

## 4. Saiten / Strings / Cordes / Corde

### 4.1 Vogel Saiten / Vogel strings

#### Cordes Vogel / Corde di Vogel



#### Kupferhof Rotmessing CuZn05

Bedingt durch den molekularen Kristallgitteraufbau der Legierung verändern unter Zug stehende Messingsaiten nach einer gewissen Zeit ihren Klang. Je höher der Zinkanteil, desto schneller entwickelt sich die klangliche Brillanz. So erfordert das niedriglegierte Kupferhof Rotmessing bis zu 3 Monate Geduld, bis der Klang sich zu seiner vollen Wärme und Grundtönigkeit entwickelt hat.

#### Red Brass Kupferhof CuZn05

In connection with the molecular cristall-lattice-configuration of the alloy, brass strings under tension change their sound after a while. The higher the alloy's zinc-part is, the faster the brilliance of the sound is developing. So the low-alloyed red brass Kupferhof takes some patients (approx. unto 3 months) until the sound has developed to its full warmth and fundamental.

#### Laiton rouge Kupferhof CuZn05

Attaché avec la configuration de grille cristallin de l'alliage, des cordes de laiton tendus changent leur son au bout d'un certain temps. Plus haute la quote-parte de zinc dans l'alliage est, plus vite le brillante sonore se développe. D'où le laiton rouge Kupferhof, qui est lier plus petit, exige de la patience (env. jusqu'à 3 mois), jusqu'au son a développé à sa chaleur et son fondamentale.

#### Ottone rosso Kupferhof CuZn05

Le corde di ottone che sono sotto carico dopo un certo tempo cambiano il loro suono. Questo sta in relazione con la struttura molecolare cristallina delle lega. Piu la quota die zinco nella lega e alta piu in fretta si sviluppa la brillantezza del suono delle corde. Per questa ragione bisogna avere un po di pazienza (sino a 3 mesi) a finche il suono sviluppi il suo pieno e caldo suono fondamentale.

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4903 | 1.278 | 2.5 m | 7,25 €  |
| 41-4894 | 1.278 | 50 m  | 22,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4902 | 1.210 | 2.5 m | 7,25 €  |
| 41-4893 | 1.210 | 50 m  | 22,70 € |
| 41-4901 | 1.145 | 2.5 m | 7,25 €  |
| 41-4892 | 1.145 | 50 m  | 22,70 € |
| 41-4900 | 1.084 | 2.5 m | 7,25 €  |
| 41-4891 | 1.084 | 50 m  | 22,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4898 | 0.972 | 2.5 m | 7,25 €  |
| 41-4889 | 0.972 | 50 m  | 22,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4897 | 0.920 | 2.5 m | 7,25 €  |
| 41-4888 | 0.920 | 50 m  | 22,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4859 | 0.871 | 2.5 m | 7,25 €  |
| 41-4860 | 0.871 | 50 m  | 22,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4770 | 0.825 | 2.5 m | 7,25 €  |
| 41-4771 | 0.825 | 50 m  | 22,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4768 | 0.781 | 2.5 m | 7,25 €  |
| 41-4769 | 0.781 | 50 m  | 22,70 € |

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4766 | 0.740 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4767 | 0.740 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4764 | 0.701 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4765 | 0.701 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4762 | 0.663 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4763 | 0.663 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4760 | 0.628 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4761 | 0.628 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4758 | 0.595 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4759 | 0.595 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4756 | 0.563 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4757 | 0.563 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4754 | 0.533 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4755 | 0.533 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4753 | 0.505 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4752 | 0.505 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4750 | 0.478 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4751 | 0.478 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4748 | 0.453 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4749 | 0.453 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4746 | 0.429 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

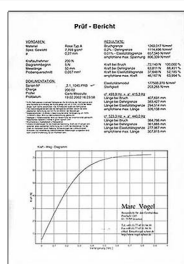
|         |       |      |         |
|---------|-------|------|---------|
| 41-4747 | 0.429 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4744 | 0.406 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4745 | 0.406 | 50 m | 22,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4742 | 0.384 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4743 | 0.384 | 50 m | 22,70 € |
|---------|-------|------|---------|



**Weitere Informationen** zu den untenstehenden Richtwerten, den Reisstests und dem Lieferumfang finden Sie am Anfang des Kapitels.

**Please find** further information about the indexes, the tear tests and the delivery volume at the beginning of this chapter.

**Veillez trouver** les autres informations de valeurs indicatives, de tests de ruptures et de volume de livraison au commencement du ce chapitre.

