

# MILIM CO.,LTD

## (주)미림







BUREAU  
VERITAS

Bureau Veritas Certification

MI LIM CO., Ltd.

34-23 Gangbyeon-daero 456beon-gil, Sasang-gu, Busan, Republic of Korea, 47033

*Bureau Veritas Certification Holding SAS - UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below*

**ISO 9001:2015**

*Scope of certification*

**Manufacturing of Flange, Fitting products**

|                                                                                                                       |            |
|-----------------------------------------------------------------------------------------------------------------------|------------|
| Original cycle start date:                                                                                            | 04-03-2016 |
| Expiry date of previous cycle:                                                                                        | NA         |
| Certification / Recertification Audit date:                                                                           | NA         |
| Certification / Recertification cycle start date:                                                                     | 04-03-2025 |
| Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on: | 03-03-2028 |

Certificate No.: **KR004558**

Version: 1

Issue date: 04-03-2025



0008

**Signed on behalf of BVCH SAS UK Branch**

*Certification Body Address: 5thFloor, 100 LowerThames Street, London, EC3R 6DL, United Kingdom*

*Local Office: 5th Floor, 457 Bongeunsa-ro, Gangnam-gu, Seoul, Republic of Korea, 06096*

Further clarifications regarding the scope and validity of this certificate, and the applicability of the management system requirements, please call: +82 2 555 8910





# MILIM

## Company Information

대표 인사말

### BEST SERVICE SPIRIT FOR CUSTOMER



We are improving quality of product with the continuous research and development to fulfill leading duty in the rapidly growing future.

### C E O

MI LIM CO.,LTD Company was established in 2014, has been a lot of continuous development by customer's support. Our company is always standing on the place and at the time that forged flanges in the field of heavy industry such as chemical and petro-chemical plant, shipbuilding, power plant, heavy equipment and industrial machine are needed and doing the best to give full satisfaction to our customer.

MI LIM CO.,LTD established suitable total equipment and control system for supplying various kinds of products with the highest quality and all the employees seek after creation of value for improvement of human life through the industrial development.

We are improving quality of product with the continuous research and development to fulfill leading duty in the rapidly growing future.

It is to be possible to supply products at competitive price with the best service spirit for customer and to be formed confidence firmly with customer and to meet customer's requirements.

Sincerely yours,



(주)미림은 건설, 기계 설비, 조선, 플랜트 등 다양한 산업 분야에 중요하게 사용되는 스테인리스 플랜지(STS304, STS316, SSC13, SSC14)를 전문적으로 생산하는 기업입니다. "지속적인 품질관리와 안정적 시장 구축"이라는 품질 방침으로 더 나은 제품을 생산하기 위해 힘쓰고 있으며 고객 만족 실현의 노력으로 고객님들께 감동으로 보답하겠습니다.

감사합니다.



# MILIM

## Company Information

사업 기반 시설 및 조직



## MILIM

### Location

#651-58, Eomgung-Dong, Sasang-Gu, Busan, Korea

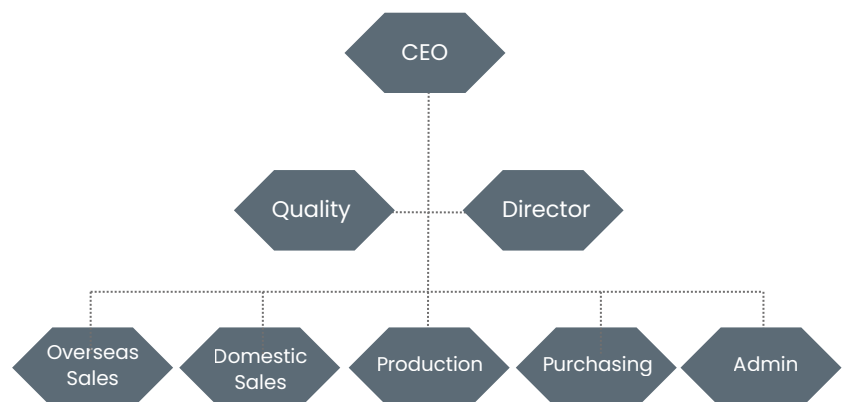
### Factory Area

Total Area : 1,650 m<sup>2</sup>,  
Building and Auxiliary Area : 1,320 m<sup>2</sup>

### Main products

Flange - ASME(ANSI), API, MSS, AWWA, DIN, NF, API590 FIG.8, KS, JIS, JPI, etc.

## ORGANIZATION



# MILIM

## Company Information

### FACILITY

#### FACILITY

| Item                 | Capacity           | Q'ty |
|----------------------|--------------------|------|
| Turning Machine      | OD 1,000 ~ 3,600mm | 3ea  |
| Lather Machine       | OD 580 ~ 720mm     | 4ea  |
| Drilling machine     | OD 580 ~ 2,800mm   | 3ea  |
| Hoist Crane          | 2.8 ~ 5.0Ton       | 4ea  |
| Packing Machine      | OD 2,200mm         | 1ea  |
| Marking Machine      | OD 500mm           | 1ea  |
| Auto Marking Machine |                    | 1ea  |
| Air compressor       | 10Kg/cm2           | 1ea  |
| Crane Scales         | 5Ton               | 1ea  |
| Plate Scale          | 1Ton               | 1ea  |
| CNC Lathe            | OD250              | 3ea  |
| CNC Lathe            | OD200              | 1ea  |
| Folk Lift            | 2.5Ton             | 1ea  |



# MILIM

## Company Information

INSPECTION

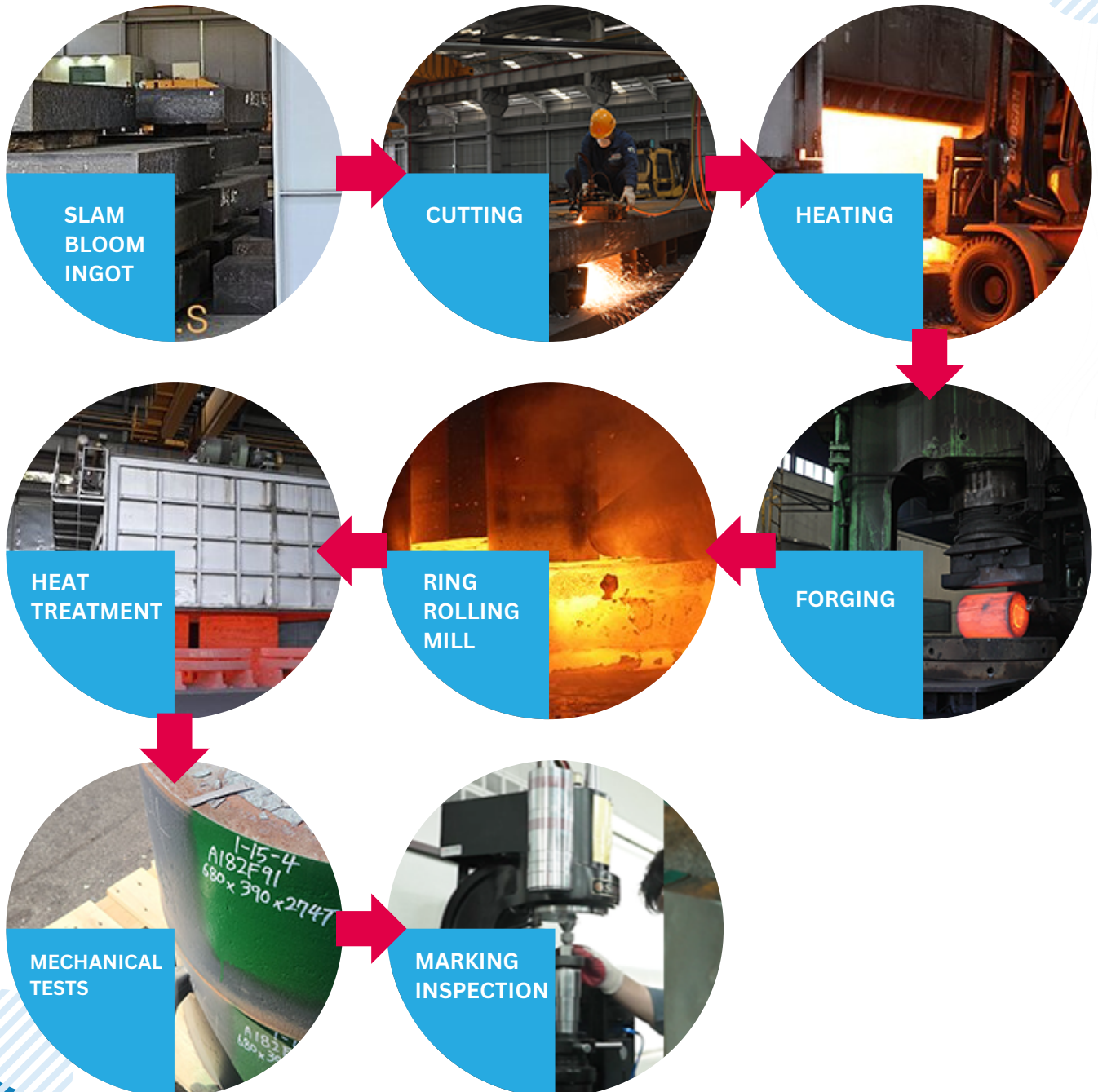
### INSPECTION

| FACILITYNAME                  | RANGE          | Q'ty |
|-------------------------------|----------------|------|
| Digital Vernier Calipers      | 600 mm         | 1EA  |
| Digital Vernier Calipers      | 300 mm         | 1EA  |
| Digital Vernier Calipers      | 150 mm         | 1EA  |
| Aualogue Vernier Calipers     | 2000 mm        | 1EA  |
