



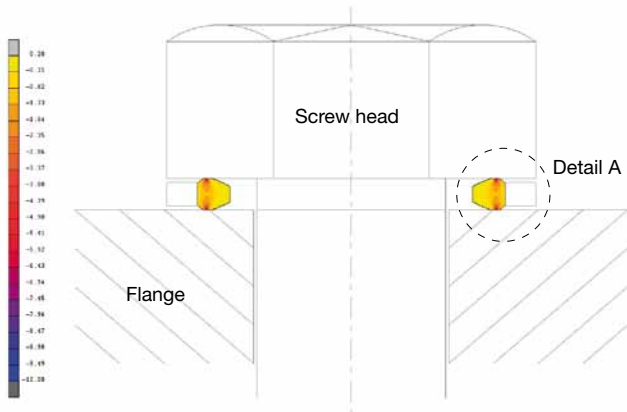
**Julu County Hongwei Sealing & electric parts Co.,Ltd**

**Bonded Seal**



# Composite sealing washers – Introduction

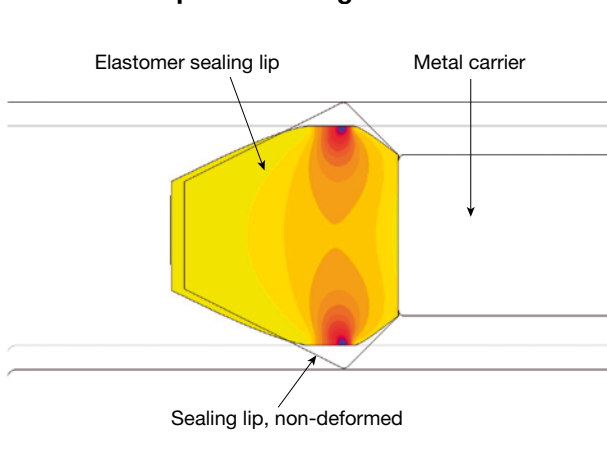
## Schematic drawing of a threaded connection



## WX composite sealing washer



## Detail A: composite sealing washer



## WZ Composite sealing washer



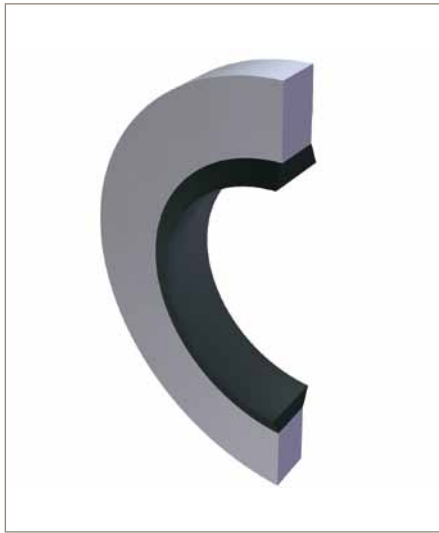
## Design principle and types

### WT Composite sealing washer



### WO Composite sealing washer





| Top view                         | Profile reference | Page |
|----------------------------------|-------------------|------|
| <b>Composite sealing washers</b> |                   |      |
|                                  | WX                | 10   |
|                                  | WZ                | 12   |
|                                  | WO                | 14   |
|                                  | WT                | 16   |

## Range of application

Static sealing of flanges or screw heads.

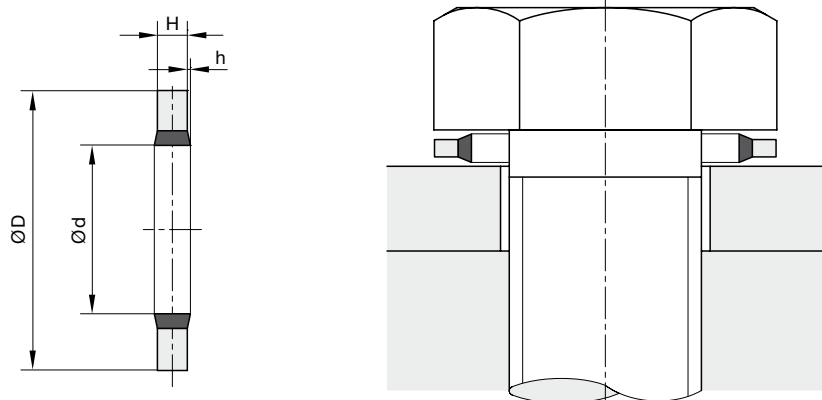
|                       |                   |
|-----------------------|-------------------|
| Operating pressure    | ≤ 1500 bar        |
| Operating temperature |                   |
| Z5170                 | -30 °C to +100 °C |
| Z5171                 | -20 °C to +150 °C |
| Z5172                 | -20 °C to +200 °C |
| Z5173                 | -50 °C to +150 °C |

## Compounds

Metal carrier made of steel 1.0330, heavy-build passivated.

