

# TenarisXP® Buttress

4 1/2" TO 16"

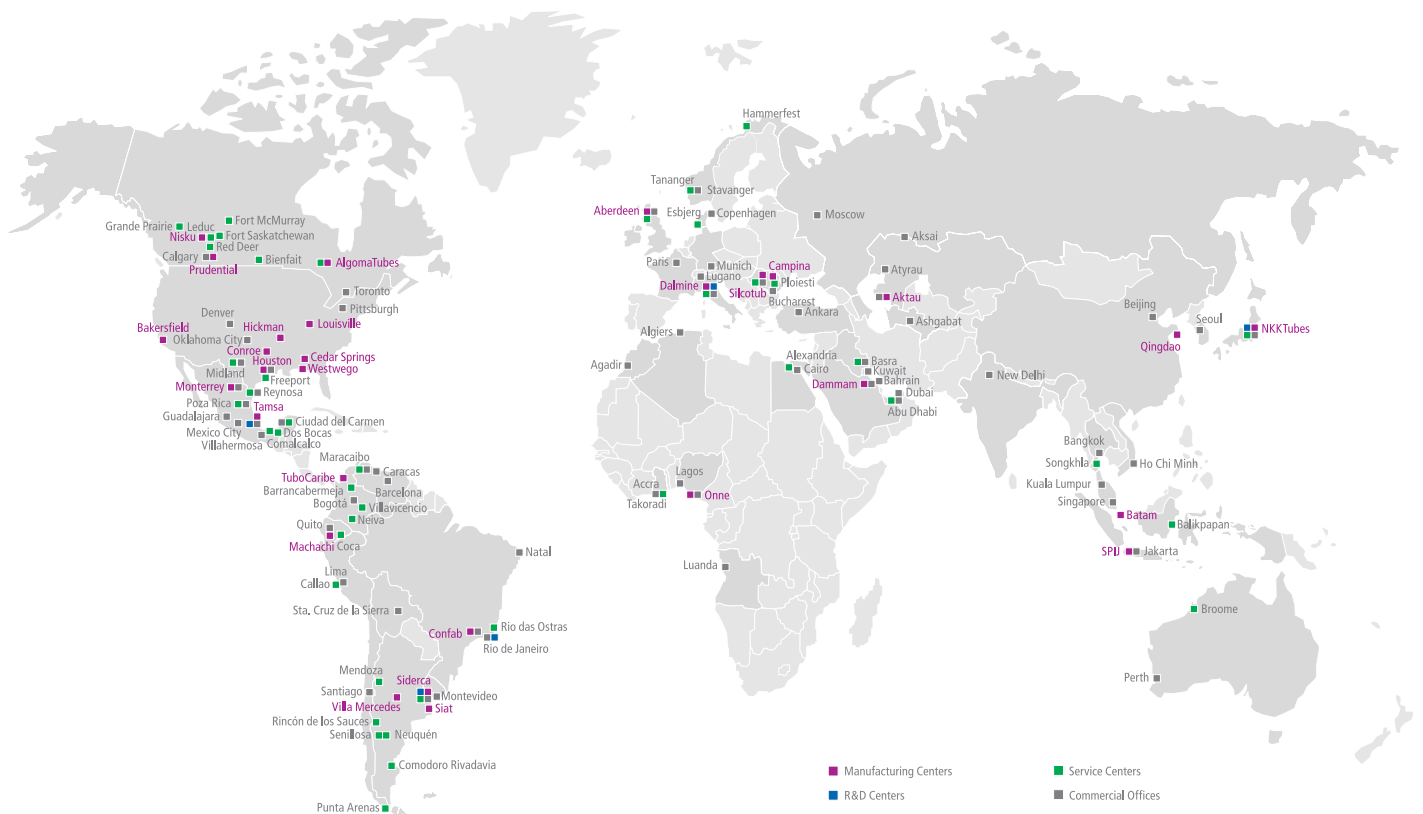


# Tenaris

Tenaris is a leading supplier of tubes and related services for the world's energy industry and certain other industrial applications. Our mission is to deliver value to our customers through product development, manufacturing excellence, and supply chain management. We seek to minimize risk for our customers and

help them reduce costs, increase flexibility and improve time-to-market. Tenaris employees around the world are committed to continuous improvement by sharing knowledge across a single global organization.

