.75 | 395 | 15.55 | 291 | 11.46 | 180 | 7.09 | 30 | 601 | 23.66 | 47,20 | 104.06 |
| 1MA120WC90/M | | 90 | 3.54 | 19 | 0.74 | 433 | 17.05 | 326 | 12.83 | 180 | 7.09 | 30 | 678 | 26.69 | 55 | 121.25 |
| 1MA120WC/M* | | 90 | 3.5 | 19 | 0.75 | 395 | 15.55 | 291 | 11.46 | 180 | 7.09 | 30 | 601 | 23.66 | 52,92 | 116.67 |
| 1MA120WC80 | | 80 | 3.14 | 19 | 0.74 | 433 | 17.05 | 326 | 12.83 | 208 | 8.19 | 30 | 678 | 26.69 | 55 | 121.25 |
| 1MA120WC3* | | 80 | 3.15 | 19 | 0.75 | 395 | 15.55 | 291 | 11.46 | 180 | 7.09 | 30 | 601 | 23.66 | 48,50 | 106.92 |
| 1MA120WC80/M | | 80 | 3.14 | 19 | 0.74 | 433 | 17.05 | 326 | 12.83 | 208 | 8.19 | 30 | 678 | 26.69 | 55 | 121.25 |
| 1MA120WC3/M* | | 80 | 3.15 | 19 | 0.75 | 395 | 15.55 | 291 | 11.46 | 180 | 7.09 | 30 | 601 | 23.66 | 54,22 | 119.5 |
| 1MA120WC70 | | 70 | 2.75 | 19 | 0.74 | 393 | 15.47 | 320 | 12.60 | 180 | 7.09 | 30 | 640 | 25.20 | 55,9 | 123.24 |
| 1MA120WC5* | | 70 | 2.75 | 19 | 0.75 | 359 | 14.13 | 284 | 11.18 | 180 | 7.09 | 30 | 565 | 22.24 | 47,10 | 103.84 |
| 1MA120WC70/M | | 70 | 2.75 | 19 | 0.74 | 393 | 15.47 | 320 | 12.60 | 208 | 8.19 | 30 | 640 | 25.20 | 61,6 | 135.80 |
| 1MA120WC5/M* | | 70 | 2.75 | 19 | 0.74 | 359 | 14.13 | 284 | 11.18 | 180 | 7.09 | 30 | 565 | 22.24 | 52,82 | 116.4 |
| 1MA120WC65 | | 65 | 2.51 | 19 | 0.74 | 393 | 15.47 | 320 | 12.60 | 180 | 7.09 | 30 | 640 | 25.20 | 56,9 | 125.44 |
| 1MA120WC7* | | 64 | 2.5 | 19 | 0.75 | 359 | 14.13 | 284 | 11.18 | 180 | 7.09 | 30 | 565 | 22.24 | 47,95 | 105.71 |
| 1MA120WC65/M | | 65 | 2.56 | 19 | 0.74 | 392 | 15.43 | 320 | 12.60 | 208 | 8.19 | 30 | 640 | 25.20 | 62,6 | 138.01 |
| 1MA120WC7/M* | | 64 | 2.5 | 19 | 0.75 | 359 | 14.13 | 284 | 11.18 | 180 | 7.09 | 30 | 565 | 22.24 | 53,67 | 118.32 |
| 1MA120WLD70 | | 70 | 2.75 | 19 | 0.75 | 387 | 15.24 | 315 | 12.40 | 180 | 7.09 | 30 | 640 | 25.20 | 55,8 | 123.02 |
| 1MA120WLD70/M | | 70 | 2.75 | 19 | 0.75 | 387 | 15.24 | 315 | 12.40 | 180 | 7.09 | 30 | 640 | 25.20 | 55,8 | 123.02 |
| 1MA120WRD70 | | 70 | 2.75 | 19 | 0.75 | 387 | 15.24 | 315 | 12.40 | 180 | 7.09 | 30 | 640 | 25.20 | 55,8 | 123.02 |
| 1MA120WRD70/M | | 70 | 2.75 | 19 | 0.75 | 387 | 15.24 | 315 | 12.40 | 180 | 7.09 | 30 | 640 | 25.20 | 55,8 | 123.02 |
| 1MA120WLD80 | | 80 | 3.15 | 19 | 0.75 | 393 | 15.47 | 320 | 12.60 | 180 | 7.09 | 30 | 678 | 26.69 | 57,7 | 127.21 |
| 1MA120WLD80/M | | 80 | 3.15 | 19 | 0.75 | 393 | 15.47 | 320 | 12.60 | 208 | 8.19 | 30 | 678 | 26.69 | 63,4 | 139.77 |
| 1MA120WRD80 | | 80 | 3.15 | 19 | 0.75 | 393 | 15.47 | 320 | 12.60 | 180 | 7.09 | 30 | 678 | 26.69 | 57,7 | 127.21 |
| 1MA120WRD80/M | | 80 | 3.15 | 19 | 0.75 | 393 | 15.47 | 320 | 12.60 | 208 | 8.19 | 30 | 678 | 26.69 | 63,4 | 139.77 |
| 4MA120M | | - | - | - | - | - | - | 104 | 4.09 | 208 | 8.19 | - | 129 | 5.08 | 5,72 | 12.6 |

* Keep reference while stock lasts Referencia a mantener hasta fin de existencias Référence à maintenir jusqu'à épuisement de stock Referenzen verfügbar, solange der Vorrat reicht

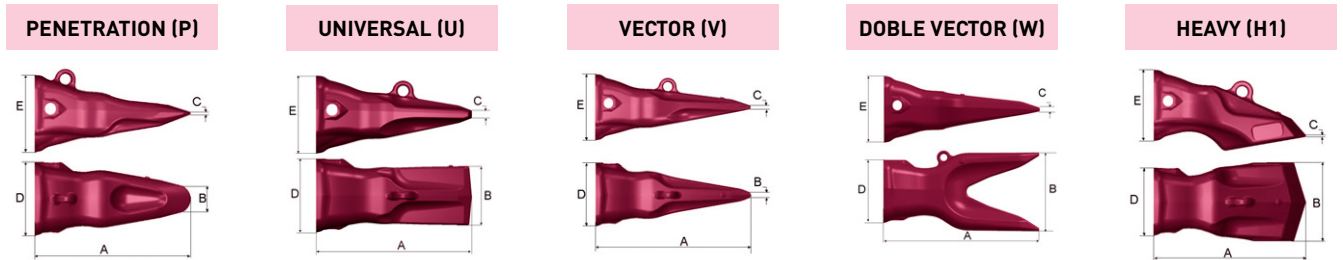
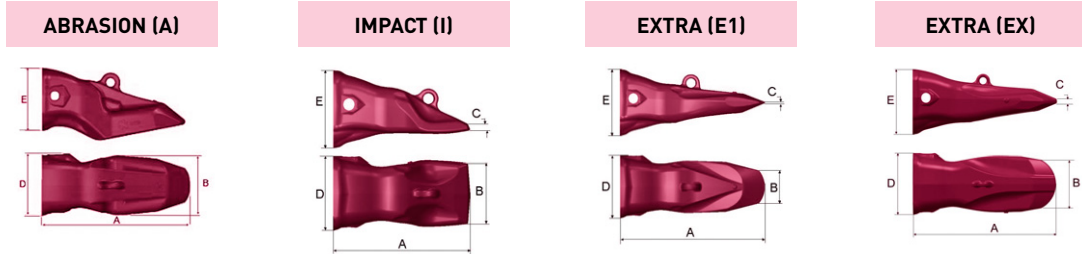
Removal tool Extractor Outil d'extraction Bolzenentferner