**Ulteriori informazioni** su mesure riverimento, testi di rotura e volume di consegna si trovano al linizio del capitolo.

|                |       |       |       |       |                   |
|----------------|-------|-------|-------|-------|-------------------|
| Ø              | 0.406 | 0.596 | 0.872 | 1.027 | mm                |
| R <sub>m</sub> | 580   | 545   | 487   | 431   | N/mm <sup>2</sup> |
| max.           | 64    | 67    | 70    | 62    | %                 |
| 415Hz          | 207   | 205   | 198   | 174   | mm                |
| 440Hz          | 1966  | 193   | 187   | 165   | mm                |

Dichte / weight / poids / densita = 8.860 g/cm<sup>3</sup>

| Nr/No/N° | Ø     | L     | ≥1      |
|----------|-------|-------|---------|
| 41-4905  | 1.425 | 2.5 m | 7,25 €  |
| 41-4896  | 1.425 | 50 m  | 22,70 € |
| 41-4904  | 1.349 | 2.5 m | 7,25 €  |
| 41-4895  | 1.349 | 50 m  | 22,70 € |

## 4. Saiten / Strings / Cordes / Corde



### Märkisches Rotmessaging CuZn15

Der Klang ist grundtöniger als der des Freiberger Gelbmessaging CuZn20 und wird deshalb vorwiegend im Bassbereich oder als Übergang zu Kupferhof Rotmessaging CuZn05 verwendet. Mit steigendem Kupferanteil nimmt aber die Festigkeit ab; sie liegt zwischen dem Kupferhof Rotmessaging CuZn05 und Freiberger Gelbmessaging CuZn20. Der Draht entfaltet nach ca. 1 Monat seinen warmen Klang.

### Märkisch Red Brass CuZn15

The wire displays its warm timbre after about 1 month. Red brass is a soft material for short scales and bass strings. This brass alloy has got a very high copper content of 85 %. That is why the strings have a lower tensile strength than the Gug brass or the alloy CuZn30.

### Laiton Rouge Märkisch CuZn15

Le fil déploie son timbre chaleraux au bout d'un mois. Le laiton rouge est un matériau doux pour de courtes mesures et comme cordes de graves. Cet alliage a une teneur en cuivre de 85 %. Par conséquent, la résistance à la rupture est plus faible que celle du laiton Gug ou de l'alliage CuZn30.

### Ottone Rosso Märkisch CuZn15

L'ottone rosso è un materiale dolce per uno scaling corto e per le corde di basso, timbro caloroso. Queste corde di ottone contengono un alto numero di rame (85 %). Perciò la resistenza di tiro è più bassa di quella del ottone Gug o della lega CuZn30.

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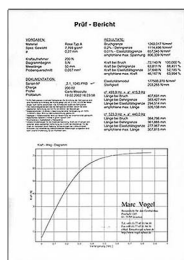
**Ulteriori informazioni** su misure riverimento, testi di rotura e volume di consegna si trovano al linizio del capitolo.

| Ø              | 0.345 | 0.406 | 0.596 | 0.825 | 1.027 | mm                |
|----------------|-------|-------|-------|-------|-------|-------------------|
| R <sub>m</sub> | 800   | 750   | 700   | 650   | 650   | N/mm <sup>2</sup> |
| max.           | 65    | 64    | 62    | 62    | 62    | %                 |
| 415Hz          | 248   | 242   | 223   | 219   | 216   | mm                |
| 440Hz          | 234   | 228   | 210   | 206   | 210   | mm                |