For further information please visit our website at [www.tenaris.com](http://www.tenaris.com).



# Main Attributes



## SIZE AVAILABILITY

4 1/2" TO 16"

## MAIN FEATURES

- API Buttress compatible
- 100% tension efficiency
- Enhanced structural capacity:
  - 100% compression efficiency
  - Bending same as pipe body
- Extra torque capability
- Positive torque shoulder
- Enhanced ID flow
- Make up repeatability
- Standard Bevel of 20°
- API triangle in pin with 24" x 1" white locator stripe

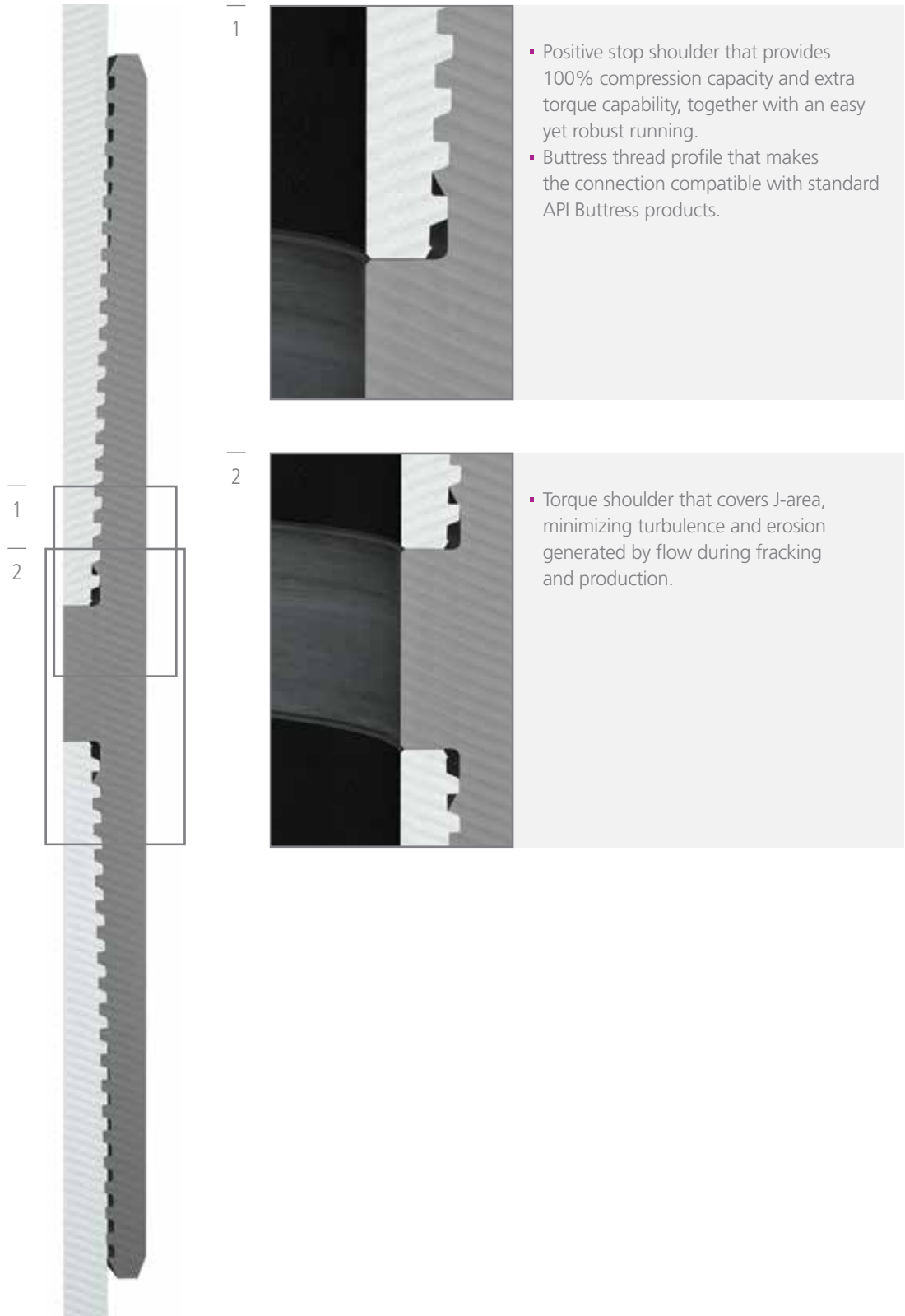
## MAIN APPLICATIONS

- **Shales**
- **Casing while drilling**
- **Geothermal**
- Intermediate casing
- Production casing

## OPTIONS

- Special Clearance
- Seal Ring
- Regular API

# Key Features



# A robust and versatile solution

The TenarisXP® Buttress connection is the first connection in the TenarisXP® series, which combines enhanced performance with API compatibility.

With its special shouldered coupling design, the TenarisXP® Buttress connection offers extra torque and compression resistance as well as greater make-up stability than standard Buttress connections. This cost-efficient solution ensures an easy yet robust running.

Introduced in 2010, the TenarisXP® Buttress connection has been extensively field proven by many customers, with more than 75 million feet ran worldwide. To help operators obtain the best out of this innovative connection, Tenaris provides field service support by the largest and best trained team of specialists available in the industry.

## API COMPATIBILITY

The connection's Buttress thread profile makes it fully compatible with standard API Buttress connections.

By being API-compatible in both pin and box, operators can use standard API accessories and draw on a wide range of threading and repair shops, providing flexibility and efficiency. TenarisXP® Buttress is also available on new, larger API Buttress coupling sizes.

