JNDIA® FLANGES

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

Http://www.jndia.com.cn

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JNDIA® 志达管业

STAINLESS STEEL

FLANGE SERIES

不锈钢法兰系列

浙江志达管业有限公司

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

JNDIA® 志达管业

日益进取　志达千里

Keeping Enterprising and Aiming High

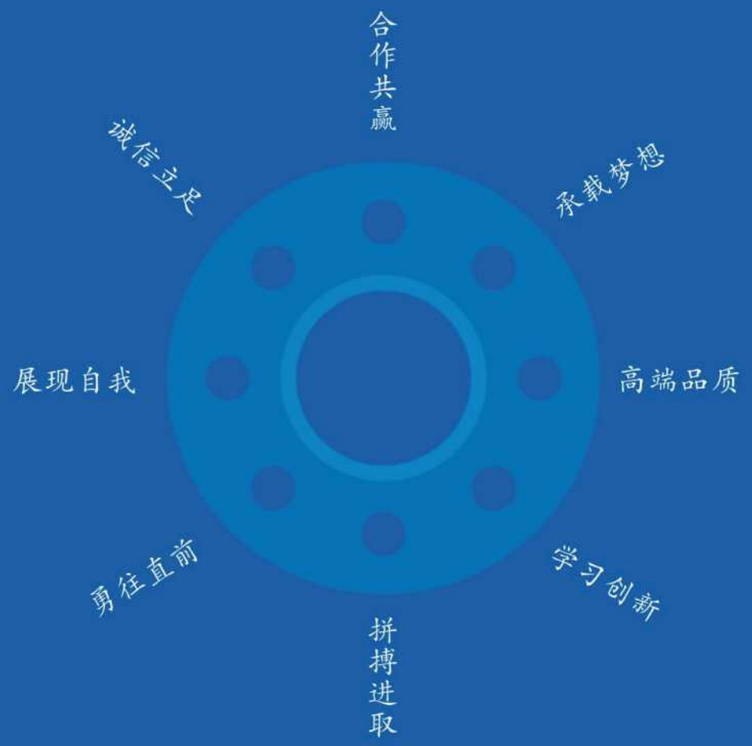
当悠悠岁月淘尽历史的尘埃时，

唯有那么久的闪亮才是永恒，

而我们一志达人正是因为有了那么诚恳的执着，

才会不断的追求我们生命中的永恒，让志达成为一颗最耀眼的钻石。

When time elapses quickly and washes away the dust of history,
only the lasting glitter is eternal.
And we-JNDIA personnel,due to our sincerity and perseverance,
are consistently seeking for the eternality in our life and making JNDIA
become the most shining diamond.



您选择志达的理由

THE REASON WHY YOU CHOOSE JNDIA

- 质量体系—ISO体系 Quality System – ISO system
- 行业经验—超过15年 Industry experience – over 15 years
- 管理系统—内部软件 Management Systems – internal software
- 成品库存—超过150吨 Finished product inventory – more than 150 tons
- 原材料库存—超过400吨 Raw material inventory – over 400 tons
- 货物出运—全球超过20个国家 Shipments of goods – more than 20 countries worldwide

JNDIA® FLANGES

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

Address from General Manager
总经理致辞

亲爱的用户和朋友们：

在这里我代表浙江志达管业有限公司对全体新老客户和社会各界朋友们多年来对我们的支持表示最衷心的感谢！

志达在技术领先的同时，更注重产品工艺的精良，不管是一个小小的配件还是整体的构造，志达人都是一丝不苟。“设计技术”的研发是创新的磐石，志达自成立以来，皆以“力求创新，稳固发展”为目标，引进先进的生产线，加工中心及检测设备，并始终坚持把加强技术作为营销的核心，致力于通过新技术改造提高产业结构，以优质产品占领市场，继而以市场优势确定品牌地位。

面对经济的全球化，对志达人来说是一个机会但同时也是一个挑战。为客户创造更优质的产品而奋斗是无止境的，志达人不敢遗忘。我们以后将更加努力的在现在的基础上精益求精，与同行取长补短，力创志达明天新辉煌。

Dear users and friends:

On behalf of Zhejiang JNDIA Pipe Industry Co., Ltd., I would like to express our sincere gratitude to new and old customers and friends from all circles who have been always supporting us for these years!

While leading in technology, JNDIA pays much attention to fine product technique. JNDIA personnel are always meticulous towards small fittings and integral construction. The research and development of "design and technology" is the firm base for innovation. Since its establishment, JNDIA has set up the goal of "striving to innovate, developing stably" , introduced advanced production line, machining center and inspection equipment, and by always insisting on regarding technology reinforcing as the core of marketing, it is devoted to improving industrial structure by new technology reform, occupying the market by high quality products and confirming the brand position by market advantage.

Confronted with the global economy, JNDIA personnel are facing not only an opportunity but a challenge. It is endless to strive for creating products of more excellent quality, which JNDIA personnel are always bearing in mind. In future, we will make redoubled efforts and keep improving on the current basis, learn strong points from same traders to offset our weakness and strive to create a new resplendent future of JNDIA.

总经理：
General manager

JNDIA® FLANGES

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

Company profile
企业简介

浙江志达管业有限公司是一家专业生产工业管道配件的制造企业，公司坐落于满城不锈钢的龙湾——温州，离机场仅3公里，离港口5公里，距温州高速公路东出口4公里，距火车站15公里，地理位置得天独厚,交通极为便利。

我们有着实力雄厚的生产团队，引进国际先进的管配件生产设备，采用国际上先进的生产工艺，以国内及进口优质钢材原料（如：304/304L/304H、316/316L/316H、316Ti、317L、310S、321/321H、347H、904L、S31254等不锈钢材质，超级双相钢Duplexsteel S31803/S32205、S32750/2507、S32760 以及特种合金 Special AlloyN04400、N06600、N06625、N08800、N08810、N08825、N10276)制造各种弯头、三通、异径管、翻边、管帽、法兰管道配件等产品。产品不但可按国标GB12459、GB/T13401，美标ANSIB16.9，ANSIB16.5，日标JIS，德标 DIN等标准生产，也可根据客户要求特制非标或特殊用途产品。

我们有着优秀的质检团队，以先进的检测设备跟踪检测每一道生产工序，以数据跟进每一个定单。我们产品大量出口到欧盟各国、美国、日本等工业国。产品广泛应用于石油、化工、造船、建筑、机械等行业 。我们的信心来自高质量的产品、精细的服务以及富有竞争力的价格。我们将自始至终为工业建设提供服务并在全球范围内扩展生意。为客户增值并与之愉快的合作是我们的最大追求。

我们随时欢迎您的询盘和高明的建议！

Zhejiang JNDIA Pipeline Industry Co., Ltd. is a specialized manufacturer of pipe fittings. Our products include elbows, tees, reducers, stub ends, pipe caps, flanges and etc. They are manufactured by our production team of powerful strength through introducing world advanced production equipment for pipe fittings, adopting internationally advanced production technology as well as high quality raw materials in SS, DSS, SDSS, Incolloy, Hastelloy and Monel. We can produce according to National standards GB12459-90 and GB/T 13401, American standards ANSI B 16.9 and ANSI B 16.5, Japanese standard JIS and Germany standard DIN. Non-standard products or products for special use, we can also manufacture as per customers' requirements.

With our excellent quality inspection team and advanced inspection equipment, every production procedure is traced and inspected and every data is followed up by data. Plenty of our products have been exported to USA, Japan and industrial countries in European Union. They are widely applied in petroleum, chemical industry, shipbuilding, construction machinery and etc. Our confidence stems from high quality products, fine service and competitive prices. We will always provide service for industrial construction and expand our business in the globe. It is our permanent pursuit to create value for customers and cooperate with them sincerely.

Your enquiries and suggestions are always welcome!


副本

中华人民共和国
特种设备制造许可证
Manufacture License of Special Equipment
People's Republic of China
（压力管道元件）


DNV·GL

MATERIAL MANUFACTURE CERTIFICATE

Zhejiang Jndia Pipeline Industry Co., Ltd.

Pipe fittings & Flange Forging


DNV·GL

JNDIA® FLANGES

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

Professional Equipment
生产设备

坚定不移地把“高品质，高信誉，客户至上，互惠互利”作为企业发展的生命线，志达人深知创业的艰辛和今天的成绩来之不易，明白只有不断追求卓越品质，企业才能有生生不息的生命力，并得以永续的发展壮大。

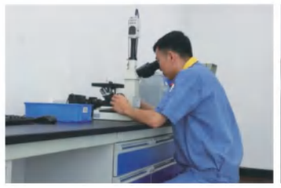
志达拥有现代化的生产车间，高水平、经验丰富的不锈钢铸焊技师和先进的机械设备，可以按照客户提供的图纸或者单线图进行制造。丰富的经验和先进的技术保证了高质量的产品和服务。

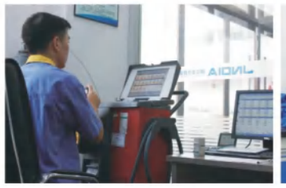
By taking high quality、top reputation、customer first and co-benefit as a critical policy, JNDIA people knows that today's achievements is not easy to obtain, and only by keeping striving for excellence in product quality can the company develop steadily.

JNDIA has a moderm production plant, high-level and experienced technicians and advanced stainless steel welding machinery and equipment, can be provided in accordance with customer drawings or to create one-way plan. Our rich experience and advanced technology to ensure high-quality products and services. At the same time, we have pears of experience in site installation. According to customer demand, we can at any time from the company sent a professional ewlding expert technicians and provide on-site installation services and guidance.

Techincal Development
技术研发

JNDIA® FLANGES
ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.





秉承技术创新的优良传统，为了进一步加强法兰理论研究和技术开发的力度，为了持续开发新产品、提高产品的技术含量和附加值，志达人投入巨资建设研发中心。中心配置有现代化的产品研发和试验设备，高薪聘请各流程高级专家、学者到研发中心工作，并给他们配备优良的科研和生活条件。

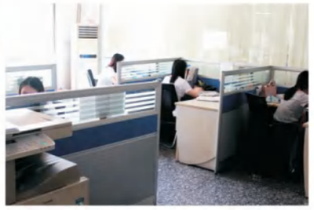
By carrying forward the excellent tradition of focusing on technical innovation, JNDIA has made huge investment in building a research center, with the aim of further enhancing the theoretic research of steel tube and technical development, continuously developing new products and improving technical content and added values of products.

The center is equipped with modern facilities for product research and development as well as pilot–scale experiments. It invites senior experts and scholars specialized in each process to work in the research center and provides them with excellent scientific research and living conditions.

JNDIA® FLANGES

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

Elite Team
精英团队



有人说：社会是一个大舞台，看谁更精彩；还有人说：竞争是一套有氧健身操，能舒筋活络，谱写跳动的脉搏；我想说，优秀的企业文化、独特的核心竞争力是企业的能量宝库，放飞激情，收获红红火火。一艘航船的顺利航行是一个舵手的成功，一个企业的成功是一个激情团队的成功。在这个团队中，只要我们紧紧地拧在一起，我们就是一道闪电、一束火花；我们聚在一块儿，我们就是整个太阳，整片天空；我们站在一处，我们就是用心灵结成的铜墙铁壁；我们携手并肩，我们就能笑傲江湖、屹立群雄，真正做到别人无法取代。

志达拥有一支经验丰富，肯吃苦耐劳的青年军。他们拥有多年的工作实战历练，与国内各大企业的成功合作经验，让他们成长为业界精英——集策划思维、设计执行、服务意识于一体。他们凭借一分年轻、二分灵气、三分勇气、四分钻研、五分活力、六分博学、七分努力、八分专业、九分效率，为企业提供十分服务，屡次被服务企业给予高度赞赏。志达精英团队在关键时刻全员亮剑，势必锐不可当。

Some people say: society is a big stage, see who is more exciting; Others said: Competition is a set of aerobic exercise, can relax the muscles, write pulse beating; I want to say, excellent corporate culture, unique core competitiveness is the energy treasure house of the enterprise, let go of passion, harvest the boom. The smooth sailing of a ship is the success of a helmsman, and the success of an enterprise is the success of a passionate team. In this team, as long as we are tightly screwed together, we are a flash of lightning, a spark; We are together, we are the whole sun, the whole sky; We stand together, we are the walls of our hearts; Together, we can be proud of the rivers and lakes, stand tall, truly do not replace others.

JNDIA has a young army that is experienced and willing to work hard. They have many years of actual experience in work and successful cooperation experience with major domestic companies, allowing them to grow into elites in the industry–integrating planning thinking, design implementation, and service awareness. With one point of youth, two cents, three points of courage, four points of study, five points of vitality, six points of learning, seven points of hard work, eight points of professionalism, and nine points of efficiency, they provide great service to companies and are repeatedly served by service companies. highly appreciated. JNDIA elite team at the critical moment all the staff to light their swords, is bound to be sharp.

JNDIA® FLANGES

ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

Reserve Force
后备力量

细节 志达的成功在于不仅仅注重表面的完美，更加追求细节的精致，每一颗螺丝，每一道工序，每一台设备，我们都严格把关，精密检测，让我们的产品在运到客户手中的一瞬间，成为一件精品。

成本 进入市场经济，提高盈利能力，提高企业市场竞争力，是所有企业的追求目标。只有提高收入，降低成本这两手抓，两手都要硬，企业才能立于不败之地。加强成本管理与控制是企业管理的根本和基础!

创新 创新是企业发展的不竭动力，也是公司永葆生机的源泉。创新的根本要求是体现时代性，把握规律性，富于创造性。

诚信 诚信是市场经济对企业的基本要求，企业视诚信为立身之本、发展之基、信誉之源。

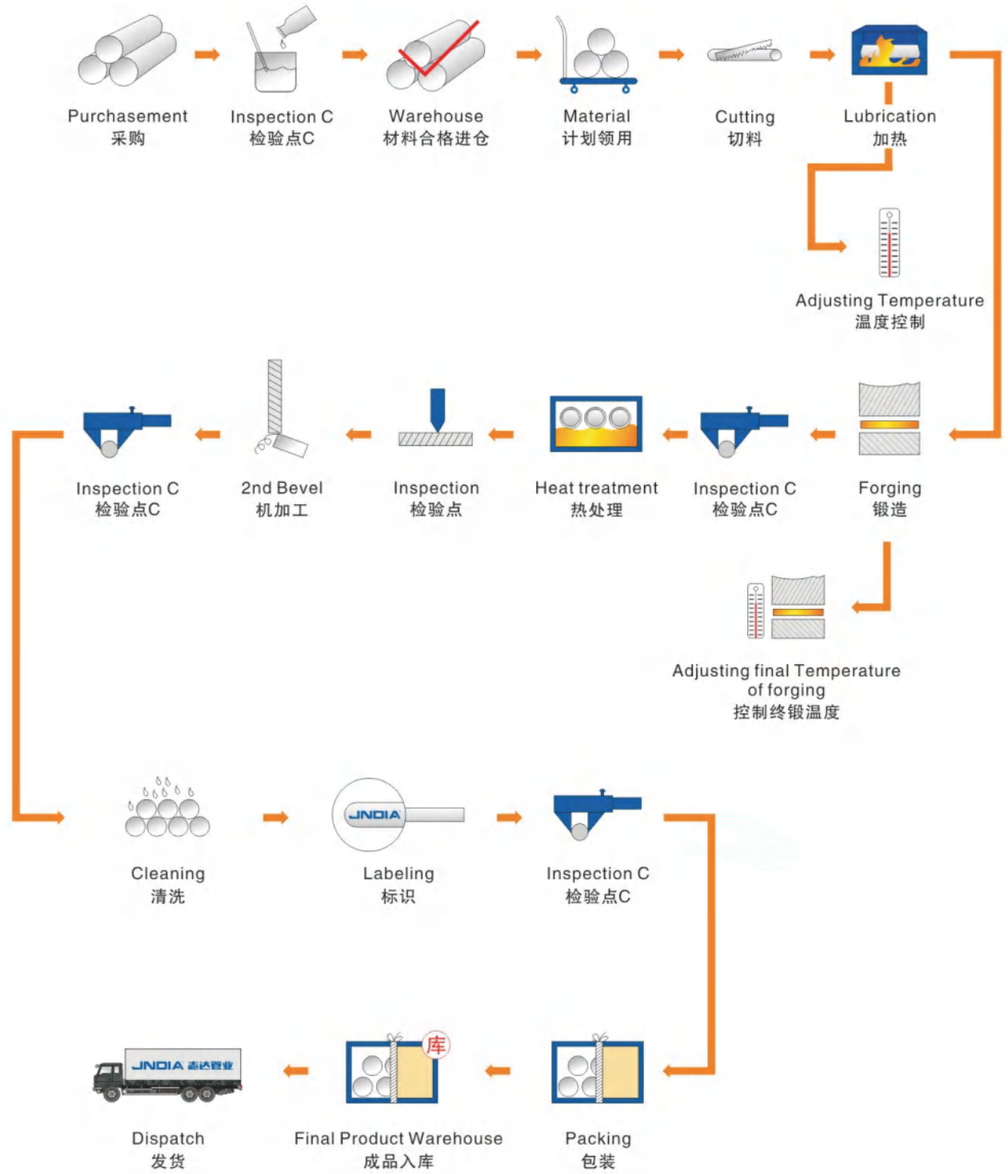
Details / JNDIA of the success not only on the surface of the perfect, and more details of the pursuit of exquisite, each one screw, every procedure, every device, I they have strict checks, precision detection, so that our products shipped to customers in the hands of the moment, as a collectables.

Cost / Entry to the market economy, improve profitability, and enhance their market competitiveness, and all enterprises pursuits. only raise incomes, reduce this low-cost both firm, and enterprises so as to be invincible. enhance cost management and control of enterprise management is the fundamental and basic!

Innovation / Innovation is an inexhaustible motive force for the development of enterprises, but also the source of the company to maintain their vigor. Innovation is the fundamental requirement of the times, follow the law, and be creative.

Integrity / Integrity of the market economy on the basic requirements of enterprises, businesses, as for the code of integrity of the country, and the development of the base, the source of credibility.

Flang production flow chart
法兰生产流程图

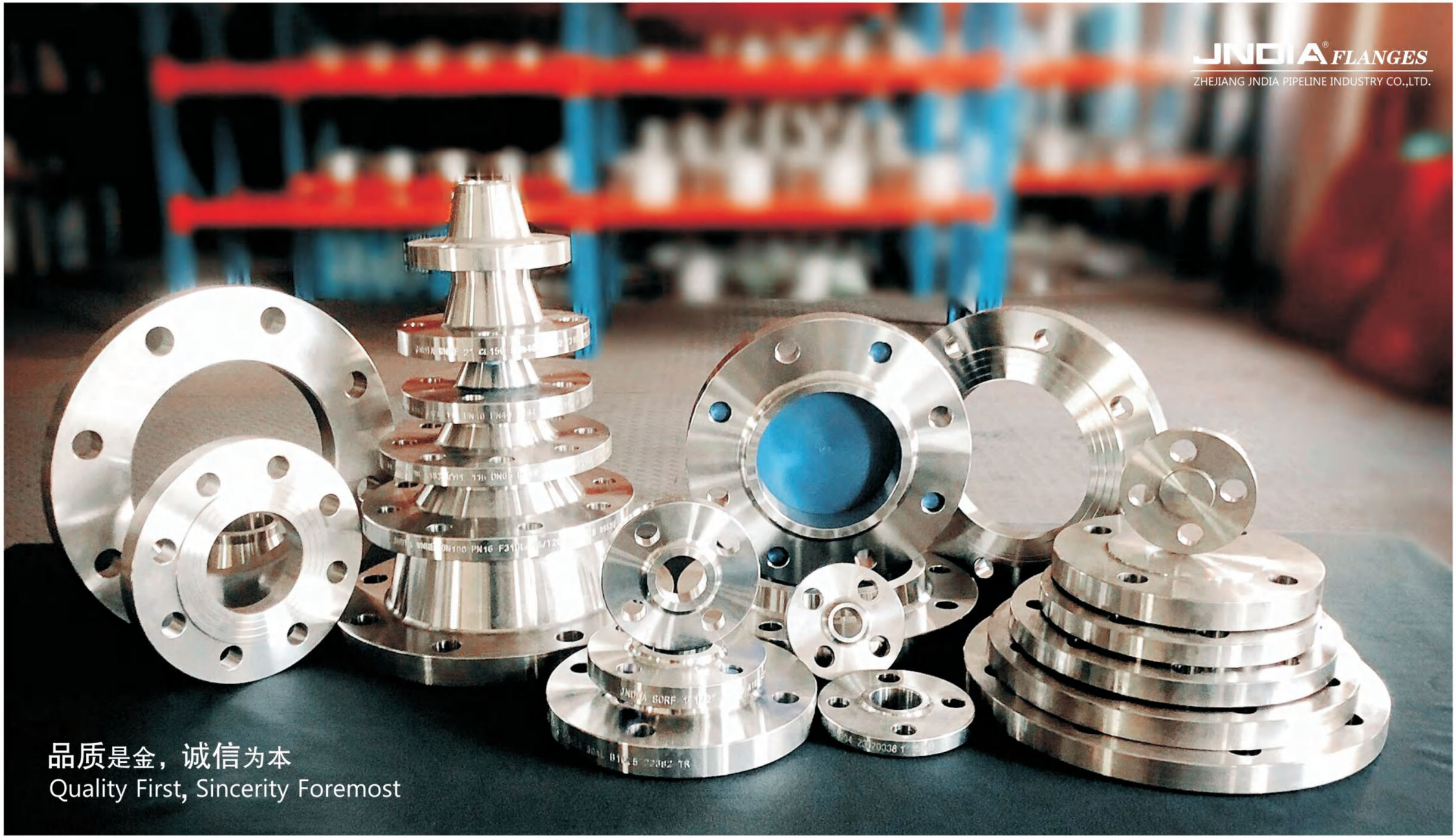


Sales Services
营销服务

保障售前、售中、售后全过程的中心服务是我们的宗旨，它日益成为广大客户对公司提出的基本要求，我们不断优化企业内部管理，提升员工的服务意识等一系列措施，使每个志达的用户都能体会我们的服务口号“体您所需、用心服务”。此外，我们已组建了集销售、服务与一体的强大营销网络，公司的新产品和各种服务都能及时、全面地到达市场和用户，形成了完善的产品研发机制和网络运行机制。

JNDIA® FLANGES
ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

It is our principle to guarantee the whole-course services including before-sale, in-sale and after-sale. It has increasingly become a basic requirement of customers to the company. We are continuously optimizing the internal management of the enterprise and promoting service consciousness of employees so as to make the users of JNDIA understand our service slogan "satisfying your requirements, serving wholeheartedly". In addition, we have established a powerful marketing network integrating distribution and service, through which our new products and various services can be delivered to the market and users timely and compreh-ensively, forming a perfect product research and development system and network operation mechanism.



品质是金，诚信为本
Quality First, Sincerity Foremost

品质是一个企业的生命，一个企业要想在竞争中乘风破浪，立于不败之地，靠的就是优良可靠的质量和优质的服务。

诚信是市场经济对企业的基本要求，企业视诚信为立身之本、发展之基、信誉之源。

Quality is the life of an enterprise. The enterprise that wishes to brave the wind and the waves in the competition and stand at the invincible position relies on the excellent and reliable quality and top-ranking service.Sincerity is the fundamental requirement required by market economy to the enterprise. The enterprise regards sincerity as the basis for establishment, foundation for development and source for reputation.

Flange product introduction
法兰产品介绍

类型：
平焊法兰、带颈平焊法兰、对焊法兰、法兰盖、承插焊法兰、螺纹法兰、松套法兰及各类特殊法兰

标准：
HG20593～HG20623-97；GB/T9113～GB/T9123-2000；JB/T79～JB/T86-94；
SH3406-96，ANSI B16.5，ANSI B16.47　Series A&B，DIN2527～DIN2367；JIS B2220

尺寸：
1/2''～120''（DN15～DN3000）

压力类型：
从150磅至2500磅(0.6Mpa～42.0Mpa)

材质：
不锈钢 (304, 304L, 304H, 316, 316L, 316Ti, 316H, 321, 321H, 347/H, 310S, 317L, 904L, S31254/SMO254)
双相钢 (S31803/S32205/2205, S32750/2507, S32760)
特殊材质 (N04400/400, N06625/625, N08825/825, N10276/C276, 800/800H, 600/600H)
N08800, N08810, N08825, N10276

生产工艺：
热锻压模成型后车制加工。

数控精车：
碳钢类：涂层、镀锌及各类特殊处理可按客户需求提供；不锈钢/双相钢类：喷砂处理，钝化处理。

存货量：
≤20''(DN500)备有大量不同材质、规格及型号的库存，可以满足最短送货需求。

Type:
Slip-on flange, Welding neck flange, Welding flange, Blind flange, Socket welding flange, Threaded flange,
Lap joint flange and all kinds of Special flange

Standard:
HG20593～HG20623-97；GB/T9113～GB/T9123-2000；JB/T79～JB/T86-94；SH3406-96，ANSI B16.5，
ANSI B16.47　Series A&B，DIN2527～DIN2367；JIS B2220

Size: 1/2"～120"（DN15～DN3000）

Pressure: From 150psi-2500psi(0.6Mpa-42.0Mpa)

Material:
Stainless steel (304, 304L, 304H, 316, 316L, 316Ti, 316H, 321, 321H, 347/H, 310S, 317L, 904L, S31254/SMO254)
Duplex steel (S31803/S32205/2205, S32750/2507, S32760)
Special Alloy (N04400/400, N06625/625, N08825/825, N10276/C276, 800/800H, 600/600H)

Production art: Steel Closed Hot Die Forging & Machining.

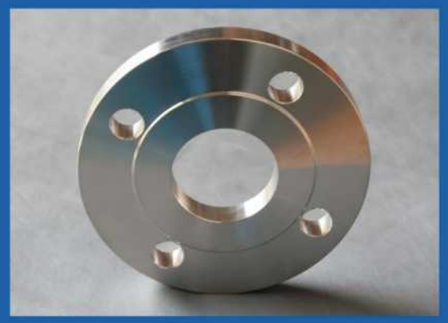
Surface:
Finishing machining: Coat, Galvanization andall king of special surface can make according to customer's requirements.
Stainless steel(duplex steel): Machining surface, Sandblast, Then passivation.

