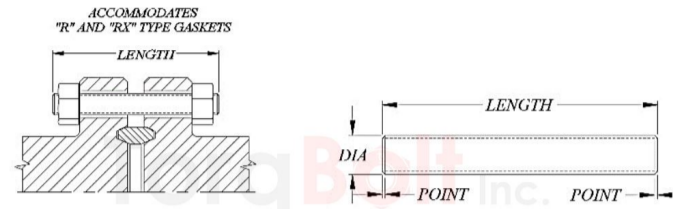


# ASTM A453 Grade 660 Class D API 6A Full Thread Stud Bolt

For products monogrammed per **API 6A** 21st Edition, all closure bolting shall be qualified and manufactured in accordance with **API 20F** (Corrosion-Resistant Bolting Requirements).

## API 6A Full Thread Stud Bolt Length for 6B Flange Connectors with "R" & "RX" Gaskets

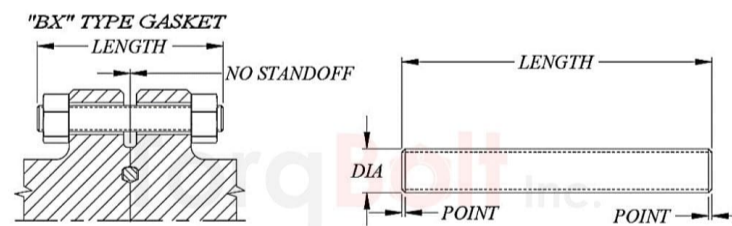


LENGTH =  $2(T + t + d) + S + 2(P)$   
*T* is total flange thickness;  
*t* is plus tolerance for flange thickness;  
*d* is heavy hex nut thickness;  
*S* is flange face standoff (with "RX" gasket);  
*P* is point max. (1.5 x pitch).

| Flange Size and Pressure | Bolt Size and Thread | Length* | Flange Size and Pressure | Bolt Size and Thread | Length* |
|--------------------------|----------------------|---------|--------------------------|----------------------|---------|
| 2 1/16 2000              | 5/8 - 11 UNC         | 5.000   | 7 1/16 2000              | 1 - 8 UNC            | 7.500   |
| 2 1/16 3000              | 7/8 - 9 UNC          | 6.500   | 7 1/16 3000              | 1 1/8 - 8 UN         | 8.500   |
| 2 1/16 5000              | 7/8 - 9 UNC          | 6.500   | 7 1/16 5000              | 1 3/8 - 8 UN         | 11.250  |
| 2 9/16 2000              | 3/4 - 10 UNC         | 5.500   | 9 2000                   | 1 1/8 - 8 UN         | 8.500   |
| 2 9/16 3000              | 1 - 8 UNC            | 7.000   | 9 3000                   | 1 3/8 - 8 UN         | 9.500   |
| 2 9/16 5000              | 1 - 8 UNC            | 7.000   | 9 5000                   | 1 5/8 - 8 UN         | 12.500  |
| 3 1/8 2000               | 3/4 - 10 UNC         | 5.750   | 11 2000                  | 1 1/4 - 8 UN         | 9.250   |
| 3 1/8 3000               | 7/8 - 9 UNC          | 6.500   | 11 3000                  | 1 3/8 - 8 UN         | 10.000  |
| 3 1/8 5000               | 1 1/8 - 8 UN         | 7.750   | 11 5000                  | 1 7/8 - 8 UN         | 14.250  |
| 4 1/16 2000              | 7/8 - 9 UNC          | 6.500   | 13 5/8 2000              | 1 1/4 - 8 UN         | 9.500   |
| 4 1/16 3000              | 1 1/8 - 8 UN         | 7.500   | 13 5/8 3000              | 1 3/8 - 8 UN         | 10.750  |
| 4 1/16 5000              | 1 1/4 - 8 UN         | 8.500   | 16 3/4 2000              | 1 1/2 - 8 UN         | 10.750  |
| 5 1/8 2000               | 1 - 8 UNC            | 7.250   | 16 3/4 3000              | 1 5/8 - 8 UN         | 12.250  |
| 5 1/8 3000               | 1 1/4 - 8 UN         | 8.250   | 21 1/4 2000              | 1 5/8 - 8 UN         | 12.250  |
| 5 1/8 5000               | 1 1/2 - 8 UN         | 10.500  | 20 3/4 3000              | 2-8 UN               | 15.000  |

FOOTNOTES\* Tolerance on bolt length: +0.125/-0 in. for lengths up to 12 in. +0.250/-0 in. for lengths over 12 in.