## RELIABILITY

With this robust connection with a positive-stop shoulder, make-up operations become easier and more consistent and the risk of re-make ups and rejects is reduced, thereby promoting make-up reliability.

The enhanced ID flow design minimizes erosion and corrosion during fracking and production.

## BETTER PERFORMANCE

### TORQUE

The TenarisXP® Buttress connection offers enhanced torque performance, with a well defined make-up torque range. Its operational torque is about 3 times better than the typical API Buttress connection make-up torque values.

This extra torque capability is provided by the torque shoulder. There is no need to provide additional elements like torque rings, simplifying the operation.

### BENDING

Due to the high structural performance in tension and compression the TenarisXP® Buttress connection is capable of resisting higher bending loads.

### FATIGUE

Extensive cyclic testing shows that TenarisXP® Buttress can withstand very high fatigue loads, allowing the connection to resist great degrees of curvature (on occasions higher than 20°/100 ft) and large number of rotations.

With an extensive ad-hoc fatigue testing experience in sizes ranging from 4 1/2" up to 13 3/8" OD, there is an exceptional characterization of its fatigue performance.

This assessment allows Tenaris to reliably support operators for the use of TenarisXP® Buttress connections in not only Shales applications but also in other operations where rotating the string under high fatigue and torque loads is required, such as Casing while Drilling.

### VERSATILITY

The TenarisXP® Buttress connection offers benefits for many operational environments and applications. Its extra torque capability and enhanced fatigue performance make it ideal for shales and casing while drilling operations.

The TenarisXP® Buttress connection has been field proven by many global oil and gas companies and its design has been validated according to major shale operators' specific testing protocols. This connection has been run in plays like Eagle Ford, Bakken, Marcellus and the Permian Basin.

