
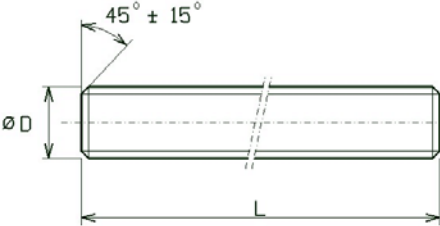


| <br><b>STANDARD ELEMENTAIRE</b><br>ELEMENT STANDARD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>BARRES FILETEES (PROFIL ISO)</b><br><b>en acier inoxydable</b><br><i>THREADED RODS IN STAINLESS STEEL</i>                                                                | <b>A.23.18.A5.01</b> REV <b>B</b>                                                                                                                                                                                                  |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------|--------------------|----------|---------------------------|--------------------|------|----|---|------|-------|-----------------|------|----|---|------|-------|-----------------|-------------|-----------|------------|-------------|--------------|-----------------|------|----|-----|------|-------|-----------------|------|----|---|------|-------|-----------------|------|----|---|------|-------|-----------------|------|----|-----|------|-------|-----------------|------|----|-----|------|-------|-----------------|
| <b>OPRINCIPALES UTILISATIONS</b><br>Tuyauteries en acier inox 316L pour cryogénie                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                             | <b>Annule et remplace Y12002</b>                                                                                                                                                                                                   |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <b>APPLICABILITE POTENTIELLE NAVIRE</b><br>Passagers Militaire Méthanier Rapide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                             | <b>POTENTIAL SHIP APPLICABILITY</b><br>Passengers Military Methanier High-speed craft                                                                                                                                              |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <b>DOCUMENTS DE REFERENCE</b><br>-Sans document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                             | <b>REFERENCE DOCUMENTS</b><br>No document                                                                                                                                                                                          |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <b>MATIERE / TRAITEMENT DE SURFACE</b><br>Grade <b>B 8 M</b> , classe 2<br>suivant : <b>ASTM A 320 / A 320 M</b><br>(inox type 316)<br>- Traitement thermique + écrouissage suivant (ASTM A 320 / A 320 M)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                             | <b>MATERIAL / TREATMENT SURFACE</b><br>Grade <b>B 8 M</b> class 2<br>as per : <b>ASTM A 320 / A 320 M</b><br>(316 type stainless steel)<br>- Heat treatment + strain hardened as per (ASTM A 320 / A 320 M)                        |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <b>CHARACTERISTIQUES</b><br>- Température : - 196°, + 80°C<br>- Résilience suivant recueil IGC tableau 6.4<br>- Filetage métrique à filet triangulaire (profil ISO) à pas gros suivant : <b>NF E 03 054</b><br>- Fabrication : filetage roulé                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                             | <b>CHARACTERISTICS</b><br>- Temperatures : - 196°C, + 80°C<br>- Ductility as per IGC collection table 6.4<br>- Triangular metric threading (iso profile) coarse pitch as per : <b>NF E 03 054</b><br>- Fabrication : rolled thread |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| Chanfrein extrémité suivant : <b>NF E 29 040</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                             | End bevels as per <b>NF E 29 040</b>                                                                                                                                                                                               |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <div style="border: 2px solid red; padding: 5px; text-align: center;"> <b>Tolérances, contrôles et essais suivant spécification technique de commande.</b><br/> <b>Allowances, checks and tests following technical specification of command.</b> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                             |                                                                                                                                                                                                                                    |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>Dimensions en mm</p> <table border="1"> <thead> <tr> <th>Diamètre<br/><i>Nominal</i></th> <th>Ø D</th> <th>Pas<br/>ISO</th> <th>L<br/>(m)</th> <th>Masse<br/>Weight<br/>(Kg/m)</th> <th>REFERENCE<br/>OBJET</th> </tr> </thead> <tbody> <tr><td>M 14</td><td>14</td><td>2</td><td>1,00</td><td>0,990</td><td><b>SA019524</b></td></tr> <tr><td>M 16</td><td>16</td><td>2</td><td>1,00</td><td>1,340</td><td><b>SA019525</b></td></tr> <tr><td><b>M 18</b></td><td><b>18</b></td><td><b>2.5</b></td><td><b>1,00</b></td><td><b>1,900</b></td><td><b>SA037813</b></td></tr> <tr><td>M 20</td><td>20</td><td>2,5</td><td>1,00</td><td>2,070</td><td><b>SA019526</b></td></tr> <tr><td>M 24</td><td>24</td><td>3</td><td>1,00</td><td>2,985</td><td><b>SA019527</b></td></tr> <tr><td>M 27</td><td>27</td><td>3</td><td>1,00</td><td>3,850</td><td><b>SA019528</b></td></tr> <tr><td>M 30</td><td>30</td><td>3,5</td><td>1,00</td><td>4,700</td><td><b>SA019529</b></td></tr> <tr><td>M 33</td><td>33</td><td>3,5</td><td>1,00</td><td>5,780</td><td><b>SA019530</b></td></tr> </tbody> </table> </div> <div style="flex: 1; text-align: center;">  </div> </div> |                                                                                                                                                                             |                                                                                                                                                                                                                                    | Diamètre<br><i>Nominal</i> | Ø D                       | Pas<br>ISO         | L<br>(m) | Masse<br>Weight<br>(Kg/m) | REFERENCE<br>OBJET | M 14 | 14 | 2 | 1,00 | 0,990 | <b>SA019524</b> | M 16 | 16 | 2 | 1,00 | 1,340 | <b>SA019525</b> | <b>M 18</b> | <b>18</b> | <b>2.5</b> | <b>1,00</b> | <b>1,900</b> | <b>SA037813</b> | M 20 | 20 | 2,5 | 1,00 | 2,070 | <b>SA019526</b> | M 24 | 24 | 3 | 1,00 | 2,985 | <b>SA019527</b> | M 27 | 27 | 3 | 1,00 | 3,850 | <b>SA019528</b> | M 30 | 30 | 3,5 | 1,00 | 4,700 | <b>SA019529</b> | M 33 | 33 | 3,5 | 1,00 | 5,780 | <b>SA019530</b> |