3MTWIST X2

Mining Minería Mine Bergbau

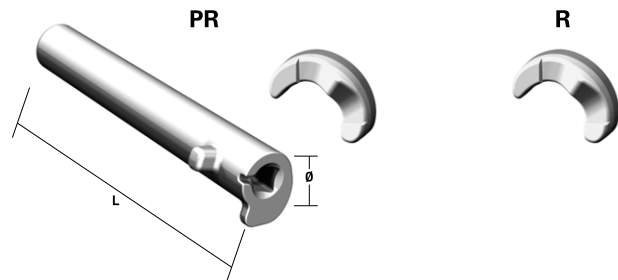
Teeth **Dientes** Dents **Zähne**



| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|---------|--|-----|-------|-----|-------|----|------|-----|------|-----|------|-----------|--------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA180A | | 515 | 20.28 | 207 | 8.15 | - | - | 212 | 8.35 | 227 | 8.94 | 69,47 | 153.15 |
| MA180I | | 408 | 16.06 | 200 | 7.87 | 26 | 1.02 | 212 | 8.35 | 225 | 8.86 | 35,90 | 79.15 |
| MA180E1 | | 492 | 19.37 | 136 | 5.35 | 5 | 0.20 | 212 | 8.35 | 225 | 8.86 | 42,00 | 92.60 |
| MA180EX | | 492 | 19.39 | 202 | 7.96 | 23 | 0.92 | 212 | 8.35 | 225 | 8.86 | 52,36 | 115.43 |
| MA180P | | 448 | 17.64 | 84 | 3.31 | 8 | 0.31 | 212 | 8.35 | 225 | 8.86 | 32,80 | 72.31 |
| MA180U | | 452 | 17.80 | 174 | 6.85 | 20 | 0.79 | 212 | 8.35 | 225 | 8.86 | 36,70 | 80.91 |
| MA180V | | 516 | 20.31 | 10 | 0.39 | 18 | 0.71 | 212 | 8.35 | 225 | 8.86 | 32,50 | 71.65 |
| MA180W | | 516 | 20.31 | 268 | 10.55 | 18 | 0.71 | 212 | 8.35 | 225 | 8.86 | 42,00 | 92.59 |
| MA180H1 | | 492 | 19.37 | 232 | 9.13 | 43 | 1.69 | 212 | 8.35 | 225 | 8.86 | 71,00 | 156.53 |

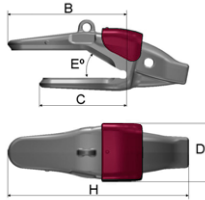
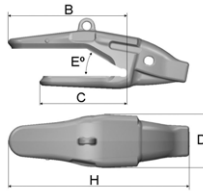
Locking system **Anclajes** Système de clavetage **Sicherung**

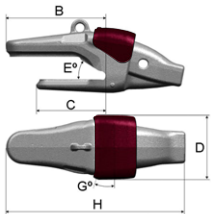
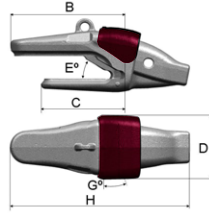
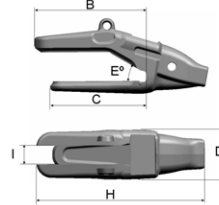
| Ref. | mm | ∅ inch | mm L | inch |
|----------------|------|--------|------|------|
| 1. 2MA180PR | 32.5 | | 196 | |
| 2. 2MA180/240R | | | | |



Mining Minería Mine Bergbau

Adapters Portadientes Porte-dents Zahnhalter

**CENTRAL WELDED
(WC/M / WC3/M / WC5/M)**

**CENTRAL
(WC100 / WC90 / WC80)**

WEARCAP (M)

DELTA (WLD80/90)

DELTA (WRD80/90)

STRADDLE (WS)

WEAR CAP (MS)


| Ref. | | | | | | B | | C | | D | | E | G | I | H | | | |
|---------------|--|-----|------|----|------|-----|-------|-----|-------|-----|------|----|----|----|------|-------|-------|--------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | ° | ° | mm | inch | kgs | lbs | |
| 1MA180WC100 | | 100 | 3.92 | 34 | 1.33 | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | - | - | 717 | 28.23 | 76,6 | 168.87 |
| 1MA180WC* | | 102 | 4.00 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | - | - | 641 | 25.24 | 64,20 | 141.54 |
| 1MA180WC100/M | | 100 | 3.92 | 34 | 1.33 | 445 | 17.52 | 337 | 13.27 | 231 | 9.09 | 30 | - | - | 717 | 28.23 | 85,1 | 187.61 |
| 1MA180WC/M* | | 102 | 4.00 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | - | - | 641 | 25.24 | 72,70 | 160.27 |
| 1MA180WC90 | | 90 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | - | - | 717 | 28.23 | 78,2 | 172.40 |
| 1MA180WC3* | | 90 | 3.5 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | - | - | 641 | 25.24 | 65,20 | 143.74 |
| 1MA180WC90/M | | 90 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 231 | 9.09 | 30 | - | - | 717 | 28.23 | 78,2 | 172.40 |
| 1MA180WC3/M* | | 90 | 3.5 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | - | - | 641 | 25.24 | 73,70 | 162.48 |
| 1MA180WC80 | | 80 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | - | - | 717 | 28.23 | 79,2 | 174.61 |
| 1MA180WC5* | | 80 | 3.15 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | - | - | 641 | 25.24 | 66,90 | 147.49 |
| 1MA180WC80/M | | 80 | 3.15 | 24 | - | 445 | 17.52 | 337 | 13.27 | 231 | 9.09 | 30 | - | - | 717 | 28.23 | 87,7 | 193.35 |
| 1MA180WC5/M* | | 80 | 3.15 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | - | - | 641 | 25.24 | 75,40 | 166.23 |
| 1MA180WLD80 | | 80 | 3.15 | 24 | - | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | 15 | - | 717 | 28.23 | 81,2 | 179.02 |
| 1MA180WLD5* | | 80 | 3.15 | 26 | 1.02 | 358 | 14.09 | 250 | 9.84 | 199 | 7.83 | 30 | 15 | - | 641 | 25.24 | 74,90 | 165.12 |
| 1MA180WLD80/M | | 80 | 3.14 | 24 | - | 445 | 17.52 | 337 | 13.27 | 231 | 9.09 | 30 | 15 | - | 717 | 28.23 | 89,7 | 197.75 |
| 1MA180WRD80 | | 80 | 3.14 | 24 | - | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | 15 | - | 717 | 28.23 | 81,2 | 179.02 |
| 1MA180WRD5* | | 80 | 3.15 | 26 | 1.02 | 409 | 16.10 | 300 | 11.81 | 199 | 7.83 | 30 | 15 | - | 641 | 25.24 | 66,40 | 146.39 |
| 1MA180WRD80/M | | 80 | 3.14 | 24 | - | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | 15 | - | 717 | 28.23 | 89,7 | 197.75 |
| 1MA180WLD90 | | 90 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | 14 | - | 717 | 28.23 | 79,1 | 174.39 |
| 1MA180WLD90/M | | 90 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 231 | 9.09 | 30 | 14 | - | 717 | 28.23 | 87,6 | 193.12 |
| 1MA180WRD90 | | 90 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 200 | 7.87 | 30 | 14 | - | 717 | 28.23 | 79,1 | 174.39 |
| 1MA180WRD90/M | | 90 | 3.54 | 26 | 1.02 | 445 | 17.52 | 337 | 13.27 | 231 | 9.09 | 30 | 14 | - | 717 | 28.23 | 87,6 | 193.12 |
| 1MA180WS90 | | 90 | 3.54 | 24 | - | 444 | 17.48 | 341 | 13.43 | 198 | 7.80 | 30 | 14 | - | 719 | 28.31 | 77,7 | 171.30 |
| 1MA180WS3* | | 90 | 3.5 | - | - | 407 | 16.02 | 300 | 11.81 | 199 | 7.83 | 30 | - | 70 | 639 | 25.16 | 64 | 141.10 |
| 4MA180M | | - | - | - | - | - | - | 117 | 4.61 | 231 | 9.09 | - | - | - | 148 | 5.83 | 8,50 | 18.74 |
| 4MA180MS | | - | - | - | - | - | - | 148 | 5.83 | 231 | 9.09 | - | - | - | 117 | 4.61 | 8 | 17.6 |