# TenarisXP® Buttress Technical Table | 4 1/2" TO 16"

| DESIGNATION   |                   | PIPE BODY         |                    |                   | COUPLING            |        | CONNECTION<br>INSIDE<br>DIAMETER | MAKE-UP<br>LOSS |
|---------------|-------------------|-------------------|--------------------|-------------------|---------------------|--------|----------------------------------|-----------------|
| Size          | Nominal<br>Weight | Wall<br>Thickness | Inside<br>Diameter | Drift<br>Diameter | Outside<br>Diameter | Length |                                  |                 |
| [in.]         | [lb/ft]           | [in.]             | [in.]              | [in.]             | [in.]               | [in.]  | [in.]                            |                 |
| <b>4 1/2</b>  | 10.50             | 0.224             | 4.052              | 3.927             | 5.000               | 9.075  | 4.040                            | 4.016           |
|               | 11.60             | 0.250             | 4.000              | 3.875             | 5.000               | 9.075  | 3.988                            | 4.016           |
|               | 12.60             | 0.271             | 3.958              | 3.833             | 5.000               | 9.075  | 3.946                            | 4.016           |
|               | 13.50             | 0.290             | 3.920              | 3.795             | 5.000               | 9.075  | 3.908                            | 4.016           |
|               | 15.10             | 0.337             | 3.826              | 3.701             | 5.100               | 9.075  | 3.814                            | 4.016           |
| <b>5</b>      | 13.00             | 0.253             | 4.494              | 4.369             | 5.563               | 9.325  | 4.482                            | 4.141           |
|               | 15.00             | 0.296             | 4.408              | 4.283             | 5.563               | 9.325  | 4.396                            | 4.141           |
|               | 18.00             | 0.362             | 4.276              | 4.151             | 5.720               | 9.325  | 4.264                            | 4.141           |
|               | 21.40             | 0.437             | 4.126              | 4.001             | 5.720               | 9.325  | 4.114                            | 4.141           |
|               | 23.20             | 0.478             | 4.044              | 3.919             | 5.820               | 9.325  | 4.032                            | 4.141           |
|               | 24.10             | 0.500             | 4.000              | 3.875             | 5.820               | 9.325  | 3.988                            | 4.141           |
| <b>5 1/2</b>  | 15.50             | 0.275             | 4.950              | 4.825             | 6.050               | 9.450  | 4.938                            | 4.204           |
|               | 17.00             | 0.304             | 4.892              | 4.767             | 6.050               | 9.450  | 4.880                            | 4.204           |
|               | 20.00             | 0.361             | 4.778              | 4.653             | 6.100               | 9.450  | 4.766                            | 4.204           |
|               | 23.00             | 0.415             | 4.670              | 4.545             | 6.200               | 9.450  | 4.658                            | 4.204           |
|               | 26.00             | 0.476             | 4.548              | 4.423             | 6.300               | 9.450  | 4.536                            | 4.204           |
| <b>6 5/8</b>  | 20.00             | 0.288             | 6.049              | 5.924             | 7.390               | 9.825  | 6.037                            | 4.391           |
|               | 24.00             | 0.352             | 5.921              | 5.796             | 7.390               | 9.825  | 5.909                            | 4.391           |
|               | 28.00             | 0.417             | 5.791              | 5.666             | 7.390               | 9.825  | 5.779                            | 4.391           |
|               | 32.00             | 0.475             | 5.675              | 5.550             | 7.420               | 9.825  | 5.663                            | 4.391           |
| <b>7</b>      | 23.00             | 0.317             | 6.366              | 6.241*            | 7.656               | 10.200 | 6.354                            | 4.579           |
|               | 26.00             | 0.362             | 6.276              | 6.151             | 7.656               | 10.200 | 6.264                            | 4.579           |
|               | 29.00             | 0.408             | 6.184              | 6.059             | 7.750               | 10.200 | 6.172                            | 4.579           |
|               | 32.00             | 0.453             | 6.094              | 5.969*            | 7.750               | 10.200 | 6.082                            | 4.579           |
|               | 35.00             | 0.498             | 6.004              | 5.879             | 7.890               | 10.200 | 5.992                            | 4.579           |
|               | 38.00             | 0.540             | 5.920              | 5.795             | 7.890               | 10.200 | 5.908                            | 4.579           |