## API 6A Full Thread Stud Bolt Length for 6BX Flange Connectors



LENGTH =  $2(T + t + d) + S + 2(P)$   
*T* is total flange thickness;  
*t* is plus tolerance for flange thickness;  
*d* is heavy hex nut thickness;  
*S* is flange face standoff (NOTE: *S* = 0 for BX connection which has no standoff height);  
*P* is point max. (1.5 x pitch).

| Flange Size and Pressure | Bolt Size and Thread | Length * | Flange Size and Pressure | Bolt Size and Thread | Length * |
|--------------------------|----------------------|----------|--------------------------|----------------------|----------|
| 1 4/5 10,000             | 3/4 - 10 UNC         | 5.500    | 11 10,000                | 1 3/4 - 8 UN         | 15.250   |
| 1 4/5 15,000             | 7/8 - 9 UNC          | 6.000    | 11 15,000                | 2-8 UN               | 19.500   |
| 1 4/5 20,000             | 1 - 8 UNC            | 7.750    | 11 20,000                | 2 3/4 - 8 UN         | 23.750   |
| 2 1/16 10,000            | 3/4 - 10 UNC         | 5.500    | 13 5/8 5000              | 1 5/8 - 8 UN         | 12.750   |
| 2 1/16 15,000            | 7/8 - 9 UNC          | 6.500    | 13 5/8 10,000            | 1 7/8 - 8 UN         | 17.750   |
| 2 1/16 20,000            | 1 1/8 - 8 UN         | 8.500    | 13 5/8 15,000            | 2 1/4 - 8 UN         | 21.250   |
| 2 9/16 10,000            | 7/8 - 9 UNC          | 6.500    | 13 5/8 20,000            | 3-8 UN               | 29.750   |
| 2 9/16 15,000            | 1 - 8 UN             | 7.250    | 16 3/4 5000              | 1 7/8 - 8 UN         | 14.750   |
| 2 9/16 20,000            | 1 1/4 - 8 UN         | 9.500    | 16 3/4 10,000            | 1 7/8 - 8 UN         | 17.750   |
| 3 1/16 10,000            | 1 - 8 UNC            | 7.250    | 18 3/4 5000              | 2-8 UN               | 17.750   |
| 3 1/16 15,000            | 1 1/8 - 8 UN         | 8.000    | 18 3/4 10,000            | 2 1/4 - 8 UN         | 22.750   |
| 3 1/16 20,000            | 1 3/8 - 8 UN         | 10.250   | 18 3/4 15,000            | 3-8 UN               | 26.750   |
| 4 1/16 10,000            | 1 1/8 - 8 UN         | 8.500    | 21 1/4 5000              | 2-8 UN               | 19.000   |
| 4 1/16 15,000            | 1 3/8 - 8 UN         | 9.750    | 21 1/4 10,000            | 2 1/2 - 8 UN         | 24.750   |
| 4 1/16 20,000            | 1 3/4 - 8 UN         | 12.500   | 26 3/4 2000              | 1 3/4 - 8 UN         | 14.250   |

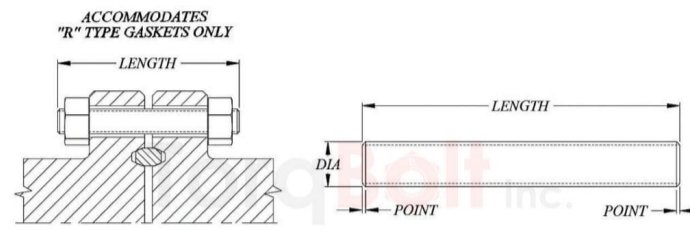
FOOTNOTES\* Tolerance on tap end thread length: +0.063/-0 in.\*\* Tolerance on tap end stud length: +0.125/-0 in.



| Flange Size and Pressure |        | Bolt Size and Thread |      | Length * | Flange Size and Pressure |      | Bolt Size and Thread |        | Length * |
|--------------------------|--------|----------------------|------|----------|--------------------------|------|----------------------|--------|----------|
| 5 1/8                    | 10,000 | 1 1/8                | 8 UN | 9.250    | 26 3/4                   | 3000 | 2-8 UN               | 17.500 |          |
| 5 1/8                    | 15,000 | 1 1/2                | 8 UN | 11.500   | 30                       | 2000 | 1 5/8 - 8 UN         | 14.500 |          |
| 7 1/16                   | 10,000 | 1 1/2                | 8 UN | 11.750   | 30                       | 3000 | 1 7/8 - 8 UN         | 17.750 |          |
| 7 1/16                   | 15,000 | 1 1/2                | 8 UN | 13.000   | -                        | -    | -                    | -      |          |
| 7 1/16                   | 20,000 | 2-8 UN               |      | 17.750   | -                        | -    | -                    | -      |          |
| 9                        | 10,000 | 1 1/2                | 8 UN | 13.500   | -                        | -    | -                    | -      |          |
| 9                        | 15,000 | 1 7/8                | 8 UN | 16.000   | -                        | -    | -                    | -      |          |
| 9                        | 20,000 | 2 1/2                | 8UN  | 21.750   | -                        | -    | -                    | -      |          |

FOOTNOTES\* Tolerance on tap end thread length: +0.063/ - 0 in.\*\* Tolerance on tap end stud length: +0.1 25/- 0 in.