| Aualogue Vernier Calipers     | 1000 mm        | 3EA  |
| Aualogue Vernier Calipers     | 600 mm         | 2EA  |
| Aualogue Vernier Calipers     | 300 mm         | 4EA  |
| Aualogue Vernier Calipers     | 200 mm         | 2EA  |
| Digital Surface Profile Gauge | 580 ~ 2,500 mm | 1EA  |

# HISTORY

|         |                                                       |
|---------|-------------------------------------------------------|
| 2014.06 | 미림테크 설립                                               |
| 2014.08 | 터닝 2000 Ø 1대 설치<br>터닝 3000 Ø 1대 설치<br>드릴 2000 Ø 1대 설치 |
| 2016.04 | BV ISO 인증 취득<br>패킹 머신 OD 2200mm 1대 설치                 |
| 2018.02 | 마킹머신 OD 500mm 1대 설치                                   |
| 2022.07 | (주)미림 법인 변환                                           |
| 2023.04 | 마킹머신 Gun으로 변경                                         |
| 2023.10 | 선반 OD 900mm 1대 설치                                     |

# PROCESS





# 승인 문서







# 사업자등록증

(법인사업자)

등록번호 : 707-81-02812

법인명(단체명) : 주식회사 미림

대표자 : 김근태

개업연월일 : 2022년 07월 07일      법인등록번호 : 180111-1454006

사업장소재지 : 부산광역시 사상구 강변대로456번길 34-23(엄궁동)

본점소재지 : 부산광역시 사상구 강변대로456번길 34-23(엄궁동)

사업의종류 : ☒업태 제조업      ☒종목 배관자재부품, 후렌지

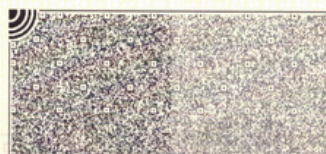
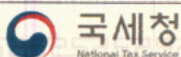
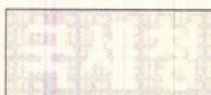
발급사유 : 신규

