



# STAINLESS STEEL FLANGES



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Viraj is the world leader in stainless steel forged flanges. We serve customers across 90 countries and six continents. Viraj flanges are reputed and well known across the PVFF Industry for their reliability and quality.

The flanges division encompasses an integrated forge shop which manufactures all types of pipe fitting i.e. flanges, butt welding fittings (stubends) in various specifications (ASME, EN, DIN, AFNOR, AWWA, GOST, BS, JIS, AS, MSS, SA, UNI SABS/SANS, NS, VSM.) as well as forged bars.

Flanges are produced in size ranges from 1/2" to 40"

Viraj has an established and stringent quality system with 90 approvals / certificates till date in accordance with various specific requirements and applications. These approvals and certifications enable our customers to supply Viraj flanges to major end users across a variety of industries.

Our integrated operations include facilities for cutting, forging, ring rolling and machining with CNC lathes, VMC (machining centre), high capacity forging press and mobile manipulator for making big diameter forged round bars. We also have an in-house heat treatment shop and well equipped laboratory facilities for mechanical and metallurgical testing, PMI testing with X-ray and Optical emission spectroscopy also we have fully equipped radiation Contamination monitoring facilities.



## Industries we serve:

- Pipeline engineering
- Oil & gas – upstream & downstream
- Mechanical & plant engineering
- Ship building
- Boiler and Pressure Vessels
- Fertilizer industry
- Waste water
- Chemical & petrochemical
- Power industries (nuclear, natural gas, wind, solar)
- Aerospace
- Food processing

## Makeability Chart:

Dimensional specifications with size range			
Specification	Item description	Size Range	Pressure Class
ASME – B16.5	Slip on flange, Welding neck flange, Blind flange,	½” to 24”	150, 300, 400, 600, 900, 1500
	Threaded flange, Lap joint flange, RTJ flange	½” to 12”	2500
ASME – B 16.47	Welding neck flange, Blind flange	26” to 40” (A-MSS)	150, 300, 400, 600, 900,
		26” to 30” (A-MSS)	900,
		26” to 36” (B-API)	75, 150, 300, 400, 600
		26” to 32” (A-MSS)	900
ASME – B 16.36	Welding neck flange Slip on flange, Threaded flange	1” to 24”	300, 400, 600, 900, 1500,
		1” to 12”	2500
DIN FLANGE	DIN2512, DIN2513, DIN 2514, DIN2527, DIN 2566, DIN2573, DIN2576, DIN2627, DIN2628, DIN2629, DIN2631, DIN2632, DIN2633, DIN2434, DIN2635, DIN2637, DIN2628, DIN2641, DIN2642, DIN2655, DIN2656, DIN2673	10 to 1000	PN6 to PN 320
Pr EN 1092 – I	Plate flange (01) Loose plate flange (02,04) / Blind flange (05) Welding neck flange (11) / Hubbed slip on flange (12) Hubbed threaded flange (13) / Integral flange (21), weld-on collar (32) Lapped pipe end (33) Weldneck collar (34)	10 to 1000	ISO-PN2.5 to PN100

EN 1759 – 1	Plate flange (01)/ blind flange (05) Welding neck flange (11)/Hubbed slip on flange (12) Hubbed threaded flange (13)/Hubbed socket weld (14) Loose Hubbed flange (15) Integral flange (21)	½” to 24” (15 to 600)	150, 300, 400, 600, 900, 1500 2500 (12”)
<b>Specification</b>	<b>Item Description</b>	<b>Size Range</b>	<b>Pressure Class</b>
AFNOR NEF 29-203	Plate flange (01)/Loose plate flange (02,04)/ Blind flange (05) Welding neck flange (11)/ Hubbed slip on flange (12) Screwed flange (13) Hubbed socket Welding (14) Loose Hubbed (15)/Integral flange(21)	10 to 600	ISO-PN2.5 to PN420
JIS B2220/B2291	Slipon plate flange (SOP), Slipon Hub (SOH), Socket Welding flange (SW), Welding neck flange (WN), Lapjoint (LJ), Threaded flange (TR)/ Itegral flange (IT) Blank flange (BL)	10 to 600	5K, 10K, 15K, 20K, 30K
BS4504 SECTION 3.1	Weldingneck (111)/slipon plate (101)/screwed boss (113)/slipon boss (112)/ blind plate flange (105)	0.375” To 36”	PN2.5 to PN40
BS4504 PART I	Welding neck (2), Plate slipon (30), Screwed boss (4), Slipon boss (5), Blind plate flange (8)	0.375” to 36”	PN2.5 to PN 400
BS 1560 SECTION 3.1	Welding neck (111), Socket Weld (114), Screwed Boss (113), Slip on Boss (112), Blind flange (105), Lapped flange (115)	½” to 24”	150 LBS to 2500 LBS
BS 10: 1962	Welding neck, Plate Slipon, Screwed Boss, Slipon Boss, Plate Blind flange	½” to 36”	TABLE D/E/F/H
SABS/SANS 1123	Integral (1), welding neck (2), Plate for welding (3), Screwed Boss (4), Slip-on Boss (5) Plate Blank (8)	10 to 1000	250, 600, 1000, 1600, 2500, 4000 kPa
AWWA C228	Ring type slipon flanges, blind flanges	2” to 40”	SA (50Psi), SB (86Psi), SD (150/75Psi), SE (275Psi), SFPsi)
Italian standard UNI FLANGES	Plan flanges (2276, 2277, 2278, 6083, 6084) Welding neck (2280, 2281, 2282, 2283, 2284, 2285, 2286) Lapped flanges (6088, 6089, 6090, 2999, 2300) Blind flanges (6091, 6092, 6093, 6094, 6095, 6096, 6097) threaded flanges (2253, 2254)	15 to 200	PN 6 to PN 40