The following standard materials are available for the elastomer sealing lip:  
NBR (Z5170), HNBR (Z5171), FKM (Z5172), EPDM (Z5173).

For special media such as HFO 1234yf elastomer materials with special approvals are available.



## Metric dimensions

| Thread | D (mm) | d (mm) | H (mm) | h (mm) | Bursting pressure (bar) | Ordering No.  |
|--------|--------|--------|--------|--------|-------------------------|---------------|
| M 4    | 7      | 4.5    | 1.0    | 0.3    | 1250                    | WX 0407 Z5170 |
| M 5    | 10     | 5.7    | 1.0    | 0.3    | 1500                    | WX 0510 Z5170 |
| M 6    | 10     | 6.7    | 1.0    | 0.3    | 1510                    | WX 0610 Z5170 |
| M 8    | 13     | 8.7    | 1.0    | 0.3    | 1550                    | WX 0813 Z5170 |
| M 10   | 16     | 10.7   | 1.5    | 0.4    | 1350                    | WX 1016 Z5170 |
| M 12   | 18     | 12.7   | 1.5    | 0.4    | 1250                    | WX 1218 Z5170 |
| M 14   | 22     | 14.7   | 1.5    | 0.4    | 1510                    | WX 1422 Z5170 |
| M 16   | 24     | 16.7   | 1.5    | 0.4    | 1400                    | WX 1624 Z5170 |
| M 18   | 26     | 18.7   | 1.5    | 0.4    | 1275                    | WX 1826 Z5170 |
| M 20   | 28     | 20.7   | 1.5    | 0.4    | 1150                    | WX 2028 Z5170 |
| M 24   | 32     | 24.7   | 2.0    | 0.4    | 1050                    | WX 2432 Z5170 |
| M 26   | 35     | 26.7   | 2.0    | 0.4    | 1050                    | WX 2635 Z5170 |
| M 30   | 39     | 31.0   | 2.0    | 0.4    | 860                     | WX 3039 Z5170 |

## Imperial dimensions

| BSP   | Bolt   | D (inch) | d (inch) | H (inch) | h (inch) | Bursting pressure (PSI) | Ordering No.  |
|-------|--------|----------|----------|----------|----------|-------------------------|---------------|
| 1/8   | 3/8    | 0.625    | 0.408    | 0.080    | 0.010    | 21750                   | WX 0316 Z5170 |
| 1/4   | 1/2    | 0.810    | 0.541    | 0.080    | 0.010    | 22480                   | WX 0621 Z5170 |
| 3/8   | -      | 0.937    | 0.680    | 0.080    | 0.010    | 18275                   | WX 1024 Z5170 |
| 1/2   | 13/16  | 1.125    | 0.848    | 0.098    | 0.010    | 16680                   | WX 1329 Z5170 |
| 5/8   | 7/8    | 1.250    | 0.925    | 0.098    | 0.010    | 18130                   | WX 1623 Z5170 |
| 3/4   | 1      | 1.375    | 1.065    | 0.098    | 0.010    | 15375                   | WX 1935 Z5170 |
| 1     | 1 5/16 | 1.685    | 1.334    | 0.098    | 0.010    | 11750                   | WX 2543 Z5170 |
| 7/8   | 1 3/16 | 1.500    | 1.213    | 0.098    | 0.010    | 13055                   | WX 2238 Z5170 |
| 1 1/4 | 1 5/8  | 2.062    | 1.690    | 0.098    | 0.010    | 10010                   | WX 3252 Z5170 |
| 1 1/2 | 1 7/8  | 2.307    | 1.907    | 0.098    | 0.010    | 10010                   | WX 3859 Z5170 |
| 1 3/4 | 2 1/8  | 2.750    | 2.161    | 0.133    | 0.010    | 13780                   | WX 4470 Z5170 |
| 2     | -      | 2.875    | 2.385    | 0.098    | 0.010    | 10150                   | WX 5173 Z5170 |
| 2 1/2 | -      | 3.550    | 2.995    | 0.133    | 0.010    | 9865                    | WX 6490 Z5170 |

Further sizes on request.



The WZ composite sealing washer consists of a metal washer with a rectangular cross-section and an elastomer sealing lip with a trapezoidal cross-section that is vulcanised to the inside. It is a further development of the WX series and has an additional self-centring function. The seal has been designed for use in high-pressure applications and can far exceed the sealing effect of copper washers or similar metal seals.

## Range of application

Static sealing of flanges or screw heads.

|                       |                   |
|-----------------------|-------------------|
| Operating pressure    | ≤ 1500 bar        |
| Operating temperature |                   |
| Z5170                 | -30 °C to +100 °C |
| Z5171                 | -20 °C to +150 °C |
| Z5172                 | -20 °C to +200 °C |
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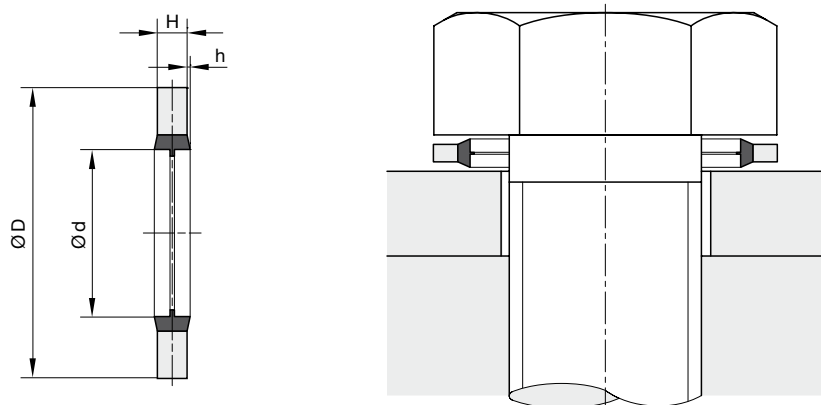
## Compounds

Metal carriers made of steel 1.0330, heavy-build passivated.

The following standard materials are available for the elastomer sealing lip: NBR (Z5170), HNBR (Z5171), FKM (Z5172), EPDM (Z5173).

For special media such as HFO 1234yf elastomer materials with special approvals are available.

In case of special operating conditions please contact our consultancy service for a selection of the material and design best suiting your particular application requirements



## Metric dimensions

| Thread | D (mm) | d (mm) | H (mm) | h (mm) | Bursting pressure (bar) | Ordering No.  |
|--------|--------|--------|--------|--------|-------------------------|---------------|
| M 4    | 7      | 4.5    | 1.0    | 0.3    | 1250                    | WZ 0407 Z5170 |
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| M 8    | 13     | 8.7    | 1.0    | 0.3    | 1550                    | WZ 0813 Z5170 |
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| M 30   | 39     | 31.0   | 2.0    | 0.4    | 860                     | WZ 3039 Z5170 |

## Imperial dimensions

| BSP   | Bolt   | D (inch) | d (inch) | H (inch) | h (inch) | Bursting pressure (PSI) | Ordering No.  |
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| 3/4   | 1      | 1.375    | 1.065    | 0.098    | 0.010    | 15375                   | WZ 1935 Z5170 |
| 1     | 1 5/16 | 1.685    | 1.334    | 0.098    | 0.010    | 11750                   | WZ 2543 Z5170 |
| 7/8   | 1 3/16 | 1.500    | 1.213    | 0.098    | 0.010    | 13055                   | WZ 2238 Z5170 |
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| 1 1/2 | 1 7/8  | 2.307    | 1.907    | 0.098    | 0.010    | 10010                   | WZ 3859 Z5170 |
| 1 3/4 | 2 1/8  | 2.750    | 2.161    | 0.133    | 0.010    | 13780                   | WZ 4470 Z5170 |
| 2     | -      | 2.875    | 2.385    | 0.098    | 0.010    | 10150                   | WZ 5173 Z5170 |
| 2 1/2 | -      | 3.550    | 2.995    | 0.133    | 0.010    | 9865                    | WZ 6490 Z5170 |

Further sizes on request.



The WO composite sealing washer consists of a metal washer and a circular elastomer sealing lip with an additional mechanical connection to the inside edge of the supporting washer. The serrations achieve a positive connection of the elastomer with the supporting washer and the phenomenon of sheared sealing lips which is frequently encountered with composite seals is prevented.

WO composite sealing washers are very robust in assembly and are suitable for sealing requirements below the screw head in the area of the smooth (non-threaded) screw shaft.

## Range of application

Static sealing of flanges or screw heads.

|                       |                   |
|-----------------------|-------------------|
| Operating pressure    | ≤ 1500 bar        |
| Operating temperature |                   |
| Z5170                 | -30 °C to +100 °C |
| Z5171                 | -20 °C to +150 °C |
| Z5172                 | -20 °C to +200 °C |
| Z5173                 | -50 °C to +150 °C |

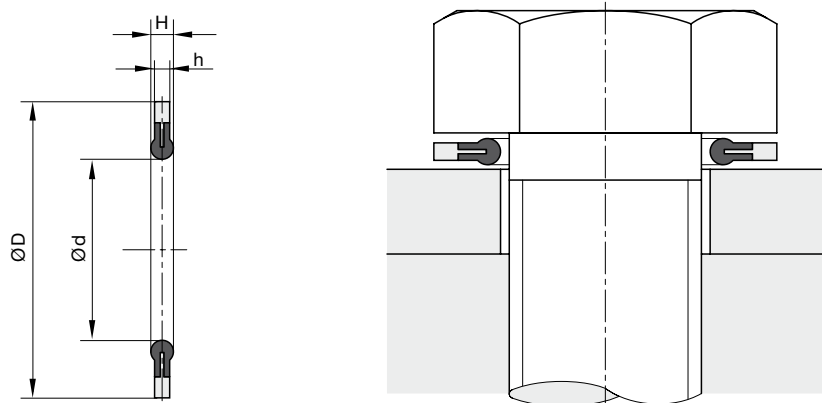
## Compounds

Metal carriers made of steel 1.0330, heavy-build passivated.

The following standard materials are available for the elastomer sealing lip: NBR (Z5170), HNBR (Z5171), FKM (Z5172), EPDM (Z5173).

For special media such as HFO 1234yf elastomer materials with special approvals are available.

In case of special operating conditions please contact our consultancy service for a selection of the material and design best suiting your particular application requirements



## Metric dimensions

| Screw Ø (mm) | D (mm) | d (mm) | H (mm) | h (mm) | Bursting pressure (bar) | Ordering No.  |
|--------------|--------|--------|--------|--------|-------------------------|---------------|
| 5            | 9.78   | 4.83   | 1.32   | 1.02   | 1050                    | WO 0510 Z5170 |
| 6            | 11.25  | 5.79   | 1.68   | 1.27   | 885                     | WO 0611 Z5170 |
| 8            | 13.49  | 7.77   | 1.68   | 1.27   | 545                     | WO 0813 Z5170 |
| 10           | 15.32  | 9.73   | 1.68   | 1.27   | 495                     | WO 1015 Z5170 |
| 12           | 19.30  | 11.71  | 1.68   | 1.27   | 490                     | WO 1219 Z5170 |
| 14           | 22.35  | 13.67  | 1.68   | 1.27   | 550                     | WO 1422 Z5170 |
| 16           | 27.10  | 15.67  | 1.68   | 1.27   | 860                     | WO 1627 Z5170 |
| 20           | 33.38  | 19.66  | 2.44   | 1.63   | 790                     | WO 2033 Z5170 |
| 22           | 31.50  | 21.62  | 1.68   | 1.27   | 300                     | WO 2232 Z5170 |

## Imperial dimensions

| Screw Ø (inch) | D (inch) | d (inch) | H (inch) | h (inch) | Bursting pressure (PSI) | Ordering No.  |
|----------------|----------|----------|----------|----------|-------------------------|---------------|
| #6             | 0.385    | 0.130    | 0.050    | 0.040    | 20000                   | WO 0610 Z5170 |
| #8             | 0.385    | 0.156    | 0.050    | 0.040    | 14900                   | WO 0810 Z5170 |
| #10            | 0.443    | 0.180    | 0.072    | 0.050    | 11500                   | WO 1011 Z5170 |
| 1/4            | 0.505    | 0.240    | 0.072    | 0.050    | 9500                    | WO 0013 Z5170 |
| 5/16           | 0.603    | 0.301    | 0.072    | 0.050    | 6800                    | WO 0015 Z5170 |
| 3/8            | 0.666    | 0.364    | 0.072    | 0.050    | 6400                    | WO 0017 Z5170 |
| 7/16           | 0.760    | 0.427    | 0.072    | 0.050    | 6800                    | WO 0019 Z5170 |
| 1/2            | 0.880    | 0.490    | 0.072    | 0.050    | 7900                    | WO 0122 Z5170 |
| 9/16           | 1.067    | 0.552    | 0.072    | 0.050    | 12400                   | WO 0127 Z5170 |
| 5/8            | 1.193    | 0.615    | 0.072    | 0.050    | 14100                   | WO 0130 Z5170 |
| 3/4            | 1.322    | 0.740    | 0.096    | 0.064    | 10600                   | WO 0134 Z5170 |
| 7/8            | 1.510    | 0.864    | 0.096    | 0.064    | 11300                   | WO 0138 Z5170 |
| 1              | 1.760    | 0.988    | 0.096    | 0.064    | 13250                   | WO 0145 Z5170 |





The WO composite sealing washer consists of a metal washer and a circular elastomer sealing lip with an additional mechanical connection to the inside edge of the supporting washer. The serrations achieve a positive connection of the elastomer with the supporting washer and the phenomenon of sheared sealing lips which is frequently encountered with composite seals is prevented.

WT composite sealing washers ensure reliable sealing of screws in the threaded area. Assembly is self-centring and directionally independent.

## Range of application

Static sealing of flanges or screw heads.

|                       |                   |
|-----------------------|-------------------|
| Operating pressure    | ≤ 1500 bar        |
| Operating temperature |                   |
| Z5170                 | -30 °C to +100 °C |
| Z5171                 | -20 °C to +150 °C |
| Z5172                 | -20 °C to +200 °C |
| Z5173                 | -50 °C to +150 °C |

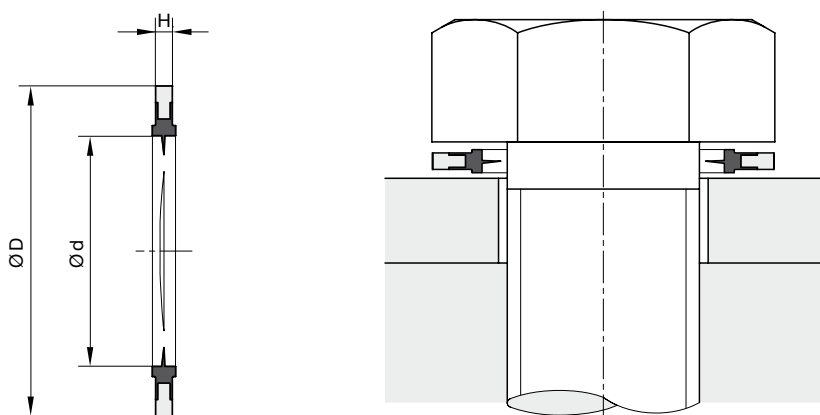
## Compounds

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The following standard materials are available for the elastomer sealing lip: NBR (Z5170), HNBR (Z5171), FKM (Z5172), EPDM (Z5173).