Dichte / weight / poids / densita = 8.8 g/cm<sup>3</sup>

| Nr/No/N° | Ø     | L     | ≥1      |
|----------|-------|-------|---------|
| 41-2232  | 1.145 | 2.5 m | 9,25 €  |
| 41-4528  | 1.145 | 50 m  | 34,20 € |
| 41-2234  | 1.084 | 2.5 m | 9,25 €  |
| 41-4527  | 1.084 | 50 m  | 34,20 € |
| 41-2236  | 1.027 | 2.5 m | 9,25 €  |
| 41-4526  | 1.027 | 50 m  | 34,20 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2238 | 0.972 | 2.5 m | 9,25 €  |
| 41-4525 | 0.972 | 50 m  | 31,70 € |
| 41-2240 | 0.920 | 2.5 m | 9,25 €  |
| 41-4524 | 0.920 | 50 m  | 31,70 € |
| 41-2242 | 0.871 | 2.5 m | 9,25 €  |
| 41-4523 | 0.871 | 50 m  | 31,70 € |
| 41-2244 | 0.825 | 2.5 m | 9,25 €  |
| 41-4522 | 0.825 | 50 m  | 31,70 € |
| 41-2246 | 0.781 | 2.5 m | 9,25 €  |
| 41-4521 | 0.781 | 50 m  | 29,10 € |
| 41-2248 | 0.740 | 2.5 m | 6,20 €  |
| 41-4530 | 0.740 | 50 m  | 29,10 € |
| 41-2250 | 0.701 | 2.5 m | 6,20 €  |
| 41-4520 | 0.701 | 50 m  | 29,10 € |
| 41-2252 | 0.663 | 2.5 m | 6,20 €  |
| 41-4519 | 0.663 | 50 m  | 29,10 € |
| 41-2254 | 0.628 | 2.5 m | 6,20 €  |
| 41-4518 | 0.628 | 50 m  | 29,10 € |
| 41-2256 | 0.595 | 2.5 m | 6,20 €  |
| 41-4517 | 0.595 | 50 m  | 26,60 € |
| 41-2258 | 0.563 | 2.5 m | 6,20 €  |
| 41-4516 | 0.563 | 50 m  | 26,60 € |
| 41-2260 | 0.533 | 2.5 m | 6,20 €  |
| 41-4529 | 0.533 | 50 m  | 26,60 € |
| 41-2262 | 0.505 | 2.5 m | 6,20 €  |
| 41-4515 | 0.505 | 50 m  | 26,60 € |
| 41-2264 | 0.478 | 2.5 m | 6,20 €  |
| 41-4514 | 0.478 | 50 m  | 26,60 € |
| 41-2266 | 0.453 | 2.5 m | 6,20 €  |
| 41-4513 | 0.453 | 50 m  | 26,60 € |
| 41-2268 | 0.429 | 2.5 m | 6,20 €  |
| 41-4512 | 0.429 | 50 m  | 24,00 € |
| 41-2270 | 0.406 | 2.5 m | 6,20 €  |
| 41-4511 | 0.406 | 50 m  | 24,00 € |
| 41-2272 | 0.384 | 2.5 m | 6,20 €  |
| 41-4510 | 0.384 | 50 m  | 24,00 € |
| 41-2311 | 0.364 | 2.5 m | 6,20 €  |
| 41-4509 | 0.364 | 50 m  | 24,00 € |
| 41-3466 | 0.344 | 2.5 m | 6,20 €  |
| 41-4508 | 0.344 | 50 m  | 24,00 € |



## 4. Saiten / Strings / Cordes / Corde



### Freiberger Gelbmessing CuZn30

Der Klang ist grundtöniger und weicher als der des Stolberg Gelbmessing CuZn30 und liegt in der Festigkeit zwischen dem Märkischen Rotmessing CuZn15 und Stolberg Gelbmessing CuZn30.

### Yellow Brass Freiberg CuZn20

The sound is more fundamental than the sound of our yellow brass Stolberg CuZn30. It is situated in the tensile strength between Märkisch red brass CuZn15 and yellow brass Stolberg CuZn30.

### Laiton Jaune Freiberg CuZn20

Le son est plus fondamental que le son du laiton jaune Stolberg CuZn30. La résistance est situé entre le laiton rouge Märkisch CuZn15 et le laiton jaune Stolberg CuZn30.

### Ottone Giallo Freiberg CuZn20

Il suono è più fondamentale del ottone giallo Stolberg CuZn30 e ha una tenzione di carico tra il ottone rosso Märkisch CuZn15 e ottone giallo Stolberg CuZn30.

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4818 | 0.781 | 2.5 m | 7,25 €  |
| 41-4819 | 0.781 | 50 m  | 24,70 € |
| 41-4816 | 0.740 | 2.5 m | 7,25 €  |
| 41-4817 | 0.740 | 50 m  | 24,70 € |
| 41-4814 | 0.701 | 2.5 m | 7,25 €  |
| 41-4815 | 0.701 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4812 | 0.663 | 2.5 m | 7,25 €  |
| 41-4813 | 0.663 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4810 | 0.628 | 2.5 m | 7,25 €  |
| 41-4811 | 0.628 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4808 | 0.595 | 2.5 m | 7,25 €  |
| 41-4809 | 0.595 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4806 | 0.563 | 2.5 m | 7,25 €  |
| 41-4807 | 0.563 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4804 | 0.533 | 2.5 m | 7,25 €  |
| 41-4805 | 0.533 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4802 | 0.505 | 2.5 m | 7,25 €  |
| 41-4803 | 0.505 | 50 m  | 24,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4800 | 0.478 | 2.5 m | 7,25 €  |
| 41-4801 | 0.478 | 50 m  | 24,70 € |

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4798 | 0.453 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4799 | 0.453 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4796 | 0.429 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4797 | 0.429 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4794 | 0.406 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4795 | 0.406 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4792 | 0.384 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4793 | 0.384 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4790 | 0.364 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4791 | 0.364 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4788 | 0.344 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4789 | 0.344 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4786 | 0.326 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4787 | 0.326 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4784 | 0.309 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4785 | 0.309 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4782 | 0.292 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4783 | 0.292 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4780 | 0.277 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4781 | 0.277 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4778 | 0.262 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4779 | 0.262 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4776 | 0.248 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