| <b>7 5/8</b>  | 26.20             | 0.328             | 6.969              | 6.844             | 8.500               | 10.575 | 6.957                            | 4.766           |
|               | 29.70             | 0.375             | 6.875              | 6.750             | 8.500               | 10.575 | 6.863                            | 4.766           |
|               | 33.70             | 0.430             | 6.765              | 6.640             | 8.500               | 10.575 | 6.753                            | 4.766           |
|               | 39.00             | 0.500             | 6.625              | 6.500             | 8.500               | 10.575 | 6.613                            | 4.766           |
|               | 42.80             | 0.562             | 6.501              | 6.376             | 8.650               | 10.575 | 6.489                            | 4.766           |
|               | 45.30             | 0.595             | 6.435              | 6.310             | 8.650               | 10.575 | 6.423                            | 4.766           |
|               | 47.10             | 0.625             | 6.375              | 6.250             | 8.650               | 10.575 | 6.363                            | 4.766           |
| <b>8 5/8</b>  | 32.00             | 0.352             | 7.921              | 7.796             | 9.625               | 10.825 | 7.909                            | 4.891           |
|               | 36.00             | 0.400             | 7.825              | 7.700             | 9.625               | 10.825 | 7.813                            | 4.891           |
|               | 40.00             | 0.450             | 7.725              | 7.600             | 9.625               | 10.825 | 7.713                            | 4.891           |
|               | 44.00             | 0.500             | 7.625              | 7.500             | 9.625               | 10.825 | 7.613                            | 4.891           |
|               | 49.00             | 0.557             | 7.511              | 7.386             | 9.625               | 10.825 | 7.499                            | 4.891           |
| <b>9 5/8</b>  | 36.00             | 0.352             | 8.921              | 8.765             | 10.625              | 10.825 | 8.909                            | 4.891           |
|               | 40.00             | 0.395             | 8.835              | 8.679*            | 10.625              | 10.825 | 8.823                            | 4.891           |
|               | 43.50             | 0.435             | 8.755              | 8.599*            | 10.625              | 10.825 | 8.743                            | 4.891           |
|               | 47.00             | 0.472             | 8.681              | 8.525             | 10.625              | 10.825 | 8.669                            | 4.891           |
|               | 53.50             | 0.545             | 8.535              | 8.379             | 10.625              | 10.825 | 8.523                            | 4.891           |
|               | 58.40             | 0.595             | 8.435              | 8.279             | 10.625              | 10.825 | 8.423                            | 4.891           |
| <b>10 3/4</b> | 40.50             | 0.350             | 10.050             | 9.894             | 11.750              | 10.825 | 10.038                           | 4.891           |
|               | 45.50             | 0.400             | 9.950              | 9.794             | 11.750              | 10.825 | 9.938                            | 4.891           |
|               | 51.00             | 0.450             | 9.850              | 9.694             | 11.750              | 10.825 | 9.838                            | 4.891           |
| <b>11 3/4</b> | 47.00             | 0.375             | 11.000             | 10.844            | 12.750              | 10.825 | 10.988                           | 4.891           |
|               | 54.00             | 0.435             | 10.880             | 10.724            | 12.750              | 10.825 | 10.868                           | 4.891           |
|               | 60.00             | 0.489             | 10.772             | 10.616            | 12.750              | 10.825 | 10.760                           | 4.891           |
| <b>13 3/8</b> | 54.50             | 0.380             | 12.615             | 12.459            | 14.375              | 10.825 | 12.603                           | 4.891           |
|               | 61.00             | 0.430             | 12.515             | 12.359            | 14.375              | 10.825 | 12.503                           | 4.891           |
|               | 68.00             | 0.480             | 12.415             | 12.259            | 14.375              | 10.825 | 12.403                           | 4.891           |
|               | 72.00             | 0.514             | 12.347             | 12.191            | 14.375              | 10.825 | 12.335                           | 4.891           |
| <b>16</b>     | 75.00             | 0.438             | 15.124             | 14.936            | 17.000              | 10.825 | 15.112                           | 4.891           |
|               | 84.00             | 0.495             | 15.010             | 14.822            | 17.000              | 10.825 | 14.998                           | 4.891           |