Stock:
≤20"(DN500) have huge quantity different materials, specifications and sizes stock can meet the shortest
time delivery.

Product display
产品展示

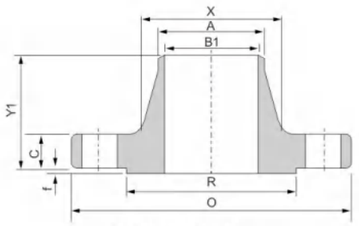




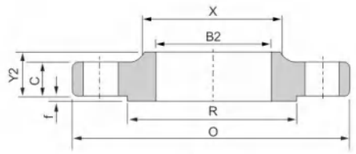



JNDIA® FLANGES
ZHEJIANG JNDIA PIPELINE INDUSTRY CO.,LTD.

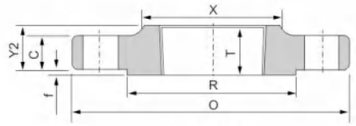
CONTECT 目录



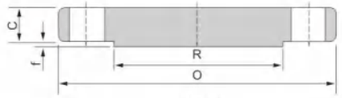
Welding Neck



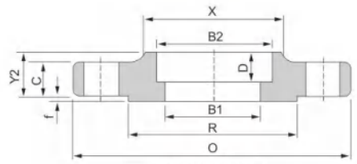
Slip-On



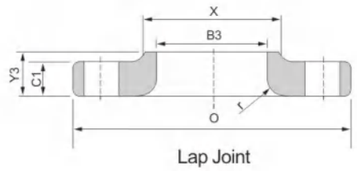
Threaded



Blind



Socket Weld



Lap Joint

ASME B16.5 CLASS 150 PIPE FLANGES

Dimensions in mm

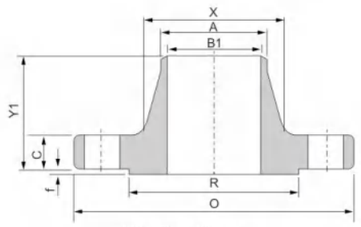
Nominal Pipe Size	Oustide Diameter	Thickness	Thickness of Lap Joint	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore			Length thru hub			Thread Length Threaded Flange (Min)	Depth of Socket	Diameter Hub at Bevel
						Welding Neck Socket Welding	Slip-On Socket Welding	Lap Joint	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
	O	C	C1	R	r	B1	B2	B3	Y1	Y2	Y3	T	D	A
1/2	90	9.6	11.2	34.9	3.0	15.8	22.2	22.9	46.0	14.0	16.0	16.0	10.0	21.3
3/4	100	11.2	12.7	42.9	3.0	20.9	27.7	28.2	51.0	14.0	16.0	16.0	11.0	26.7
1	110	12.7	14.3	50.8	3.0	26.6	34.5	34.9	54.0	16.0	17.0	17.0	13.0	33.4
1 1/4	115	14.3	15.9	63.5	5.0	35.1	43.2	43.7	56.0	19.0	21.0	21.0	14.0	42.2
1 1/2	125	15.9	17.5	73.0	6.0	40.9	49.5	50.0	60.0	21.0	22.0	22.0	16.0	48.3
2	150	17.5	19.1	92.1	8.0	52.5	61.9	62.5	62.0	24.0	25.0	25.0	17.0	60.3
2 1/2	180	20.7	22.3	104.8	8.0	62.7	74.6	75.4	68.0	27.0	29.0	29.0	19.0	73.0
3	190	22.3	23.9	127.0	10.0	77.9	90.7	91.4	68.0	29.0	30.0	30.0	21.0	88.9
3 1/2	215	22.3	23.9	139.7	10.0	90.1	103.4	104.1	70.0	30.0	32.0	32.0	22.4	101.6
4	230	22.3	23.9	157.2	11.0	102.3	116.1	116.8	75.0	32.0	33.0	33.0	24.0	114.3
5	255	22.3	23.9	185.7	11.0	128.2	143.8	144.4	87.0	35.0	36.0	36.0	24.0	141.3
6	280	23.9	25.4	215.9	13.0	154.1	170.7	171.4	87.0	38.0	40.0	40.0	27.0	168.3
8	345	27.0	28.6	266.9	13.0	202.7	221.5	222.2	100.0	43.0	44.0	44.0	32.0	219.1
10	405	28.6	30.2	323.8	13.0	254.6	276.2	277.4	100.0	48.0	49.0	49.0	33.0	273.0
12	485	30.2	31.8	381.0	13.0	304.8	327.0	328.2	113.0	54.0	56.0	56.0	40.0	323.8
14	535	33.4	35.0	412.8	13.0	To be specified by purchaser	359.2	360.2	125.0	56.0	79.0	57.0	41.4	355.6
16	595	35.0	36.6	469.9	13.0		410.5	411.2	125.0	62.0	87.0	64.0	44.5	406.4
18	635	38.1	39.7	533.4	13.0		461.8	462.3	138.0	67.0	97.0	68.0	49.0	457.0
20	700	41.3	42.9	584.2	13.0		513.1	514.4	143.0	71.0	103.0	73.0	54.0	508.0
24	815	46.1	47.7	692.2	13.0		616.0	616.0	151.0	81.0	111.0	83.0	60.5	610.0

Dimensions in mm

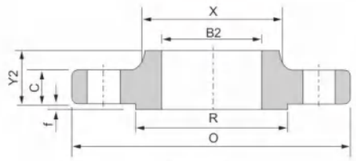
Hub Diameter	Drilling			Approximate Weight										Nominal Pipe Size
	Bolt Circle Diameter Holes	Diameter of Bolt Holes	Number of Bolt	Welding Neck		Slip on Threaded		Lap Joint		Blind		Socket Welding		
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
30	60.3	15.9	4	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00	1/2
38	69.9	15.9	4	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30	3/4
49	79.4	15.9	4	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90	1
59	88.9	15.9	4	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40	1 1/4
65	98.4	15.9	4	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20	1 1/2
78	120.7	19.1	4	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00	2
90	139.7	19.1	4	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80	2 1/2
108	152.4	19.1	4	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90	3
122	177.8	19.1	8	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00	3 1/2
135	190.5	19.1	8	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20	4
164	215.9	22.2	8	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70	5
192	241.3	22.2	8	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60	6
246	298.5	22.2	8	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30	8
305	362.0	25.4	12	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00	10
365	431.8	25.4	12	38.98	85.90	27.68	61.00	28.30	36.40	43.70	96.30	29.30	64.00	12
400	476.3	28.6	12	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00	14
457	539.8	28.6	16	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00	16
505	577.9	31.8	16	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00	18
559	635.0	31.8	20	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00	20
663	749.3	34.9	20	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00	24

NOTES

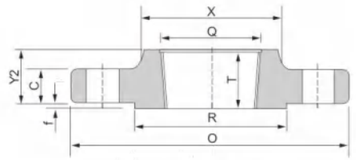
1) Raised face height (f=2.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For Slip-on, Threaded, Socket-Welding, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub.



Welding Neck



Slip-On



Threaded

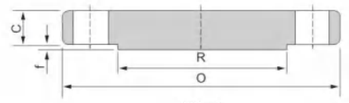
ASME B16.5 CLASS 300 PIPE FLANGES

Dimensions in mm

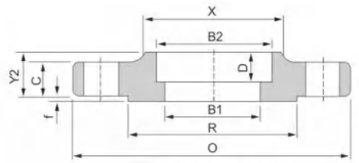
Nominal Pipe Size	Oustide Diameter	Thickness	Thickness of Lap Joint	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore			Diameter Counter Bore Threaded	Length thru hub			Thread Length Threaded Flange (Min)	Depth of Socket	Diameter Hub at Bevel
						Welding Neck Socket Welding	Slip-On Socket Welding	Lap Joint		Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
	O	C	C1	R	r	B1	B2	B3	Q	Y1	Y2	Y3	T	D	A
1/2	95.0	12.7	14.3	34.9	3.0	15.8	22.2	22.9	23.6	51.0	21.0	22.0	16.0	10.0	21.3
3/4	115.0	14.3	15.9	42.9	3.0	20.9	27.7	28.2	29.0	56.0	24.0	25.0	16.0	11.0	26.7
1	125.0	15.9	17.5	50.8	3.0	26.6	34.5	34.9	35.8	60.0	25.0	27.0	18.0	13.0	33.4
1 1/4	135.0	17.5	19.1	63.5	5.0	35.1	43.2	43.7	44.4	64.0	25.0	27.0	21.0	14.0	42.2
1 1/2	155.0	19.1	20.7	73.0	6.0	40.9	49.5	50.0	50.3	67.0	29.0	30.0	23.0	16.0	48.3
2	165.0	20.7	22.3	92.1	8.0	52.5	61.9	62.5	63.5	68.0	32.0	33.0	29.0	17.0	60.3
2 1/2	190.0	23.9	25.4	104.8	8.0	62.7	74.6	75.4	76.2	75.0	37.0	38.0	32.0	19.0	73.0
3	210.0	27.0	28.6	127.0	10.0	77.9	90.7	91.4	92.2	78.0	41.0	43.0	32.0	21.0	88.9
3 1/2	230.0	28.6	30.2	139.7	10.0	90.1	103.4	104.1	104.9	79.0	43.0	44.0	37.0	—	101.6
4	255.0	30.2	31.8	157.2	11.0	102.3	116.1	116.8	117.6	84.0	46.0	48.0	37.0	—	114.3
5	280.0	33.4	35.0	185.7	11.0	128.2	143.8	144.4	144.4	97.0	49.0	51.0	43.0	—	141.3
6	320.0	35.0	36.6	215.9	13.0	154.1	170.7	171.4	171.4	97.0	51.0	52.0	47.0	—	168.3
8	380.0	39.7	41.3	266.9	13.0	202.7	221.5	222.2	222.2	110.0	60.0	62.0	51.0	—	219.1
10	445.0	46.1	47.7	323.8	13.0	254.6	276.2	277.4	276.2	116.0	65.0	95.0	56.0	—	273.0
12	520.0	49.3	50.8	381.0	13.0	304.8	327.0	328.2	328.6	129.0	71.0	102.0	61.0	—	323.8
14	585.0	52.4	54.0	412.8	13.0	To be specified by purchaser	359.2	360.2	360.4	141.0	75.0	111.0	64.0	—	355.6
16	650.0	55.6	57.2	469.9	13.0		410.5	411.2	411.2	144.0	81.0	121.0	69.0	—	406.4
18	710.0	58.8	60.4	533.4	13.0		461.8	462.3	462.0	157.0	87.0	130.0	70.0	—	457.0
20	775.0	62.0	63.5	584.2	13.0		513.1	514.4	512.8	160.0	94.0	140.0	74.0	—	508.0
24	915.0	68.3	63.9	692.2	13.0		616.0	616.0	614.4	167.0	105.0	152.0	83.0	---	610.0

NOTES

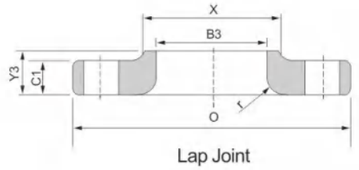
1) Raised face height (f=2.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For Slip-on, Threaded, Socket-Welding, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub.



Blind



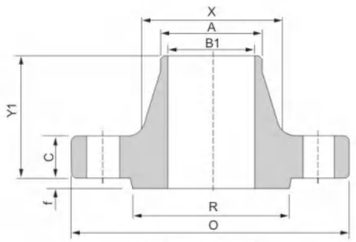
Socket Weld



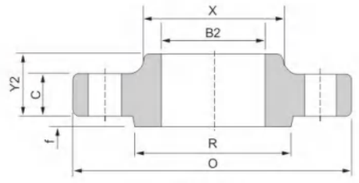
Lap Joint

Dimensions in mm

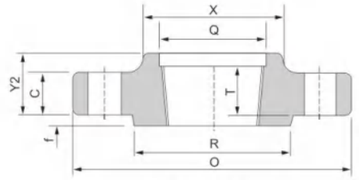
Hub Diameter	Drilling			Approximate Weight										Nominal Pipe Size
	Bolt Circle Diameter Holes	Diameter of Bolt Holes	Number of Bolt	Welding Neck		Slip on Threaded		Lap Joint		Blind		Socket Welding		
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
38.0	66.7	15.9	4	0.78	1.70	0.62	1.40	0.61	1.30	0.62	1.40	0.62	1.40	1/2
48.0	82.6	19.1	4	1.34	3.00	1.15	2.50	1.15	2.50	1.16	2.50	1.19	2.60	3/4
54.0	88.9	19.1	4	1.64	3.60	1.39	3.10	1.38	3.00	1.42	3.00	1.44	3.20	1
64.0	98.4	19.1	4	2.06	4.50	1.67	3.70	1.66	3.70	1.79	3.90	1.73	3.80	1 1/4
70.0	114.3	22.2	4	3.06	6.70	2.53	5.60	2.52	5.60	2.68	5.90	2.62	5.80	1 1/2
84.0	127.0	19.1	8	3.40	7.50	2.80	6.20	2.79	6.20	3.09	6.80	2.94	6.50	2
100.0	149.2	22.2	8	5.31	11.70	4.25	9.40	4.22	9.30	4.75	10.50	4.49	9.90	2 1/2
117.0	168.3	22.2	8	7.32	16.10	5.81	12.80	5.78	12.70	6.79	14.90	6.20	13.70	3
133.0	184.2	22.2	8	8.17	18.00	7.72	17.00	7.72	17.00	9.53	21.00			3 1/2
146.0	200.0	22.2	8	11.30	24.90	10.13	22.30	10.07	22.20	12.00	26.50			4
178.0	235.0	22.2	8	15.12	33.30	12.58	27.70	12.52	27.60	15.96	35.20			5
206.0	269.9	22.2	12	19.68	43.40	16.04	35.40	15.95	35.20	21.20	46.70			6
260.0	330.2	25.4	12	30.48	67.20	24.50	54.00	24.37	53.70	34.60	76.30			8
321.0	387.4	28.6	16	43.74	96.40	34.16	75.30	39.92	88.00	55.34	122.00			10
375.0	450.8	31.8	16	64.41	142.00	51.26	113.00	58.70	129.40	78.90	174.00			12
425.0	514.4	31.8	20	88.30	94.70	72.12	159.00	83.46	184.00	107.05	236.00			14
483.0	571.5	34.9	20	112.94	249.00	90.40	199.30	106.14	234.00	139.25	307.00			16
533.0	628.6	34.9	24	138.34	305.00	109.00	240.30	133.95	295.30	176.90	396.00			18
587.0	685.8	34.9	24	167.37	369.00	136.00	300.00	157.65	347.60	223.17	492.00			20
702.0	812.8	41.3	24	235.41	519.00	204.00	449.70	240.40	530.00	342.00	754.00			24



Welding Neck



Slip-On



Threaded

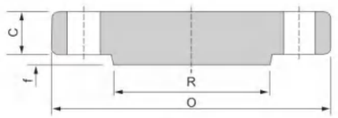
ASME B16.5 CLASS 400 PIPE FLANGES

Dimensions in mm

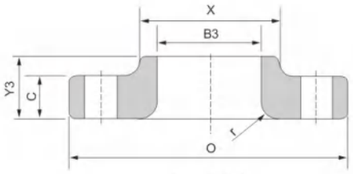
Nominal Pipe Size	Oustide Diameter	Thickness	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore				Length thru hub			Thread Length Threaded Flange (Min)	Diameter Hub at Bevel
					Welding Neck	Slip-On	Lap Joint	Diameter Counter Bore Threaded	Welding Neck	Slip-on Threaded	Lap Joint		
	O	C	R	r	B1	B2	B3	Q	Y1	Y2	Y3	T	A
1/2	95.0	14.3	34.9	3.0	To be specified by purchaser	22.2	22.9	23.6	52.0	22.0	22.0	16.0	21.3
3/4	115.0	15.9	42.9	3.0		27.7	28.2	29.0	57.0	25.0	25.0	16.0	26.7
1	125.0	17.5	50.8	3.0		34.5	34.9	35.8	62.0	27.0	27.0	18.0	33.4
1 1/4	135.0	20.7	63.5	5.0		43.2	43.7	44.4	67.0	29.0	29.0	21.0	42.2
1 1/2	155.0	22.3	73.0	6.0		49.5	50.0	50.3	70.0	32.0	32.0	23.0	48.3
2	165.0	25.4	92.1	8.0		61.9	62.5	63.5	73.0	37.0	37.0	29.0	60.3
2 1/2	190.0	28.6	104.8	8.0		74.6	75.4	76.2	79.0	41.0	41.0	32.0	73.0
3	210.0	31.8	127.0	10.0		90.7	91.4	92.2	83.0	46.0	46.0	32.0	88.9
3 1/2	230.0	35.0	139.7	10.0		103.4	104.1	104.9	86.0	49.0	49.0	37.0	101.6
4	255.0	35.0	157.2	11.0		116.1	116.8	117.6	89.0	51.0	51.0	37.0	114.3
5	280.0	38.1	185.7	11.0		143.8	144.4	144.4	102.0	54.0	54.0	43.0	141.3
6	320.0	41.3	215.9	13.0		170.7	171.4	171.4	103.0	57.0	57.0	47.0	168.3
8	380.0	47.7	266.9	13.0		221.5	222.2	222.2	117.0	68.0	68.0	51.0	219.1
10	445.0	54.0	323.8	13.0		276.2	277.4	276.2	124.0	73.0	102.0	56.0	273.0
12	520.0	57.2	381.0	13.0		327.0	328.2	328.6	137.0	79.0	108.0	61.0	323.8
14	585.0	60.4	412.8	13.0		359.2	360.2	360.4	149.0	84.0	117.0	64.0	355.6
16	650.0	63.5	469.9	13.0		410.5	411.2	411.2	152.0	94.0	127.0	69.0	406.4
18	710.0	66.7	533.4	13.0		461.8	462.3	462.0	165.0	98.0	137.0	70.0	457.0
20	775.0	69.9	584.2	13.0		513.1	514.4	512.8	168.0	102.0	146.0	74.0	508.0
24	915.0	76.2	692.2	13.0		616.0	616.0	614.4	175.0	114.0	159.0	83.0	610.0

NOTES

1) Raised face height (f=7.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For Slip-on, Threaded, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub.



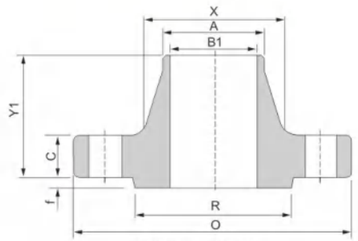
Blind



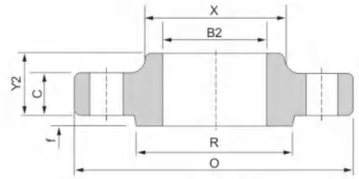
Lap Joint

Dimensions in mm

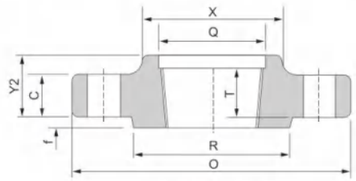
Hub Diameter	Drilling			Approximate Weight								Nominal Pipe Size
	Bolt Circle Diameter	Diameter of Bolt Holes	Number of Bolt Holes	Welding Neck		Slip on Threaded		Lap Joint		Blind		
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	
38.0	66.7	15.9	4	0.90	2.00	0.91	2.00	0.80	1.80	0.91	2.00	1/2
48.0	82.6	19.1	4	1.59	3.50	1.40	3.00	1.36	3.00	1.40	3.00	3/4
54.0	88.9	19.1	4	1.90	4.00	1.70	3.70	1.59	3.50	1.81	4.00	1
64.0	98.4	19.1	4	2.49	5.50	2.27	5.00	2.04	4.50	2.40	5.30	1 1/4
70.0	114.3	22.2	4	3.63	8.00	3.10	6.80	2.96	6.50	3.40	7.50	1 1/2
84.0	127.0	19.1	8	4.54	10.00	3.63	8.00	3.63	8.00	4.40	9.70	2
100.0	149.2	22.2	8	6.35	14.00	5.44	12.00	4.99	11.00	6.80	15.00	2 1/2
117.0	168.3	22.2	8	8.10	18.00	7.26	16.00	6.35	14.00	8.90	19.60	3
133.0	184.2	25.4	8	11.80	26.00	9.53	21.00	9.08	20.00	13.17	29.00	3 1/2
146.0	200.0	25.4	8	13.61	30.00	10.89	24.00	9.98	22.00	14.40	31.70	4
178.0	235.0	25.4	8	17.69	39.00	14.07	31.00	13.15	29.00	19.50	43.00	5
206.0	269.9	25.4	12	22.23	49.00	19.98	44.00	16.78	37.00	27.67	61.00	6
260.0	330.2	28.6	12	35.38	78.00	30.40	67.00	26.16	59.00	45.36	100.00	8
321.0	387.4	31.8	16	49.89	110.00	41.28	91.00	43.09	95.00	68.00	150.00	10
375.0	450.8	34.9	16	72.57	160.00	59.02	130.00	68.95	152.00	98.00	216.00	12
425.0	514.4	34.9	20	105.69	233.00	81.72	180.00	95.25	210.00	131.66	290.00	14
483.0	571.5	38.1	20	133.36	294.00	106.69	235.00	127.00	280.00	167.00	368.00	16
533.0	628.6	38.1	24	158.90	350.30	129.39	285.30	156.47	345.00	206.57	455.40	18
587.0	685.8	41.3	24	193.00	425.50	152.00	335.00	190.51	420.00	261.00	575.40	20
702.0	812.8	41.3	24	281.48	620.50	231.54	510.50	278.96	615.00	395.00	870.80	24



Welding Neck



Slip-On



Threaded

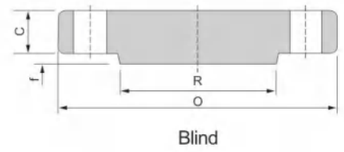
ASME B16.5 CLASS 600 PIPE FLANGES

Dimensions in mm

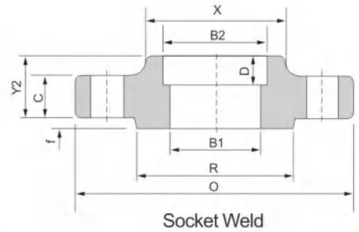
Nominal Pipe Size	Oustide Diameter	Thickness	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore				Length thru hub			Thread Length Threaded Flange (Min)	Depth of Socket	Diameter Hub at Bevel
					Welding Neck Socket Welding	Slip-On Socket Welding	Lap Joint	Diameter Counter Bore Threaded	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
	O	C	R	r	B1	B2	B3	Q	Y1	Y2	Y3	T	D	A
1/2	95.0	14.3	34.9	3.0	To be specified by purchaser	22.2	22.9	23.6	52.0	22.0	22.0	16.0	10.0	21.3
3/4	115.0	15.9	42.9	3.0		27.7	28.2	29.0	57.0	25.0	25.0	16.0	11.0	26.7
1	125.0	17.5	50.8	3.0		34.5	34.9	35.8	62.0	27.0	27.0	18.0	13.0	33.4
1 1/4	135.0	20.7	63.5	5.0		43.2	43.7	44.4	67.0	29.0	29.0	21.0	14.0	42.2
1 1/2	155.0	22.3	73.0	6.0		49.5	50.0	50.3	70.0	32.0	32.0	23.0	16.0	48.3
2	165.0	25.4	92.1	8.0		61.9	62.5	63.5	73.0	37.0	37.0	29.0	17.0	60.3
2 1/2	190.0	28.6	104.8	8.0		74.6	75.4	76.2	79.0	41.0	41.0	32.0	19.0	73.0
3	210.0	31.8	127.0	10.0		90.7	91.4	92.2	83.0	46.0	46.0	35.0	21.0	88.9
3 1/2	230.0	35.0	139.7	10.0		103.4	104.1	104.9	86.0	49.0	49.0	40.0		101.6
4	275.0	38.1	157.2	11.0		116.1	116.8	117.6	102.0	54.0	54.0	42.0		114.3
5	330.0	44.5	185.7	11.0		143.8	144.4	144.4	114.0	60.0	60.0	48.0		141.3
6	355.0	47.7	215.9	13.0		170.7	171.4	171.4	117.0	67.0	67.0	51.0		168.3
8	420.0	55.6	266.9	13.0		221.5	222.2	222.2	133.0	76.0	76.0	58.0		219.1
10	510.0	63.5	323.8	13.0		276.2	277.4	276.2	152.0	86.0	111.0	66.0		273.0
12	560.0	66.7	381.0	13.0		327.0	328.2	328.6	156.0	92.0	117.0	70.0		323.8
14	605.0	69.9	412.8	13.0		359.2	360.2	360.4	165.0	94.0	127.0	74.0		355.6
16	685.0	76.2	469.9	13.0		410.5	411.2	411.2	178.0	106.0	140.0	78.0		406.4
18	745.0	82.6	533.4	13.0		461.8	462.3	462.0	184.0	117.0	152.0	80.0		457.0
20	815.0	88.9	584.2	13.0		513.1	514.4	512.8	190.0	127.0	165.0	83.0		508.0
24	940.0	101.6	692.2	13.0		616.0	616.0	614.4	203.0	140.0	184.0	93.0		610.0

NOTES

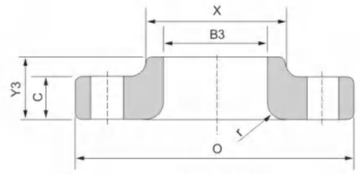
1) Raised face height (f=7.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For Slip-on, Threaded, Socket Welding, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub.