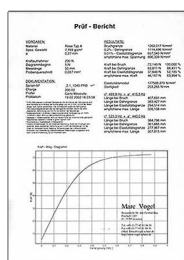
|         |       |      |         |
|---------|-------|------|---------|
| 41-4777 | 0.248 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4774 | 0.235 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4775 | 0.235 | 50 m | 24,70 € |
|---------|-------|------|---------|

|         |       |       |        |
|---------|-------|-------|--------|
| 41-4772 | 0.223 | 2.5 m | 7,25 € |
|---------|-------|-------|--------|

|         |       |      |         |
|---------|-------|------|---------|
| 41-4773 | 0.223 | 50 m | 24,70 € |
|---------|-------|------|---------|



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| Ø              | 0.248 | 0.345 | 0.453 | 0.740 | 1.027 | mm                |
|----------------|-------|-------|-------|-------|-------|-------------------|
| R <sub>m</sub> | 995   | 953   | 902   | 825   | 749   | N/mm <sup>2</sup> |
| max.           | 63    | 60    | 59    | 55    | 56    | %                 |
| 415Hz          | 273   | 261   | 251   | 233   | 222   | mm                |
| 440Hz          | 258   | 246   | 237   | 220   | 210   | mm                |

Dichte / weight / poids / densita = 8.700 g/cm<sup>3</sup>

| Nr/No/N° | Ø     | L     | ≥1      |
|----------|-------|-------|---------|
| 41-4912  | 1.425 | 2.5 m | 7,25 €  |
| 41-4913  | 1.425 | 50 m  | 24,70 € |
| 41-4910  | 1.349 | 2.5 m | 7,25 €  |
| 41-4911  | 1.349 | 50 m  | 24,70 € |
| 41-4908  | 1.278 | 2.5 m | 7,25 €  |
| 41-4909  | 1.278 | 50 m  | 24,70 € |
| 41-4906  | 1.210 | 2.5 m | 7,25 €  |
| 41-4907  | 1.210 | 50 m  | 24,70 € |
| 41-4832  | 1.145 | 2.5 m | 7,25 €  |
| 41-4833  | 1.145 | 50 m  | 24,70 € |
| 41-4830  | 1.084 | 2.5 m | 7,25 €  |
| 41-4831  | 1.084 | 50 m  | 24,70 € |
| 41-4828  | 1.027 | 2.5 m | 7,25 €  |
| 41-4829  | 1.027 | 50 m  | 24,70 € |
| 41-4826  | 0.972 | 2.5 m | 7,25 €  |
| 41-4827  | 0.972 | 50 m  | 24,70 € |
| 41-4824  | 0.920 | 2.5 m | 7,25 €  |
| 41-4825  | 0.920 | 50 m  | 24,70 € |
| 41-4822  | 0.871 | 2.5 m | 7,25 €  |
| 41-4823  | 0.871 | 50 m  | 24,70 € |
| 41-4820  | 0.825 | 2.5 m | 7,25 €  |
| 41-4821  | 0.825 | 50 m  | 24,70 € |

## 4. Saiten / Strings / Cordes / Corde



### Stolberg Gelbmessing CuZn30

Für unser Stolberg Gelbmessing verwenden wir eine dem historischen Gelbmessing sehr nahe kommende bleifreie CuZn30-Legierung, die durch die vielen kleinen Durchmesserreduktionen (5.3% pro Zug) eine recht hohe Festigkeit bei den dünnen Durchmessern erreicht und nach ca. 2 - 3 Wochen seinen warmen und doch strahlenden Klang entfaltet.

### Yellow brass Stolberg CuZn30

The wire displays its full timbre after about 2 - 3 weeks. The alloy is very close to the historic yellow brass.

### Laiton jaune Stolberg CuZn30

Le fil déploie son timbre chaleureux au bout de 2 à 3 semaines. L'alliage s'approche beaucoup du laiton jaune historique.

### Ottone giallo Stolberg CuZn30

Carattere: il filo sviluppa il suo timbro caloroso dopo circa 2 a 3 settimana. Il lega si avvicina molto al l'ottone giallo storico.

