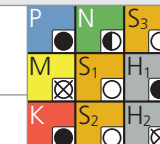


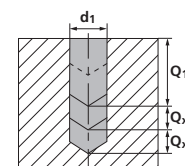
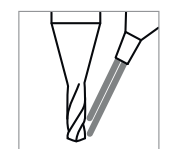
# CrazyDrill Steel 6 x d / 7 x d

RECOMMANDATION D'UTILISATION

● Parfaitement recommandé | ● Recommandé | ○ Peu recommandé | ⊗ Non recommandé



## PERÇAGE AVEC REFROIDISSEMENT EXTERNE | VUE D'ENSEMBLE DES DONNÉES DE COUPE



| Groupe matériaux                                   | Matériau                                   | Mat. no.                       | DIN                  | AISI/ASTM/UNS           | v <sub>c</sub><br>[m/min] | Q <sub>1</sub> |         | Q <sub>x</sub> |         | f [mm/tour]     |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------------------------------------------|--------------------------------------------|--------------------------------|----------------------|-------------------------|---------------------------|----------------|---------|----------------|---------|-----------------|-----------------|--------|--------|---------|-----------------|--------|-----------------|----------------|-----------------|-------------------------|----------------|------------|-----------------------|--------|------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|--------|------|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|--------|---------|--------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|--------|------|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                    |                                            |                                |                      |                         |                           | 6xd            | 7xd     | 6xd            | 7xd     | Ød1             |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            |                                |                      |                         |                           |                |         |                |         | 0.4 mm<br>1/64" | 0.8 mm<br>1/32" | 1.0 mm | 1.2 mm | 1.25 mm | 1.5 mm<br>1/16" | 2.0 mm | 2.5 mm<br>3/32" | 3.0 mm<br>1/8" | 4.0 mm<br>5/32" | 5.0 mm<br>3/16" - 7/32" | 6.0 mm<br>1/4" |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            |                                |                      |                         |                           |                |         |                |         | f               | f               | f      | f      | f       | f               | f      | f               | f              | f               | f                       | f              | f          |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| P                                                  | Aciers non alliés<br>Rm < 800 N/mm²        | 1.0301                         | C10                  | AISI 1010               | 120                       | 6xd1           | -       | 7xd1           | -       | 0.040           | 0.100           | 0.120  | 0.140  | 0.150   | 0.200           | 0.250  | 0.270           | 0.350          | 0.370           | 0.390                   | 0.400          | 0.400      |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.0401                         | C15                  | AISI 1015               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.1191                         | C45E/CK45            | AISI 1045               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.0044                         | S275JR               | AISI 1020               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.0715                         | 11SMn30              | AISI 1215               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.5752                         | 15NiCr13             | ASTM 3415 / AISI 3310   |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | Aciers faiblement alliés<br>Rm > 900 N/mm² | 1.7131                         | 16MnCr5              | AISI 5115               | 80                        | 6xd1           | -       | 7xd1           | -       | 0.015           | 0.030           | 0.080  | 0.110  | 0.120   | 0.160           | 0.200  | 0.230           | 0.250          | 0.270           | 0.300                   | 0.320          | 0.320      |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.3505                         | 100Cr6               | AISI 52100              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.7225                         | 42CrMo4              | AISI 4140               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.2842                         | 90MnCrV8             | AISI O2                 |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.2379                         | X153CrMoV12          | AISI D2                 |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.2436                         | X210CrW12            | AISI D4/D6              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| Aciers à outil fortement alliés<br>Rm < 1200 N/mm² | 1.3343                                     | HS6-5-2C                       | AISI M2 / UNS T11302 | 60                      | 6xd1                      | -              | 7xd1    | -              | 0.020   | 0.070           | 0.120           | 0.140  | 0.150  | 0.200   | 0.250           | 0.280  | 0.300           | 0.320          | 0.340           | 0.350                   | 0.350          |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | 1.3355                                     | HS18-0-1                       | AISI T1 / UNS T12001 |                         |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | M                                          | Aciers inoxydables ferritiques | 1.4016               |                         |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                | X6Cr17     | AISI 430 / UNS S43000 |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            |                                | 1.4105               |                         |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                | X6CrMoS17  | AISI 430F             |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            |                                | 1.4034               |                         |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                | X46Cr13    | AISI 420C             |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            |                                | 1.4112               |                         |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                | X90CrMoV18 | AISI 440B             |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| Aciers inoxydables martensitiques                  |                                            | 1.4542                         | X5CrNiCuNb 16-4      | AISI 630 / ASTM 17-4 PH |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.4545                         | X5CrNiCuNb 15-5      | ASTM 15-5 PH            |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.4301                         | X5CrNi 18-10         | AISI 304                |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.4435                         | X2CrNiMo 18-14-3     | AISI 316L               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| Aciers inoxydables austénitiques                   |                                            | 1.4441                         | X2CrNiMo 18-15-3     | AISI 316LM              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.4539                         | X1NiCrMoCu 25-20-5   | AISI 904L               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | K                              | Fonte grise          | 0.6020                  | GG20                      | ASTM 30        | 150     | 6xd1           | -       | 7xd1            | -               | 0.040  | 0.150  | 0.200   | 0.240           | 0.250  | 0.300           | 0.350          | 0.400           | 0.450                   | 0.470          | 0.490      | 0.500                 |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            |                                |                      | 0.6030                  | GG30                      | ASTM 40B       |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.7040                                             | GGG40                                      |                                |                      | ASTM 60-40-18           |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.7060                                             | GGG60                                      |                                |                      | ASTM 80-60-03           |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| N                                                  | Alliages d'aluminium corroyés              | 3.2315                         | AlMgSi1              | ASTM 6351               | 220                       | 4xd1           | 2xd1    | 4xd1           | 2xd1    | 0.045           | 0.060           | 0.080  | 0.090  | 0.095   | 0.110           | 0.130  | 0.150           | 0.180          | 0.190           | 0.210                   | 0.250          |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 3.4365                         | AlZnMgCu1.5          | ASTM 7075               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | Fonte d'aluminium                          | 3.2163                         | GD-AlSi9Cu3          | ASTM A380               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                | 200        | 4xd1                  | 2xd1   | 4xd1 | 2xd1   | 0.040 | 0.055 | 0.075 | 0.080 | 0.085 | 0.100 | 0.120 | 0.140 | 0.170 | 0.180 | 0.200 | 0.240 |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 3.2381                         | GD-AlSi10Mg          | UNS A03590              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | Cuivre                                     | 2.0040                         | Cu-OF / CW008A       | UNS C10100              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       | 120 | 1.5xd1 | 1xd1 | 1.5xd1 | 1xd1 | 0.030 | 0.050 | 0.060 | 0.063 | 0.065 | 0.075 | 0.080 | 0.095 | 0.110 | 0.130 | 0.160 | 0.200 |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.0065                         | Cu-ETP / CW004A      | UNS C11000              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | Laiton sans plomb                          | 2.0321                         | CuZn37 CW508L        | UNS C27400              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       | 150 | 1.5xd1 | 1xd1    | 1.5xd1 | 1xd1    | 0.030 | 0.050 | 0.065 | 0.068 | 0.070 | 0.075 | 0.090 | 0.110 | 0.140 | 0.160 | 0.200 | 0.220 |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.0360                         | CuZn40 CW509L        | UNS C28000              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | Laiton, Bronze<br>Rm < 400 N/mm²           | 2.0401                         | CuZn39Pb3 / CW614N   | UNS C38500              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       | 100 | 1.5xd1 | 1xd1 | 1.5xd1 | 1xd1 | 0.035 | 0.055 | 0.070 | 0.075 | 0.080 | 0.090 | 0.110 | 0.130 | 0.150 | 0.180 | 0.220 | 0.240 |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.1020                         | CuSn6                | UNS C51900              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    | Bronze<br>Rm < 600 N/mm²                   | 2.0966                         | CuAl10Ni5Fe4         | UNS C63000              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       | 100 | 4xd1 | 2xd1 | 4xd1 | 3xd1 | 0.015 | 0.025 | 0.035 | 0.045 | 0.050 | 0.050 | 0.065 | 0.085 | 0.100 | 0.120 | 0.150 | 0.200 |
|                                                    |                                            | 2.0960                         | CuAl9Mn2             | UNS C63200              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| S <sub>1</sub>                                     | Super alliages                             | 2.4856                         |                      | Inconel 625             | 40                        | 1xd1           | 0.25xd1 | 1xd1           | 0.25xd1 | 0.002           | 0.004           | 0.005  | 0.006  | 0.006   | 0.007           | 0.010  | 0.012           | 0.015          | 0.020           | 0.025                   | 0.030          |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.4668                         |                      | Inconel 718             |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.4617                         | NiMo28               | Hastelloy B-2           |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.4665                         | NiCr22Fe18Mo         | Hastelloy X             |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| S <sub>2</sub>                                     | Titane pur                                 | 3.7035                         | Gr.2                 | ASTM B348 / F67         | 40                        | 1xd1           | 0.25xd1 | 1xd1           | 0.25xd1 | 0.012           | 0.024           | 0.030  | 0.035  | 0.040   | 0.045           | 0.060  | 0.075           | 0.090          | 0.120           | 0.150                   | 0.180          |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 3.7065                         | Gr.4                 | ASTM B348 / F68         |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| S <sub>3</sub>                                     | Alliages de titane                         | 3.7165                         | TiAl6V4              | ASTM B348 / F136        |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                | 20         | 1xd1                  | 0.3xd1 | 1xd1 | 0.3xd1 | 0.020 | 0.030 | 0.040 | 0.045 | 0.050 | 0.055 | 0.070 | 0.080 | 0.100 | 0.140 | 0.160 | 0.200 |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 9.9367                         | TiAl6Nb7             | ASTM F1295              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| H <sub>1</sub>                                     | Aciers trempés < 55 HRC                    | 1.2510                         | 100MnCrMoW4          | AISI O1                 |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       | 30  | 4xd1   | 1xd1 | 4xd1   | 1xd1 | 0.005 | 0.007 | 0.010 | 0.011 | 0.011 | 0.012 | 0.015 | 0.020 | 0.025 | 0.030 | 0.035 | 0.040 |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 2.4964                         | CoCr20W15Ni          | Haynes 25               |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| H <sub>2</sub>                                     | Aciers trempés ≥ 55 HRC                    | 2.4964                         | CrCoMo28             | ASTM F1537              |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       | 30  | 4xd1   | 0.25xd1 | 4xd1   | 0.25xd1 | 0.006 | 0.012 | 0.015 | 0.018 | 0.020 | 0.025 | 0.030 | 0.035 | 0.045 | 0.060 | 0.075 | 0.090 |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                    |                                            | 1.2379                         | X153CrMoV12          | AISI D2                 |                           |                |         |                |         |                 |                 |        |        |         |                 |        |                 |                |                 |                         |                |            |                       |        |      |        |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |        |         |        |         |       |       |       |       |       |       |       |       |       |       |       |       |     |        |      |        |      |       |       |       |       |       |       |       |       |       |       |       |       |     |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |