

STT ENGINEERING SOLUTIONS | FLANGES



## Industrial Flanges

STT Engineering Solutions

Dimensional selection catalogue 2026

Standard plate and slip on flange charts with bore, PCD, thickness and bolting details. Weld neck, blind and custom flange enquiries.

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### Scope and technical status

Revision A • 4 October 2026. This catalogue supports enquiries and dimensional screening. Charts use published manufacturer reference data for the stated flange type and rating. Verify the current controlled standard, material, pressure and temperature rating, tolerances and approved drawing before production or supply.

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## Flange types and identification

| Proposed STT code | Flange type      | Selection detail                         |
|-------------------|------------------|------------------------------------------|
| FL-PL             | Plate flange     | EN Type 01 chart in this catalogue       |
| FL-SO             | Slip on with hub | ASME Class 150 chart in this catalogue   |
| FL-WN             | Weld neck        | Pipe schedule and weld end required      |
| FL-BL             | Blind            | No through bore; type specific thickness |
| FL-TH             | Threaded         | Thread form and pressure duty required   |
| FL-SW             | Socket weld      | Pipe OD, socket depth and bore required  |
| FL-LJ             | Lap joint        | Matching stub end required               |
| FL-CU             | Custom           | Approved drawing and design basis        |

These are proposed quotation codes. Materials, availability and manufacturing route are confirmed per order.

## Read the chart correctly

DN and NPS are nominal pipe sizes, not flange bore measurements. PCD is the diameter through bolt hole centres. A bolt hole diameter exceeds the nominal fastener diameter. Flange thickness is distinct from total length through a hub.

Plate flange bore allows the specified pipe to pass through it. A weld neck bore instead follows the selected pipe wall thickness. Blind, lap joint, socket weld and threaded flanges need their own details; do not apply a slip on chart to them.

## Standards must match

EN PN16, ASME Class 150 and SANS 1123 are separate specifications. Never assume matching nominal sizes have the same PCD or pressure capability. SANS 1123 enquiries must state the required table designation, size, material and facing; dimensions will be confirmed separately.

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**EN 1092 1 PN16 plate flange chart**

Type 01 manufacturer reference dimensions. All values are mm except DN, bolt count and metric bolt designation. Bore is B1 and plate thickness is C1.

| DN  | OD D | PCD K | Bore B1 | Thick C1 | Holes × dia | Bolt |
|-----|------|-------|---------|----------|-------------|------|
| 10  | 90   | 60    | 18      | 14       | 4 × 14      | M12  |
| 15  | 95   | 65    | 22      | 14       | 4 × 14      | M12  |
| 20  | 105  | 75    | 27.5    | 16       | 4 × 14      | M12  |
| 25  | 115  | 85    | 34.5    | 16       | 4 × 14      | M12  |
| 32  | 140  | 100   | 43.5    | 18       | 4 × 18      | M16  |
| 40  | 150  | 110   | 49.5    | 18       | 4 × 18      | M16  |
| 50  | 165  | 125   | 61.5    | 20       | 4 × 18      | M16  |
| 65  | 185  | 145   | 77.5    | 20       | 8 × 18      | M16  |
| 80  | 200  | 160   | 90.5    | 20       | 8 × 18      | M16  |
| 100 | 220  | 180   | 116     | 22       | 8 × 18      | M16  |
| 125 | 250  | 210   | 141.5   | 22       | 8 × 18      | M16  |
| 150 | 285  | 240   | 170.5   | 24       | 8 × 22      | M20  |
| 200 | 340  | 295   | 221.5   | 26       | 12 × 22     | M20  |
| 250 | 405  | 355   | 276.5   | 29       | 12 × 26     | M24  |
| 300 | 460  | 410   | 327.5   | 32       | 12 × 26     | M24  |
| 350 | 520  | 470   | 359.5   | 35       | 16 × 26     | M24  |
| 400 | 580  | 525   | 411     | 38       | 16 × 30     | M27  |
| 450 | 640  | 585   | 462     | 42       | 20 × 30     | M27  |
| 500 | 715  | 650   | 513.5   | 46       | 20 × 33     | M30  |
| 600 | 840  | 770   | 616.5   | 55       | 20 × 36     | M33  |

DN65 uses eight holes; four holes require agreement. Source: ZIZI Engineering Type 01 PN16 table. Specify facing separately; verify the controlled standard before manufacture.

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**ASME B16 5 Class 150 slip on chart**

Metric reference dimensions from PipesTec. All dimensions are mm except NPS. The bore is the minimum slip on bore; t is minimum flange thickness excluding the raised face.

| NPS   | Outside O | PCD   | Bore min | t min | Holes × dia |
|-------|-----------|-------|----------|-------|-------------|
| 1/2   | 90        | 60.3  | 22.2     | 9.6   | 4 × 15.9    |
| 3/4   | 100       | 69.9  | 27.7     | 11.2  | 4 × 15.9    |
| 1     | 110       | 79.4  | 34.5     | 12.7  | 4 × 15.9    |
| 1 1/4 | 115       | 88.9  | 43.2     | 14.3  | 4 × 15.9    |
| 1 1/2 | 125       | 98.4  | 49.5     | 15.9  | 4 × 15.9    |
| 2     | 150       | 120.7 | 61.9     | 17.5  | 4 × 19.1    |
| 2 1/2 | 180       | 139.7 | 74.6     | 20.7  | 4 × 19.1    |
| 3     | 190       | 152.4 | 90.7     | 22.3  | 4 × 19.1    |
| 3 1/2 | 215       | 177.8 | 103.4    | 22.3  | 8 × 19.1    |
| 4     | 230       | 190.5 | 116.1    | 22.3  | 8 × 19.1    |
| 5     | 255       | 215.9 | 143.8    | 22.3  | 8 × 22.2    |
| 6     | 280       | 241.3 | 170.7    | 23.9  | 8 × 22.2    |
| 8     | 345       | 298.5 | 221.5    | 27    | 8 × 22.2    |
| 10    | 405       | 362   | 276.2    | 28.6  | 12 × 25.4   |
| 12    | 485       | 431.8 | 327      | 30.2  | 12 × 25.4   |

Source: PipesTec flange catalogue pages 6 and 7. Use the metric standard series consistently; do not mix these rounded metric outside diameters with converted inch dimensions.

Class 150 is a pressure class designation, not a fixed 150 psi rating. Permitted pressure depends on material and temperature. Larger sizes and other pressure classes require separate charts.

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**Class 150 hub and raised face details**

Companion dimensions for the preceding slip on chart. Values are mm. X is hub diameter at its base, Y is length through the hub, and R is raised face diameter. The cited metric series uses a 2.0 mm raised face height.

| NPS   | Hub X | Length Y | RF diameter R |
|-------|-------|----------|---------------|
| 1/2   | 30    | 14       | 34.9          |
| 3/4   | 38    | 14       | 42.9          |
| 1     | 49    | 16       | 50.8          |
| 1 1/4 | 59    | 19       | 63.5          |
| 1 1/2 | 65    | 21       | 73            |
| 2     | 78    | 24       | 92.1          |
| 2 1/2 | 90    | 27       | 104.8         |
| 3     | 108   | 29       | 127           |
| 3 1/2 | 122   | 30       | 139.7         |
| 4     | 135   | 32       | 157.2         |
| 5     | 164   | 35       | 185.7         |
| 6     | 192   | 38       | 215.9         |
| 8     | 246   | 43       | 269.9         |
| 10    | 305   | 48       | 323.8         |
| 12    | 365   | 54       | 381           |

Source: PipesTec flange catalogue pages 6 and 7. Confirm face finish, gasket, dimensions and tolerances on the released order drawing.

**Facing and gasket specification**

State flat face, raised face or ring type joint explicitly. Match both mating faces and the gasket design. Select gasket material for the fluid, temperature and bolting arrangement. Ring type joint grooves require the exact ring number and groove details; none are implied by these raised face tables.

## Materials machining and inspection

### Material and manufacturing route

Specify the material grade and product form on the order. A forged slip on flange and a machined plate ring are different products even when their basic dimensions appear similar. Material certificates and traceability must support the claimed specification.

| Enquiry option           | Required detail                                  |
|--------------------------|--------------------------------------------------|
| Carbon steel             | Grade, product form and temperature range        |
| Stainless steel          | Grade, corrosion duty and finish                 |
| Alloy or duplex steel    | Service specification and inspection scope       |
| Custom mechanical flange | Load case, torque, fatigue and attachment        |
| Replacement flange       | Original standard, mating dimensions and service |

### Machining controls

The approved drawing must state bore tolerance, PCD and hole position tolerances, concentricity, face flatness, face finish, thickness tolerance, hub profile, fillet, chamfers and edge breaks. Numerical tolerances must come from the applicable controlled standard or an approved custom design.

Inspect OD, bore, thickness, PCD, hole diameter and count, face dimensions and hub length. Retain material heat identification and record dimensional results. Specify additional examination and certification when required by the purchase order.

### Joint assembly

Use the specified gasket and bolting. Tightening depends on bolt grade, lubricant, gasket and joint design, so this catalogue gives no universal torque value. Verify alignment, support and assembly procedure before loading the joint.

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## Ordering and technical references

### Quotation checklist

Provide standard and edition, nominal size, pressure class or PN, flange type, facing, material, pipe OD and wall thickness, design pressure and temperature, fluid, quantity, certification requirements and drawing where available.

For custom parts, add all mating dimensions, bolt pattern, bore and fit, loading and attachment method. A custom flange does not inherit a standard pressure rating merely because its bolt pattern matches.

### Example enquiries

FL-PL | EN 1092-1 | Type 01 | DN100 | PN16 | facing to be specified | material to be specified. Chart reference: OD 220, PCD 180, bore 116, plate thickness 22, eight holes of 18 mm.

FL-SO | ASME B16.5 | NPS 4 | Class 150 | RF | material to be specified. Confirm the pipe, weld details and pressure temperature rating before release.

### Reference sources

ZIZI Engineering. EN 1092-1 PN16 Type 01 flange dimensions. Reviewed 4 October 2026.

<https://www.zzflange.com/en-1092-1-pn-16-type-01-flange-dimension/>

PipesTec Industrial Group. Flange catalogue, Class 150 metric tables on printed pages 6 and 7. Reviewed 4 October 2026.

<https://pipestec.com/assets/js/upfiles/files/pdf/pipestec-flange-catalogue.pdf>

The cited supplier tables are dimensional references, not a replacement for the current controlled standards. The purchaser and STT must agree the complete specification and approved drawing. Other flange types, pressure ratings and SANS tables are quoted separately.

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