사업자단위과세적용사업자여부 : 여( ) 부(✓)

전자세금계산서전용전자우편주소 :

2022년 07월 22일

북부산세무서장







인증번호 : 제 15-0384 호

Certificate



# 제 품 인 증 서

1. 제 조 업 체 명 : 주식회사 미림
2. 대 표 자 명 : 김근태
3. 공 장 소 재 지 : 부산광역시 사상구 엄궁동 651-58
4. 인 증 제 품 :
  - 가. 표 준 명 : 스테인리스 강제 용접식 플랜지
  - 나. 표 준 번 호 : KS B 1506
  - 다. 종 류 등 급 호 칭 또 는 모 델 :

단조품을 사용한 경우 : STS304FB  
주강품을 사용한 경우, 강판재를 사용한 경우 '끝'.

「산업표준화법」 제17조 제1항에 따른 인증심사를 실시한 결과 한국 산업표준(KS)과 인증심사기준에 적합하므로, 「산업표준화법」 제15조 및 같은 법 시행규칙 제10조 제1항에 따라 위와 같이 한국산업표준(KS)에 적합함을 인증합니다.

2025 년 09 월 24 일



한국표준협회장



1. 최초 인증일 : 2015-06-10
2. 차기심사 완료기한 : 2027-08-23
3. 최종 변경일 : 2025-09-24 종류 추가 합격

# 금속시편조직 확대도

➔ [STS 304](#)

## KTR

### Sample Description

Report No : TAB-1146

Test Date : 2017-6-16,

Specimen Name : 금속시편 (STS304 강판재)

### Test Method

ASTM E407-07 Micro-Structure of Metals & Alloys

### Micro-Structure

### Equipment

Microscope : Olympus BX51M

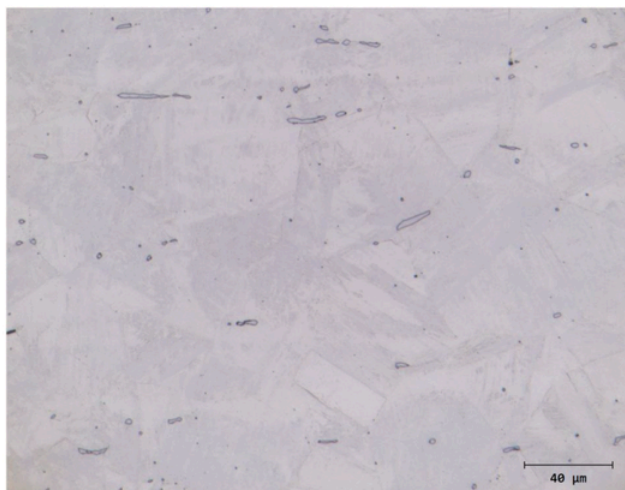
Image Analysis System : Clemex Vision PE

### Etchant Name

Electrolytic : Oxalic acid



100X



500X



# 금속시편조직 확대도

## ➡ SSC13 주강

**KTR**

### Sample Description

Report No : TAB-1144  
Test Date : 2017-6-16,  
Specimen Name : 금속시편 (SSC13 주강품)