* Keep reference while stock lasts Referencia a mantener hasta fin de existencias Référence à maintenir jusqu'à épuisement de stock Referenzen verfügbar, solange der Vorrat reicht

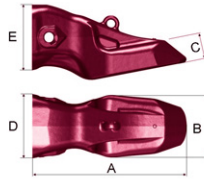
Removal tool Extractor Outil d'extraction Bolzenentferner


3MTWIST X2

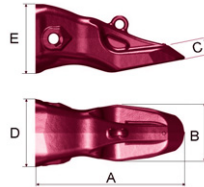
Mining Minería Mine Bergbau

Teeth **Dientes** Dents **Zähne**

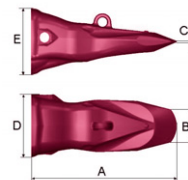
ABRASION (A)



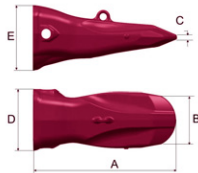
DELTA (D)



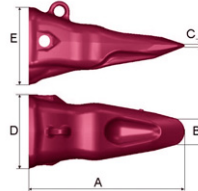
EXTRA (E)



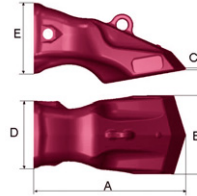
EXTRA (EX)



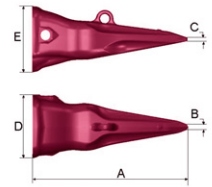
PENETRATION (P)



HEAVY (H)



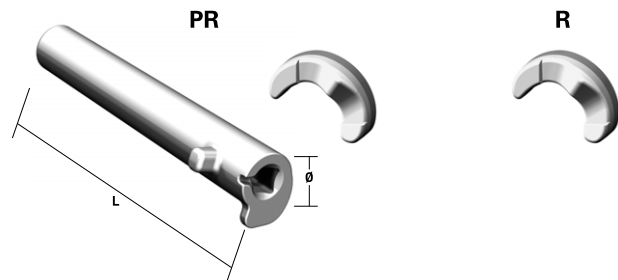
VECTOR (V)



| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|---------|--|-----|-------|-----|-------|----|------|-----|------|-----|------|-----------|--------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA240A | | 579 | 22.80 | 234 | 9.21 | 93 | 3.66 | 242 | 9.53 | 246 | 9.69 | 97,4 | 214.73 |
| MA240D | | 526 | 20.71 | 201 | 7.94 | 60 | 2.36 | 242 | 9.53 | 246 | 9.69 | 59,9 | 132.06 |
| MA240E1 | | 522 | 20.55 | 139 | 5.47 | 6 | 0.24 | 242 | 9.53 | 246 | 9.69 | 51,00 | 112.44 |
| MA240EX | | 524 | 20.61 | 214 | 8.44 | 23 | 0.92 | 242 | 9.53 | 246 | 9.69 | 62,70 | 138.23 |
| MA240P | | 481 | 18.94 | 63 | 2.48 | 6 | 0.24 | 242 | 9.53 | 246 | 9.69 | 40,70 | 89.73 |
| MA240V | | 567 | 22.32 | 20 | 0.79 | 20 | 0.79 | 242 | 9.53 | 246 | 9.69 | 45,00 | 99.21 |
| MA240H1 | | 530 | 20.87 | 273 | 10.75 | 55 | 2.17 | 242 | 9.53 | 246 | 9.69 | 96,00 | 211.64 |

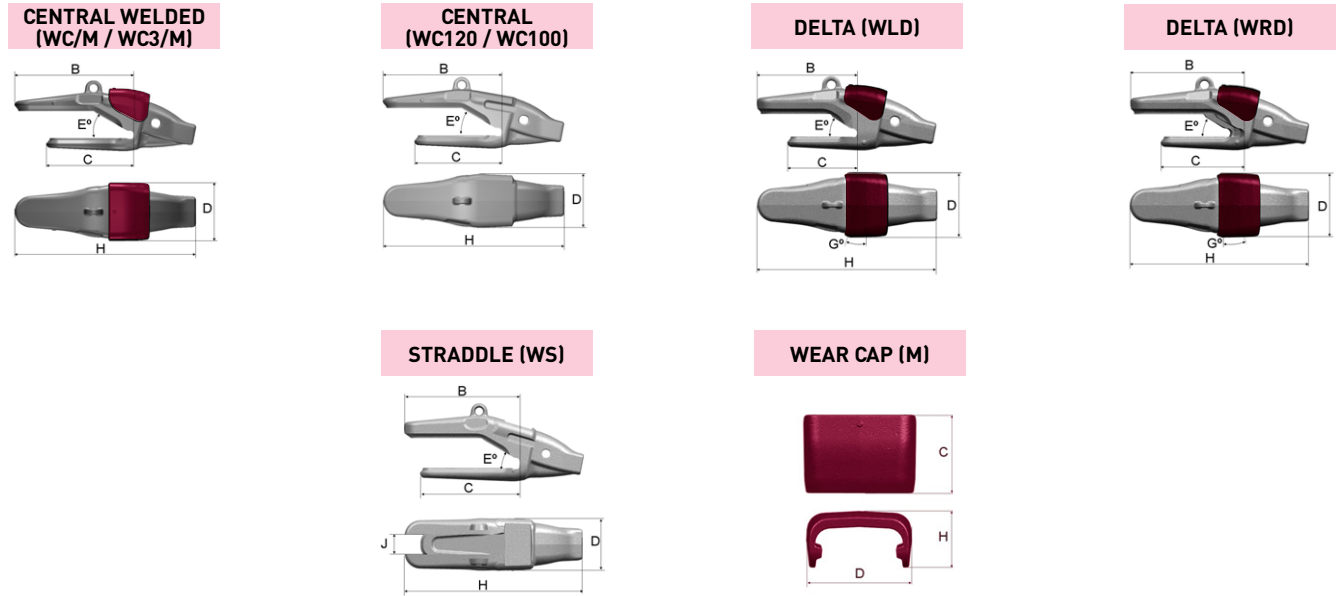
Locking system **Anclajes** Système de clavetage **Sicherung**

| Ref. | Ø | | L | |
|----------------|----|------|-----|------|
| | mm | inch | mm | inch |
| 1. 2MA240PR | 37 | | 213 | |
| 2. 2MA180/240R | | | | |