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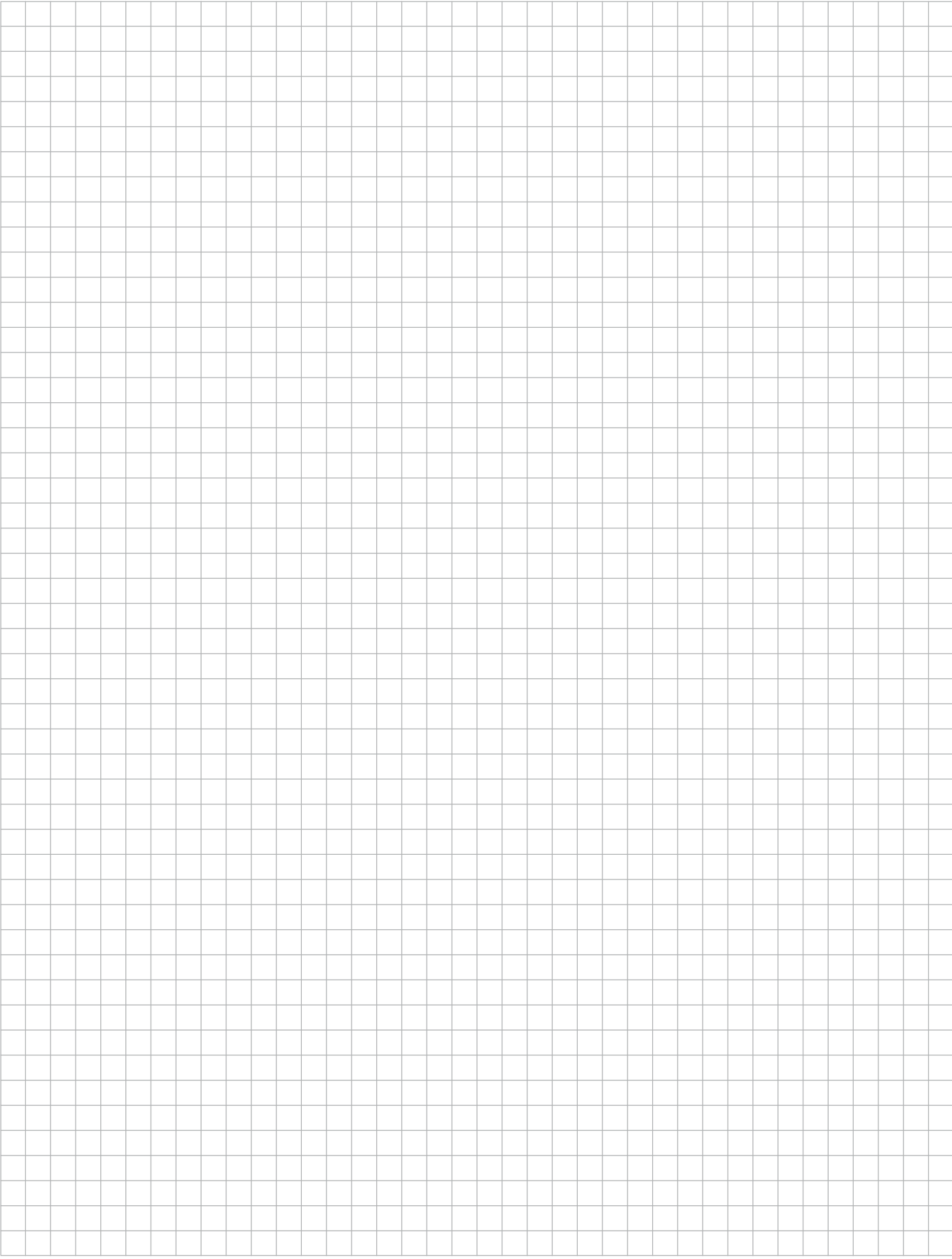


## Imperial dimensions

| Screw Ø (inch) | D (inch) | d (inch) | H (inch) | Bursting pressure (PSI) | Ordering No.  |
|----------------|----------|----------|----------|-------------------------|---------------|
| #6             | 0.406    | 0.141    | 0.050    | 1000                    | WT 0310 Z5170 |
| #8             | 0.406    | 0.167    | 0.050    | 1000                    | WT 0410 Z5170 |
| #10            | 0.469    | 0.194    | 0.050    | 1000                    | WT 0512 Z5170 |
| #12            | 0.562    | 0.220    | 0.050    | 1000                    | WT 0514 Z5170 |
| 1/4            | 0.562    | 0.255    | 0.050    | 3000                    | WT 0614 Z5170 |
| 5/16           | 0.687    | 0.319    | 0.064    | 3000                    | WT 0817 Z5170 |
| 3/8            | 0.750    | 0.383    | 0.064    | 3000                    | WT 1019 Z5170 |
| 7/16           | 0.906    | 0.447    | 0.078    | 3000                    | WT 1123 Z5170 |
| 1/2            | 1.000    | 0.510    | 0.078    | 3000                    | WT 1325 Z5170 |
| 9/16           | 1.094    | 0.574    | 0.094    | 3000                    | WT 1428 Z5170 |
| 5/8            | 1.187    | 0.638    | 0.094    | 3000                    | WT 5170 Z5170 |
| 3/4            | 1.375    | 0.765    | 0.109    | 3000                    | WT 1935 Z5170 |
| 7/8            | 1.562    | 0.893    | 0.109    | 3000                    | WT 2240 Z5170 |
| 1              | 1.750    | 0.102    | 0.120    | 3000                    | WT 2544 Z5170 |

# Notes

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