BRONMETAL

# Caractéristiques techniques

| Designations | | | Ø Diamètre nominal | | | Résistance à la traction $R_m$ N/mm² | | Limite élastique conventionnelle à 0,2% $R_{p0,2}$ N/mm² approx. | Allongement | | | Dureté HV | | Désignation antérieur à l'état métalurgique (Seulement à titre informatif) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Matériau | | | | | | | | | | | | | | |
| Symbolique | Numérique | État Métalurgique | À partir de | supérieur à | jusqu'à inclu | min. | max. | | $A_{200mm}$ % min. | $A_{1,3}$ % min. | A % min. | min. | max. | |
| CuZn10 | CW501L | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| | | R290 | 0,1 | – | 0,5 | 290 | 390 | (140) | (25) | – | – | – | – | Recuit |
| | | R280 | – | 0,5 | 1,5 | 280 | 380 | (130) | 30 | – | – | – | – | |
| | | R270 | – | 1,5 | 4 | 270 | 370 | (130) | 35 | – | – | – | – | |
| | | H070 | 1,5 | – | 4 | – | – | – | – | – | – | 70 | 120 | |
| | | R240 | – | 4 | 20 | 240 | 340 | (120) | – | 35 | 40 | – | – | |
| | | R380 | 0,5 | – | 1,5 | 380 | 480 | (260) | (8) | – | – | – | – | 1/4 dur |
| | | R350 | – | 1,5 | 4 | 350 | 450 | (240) | (12) | – | – | – | – | |
| | | H115 | 1,5 | – | 4 | – | – | – | – | – | – | 115 | 145 | |
| | | R330 | – | 4 | 20 | 330 | 430 | (230) | – | (15) | (20) | – | – | |
| | | H105 | – | 4 | 20 | – | – | – | – | – | – | 105 | 135 | |
| | | R470 | 0,5 | – | 1,5 | 470 | 570 | (390) | – | – | – | – | – | 1/2 dur |
| | | R440 | – | 1,5 | 4 | 440 | 540 | (370) | – | – | – | – | – | |
| | | H135 | 1,5 | – | 4 | – | – | – | – | – | – | 135 | 165 | |
| | | R410 | – | 4 | 20 | 410 | 510 | (350) | – | – | – | – | – | |
| | | H125 | – | 4 | 20 | – | – | – | – | – | – | 125 | 155 | |
| | | R570 | 0,5 | – | 1,5 | 570 | – | (560) | – | – | – | – | – | dur |
| | | R530 | – | 1,5 | 4 | 530 | – | (520) | – | – | – | – | – | |
| | | H155 | 1,5 | – | 4 | – | – | – | – | – | – | 155 | – | |

# Fil de laiton / Caractéristiques techniques

BRONMETAL

| Designations | | | Ø Diamètre nominal | | | Résistance à la traction $R_m$ N/mm² | | Limite élastique conventionnelle à 0,2% $R_{p0,2}$ N/mm² approx. | Allongement | | | Dureté HV | | Désignation antérieur à l'état métalurgique (Seulement à titre informatif) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Matériau | | | | | | | | | | | | | | |
| Symbolique | Numérique | État Métalurgique | À partir de | supérieur à | jusqu'à inclu | min. | max. | | $A_{50mm}$ % min. | $A_{1,3}$ % min. | A % min. | min. | max. | |
| CuZn15 CuZn20 | CW502L CW503L | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| | | R310 | 0,1 | – | 0,5 | 310 | 410 | (140) | (25) | – | – | – | – | Recuit |
| | | R300 | – | 0,5 | 1,5 | 300 | 400 | (140) | 25 | – | – | – | – | |
| | | R290 | – | 1,5 | 4 | 290 | 390 | (140) | 30 | – | – | – | – | |
| | | H070 | 1,5 | – | 4 | – | – | – | – | – | – | 70 | 125 | |
| | | R260 | – | 4 | 20 | 260 | 360 | (120) | – | 40 | 45 | – | – | |
| | | H065 | – | 4 | 20 | – | – | – | – | – | – | 65 | 120 | |
| | | R400 | 0,5 | – | 1,5 | 400 | 500 | (270) | (10) | – | – | – | – | 1/4 dur |
| | | R370 | – | 1,5 | 4 | 370 | 470 | (250) | (14) | – | – | – | – | |
| | | H120 | 1,5 | – | 4 | – | – | – | – | – | – | 120 | 150 | |
| | | R360 | – | 4 | 20 | 360 | 460 | (250) | – | -18 | -20 | – | – | |
| | | H115 | – | 4 | 20 | – | – | – | – | – | – | 115 | 145 | |
| | | R480 | 0,5 | – | 1,5 | 480 | 580 | (400) | – | – | – | – | – | 1/2 dur |
| | | R450 | – | 1,5 | 4 | 450 | 550 | (380) | (3) | – | – | – | – | |
| | | H140 | 1,5 | – | 4 | – | – | – | – | – | – | 140 | 170 | |
| | | R430 | – | 4 | 20 | 430 | 530 | (360) | (6) | – | – | – | – | |
| | | H135 | – | 4 | 20 | – | – | – | – | – | – | 135 | 165 | |
| | | R600 | 0,1 | – | 0,5 | 600 | – | (590) | – | – | – | – | – | dur |
| | | R580 | – | 0,5 | 1,5 | 580 | – | (570) | – | – | – | – | – | |
| | | R540 | – | 1,5 | 4 | 540 | – | (530) | – | – | – | – | – | |
| | | H165 | 1,5 | | 4 | – | – | – | – | – | – | 165 | – | |