Mining Minería Mine Bergbau

Adapters Portadientes Porte-dents Zahnhalter



| Ref. | | | | | | B | | C | | D | | E° | H | | J | | kgs / lbs |
|----------------|--|-----|------|----|-------------|-----|-------|-----|-------|-----|------|----|------|-------|--------|--------|-----------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | | | |
| 1MA240WC120 | | 120 | 4.75 | 44 | - | 566 | 22.28 | 421 | 16.57 | 218 | 8.58 | 30 | 877 | 34.53 | 119,4 | 263.23 | |
| 1MA240WC* | | 120 | 4.75 | 31 | 1.22+/-0.16 | 581 | 22.87 | 431 | 16.97 | 219 | 8.62 | 30 | 841 | 33.11 | 103,50 | 228.18 | |
| 1MA240WC120/M | | 120 | 4.75 | 44 | - | 566 | 22.28 | 421 | 16.57 | 245 | 9.65 | 30 | 877 | 34.53 | 130,7 | 288.14 | |
| 1MA240WC/M* | | 120 | 4.75 | 31 | 1.22+/-0.16 | 581 | 22.87 | 431 | 16.97 | 219 | 8.62 | 30 | 841 | 33.11 | 114,83 | 253.15 | |
| 1MA240WC100 | | 120 | 3.94 | 31 | 1.22+/-0.16 | 566 | 22.28 | 421 | 16.57 | 218 | 8.58 | 30 | 877 | 34.53 | 124,6 | 274.70 | |
| 1MA240WC3* | | 120 | 3.94 | 31 | 1.22+/-0.16 | 581 | 22.87 | 431 | 16.97 | 219 | 8.62 | 30 | 841 | 33.11 | 108,60 | 239.42 | |
| 1MA240WC100/M | | 120 | 3.94 | 31 | 1.22+/-0.16 | 566 | 22.28 | 421 | 16.57 | 245 | 9.65 | 30 | 877 | 34.53 | 136 | 299.83 | |
| 1MA240WC3/M* | | 120 | 3.94 | 31 | 1.22+/-0.16 | 581 | 22.87 | 431 | 16.97 | 219 | 8.62 | 30 | 841 | 33.11 | 119,93 | 264.40 | |
| 1MA240WS100 | | 120 | 3.94 | 34 | 1.33 | 574 | 22.60 | 427 | 16.81 | 224 | 8.82 | 30 | 876 | 34.49 | 126,9 | 279.77 | |
| 1MA240WS3* | | 120 | 3.94 | - | - | 579 | 22.80 | 431 | 16.97 | 224 | 8.82 | 30 | 839 | 33.03 | 75 | 114 | 251.33 |
| 1MA240WLD100 | | 100 | 3.94 | 31 | 1.22+/-0.16 | 566 | 22.28 | 421 | 16.57 | 218 | 8.58 | 30 | 877 | 34.53 | 125,1 | 275.8 | |
| 1MA240WLD100/M | | 100 | 3.94 | 31 | 1.22+/-0.16 | 566 | 22.28 | 421 | 16.57 | 218 | 8.58 | 30 | 877 | 34.53 | 136,4 | 300.71 | |
| 1MA240WRD100 | | 100 | 3.94 | 31 | 1.22+/-0.16 | 566 | 22.28 | 421 | 16.57 | 218 | 8.58 | 30 | 877 | 34.53 | 125,1 | 275.8 | |
| 1MA240WRD100/M | | 100 | 3.94 | 31 | 1.22+/-0.16 | 566 | 22.28 | 421 | 16.57 | 218 | 8.58 | 30 | 877 | 34.53 | 136,4 | 300.71 | |
| 4MA240M | | - | - | - | - | - | - | 140 | 5.51 | 245 | 9.65 | - | 164 | 6.46 | 11,33 | 24.98 | |

* Keep reference while stock lasts Referencia a mantener hasta fin de existencias Référence à maintenir jusqu'à épuisement de stock Referenzen verfügbar, solange der Vorrat reicht

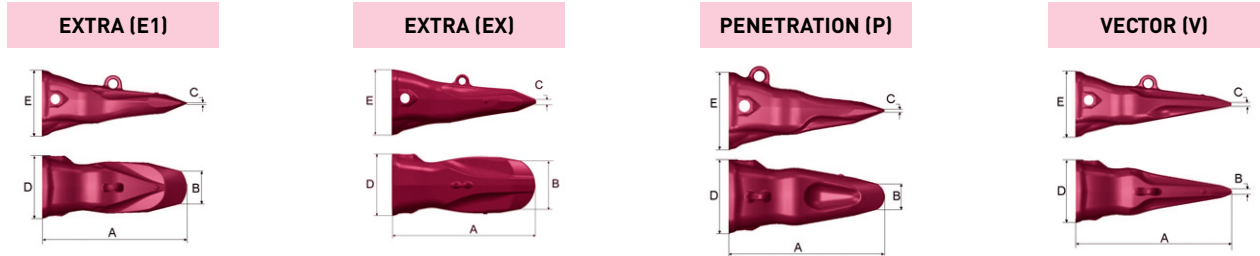
Removal tool Extractor Outil d'extraction Bolzenentferner



3MTWIST X2

Mining Minería Mine Bergbau

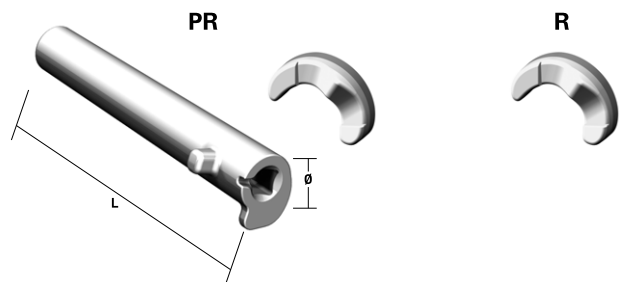
Teeth **Dientes** Dents **Zähne**

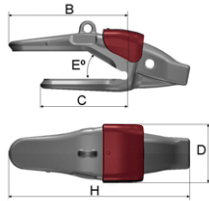
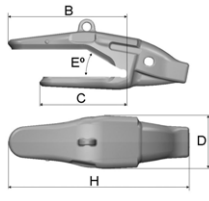
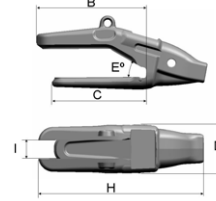
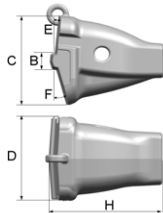


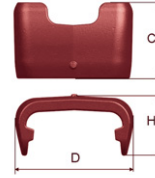
| Ref. | | A | | B | | C | | D | | E | | kgs / lbs | |
|---------|--|-----|-------|-----|------|----|------|-----|-------|-----|-------|-----------|--------|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | | |
| MA500E1 | | 588 | 23.15 | 154 | 6.06 | 7 | 0.28 | 277 | 10.91 | 294 | 11.57 | 78,00 | 171.96 |
| MA500EX | | 588 | 23.15 | 202 | 7.96 | 25 | 0.97 | 277 | 10.90 | 294 | 11.57 | 95,00 | 209.44 |
| MA500P | | 551 | 21.69 | 105 | 4.13 | 7 | 0.28 | 277 | 10.91 | 294 | 11.57 | 69,00 | 152.12 |
| MA500V | | 595 | 23.43 | 23 | 0.91 | 16 | 0.63 | 277 | 10.91 | 294 | 11.57 | 65,62 | 144.67 |

Locking system **Anclajes** Système de clavetage **Sicherung**

| Ref. | mm | ∅ inch | L | |
|-------------|----|--------|-----|------|
| | | | mm | inch |
| 1. 2MA500PR | 41 | | 246 | |
| 2. 2MA500R | | | | |