Blind



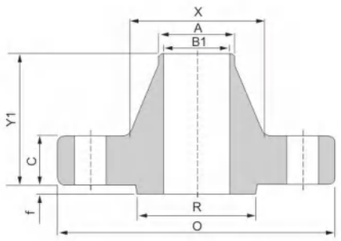
Socket Weld



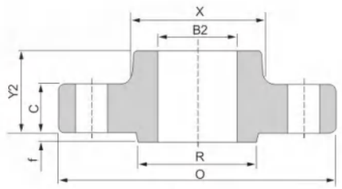
Lap Joint

Dimensions in mm

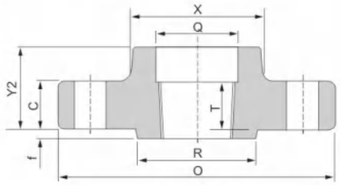
Hub Diameter	Drilling			Approximate Weight										Nominal Pipe Size
	Bolt Circle Diameter Holes	Diameter of Bolt Holes	Number of Bolt Holes	Welding Neck		Slip on Threaded		Lap Joint		Blind		Socket Welding		
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
38.0	66.7	15.9	4	0.90	2.00	0.91	2.00	0.80	1.80	0.91	2.00	0.91	2.00	1/2
48.0	82.6	19.1	4	1.59	3.50	1.40	3.00	1.36	3.00	1.40	3.00	1.36	3.00	3/4
54.0	88.9	19.1	4	1.90	4.00	1.70	3.70	1.59	3.50	1.81	4.00	1.81	4.00	1
64.0	98.4	19.1	4	2.49	5.50	2.27	5.00	2.04	4.50	2.40	5.30	2.60	5.70	1 1/4
70.0	114.3	22.2	4	3.63	8.00	3.10	6.80	2.96	6.50	3.40	7.50	3.18	7.00	1 1/2
84.0	127.0	19.1	8	4.54	10.00	3.63	8.00	3.63	8.00	4.40	9.70	3.90	8.60	2
100.0	149.2	22.2	8	6.35	14.00	5.44	12.00	4.99	11.00	6.80	15.00	5.90	13.00	2 1/2
117.0	168.3	22.2	8	8.10	18.00	7.26	16.00	6.35	14.00	8.90	19.60	7.40	16.30	3
133.0	184.2	25.4	8	11.80	26.00	9.53	21.00	9.08	20.00	13.17	29.00			3 1/2
152.0	215.9	25.4	8	16.78	37.00	14.97	33.00	14.60	31.00	18.60	41.00			4
189.0	266.7	28.6	8	30.87	68.00	28.50	62.80	27.50	60.60	30.84	68.00			5
222.0	292.1	28.6	12	36.77	80.00	36.32	80.00	35.38	78.00	38.00	83.80			6
273.0	349.2	31.8	12	50.80	112.00	44.00	97.00	50.80	112.00	62.20	137.00			8
343.0	431.8	34.9	16	86.26	190.00	76.20	168.00	74.00	163.00	102.00	224.90			10
400.0	489.0	34.9	20	102.51	226.00	97.52	215.00	108.56	240.00	132.00	291.00			12
432.0	527.0	38.1	20	121.56	268.00	102.00	224.80	111.00	244.70	158.00	348.30			14
495.0	603.2	41.3	20	177.06	290.00	149.82	330.20	165.71	365.30	224.73	495.40			16
546.0	654.0	44.5	20	215.65	475.40	180.10	412.30	294.00	427.70	285.00	628.30			18
610.0	723.9	44.5	24	267.86	590.50	231.54	51.050	258.78	570.50	365.00	804.70			20
718.0	838.2	50.8	24	372.00	820.00	330.00	725.50	362.00	798.00	533.45	1176.0			24



Welding Neck



Slip-On



Threaded

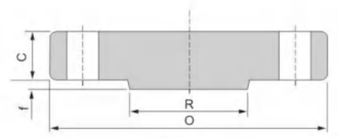
ASME B16.5 CLASS 900 PIPE FLANGES

Dimensions in mm

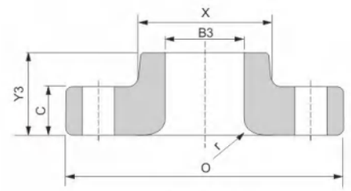
Nominal Pipe Size	Oustide Diameter	Thickness	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore				Length thru hub			Thread Length Threaded Flange (Min)	Diameter Hub at Bevel
					Welding Neck	Slip-On	Lap Joint	Diameter Counter Bore Threaded	Welding Neck	Slip-on Threaded	Lap Joint		
	O	C	R	r	B1	B2	B3	Q	Y1	Y2	Y3	T	A
1/2	120.0	22.3	34.9	3.0	To be specified by purchaser	22.2	22.9	23.6	60.0	32.0	32.0	23.0	21.3
3/4	130.0	25.4	42.9	3.0		27.7	28.2	29.0	70.0	35.0	35.0	26.0	26.7
1	150.0	28.6	50.8	3.0		34.5	34.9	35.8	73.0	41.0	41.0	29.0	33.4
1 1/4	160.0	28.6	63.5	5.0		43.2	43.7	44.4	73.0	41.0	41.0	31.0	42.2
1 1/2	180.0	31.8	73.0	6.0		49.5	50.0	50.3	83.0	44.0	44.0	32.0	48.3
2	215.0	38.1	92.1	8.0		61.9	62.5	63.5	102.0	57.0	57.0	39.0	60.3
2 1/2	245.0	41.3	104.8	8.0		74.6	75.4	76.2	105.0	64.0	64.0	48.0	73.0
3	240.0	38.1	127.0	10.0		90.7	91.4	92.2	102.0	54.0	54.0	42.0	88.9
4	290.0	44.5	157.2	11.0		116.1	116.8	117.6	114.0	70.0	70.0	48.0	114.3
5	350.0	50.8	185.7	11.0		143.8	144.4	144.4	127.0	79.0	79.0	54.0	141.3
6	380.0	55.6	215.9	13.0		170.7	171.4	171.4	140.0	86.0	86.0	58.0	168.3
8	470.0	63.5	266.9	13.0		221.5	222.2	222.2	162.0	102.0	114.0	64.0	219.1
10	545.0	69.9	323.8	13.0		276.2	277.4	276.2	184.0	108.0	127.0	72.0	273.0
12	610.0	79.4	381.0	13.0		327.0	328.2	328.6	200.0	117.0	143.0	77.0	323.8
14	640.0	85.8	412.8	13.0		359.2	360.2	360.4	213.0	130.0	156.0	83.0	355.6
16	705.0	88.9	469.9	13.0		410.5	411.2	411.2	216.0	133.0	165.0	86.0	406.4
18	785.0	101.6	533.4	13.0		461.8	462.3	462.0	229.0	152.0	190.0	89.0	457.0
20	855.0	108.0	584.2	13.0		513.1	514.4	512.8	248.0	159.0	210.0	93.0	508.0
24	1040.0	139.7	692.2	13.0		616.0	616.0	614.4	292.0	203.0	267.0	102.0	610.0

NOTES

1) Raised face height (f=7.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For Slip-on, Threaded, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub.



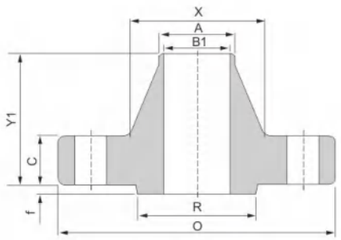
Blind



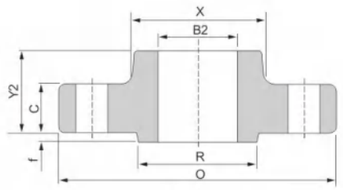
Lap Joint

Dimensions in mm

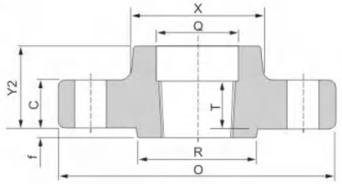
Hub Diameter	Drilling			Approximate Weight								Nominal Pipe Size
	Bolt Circle Diameter	Diameter of Bolt Holes	Number of Bolt Holes	Welding Neck		Slip on Threaded		Lap Joint		Blind		
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	
38.0	82.6	22.2	4	2.10	4.60	1.80	4.00	1.80	4.00	1.90	4.00	1/2
44.0	88.9	22.2	4	2.72	6.00	2.27	5.00	2.27	5.00	2.72	6.00	3/4
52.0	101.6	25.4	4	3.86	8.50	3.40	7.50	3.40	7.50	4.08	9.00	1
64.0	111.1	25.4	4	4.54	10.00	4.10	9.00	4.09	10.80	4.30	9.50	1 1/4
70.0	123.8	28.6	4	5.90	13.00	5.45	12.00	5.40	11.90	5.90	13.00	1 1/2
105.0	165.1	25.4	8	10.89	24.00	10.50	23.00	9.53	21.00	11.30	25.00	2
124.0	190.5	28.6	8	16.34	36.00	15.80	34.80	13.15	29.00	16.00	36.30	2 1/2
127.0	190.5	25.4	8	15.00	33.00	11.80	26.00	11.34	25.00	13.17	29.00	3
159.0	235.0	31.8	8	23.13	51.00	23.20	51.00	22.60	48.50	24.50	54.00	4
190.0	279.4	34.9	8	38.50	84.90	37.65	83.00	36.74	81.00	39.46	87.00	5
235.0	317.5	31.8	12	49.89	110.00	48.30	106.50	47.50	104.70	51.50	113.50	6
298.0	393.7	38.1	12	79.45	175.00	75.00	166.30	86.00	189.60	59.00	106.20	8
368.0	469.9	38.1	16	118.04	260.00	111.13	245.00	125.64	277.00	131.51	290.00	10
419.0	533.4	38.1	20	157.00	346.00	146.00	321.80	167.00	368.00	187.00	412.30	12
451.0	558.8	41.3	20	181.60	400.40	172.36	380.00	180.07	397.00	224.07	494.00	14
508.0	616.0	44.5	20	224.73	495.50	192.95	425.40	211.11	465.40	272.40	600.50	16
565.0	685.8	50.8	20	308.72	680.60	272.40	600.50	295.10	650.60	385.90	850.80	18
622.0	749.3	54.0	20	376.82	830.70	331.42	730.60	367.74	810.70	488.00	1076.00	20
749.0	901.7	66.7	20	685.00	1510.00	632.00	1393.30	700.00	1543.00	905.00	1995.00	24



Welding Neck



Slip-On



Threaded

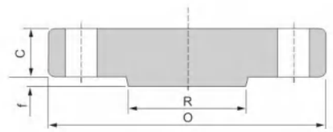
ASME B16.5 CLASS 1500 PIPE FLANGES

Dimensions in mm

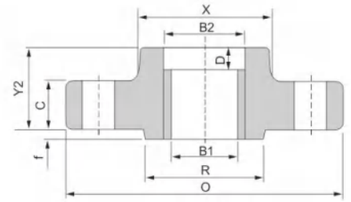
Nominal Pipe Size	Oustide Diameter	Thickness	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore				Length thru hub			Thread Length Threaded Flange (Min)	Depth of Socket	Diameter Hub at Bevel
					Welding Neck Socket Welding	Slip-On Socket Welding	Lap Joint	Diameter Counter Bore Threaded	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
	O	C	R	r	B1	B2	B3	Q	Y1	Y2	Y3	T	D	A
1/2	120.0	22.3	34.9	3.0	To be specified by purchaser	22.2	22.9	23.6	60.0	32.0	32.0	23.0	10.0	21.3
3/4	130.0	25.4	42.9	3.0		27.7	28.2	29.0	70.0	35.0	35.0	26.0	11.0	26.7
1	150.0	28.6	50.8	3.0		34.5	34.9	35.8	73.0	41.0	41.0	29.0	13.0	33.4
1 1/4	160.0	28.6	63.5	5.0		43.2	43.7	44.4	73.0	41.0	41.0	31.0	14.0	42.2
1 1/2	180.0	31.8	73.0	6.0		49.5	50.0	50.3	83.0	44.0	44.0	32.0	16.0	48.3
2	215.0	38.1	92.1	8.0		61.9	62.5	63.5	102.0	57.0	57.0	39.0	17.0	60.3
2 1/2	245.0	41.3	104.8	8.0		74.6	75.4	76.2	105.0	64.0	64.0	48.0	19.0	73.0
3	265.0	47.7	127.0	10.0			91.4		117.0		73.0			88.9
4	310.0	54.0	157.2	11.0			116.8		124.0		90.0			114.3
5	375.0	73.0	185.7	11.0			144.4		156.0		105.0			141.3
6	395.0	82.6	215.9	13.0			171.4		171.0		119.0			168.3
8	485.0	92.1	266.9	13.0			222.2		213.0		143.0			219.1
10	585.0	108.0	323.8	13.0			277.4		254.0		178.0			273.0
12	675.0	123.9	381.0	13.0			328.2		283.0		219.0			323.8
14	750.0	133.4	412.8	13.0			360.2		298.0		241.0			355.6
16	825.0	146.1	469.9	13.0			411.2		311.0		160.0			406.4
18	915.0	162.0	533.4	13.0			462.3		327.0		276.0			457.0
20	985.0	177.8	584.2	13.0			514.4		256.0		292.0			508.0
24	1170.0	203.2	692.2	13.0			616.0		406.0		330.0			610.0

NOTES

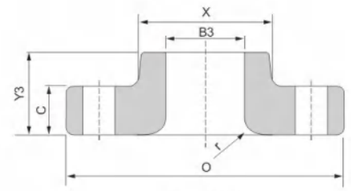
1) Raised face height (f=7.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For Slip-on, Threaded, Socket Welding, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Slip-On flanges or without hub.



Blind



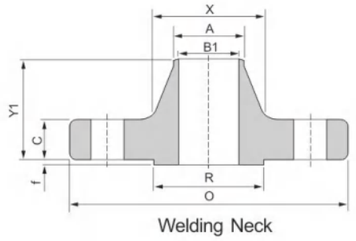
Socket Weld



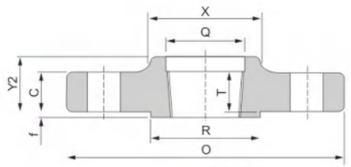
Lap Joint

Dimensions in mm

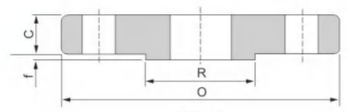
Hub Diameter	Drilling			Approximate Weight									Nominal Pipe Size
	Bolt Circle Diameter Holes	Diameter of Bolt Holes	Number of Bolt Holes	Welding Neck		Slip on Threaded		Lap Joint		Blind		Socket Welding	
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
38.0	82.6	22.2	4	2.21	4.60	1.80	4.00	1.80	4.00	1.90	4.00	1.81	4.00	1/2
44.0	88.9	22.2	4	2.72	6.00	2.27	5.00	2.27	5.00	2.72	6.00	2.81	6.20	3/4
52.0	101.6	25.4	4	3.86	8.50	3.40	7.50	3.40	7.50	4.08	9.00	3.61	8.00	1
64.0	111.1	25.4	4	4.54	10.00	4.10	9.00	4.09	10.80	4.30	9.50	4.99	11.00	1 1/4
70.0	123.8	28.6	4	5.90	13.00	5.45	12.00	5.40	11.90	5.90	13.00	6.76	14.90	1 1/2
105.0	165.1	25.4	8	10.89	24.00	10.50	23.00	9.53	21.00	11.30	25.00	10.89	24.00	2
124.0	190.5	28.6	8	16.34	36.00	15.80	34.80	13.15	29.00	16.00	35.30	16.34	36.00	2 1/2
133.0	203.2	31.8	8	21.79	48.00		48.00	17.24	38.00	21.79	48.00			3
162.0	241.3	34.9	8	31.30	69.00		68.40	29.00	63.90	33.11	73.00			4
197.0	292.1	41.3	8	59.02	130.00		129.60	54.00	119.00	60.00	132.30			5
229.0	317.5	38.1	12	74.91	165.00		163.00	62.00	136.70	75.00	165.30			6
292.0	393.7	44.5	12	123.83	273.00		258.00	129.73	236.00	136.98	302.00			8
368.0	482.6	50.8	12	205.93	454.00		435.00	220.19	485.40	229.97	507.00			10
451.0	571.5	54.0	16	306.00	674.60		582.00	286.02	630.60	316.00	696.70			12
495.0	635.0	60.3	16	416.00	917.00			404.06	890.80	421.00	928.00			14
552.0	704.8	66.7	16	567.50	1250.00			522.10	1151.00	559.00	1232.70			16
597.0	774.7	73.0	16	736.00	1622.00			669.65	1476.30	761.00	1677.70			18
641.0	831.8	79.4	16	929.00	2048.00			805.85	1776.60	967.00	2131.80			20
762.0	990.6	92.1	16	1504.00	3315.00			1285.55	2834.00	1568.00	3456.80			24



Welding Neck



Threaded



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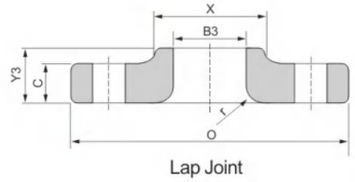


Lap Joint

ASME B16.5 CLASS 2500 PIPE FLANGES

Dimensions in mm

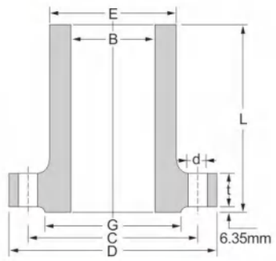
Nominal Pipe Size	Oustide Diameter	Thickness	Raised Face Diameter	Corner Radius of Bore of Lap Joint	Bore			Length thru hub			Thread Length Threaded Flange (Min)	Diameter Hub at Bevel
					Welding Neck	Lap Joint	Diameter Counter Bore Threaded	Welding Neck	Threaded	Lap Joint		
	O	C	R	r	B1	B3	Q	Y1	Y2	Y3	T	A
1/2	135.0	30.2	34.9	3.0	To be specified by purchaser	22.9	23.6	73.0	40.0	40.0	29.0	21.3
3/4	140.0	31.8	42.9	3.0		28.2	29.0	79.0	43.0	43.0	32.0	26.7
1	160.0	35.0	50.8	3.0		34.9	35.8	89.0	48.0	48.0	35.0	33.4
1 1/4	185.0	38.1	63.5	5.0		43.7	44.4	95.0	52.0	52.0	39.0	42.2
1 1/2	205.0	44.5	73.0	6.0		50.0	50.3	111.0	60.0	60.0	45.0	48.3
2	235.0	50.9	92.1	8.0		62.5	63.5	127.0	70.0	70.0	51.0	60.3
2 1/2	265.0	57.2	104.8	8.0		75.4	76.2	143.0	79.0	79.0	58.0	73.0
3	305.0	66.7	127.0	10.0		91.4		168.0		92.0		88.9
4	355.0	76.2	157.2	11.0		116.8		190.0		108.0		114.3
5	420.0	92.1	185.7	11.0		144.4		229.0		130.0		141.3
6	485.0	108.0	215.9	13.0		171.4		273.0		152.0		168.3
8	550.0	127.0	266.9	13.0		222.2		318.0		178.0		219.1
10	675.0	165.1	323.8	13.0		277.4		419.0		229.0		273.0
12	760.0	184.2	381.0	13.0		328.2		464.0		254.0		323.8

NOTES

1) Raised face height (f=7.0mm) not included in thickness (C) and length through hub (Y1, Y2)
2) For, Threaded, lap Joint flanges, the hub shall be tapered 7° max. or vertical from base to top.
3) Blind Flanges may be made with the same hub as that used for Threaded flanges or without hub.

Dimensions in mm

Hub Diameter	Drilling			Approximate Weight								Nominal Pipe Size
	Bolt Circle Diameter	Diameter of Bolt Holes	Number of Bolt Holes	Welding Neck		Threaded		Lap Joint		Blind		
X				Kg	lb	Kg	lb	Kg	lb	Kg	lb	
43.0	88.9	22.2	4	3.18	7.00	3.18	7.00	3.00	6.60	3.18	7.00	1/2
51.0	95.2	22.2	4	4.08	9.00	4.08	9.00	3.63	8.00	4.54	10.00	3/4
57.0	108.0	25.4	4	5.45	12.00	5.44	12.00	4.99	11.00	5.44	12.00	1
73.0	130.2	28.6	4	9.07	20.00	8.16	18.00	7.26	16.00	8.16	18.00	1 1/4
79.0	146.0	31.8	4	11.35	25.00	11.00	24.30	9.99	22.00	10.44	23.00	1 1/2
95.0	171.4	28.6	8	19.07	42.00	17.25	38.00	16.80	37.00	17.71	39.00	2
114.0	196.8	31.8	8	23.61	52.00	24.97	55.00	24.06	53.00	25.42	56.00	2 1/2
133.0	228.6	34.9	8	42.68	94.00			36.32	80.00	39.04	86.00	3
165.0	273.0	41.3	8	64.00	141.00			54.48	120.00	60.38	133.00	4
203.0	323.8	47.6	8	110.68	244.00			92.53	204.00	101.15	223.00	5
235.0	368.3	54.0	8	176.46	378.00			143.01	315.30	156.63	345.00	6
305.0	438.2	54.0	12	261.27	576.00			213.38	470.40	240.62	530.50	8
375.0	539.8	66.7	12	484.43	1068.00			408.60	900.80	465.36	1026.00	10
441.0	619.1	73.0	12	692.35	1526.30			572.95	1263.30	664.06	1464.00	12



LONG WELDING NECK FLANGES CLASS 400

Unit: mm

Nominal Pipe Size	Outside Diameter	O.D.of Raised Face	Hub Diameter at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
1	Use Class 600 dimensions these sizes.								
1¼									
1½									
2									
2½									
3									
3½									
4	254	157.2	146.1	101.6	35.1	304.8	200.2	8	25.4
5	279	185.7	177.8	127.0	38.1	304.8	235.0	12	25.4
6	318	215.9	206.2	152.4	41.1	304.8	269.7	12	25.4
8	381	269.7	260.4	203.2	47.8	304.8	330.2	12	28.4
10	445	323.9	320.5	254.0	53.8	304.8	387.4	16	31.8
12	521	381.0	374.7	304.8	57.2	304.8	450.9	16	35.1
14	584	412.8	425.5	355.6	60.5	304.8	514.4	20	35.1
16	648	469.9	482.6	406.4	63.5	304.8	571.5	24	38.1
18	711	533.4	533.4	457.2	66.5	304.8	628.7	24	38.1
20	775	584.2	587.2	508.0	69.9	304.8	685.8	24	41.1
24	914	692.2	701.5	609.6	76.2	304.8	812.8	24	47.8

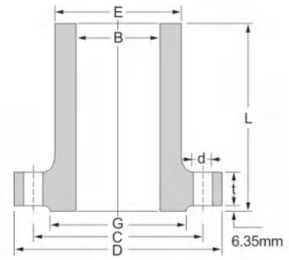
LONG WELDING NECK FLANGES CLASS 600

Unit: mm

Nominal Pipe Size	Outside Diameter	O.D.of Raised Face	Hub Diameter at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
1	124	50.8	53.8	25.4	17.5	228.6	88.9	4	19.1
1¼	133	63.5	63.5	31.8	20.6	228.6	98.6	4	19.1
1½	155	73.2	69.9	38.1	22.4	228.6	114.3	4	22.4
2	165	91.9	84.1	50.8	25.4	228.6	127.0	8	19.1
2½	191	104.6	100.1	63.5	28.4	228.6	149.4	8	22.4
3	210	127.0	117.3	76.2	31.8	228.6	168.1	8	22.4
3½	229	139.7	133.4	88.9	35.1	228.6	184.2	8	25.4
4	273	157.2	152.4	101.6	38.1	304.8	215.9	8	25.4
5	330	185.7	190.5	127.0	44.5	304.8	266.7	8	28.4
6	356	215.9	222.3	152.4	47.8	304.8	292.1	12	28.4
8	419	269.7	273.1	203.2	55.6	304.8	349.3	12	31.8
10	508	323.9	342.9	254.0	63.5	304.8	431.8	16	35.1
12	559	381.0	400.1	304.8	66.5	304.8	489.0	20	35.1
14	603	412.8	431.8	355.6	69.9	304.8	527.1	20	38.1
16	686	469.9	495.3	406.4	76.2	304.8	603.3	20	41.1
18	743	533.4	546.1	457.2	82.6	304.8	654.1	20	44.5
20	813	584.2	609.6	508.0	88.9	304.8	723.9	24	44.5
24	940	692.2	717.6	609.6	101.6	304.8	838.2	24	50.8

NOTES

1) Bore (B) is the same as nominal pipe size.
2) Welding necks longer than listed are available in all size on special order.
3) This dimensional specification is in accordance with ANSI B16.5 Edd. 1997 which is still commonly used at the market.
   The latest version is ANSI B16.5 Edd. 2003



LONG WELDING NECK FLANGES CLASS 900

Unit: mm

Nominal Pipe Size	Outside Diameter	O.D.of Raised Face	Hub Diameter at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
1	Use Class 1500 dimensions these sizes.								
1¼									
1½									
2									
2½									
3	241	127.0	127.0	76.2	38.1	304.8	190.5	8	25.4
4½	292	157.2	155.8	101.6	44.5	304.8	235.0	8	31.8
5	349	185.7	190.5	127.0	50.8	304.8	279.4	8	35.1
6	381	215.9	235.0	152.4	55.6	304.8	317.5	12	31.8
8	470	269.7	298.5	203.2	63.5	304.8	393.7	12	38.1
10	546	323.9	368.3	254.0	69.9	406.4	469.9	16	38.1
12	610	381.0	419.1	304.8	79.2	406.4	533.4	20	38.1
14	641	412.8	450.9	355.6	85.9	To be specified by purchaser	558.8	20	41.1
16	705	469.9	508.0	406.4	88.9		616.0	20	44.5
18	787	533.4	565.2	557.2	101.6		685.8	20	50.8
20	857	584.2	622.3	508.0	108.0		749.3	20	53.8
24	1040	692.2	749.3	609.6	139.7		901.7	20	66.5

NOTES

1) Bore (B) is the same as nominal pipe size.
2) Welding necks longer than listed are available in all size on special order.
3) This dimensional specification is in accordance with ANSI B16.5 Edd. 1997 which is still commonly used at the market.
   The latest version is ANSI B16.5 Edd. 2003