# Fil de laiton / Caractéristiques techniques

BRONMETAL

| Designations | | | Ø Diamètre nominal | | | Résistance à la traction $R_m$ N/mm² | | Limite élastique conventionnelle à 0,2% $R_{p0,2}$ N/mm² approx. | Allongement | | | Dureté HV | | Désignation antérieur à l'état métalurgique (Seulement à titre informatif) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Matériau | | | | | | | | | | | | | | |
| Symbolique | Numérique | État Métalurgique | À partir de | supérieur à | jusqu'à inclu | min. | max. | | $A_{50mm}$ % min. | $A_{11,3}$ % min. | A % min. | min. | max. | |
| CuZn30 | CW505L | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| | | R350 | 0,1 | – | 0,5 | 350 | 450 | (160) | (30) | – | – | – | – | Recuit |
| | | R340 | – | 0,5 | 1,5 | 340 | 440 | (150) | 35 | – | – | – | – | |
| | | R310 | – | 1,5 | 4 | 310 | 410 | (140) | 40 | – | – | – | – | |
| | | R300 | – | 4 | 20 | 300 | 400 | (130) | – | 45 | 50 | – | – | |
| | | H065 | 1,5 | – | 20 | – | – | – | – | – | – | 65 | 115 | |
| | | R430 | 0,1 | – | 0,5 | 430 | 530 | (240) | (10) | – | – | – | – | 1/8 dur |
| | | R410 | – | 0,5 | 1,5 | 410 | 510 | (230) | (14) | – | – | – | – | |
| | | R380 | – | 1,5 | 4 | 380 | 480 | (220) | (12) | – | – | – | – | |
| | | H095 | 1,5 | – | 4 | – | – | – | – | – | – | 95 | 135 | |
| | | R360 | – | 4 | 20 | 360 | 460 | (210) | – | (22) | -25 | – | – | |
| | | H085 | – | 4 | 20 | – | – | – | – | – | – | 85 | 130 | |
| | | R520 | 0,1 | – | 0,5 | 520 | 620 | (340) | – | – | – | – | – | 1/4 dur |
| | | R500 | – | 0,5 | 1,5 | 500 | 600 | (330) | – | – | – | – | – | |
| | | R460 | – | 1,5 | 4 | 460 | 560 | (310) | (7) | – | – | – | – | |
| | | H125 | 1,5 | – | 4 | – | – | – | – | – | – | 125 | 160 | |
| | | R440 | – | 4 | 8 | 440 | 540 | (290) | – | (10) | – | – | – | |
| | | H120 | – | 4 | 8 | – | – | – | – | – | – | 120 | 155 | |
| | | R610 | 0,1 | – | 0,5 | 610 | 710 | (500) | – | – | – | – | – | 1/2 dur |
| | | R590 | – | 0,5 | 1,5 | 590 | 690 | (480) | – | – | – | – | – | |
| | | R540 | – | 1,5 | 4 | 540 | 640 | (440) | – | – | – | – | – | |
| | | H150 | 1,5 | – | 4 | – | – | – | – | – | – | 150 | 180 | |
| | | R530 | – | 4 | 8 | 530 | 630 | (440) | – | – | – | – | – | |
| | | H145 | – | 4 | 8 | – | – | – | – | – | – | 145 | 175 | |
| | | R700 | 0,1 | – | 0,5 | 700 | 800 | (680) | – | – | – | – | – | dur |
| | | R670 | – | 0,5 | 1,5 | 670 | 770 | (650) | – | – | – | – | – | |
| | | R620 | – | 1,5 | 4 | 620 | 720 | (600) | – | – | – | – | – | |
| | | H170 | 1,5 | – | 4 | – | – | – | – | – | – | 170 | 200 | |
| | | R800 | 0,1 | – | 0,5 | 800 | – | (810) | – | – | – | – | – | Qualité Ressorts |
| | | R750 | – | 0,5 | 1,5 | 750 | – | (760) | – | – | – | – | – | |
| | | R700 | – | 1,5 | 4 | 700 | – | (710) | – | – | – | – | – | |
| | | H195 | 1,5 | – | 4 | – | – | – | – | – | – | 195 | – | |