Mining Minería Mine Bergbau
CENTRAL WELDED
(WC/M / WC3/M / WC5/M)

CENTRAL
(WC140 / WC127 / WC120)

STRADDLE (WS)

WELD-ON NOSE (WN)

WEAR CAP (M)

WEAR CAP (MS)


| Ref. | | | | | | B | | C | | D | | E° | | F° | | I | | H | | | |
|---------------|--|-----|------|--------|-------------|-------|-------|-------|-------|-------|-------|----|------|----|-------|-------|--------|--------|------|-----|-----|
| | | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | kgs | lbs |
| 1MA500WC100 | | 100 | 3.93 | 34 | 1.34 | 582 | 22.91 | 508 | 20.00 | 246 | 9.69 | 30 | - | - | 930 | 35.55 | 182 | 401.24 | | | |
| 1MA500WC7* | | " | " | " | " | " | " | " | " | " | " | " | - | - | " | " | 177,75 | 391.87 | | | |
| 1MA500WC100/M | | 100 | 3.93 | 34 | 1.34 | 582 | 22.91 | 508 | 20.00 | 289 | 11.38 | 30 | - | - | 930 | 35.55 | 200,5 | 442.03 | | | |
| 1MA500WC140 | | 140 | 5.51 | 48 | 1.89 | 582 | 22.91 | 508 | 20.00 | 246 | 9.69 | 30 | - | - | 930 | 35.55 | 172,5 | 380.30 | | | |
| 1MA500WC* | | 140 | 5.5 | 43 | 1.69+/-0.12 | 543 | 21.38 | 465 | 18.31 | 248 | 9.76 | 30 | - | - | 842 | 33.15 | 146,25 | 322.42 | | | |
| 1MA500WC140/M | | 140 | 5.51 | 48 | 1.89 | 582 | 22.91 | 508 | 20.00 | 289 | 11.38 | 30 | - | - | 930 | 35.55 | 190,5 | 419.98 | | | |
| 1MA500WC/M* | | 140 | 5.5 | 43+/-3 | 1.69+/-0.12 | 543 | 21.38 | 465 | 18.31 | 248 | 9.76 | 30 | - | - | 842 | 33.15 | 164,50 | 362.67 | | | |
| 1MA500WC130 | | 127 | 5.00 | 44 | 1.73 | 582 | 22.91 | 508 | 20.00 | 246 | 9.69 | 30 | - | - | 930 | 35.55 | 174,5 | 384.71 | | | |
| 1MA500WC3* | | 127 | 5.00 | 43+/-3 | 1.69+/-0.12 | 543 | 21.38 | 465 | 18.31 | 248 | 9.76 | 30 | - | - | 842 | 33.15 | 150,00 | 330.69 | | | |
| 1MA500WC130/M | | 127 | 5.00 | 44 | 1.73 | 582 | 22.91 | 508 | 20.00 | 289 | 11.38 | 30 | - | - | 930 | 35.55 | 192,5 | 424.39 | | | |
| 1MA500WC3/M* | | 127 | 5.00 | 43+/-3 | 1.69+/-0.12 | 543 | 21.38 | 465 | 18.31 | 248 | 9.76 | 30 | - | - | 842 | 33.15 | 168,25 | 370.92 | | | |
| 1MA500WC120 | | 120 | 4.72 | 44 | 1.73 | 582 | 22.91 | 508 | 20.00 | 246 | 9.69 | 30 | - | - | 930 | 35.55 | 177,5 | 391.32 | | | |
| 1MA500WC5* | | 120 | 4.75 | 43+/-3 | 1.69+/-0.12 | 543 | 21.38 | 465 | 18.31 | 248 | 9.76 | 30 | - | - | 842 | 33.15 | 152,00 | 335.10 | | | |
| 1MA500WC120/M | | 120 | 4.72 | 44 | 1.73 | 582 | 22.91 | 508 | 20.00 | 289 | 11.38 | 30 | - | - | 930 | 35.55 | 195,5 | 431.00 | | | |
| 1MA500WC5/M* | | 120 | 4.75 | 43+/-3 | 1.69+/-0.12 | 543 | 21.38 | 465 | 18.31 | 248 | 9.76 | 30 | - | - | 842 | 33.15 | 170,25 | 375.33 | | | |
| 1MA500WS140 | | 140 | 5.51 | 48 | 1.89 | 576,4 | 22.69 | 506,2 | 19.93 | 244,8 | 9.64 | 30 | - | - | 920,3 | 36.23 | 172,5 | 380.30 | | | |
| 1MA500WS* | | 140 | 5.5 | - | - | 540 | 21.26 | 465 | 18.31 | 248 | 9.76 | 30 | - | 90 | 840 | 33.07 | 139,5 | 307.54 | | | |
| 1MA500WS120 | | 120 | 4.72 | 44 | 1.73 | 576,4 | 22.69 | 506,2 | 19.93 | 244,8 | 9.64 | 30 | - | - | 920,3 | 36.23 | 166,5 | 367.07 | | | |
| 1MA500WS5* | | 120 | 4.75 | - | - | 540 | 21.26 | 465 | 18.31 | 248 | 9.76 | 30 | - | 90 | 840 | 33.07 | 146,5 | 322.97 | | | |
| 1MA500WN | | - | - | - | - | 47 | 1.85 | 261 | 10.28 | 233 | 9.17 | 6 | 16 | - | 323 | 12.72 | 65,66 | 144.76 | | | |
| 4MA500M | | - | - | - | - | - | - | 157 | 6.18 | 289 | 11.38 | - | - | - | 203 | 7.99 | 18,25 | 40.23 | | | |
| 4MA500MS | | - | - | - | - | - | - | 203 | 7.99 | 289 | 11.38 | - | - | - | 157 | 6.18 | 19,00 | 41.89 | | | |

* Keep reference while stock lasts Referencia a mantener hasta fin de existencias Référence à maintenir jusqu'à épuisement de stock Referenzen verfügbar, solange der Vorrat reicht

Removal tool Extractor Outil d'extraction Bolzentferner

3MTWIST X2

The new series of STARMET adapters

1. The new series of STARMET adapters (see “new reference” in table on p.3), will be the only ones compatible with both ranges of protectors; the current PROMET and the future launches of PROMET II.

Therefore, the new adapter references (see “new reference” column in table on p.3), CAN be installed alongside the old PROMET protectors, as well as alongside the new references of the PROMET II range.

2. The current series of adapters (see “current reference” column in table on p.3), will NOT be compatible with the new PROMET II range.

Therefore, the current references (see “current reference” column in table on p.3), CANNOT be installed with the new references of the PROMET II range.

Illustrative table 1 and 2

| Compatibles | PROMET | PROME II |
|----------------------------|--------|----------|
| New Adapter References | YES | YES |
| Current Adapter References | YES | NO |

3. With regards to the compatibility of teeth, “wear cap” protectors and anchors with tooth adapters, it should be noted that ALL these elements that came installed in the old tooth adapters, Can continue to be installed in the new tooth adapters.

Illustrative table

| | New Adapter References | Current Adapter References |
|-----------------------|------------------------|----------------------------|
| Teeth | YES | YES |
| Wear Cap Protectors | YES | YES |
| Others (Pin retainer) | YES | YES |

Nueva serie de Adaptadores StarMet

1. La nueva serie de adaptadores STARMET (ver columna “new reference” en la tabla pag.3), será la única compatible con ambas gamas de protectores, los actuales PROMET y los futuros lanzamientos de PROMET II.