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2113 | 0.628 | 2.5 m | 7,25 €  |
| 41-2114 | 0.628 | 50 m  | 21,70 € |
| 41-2115 | 0.595 | 2.5 m | 7,25 €  |
| 41-2116 | 0.595 | 50 m  | 21,70 € |
| 41-2117 | 0.563 | 2.5 m | 7,25 €  |
| 41-2118 | 0.563 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2119 | 0.533 | 2.5 m | 7,25 €  |
| 41-2120 | 0.533 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2121 | 0.505 | 2.5 m | 7,25 €  |
| 41-2122 | 0.505 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2123 | 0.478 | 2.5 m | 7,25 €  |
| 41-2124 | 0.478 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2125 | 0.453 | 2.5 m | 7,25 €  |
| 41-2126 | 0.453 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2127 | 0.429 | 2.5 m | 7,25 €  |
| 41-2128 | 0.429 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2129 | 0.406 | 2.5 m | 7,25 €  |
| 41-2130 | 0.406 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2131 | 0.384 | 2.5 m | 7,25 €  |
| 41-2132 | 0.384 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2133 | 0.364 | 2.5 m | 7,25 €  |
| 41-2134 | 0.364 | 50 m  | 21,70 € |
| 41-2135 | 0.344 | 2.5 m | 7,25 €  |
| 41-2136 | 0.344 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2137 | 0.326 | 2.5 m | 7,25 €  |
| 41-2138 | 0.326 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2139 | 0.309 | 2.5 m | 7,25 €  |
| 41-2140 | 0.309 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2157 | 0.292 | 2.5 m | 7,25 €  |
| 41-2158 | 0.292 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2159 | 0.277 | 2.5 m | 7,25 €  |
| 41-2160 | 0.277 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2161 | 0.262 | 2.5 m | 7,25 €  |
| 41-2162 | 0.262 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2163 | 0.248 | 2.5 m | 7,25 €  |
| 41-2164 | 0.248 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2165 | 0.235 | 2.5 m | 7,25 €  |
| 41-2166 | 0.235 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2167 | 0.223 | 2.5 m | 7,25 €  |
| 41-2168 | 0.223 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2169 | 0.211 | 2.5 m | 7,25 €  |
| 41-2170 | 0.211 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2171 | 0.200 | 2.5 m | 7,25 €  |
| 41-2172 | 0.200 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2173 | 0.189 | 2.5 m | 7,25 €  |
| 41-2174 | 0.189 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2175 | 0.179 | 2.5 m | 7,25 €  |
| 41-2176 | 0.179 | 50 m  | 21,70 € |

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2313 | 0.169 | 2.5 m | 7,25 €  |
| 41-2314 | 0.169 | 50 m  | 21,70 € |

**Weitere Informationen** zu den untenstehenden Richtwerten, den Reisstests und dem Lieferumfang finden Sie am Anfang des Kapitels.

**Please find** further information about the indexes, the tear tests and the delivery volume at the beginning of this chapter.

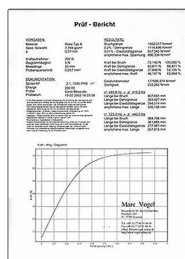
**Veillez trouver** les autres informations de valeurs indicatives, de tests de ruptures et de volume de livraison au commencement du ce chapitre.

**Ulteriori informazioni** su misure riverimento, testi di rotura e volume di consegna si trovano al linizio del capitolo.

|                |       |       |       |       |       |                   |
|----------------|-------|-------|-------|-------|-------|-------------------|
| Ø              | 0.248 | 0.309 | 0.453 | 0.740 | 1.027 | mm                |
| R <sub>m</sub> | 1025  | 1000  | 950   | 890   | 850   | N/mm <sup>2</sup> |
| max.           | 60    | 58    | 60    | 58    | 55    | %                 |
| 415Hz          | 271   | 266   | 262   | 249   | 238   | mm                |
| 440Hz          | 255   | 250   | 247   | 235   | 225   | mm                |

Dichte / weight / poids / densita = 8.550 g/cm<sup>3</sup>

| Nr/No/N° | Ø     | L     | ≥1      |
|----------|-------|-------|---------|
| 41-2290  | 1.145 | 2.5 m | 7,25 €  |
| 41-2291  | 1.145 | 50 m  | 21,70 € |
| 41-2292  | 1.084 | 2.5 m | 7,25 €  |
| 41-2293  | 1.084 | 50 m  | 21,70 € |
| 41-2294  | 1.027 | 2.5 m | 7,25 €  |
| 41-2295  | 1.027 | 50 m  | 21,70 € |
| 41-2296  | 0.972 | 2.5 m | 7,25 €  |
| 41-2297  | 0.972 | 50 m  | 21,70 € |
| 41-2298  | 0.920 | 2.5 m | 7,25 €  |
| 41-2299  | 0.920 | 50 m  | 21,70 € |
| 41-2300  | 0.871 | 2.5 m | 7,25 €  |
| 41-2301  | 0.871 | 50 m  | 21,70 € |
| 41-2302  | 0.825 | 2.5 m | 7,25 €  |
| 41-2303  | 0.825 | 50 m  | 21,70 € |
| 41-2304  | 0.781 | 2.5 m | 7,25 €  |
| 41-2305  | 0.781 | 50 m  | 21,70 € |
| 41-2306  | 0.740 | 2.5 m | 7,25 €  |
| 41-2307  | 0.740 | 50 m  | 21,70 € |
| 41-2308  | 0.701 | 2.5 m | 7,25 €  |
| 41-2309  | 0.701 | 50 m  | 21,70 € |
| 41-2365  | 0.663 | 2.5 m | 7,25 €  |
| 41-2366  | 0.663 | 50 m  | 21,70 € |



## 4. Saiten / Strings / Cordes / Corde



### Vogel Bronze CuSn6

Der Draht entfaltet nach ca. 1 Monat seinen vollen, hellen und warmen Klang. Sehr zugfestes Material. Es hält auch noch, wo Messing-Saiten reißen. Kann aber auch gut als Ganzbezug eingesetzt werden.