# Fil de laiton / Caractéristiques techniques

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| Designations | | | Ø Diamètre nominal | | | Résistance à la traction $R_m$ N/mm² | | Limite élastique conventionnelle à 0,2% $R_{p0,2}$ N/mm² approx. | Allongement | | | Dureté HV | | Désignation antérieur à l'état métalurgique (Seulement à titre informatif) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Matériau | | | | | | | | | | | | | | |
| Symbolique | Numérique | État Métalurgique | À partir de | supérieur à | jusqu'à inclu | min. | max. | | $A_{50mm}$ % min. | $A_{1,3}$ % min. | A % min. | min. | max. | |
| | | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| CuZn36 CuZn37 | CW507L CW508L | R360 | 0,1 | – | 0,5 | 360 | 450 | (160) | (30) | – | – | – | – | Recuit |
| | | R330 | – | 0,5 | 1,5 | 330 | 420 | (150) | 33 | – | – | – | – | |
| | | R300 | – | 1,5 | 4 | 300 | 380 | (140) | 35 | – | – | – | – | |
| | | H070 | 1,5 | – | 4 | – | – | – | – | – | – | 70 | 105 | |
| | | R280 | – | 4 | 20 | 280 | 370 | (130) | – | 40 | 45 | – | – | |
| | | H065 | – | 4 | 20 | – | – | – | – | – | – | 60 | 100 | |
| | | R420 | 0,5 | – | 1,5 | 420 | 510 | (280) | (12) | – | – | – | – | 1/8 dur |
| | | R380 | – | 1,5 | 4 | 380 | 480 | (260) | (16) | – | – | – | – | |
| | | H105 | 1,5 | – | 4 | – | – | – | – | – | – | 105 | 140 | |
| | | R370 | – | 4 | 20 | 370 | 470 | (250) | – | (20) | (25) | – | – | |
| | | H095 | – | 4 | 20 | – | – | – | – | – | – | 95 | 135 | |
| | | R510 | 0,5 | – | 1,5 | 510 | 610 | (420) | – | – | – | – | – | 1/4 dur |
| | | R470 | – | 1,5 | 4 | 470 | 570 | (390) | (5) | – | – | – | – | |
| | | H130 | 1,5 | – | 4 | – | – | – | – | – | – | 130 | 160 | |
| | | R460 | – | 4 | 8 | 460 | 560 | (380) | – | (8) | – | – | – | |
| | | H135 | – | 4 | 8 | – | – | – | – | – | – | 135 | 165 | |
| | | R610 | 0,5 | – | 1,5 | 610 | 750 | (610) | – | – | – | – | – | 1/2 dur / dur |
| | | R560 | – | 1,5 | 4 | 560 | 700 | (570) | – | – | – | – | – | |
| | | H160 | 1,5 | – | 4 | – | – | – | – | – | – | 160 | 190 | |
| | | R550 | – | 4 | 8 | 550 | 680 | (550) | – | – | – | – | – | |
| | | H155 | – | 4 | 8 | – | – | – | – | – | – | 155 | 185 | |
| | | R800 | 0,1 | – | 0,5 | 800 | – | (810) | – | – | – | – | – | Qualité Ressorts |
| | | R750 | – | 0,5 | 1,5 | 750 | – | (760) | – | – | – | – | – | |
| | | R700 | – | 1,5 | 4 | 700 | – | (710) | – | – | – | – | – | |
| | | H190 | 1,5 | – | 4 | – | – | – | – | – | – | 190 | – | |

# Fil de laiton / Caractéristiques techniques

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| Designations | | | Ø Diamètre nominal | | | Résistance à la traction $R_m$ N/mm² | | Limite élastique conventionnelle à 0,2% $R_{p0,2}$ N/mm² approx. | Allongement | | | Dureté HV | | Désignation antérieur à l'état métalurgique (Seulement à titre informatif) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Matériau | | | | | | | | | | | | | | |
| Symbolique | Numérique | État Métalurgique | À partir de | supérieur à | jusqu'à inclu | min. | max. | | $A_{50mm}$ % min. | $A_{11,3}$ % min. | A % min. | min. | max. | |
| CuZn35Pb1 CuZn35Pb2 | CW600N CW601N | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| | | R380 | 0,5 | – | 1,5 | 380 | – | (200) | – | – | – | – | – | 1/2 dur |
| | | R380 | – | 1,5 | 8,0 | 380 | – | (200) | 18 | 20 | – | – | – | |
| | | H120 | 1,5 | – | 8,0 | – | – | – | – | – | – | 120 | 150 | |
| | | R370 | – | 8,0 | 20,0 | 370 | – | (200) | – | – | 25 | – | – | |
| | | H110 | – | 8,0 | 20,0 | – | – | – | – | – | – | 110 | 140 | |
| | | R450 | 0,5 | – | 1,5 | 450 | – | (320) | – | – | – | – | – | dur |
| | | R450 | – | 1,5 | 4,0 | 450 | – | (320) | 6 | – | – | – | – | |
| | | H155 | 1,5 | – | 4,0 | – | – | – | – | – | – | 155 | 185 | |
| | | R450 | – | 4,0 | 8,0 | 450 | – | (320) | – | 10 | – | – | – | |
| | | H145 | – | 4,0 | 8,0 | – | – | – | – | – | – | 145 | 175 | |
| | | R440 | – | 8,0 | 14,0 | 440 | – | (320) | – | – | 15 | – | – | |
| | | H140 | – | 8,0 | 14,0 | – | – | – | – | – | – | 140 | 170 | |
| | | R540 | 0,5 | – | 4,0 | 540 | – | (480) | – | – | – | – | – | Qualité Ressorts |
| | | H165 | 1,5 | – | 4,0 | – | – | – | – | – | – | 165 | – | |
| CuZn36Pb3 CuZn37Pb2 | CW603N CW606N | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| | | R380 | 0,5 | – | 1,5 | 380 | – | (180) | – | – | – | – | – | 1/4 dur |
| | | R370 | – | 1,5 | 4,0 | 370 | – | (180) | 15 | – | – | – | – | |
| | | H100 | 1,5 | – | 4,0 | – | – | – | – | – | – | 100 | 130 | |
| | | R360 | – | 4,0 | 20,0 | 360 | – | (180) | – | 15 | 20 | – | – | |
| | | H090 | – | 4,0 | 20,0 | – | – | – | – | – | – | 90 | 125 | |
| | | R440 | 0,5 | – | 1,5 | 440 | – | (300) | – | – | – | – | – | 1/2 dur |
| | | R420 | – | 1,5 | 4,0 | 420 | – | (280) | 6 | – | – | – | – | |
| | | H120 | 1,5 | – | 4,0 | – | – | – | – | – | – | 120 | 150 | |
| | | R410 | – | 4,0 | 8,0 | 410 | – | (280) | – | 10 | – | – | – | |
| | | H115 | – | 4,0 | 8,0 | – | – | – | – | – | – | 115 | 145 | |
| | | R400 | – | 8,0 | 20,0 | 400 | – | (280) | – | – | 15 | – | – | |
| | | H110 | – | 8,0 | 20,0 | – | – | – | – | – | – | 110 | 140 | |
| | | R500 | 1,5 | – | 4,0 | 500 | – | (380) | (3) | – | – | – | – | dur |
| | | H140 | 1,5 | – | 4,0 | – | – | – | – | – | – | 140 | 170 | |
| | | R490 | – | 4,0 | 8,0 | 490 | – | (360) | – | 6 | – | – | – | |
| | | R480 | – | 8,0 | 14,0 | 480 | – | (360) | – | – | 8 | – | – | |
| | | H130 | – | 4,0 | 14,0 | – | – | – | – | – | – | 130 | 160 | |
| | | R580 | 1,5 | – | 4,0 | 580 | – | (520) | – | – | – | – | – | Qualité Ressorts |
| | | H155 | 1,5 | – | 4,0 | – | – | – | – | – | – | 155 | – | |