De esta forma, las nuevas referencias de adaptadores (ver columna “new reference” en la tabla pag.3), **SÍ** se podrán instalar junto con los antiguos protectores PROMET, a la vez también con las nuevas referencias de gama PROMET II.

2. La actual serie de adaptadores (ver columna “current reference” en la tabla pag.3), **NO** será compatible con la nueva gama PROMET II.

De esta forma, las referencias vigentes (ver columna “current reference” en la tabla pag.3), **NO** se podrán instalar con las nuevas referencias de gama PROMET II.

Tabla ilustrativa 1 y 2

| Compatibles | PROMET | PROMET II |
|-------------------------------|--------|-----------|
| Nuevas Referencias Adapters | SI | SI |
| Referencias Vigentes Adapters | SI | NO |

3. Por lo que respecta a la compatibilidad de dientes, protectores “wear cap” y anclajes con portadientes, reseñar que TODOS estos elementos que se venían instalando en los portadientes antiguos, **SÍ** se podrán seguir instalando en los nuevos portadientes.

Tabla ilustrativa

| | Nuevas Referencias Adapters | Referencias Vigentes Adapters |
|------------------------|-----------------------------|-------------------------------|
| Dientes | SI | SI |
| Protectores Wear Cap | SI | SI |
| Others (Pin retenedor) | SI | SI |

La nouvelle série d'adaptateurs STARMET

1. La nouvelle série d'adaptateurs STARMET (voir colonne «nouvelle référence» dans le tableau de la page 3) sera la seule compatible avec les deux gammes de protecteurs, les PROMET actuels et les futurs lancements de PROMET II.

OUI, les nouvelles références d'adaptateurs (voir colonne «nouvelle référence» dans le tableau de la page 3) seront compatibles avec les anciens protecteurs PROMET mais aussi avec les nouvelles référence de la gamme PROMET II.

2. NON, la série d'adaptateurs actuelle (voir colonne «référence actuelle» dans le tableau de la page 3) ne sera pas compatible avec la nouvelle gamme PROMET II.

NON, les références en vigueur (voir colonne «référence actuelle» dans le tableau de la page 3) ne seront pas compatibles avec les nouvelles références de la gamme PROMET II.

Tabla ilustrativa 1 y 2

| Compatibles | PROMET | PROMET II |
|----------------------------------|--------|-----------|
| Nouvelles références adaptateurs | OUI | OUI |
| Referencias Vigentes Adapters | OUI | NON |

3. En ce qui concerne la compatibilité des dents, protecteurs «wear cap» et fixations avec porte-dents, **OUI**, TOUS ces éléments montés sur les anciens porte-dents pourront encore être montés sur les nouveaux porte-dents.

Tableau récapitulatif

| | Nouvelles références adaptateurs | Références adaptateurs en vigueur |
|-----------------------------------------|----------------------------------|-----------------------------------|
| Dents | OUI | OUI |
| Protecteurs Wear Cap | OUI | OUI |
| Autres (clavette et élément de blocage) | OUI | OUI |

Die neue Adapterserie STARMET

1. Die neue Adapterserie STARMET (siehe Spalte „New Reference“ in Tabelle Seite 3) wird die einzige sein, die mit beiden Schutzabdeckungen, der aktuellen Produktreihe PROMET und der neuen PROMET II, kompatibel ist.

Auf diese Weise **ist es möglich**, die neuen Adapter-Referenzen (siehe Spalte „New Reference“ in Tabelle Seite 3) sowohl mit den alten Schutzabdeckungen PROMET als auch mit den neuen Referenzen der Produktreihe PROMET II zu installieren.

2. Die aktuelle Adapterreihe (siehe Spalte „Current Reference“ in Tabelle Seite 3) ist **nicht** mit der neuen Produktreihe PROMET II kompatibel.

Daher können die derzeit vorhandenen Produktreferenzen (siehe Spalte „Current Reference“ in Tabelle Seite 3) **nicht** mit den neuen Referenzen der Produktreihe PROMET II montiert werden.

Schautafel 1 und 2

| Kompatibel | PROMET | PROMET II |
|---------------------------|--------|-----------|
| Neue Referenzen Adapter | JA | JA |
| herige Referenzen Adapter | JA | NEIN |

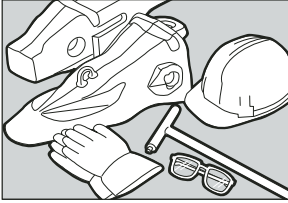
3. Hinsichtlich der Kompatibilität der Zähne, Schutzelemente „Wear Cap“ und Sicherungssysteme mit Zahnhaltern ist hervorzuheben, dass **ALLE** diese Elemente, die bereits bei den alten Zahnhaltern zum Einsatz kamen, auch mit den neuen Zahnhaltern **weiterhin** montiert werden können.

Schautafel 3

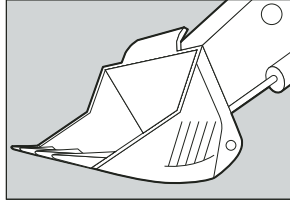
| | Neue Referenzen Adapter | Bisherige Referenzen Adapter |
|------------------------------|-------------------------|------------------------------|
| Zähne | JA | JA |
| Schutzabdeckungen „Wear Cap“ | JA | JA |
| Andere (Sicherungspin) | JA | JA |

General instructions for assembly and disassembly of MTG Systems StarMet® teeth

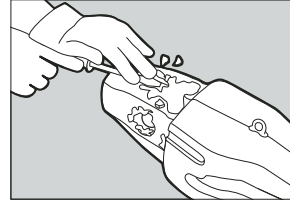
Assembly instructions



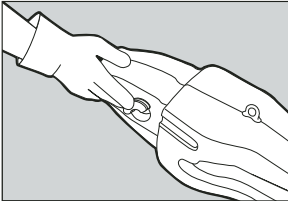
Recommended equipment. For assembly and disassembly of MTG Systems StarMet teeth require an extraction tool. The use of protective clothing is recommended: helmet, gloves and goggles.



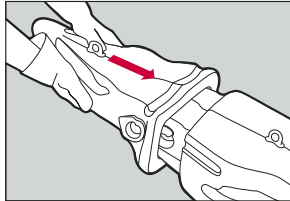
Position the bucket. In order to facilitate assembly and disassembly of the teeth, it is recommended to place the bucket so that the teeth are facing slightly upwards.



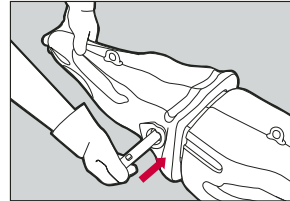
Cleaning adapter. Clean the whole tooth adapter nose and the retainer housing, to allow the subsequent assembly of the tooth and the retainer.



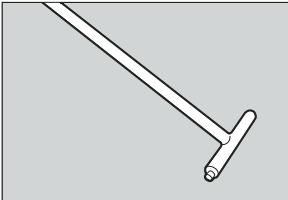
Push in the retainer. Push the retainer into the recess in the nose of the adapter.



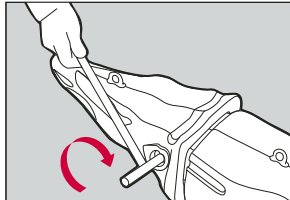
Assemble the tooth. Assemble the tooth on the nose of the adapter.



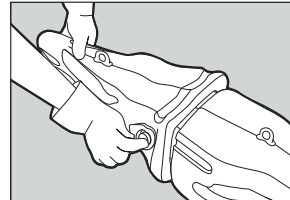
Push in the pin. Insert the pin by hand until it stops.