LONG WELDING NECK FLANGES CLASS 1500

Unit: mm

Nominal Pipe Size	Outside Diameter	O.D.of Raised Face	Hub Diameter at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
1	149	50.8	52.3	25.4	28.4	228.6	101.6	4	25.4
1¼	159	63.5	63.5	31.8	28.4	228.6	111.3	4	25.4
1½	178	73.2	69.9	38.1	31.8	228.6	124.0	4	28.4
2	216	91.9	104.6	50.8	38.1	228.6	165.1	8	25.4
2½	244	104.6	124.0	63.5	41.1	304.8	190.5	8	28.4
3	267	127.0	133.4	76.2	47.8	304.8	203.2	8	31.8
4	311	157.2	162.1	101.6	53.8	304.8	241.3	8	35.1
5	375	185.7	196.9	127.0	73.2	304.8	292.1	8	41.1
6	394	215.9	228.6	152.4	82.6	304.8	317.5	12	38.1
8	483	269.7	292.1	203.2	91.9	304.8	393.7	12	44.5
10	584	323.9	368.3	254.0	108.0	406.4	482.6	12	50.8
12	673	381.0	450.9	304.8	124.0	406.4	571.5	16	53.8
14	749	412.8	495.3	355.6	133.4	To be specified by purchaser	635.0	16	60.5
16	826	469.9	552.5	406.4	146.1		704.9	16	66.5
18	914	533.4	596.9	457.2	162.1		774.7	16	73.2
20	984	584.2	641.4	508.0	177.8		831.9	16	79.2
24	1168	692.2	762.0	609.6	203.2		990.6	16	91.9

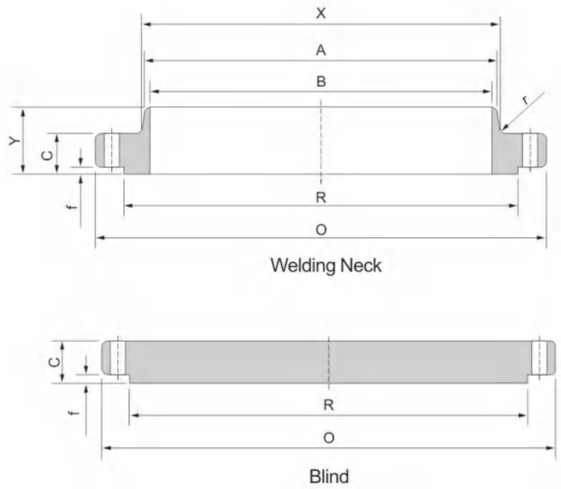
LONG WELDING NECK FLANGES CLASS 2500

Unit: mm

Nominal Pipe Size	Outside Diameter	O.D.of Raised Face	Hub Diameter at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
1	159	50.8	57.2	25.4	35.1	228.6	108.0	4	25.4
1¼	184	63.5	73.2	31.8	38.1	228.6	130.0	4	28.4
1½	203	73.2	79.2	38.1	44.5	228.6	146.1	4	31.8
2	235	91.9	95.3	50.8	50.8	228.6	171.5	8	28.4
2½	267	104.6	114.3	63.5	57.2	304.8	196.9	8	31.8
3	305	127.0	133.4	76.2	66.5	304.8	228.6	8	35.1
4	356	157.2	165.1	101.6	76.2	304.8	273.1	8	41.1
5	419	185.7	203.2	127.0	91.9	304.8	323.9	8	47.8
6	483	215.9	235.0	152.4	108.0	304.8	368.3	8	53.8
8	552	269.7	304.8	203.2	127.0	304.8	438.2	12	53.8
10	673	323.9	374.7	254.0	165.1	406.4	539.8	12	66.5
12	762	381.0	441.5	304.8	184.2	406.4	619.3	16	73.2

NOTES

1) Bore (B) is the same as nominal pipe size.
2) Welding necks longer than listed are available in all size on special order.
3) This dimensional specification is in accordance with ANSI B16.5 Edd. 1997 which is still commonly used at the market.
The latest version is ANSI B16.5 Edd. 2003



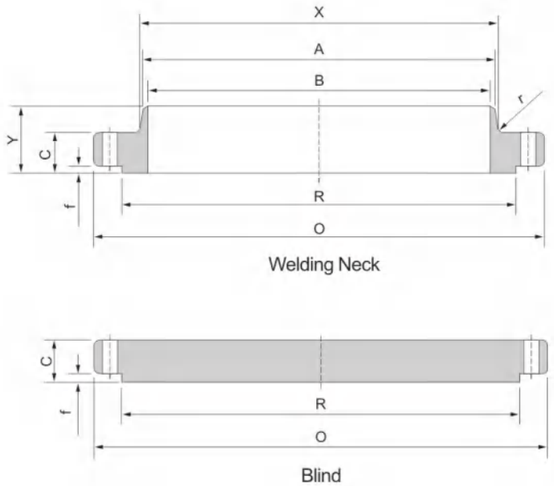
ASME B 16.47 SERIES B CLASS 75

Dimensions in mm

Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Fillet Radius Minimum	Bore	Length Thru Hub	Diameter of Hub at Bevel	Hub Diameter	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	r	B	Y	A	X				Kg	lb	Kg	lb
26	762.0	33.3	33.3	704.9	7.9	To be specified by purchaser	58.7	661.9	676.1	723.9	19.1	36	40.5	89.40	116.7	257.41
28	812.8	33.3	33.3	755.7	7.9		62.0	712.7	726.9	774.7	19.1	40	44.4	97.98	133.0	293.16
30	863.6	33.3	33.3	806.5	7.9		65.0	763.5	777.7	825.5	19.1	44	48.4	106.71	150.2	331.25
32	914.4	35.1	36.6	857.3	7.9		69.9	814.3	828.5	876.3	19.1	48	54.7	120.56	185.3	408.66
34	965.2	35.1	38.1	908.1	7.9		73.2	865.1	879.3	927.1	19.1	52	59.1	130.35	215.3	474.73
36	1033.5	36.6	42.4	965.2	9.7		85.9	915.9	935.0	992.1	22.4	40	78.2	172.38	275.2	606.73
38	1084.3	38.1	44.5	1016.0	9.7		88.9	966.7	985.8	1042.9	22.4	40	85.9	189.34	318.0	701.22
40	1135.1	38.1	44.5	1066.8	9.7		91.9	1017.5	1036.6	1093.7	22.4	44	91.4	201.63	348.6	768.56
42	1185.9	39.6	47.8	1117.6	9.7		95.3	1068.3	1087.4	1144.5	22.4	48	99.4	219.10	408.8	901.45
44	1251.0	42.9	49.3	1174.8	9.7		104.6	1119.1	1140.0	1203.5	25.4	36	123.9	273.23	470.3	1037.11
46	1301.8	44.5	50.8	1225.6	9.7		108.0	1169.9	1190.8	1254.3	25.4	40	133.4	294.10	525.0	1157.56
48	1352.6	46.0	53.8	1276.4	9.7		111.3	1220.7	1241.6	1305.1	25.4	44	143.2	315.73	600.7	1324.52
50	1403.4	47.8	55.4	1327.2	9.7		115.8	1271.5	1293.9	1355.9	25.4	44	152.8	323.70	665.8	1454.71
52	1457.5	47.8	57.2	1378.0	9.7		120.7	1322.3	1344.7	1409.7	25.4	48	167.5	369.44	741.1	1634.04
54	1508.3	49.3	60.5	1428.8	9.7		125.5	1373.1	1397.0	1460.5	25.4	48	181.4	399.96	840.4	1853.05
56	1574.8	50.8	62.0	1485.9	11.2		134.9	1423.9	1450.8	1521.0	28.4	40	215.0	474.15	939.6	2071.91
58	1625.6	52.3	63.5	1536.7	11.2		138.2	1474.7	1501.6	1571.8	28.4	44	228.0	502.78	1025.5	2261.32
60	1676.4	55.6	66.5	1587.5	11.2		144.5	1525.5	1552.4	1622.6	28.4	44	249.2	549.53	1144.0	2522.59

NOTES

Raised Face height (f) will be furnished with 1.6 mm and, which is included in Thickness (C) and Length Through Hub (Y)



Welding Neck

Blind

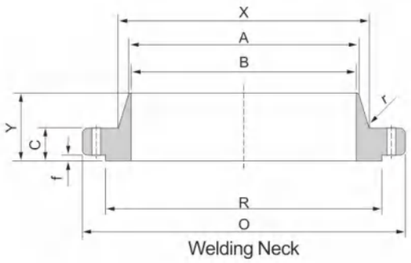
ASME B 16.47 SERIES B CLASS 150

Dimensions in mm

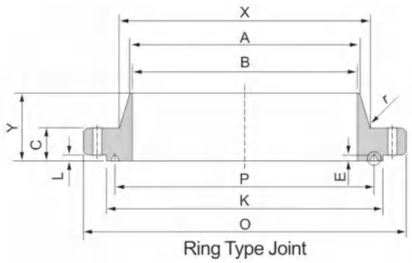
Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	785.9	41.1	44.5	711.2	684.3	To be specified by purchaser	88.9	661.9	9.7	744.5	22.4	36	63.2	139.42	164.7	363.14
28	836.7	44.5	47.8	762.0	735.1		96.3	712.7	9.7	795.3	22.4	40	72.9	160.77	200.8	442.70
30	887.5	44.5	50.8	812.8	787.4		100.1	763.5	9.7	846.1	22.4	44	79.8	175.90	240.6	530.47
32	941.3	46.0	53.8	863.6	839.7		108.0	814.3	9.7	900.2	22.4	48	91.4	201.46	287.2	633.28
34	1004.8	49.3	57.2	920.8	892.0		110.2	865.1	9.7	957.3	25.4	40	109.7	241.79	347.9	767.06
36	1057.1	52.3	58.7	971.6	944.6		117.3	915.9	9.7	1009.7	25.4	44	124.5	274.49	395.5	871.97
38	1124.0	53.8	63.5	1022.4	997.0		124.0	968.2	9.7	1069.8	28.4	40	146.3	322.69	483.5	1066.17
40	1174.8	55.6	66.5	1079.5	1049.3		128.5	1019.0	9.7	1120.6	28.4	44	159.3	351.35	553.8	1221.05
42	1225.6	58.7	68.3	1130.3	1101.9		133.4	1069.8	11.2	1171.4	28.4	48	175.3	386.58	618.9	1364.63
44	1276.4	60.5	71.4	1181.1	1152.7		136.7	1120.6	11.2	1222.2	28.4	52	187.9	414.41	701.4	1546.48
46	1341.4	62.0	74.7	1234.9	1205.0		144.5	1171.4	11.2	1284.2	31.8	40	220.3	485.85	813.2	1793.01
48	1392.2	65.0	77.7	1289.1	1257.3		149.4	1222.2	11.2	1335.0	31.8	44	239.5	825.21	911.5	2009.79
50	1443.0	68.3	80.8	1339.9	1308.1		153.9	1273.0	11.2	1385.8	31.8	48	258.9	570.77	1017.4	2243.34
52	1493.8	69.9	84.1	1390.7	1360.4		157.2	1323.8	11.2	1436.6	31.8	52	274.9	606.17	1134.7	2502.04
54	1549.4	71.4	87.4	1441.5	1412.7		162.1	1374.6	11.2	1492.3	31.8	56	299.1	659.54	1268.7	2797.55
56	1600.2	73.2	90.4	1492.3	1465.3		166.6	1425.4	14.2	1543.1	31.8	60	318.5	702.35	1400.5	3088.10
58	1674.9	74.7	93.5	1543.1	1516.1		174.8	1476.2	14.2	1611.4	35.1	48	377.9	833.24	1589.6	3505.06
60	1725.7	76.2	96.8	1600.2	1570.0		179.3	1527.0	14.2	1662.2	35.1	52	401.1	884.40	1746.7	3851.56

NOTES

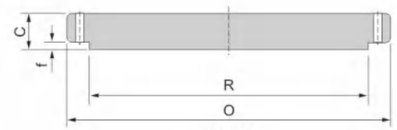
Raised Face height (f) will be furnished with 1.6 mm and, which is included in Thickness (C) and Length Through Hub (Y)



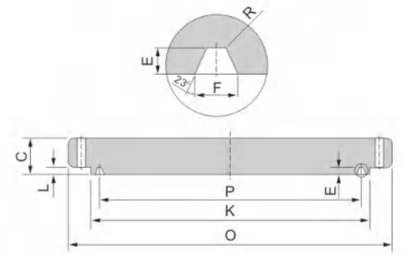
Welding Neck



Ring Type Joint



Blind



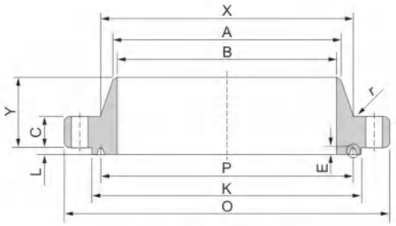
ASME B 16.47 SERIES B CLASS 300

Dimensions in mm

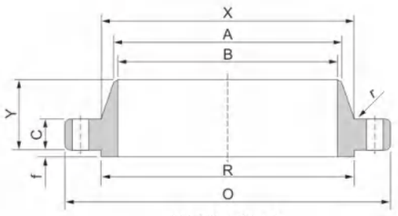
Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	866.6	88.9	88.9	736.6	701.5	To be specified by purchaser	144.5	665.2	14.2	803.1	35.1	32	185.0	407.87	390.7	861.57
28	920.8	88.9	88.9	787.4	755.7		149.4	716.0	14.2	857.3	35.1	36	202.5	446.45	441.2	972.83
30	990.6	93.7	93.7	844.6	812.8		158.0	768.4	14.2	920.8	38.1	36	246.2	542.87	537.9	1185.97
32	1054.1	103.1	103.1	901.7	863.6		168.1	819.2	15.7	977.9	41.1	32	302.1	666.08	673.5	1485.09
34	1107.9	103.1	103.1	952.5	917.4		173.0	870.0	15.7	1031.7	41.1	36	324.4	715.37	743.5	1639.36
36	1171.4	103.1	103.1	1009.7	965.2		180.8	920.8	15.7	1089.2	44.5	32	363.9	802.44	834.3	1839.59
38	1222.2	111.3	111.3	1060.5	1016.0		192.0	971.6	15.7	1140.0	44.5	36	407.4	898.29	978.6	2157.80
40	1273.0	115.8	115.8	1114.6	1066.8		198.4	1022.4	15.7	1190.8	44.5	40	440.3	970.85	1104.3	2434.91
42	1333.5	119.1	119.1	1168.4	1117.6		204.7	1074.7	15.7	1244.6	47.8	36	489.9	1080.12	1249.7	2755.49
44	1384.3	127.0	127.0	1219.2	1173.2		214.4	1125.5	15.7	1295.4	47.8	40	541.1	1193.08	1433.9	3161.78
46	1460.5	128.5	130.0	1270.0	1228.9		222.3	1176.3	15.7	1365.3	50.8	36	637.0	1404.54	1641.0	3618.41
48	1511.3	128.5	134.9	1327.2	1277.9		223.8	1227.1	15.7	1416.1	50.8	40	656.8	1448.30	1819.7	4012.50
50	1526.1	138.2	139.7	1378.0	1330.5		235.0	1277.9	15.7	1466.9	50.8	44	724.6	1597.77	2011.2	4434.67
52	1612.9	142.7	144.3	1428.8	1382.8		242.8	1328.7	15.7	1517.7	50.8	48	772.0	1702.19	2212.1	4877.68
54	1673.4	136.7	149.4	1479.6	1435.1		239.8	1379.5	15.7	1577.8	50.8	48	803.4	1771.51	2473.6	5454.33
56	1765.3	153.9	157.0	1536.7	1493.8		268.2	1430.3	17.5	1651.0	60.5	36	1075.2	2370.79	2899.0	6392.33
58	1827.3	153.9	162.1	1593.7	1574.9		274.6	1481.1	17.5	1713.0	60.5	40	1132.1	2496.32	3184.6	7022.00
60	1878.1	150.9	166.6	1651.0	1598.7		271.5	1531.9	17.5	1763.8	60.5	40	1168.8	2577.15	3486.7	7688.18

NOTES

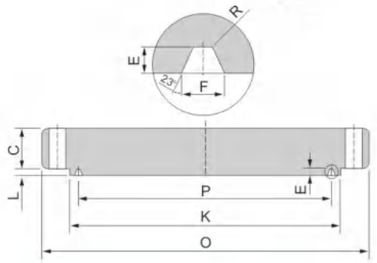
Raised Face height (f) will be furnished with 1.6 mm and, which is included in Thickness (C) and Length Through Hub (Y)

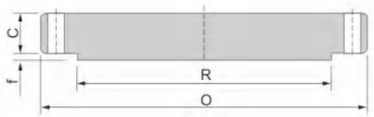


Ring Type Joint



Welding Neck





Blind

ASME B 16.47 SERIES B CLASS 400

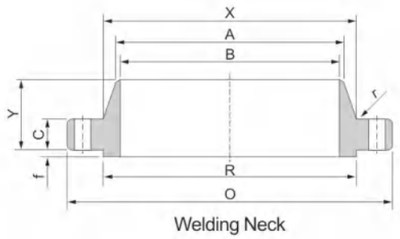
Dimensions in mm

Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	850.9	88.9	88.9	711.2	688.8	To be specified by purchaser	149.4	660.4	11.2	781.1	38.1	28	177.9	392.29	396.6	874
28	914.4	95.3	95.3	762.0	739.6		158.8	711.2	12.7	838.2	41.1	24	218.4	481.54	492.6	1086
30	971.6	101.6	101.6	819.2	793.8		169.9	762.0	12.7	895.4	41.1	28	254.5	561.13	591.1	1303
32	1035.1	108.0	108.0	873.3	844.6		179.3	812.8	12.7	952.5	44.5	28	300.2	661.88	710.0	1566
34	1085.9	111.3	111.3	927.1	898.7		187.5	863.6	14.2	1003.3	44.5	32	326.1	719.05	798.2	1760
36	1155.7	119.1	119.1	980.9	952.5		200.2	914.4	14.2	1066.8	47.8	28	403.1	888.77	977.2	2155
38	1206.5	124.0	124.0	1035.1	1003.3		206.2	965.2	14.2	1117.6	47.8	32	434.9	958.89	1104.8	2436.01
40	1270.0	130.0	130.0	1092.2	1054.1		215.9	1016.0	14.2	1174.8	50.8	32	498.9	1100.16	1280.9	2824.29
42	1320.8	133.4	133.4	1143.0	1107.9		223.8	1066.8	14.2	1225.6	50.8	32	541.0	1192.90	1640.3	1411.88
44	1384.3	139.7	139.7	1200.2	1158.7		233.2	1117.6	14.2	1282.7	53.8	32	615.4	1356.85	1636.1	3607.63
46	1441.5	146.1	146.1	1257.3	1212.9		244.3	1168.4	14.2	1339.9	53.8	36	682.5	1504.82	1849.2	4077.40
48	1511.3	152.4	158.8	1308.1	1267.0		257.0	1219.2	14.2	1403.4	60.5	28	804.0	1772.85	2128.8	4694.04
50	1568.5	157.2	157.2	1361.9	1320.8		268.2	1270.0	14.2	1460.5	60.5	32	874.9	1929.14	2379.2	5246.17
52	1619.3	162.1	163.6	1412.7	1371.6		276.4	1320.8	14.2	1511.3	60.5	32	938.5	2069.35	2619.1	5775.13
54	1701.8	169.9	171.5	1470.2	1425.4		289.1	1371.6	14.2	1581.2	66.5	28	1131.1	2494.02	3031.8	6685.18
56	1752.6	174.8	176.3	1527.0	1479.6		298.5	1422.4	14.2	1632.0	66.5	32	1192.8	2630.11	3293.9	7263.08
58	1803.4	177.8	180.8	1577.8	1530.4		306.3	1473.2	14.2	1682.8	66.5	32	1260.6	2779.62	3585.7	7906.53
60	1886.0	185.7	189.0	1635.3	1584.5		319.0	1524.0	14.2	1752.6	73.2	32	1469.3	3239.88	4072.0	8978.72

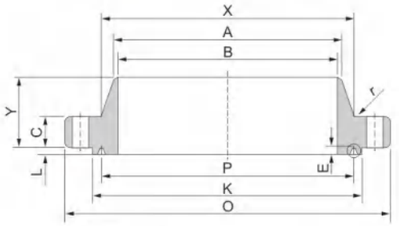
NOTES

1) Raised Face height (f) will be furnished with 6.4 mm and, which is included in Thickness (C) and Length Through Hub (Y)

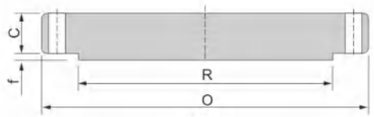
2) 38" to 60" Dimensions same as series A



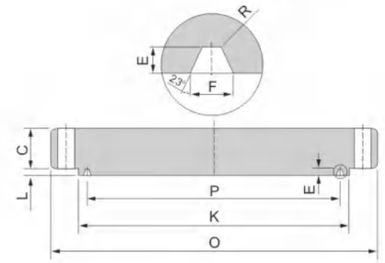
Welding Neck



Ring Type Joint



Blind



ASME B 16.47 SERIES B CLASS 600

Dimensions in mm

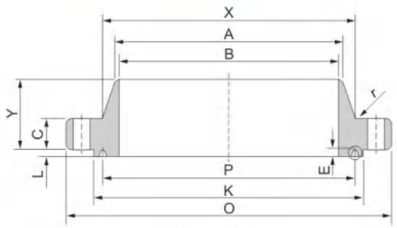
Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	889.0	111.3	111.3	726.9	698.5	To be specified by purchaser	180.8	660.4	12.7	806.5	44.5	28	259.0	571.06	527.8	1163.75
28	952.5	115.8	115.8	784.4	752.3		190.5	711.2	12.7	863.6	47.8	28	303.8	669.87	629.9	1388.89
30	1022.4	125.5	127.0	841.2	806.5		204.7	762.0	12.7	927.1	50.8	28	376.9	931.04	794.0	1750.67
32	1085.9	130.0	134.9	895.4	860.6		215.9	812.8	12.7	984.3	53.8	28	435.1	959.32	949.6	2093.93
34	1162.1	141.2	144.3	952.5	914.4		233.4	863.6	14.2	1054.1	60.5	24	548.6	1209.69	1165.1	2569.14
36	1212.9	146.1	150.9	1009.7	968.2		242.8	914.4	14.2	1104.9	60.5	28	590.2	1301.37	1320.4	2911.57
38	1270.0	152.4	155.4	1054.1	1022.4		254.0	965.2	14.2	1162.1	60.5	28	667.5	1471.81	1499.6	3306.63
40	1320.8	158.8	162.1	1111.3	1073.2		263.7	1016.0	14.2	1212.9	60.5	32	717.5	1582.16	1683.9	3712.94
42	1403.4	168.1	171.5	1168.4	1127.3		279.4	1066.8	14.2	1282.7	66.5	28	886.3	1954.34	2015.4	4443.91
44	1454.2	173.0	177.8	1225.6	1181.1		289.1	1117.6	14.2	1333.5	66.5	32	940.8	2074.45	2233.9	4925.77
46	1511.3	179.3	185.7	1276.4	1234.9		300.0	1168.4	14.2	1390.7	66.5	32	1044.9	2304.07	2530.3	5579.36
48	1593.9	189.0	195.3	1333.5	1289.1		316.0	1219.2	14.2	1460.5	73.2	32	1236.2	2725.75	2939.1	6480.63
50	1670.1	196.9	203.2	1384.3	1343.2		328.7	1270.0	14.2	1524.0	79.2	28	1442.5	3180.71	3367.7	7425.74
52	1720.9	203.2	209.6	1435.1	1394.0		336.6	1320.8	14.2	1574.8	79.2	32	1514.5	3339.40	3667.4	8086.54
54	1778.0	209.6	217.4	1492.3	1447.8		349.3	1371.6	14.2	1632.0	79.2	32	1659.5	3659.13	4078.3	8992.57
56	1854.2	217.4	225.6	1543.1	1501.6		362.0	1422.4	15.7	1695.5	85.9	32	1869.3	4121.85	4571.8	10080.75
58	1905.0	222.3	231.6	1600.2	1552.4		369.8	1473.2	15.7	1746.3	85.9	32	1981.7	4369.62	4974.1	10967.98
60	1993.9	233.4	242.8	1657.4	1609.9		288.9	1524.0	15.7	1822.5	85.9	28	2382.5	5253.38	5737.1	12650.32

NOTES

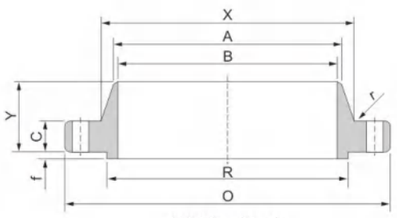
1) Raised Face height (f) will be furnished with 6.4 mm and, which is included in Thickness (C) and Length Through Hub (Y)