| Diamètre<br><i>Nominal</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ø D                                                                                                                                                                         | Pas<br>ISO                                                                                                                                                                                                                         | L<br>(m)                   | Masse<br>Weight<br>(Kg/m) | REFERENCE<br>OBJET |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 14                                                                                                                                                                          | 2                                                                                                                                                                                                                                  | 1,00                       | 0,990                     | <b>SA019524</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 16                                                                                                                                                                          | 2                                                                                                                                                                                                                                  | 1,00                       | 1,340                     | <b>SA019525</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <b>M 18</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>18</b>                                                                                                                                                                   | <b>2.5</b>                                                                                                                                                                                                                         | <b>1,00</b>                | <b>1,900</b>              | <b>SA037813</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20                                                                                                                                                                          | 2,5                                                                                                                                                                                                                                | 1,00                       | 2,070                     | <b>SA019526</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 24                                                                                                                                                                          | 3                                                                                                                                                                                                                                  | 1,00                       | 2,985                     | <b>SA019527</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 27                                                                                                                                                                          | 3                                                                                                                                                                                                                                  | 1,00                       | 3,850                     | <b>SA019528</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 30                                                                                                                                                                          | 3,5                                                                                                                                                                                                                                | 1,00                       | 4,700                     | <b>SA019529</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| M 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 33                                                                                                                                                                          | 3,5                                                                                                                                                                                                                                | 1,00                       | 5,780                     | <b>SA019530</b>    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| <b>DOCUMENT DE CONTROLE A DELIVRER PAR LE FOURNISSEUR</b><br>-ASTM182 en général+spécifications IGC code et classification applicable.<br><br><i>CONTROL DOCUMENTS TO BE DELIVERED BY THE SUPPLIER</i><br>-ASTM182 in general+specifications IGC code and applicable classification.<br><b>MATERIEL AVEC APPROBATION / MATERIAL WITH APPROVAL</b><br>Suivant spécification technique de commande<br><i>Following technical specification of command</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>FOURNISSEURS / TYPE</b><br>SUPPLIER / TYPE<br>- indifférent<br><br><br><b>NORME DE REFERENCE</b><br>REFERENCE NORM<br>NF E 03 054<br>NF E 29 040<br>ASTM A 320 / A 320 M | <b>ETAT DE LIVRAISON et DE CONDITIONNEMENT</b><br>DELIVERY AND CONDITIONNING STATUS                                                                                                                                                |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |
| Resp.Standardisation :<br>R .GREGOIRE<br>Le : 07/02/06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Resp.Fonction Technique :<br>D GOALABRE<br>Le : 08/02/06                                                                                                                    | Rév. 3(PENHOAT J-P°) Ajout référence M18.<br>Rév. B : Modification du logo + copyright                                                                                                                                             |                            |                           |                    |          |                           |                    |      |    |   |      |       |                 |      |    |   |      |       |                 |             |           |            |             |              |                 |      |    |     |      |       |                 |      |    |   |      |       |                 |      |    |   |      |       |                 |      |    |     |      |       |                 |      |    |     |      |       |                 |