### Bronze Vogel CuSn6

The wire displays its rich, clear and warm timbre after about 1 month. Very tensile material. To be used where brass strings could break, but also suitable for a complete stringing.

### Bronze Vogel CuSn6

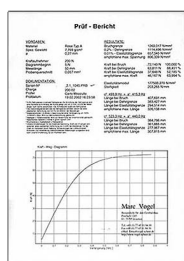
Le fil déploie son timbre riche, clair et chaleureux au bout d'un mois. Hautement résistant à la rupture. Peut être utilisé là où les cordes de laiton cassent, mais également sur l'instrument en entier.

### Bronzo Vogel CuSn6

Il filo sviluppa il suo timbro ricco, chiaro e caloroso dopo circa un mese.

Materiale molto resistente. Resiste anche dove le corde di ottone si rampono. Può essere utilizzato anche per coperture complete.

|         |       |       |         |
|---------|-------|-------|---------|
| 41-2323 | 0.563 | 2.5 m | 6,14 €  |
| 41-4553 | 0.563 | 50 m  | 26,60 € |
| 41-2325 | 0.533 | 2.5 m | 6,14 €  |
| 41-4552 | 0.533 | 50 m  | 26,60 € |
| 41-2327 | 0.505 | 2.5 m | 6,14 €  |
| 41-4551 | 0.505 | 50 m  | 26,60 € |
| 41-2329 | 0.478 | 2.5 m | 6,14 €  |
| 41-4550 | 0.478 | 50 m  | 26,60 € |
| 41-2331 | 0.453 | 2.5 m | 6,14 €  |
| 41-4549 | 0.453 | 50 m  | 26,60 € |
| 41-2333 | 0.429 | 2.5 m | 6,14 €  |
| 41-4548 | 0.429 | 50 m  | 26,60 € |
| 41-2335 | 0.406 | 2.5 m | 6,14 €  |
| 41-4547 | 0.406 | 50 m  | 24,00 € |
| 41-2337 | 0.384 | 2.5 m | 6,14 €  |
| 41-4546 | 0.384 | 50 m  | 24,00 € |
| 41-2339 | 0.364 | 2.5 m | 6,14 €  |
| 41-4545 | 0.364 | 50 m  | 24,00 € |
| 41-2341 | 0.344 | 2.5 m | 6,14 €  |
| 41-4544 | 0.344 | 50 m  | 24,00 € |
| 41-2343 | 0.326 | 2.5 m | 6,14 €  |
| 41-4543 | 0.326 | 50 m  | 24,00 € |
| 41-2345 | 0.309 | 2.5 m | 6,14 €  |
| 41-4542 | 0.309 | 50 m  | 24,00 € |
| 41-2347 | 0.292 | 2.5 m | 6,14 €  |
| 41-4541 | 0.292 | 50 m  | 24,00 € |
| 41-2349 | 0.277 | 2.5 m | 6,14 €  |
| 41-4540 | 0.277 | 50 m  | 24,00 € |
| 41-2351 | 0.262 | 2.5 m | 6,14 €  |
| 41-4539 | 0.262 | 50 m  | 24,00 € |
| 41-2353 | 0.248 | 2.5 m | 6,14 €  |
| 41-4538 | 0.248 | 50 m  | 24,00 € |
| 41-2355 | 0.235 | 2.5 m | 6,14 €  |
| 41-4537 | 0.235 | 50 m  | 24,00 € |
| 41-2357 | 0.223 | 2.5 m | 6,14 €  |
| 41-4536 | 0.223 | 50 m  | 24,00 € |
| 41-2359 | 0.211 | 2.5 m | 6,14 €  |
| 41-4535 | 0.211 | 50 m  | 24,00 € |
| 41-2361 | 0.200 | 2.5 m | 6,14 €  |
| 41-4534 | 0.200 | 50 m  | 24,00 € |
| 41-2363 | 0.188 | 2.5 m | 6,14 €  |
| 41-4533 | 0.188 | 50 m  | 24,00 € |
| 41-4532 | 0.179 | 50 m  | 24,00 € |
| 41-4531 | 0.169 | 50 m  | 24,00 € |



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**Veillez trouver** les autres informations de valeurs indicatives, de tests de ruptures et de volume de livraison au commencement du ce chapitre.