Extraction tool. Standard size square headed extraction tool.

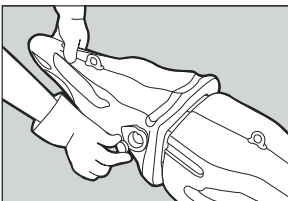


Rotate the pin. Place the square head of the extraction tool into the pin hole and rotate the pin clockwise.

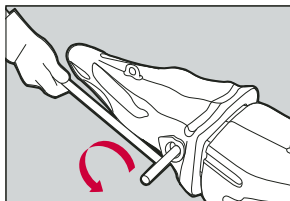


Attach the cover. Put on a stopper to prevent the pin hole becoming filled with soil, saving time and cleaning when disassembling.

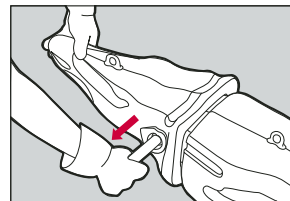
Disassembly instructions



Remove the stopper. Remove the stopper to allow the removal of the pin using the extraction tool.



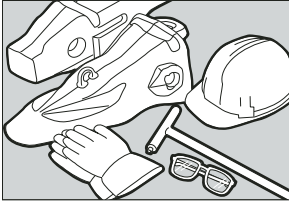
Rotate the pin. Place the square head of the extraction tool into the pin hole and rotate the pin anti-clockwise.



Remove the pin. Remove the pin by hand to free the tooth.

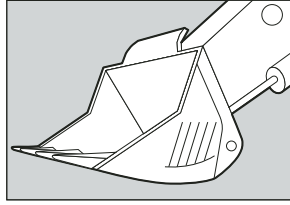
Instrucciones generales de montaje y desmontaje de dientes MTG Systems StarMet®

Instrucciones de montaje

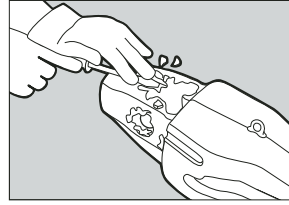


Equipamiento recomendado.

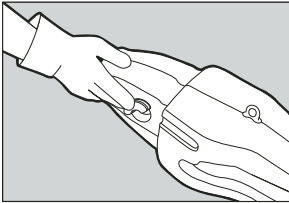
Para el montaje y desmontaje de los dientes MTG Systems StarMet se requiere una herramienta extractora. Se recomienda el uso de prendas de protección: casco, guantes y gafas.



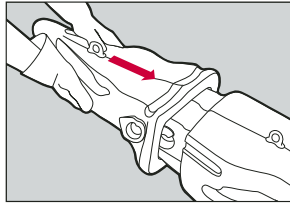
Posicionar casco. Para facilitar el montaje y desmontaje de los dientes se recomienda posicionar el casco de forma que los dientes queden mirando ligeramente hacia arriba.



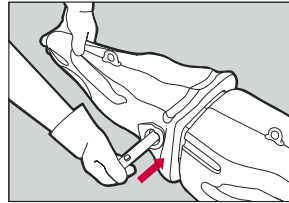
Limpiar portadientes. Limpiar bien toda la superficie de la nariz del portadiente y el alojamiento del retenedor, para permitir el montaje posterior del diente y retenedor.



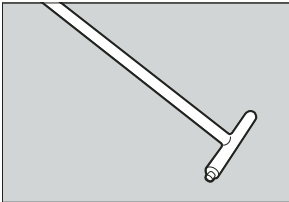
Introducir retenedor. Introducir el retenedor en el alojamiento de la nariz del portadiente tal y como muestra el dibujo.



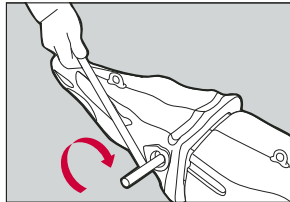
Montar el diente. Montar el diente sobre la nariz del portadiente.



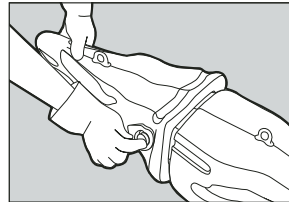
Introducir el pasador. Insertar el pasador manualmente hasta que haga tope.



Herramienta extractora. Es una herramienta de cabezal cuadrado de medidas estándar.

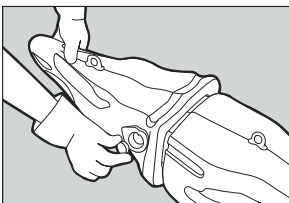


Girar el pasador. Colocamos el cabezal cuadrado de la herramienta extractora en la cavidad del pasador y giramos el pasador en sentido agujas del reloj.

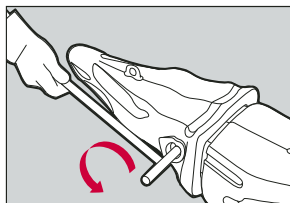


Colocar el tapón. Colocamos un tapón para evitar que la cavidad cuadrada del pasador se llene de tierra, ahorrando así tiempo de limpieza en el desmontaje.

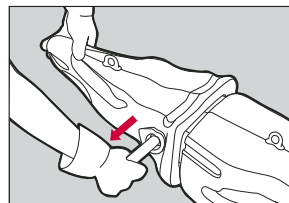
Instrucciones de desmontaje



Sacar el tapón. Sacamos el tapón para poder extraer el pasador mediante la herramienta extractora.



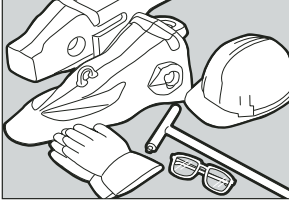
Girar el pasador. Colocamos el cabezal cuadrado de la herramienta en la cavidad del pasador y giramos el pasador en sentido contrario a las agujas del reloj.



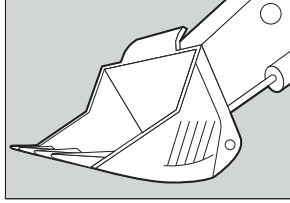
Extraer el pasador. Extraemos manualmente el pasador liberando el diente.

Instructions générales pour le montage et demontage des pointes MTG Systems StarMet®

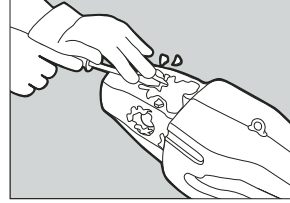
Instructions de montage



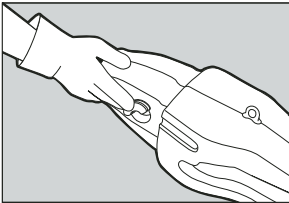
Équipement recommandé. Un outil d'extraction est nécessaire pour le montage et le démontage des dents MTG Systems StarMet. Il est recommandé de porter des vêtements de protection : casque, gants et lunettes.



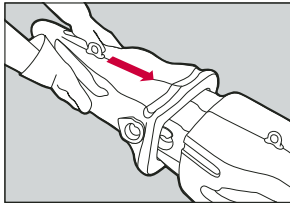
Position du godet. Pour faciliter le montage et le démontage des dents, il est recommandé de positionner le godet de sorte que les dents soient légèrement orientées vers le haut.



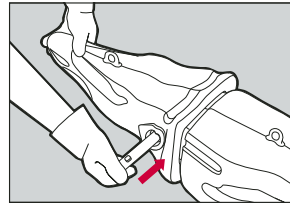
Nettoyer les porte-dents. Nettoyez correctement toute la surface du nez du porte-dents et l'orifice de l'élément de blocage, pour permettre le montage ultérieur de la dent et de l'élément de blocage.