## API 6A Full Thread Stud Bolt Length for 6B Flange Connectors with "R" Gaskets UNSC Series



LENGTH = 2(T + t + d) + S + 2(P)  
T is total flange thickness;  
t is plus tolerance for flange thickness;  
d is heavy hex nut thickness;  
S is flange face standoff (with "R" gasket);  
P is point max. (1.5 x pitch).

| Flange Size and Pressure |      | Bolt Size and Thread |        | Length* | Flange Size and Pressure |      | Bolt Size and Thread |        | Length* |
|--------------------------|------|----------------------|--------|---------|--------------------------|------|----------------------|--------|---------|
| 2 1/16                   | 2000 | 5/8                  | 11 UNC | 4.750   | 7 1/16                   | 2000 | 1 - 8 UNC            | 7.250  |         |
| 2 1/16                   | 3000 | 7/8                  | 9 UNC  | 6.250   | 7 1/16                   | 3000 | 1 1/8 - 8 UN         | 8.250  |         |
| 2 1/16                   | 5000 | 7/8                  | 9 UNC  | 6.250   | 7 1/16                   | 5000 | 1 3/8 - 8 UN         | 11.000 |         |
| 2 9/16                   | 2000 | 3/4                  | 10 UNC | 5.250   | 9                        | 2000 | 1 1/8 - 8 UN         | 8.250  |         |
| 2 9/16                   | 3000 | 1 - 8 UNC            |        | 6.750   | 9                        | 3000 | 1 3/8 - 8 UN         | 9.250  |         |
| 2 9/16                   | 5000 | 1 - 8 UNC            |        | 6.750   | 9                        | 5000 | 1 5/8 - 8 UN         | 12.250 |         |
| 3 1/8                    | 2000 | 3/4                  | 10 UNC | 5.500   | 11                       | 2000 | 1 1/4 - 8 UN         | 9.000  |         |
| 3 1/8                    | 3000 | 7/8                  | 9 UNC  | 6.250   | 11                       | 3000 | 1 3/8 - 8 UN         | 9.750  |         |
| 3 1/8                    | 5000 | 1 1/8 - 8 UN         |        | 7.500   | 11                       | 5000 | 1 7/8 - 8 UN         | 14.000 |         |
| 4 1/16                   | 2000 | 7/8                  | 9 UNC  | 6.250   | 13 5/8                   | 2000 | 1 1/4 - 8 UN         | 9.250  |         |
| 4 1/16                   | 3000 | 1 1/8 - 8 UN         |        | 7.250   | 13 5/8                   | 3000 | 1 3/8 - 8 UN         | 10.500 |         |
| 4 1/16                   | 5000 | 1 1/4 - 8 UN         |        | 8.250   | 16 3/4                   | 2000 | 1 1/2 - 8 UN         | 10.500 |         |
| 5 1/8                    | 2000 | 1 - 8 UNC            |        | 7.000   | 16 3/4                   | 3000 | 1 5/8 - 8 UN         | 12.000 |         |
| 5 1/8                    | 3000 | 1 1/4 - 8 UN         |        | 8.000   | 21 1/4                   | 2000 | 1 5/8 - 8 UN         | 11.750 |         |
| 5 1/8                    | 5000 | 1 1/2 - 8 UN         |        | 10.250  | 20 3/4                   | 3000 | 2-8 UN               | 14.500 |         |

FOOTNOTES\* Tolerance on bolt length: +0.1 25, -0 in. for lengths up to 1.2 in. +0.250, -0 in. for lengths over 1.2 in.

### Specifications

ASTM A453  
ASTM A638  
EN 10269  
EN 10083-3  
ISO 3506-5  
DIN 267

### Surface Treatments

Xylan 1070 / 1014 / 1400 / 1424  
Xylar 2 / 101  
SermaGard 1105 / 1280  
Dacromet 320 / 500  
TakeCoat 1000 Ceramic  
Magnigard  
MolyKote

### Certifications

ISO 9001 - 2015 Certified  
PED 2014/68/EC  
API 6A ; API 20E; API 20F  
NACE MR0175/ISO 15156-2  
NORSOK M-650  
DFAR  
MERKBLATT AD 2000 W2/W7/W10

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