- Drift diameter displayed are standard. Items marked with \* will pass popular oversize drift (Special Drift).
- ] Interchangeable when bracketed. Small variations in the connection Internal Diameter will appear. For make-up torque information, refer to TenarisHydril Running Manual.

| CRITICAL SECTION AREA | TENSILE EFFICIENCY | COMPRESSION EFFICIENCY | JOINT YIELD STRENGTH |        |        |        |         |         | REGULAR API COUPLING |
|-----------------------|--------------------|------------------------|----------------------|--------|--------|--------|---------|---------|----------------------|
|                       |                    |                        | 55 ksi               | 80 ksi | 90 ksi | 95 ksi | 110 ksi | 125 ksi | Outside Diameter     |
| [sq in.]              | [%]                | [%]                    | [x 1000 lb]          |        |        |        |         |         | [in.]                |
| 3.009                 | 100                | 100                    | 166                  | 241    | 271    | 286    | 331     | 376     | 5.250                |
| 3.338                 | 100                | 100                    | 184                  | 267    | 300    | 317    | 367     | 417     | 5.250                |
| 3.600                 | 100                | 100                    | 198                  | 288    | 324    | 342    | 396     | 450     | 5.250                |
| 3.836                 | 100                | 100                    | 211                  | 307    | 345    | 364    | 422     | 479     | 5.250                |
| 4.407                 | 100                | 100                    | 242                  | 353    | 397    | 419    | 485     | 551     | 5.250                |
| 3.773                 | 100                | 100                    | 208                  | 302    | 340    | 358    | 415     | 472     | 5.800                |
| 4.374                 | 100                | 100                    | 241                  | 350    | 394    | 416    | 481     | 547     | 5.800                |
| 5.275                 | 100                | 100                    | 290                  | 422    | 475    | 501    | 580     | 659     | 5.800                |
| 6.264                 | 100                | 100                    | 345                  | 501    | 564    | 595    | 689     | 783     | 5.800                |
| 6.791                 | 100                | 100                    | 373                  | 543    | 611    | 645    | 747     | 849     | —                    |
| 7.069                 | 100                | 100                    | 389                  | 565    | 636    | 672    | 778     | 884     | —                    |
| 4.514                 | 100                | 100                    | 248                  | 361    | 406    | 429    | 497     | 564     | 6.300                |
| 4.962                 | 100                | 100                    | 273                  | 397    | 447    | 471    | 546     | 620     | 6.300                |
| 5.828                 | 100                | 100                    | 321                  | 466    | 525    | 554    | 641     | 729     | 6.300                |
| 6.630                 | 100                | 100                    | 365                  | 530    | 597    | 630    | 729     | 829     | 6.300                |
| 7.513                 | 100                | 100                    | 413                  | 601    | 676    | 714    | 826     | 939     | —                    |
| 5.734                 | 100                | 100                    | 315                  | 459    | 516    | 545    | 631     | 717     | —                    |
| 6.937                 | 100                | 100                    | 382                  | 555    | 624    | 659    | 763     | 867     | —                    |
| 8.133                 | 100                | 100                    | 447                  | 651    | 732    | 773    | 895     | 1017    | —                    |
| 9.177                 | 100                | 100                    | 505                  | 734    | 826    | 872    | 1010    | 1147    | —                    |
| 6.655                 | 100                | 100                    | 366                  | 532    | 599    | 632    | 732     | 832     | —                    |
| 7.549                 | 100                | 100                    | 415                  | 604    | 679    | 717    | 830     | 944     | —                    |
| 8.449                 | 100                | 100                    | 465                  | 676    | 760    | 803    | 929     | 1056    | —                    |
| 9.317                 | 100                | 100                    | 512                  | 745    | 839    | 885    | 1025    | 1165    | —                    |
| 10.172                | 100                | 100                    | 559                  | 814    | 916    | 966    | 1119    | 1272    | —                    |
| 10.959                | 100                | 100                    | 603                  | 877    | 986    | 1041   | 1206    | 1370    | —                    |
| 7.519                 | 100                | 100                    | 414                  | 602    | 677    | 714    | 827     | 940     | —                    |
| 8.541                 | 100                | 100                    | 470                  | 683    | 769    | 811    | 940     | 1068    | —                    |