2) 38" to 60" Dimensions same as series A

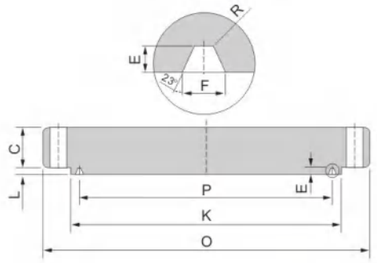
ASME B 16.47 SERIES B

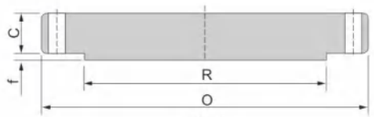


Ring Type Joint



Welding Neck





Blind

ASME B 16.47 SERIES B CLASS 900

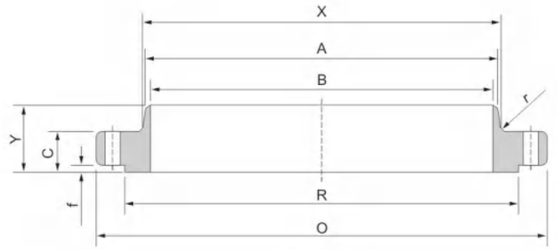
Dimensions in mm

Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	1022.4	134.9	153.9	762.0	743.0	To be specified by purchaser	258.8	660.4	11.2	901.7	66.5	20	538.2	1186.82	935.8	2063.43
28	1104.9	147.6	166.6	819.2	797.1		276.4	711.2	12.7	971.6	73.2	20	675.2	1488.80	1177.0	2595.35
30	1181.1	155.4	176.0	876.3	850.9		289.1	762.0	12.7	1035.1	79.2	20	798.6	1761.00	1415.6	3221.32
32	1238.3	160.3	185.7	927.1	908.1		303.3	812.8	12.7	1092.2	79.2	20	898.8	1981.89	1654.3	3647.74
34	1314.5	171.5	195.1	990.6	962.2		319.0	863.6	14.2	1155.7	85.9	20	1063.7	2345.45	1950.0	4299.76
36	1346.2	173.0	201.7	1028.7	1016.0		325.4	914.4	14.2	1200.2	79.2	24	1078.4	2377.80	2001.5	4413.26
38	1460.5	190.5	215.9	1098.6	1073.2		352.6	965.2	19.1	1289.1	91.9	20	1445.4	3187.19	2676.4	5901.56
40	1511.3	196.9	223.8	1162.1	1127.3		363.5	1016.0	20.6	1339.9	91.9	24	1529.5	3372.47	2940.5	6483.82
42	1562.1	206.2	231.6	1212.9	1176.3		371.3	1066.8	20.6	1390.7	91.9	24	1666.7	3675.05	3271.1	7212.76
44	1648.0	214.4	242.8	1270.0	1234.9		390.7	1117.6	22.4	1463.5	98.6	24	1939.2	4275.97	3801.1	8381.52
46	1733.6	225.6	255.5	1333.5	1292.4		411.0	1168.4	22.4	1536.7	104.6	24	2265.0	4994.31	4414.6	9734.19
48	1784.4	233.4	263.7	1384.3	1343.2		419.1	1219.2	23.9	1587.5	104.6	24	2433.2	5365.28	4850.4	10695.04

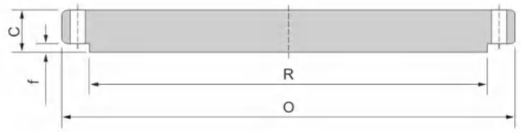
NOTES

1) Raised Face height (f) will be furnished with 6.4 mm and, which is included in Thickness (C) and Length Through Hub (Y)

2) 38" to 60" Dimensions same as series A



Welding Neck



Blind

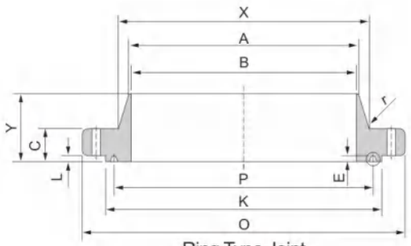
ASME B 16.47 SERIES A CLASS 150

Dimensions in mm

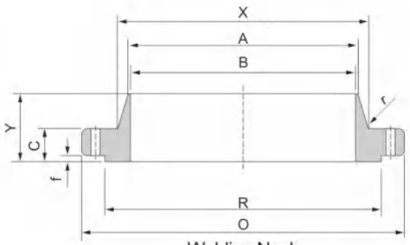
Nominal Size	Outside Diameter	Thickness (min) Welding Neck Blind	Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
									Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C	R	X	B	Y	A	r				Kg	lb	Kg	lb
26	870.0	68.3	749.3	676.1	To be specified by purchaser	120.7	660.4	9.7	806.5	35.1	24	150.17	331.12	306.92	676.75
28	927.1	71.4	800.1	726.9		125.5	711.2	11.2	863.6	35.1	28	171.36	377.85	363.80	802.19
30	984.3	74.7	857.3	781.1		136.7	762.0	11.2	914.4	35.1	28	200.22	441.49	431.19	950.78
32	1060.5	81.0	914.4	831.9		144.5	812.8	11.2	977.9	41.1	28	250.06	551.39	539.39	1189.36
34	1111.3	82.6	965.2	882.7		149.4	863.6	12.7	1028.7	41.1	32	267.72	590.32	602.55	1328.63
36	1168.4	90.4	1022.4	933.5		157.2	914.4	12.7	1085.9	41.1	32	316.30	697.43	733.15	1616.59
38	1238.3	87.4	1073.2	990.6		157.2	965.2	12.7	1149.4	41.1	32	352.11	776.39	198.93	1761.65
40	1289.1	90.4	1124.0	1041.4		163.6	1016.0	12.7	1200.2	41.1	36	379.80	837.45	895.04	1973.57
42	1346.2	96.8	1193.8	1092.2		171.5	1066.8	12.7	1257.3	41.1	36	435.33	959.91	1048.63	2312.23
44	1403.4	101.6	1244.6	1143.0		177.8	1117.6	12.7	1314.5	41.1	40	484.15	1067.55	1195.58	2636.25
46	1454.2	103.1	1295.4	1196.8		185.7	1168.4	12.7	1365.3	41.1	40	518.15	1142.52	1306.29	2880.36
48	1511.3	108.0	1358.9	1247.6		192.0	1219.2	12.7	1422.4	41.1	44	572.87	1263.19	1476.59	3255.84
50	1568.5	111.3	1409.7	1301.8		203.2	1270.0	12.7	1479.6	47.8	44	616.48	1359.35	1625.40	3584.01
52	1625.6	115.8	1460.5	1352.6		209.6	1320.8	12.7	1536.7	47.8	44	681.22	1502.10	1823.13	4019.99
54	1682.8	120.7	1511.3	1403.4		215.9	1371.6	12.7	1593.7	47.8	44	751.38	1656.78	2040.36	4499.00
56	1746.3	124.0	1574.8	1457.5		228.6	1422.4	12.7	1651.0	47.8	48	835.80	1842.95	2256.61	4975.82
58	1803.4	128.5	1625.6	1508.3		235.0	1473.2	12.7	1708.2	47.8	48	914.26	2015.94	2501.32	5515.42
60	1854.2	131.8	1676.4	1559.1		239.8	1524.0	12.7	1759.0	47.8	52	961.89	2120.97	2710.09	5975.75

NOTES

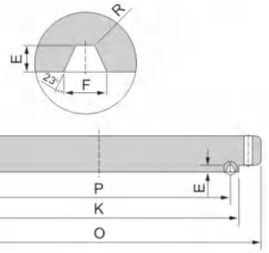
Raised Face height (f) will be furnished with 1.6 mm and, which is included in Thickness (C) and Length Through Hub (Y)

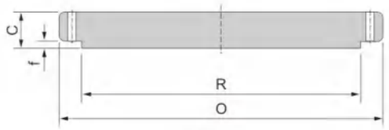


Ring Type Joint



Welding Neck





Blind

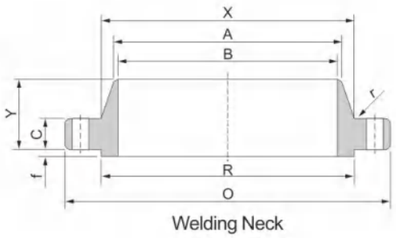
ASME B 16.47 SERIES A CLASS 300

Dimensions in mm

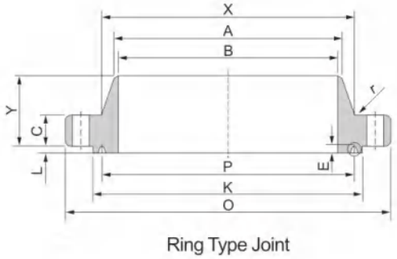
Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	971.6	79.2	84.1	749.3	720.9	To be specified by purchaser	184.2	660.4	9.7	876.3	44.5	28	283.4	624.88	460.1	1014.61
28	1035.1	85.9	90.4	800.1	774.7		196.9	711.2	11.2	938.8	44.5	28	343.2	756.66	566.1	1248.27
30	1092.2	91.9	95.3	857.3	827.0		209.6	762.0	11.2	997.0	47.8	28	395.3	871.68	663.1	1462.13
32	1149.4	98.6	100.1	914.4	881.1		222.3	812.8	11.2	1054.1	50.8	28	455.0	1003.28	771.0	1700.00
34	1206.5	101.6	104.6	965.2	936.8		231.6	863.6	12.7	1104.9	50.8	28	511.5	1127.90	893.4	1969.86
36	1270.0	104.6	111.3	1022.4	990.6		241.3	914.4	12.7	1168.4	53.8	32	568.2	1252.79	1044.1	2302.24
38	1168.4	108.0	108.0	1028.7	993.6		180.8	965.2	12.7	1092.2	41.1	32	318.3	701.88	875.1	1929.54
40	1238.3	114.3	114.3	1085.9	1047.8		193.5	1016.0	12.7	1155.7	44.5	32	384.7	848.19	1039.1	2291.11
42	1289.1	119.1	119.1	1136.7	1098.6		200.2	1066.8	12.7	1206.5	44.5	32	420.8	927.77	1177.7	2596.86
44	1352.6	124.0	124.0	1193.8	1149.4		206.2	1117.6	12.7	1263.7	47.8	32	476.9	1051.48	1346.7	2969.55
46	1416.1	128.5	128.5	1244.6	1203.5		215.9	1168.4	12.7	1320.8	50.8	28	549.8	1212.32	1536.7	3388.40
48	1466.9	133.4	133.4	1301.8	1254.3		223.8	1219.2	12.7	1371.6	50.8	32	587.4	1295.16	1707.2	3764.29
50	1530.4	139.7	139.7	1358.9	1305.1		231.6	1270.0	12.7	1428.8	53.8	32	664.7	1465.56	1944.4	4287.32
52	1581.2	144.5	144.5	1409.7	1355.9		238.3	1320.8	12.7	1479.6	53.8	32	715.2	1576.99	2153.1	4747.66
54	1657.4	152.4	152.4	1466.9	1409.7		252.5	1371.6	12.7	1549.4	60.5	28	857.3	1890.25	2494.1	5499.57
56	1708.2	153.9	153.9	1517.7	1463.5		260.4	1422.4	12.7	1600.2	60.5	28	905.8	1997.24	2682.1	5914.04
58	1759.0	158.8	158.8	1574.8	1514.3		266.7	1473.2	12.7	1651.0	60.5	32	952.9	2101.05	2925.5	6450.63
60	1809.8	163.6	163.6	1625.6	1565.1		273.1	1524.0	12.7	1701.8	60.5	32	1015.5	2239.28	3198.2	7052.06

NOTES

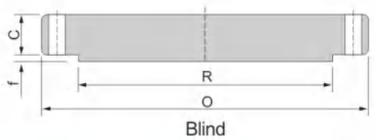
Raised Face height (f) will be furnished with 1.6 mm and, which is included in Thickness (C) and Length Through Hub (Y)



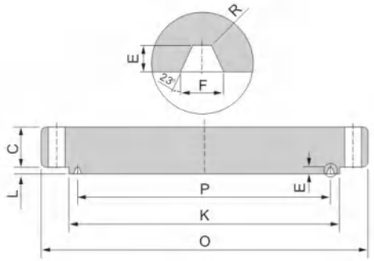
Welding Neck



Ring Type Joint



Blind



ASME B 16.47 SERIES A CLASS 400

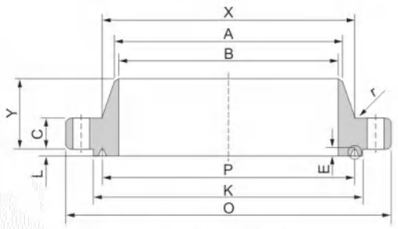
Dimensions in mm

Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	971.6	88.9	98.6	749.3	726.9	To be specified by purchaser	193.5	660.4	11.2	876.3	47.8	28	319.6	704.79	559.8	1234.45
28	1035.1	85.3	104.6	800.1	782.6		206.2	711.2	12.7	939.8	50.8	28	379.2	836.07	673.4	1484.89
30	1092.2	101.6	111.3	857.3	836.7		218.9	762.0	12.7	997.0	53.8	28	436.2	961.79	795.7	1754.63
32	1149.4	108.0	115.8	914.4	889.0		231.6	812.8	12.7	1054.1	53.8	28	503.1	1109.41	923.2	2035.75
34	1206.5	111.3	122.2	965.2	944.6		241.3	863.6	14.2	1104.9	53.8	28	565.0	1245.93	1077.8	2376.54
36	1270.0	114.3	128.5	1022.4	1000.3		251.0	914.4	14.2	1168.4	53.8	32	634.1	1398.17	1252.4	2761.65
38	1206.5	124.0	124.0	1035.1	1003.3		206.2	965.2	14.2	1117.6	47.8	32	434.9	958.89	1104.8	2436.01
40	1270.0	130.0	130.0	1092.2	1054.1		215.9	1016.0	14.2	1174.8	50.8	32	498.9	1100.16	1280.9	2824.29
42	1320.8	133.4	133.3	1143.0	1107.9		223.8	1066.8	14.2	1225.6	50.8	32	541.0	1192.90	640.3	1411.88
44	1384.5	139.7	139.7	1200.0	1158.7		233.2	1117.6	14.2	1282.7	53.8	32	615.4	1356.85	1636.1	3607.63
46	1441.5	146.1	146.1	1257.3	1212.9		244.3	1168.4	14.2	1339.9	53.8	36	682.5	1504.82	1849.2	4077.40
48	1511.3	152.4	152.4	1308.1	1267.0		257.0	1219.2	14.2	1403.4	60.5	28	804.0	1772.85	2128.8	4694.04
50	1568.5	157.2	158.8	1361.9	1320.8		268.2	1270.0	14.2	1460.5	60.5	32	874.9	1329.14	2379.2	5246.17
52	1619.3	162.1	163.6	1412.7	1371.6		276.4	1320.8	14.2	1511.3	60.5	32	938.5	2069.35	2619.1	5775.13
54	1701.8	169.9	171.5	1470.2	1425.4		289.1	1371.6	14.2	1581.2	66.5	28	1131.1	2494.02	3031.8	6685.18
56	1752.6	174.8	176.3	1527.0	1479.6		298.5	1422.4	14.2	1632.0	66.5	32	1192.8	1630.11	3293.9	7263.08
58	1803.4	177.8	180.8	1577.8	1530.4		306.3	1473.2	14.2	1382.8	66.5	32	1260.6	2779.62	3585.7	7906.53
60	1886.0	185.7	189.0	1635.3	1584.5		319.0	1524.0	14.2	1752.6	73.2	32	1469.3	3239.88	4072.0	8978.72

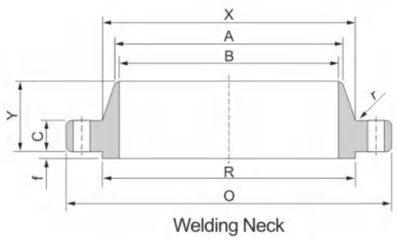
NOTES

Raised Face height (f) will be furnished with 6.4 mm and, which is included in Thickness (C) and Length Through Hub (Y)

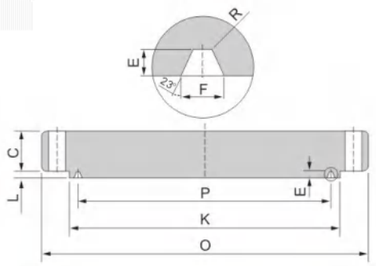
ASME B 16.47 SERIES A

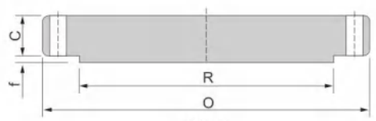


Ring Type Joint



Welding Neck





Blind

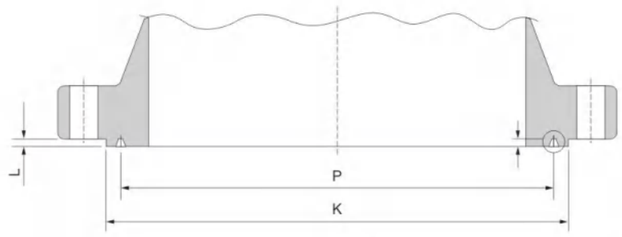
ASME B 16.47 SERIES A CLASS 600

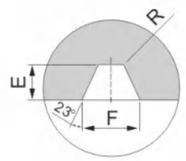
Dimensions in mm

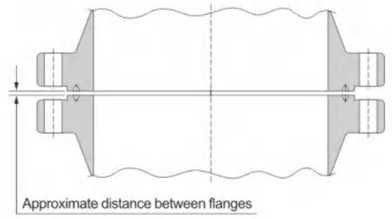
Nominal Size	Outside Diameter	Thickness		Raised Face Diameter	Hub Diameter	Bore	Length Thru Hub	Diameter of Hub at Bevel	Fillet Radius Minimum	Drilling			Approx.Weight			
		Welding Neck	Blind							Bolt Circle Diameter	Diameter of Blot Holes	Number of Blot Holes	Welding Neck		Blind	
	O	C		R	X	B	Y	A	r				Kg	lb	Kg	lb
26	1016.0	108.0	125.5	749.3	747.8	To be specified by purchaser	222.3	660.4	12.7	914.4	50.8	28	444.4	979.98	768.9	1695.50
28	1073.2	111.3	131.8	800.1	803.1		235.0	711.2	12.7	965.2	53.8	28	499.6	1101.68	900.1	1984.75
30	1130.3	114.3	139.7	857.3	862.1		247.7	162.0	12.7	1022.4	53.8	28	567.5	1251.31	1065.2	2348.71
32	1193.8	117.3	147.6	914.4	917.4		260.4	812.8	12.7	1079.5	60.5	28	633.7	1397.40	1243.3	2741.38
34	1244.6	120.7	153.9	965.2	973.1		269.7	863.6	14.2	1130.3	60.5	28	695.8	1534.17	1417.3	3125.17
36	1314.5	124.0	162.1	1022.4	1031.7		282.4	914.4	14.2	1193.8	66.5	28	789.0	1739.78	1652.8	3643.76
38	1270.8	152.4	155.4	1054.1	1022.4		254.0	965.2	14.2	1162.1	60.5	28	667.5	1471.81	1499.6	3306.63
40	1320.8	158.8	162.1	1111.3	1073.2		263.7	1016.0	14.2	1212.9	60.5	32	717.5	1582.16	1683.9	3712.94
42	1403.4	168.1	171.5	1168.4	1127.3		279.4	1066.8	14.2	1282.7	66.5	28	886.3	1954.34	2015.4	4443.91
44	1454.2	173.0	177.8	1225.6	1181.1		289.1	1117.6	14.2	1333.5	66.5	32	940.8	2074.45	2233.9	4925.77
46	1511.3	179.3	185.7	1276.4	1234.9		300.0	1168.4	14.2	1390.7	66.5	32	1044.9	2304.07	2530.3	5579.36
48	1593.9	189.0	195.3	1333.5	1289.1		316.0	1219.2	14.2	1460.5	73.2	32	1236.2	2725.75	2939.1	6480.63
50	1670.1	196.9	203.2	1384.3	1343.2		328.7	1270.0	14.2	1524.0	79.2	28	1442.5	3180.71	3367.7	7425.75
52	1720.9	203.2	209.6	1435.1	1394.0		336.6	1320.8	14.2	1574.8	79.2	32	1514.5	3339.40	3667.4	8086.54
54	1778.0	209.6	217.4	1492.3	1447.8		349.3	1371.6	14.2	1632.0	79.2	32	1659.5	3659.13	4078.3	8992.57
56	1854.2	217.4	225.6	1543.1	1501.6		362.0	1422.4	15.7	1695.5	85.9	32	1869.3	4121.85	4571.8	10080.75
58	1905.0	222.3	231.6	1600.2	1552.4		369.8	1473.2	15.7	1746.3	85.9	32	1981.7	4369.62	4974.1	10967.98
60	1993.9	233.4	242.8	1657.4	1609.9		388.9	1524.0	17.5	1822.5	91.9	28	2382.5	5253.38	5737.1	12650.32

NOTES

Raised Face height (f) will be furnished with 6.4 mm and, which is included in Thickness (C) and Length Through Hub (Y)







Ring-Joint Facing

ASME B 16.47 SERIES A&B RING JOINT FACING

Dimensions in mm

Nominal PipeSize	Groove Dimensions				Diameter of Raised Portion	Groove Number
	Pitch Diameter	Depth	Width	Radius at Bottom		
	P	E/(L*)	F	R	K-min	
Dimensions of ring joint facing for class 300,400 & 600						
26	749.30	12.70	19.84	1.52	809.75	R93
28	800.10	12.70	19.84	1.52	806.55	R94
30	857.25	12.70	19.84	1.52	917.45	R95
32	914.40	14.27	23.01	1.52	984.25	R96
34	965.20	14.27	23.01	1.52	1035.05	R97
36	1022.35	14.27	23.01	1.52	1092.20	R98
Dimensions of ring joint facing for class 900						
26	749.30	17.48	30.18	2.29	831.85	R100
28	800.10	17.48	33.32	2.29	889.00	R101
30	857.25	17.48	33.32	2.29	946.15	R102
32	914.40	17.48	33.32	2.29	1003.30	R103
34	965.20	20.62	36.53	2.29	1066.80	R104
36	1022.35	20.62	36.53	2.29	1123.92	R105

Tolerances	
E(Depth)	+0.406 -0.000
F(Width)	±0.203
P(Pitch Diameter)	±0.127
R(Radus at Bottom)	Max.
23 deg.(Angle)	±1/2deg.

NOTES

Raised Face height (f) will be furnished with 6.4 mm and, which is included in Thickness (C) and Length Through Hub (Y)

TOLERANCES B16.5 FLANGES

Dimensions in inch / mm

THREADED, SOCKET-WELDING, SLIP-ON, LAP-JOINT AND BLIND FLANGES.			
OUTSIDE DIAMETER O	When Outside Diameter is 24" or less	± 0.06"	± 1.5mm
	When Outside Diameter is Over 24"	± 0.12"	± 3.0mm
INSIDE DIAMETER. B	Threaded	To standard gauge limit.	
	Socket-Welding, Slip-On,Lap Joint & Counterbore threaded		
	10" & Smaller	+0.03"–0	+1.0mm–0
	12" & Larger	+0.06"–0	+1.5mm–0
	Counterbore socket welding 1 /2" to 3	± 0.010"	± 0.25mm
OUTSIDE DIAMETER OF HUB.X	12" & Smaller	+0.09" –0.03"	+2.0mm –1.0mm
	14" & Larger	± 0.12"	± 3.0mm
DIAMETER OF CONTACT FACE R	0.06" Raised Face	± 0.03"	± 1.0mm
	0.25" Raised Face Tongue & Groove Male,Female	± 0.016"	± 0.4mm
DRILLING	Bolt Circle	± 0.06"	± 1.5mm
	Bolt Hole Spacing	± 0.03"	± 0.8mm
	Eccentricity Bolt Circle With Respect to Facing		
	21/2" Smaller	0.03" max	0.8mm max
	3" & Larger	0.06" max	1.5mm max
	Eccentricity of Bolt Circle With Respeect to bore	0.03" max	0.8mm max
	Eccentricity of Facing with Resspect to bore	0.03" max	0.8mm max
FLANGE THICKNESS C	18" & Smaller	+0.12"–0	+3.0mm–0
	20" & Larger	+0.19"–0	+5.0mm–0
LENGTH THRU HUB Y	4" & Smaller	± 0.06"	± 1.5mm
	5" to 10" inclusive	+0.06"–0.12"	+1.5mm–3.0mm
	12" & Larger	± 0.12"–0.18"	± 3.0mm–5.0mm

This tolerance is not covered in ASTM / ANSI B 16.5, but maker's option.

Dimensions in inch / mm

WELDING NECK FLANGES.			
OUTSIDE DIAMETER. O	When Outside Diameter is 24" or less	±0.06"	±1. 5mm
	When Outside Diameter is Over 24"	±0. 12″	±3. 0mm
INSIDE DIAMETER. B	10" and Smaller	±0.03"	±1. 0mm
	12" Thru Larger	±0.06"	±1. 5mm
	20" and Larger.	+0.12 -0.06"	+3.0mm -1. 5mm
DIAMETER OF CONTACT FACE. R	0.06" Raised Face	±0.03"	±1.0mm
	0.25" Raised Face Tongue & Groove Male,Female	±0.016"	±0.4mm
DIAMETER. OF HUB AT BASE. X	When Hub Base is 24" or smaller	±0.06"	±1.5mm
	When Hub Base is Over 24"	±0.12"	±3.0mm
DIAMETER OF HUB AT POINT OF WELDING A	5" and Smaller	+0.09" -0.03"	+2.0mm -1.0mm
	6" and Larger	+0.16" -0.03"	+4.0mm -1.0mm
DRILLING	Bolt Circle	±0.06"	±1.5mm
	Bolt Hole Spacing	±0.03"	±0.8mm
	Eccentricity Bolt Circle With Respect to Facing		
	21/2" Smaller	0.03" max	0. 8mm max
	3" & Larger	0.06" max	1. 5mm max
	Eccentricity of Bolt Circle With Respeect to bore	0.03" max	0. 8mm max
	Eccentricity of Facing with Resspect to bore	0.03" max	0. 8mm max
FLANGE THICKNESS C	18" & Smaller	+0.12"-0	+3. 2mm-0
	20" & Larger	+0.19"-0	+5. 0mm-0
LENGTH THRU HUB Y	4" & Smaller	±0.06"	±1. 5mm
	5" to 10" inclusive	+0.06"-0.12"	+1. 5mm-3. 0mm
	12" & Larger	+0.12"-0.18"	±3. 0mm-5. 0mm

TOLERANCES B16.47 & B16.36 FLANGES

Dimensions in inch / mm

B16. 47 LARGE DIAMETER FLANGES WELDING NECK & BLIND FLANGES.			
OUTSIDE DIAMETER. O	All Sizes	±0. 12″	±3. 0mm
INSIDE DIAMETER B	Normal Inside Diameter Welding End	+0. 12″ –0. 06″	+3. 0mm –1. 5mm
	Inside Counter Type	+0. 00″ –0. 06″	+0. 00mm –1. 5mm
	Backing Ring Contact Surface	+0. 10″–0	+2. 5mm–0
DIAMETER OF CONTACT FACE R	0.06" Raised Face	±0. 08″	±2. 0mm
	0.25" Raised Face	±0. 04″	±1. 0mm
DIAMETER OF HUB AT BASE X	Hub Diameter	±0. 12″	±3. 0mm
DIAMETER OF HUB AT POINT OF WELDING A	Outide Diameter of Welding End	+1. 21″ –0. 06″	+5. 3mm –1. 5mm
DRILLING	Bolt Circle	±0. 06″	±1. 5mm
	Bolt Hole Spacing	±0. 03″	±0. 08mm
	Eccentricity Bolt Circle With Respect to Facing	0. 06″ max	1. 5mm max
	Eccentricity of Bolt Circle With Respect to bore	0. 03″ max	0. 8mm max
	Eccentricity of Facing With Respect to bore	0. 03″ max	0. 8mm max
FLANGE THICKNESS C	Upto 1.0"(25.4mm)	+0. 12″–0	+3. 2mm–0
	1.0" to 2.0"(25.4mm to 50.8mm)	+0. 19″–0	+5. 0mm–0
	>2.0" to 3.0(>50.8mm to 76.2mm)	+0. 31″–0	+7. 9mm–0
	Over 3.0"(76.2mm)	+0. 38″–0	+9. 7mm–0
LENGTH THRU HUB Y	All Sizes	±0. 19	±5. 0mm

This tolerance is not covered in ASTM / ANSI B 16.47, but maker's option.