Norwegian Standard (NS)	Blind flanges, Plain welding flanges	150 to 800	PN 6 to PN 40
Flanges to VSM (Swiss) Standards	Flat flange for welding (18695, 19696, 18697) Weld neck (18716, 18718), blind flange (18703)		PN 6 to PN 16
<b>Specification</b>	<b>Item Description</b>	<b>Size Range</b>	<b>Pressure Class</b>
AS 4087 AS 2129	Blank, Plate, Screwed, weld neck (W.N/W.O.N), Integral flange Blank, Plate, Boss, weld neck, Integral flange	50 to 1000 15 to 1000	PN16, PN21, PN35, TABLE D & E
GOST	Plate flange (GOST 12820-80), Weld neck flange GOST 12821-80, Blind flange (GOST 12836-67)	10 to 1000	0.6MPa to 6.3 MPa
ASME/ANSI B 16.9 MASS SP-43	STUB END – TYPE A,B,C (Short pattern)	½” to 24”	All Schedules

### Grades:

ASTM182/182M ASMESA182/182M ASTM A403/403M	F 304, F304L, F304H, F310, F316, F316L, F316H, F347, F347H, F317, F317L, F321, F321H, F316Ti, F347, F347H, F51, F60 & F53
JIS G3214	SUS F304, SUS F304L, SUS F304H, SUS F316, SUS F316L, SUS F316H, SUS F347, SUS F347H, SUS F317, SUS F317L, SUS F321, SUS F321H
NF E29 – 204 (AFNOR)	BF Z7 CN 18-09 (F304), BF Z3 CN 19-09 (304LO), BF Z7 CND 17.11.02 (F316), BF Z3 CND 17.11.02 (F316L), BF Z6 CNDT 17-12 (316 Ti), BF Z6 CN Nb 18-10 (F347), BF Z6 CNT 18-10 (F321)
DIN 10222-5	1.4301, 1.4306, 1.4307, 1.4541, 1.4571, 1.4401, 1.4404, 1.4410, 1.4438, 1.4450, 1.4462
OTHER PRODUCTS	Long welding neck, Plate flanges (Light weight pattern), Backup flanges (BEV & STD), Beveled ID flanges, Reducing flanges, Case-end

### Flanges bore schedules:

S5S, S10, S10S, S20, S30, S40, S40S, S60, S80, S80S, S100, S120, S140, S160, STD, XS, XXS

### Flange facing types:

Flat face, Raised face, Large Raised face, Ring joint, Tongue & Groove face (large & small), Male-Female face



## Flange face finish:

Stock Finish serration, Spiral or Phonographic Serration, concentric Serration, Smooth Finish

## Manufacturing facilities:

- Raw material cutting: band saw
- Open / Close Die Forging & Rolling: Hammer / Press / Ring Rolling
- Machining: CNC lathes/SPM lathes
- Bolt Hole drilling: High speed CNC Vertical Machining Center
- Heat treatment: Solution Annealing (batch annealing furnaces)

## Testing facilities:

- Tensile testing machine (screw driven & Computerized)
- Impact testing machine (RT & Sub zero)
- Hardness testing machine
- Microscope (Image analyzer with color view camera, motorized stage & inclusion inspector)
- Mobile spectrometer for PMI test : X-ray fluorescence test-gun & OES-Optical Emission Spectrometry
- Surface roughness tester
- IGC test facilities
- Dye penetrate test
- Ultrasonic testing machine
- Radiation servo meter
  - Dynamic radiation detection system with weight-bridge portal monitors
  - Gamma ray spectroscopy – identifies nuclides & quantifies contamination
  - Portable radiation detection servo meters

## Packing:

Protect raised face and bevel end with plastic protection caps

Using plywood boxes size 800 x 1200 mm (Euro pallet) for shipment



**Blind Flange**



**Weld Neck Flange**



**Slip on Flange**



**Socket Weld Flange**



**Threaded Flange**



**Lap Joint Flange**



**Orifice Flange**



**Stubend**



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