### Equipment

Microscope : Olympus BX51M  
Image Analysis System : Clemex Vision PE

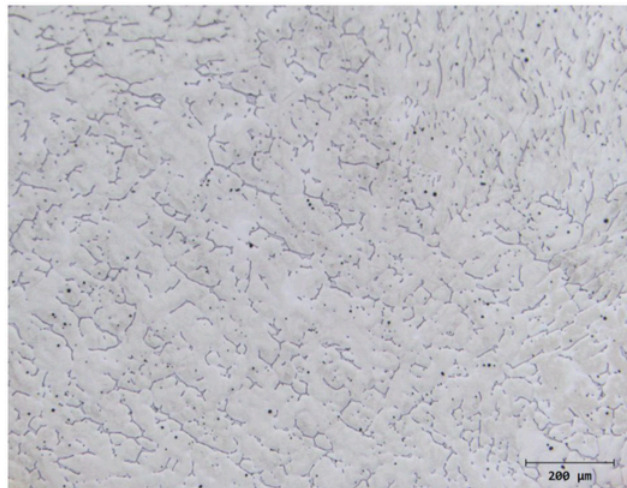
### Test Method

ASTM E407-07 Micro-Structure of Metals & Alloys

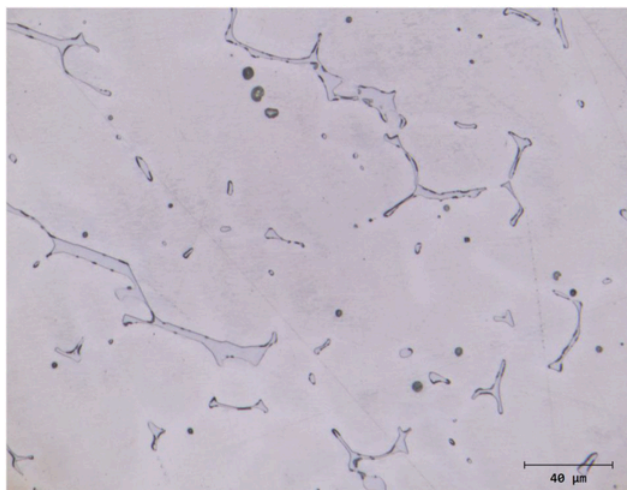
### Etchant Name

Electrolytic : Oxalic acid

### Micro-Structure



100X



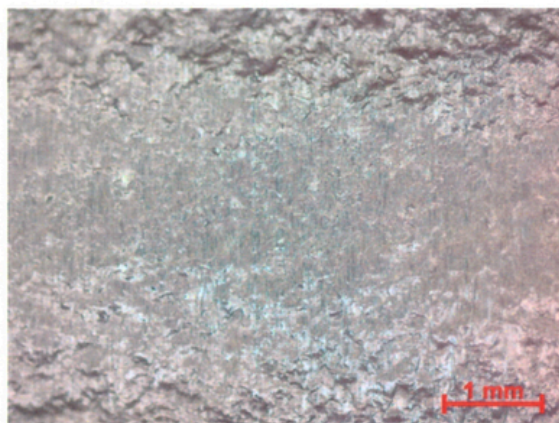
500X

Sample Name : Metallic Specimen  
 Sample Number : Heat No.:SG30014  
 Material & Specification : A182F321  
 Date of Receipt : 2018.02.02  
 Date of Test : 2018.02.07 - 2018.02.08  
 Test Method Used : ASTM A262-15 Practice E  
 Client Name : SAMBU FORGING CO., LTD.  
 Client Address : 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

## Test Results

### Corrosion test

| Test item                                  | Test period | Result                        |
|--------------------------------------------|-------------|-------------------------------|
| IGC Test<br>(Intergranular corrosion test) | 15 h        | No sign of fissures or cracks |



Bent area at 20x magnification

- End of test results -

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report can be checked through the <http://e-checking.kr.sgs.com>. This test report is not related to Korea Laboratory Accreditation Scheme.