Dimensions in inch / mm

TOLERANCE FOR RING JOINT FACING			
RING TYPE JOINT	Depth-E	+0. 16″ –0. 0	+0. 4mm –0. 0
	Width-F	±0. 008″	±2. 00mm
	Pitch Diameter-P	±0. 005″	±0. 13mm
	Radius at Bottom-R	max	max
	23 Angle	±12%	±12%

Dimensions in inch / mm

B 16. 36 ORIFICE FLANGES			
Tolerance on all dimensions shall be as shown in ANSI/ASME B 16.5 except for those shown below			
ROLERANCE FOR ORIFICE FLANGE	Tolerance on location of center of pressure tap holes from flange face shall be		
	Flange smaller than nominal size 4"	± 0.02"	± 0.50mm
	Flange Nominal Size 4" Larger	± 0.03"	± 0.80mm
	Bore Diameter Tolerance (Welding Neck Flanges only)	± 12% Nominal Value	

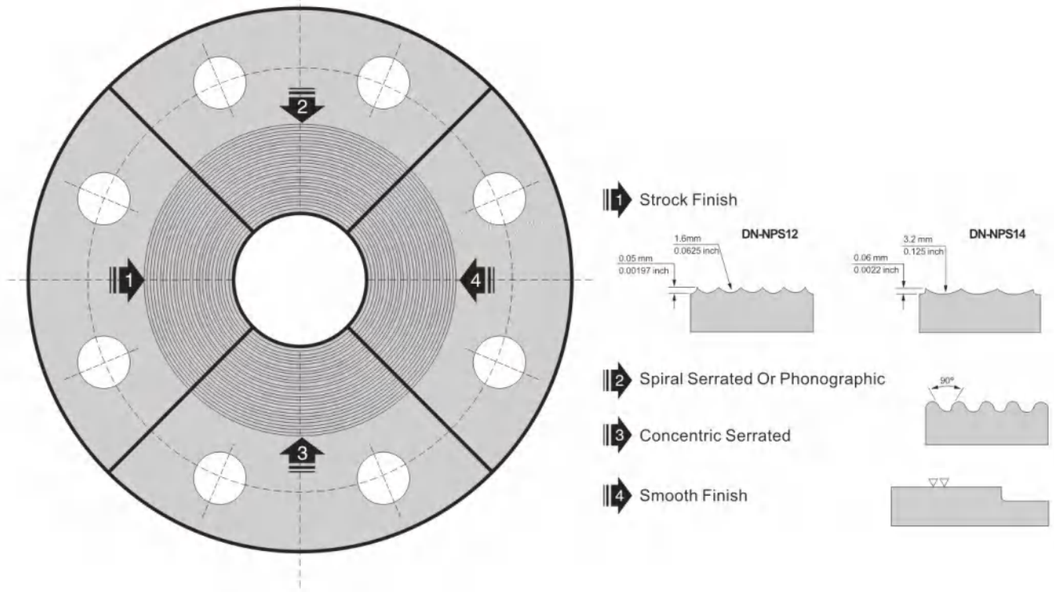
BORE CHART ASME B 36.10 & B36.19

Dimensions in inch / mm

Size/Outside Pipe Diameter	Schedule	Wall Thickness mm	Inside Diameter mm
1 /2" 21.34	5S	1.65	18.03
	10S	2.11	17.12
	40/40S/STD	2.77	15.80
	80/80S/XS	3.73	13.87
	160	4.78	11.79
	XXS	7.47	6.40
3/4" 26.67	5S	1.65	23.37
	10S	2.11	22.45
	40/40S/STD	2.87	20.93
	80/80S/XS	3.91	18.85
	160	5.56	15.54
	XXS	7.87	11.02
1" 33.4	5S	1.65	30.10
	10S	2.77	27.86
	40/40S/STD	3.38	26.64
	80/80S/XS	4.55	24.31
	160	6.35	20.70
	XXS	9.09	15.21
1 1/4" 42.16	5S	1.65	38.86
	10S	2.77	36.63
	40/40S/STD	3.56	35.05
	80/80S/XS	4.85	32.46
	160	6.35	29.46
	XXS	9.70	22.76
1 1/2" 48.26	5S	1.65	44.96
	10S	2.77	42.72
	40/40S/STD	3.68	40.89
	80/80S/XS	5.08	38.10
	160	7.14	33.99
	XXS	10.15	27.94
2" 60.32	5S	1.65	57.02
	10S	2.77	54.79
	40/40S/STD	3.91	52.50
	80/80S/XS	5.54	49.25
	160	8.74	42.85
	XXS	11.07	38.18
2 1/2" 73.02	5S	2.11	68.81
	10S	3.05	66.93
	40/40S/STD	5.16	62.71
	80/80S/XS	7.01	59.00
	160	9.53	53.98
	XXS	14.02	44.98
3" 88.9	5S	2.11	84.68
	10S	3.05	82.80
	40/40S/STD	5.49	77.93
	80/80S/XS	7.62	73.66
	160	11.13	66.65
	XXS	15.24	58.42
3 1/2" 101.6	5S	2.11	97.38
	10S	3.05	95.50
	40/40S/STD	5.74	90.12
	80/80S/XS	8.08	85.45
4" 114.3	5S	2.11	110.08
	10S	3.05	108.20
	40/40S/STD	6.02	102.26
	80/80S/XS	8.56	97.18
	120	11.13	92.05
	160	13.49	87.33
	XXS	17.12	80.06
5" 141.3	5S	2.77	135.76
	10S	3.40	134.49
	40/40S/STD	6.55	128.19
	80/80S/XS	9.53	122.25
	120	12.70	115.90
	160	15.88	109.55
	XXS	19.05	103.20
6" 168.3	5S	2.77	162.74
	10S	3.40	161.47
	40/40S/STD	7.11	154.05
	80/80S/XS	10.97	146.33
	120	14.27	139.73
	160	18.26	131.75
	XXS	21.95	124.38
8" 219.1	5S	2.77	213.54
	10S	3.76	211.56
	20	6.35	206.38
	30	7.04	205.00
	40/40S/STD	8.18	202.72
	60	10.31	198.45
	80/80S/XS	12.70	193.68
	100	15.09	188.90
	120	18.26	182.55
	140	20.62	177.83
	XXS	22.23	174.63
	160	23.01	173.05
10" 273	5S	3.40	266.24
	10S	4.19	264.67
	20	6.35	260.35
	30	7.80	257.45
	40/40S/STD	9.27	254.51
	80/80S/XS	12.70	247.65
	80	15.09	242.87
	100	18.26	236.52
	120	21.44	230.17
	140/XXS	25.40	222.25
	160	28.58	215.90
12" 323.8	5S	3.96	315.93
	10S	4.57	314.71
	20	6.35	311.15
	30	8.38	307.09
	40S/STD	9.53	304.80
	40	10.31	303.23
	80S/XS	12.70	298.45
	60	14.27	295.30
	80	17.48	288.90
	100	21.44	280.97
	120/XXS	25.40	273.05
	140	28.58	266.70
	160	33.32	257.20
14" 355.6	5S	3.96	347.68
	10S	4.78	346.05
	10	6.35	342.90
	20	7.92	339.75
	30/STD	9.53	336.55
	40	11.13	333.35
	XS	12.70	330.20
	60	15.09	325.42
	80	19.05	317.50
	100	23.83	307.95
	120	27.79	300.02
	140	31.75	292.10
	160	35.71	284.18
16" 406.4	5S	4.19	398.02
	10S	4.78	396.85
	10	6.35	393.70
	20	7.92	390.55
	30/STD	9.53	387.35
	40/XS	12.70	381.00
	60	16.66	373.08
	80	21.44	363.52
	100	26.19	354.03
	120	30.96	344.47
	140	36.53	333.35
	160	40.49	325.42
18" 457.2	5S	419	448.82
	10S	4.78	447.65
	10	6.35	444.50
	20	7.92	441.35
	STD	9.53	438.15
	30	11.13	434.95
	XS	12.70	431.80
	40	14.27	428.65
	60	19.05	419.10
	80	23.83	409.55
	100	29.36	398.48
	120	34.93	387.35
	140	39.67	377.85
	160	45.24	366.73
20" 508	5S	4.78	498.45
	10S	5.54	496.87
	10	6.35	495.30
	20/STD	9.53	488.95
	30/XS	12.70	482.60
	40	15.09	477.82
	60	20.62	466.75
	80	26.19	455.63
	100	32.54	442.93
	120	38.10	431.80
	140	44.45	419.10
	160	50.01	407.97
24" 609.6	5S	5.54	598.53
	10S/10	6.35	596.90
	20/STD	9.53	590.55
	XS	12.70	584.20
	30	14.27	581.05
	40	17.48	574.65
	60	24.61	560.37
	80	30.96	547.67
	100	38.89	531.83
	120	46.02	517.55
	140	52.37	504.85
	160	59.54	490.52

Wall Thickness of big diameter flanges (B 16.47) Size NPS26" through 60"

• S5S=0.250 inch(6.350mm) • S10S=0.312 inch(7.920mm) • S40S=0.375 inch(9.525mm) • SXH/80S=0.500 inch(12.700mm)



FLANGE FACING FINISHES FACE PREPARATION

STOCK FINISH:
The most widely used of any gasket finish, because practically, is suitable for all ordinary service conditions. This is a continuous spiral groove. Flanges size 12" (304.8mm) and smaller, are produced with a 1/16" round–nosed tool. For size 14" (355.6mm) and larger, the finish is made with 1/8" round–nosed tool.

SPIRAL SERRATED OR PHONOGRAPHIC:
This finish is produced by using a 90° round–nosed tool.

CONCENTRIC SERRATED:
This finish a produced by using a 90° round–nosed tool.

SMOOTH FINISH:
The cutting tool employed shall have an approximate 0.06" radius.
The resultant surface finish shall have a 125 μ inch to 250 μ inch.(ANSI B 16.5 para 6.4.5)
1.RAISED FACE, AND LARGE MALE AND FEMALE
Either a serrated–concentric or serrated–spiral finish having from 45 to 55 grooves per inch is used. (1.8 to 2.2 grooves per mm) the cutting tool employed has an approximate 0.06 inch radius. The resultant surface finish shall have a 12.5 μ inch (3.2 μ m) to 250 μ inch (6.4 μ m) approximate roughness.
2.TONGUE AND GROOVE, AND SMALL MALE AND FEMALE
The gasket contact surface does not exceed 125 μ inch (3.2 μ m) roughness.
3.RING JOINT
The inside wall surface of gaset groove does not exceed 63 μ inch (1.6 μ m) roughness.
4.BLIND
Blind flanges need not be faced in the center if when this center part is raised, its diameter is at least 1 inch smaller than the inside diameter of fittings of corresponding pressure class. When the center part is depressed, it's diameter is not greater than the inside diameter of the corresponding pressure class fitting. machining of the depressed center is not required.

FLANGE FACING FINISHES ROUGHNESS VALUES

Conversion Table of N-Numbers, Ra and Rz in μm and μ"

	N0	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	N13
Ra μm	0.0125	0.025	0.05	0.1	0.2	0.4	0.8	1. 6	3. 2	6. 3	12. 5	25	50. 0	100
CLA μ"	0.5	1	2	4	8	16	32	63	125	250	500	1000	2000	4000
Approx. RZ μm"	0.11	0.22	0.45	0.8	1. 0	1. 6	3. 0	5. 9	12	23	46	90	180	360
	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	0.16	0.30	0.60	1.1	1.8	2. 8	4. 8	8. 0	16	32	57	110	220	430
Approx. RZ μm"	4.5	9	18	32	40	64	122	233	463	926	1852	3600	7200	14400
	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	7	12	24	44	72	112	192	315	625	1250	2300	4400	8800	17200
Range of ratio to Rz:Ra	0.1	9:1	9:1	8:1	5:1	4:1	3. 8:1	3. 7:1	3. 7:1	3. 7:1	3. 7:1	3. 6:1	3. 6:1	3. 6:1
	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	13:1	12:1	12:1	11:1	9:1	7:1	6:1	5:1	5:1	5:1	4. 6:1	4. 4:1	4. 4:1	4. 3:1

Nose Radius Selection

Surface finish Ra Value (um)	Nose radius,rε(mm)					
	0.2	0.4	0.8	1.2	1.6	2.4
	Deed rate, f(mm/rev)					
0.6	0.05	0.07	0.10	0.12	0.14	0.17
1. 6	0. 08	0. 12	0. 16	0. 20	0. 23	0. 29
3. 2	0. 12	0. 16	0. 23	0. 29	0. 33	0. 40
6. 3		0. 23	0. 33	0. 40	0. 47	0. 57
8. 0			0. 40	0. 49	0. 57	0. 69

NOTES

1) Ra is the international symbol for average roughness
2) Ra = AA (arithmetic average)= CLA (center line average)
3) RMS (root mean sqaure) is obsolcte
4) Ra is approximately 10% finer than RMS

Theoretical Sunface Finish Value

Formulas

RPM	$N = \frac{Vc.1000}{\pi .D}$	(rev/mim)	Power Demand	$Pc = \frac{Vc.f.ap}{25}$	(kw)
Cutting speed	$Vc = \frac{N.\ \pi .D}{1000}$	(m/mim)		$Pc = \frac{Vc.f.ap}{60.000.\ \mu}$	(kw)
Surface finish	$Ra = \frac{f^2.50}{r\varepsilon}$	(μm)		$Kc = \frac{1-0.01.\gamma_o}{h^{mc}}.Kc1.1$	(N/m^2)
	$Ra = \frac{Rt}{3.5}$	(μm)		$h = f.\sin k$	(cm^3/min)
	$Ra = \frac{f^2}{8.r\varepsilon}$	(μm)			
Profile Depth	$Ra = \frac{f^2.1000}{8.r\varepsilon}$	(μm)	Metal Removal Rate	$Q = Vc.fap$	(μm)

Definitions

ap	= Depth of cut	(mm)	Pc	= Power demand	(kw)
D	= Workpiece diameter	(mm)	Q	= Metal removal rate	(cm^3/min)
f	= Feed rate	(mm/rev)	Ra	= Surface finish	(μ m)
h	= Chip thickness	(mm)	re	= Nose radius	(mm)
k	= Constant		Rt	= Profile depth	(μ m)
	1.4 for steels and stainless steels		Ry	= max.height of profile	(μ m)
	& 1.0 for cast iron		Vc	= Cutting speed	(m/min)
kc	= Specific cutting force	(N/mm2)	x	= Setting angle	(°)
kc1.1	= cutting force(1 mm2)	(N/mm2)	n	= Efficiency	
mc	= Exponent		y0	= Cutting rate angle	(°)
n	= RPM	(rev/min)			

CLASS 150-300 PRESSURE TEMP. RATING

CLASS 150

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	275	275	230	275	275	275	275	295	275
200	230	235	195	250	255	240	245	260	240
300	205	215	175	230	230	225	225	230	225
400	190	195	160	200	200	200	200	200	200
500	170	170	150	170	170	170	170	170	170
600	140	140	140	140	140	140	140	140	140
650	125	125	125	125	125	125	125	1250	125
700	110	110	110	110	110	110	110	110	110
750	95	95	95	95	95	95	95	95	95
800	80	80	80	80	80	80	80		80
850	65	65	65	65	65	65	65		65
900	50	50		50	50	50	50		50
950	35	35		35	35	35	35		35
1000	20	20		20	20	20	20		20

CLASS 300

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	720	720	600	720	720	720	720	750	720
200	600	620	510	650	660	630	635	745	630
300	540	560	455	595	615	580	580	665	580
400	495	515	420	550	575	545	540	615	540
500	465	480	395	515	540	520	515	580	515
600	440	450	370	485	515	500	495	555	495
650	430	440	365	475	505	490	485	545	485
700	420	435	360	465	495	485	480	540	480
750	415	425	355	460	490	480	470	530	470
800	405	420	345	450	485	475	465		465
850	395	420	34	445	485	465	460		460
900	390	415		440	450	450	450		450
950	380	385		385	385	385	385		385
1000	355	365		365	365	365	365		340
1050	325	360		360	360	355	355		245
1100	255	305		310	325	260	260		170
1150	205	235		235	275	190	190		125
1200	165	185		185	205	135	135		85
1250	135	145		140	180	105	105		50
1300	115	115		110	140	75	75		25
1350	95	95		85	105	60	60		15
1400	75	75		65	75	45	45		15
1450	60	60		50	60	30	35		10
1500	40	40		40	40	25	25		5

CLASS 400-600 PRESSURE TEMP. RATING

CLASS 400

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	960	960	800	960	960	960	960	1000	960
200	800	825	680	865	885	840	850	990	840
300	715	745	610	795	820	775	775	890	775
400	660	685	560	735	770	725	725	820	725
500	620	635	525	690	725	690	685	775	685
600	590	600	495	650	690	665	660	740	660
650	575	590	485	635	675	655	645	730	645
700	565	580	480	620	660	645	635	725	635
750	550	570	470	610	655	640	625	710	625
800	540	565	460	600	650	630	620		620
850	530	555	450	595	645	620	610		610
900	520	555		590	600	600	600		600
950	510	515		515	515	515	515		515
1000	470	485		485	485	485	485		455
1050	435	480		480	480	470	470		325
1100	345	405		415	430	345	345		230
1150	275	315		345	365	250	250		165
1200	220	245		245	275	185	185		115
1250	180	195		185	245	135	135		70
1300	150	155		145	185	100	100		35
1350	125	160		115	140	80	80		25
1400	100	100		85	100	60	60		20
1450	80	80		70	80	45	45		15
1500	55	55		50	55	35	35		10

CLASS 600

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	1440	1440	1200	1440	1440	1440	1440	1500	1440
200	1200	1240	1020	1295	1325	1260	1270	1490	1260
300	1075	1120	910	1190	1235	1160	1160	1335	1160
400	995	1025	840	1105	1150	1090	1085	1230	1085
500	930	955	785	1030	1085	1035	1025	1160	1025
600	885	900	745	975	1030	1000	990	1115	990
650	865	885	730	950	1015	985	970	1095	970
700	845	870	720	930	995	970	985	1085	955
750	825	855	705	915	985	960	940	1065	940
800	810	845	690	900	975	945	930		930
850	790	835	675	895	970	930	915		915
900	780	830		885	900	900	900		900
950	765	775		775	775	775	775		775
1000	710	725		725	725	725	725		680
1050	650	720		720	720	705	705		485
1100	515	610		625	645	520	520		345
1150	410	475		475	550	375	375		245
1200	330	370		370	410	275	275		170
1250	265	295		280	365	205	205		105
1300	225	235		220	275	150	150		55
1350	185	190		170	205	115	115		35
1400	150	150		130	180	90	90		25
1450	115	115		105	115	70	65		20
1500	85	85		75	85	50	50		15

CLASS 900-1500 PRESSURE TEMP. RATING

CLASS 900

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	2160	2160	1800	2160	2160	2160	2160	2250	2160
200	1800	1860	1535	1945	1985	1895	1910	2230	1895
300	1615	1680	1370	1785	1850	1740	1740	2000	1740
400	1490	1540	1260	1655	1730	1635	1625	1845	1625
500	1395	1435	1180	1550	1625	1555	1540	1740	1540
600	1325	1355	1150	1460	1550	1500	1485	1670	1485
650	1295	1325	1095	1425	1520	1475	1455	1640	1455
700	1265	1305	1080	1395	1490	1455	1435	1625	1435
750	1240	1280	1060	1375	1475	1440	1410	1595	1410
800	1215	1265	1035	1355	1460	1420	1395		1395
850	1190	1255	1015	1340	1455	1395	1375		1375
900	1165	1245		1325	1350	1350	1350		1350
950	1145	1160		1160	1160	1160	1160		1160
1000	1065	1090		1090	1090	1090	1090		1020
1050	975	1080		1080	1080	1060	1060		730
1100	770	915		935	965	780	780		515
1150	615	710		710	825	565	565		370
1200	495	555		555	620	410	410		255
1250	400	440		420	545	310	310		155
1300	340	350		330	410	225	225		80
1350	280	290		255	310	175	175		50
1400	225	225		195	225	135	135		40
1450	175	175		155	175	105	100		30
1500	125	125		115	125	75	75		20

CLASS 1500

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	3600	3600	3000	3600	3600	3600	3600	3750	3600
200	3000	3095	2555	3240	3310	3155	3180	3720	3155
300	2690	2795	2280	2975	3085	2905	2905	3335	2905
400	2485	2570	2100	1760	2280	2725	2710	3070	2710
500	2330	2390	1970	2580	2710	2590	2570	2905	2570
600	2210	2255	1860	2435	2580	2495	2470	2785	2470
650	2160	2210	1825	2375	2530	2460	2425	2735	2425
700	2110	2170	1800	2330	2485	2425	2390	2710	2390
750	2065	2135	1765	2290	2460	2400	2350	2660	2350
800	2030	2110	1730	2255	2435	2365	2330		2330
850	1980	2090	1690	2230	2425	2330	2290		2290
900	1945	2075		2210	2245	2245	2245		2245
950	1910	1930		1930	1930	1930	1930		1930
1000	1770	1820		1820	1820	1820	1820		1695
1050	1630	1800		1800	1800	1765	1765		1215
1100	1285	1525		1560	1610	1305	1305		855
1150	1030	1185		1185	1370	945	945		615
1200	825	925		925	1030	685	685		430
1250	670	735		705	910	515	515		255
1300	565	585		550	685	375	375		135
1350	465	480		430	515	290	290		85
1400	380	380		325	380	225	225		70
1450	290	290		255	290	170	165		50
1500	205	205		190	205	130	130		30

CLASS 2500 PRESSURE TEMP. RATING

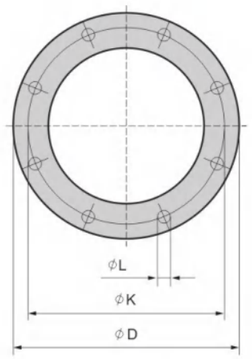
CLASS 2500

Material Group	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
Specification A182/A240	Grade 304 304H	Grade 316 316H/317	Grade 304L 316L	Grade 321 321H	Grade 347/347H 348/348H	Grade 309H	Grade 310 310H	Grade F44/F51 F53/F55	Grade 309S 310S
Temparature°F									
-20 to 100	6000	6000	5000	6000	6000	6000	6000	6250	6000
200	5000	5160	4260	5400	5520	5260	5300	6200	5260
300	4480	4660	3800	4960	5140	4840	4840	5560	4840
400	4140	4280	3500	4600	4800	4540	4520	5120	4520
500	3880	3980	3280	4300	4520	4320	4280	4840	4280
600	3680	3760	3100	4060	4300	4160	4120	4640	4120
650	3600	3680	3040	3960	4220	4100	4040	4560	4040
700	3520	3620	3000	3880	4140	4040	3980	4520	3980
750	3440	3560	2940	3820	4100	4000	3920	4430	3920
800	3380	3520	2880	3760	4060	3940	3880		3880
850	3300	3480	2820	3720	4040	3880	3820		3820
900	3240	3460		3680	3745	3745	3745		3745
950	3180	3220		3220	3220	3220	3220		3220
1000	2950	3030		3030	3030	3030	3030		2830
1050	2715	3000		3000	3000	2945	2945		2030
1100	2145	2545		2600	2685	2170	2170		1430
1150	1715	1970		1970	2285	1570	1570		1030
1200	1370	1545		1545	1715	1145	1145		715
1250	1115	1230		1170	1515	855	855		430
1300	945	970		915	1145	630	630		230
1350	770	800		715	860	485	485		145
1400	630	630		454	630	370	370		115
1450	485	485		430	485	285	275		85
1500	345	345		315	345	215	215		55

GRNERAL COMMENTS:

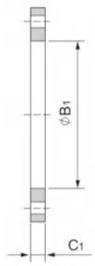
- All pressure are in pounds as per square inch, gaga (psig)
- See temperature notes for service limitations.
- Plate materials are listed only for use as blind flange. Additional plate materials listed in ANSI B16.34 may also be used with corresponding B 16.34 standard class rating.
- ASME boiler and pressure vessel code, section ll materials which also meet the requirements of the listed ASTM specification may be used.

EN 1092-1 PN 6



This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

Refer to the column “Bolting Number” in Table 11 for the actual number.