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| Ø              | 0.211 | 0.309 | 0.506 | 0.702 | 0.920 | mm                |
|----------------|-------|-------|-------|-------|-------|-------------------|
| R <sub>m</sub> | 1050  | 1050  | 1050  | 950   | 950   | N/mm <sup>2</sup> |
| max.           | 67    | 67    | 67    | 64    | 63    | %                 |
| 415Hz          | 293   | 293   | 293   | 274   | 263   | mm                |
| 440Hz          | 277   | 277   | 277   | 260   | 250   | mm                |

Dichte / weight / poids / densita = 8.8 g/cm<sup>3</sup>

| Nr/No/N° | Ø     | L     | ≥1      |
|----------|-------|-------|---------|
| 41-2978  | 0.920 | 2.5 m | 9,20 €  |
| 41-4562  | 0.920 | 50 m  | 31,70 € |
| 41-2976  | 0.871 | 2.5 m | 9,20 €  |
| 41-4561  | 0.871 | 50 m  | 31,70 € |
| 41-2974  | 0.825 | 2.5 m | 9,20 €  |
| 41-4560  | 0.825 | 50 m  | 31,70 € |
| 41-2972  | 0.781 | 2.5 m | 9,20 €  |
| 41-4559  | 0.781 | 50 m  | 31,70 € |
| 41-2970  | 0.740 | 2.5 m | 6,14 €  |
| 41-4558  | 0.740 | 50 m  | 29,10 € |
| 41-2315  | 0.701 | 2.5 m | 6,14 €  |
| 41-4557  | 0.701 | 50 m  | 29,10 € |
| 41-2317  | 0.663 | 2.5 m | 6,14 €  |
| 41-4556  | 0.663 | 50 m  | 29,10 € |
| 41-2319  | 0.628 | 2.5 m | 6,14 €  |
| 41-4555  | 0.628 | 50 m  | 29,10 € |
| 41-2321  | 0.595 | 2.5 m | 6,14 €  |
| 41-4554  | 0.595 | 50 m  | 26,60 € |

## 4. Saiten / Strings / Cordes / Corde



### Westfälisches Eisen Fe 99

Grundtöniger, warmer Klang, der sich sehr schnell entfaltet. Hochreiner Eisendraht, wie er schon früher aus dem so begehrten Osemundeisen gewonnen wurde. Durch ziehen in kleinen Schritten ohne zwischenglühen erreichen wir eine lineare Verfestigung des Materials ohne, daß "Sprünge" zwischen den Durchmessern entstehen.

### Westphalian iron Fe 99

Character: warm timbre which displays itself fast. It is a very pure iron wire as it was previous won from the popular Osemund iron. Through drawing in small steps without intermediate annealing we reach a linear strain hardening of the material without large leaps between the diametres.

### Fer westphalien Fe 99

Caractère: le fil déploie son timbre chaleureux vite. Il est un fil de fer quel on extrait de fer Osemund autrefois. Par tirer dans petits pas sans le recuit intermédiaire nous recevons un écrouissage du matériau linéaire sans des "bonds" grands entre les diamètres.

### Ferro vestfalico Fe 99

Carattere: il filo sviluppa il suo timbro caloroso rapido. Si tratta di un ferro puro come si conquistava prima nei centri di filo dal ferro Osemund. Per tirarlo passo per passo senza ricottura intermedia, otteniamo un indurimento lineare del materiale senza che si sviluppino dei salti tra i diametri.