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| Designations | | | Ø Diamètre nominal | | | Résistance à la traction $R_m$ N/mm² | | Limite élastique conventionnelle à 0,2% $R_{p0,2}$ N/mm² approx. | Allongement | | | Dureté HV | | Désignation antérieur à l'état métalurgique (Seulement à titre informatif) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Matériau | | | | | | | | | | | | | | |
| Symbolique | Numérique | État Métalurgique | À partir de | supérieur à | jusqu'à inclu | min. | max. | | $A_{50mm}$ % min. | $A_{11,3}$ % min. | A % min. | min. | max. | |
| | | M | Toutes les mesures | | | | | | | | | | | Brut de fabrication |
| CuZn38Pb2 CuZn39Pb0,5 CuZn39Pb2 | CW608N CW610N CW612N | R400 | 0,5 | – | 1,5 | 400 | – | (200) | – | – | – | – | – | 1/4 dur |
| | | R400 | – | 1,5 | 4 | 400 | – | (200) | 10 | – | – | – | – | |
| | | H110 | 1,5 | – | 4 | – | – | – | – | – | – | 110 | 140 | |
| | | R390 | – | 4 | 8 | 390 | – | (180) | – | 15 | – | – | – | |
| | | R380 | – | 8 | 20 | 380 | – | (180) | – | – | 20 | – | – | |
| | | H100 | – | 4 | 20 | – | – | – | – | – | – | 100 | 130 | |
| | | R450 | 0,5 | – | 1,5 | 450 | – | (300) | – | – | – | – | – | 1/2 dur |
| | | R440 | – | 1,5 | 4 | 440 | – | (300) | 8 | – | – | – | – | |
| | | H130 | 1,5 | – | 4 | – | – | – | – | – | – | 130 | 160 | |
| | | R430 | – | 4 | 8 | 430 | – | (300) | – | 10 | – | – | – | |
| | | R420 | – | 8 | 20 | 420 | – | (300) | – | – | 15 | – | – | |
| | | H120 | – | 4 | 20 | – | – | | – | – | – | 120 | 155 | |
| | | R500 | 0,5 | – | 1,5 | 500 | – | (400) | – | – | – | – | – | dur |
| | | R500 | – | 1,5 | 4 | 500 | – | (400) | 4 | – | – | – | – | |
| | | H150 | 1,5 | – | 4 | – | – | – | – | – | – | 150 | 180 | |
| | | R490 | – | 4 | 8 | 490 | – | (400) | – | 5 | – | – | – | |
| | | R480 | – | 8 | 14 | 480 | – | (400) | – | – | 8 | – | – | |
| | | H140 | – | 4 | 14 | – | – | – | – | – | – | 140 | 170 | |
| | | R570 | 1,5 | – | 4 | 570 | – | (520) | – | – | – | – | – | Qualité Ressorts |
| | | H165 | 1,5 | – | 4 | – | – | – | – | – | – | 165 | – | |
| | | R450 | 0,5 | – | 1,5 | 450 | – | (200) | – | – | – | – | – | 1/2 dur |
| | | R430 | – | 1,5 | 4 | 430 | – | (200) | 6 | – | – | – | – | |
| | | H130 | 1,5 | – | 4 | – | – | – | – | – | – | 130 | 165 | |
| | | R420 | – | 4 | 8 | 420 | – | (200) | – | 8 | – | – | – | |
| | | H120 | – | 4 | 8 | – | – | – | – | – | – | 120 | 155 | |
| | | R410 | – | 8 | 14 | 410 | – | (200) | – | – | 10 | – | – | |
| | | R400 | – | 14 | 20 | 400 | – | (200) | – | – | 10 | – | – | |
| | | H110 | – | 8 | 20 | – | – | – | – | – | – | 110 | 145 | |
| | | R520 | 0,5 | – | 1,5 | 520 | – | (400) | – | – | – | – | – | dur |
| | | R510 | – | 1,5 | 4 | 510 | – | (400) | (4) | – | – | – | – | |
| | | H155 | 1,5 | – | 4 | – | – | – | – | – | – | 155 | 185 | |
| | | R500 | – | 4 | 8 | 500 | – | (390) | – | 6 | – | – | – | |
| | | R490 | – | 8 | 14 | 490 | – | (390) | – | – | 8 | – | – | |
| | | H145 | – | 4 | 14 | – | – | – | – | – | – | 145 | 175 | |
| | | R570 | 1,5 | – | 4 | 570 | – | (520) | – | – | – | – | – | calidad muelle |
| | | H170 | 1,5 | – | 4 | – | – | – | – | – | – | 170 | – | |

NOTE 1 – 1 $N/mm^2$ équivaut a 1 Mpa.

NOTE 2 – Les numéros entre parenthèses ne sont pas requis par cette norme, ils sont donnés à titre d’information.