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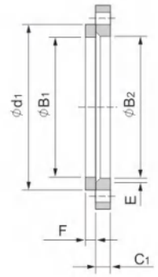

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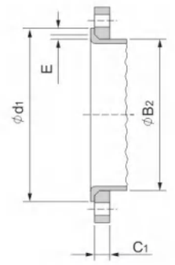

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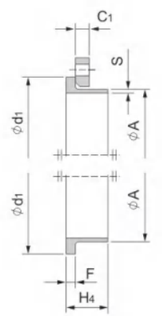

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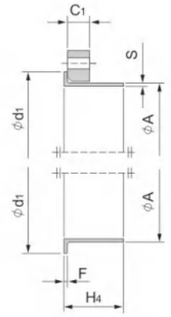

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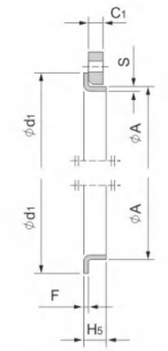
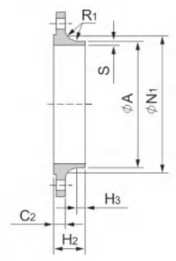


Type 02 and 37

Type 05



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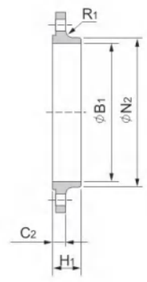
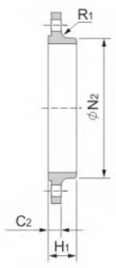
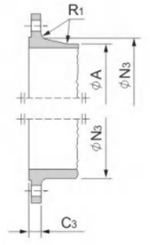


Type 12



Type 13



Type 21

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.

NOTE 2 For dimension d1, see Table 8.

NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.

NOTE 4 Type 33; lapped pipe end without determination of thickness and height.

EN 1092-1 PN 6

Dimensions in millimetres

DN	Mating dimensions: Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting: Number	Bolting: Size	Outside diameter of neck A	Bore diameter: B_1	Bore diameter: B_2	Flange thickness: C_1	Flange thickness: C_2 C_3	Flange thickness: C_4	Chamfer E	Collar thickness F	Diameter of shoulder G_{max}	Length: H_1	Length: H_2	Length: H_3	Length: H_4	Length: H_5	Neck diameters: N_1	Neck diameters: N_2	Neck diameters: N_3	Corner radii R_1	Wall thickness (see 5.6.1) S
	Flange type																							
	01, 02, 05, 11, 12, 13, 21					11 21[a] 35-37	01 12 32	02	01 02	11 12 13 21	05	02	32	35	36	37	05	12 13	11	11	35	36	37	11	12 13	21	11 12 13 21	11,35 to 37
10	75	50	11	4	M10	17.2	18.0	21	12	12	12	3	10	5	2	2.5		20	28	6	28	35	7	26	25	20	4	
15	80	55	11	4	M10	21.3	22.0	25	12	12	12	3	10	5	2	2.5		20	30	6	30	38	7	30	30	26	4	
20	90	65	11	4	M10	26.9	27.5	31	14	14	14	4	10	6	2.5	3		24	32	6	32	40	8	38	40	34	4	
25	100	75	11	4	M10	33.7	34.5	38	14	14	14	4	10	7	2.5	3		24	35	6	35	40	10	42	50	44	4	
32	120	90	14	4	M12	42.4	43.5	46	16	14	14	5	10	8	3	3		26	35	6	35	42	12	55	60	54	6	
40	130	100	14	4	M12	48.3	49.5	53	16	14	14	5	10	8	3	3		26	38	7	38	45	15	62	70	64	6	
50	140	110	14	4	M12	60.3	61.5	65	16	14	14	5	12	8	3	3		28	38	8	38	45	20	74	80	74	6	
65	160	130	14	4	M12	76.1	77.5	81	16	14	14	6	12	8	3	3	55	32	38	9	38	45	20	88	100	94	6	
80	190	150	18	4	M16	88.9	90.5	94	18	16	16	6	12	10	3	4	70	34	45	10	42	50	25	102	110	110	8	
100	210	170	18	4	M16	114.3	116.0	120	18	16	16	6	14	10	4	4	90	40	45	10	45	52	25	130	130	130	8	
125	240	200	18	8	M16	139.7	141.5	145	20	18	18	6	14	10	4	4	115	44	48	10	48	55	25	155	160	160	8	
150	265	225	18	8	M16	168.3	170.5	174	20	18	18	6	14	10	5	4	140	44	48	12	48	55	25	184	185	182	10	
200	320	280	18	8	M16	219.1	221.5	226	22	20	20	6	16	11	5	5	190	44	55	15	55	62	30	236	240	238	10	
250	375	335	18	12	M16	273.0	276.5	281	24	22	22	8	16	12	8		235	44	60	15	60	68		290	295	284	12	
300	440	395	22	12	M20	323.9	327.5	333	24	22	22	8	18	12	8		285	44	62	15	62	68		342	355	342	12	
350	490	445	22	12	M20	355.6	359.5	365	26	22	22	8	18	13	8		330		62	15	62	68		385		392	12	
400	540	495	22	16	M20	406.4	411.0	416	28	22	22	8	20	14	8		380		65	15	65	72		438		442	12	
450	595	550	22	16	M20	457.0	462.0	467	30	22	24	8	20	15	8		425		65	15	72	72		492		494	12	
500	645	600	22	20	M20	508.0	513.5	519	30	24	24	8	22	16	8		475		68	15	75	75		538		544	12	
600	755	705	26	20	M24	610.0	616.5	622	32	30	30	8	22	16			575		70	16	70			640		642	12	
700	860	810	26	24	M24	711.0		721	40	30	40	4		16			670		76	16	70			740		746	12	
800	975	920	30	24	M27	813.0		824	44	30	44	4		16			770		76	16	70			842		850	12	
900	1075	1020	30	24	M27	914.0		928	48	34	48	4		16			860		78	16	70			942		950	12	
1000	1175	1120	30	28	M27	1016.0		1028	52	38	52	4		18			960		82	16	70			1045		1050	16	
1200	1405	1340	33	32	M30	1219.0	b	1234	60	42	60	5		20			1160		104	20	90			1248		1264	16	
1400	1630	1560	36	36	M33	1422.0			72	56	68						1345		114	20				1452		1480	16	
1600	1830	1760	36	40	M33	1626.0			80	63	76						1546		119	20				1655		1680	16	
1800	2045	1970	39	44	M36	1829.0			88	69	84						1746		133	20				1855		1878	16	
2000	2265	2180	42	48	M39	2032.0			96	74	92						1950		146	25				2058		2082	16	
2200	2475	2390	42	52	M39	2235.0				81									154	25				2260			18	
2400	2685	2600	42	56	M39	2428.0				87									168	25				2462			18	
2600	2905	2810	48	60	M45	2620.0				91									175	25				2665			18	
2800	3115	3020	48	64	M45	2820.0				101									188	30				2865			18	
3000	3315	3220	48	68	M45	3020.0				102									192	30				3068			18	
3200	3525	3430	48	72	M45	3220.0				106									202	30				3272			20	
3400	3735	3640	48	76	M45	3420.0				110									214	35				3475			20	
3600	3970	3860	56	80	M52	3620.0				124									229	35				3678			20	

See Page 112

a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b To be specified by the purchaser.

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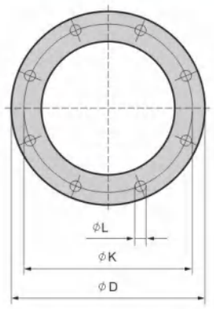
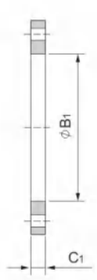
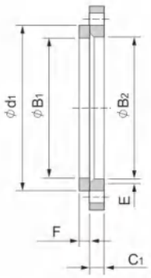


This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

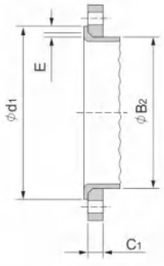
Refer to the column “Bolting Number” in Table 12 for the actual number.



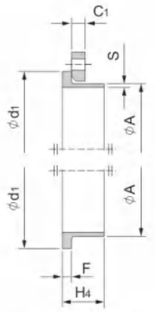
Type 01



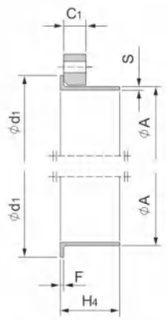
Type 02 and 32



Type 02 and 33

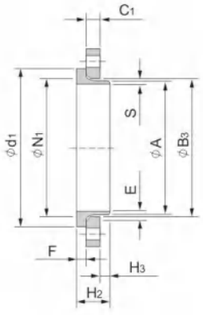


Type 02 and 35

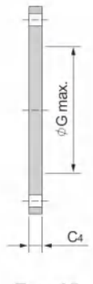


Type 02 and 36

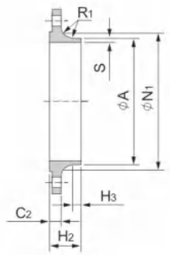
Type 02 and 37



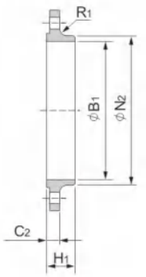
Type 04 and 34



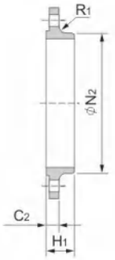
Type 05



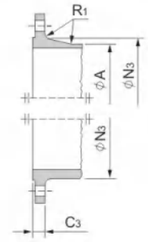
Type 11



Type 12



Type 13



Type 21

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.
NOTE 2 For dimension d1, see Table 8.
NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.
NOTE 4 Type 33; lapped pipe end without determination of thickness and height.

EN 1092-1 PN 10

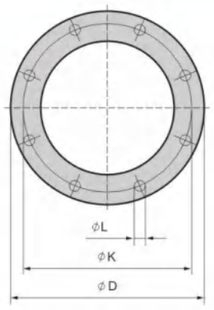
Dimensions in millimetres

DN	Mating dimensions: Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting: Number	Bolting: Size	Outside diameter of neck A	Bore diameter: B_1	B_2	B_3	Flange thickness: C_1	C_2	C_3	C_4	Chamfer E	Collar thickness F	Diameter of shoulder G_{max}	Length: H_1	H_2	H_3	H_4	H_5	Neck diameters: N_1	N_2	N_3	Corner radii R_1	Wall thickness (see 5.6.1) S
	Flange type																									
	01, 02, 05, 11, 12, 13, 21					11 21 a 34 c 35-37	01 12 32	02	04	01 02 04	11 12 13	21	05	02 04	32 34	35	36	37	05	12 13	11 34 c	11 34 c	35	36	37	11 34 c	12 13	21	11 12 13 21 34	34	11 35 to 37
10	90	60	14	4	M12	17.2	18.0	21	31	14	16	16	16	3	12	5	2	2.5		22	35	6	35	35	7	28	30	28	4	1.8
15	95	65	14	4	M12	21.3	22.0	25	35	14	16	16	16	3	12	5	2	2.5		22	38	6	38	38	7	32	35	32	4	2.0
20	105	75	14	4	M12	26.9	27.5	31	42	16	18	18	18	4	14	6	2.5	3		26	40	6	40	40	8	40	45	40	4	2.3
25	115	85	14	4	M12	33.7	34.5	38	49	16	18	18	18	4	14	7	2.5	3		28	40	6	40	40	10	46	52	50	4	2.6
32	140	100	18	4	M16	42.4	43.5	47	59	18	18	18	18	5	14	8	3	3		30	42	6	42	42	12	56	60	60	6	2.6
40	150	110	18	4	M16	48.3	49.5	53	67	18	18	18	18	5	14	8	3	3		32	45	7	45	45	15	64	70	70	6	2.6
50	165	125	18	4	M16	60.3	61.5	65	77	20	18	18	18	5	16	8	3	4		28	45	8	45	45	20	74	84	84	6	2.9
65	185	145	18	8	M16	76.1	77.5	81	96	20	18	18	18	6	16	8	3	4	55	32	45	10	45	45	20	92	104	104	6	2.9
80	200	160	18	8	M16	88.9	90.5	94	108	20	20	20	20	6	16	10	3	4	70	34	50	10	50	50	25	105	118	120	6	3.2
100	220	180	18	8	M16	114.3	116.0	120	134	22	20	20	20	6	18	10	4	4	90	40	52	12	52	52	25	131	140	140	8	3.6
125	250	210	18	8	M16	139.7	141.5	145	162	22	22	22	22	6	18	10	4	4	115	44	55	12	55	55	25	156	168	170	8	4.0
150	285	240	22	8	M20	168.3	170.5	174	188	24	22	22	22	6	20	10	4	4	140	44	55	12	55	55	25	184	195	190	10	4.5
200	340	295	22	8	M20	219.1	221.5	226	240	24	24	24	24	6	20	11	5	4	190	44	62	16	62	62	30	234	246	246	10	6.3
250	395	350	22	12	M20	273.0	276.5	281	294	26	24	24	24	8	22	12	8		235	46	68	16	68	68		292	298	298	12	6.3
300	445	400	22	12	M20	323.9	327.5	333	348	26	26	26	26	8	22	12	8		285	46	68	16	68	68		342	350	348	12	7.1
350	405	460	22	16	M20	355.6	359.5	365	400	30	26	26	26	8	22	13	8		330	53	68	16	68	68		385	400	408	12	7.1
400	565	515	26	16	M24	406.4	411.0	416	450	32	26	26	26	8	24	14	8		380	57	72	16	72	72		440	456	456	12	7.1
450	615	565	26	20	M24	457.0	462.0	467	498	36	28	28	28	8	24	15			425	63	72	16	72			488	502	502	12	7.1
500	670	620	26	20	M24	508.0	513.5	519	550	38	28	28	28	8	26	16			475	67	75	16	75			542	559	559	12	7.1
600	750	725	30	20	M27	610.0	616.5	622	650	42	30	34	34	8	26	18			575	75	82	18	80			642	658	658	12	
700	895	840	30	24	M27	711.0		721		50	35		38	8		20			670		85	18	80			746		772	12	
800	1015	950	33	24	M30	813.0		824		56	38		48	8		20			770		96	18	90			850		876	12	
900	1115	1050	33	28	M30	914.0	b	926		62	38		50	8		22			860		99	20	95			950		976	12	
1000	1230	1160	36	28	M33	1016.0		1028		70	44	b	54	8		24			960		105	20	95			1052		1080	16	
1200	1455	1380	39	32	M36	1219.0		1234		83	55		66	8		26			1160		132	25	115			1256		1292	16	
1400	1675	1590	42	36	M39	1422.0					65										143	25				1460		1496	16	
1600	1915	1820	48	40	M45	1626.0					75										159	25				1666		1712	16	
1800	2115	2020	48	44	M45	1829.0					85										175	30				1868		1910	16	
2000	2325	2230	48	48	M45	2032.0					90										786	30				2072		2120	16	
2200	2550	2440	56	52	M52	2235.0				b	100										202	35				2275			18	
2400	2760	2650	56	56	M52	2438.0					110										218	35				2478			18	
2600	2960	2850	56	60	M52	2620.0					110										224	40				2680			18	
2800	3180	3070	56	64	M52	2820.0					124										244	40				2882			18	
3000	3405	3290	62	68	M56	3020.0					132										257	45				3085			18	

See Page 112

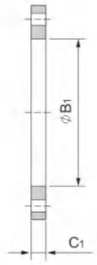
a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b To be specified by the purchaser.
c Use is limited up to DN 600.

EN 1092-1 PN 16

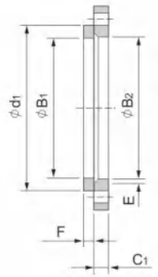


This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

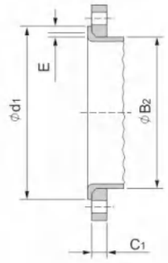
Refer to the column "Bolting Number" in Table 13 for the actual number.



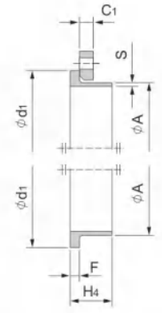
Type 01



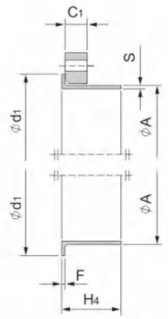
Type 02 and 32



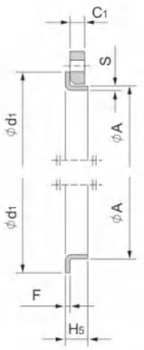
Type 02 and 33



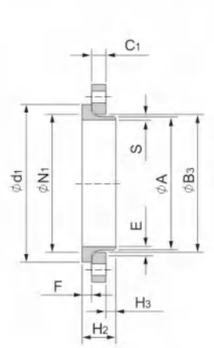
Type 02 and 35



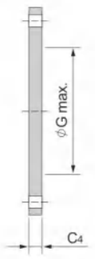
Type 02 and 36



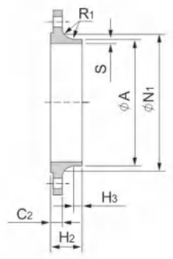
Type 02 and 37



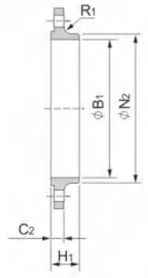
Type 04 and 34



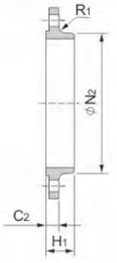
Type 05



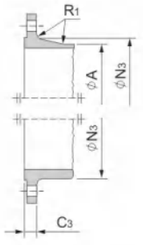
Type 11



Type 12



Type 13



Type 21

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.
NOTE 2 For dimension d1, see Table 8.
NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.
NOTE 4 Type 33; lapped pipe end without determination of thickness and height.

EN 1092-1 PN 16

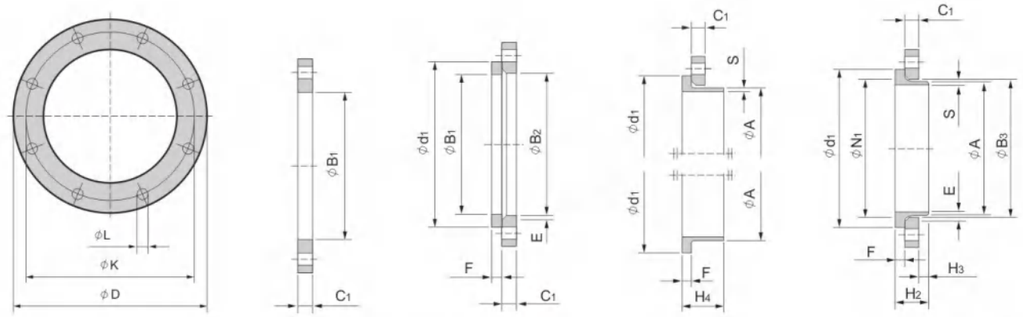
Dimensions in millimetres

DN	Mating dimensions: Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting: Number	Bolting: Size	Outside diameter of neck A	Bore diameter: B_1	B_2	B_3	Flange thickness: C_1	C_2	C_3	C_4	Chamfer E	Collar thickness F	Diameter of shoulder G_{max}	Length: H_1	H_2	H_3	H_4	H_5	Neck diameters: N_1	N_2	N_3	Corner radii R_1	Wall thickness (see 5.6.1) S
	Flange type																									
	01, 02, 05, 11, 12, 13, 21					11 21 a 34 d 35-37	01 12 32	02	04	01 02 04	11 12 13	21	05	02 04	32 34	35	36	37	05	12 13	11 34 c	11 34 c	35	36	37	11 34 c	12 13	21	11 12 13 21 34	34	11 35 to 37
10	90	60	14	4	M12	17.2	18.0	21	31	14	16	16	16	3	12	5	2	2.5		22	35	6	35	35	7	28	30	28	4	1.8
15	95	65	14	4	M12	21.3	22.0	25	35	14	16	16	16	3	12	5	2	2.5		22	38	6	38	38	7	32	35	32	4	2.0
20	105	75	14	4	M12	26.9	27.5	31	42	16	18	18	18	4	14	6	2.5	3		26	40	6	40	40	8	40	45	40	4	2.3
25	115	85	14	4	M12	33.7	34.5	38	49	16	18	18	18	4	14	7	2.5	3		28	40	6	40	40	10	46	52	50	4	2.6
32	140	100	18	4	M16	42.4	43.5	47	59	18	18	18	18	5	14	8	3	3		30	42	6	42	42	12	56	60	60	6	2.6
40	150	110	18	4	M16	48.3	49.5	53	67	18	18	18	18	5	14	8	3	3		32	45	7	45	45	15	64	70	70	6	2.6
50	165	125	18	4	M16	60.3	61.5	65	77	20	18	18	18	5	16	8	3	4		28	45	8	45	45	20	74	84	84	6	2.9
65	185	145	18	8b	M16	76.1	77.5	81	96	20	18	18	18	6	16	8	3	4	55	32	45	10	45	45	20	92	104	104	6	2.9
80	200	160	18	8	M16	88.9	90.5	94	108	20	20	20	20	6	16	10	3	4	70	34	50	10	50	50	25	105	118	120	6	3.2
100	220	180	18	8	M16	114.3	116.0	120	134	22	20	20	20	6	18	10	4	4	90	40	52	12	52	52	25	131	140	140	8	3.6
125	250	210	18	8	M16	139.7	141.5	145	162	22	22	22	22	6	18	10	4	4	115	44	55	12	55	55	25	156	168	170	8	4.0
150	285	240	22	8	M20	168.3	170.5	174	188	24	22	22	22	6	20	10	5	5	140	44	55	12	55	55	25	184	195	190	10	4.5
200	340	295	22	12	M20	219.1	221.5	226	240	26	24	24	24	6	20	11	6	6	190	44	62	16	62	62	30	235	246	246	10	6.3
250	405	355	26	12	M24	273.0	276.5	281	294	29	26	26	26	8	22	12	10		235	46	70	16	70	68		292	298	296	12	6.3
300	460	410	26	12	M24	323.9	327.5	333	348	32	28	28	26	8	24	14	10		285	46	78	16	78	68		344	350	350	12	7.1
350	520	470	26	16	M24	355.6	359.5	365	400	35	30	30	30	8	26	18	10		330	57	82	16	82	68		390	400	410	12	8.0
400	580	525	30	16	M27	406.4	411.0	416	454	38	32	32	32	8	28	20	10		380	63	85	16	52	72		445	456	458	12	8.0
450	640	585	30	20	M27	457.0	462.0	467	500	42	34	40	40	8	30	22			425	68	83	16	72			490	502	516	12	8.0
500	715	650	33	20	M30	508.0	513.5	519	556	46	36	44	44	8	32	22			475	73	84	16	90			548	559	576	12	8.0
600	840	770	36	20	M33	610.0	616.5	622	660	55	40	54	54	8	32	24			575	83	88	18	95			670	658	690	12	8.8
700	910	840	36	24	M33	711.0		721		63	40		58	8		26			670	83	104	18	100			755	760	760	12	
800	1025	950	39	24	M36	813.0	C	824		74	41		62	8		28			770	90	108	20	105			855	864	862	12	
900	1125	1050	39	28	M36	914.0		926		82	48		64	8		30			860	94	118	20	110			955	968	962	12	
1000	1255	1170	42	28	M39	1016.0		1030		90	59		68	8		35			960	100	137	22	120			1058	1072	1076	16	
1200	1485	1390	48	32	M45	1219.0					78	C							1160		160	30				1262		1282	16	
1400	1685	1590	48	36	M45	1422.0					84								1346		177	30				1465		1482	16	
1600	1930	1820	56	40	M52	1626.0				C	102								1546		204	35				1668		1696	16	
1800	2130	2020	56	44	M52	1829.0					110								1746		218	35				1870		1896	16	
2000	2345	2230	62	48	M56	2032.0					124								1950		238	40				2072		2100	16	

See Page 112

a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b According to EN 1092-2 (Cast iron flanges) and EN 1092-3 (Copper alloy flanges), the flanges in this DN and PN may be supplied with 4 holes. Where steel flanges are required with 4 holes, these may be suppied by agreement between flange manufacturer and purchaser.
c To be specified by the purchaser.
d Use is limited up to DN 600.

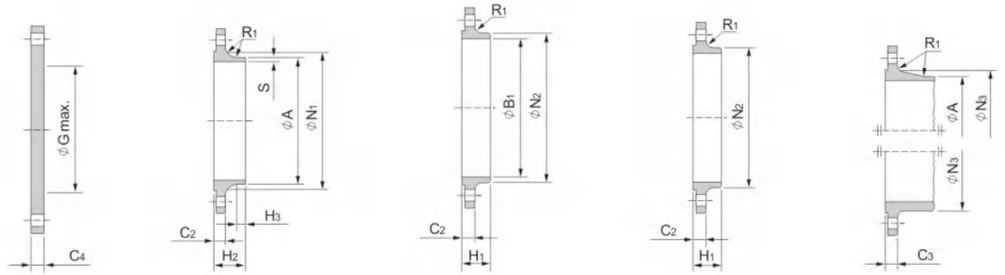
EN 1092-1 PN 25



This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

Refer to the column "Bolting Number" in Table 14 for the actual number.

Type 01 | Type 02 and 32 | Type 02 and 35 | Type 04 and 34



Type 05 | Type 11 | Type 12 | Type 13 | Type 21

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.
NOTE 2 For dimension d1, see Table 8.
NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.