Tested by / Jinwoo Park

Approved by Technical Manager / Kyeseob Lee

February 9, 2018

## SGS Korea Co., Ltd. Material Laboratory

Tel. (051) 630-7001 Fax. (051) 630-7096

This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



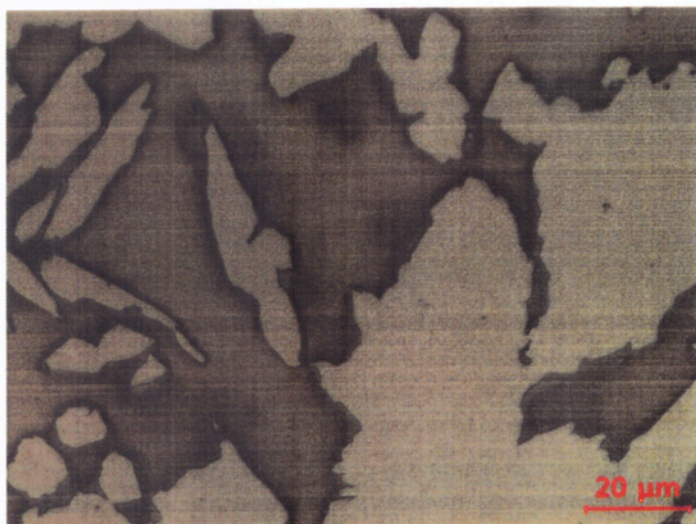


Sample Name : Metallic Specimen  
 Sample Number : Heat No. SD35345  
 Material & Specification : A182F51  
 Date of Receipt : 2019.04.05  
 Date of Test : 2019.04.09  
 Test Method Used : ASTM E562-11  
 Client Name : SAMBU FORGING CO., LTD.  
 Client Address : 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

## Test Results

### o Ferrite Content

| Test Item       | Unit | Result | Remarks                                                                                                                       |
|-----------------|------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| Ferrite Content | %    | 50.4   | <ul style="list-style-type: none"> <li>• 30 fields and 25 points per field</li> <li>• 95 % CI : 8.67, %R.A : 17.20</li> </ul> |



[Metallograph at 500x magnification, NaOH electrolytic etched]

- End of test results -

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report can be checked through the <http://e-checking.kr.sgs.com>. This test report is not related to Korea Laboratory Accreditation Scheme.

*[Signature]*

Tested by / Sukhwan Kim

*[Signature]*

Approved by Technical Manager / Changsu Jeong

April 11, 2019

## SGS Korea Co., Ltd. Material Laboratory

Tel. (051) 630-7001 Fax. (051) 630-7096

This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.





Sample Name : Metallic Specimen  
Sample Number : Heat No.E81937  
Material & Specification : A182F53  
Date of Receipt : 2019.04.05  
Date of Test : 2019.04.09  
Test Method Used : ASTM E562-11  
Client Name : SAMBU STAINLESS FORGING CO., LTD.  
Client Address : 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

## Test Results

## ○ Ferrite Content

| Test Item       | Unit | Result | Remarks                                                              |
|-----------------|------|--------|----------------------------------------------------------------------|
| Ferrite Content | %    | 52.8   | • 30 fields and 25 points per field<br>• 95 % CI : 3.99, %R.A : 7.55 |



[Metallograph at 500x magnification, NaOH electrolytic etched]

- End of test results -

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report can be checked through the <http://e-checking.kr.sgs.com>. This test report is not related to Korea Laboratory Accreditation Scheme.

Tested by / Sukhwan Kim

Approved by Technical Manager / Changsu Jeong

April 11, 2019

**SGS Korea Co., Ltd. Material Laboratory**

Tel. (051) 630-7001 Fax. (051) 630-7096

This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.







# TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea

TEL 82-51-464-0771

FAX 82-51-462-2115

Report No : TAK-2018-175529

Receipt Date : 2018.11.16.

Representative : KYUNG MAN KIM

Test Completion Date : 2018.11.22.

Company name : SAMBU STAINLESS FORGING.Co., Ltd.