| 9.720                 | 100                | 100                    | 535                  | 778    | 875    | 923    | 1069    | 1215    | —                    |
| 11.192                | 100                | 100                    | 616                  | 895    | 1007   | 1063   | 1231    | 1399    | —                    |
| 12.470                | 100                | 100                    | 686                  | 998    | 1122   | 1185   | 1372    | 1559    | —                    |
| 13.141                | 100                | 100                    | 723                  | 1051   | 1183   | 1248   | 1445    | 1643    | —                    |
| 13.744                | 100                | 100                    | 756                  | 1100   | 1237   | 1306   | 1512    | 1718    | —                    |
| 9.149                 | 100                | 100                    | 503                  | 732    | 823    | 869    | 1006    | 1144    | —                    |
| 10.336                | 100                | 100                    | 568                  | 827    | 930    | 982    | 1137    | 1292    | —                    |
| 11.557                | 100                | 100                    | 636                  | 925    | 1040   | 1098   | 1271    | 1445    | —                    |
| 12.763                | 100                | 100                    | 702                  | 1021   | 1149   | 1212   | 1404    | 1595    | —                    |
| 14.118                | 100                | 100                    | 776                  | 1129   | 1271   | 1341   | 1553    | 1765    | —                    |
| 10.254                | 100                | 100                    | 564                  | 820    | 923    | 974    | 1128    | 1282    | —                    |
| 11.454                | 100                | 100                    | 630                  | 916    | 1031   | 1088   | 1260    | 1432    | —                    |
| 12.559                | 100                | 100                    | 691                  | 1005   | 1130   | 1193   | 1381    | 1570    | —                    |
| 13.572                | 100                | 100                    | 746                  | 1086   | 1222   | 1289   | 1493    | 1697    | —                    |
| 15.546                | 100                | 100                    | 855                  | 1244   | 1399   | 1477   | 1710    | 1943    | —                    |
| 16.879                | 100                | 100                    | 928                  | 1350   | 1519   | 1604   | 1857    | 2110    | —                    |
| 11.435                | 100                | 100                    | 629                  | 915    | 1029   | 1086   | 1258    | 1429    | —                    |
| 13.006                | 100                | 100                    | 715                  | 1040   | 1171   | 1236   | 1431    | 1626    | —                    |
| 14.561                | 100                | 100                    | 801                  | 1165   | 1311   | 1383   | 1602    | 1820    | —                    |
| 13.401                | 100                | 100                    | 737                  | 1072   | 1206   | 1273   | 1474    | 1675    | —                    |
| 15.463                | 100                | 100                    | 850                  | 1237   | 1392   | 1469   | 1701    | 1933    | —                    |
| 17.300                | 100                | 100                    | 951                  | 1384   | 1557   | 1643   | 1903    | 2162    | —                    |
| 15.513                | 100                | 100                    | 853                  | 1241   | 1396   | 1474   | 1706    | 1939    | —                    |
| 17.487                | 100                | 100                    | 962                  | 1399   | 1574   | 1661   | 1924    | 2186    | —                    |
| 19.445                | 100                | 100                    | 1069                 | 1556   | 1750   | 1847   | 2139    | 2431    | —                    |
| 20.768                | 100                | 100                    | 1142                 | 1661   | 1869   | 1973   | 2284    | 2596    | —                    |
| 21.414                | 100                | 100                    | 1178                 | 1713   | 1927   | 2034   | 2355    | 2677    | —                    |
| 24.112                | 100                | 100                    | 1326                 | 1929   | 2170   | 2291   | 2652    | 3014    | —                    |



For contact information, please visit  
[www.tenaris.com](http://www.tenaris.com)

For technical assistance, please contact  
[premiumconnections@tenaris.com](mailto:premiumconnections@tenaris.com)



Tenaris has produced this brochure for general information only. While every effort has been made to ensure the accuracy of the information contained within this publication, Tenaris does not assume any responsibility or liability for any loss, damage, injury resulting from the use of information and data herein. Tenaris products and services are only subject to the Company's standard Terms and Conditions or otherwise to the terms resulting from the respective contracts of sale, services or license, as the case may be. The information in this publication is subject to change or modification without notice. For more complete information please contact a Tenaris's representative or visit our website at [www.tenaris.com](http://www.tenaris.com). Version 02 / September 2016. ©Tenaris 2016. All rights reserved.