EN 1092-1

EN 1092-1 PN 25

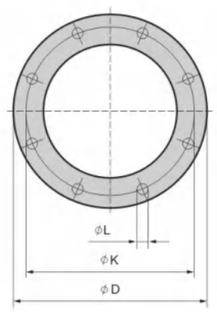
Dimensions in millimetres

DN	Mating dimensions: Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting: Number	Bolting: Size	Outside diameter of neck A	Bore diameter B_1	B_2	B_3	Flange thickness C_1	C_2	C_3	C_4	Chamfer E	Collar thickness F	Diameter of shoulder G_{max}	Length H_1	H_2	H_3	H_4	Neck diameters N_1	N_2	N_3	Corner radii R_1	Wall thickness (see 5.6.1) S
	Flange type																								
	01, 02, 05, 11, 12, 13, 21					11 21[a] 34[c] 35	01 12 32	02	04	01 02 04	11 12 13	21	05	02 04	32 34	35	05	12 13	11 34[c]	11 34[c]	35	11 34	12 13	21	11 12 13 21 34	34	11 35
10	90	60	14	4	M12	17.2	18.0	21	31	14	16	16	16	3	12	5		22	35	6	35	28	30	28	4	1.8
15	95	65	14	4	M12	21.3	22.0	25	35	14	16	16	16	3	12	5		22	38	6	38	32	35	32	4	2.0
20	105	75	14	4	M12	26.9	27.5	31	42	16	18	18	18	4	14	6		26	40	6	40	40	45	40	4	2.3
25	115	85	14	4	M12	33.7	34.5	38	49	16	18	18	18	4	14	7		28	40	6	40	46	52	50	4	2.6
32	140	100	18	4	M16	42.4	43.5	47	59	18	18	18	18	5	14	8		30	42	6	42	56	60	60	6	2.6
40	150	110	18	4	M16	48.3	49.5	53	67	18	18	18	18	5	14	8		32	45	7	45	64	70	70	6	2.6
50	165	125	18	4	M16	60.3	61.5	65	77	20	20	20	20	5	16	10		34	48	8	48	75	84	84	6	2.9
65	185	145	18	8	M16	76.1	77.5	81	96	22	22	22	22	6	16	11	55	38	52	10	52	90	104	104	6	2.9
80	200	160	18	8	M16	88.9	90.5	94	114	24	24	24	22	6	18	12	70	40	58	12	58	105	118	120	8	3.2
100	235	190	22	8	M20	114.3	116.0	120	138	26	24	24	24	6	20	14	90	44	65	12	65	134	145	142	8	3.6
125	270	220	26	8	M24	139.7	141.5	145	166	28	26	26	26	6	22	16	115	48	68	12	68	162	170	162	8	4.0
150	300	250	26	8	M24	168.3	170.5	174	194	30	28	28	28	6	24	18	140	52	75	12	75	192	200	192	10	4.5
200	360	310	26	12	M24	219.1	221.5	226	250	32	30	30	30	6	26	18	190	52	80	16	80	244	256	252	10	6.3
250	425	370	30	12	M27	273.0	276.5	281	302	35	32	32	32	8	26	18	235	60	88	18	88	298	310	304	12	7.1
300	485	430	30	16	M27	323.9	327.5	333	356	38	34	34	34	8	28	20	285	67	92	18	92	352	364	364	12	8.0
350	555	490	33	16	M30	355.6	359.5	365	408	42	38	38	38	8	32	22	330	72	100	20	100	398	418	418	12	8.0
400	620	550	36	16	M33	406.4	411.0	416	462	48	40	40	40	8	34	24	380	78	110	20	110	452	472	472	12	8.8
450	670	600	36	20	M33	457.0	462.0	467	510	54	46	46	50	8	36	26	425	84	110	20	110	500	520	520	12	8.8
500	730	660	36	20	M36	508.0	513.5	519	568	58	48	48	51	8	38	28	475	90	125	20	125	558	580	580	12	10.0
600	845	770	39	20	M36	610.0	616.5	622	670	68	48	58	56	8	40	30	575	100	125	20	115	660	684	684	12	11.0
700	960	875	42	24	M39	711.0		721		85	50			8		30			129	20	125	760			12	
800	1085	990	48	24	M45	813.0	b	824		95	53	b	b	8		35			138	22	135	864			12	
900	1185	1090	48	28	M45	914.0					57								148	24		968			12	
1000	1320	1210	56	28	M52	1016.0				b	63								160	24		1070			16	
1200	d																								
1400																									
1600																									
1800																									
2000																									

See Page 112

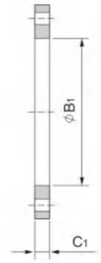
a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b To be specified by the purchaser.
c Use is limited up to DN 500.
d Only mating dimensions fixed, see Annex J.

EN 1092-1 PN 40

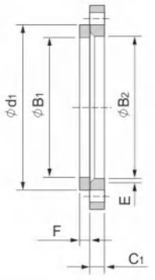


This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

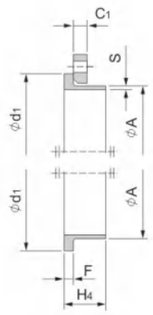
Refer to the column "Bolting Number" in Table 15 for the actual number.



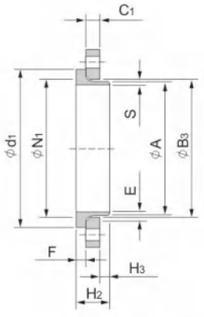
Type 01



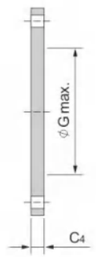
Type 02 and 32



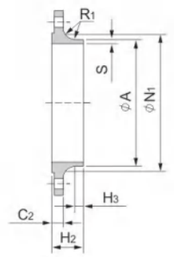
Type 02 and 35



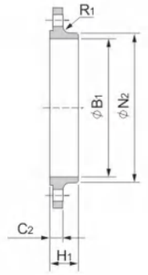
Type 04 and 34



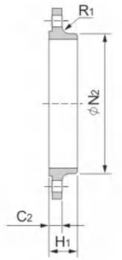
Type 05



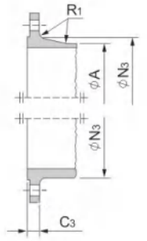
Type 11



Type 12



Type 13



Type 21

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.
NOTE 2 For dimension d1, see Table 8.
NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.

EN 1092-1

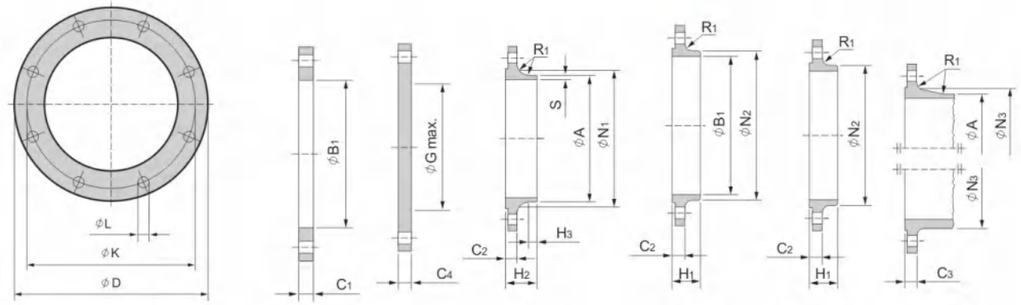
EN 1092-1 PN 40

Dimensions in millimetres

DN	Mating dimensions: Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting: Number	Bolting: Size	Outside diameter of neck A	Bore diameter B1	B2	B3	Flange thickness C1	C2	C3	C4	Chamfer E	Collar thickness F	Diameter of shoulder Gmax	Length H1	H2	H3	H4	Neck diameters N1	N2	N3	Corner radii R1	Wall thickness (see 5.6.1) S
	Flange type																								
	01, 02, 05, 11, 12, 13, 21					11 21[a] 34[c]	01 12 32	02	04	01 02 04	11 12 13	21	05	02 04	32 34[c]	35	05	12 13	11 34[c]	11 34[c]	35	11 34	12 13	21	11 12 13 21	34[c]	11 35
10	90	60	14	4	M12	17.2	18.0	21	31	14	16	16	3	12	5		22	35	6	35	28	30	28	4	1.8
15	95	65	14	4	M12	21.3	22.0	25	35	14	16	16	3	12	5		22	38	6	38	32	35	32	4	2.0
20	105	75	14	4	M12	26.9	27.5	31	42	16	18	18	4	14	6		26	40	6	40	40	45	40	4	2.3
25	115	85	14	4	M12	33.7	34.5	38	49	16	18	18	4	14	7		28	40	6	40	46	52	50	4	2.6
32	140	100	18	4	M16	42.4	43.5	47	59	18	18	18	5	14	8		30	42	6	42	56	60	60	6	2.6
40	150	110	18	4	M16	48.3	49.5	53	67	18	18	18	5	14	8		32	45	7	45	64	70	70	6	2.6
50	165	125	18	4	M16	60.3	61.5	65	77	20	20	20	5	16	10		34	48	8	48	75	84	84	6	2.9
65	185	145	18	8	M16	76.1	77.5	81	96	22	22	22	6	16	11	55	38	52	10	52	90	104	104	6	2.9
80	200	160	18	8	M16	88.9	90.5	94	114	24	24	22	6	18	12	70	40	58	12	58	105	118	120	8	3.2
100	235	190	22	8	M20	114.3	116.0	120	138	26	24	24	6	20	14	90	44	65	12	65	134	145	142	8	3.6
125	270	220	26	8	M24	139.7	141.5	145	166	28	26	26	6	22	16	115	48	68	12	68	162	170	162	8	4.0
150	300	250	26	8	M24	168.3	170.5	174	194	30	28	28	6	24	18	140	52	75	12	75	192	200	192	10	4.5
200	375	320	30	12	M27	219.1	221.5	226	250	36	34	36	6	28	18	190	52	88	16	88	244	260	254	10	6.3
250	450	385	33	12	M30	273.0	276.5	281	312	42	38	38	8	30	18	235	60	105	18	105	306	312	312	12	7.1
300	515	450	33	16	M30	323.9	327.5	333	368	52	42	42	8	34	20	285	67	115	18	115	362	380	378	12	8.0
350	580	510	36	16	M33	355.6	359.5	365	418	58	46	46	8	36	22	330	72	125	20	125	408	424	432	12	8.8
400	660	585	39	16	M36	406.4	411.0	416	472	65	50	50	8	42	24	380	78	135	20	135	462	478	498	12	11.0
450	685	610	39	20	M36	457.0	462.0	467	510		57	57	8	46	26	425	84	135	20		500	522	522	12	12.5
500	755	670	42	20	M39	508.0	513.5	519	572	d	57	57	8	50	28	475	90	140	20		562	576	476	12	14.2
600	890	795	48	20	M45	610.0	616.5	622	676		72	72	8	54	30	575	100	150	20		666	686	686	12	16.0
700	b																								
800																									
900																									
1000																									
1200																									
1400																									
1600																									

See Page 112

a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b Only mating dimensions fixed, see Annex J.
c Use is limited up to DN 500.
d To be specified by the purchaser.



Type 01 Type 05 Type 11 Type 12 Type 13 Type 21

This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

Refer to the column "Bolting Number" in Table 16 for the actual number.

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.

NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.

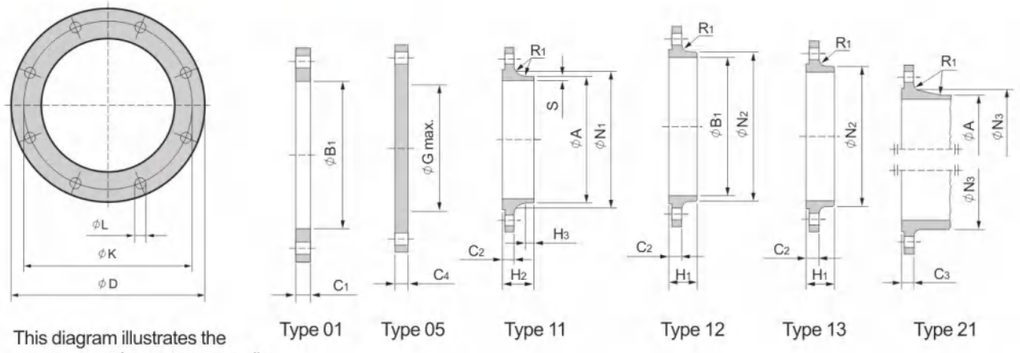
EN 1092-1 PN 63

Dimensions in millimetres

DN	Mating dimensions: Outside diameter D	Diameter of bolt circle K	Diameter of bolt hole L	Bolting: Number	Bolting: Size	Outside diameter of neck A	Bore diameter B1	Flange thickness C1	C2	C3	C4	Diameter of shoulder Gmax	Length H1	H2	H3	Neck diameters N1	N2	N3	Corner radii R1	Wall thickness (see 5.6.1) S
	Flange type																			
	01, 05, 11, 12, 13, 21					11 21[a]	01 02	01	11 12 13	21	05	05	12 13	11	11	11	12 13	21	11 12 13 21	11
10	100	70	14	4	M12	17.2	18.0	20	20	20	20		28	45	6	32	40	40	4	
15	105	75	14	4	M12	21.3	22.0	20	20	20	20		28	45	6	34	43	45	4	
20	130	90	18	4	M16	26.9	27.5	22	22	22	22		30	48	8	42	52	50	4	
25	140	100	18	4	M16	33.7	34.5	24	24	24	24		32	58	8	52	60	61	4	
32	155	110	22	4	M20	42.4	43.5	24	24	24	24		32	60	8	62	68	68	6	
40	170	125	22	4	M20	48.3	49.5	26	26	26	26		34	62	10	70	80	82	6	
50	180	135	22	4	M20	60.3	61.5	26	26	26	26		36	62	10	82	90	90	6	
65	205	160	22	8	M20	76.1	77.5	26	26	26	26	45	40	68	12	98	112	105	6	
80	215	170	22	8	M20	88.9	90.5	30	28	28	28	60	44	72	12	112	125	122	8	
100	250	200	26	8	M24	114.3	116.0	32	30	30	30	80	52	78	12	138	152	146	8	
125	295	240	30	8	M27	139.7	141.5	34	34	34	34	105	56	88	12	168	185	177	8	
150	345	280	33	8	M30	168.3	170.5	36	36	36	36	130	60	95	12	202	215	204	10	
200	415	345	36	12	M23	219.1	221.5	48	42	42	42	180		110	16	256		264	10	
250	470	400	36	12	M33	273.0	276.5	55	46	46	46	220		125	18	316		320	12	
300	530	460	36	16	M33	323.9	327.5	65	52	52	52	270		140	18	372		378	12	
350	600	525	39	16	M36	355.6	359.6	72	56	56	56	310		150	20	420		434	12	
400	670	585	42	16	M39	406.4	411.0	80	60	60	60	360		160	20	475		490	12	
500	b																			
600																				
700																				
800																				
900																				
1000																				
1200																				

See Page 112

a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b Only mating dimensions fixed, see Annex J.



Type 01 Type 05 Type 11 Type 12 Type 13 Type 21

This diagram illustrates the arrangement but not necessarily the correct number of bolt holes.

Refer to the column "Bolting Number" in Table 17 for the actual number.

NOTE 1 Dimensions N1,N2 and N3 are measured at the intersection of the hub draft angle and the back face of the flange.

NOTE 3 For dimensions Gmax refer to NOTE 1 of 5.6.1.

EN 1092-1 PN 100

Dimensions in millimetres

DN	Mating dimensions					Outside diameter of neck	Bore diameter	Flange thickness				Diameter of shoulder	Length			Neck diameters			Corner radii	Wall thickness (see 5.6.1)
	Outside diameter	Diameter of bolt circle	Diameter of bolt hole	Bolting																
	D	K	L	Number	Size	A	B_1	C_1	C_2	C_3	C_4	G_{max}	H_1	H_2	H_3	N_1	N_2	N_3	R_1	S
	Flange type																			
	01, 05, 11, 12, 13, 21					11 21[a]	01 02	01	11 12 13	21	05	05	12 13	11	11	11	12 13	21	11 12 13 21	11
10	100	70	14	4	M12	17.2	18.0	20	20	20	20		28	45	6	32	40	40	4	See Page 112
15	105	75	14	4	M12	21.3	22.0	20	20	20	20		28	45	6	34	43	45	4	
20	130	90	18	4	M16	26.9	27.5	22	22	22	22		30	48	8	42	52	50	4	
25	140	100	18	4	M16	33.7	34.5	24	24	24	24		32	58	8	52	60	61	4	
32	155	110	22	4	M20	42.4	43.5	24	24	26	24		32	60	8	62	68	68	6	
40	170	125	22	4	M20	48.3	49.5	26	26	28	26		34	62	10	70	80	82	6	
50	195	145	26	4	M24	60.3	61.5	28	28	30	28		36	68	10	90	95	96	6	
65	220	170	26	8	M24	76.1	77.5	30	30	34	30	45	40	76	12	108	118	118	6	
80	230	180	26	8	M24	88.9	90.5	34	32	36	32	60	44	78	12	120	130	128	8	
100	265	210	30	8	M27	114.3	116.0	36	36	40	36	80	52	90	12	150	158	150	8	
125	315	250	33	8	M30	139.7	141.5	42	40	40	40	105	56	105	12	180	188	185	8	
150	355	290	33	12	M30	168.3	170.5	48	44	44	44	130	60	115	12	210	225	216	10	
200	430	360	36	12	M33	219.1	221.5	60	52	52	52	180		130	16	278		278	10	
250	505	430	39	12	M36	273.0	276.5	72	60	60	60	210		157	18	340		340	12	
300	585	500	42	16	M39	323.9	327.5	84	68	68	68	260		170	18	400		407	12	
350	655	560	48	16	M45	355.6	359.6	95	74	74	74	300		189	20	460		460	12	
400	b																			
500																				

a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b Only mating dimensions fixed, see Annex J.

EN 1092-1 Flange facing dimensions

Dimensions in millimetres

DN	d1												f1	f2	f3	f4	w^b	x	y	z^b	α≈	R
	PN2.5[a]	PN6[a]	PN10	PN16	PN25	PN40	PN63	PN100	PN160	PN250	PN320	PN400										
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm
10	35	35	40	40	40	40	40	40	40	40	40	40					24	34	35	23		
15	40	40	45	45	45	45	45	45	45	45	45	45					29	39	40	28		
20	50	50	58	58	58	58	58	58	58	58	58	58	2				36	50	51	35		
25	60	60	68	68	68	68	68	68	68	68	68	68					43	57	58	42		
32	70	70	78	78	78	78	78	78	78	78	78	78		4.5	4.0	2.0	51	65	66	50		2.5
40	80	80	88	88	88	88	88	88	88	88	88	88					61	75	76	60	41°	
50	90	90	102	102	102	102	102	102	102	102	102	102					73	87	88	72		
65	110	110	122	122	122	122	122	122	122	122	122	122					95	109	110	94		
80	128	128	138	138	138	138	138	138	138	138	138	138					106	120	121	105		
100	148	148	158	158	162	162	162	162	162	162	162	162	3				129	149	150	128		
125	178	178	188	188	188	188	188	188	188	188	188	188					155	175	176	154		
150	202	202	212	212	218	218	218	218	218	218	218	218					183	203	204	182	32°	3
200	258	258	268	268	278	285	285	285	285	285	285	285		5.0	4.5	2.5	239	259	260	238		
250	312	312	320	320	335	345	345	345	345	345	345						292	312	313	291		
300	365	365	370	378	395	410	410	410	410								343	363	364	342		
350	415	415	430	438	450	465	465	465									395	421	422	394		
400	465	465	482	490	505	535	535	535					4				447	473	474	446		
450	520	520	532	550	555	560	560	560									497	523	524	496		
500	570	570	585	610	615	615	615	615									549	575	576	548		
600	670	670	685	725	720	735	735							5.5	5.0	3.0	649	675	676	648	27°	3.5
700	775	775	880	795	820	840	840										751	777	778	750		
800	880	880	905	900	930	960	960										856	882	883	855		
900	980	980	1005	1000	1030	1070	1070										961	987	988	960		
1000	1080	1080	1110	1115	1140	1180	1180										1062	1092	1094	1060		
1200	1280	1290	1330	1330	1350	1380	1380										1262	1292	1294	1260		
1400	1480	1510	1535	1530	1560	1600											1462	1492	1494	1460		
1600	1690	1710	1760	1750	1780	1815								6.5	6.0	4.0	1662	1692	1694	1660	28°	4
1800	1890	1920	1960	1950	1985												1862	1892	1894	1860		
2000	2090	2125	2170	2150	2210												2062	2092	2094	2060		
2200	2295	2335	2370										5									
2400	2495	2545	2570																			
2600	2695	2750	2780																			
2800	2910	2960	3000																			
3000	3110	3160	3210																			
3200	3310	3370																				
3400	3510	3580																				
3600	3720	3790																				
3800	3920																					
4000	4120																					

a For flanges type 21 the outside hub diameter approximately corresponds to the outside pipi diameter.
b Only mating dimensions fixed, see Annex J.

EN 1092-1

EN 1092-1 Wall thickness for type 11

Dimensions in millimetres

∅A	PN2.5		PN6		PN10		PN16		PN25		PN40		PN63		PN100	
	S	Sp	S	Sp	S	Sp	S	Sp	S	Sp	S	Sp	S	Sp	S	Sp
17.2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21.3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3.2	2
26.9	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.2	2.3
33.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.6	2.6
42.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.9	2.6	3.6	2.9
48.3	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.9	2.9	3.6	3.2
60.3	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4	3.2	4	3.6
76.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4	3.6	4	4
88.9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.5	4	5	5
114.3	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.5	4.5	5.6	5.6
139.7	4	4	4	4	4	4	4	4	4	4	4	4	5.6	5.6	6.3	6.3
168.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	6.3	6.3	8	8
219.1	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	7.1	7.1	8.8	8.8
273	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	7.1	7.1	7.1	7.1	8.8	8.8	10	10
323.9	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	8	8	8	8	11	10	12.5	12.5
355.6	7.1	7.1	7.1	7.1	7.1	7.1	8	8	8	8	8.8	8.8	12.5	10	14.2	14.2
406.4	7.1	7.1	7.1	7.1	7.1	7.1	8	8	8.8	8.8	11	11	14.2	11	16	16
457	7.1	7.1	7.1	7.1	7.1	7.1	8	8	8.8	8.8	12.5	12.5				
508	7.1	7.1	7.1	7.1	7.1	7.1	8	8	10	10	14.2	14.2				
610	7.1	7.1	7.1	7.1	8	7.1	10	8.8	11	11	16	16				
711	7.1	7.1	8	7.1	8.8	8	10	8.8	14.2	12.5						
813	7.1	7.1	8	7.1	8.8	8	12.5	10	16	14.2						
914	7.1	7.1	8	7.1	12.5	10	12.5	10	17.5	16						
1016	7.1	7.1	8	7.1	12.5	10	12.5	10	20	17.5						
1219	8	7.1	8.8	8	12.5	11	14.2	12.5								
1422	8	7.1	8.8	8	14.2	12.5	16	14.2								
1626	8.8	8	10	9	16	14.2	17.5	16								
1829	10	10	11	10	17.5	16	20	17.5								
2032	11	10	12.5	11	17.5	16	22	20								
2235	11	10	14	12.5	20	18										
2438	11	10	15	14.2	22.2	20										
2620	11	10	16	14.2	25	22.2										
2820	11	10	17	16	25	22.2										
3020	11	10	20	16	32	24										
3220	11	10	20	16												
3420	11	10	22	17.5												
3620	11	10	22	17.5												
3820	11	10														
4020	11	10														

NOTE Sp valves shall match those given in En10220 respectively EN ISO 1127.

不锈钢化学成份对照表 Stainless steel chemical componet form

材质	C%	Si%	Mn%	P%	S%	Cr%	Mo%	Ni%	N%
EN10222-5:1.4301	≤0.07	≤1.00	≤2.00	≤0.045	≤0.015	17-19.5		8.0-10.5	≤0.11
EN17440:1.4306	≤0.030	≤1.00	≤2.00	≤0.045	≤0.015	18-20.0		10-12.0	≤0.11
EN10222-5:1.4401	≤0.07	≤1.00	≤2.00	≤0.045	≤0.015	16.5-18.50	2.0-2.5	10-13.0	≤0.11
EN10222-5:1.4404	≤0.030	≤1.00	≤2.00	≤0.045	≤0.015	15.5-18.5	2.0-2.5	10-13.0	≤0.11
EN10222-5:1.4541	≤0.08	≤1.00	≤2.00	≤0.045	≤0.015	17-19.0		9.0-12.0	Ti:5x%C-0.70
EN10222-5:1.4571	≤0.08	≤1.00	≤2.00	≤0.045	≤0.015	16.5-18.5	2.0-2.5	10.5-13.5	Ti:5x%C-0.70

材质	C%	Si%	Mn%	P%	S%	Cr%	Mo%	Ni%	N%
ASTM A182: F304	≤0.08	≤1.00	≤2.00	≤0.045	≤0.030	18-20.0		8.0-11.0	
ASTM A182: F304L	≤0.030	≤1.00	≤2.00	≤0.045	≤0.030	18-20.0		10-13.0	
ASTM A182: F316	≤0.08	≤1.00	≤2.00	≤0.045	≤0.030	16-18.0	2.0-3.0	10-14.0	
ASTM A182: F316L	≤0.030	≤1.00	≤2.00	≤0.045	≤0.030	16-18.0	2.0-3.0	10-15.0	
ASTM A182: F321	≤0.08	≤1.00	≤2.00	≤0.045	≤0.030	17-19.0		9.0-12.0	Ti:5x%C-0.70
ASTM A276: F316Ti	≤0.08	≤1.00	≤2.00	≤0.045	≤0.030	16-18.0	2.0-3.0	10-14.0	≤0.10

不锈钢机械性能对照表 Stainless steel Mechanical properties form

材质	屈服强度 Yield Strength (Mpa)		抗拉强度 Tensile Strength Rm Mpa	延伸率 A% Elongation Rm Mpa	断面收缩率 Reduction ψ%
	$Rp_{0.2}$	$Rp_{0.1}$			
EN10222-5:1.4301	≥200	≥230	500-700	≥35%	
DIN17440:1.4306	≥180	≥215	460-680	≥40%	
EN10222-5:1.4401	≥205	≥240	510-710	≥35%	
EN10222-5:1.4404	≥190	≥225	490-690	≥35%	
EN10222-5:1.4541	≥200	≥235	510-710	≥30%	
EN10222-5:1.4571	≥210	≥245	510-710	≥35%	

材质	屈服强度 Yield Strength (Mpa)		抗拉强度 Tensile Strength Rm Mpa	延伸率 A% Elongation Rm Mpa	断面收缩率 Reduction ψ%
	$Rp_{0.2}$	$Rp_{0.1}$			
ASTM A182: F304	≥205		≥515	≥30%	≥50%
ASTM A182: F304L	≥170		≥485	≥30%	≥50%
ASTM A182: F316	≥205		≥515	≥30%	≥50%
ASTM A182: F316L	≥170		≥485	≥30%	≥50%
ASTM A182: F321	≥205		≥515	≥30%	≥50%
ASTM A276: F316Ti	≥205		≥515	≥30%	≥40%