Address : # 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

Sample name : Metallic Specimen(A182F51/SD35345)

## Test Results

| TEST ITEM                                           | UNIT             | SAMPLE | RESULT     | TEST METHOD                 |
|-----------------------------------------------------|------------------|--------|------------|-----------------------------|
| Ferric Chloride Pitting Test - Weight Loss          | g/m <sup>2</sup> | -      | 0.0        | ASTM G48-11(2015)(Method A) |
| Ferric Chloride Pitting Test - Visible Pitting(20×) | -                | -      | No Defects | ASTM G48-11(2015)(Method A) |

\*\* Total Attachment Page(s) : 1 Page(s)

※ Remarks : Test Time(h) : 24, Test Temp.(°C) : 25 ± 1

- Usage of Report : QUALITY CONTROL

- Note :
1. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client. You Can check website ([www.ktr.or.kr](http://www.ktr.or.kr)) or QR code to verify the authenticity of the certificate.
  2. This test report shall be used only within the purpose of its defined usage and shall not be used to public relation, advertisement and lawsuit.
  3. This test report is only valid when printed on KTR original report paper with hologram and when re-issued by KTR. The copy and the electronic file of the test report are only for reference.



Prepared by Lim Kyoungmin

Tel : 052-279-0436

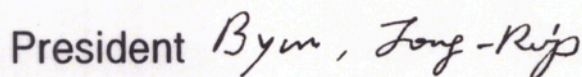


Reviewed by Choi Jinseok

Tel : 1577-0091(ARS ①→④)

2018.11.22

## Korea Testing & Research Institute



President Byun, Jong-Rip



QR Code for forgery

Page : 1 of 1



## ATTACHMENT REPORT

Report NO. : TAK-2018-175529

Test Completion Date : 2018. 11. 27.

Test Item : Ferric Chloride Pitting Test

Test Method : ASTM G48-11(Method A)

Sample : Metallic Specimen(A182F51/SD35345)



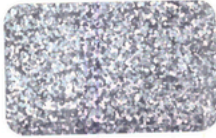
No defects

Remark : Test solution : about 6 %  $\text{FeCl}_3$   
Test condition : 25 °C  $\pm$  1 °C, 24 h

1 of Total 1 Page(s)

**KTR**





# TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea

TEL 82-51-464-0771

FAX 82-51-462-2115

Report No : TAK-2018-175532

Receipt Date : 2018.11.16.

Representative : KYUNG MAN KIM

Test Completion Date : 2018.11.22.

Company name : SAMBU STAINLESS FORGING.Co., Ltd.

Address : # 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

Sample name : Metallic Specimen(A182F53/E81937)

## Test Results

| TEST ITEM                                           | UNIT             | SAMPLE | RESULT     | TEST METHOD                 |
|-----------------------------------------------------|------------------|--------|------------|-----------------------------|
| Ferric Chloride Pitting Test - Weight Loss          | g/m <sup>2</sup> | -      | 0.0        | ASTM G48-11(2015)(Method A) |
| Ferric Chloride Pitting Test - Visible Pitting(20×) | -                | -      | No Defects | ASTM G48-11(2015)(Method A) |

\*\* Total Attachment Page(s) : 1 Page(s)

\* Remarks : Test Time(h) : 24, Test Temp.(°C) : 40 ± 1

- Usage of Report : QUALITY CONTROL

- Note :
1. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client. You Can check website ([www.ktr.or.kr](http://www.ktr.or.kr)) or QR code to verify the authenticity of the certificate.
  2. This test report shall be used only within the purpose of its defined usage and shall not be used to public relation, advertisement and lawsuit.
  3. This test report is only valid when printed on KTR original report paper with hologram and when re-issued by KTR. The copy and the electronic file of the test report are only for reference.