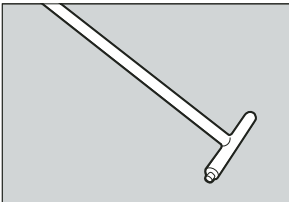
Introduire l'élément de blocage. Introduisez l'élément de blocage dans l'orifice du nez du porte-dents de la manière montrée sur le dessin.



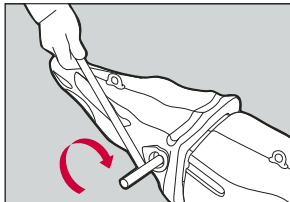
Montage de la dent. Montez la dent sur le nez du porte-dents.



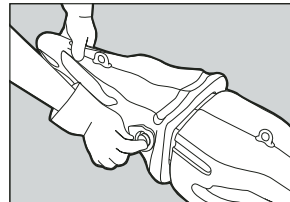
Introduction de la clavette. Insérez manuellement la clavette jusqu'à la butée.



Outil d'extraction. Il s'agit d'un outil à tête carrée et aux dimensions standards.

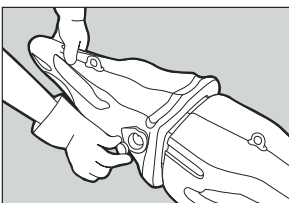


Rotation de la clavette. Placez la tête carrée de l'outil d'extraction dans l'orifice de la clavette puis tournez la clavette dans le sens des aiguilles d'une montre.

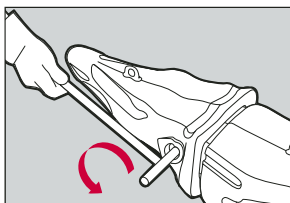


Placement du bouchon. Placez un bouchon pour éviter que l'orifice carré de la clavette se remplisse de terre, ce qui permet de gagner du temps de nettoyage lors du démontage.

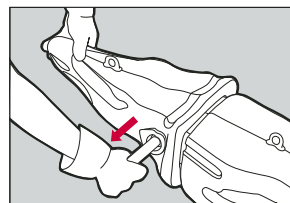
Instructions de démontage



Retrait du bouchon. Retirez le bouchon pour pouvoir extraire la clavette moyennant l'outil d'extraction.



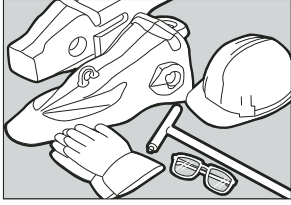
Rotation de la clavette. Placez la tête carrée de l'outil dans la cavité de la clavette puis tournez la clavette dans le sens inverse des aiguilles d'une montre.



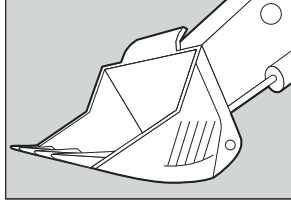
Retrait de la clavette. Retirez manuellement la clavette, ce qui libère la dent.

Allgemeine Anleitung zur Montage und Demontage von MTG Systems StarMet® Zähnen

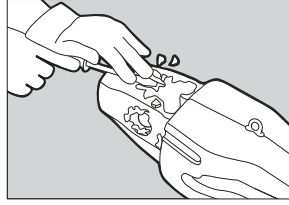
Montageanleitung



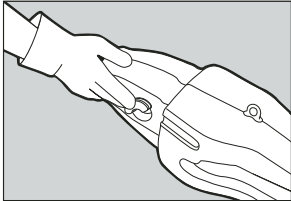
Empfohlene Ausrüstung. Für die Montage und Demontage der Zähne aus der Reihe MTG Systems StarMet sind ein Hammer und ein Sicherungswerkzeug erforderlich. Es empfiehlt sich die Verwendung von Schutzkleidung wie: Helm, Handschuhe und Schutzbrille.



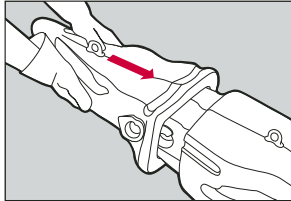
Löffel positionieren. Um die Montage bzw. Demontage der Zähne zu erleichtern, empfiehlt es sich, den Löffel so zu positionieren, dass die Zähne leicht nach oben zeigen.



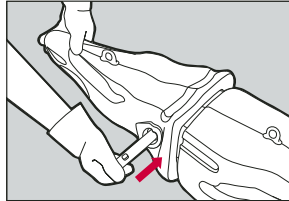
Reinigen des Zahnhalters. Die gesamte Fläche der Nase des Zahnhalters sowie die Aufnahme für die Sperre gut säubern, um die spätere Montage des Zahns und der Sperre zu ermöglichen.



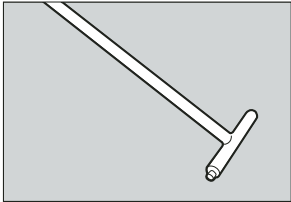
Einführen der Sperre. Die Sperre laut Abbildung in die Aufnahme in der Nase des Zahnhalters einführen.



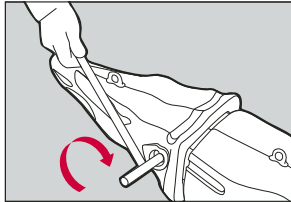
Zahn montieren. Den Zahn auf die Nase des Zahnhalters schieben.



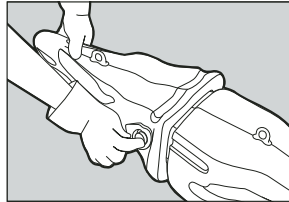
Einführen des Sicherungsbolzens. Den Bolzen per Hand bis zum Anschlag einführen.



Sicherungswerkzeug. Es handelt sich hierbei um ein Werkzeug mit 4-Kantkopfteil in Standardabmessungen.

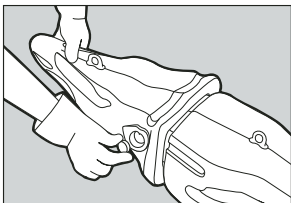


Drehen des Sicherungsbolzens. Das quadratische Kopfstück des Sicherungswerkzeugs in die Vertiefung des Sicherungsstifts einsetzen und den Bolzen im Uhrzeigersinn drehen.

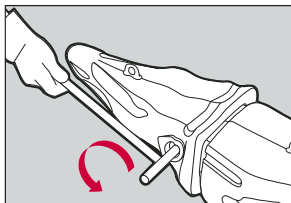


Einsetzen vom Verschluss. Der Verschluss wird eingesetzt, um zu verhindern, dass sich der Innen 4-Kant des Sicherungsstifts mit Erde füllt, was den Reinigungsaufwand bei der Demontage erspart.

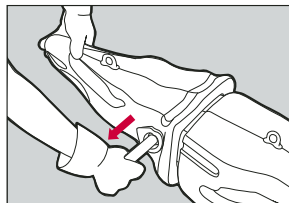
Demontieren



Entfernen vom Verschluss. Um den Sicherungsbolzen mit Hilfe des Sicherungswerkzeugs herausziehen zu können, muss zuvor der Verschluss entfernt werden.



Drehen des Sicherungsbolzens. Dazu das quadratische Kopfstück des Werkzeugs in die Vertiefung im Bolzen stecken und den Bolzen gegen den Uhrzeigersinn drehen.



Herausziehen des Sicherungsbolzens. Den Bolzen manuell herausziehen, um den Zahn zu lösen.