|         |       |       |         |
|---------|-------|-------|---------|
| 41-4611 | 0.781 | 2.5 m | 7,25 €  |
| 41-4612 | 0.781 | 50 m  | 19,70 € |
| 41-4609 | 0.740 | 2.5 m | 7,25 €  |
| 41-4610 | 0.740 | 50 m  | 17,30 € |
| 41-4607 | 0.701 | 2.5 m | 7,25 €  |
| 41-4608 | 0.701 | 50 m  | 17,30 € |
| 41-4605 | 0.663 | 2.5 m | 7,25 €  |
| 41-4606 | 0.663 | 50 m  | 17,30 € |
| 41-4603 | 0.628 | 2.5 m | 7,25 €  |
| 41-4604 | 0.628 | 50 m  | 17,30 € |
| 41-4601 | 0.595 | 2.5 m | 7,25 €  |
| 41-4602 | 0.595 | 50 m  | 17,30 € |
| 41-4599 | 0.563 | 2.5 m | 7,25 €  |
| 41-4600 | 0.563 | 50 m  | 17,30 € |
| 41-4597 | 0.533 | 2.5 m | 7,25 €  |
| 41-4598 | 0.533 | 50 m  | 17,30 € |
| 41-4595 | 0.505 | 2.5 m | 7,25 €  |
| 41-4596 | 0.505 | 50 m  | 17,30 € |
| 41-4593 | 0.478 | 2.5 m | 7,25 €  |
| 41-4594 | 0.478 | 50 m  | 17,30 € |
| 41-4591 | 0.453 | 2.5 m | 7,25 €  |
| 41-4592 | 0.453 | 50 m  | 17,30 € |
| 41-4589 | 0.429 | 2.5 m | 7,25 €  |
| 41-4590 | 0.429 | 50 m  | 17,30 € |
| 41-4587 | 0.406 | 2.5 m | 7,25 €  |
| 41-4588 | 0.406 | 50 m  | 17,30 € |
| 41-4585 | 0.384 | 2.5 m | 7,25 €  |
| 41-4586 | 0.384 | 50 m  | 17,30 € |
| 41-4583 | 0.364 | 2.5 m | 7,25 €  |
| 41-4584 | 0.364 | 50 m  | 17,30 € |
| 41-4581 | 0.344 | 2.5 m | 7,25 €  |
| 41-4582 | 0.344 | 50 m  | 17,30 € |
| 41-4579 | 0.326 | 2.5 m | 7,25 €  |
| 41-4580 | 0.326 | 50 m  | 17,30 € |
| 41-4577 | 0.309 | 2.5 m | 7,25 €  |
| 41-4578 | 0.309 | 50 m  | 17,30 € |
| 41-4575 | 0.292 | 2.5 m | 7,25 €  |
| 41-4576 | 0.292 | 50 m  | 17,30 € |
| 41-4573 | 0.277 | 2.5 m | 7,25 €  |
| 41-4574 | 0.277 | 50 m  | 17,30 € |
| 41-4571 | 0.262 | 2.5 m | 7,25 €  |
| 41-4572 | 0.262 | 50 m  | 17,30 € |
| 41-2274 | 0.248 | 2.5 m | 7,25 €  |
| 41-2275 | 0.248 | 50 m  | 17,30 € |
| 41-2276 | 0.235 | 2.5 m | 7,25 €  |
| 41-2277 | 0.235 | 50 m  | 17,30 € |
| 41-2278 | 0.223 | 2.5 m | 7,25 €  |
| 41-2279 | 0.223 | 50 m  | 17,30 € |
| 41-2280 | 0.211 | 2.5 m | 7,25 €  |
| 41-2281 | 0.211 | 50 m  | 17,30 € |
| 41-2282 | 0.200 | 2.5 m | 7,25 €  |
| 41-2283 | 0.200 | 50 m  | 17,30 € |
| 41-2284 | 0.189 | 2.5 m | 7,25 €  |
| 41-2285 | 0.189 | 50 m  | 17,30 € |
| 41-2286 | 0.179 | 2.5 m | 7,25 €  |
| 41-2287 | 0.179 | 50 m  | 17,30 € |
| 41-2288 | 0.169 | 2.5 m | 7,25 €  |
| 41-2289 | 0.169 | 50 m  | 17,30 € |

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| Ø              | 0.248 | 0.309 | 0.406 | 0.596 | 0.781 | mm                |
|----------------|-------|-------|-------|-------|-------|-------------------|
| R <sub>m</sub> | 1659  | 1507  | 1353  | 1131  | 1008  | N/mm <sup>2</sup> |
| max.           | 62    | 59    | 62    | 58    | 60    | %                 |
| 415Hz          | 367   | 340   | 332   | 293   | 281   | mm                |
| 440Hz          | 346   | 321   | 313   | 277   | 266   | mm                |

Dichte / weight / poids / densita = 7.85 g/cm<sup>3</sup>

| Nr/No/N° | Ø     | L     | ≥1      |
|----------|-------|-------|---------|
| 41-4625  | 1.145 | 2.5 m | 7,25 €  |
| 41-4626  | 1.145 | 50 m  | 19,70 € |
| 41-4623  | 1.084 | 2.5 m | 7,25 €  |
| 41-4624  | 1.084 | 50 m  | 19,70 € |
| 41-4621  | 1.027 | 2.5 m | 7,25 €  |
| 41-4622  | 1.027 | 50 m  | 19,70 € |
| 41-4619  | 0.972 | 2.5 m | 7,25 €  |
| 41-4620  | 0.972 | 50 m  | 19,70 € |
| 41-4617  | 0.920 | 2.5 m | 7,25 €  |
| 41-4618  | 0.920 | 50 m  | 19,70 € |
| 41-4615  | 0.871 | 2.5 m | 7,25 €  |
| 41-4616  | 0.871 | 50 m  | 19,70 € |
| 41-4613  | 0.825 | 2.5 m | 7,25 €  |
| 41-4614  | 0.825 | 50 m  | 19,70 € |