*Lim Kyoungmin*

Prepared by Lim Kyoungmin

Tel : 052-279-0436

*Choi Jinseok*

Reviewed by Choi Jinseok

Tel : 1577-0091(ARS ①-④)

2018.11.22

## Korea Testing & Research Institute

President *Byun, Jong-Rip*



QR Code for forgery

Page : 1 of 1



## ATTACHMENT REPORT

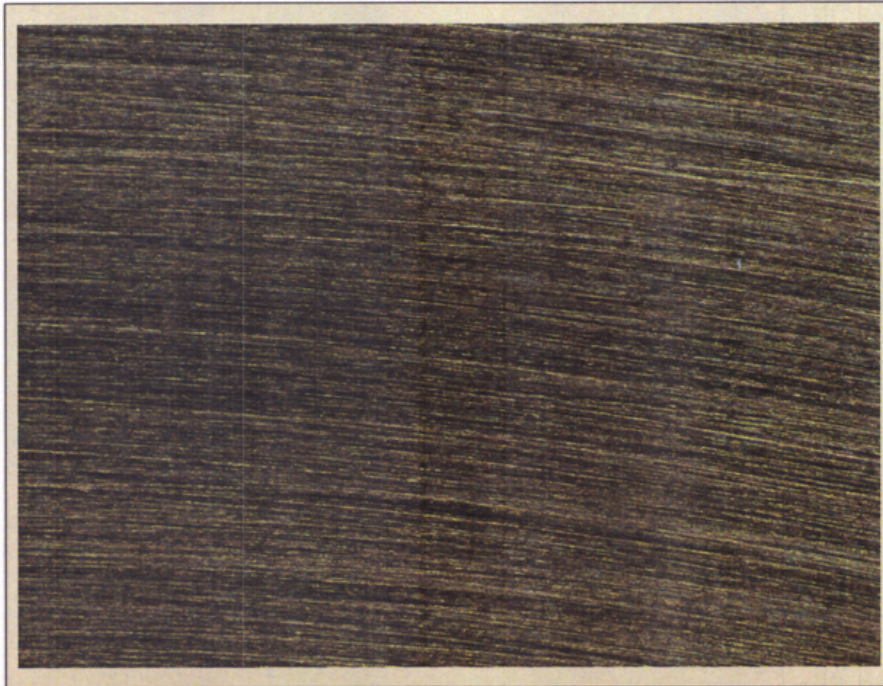
Report NO. : TAK-2018-175532

Test Completion Date : 2018. 11. 27.

Test Item : Ferric Chloride Pitting Test

Test Method : ASTM G48-11(Method A)

Sample : Metallic Specimen(A182F53/E81937)



No defects

Remark : Test solution : about 6 %  $\text{FeCl}_3$   
Test condition : 40 °C  $\pm$  1 °C, 24 h

1 of Total 1 Page(s)

**KTR**







# TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea

TEL 82-51-464-0771

FAX 82-51-462-2115

Report No : TAK-2018-175533

Receipt Date : 2018.11.16.

Representative : KYUNG MAN KIM

Test Completion Date : 2018.11.21.

Company name : SAMBU STAINLESS FORGING.Co., Ltd.

Address : # 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

Sample name : Metallic Specimen(A182F53/E81937)

## Test Results

| TEST ITEM                        | UNIT | SAMPLE | RESULT         | TEST METHOD            |
|----------------------------------|------|--------|----------------|------------------------|
| Sodium Hydroxide Etch Test(500×) | -    | -      | See Attachment | ASTM A923-14(Method A) |

\*\* Total Attachment Page(s) : 1 Page(s)

- Usage of Report : QUALITY CONTROL

- Note :
1. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client. You Can check website ([www.ktr.or.kr](http://www.ktr.or.kr)) or QR code to verify the authenticity of the certificate.
  2. This test report shall be used only within the purpose of its defined usage and shall not be used to public relation, advertisement and lawsuit.
  3. This test report is only valid when printed on KTR original report paper with hologram and when re-issued by KTR. The copy and the electronic file of the test report are only for reference.

*Lim Kyoungmin*

Prepared by Lim Kyoungmin

Tel : 052-279-0436

*Choi Jinseok*

Reviewed by Choi Jinseok

Tel : 1577-0091(ARS ①→④)

2018.11.21

## Korea Testing & Research Institute

President *Byun, Jong-Rip*



QR Code for forgery

Page : 1 of 1



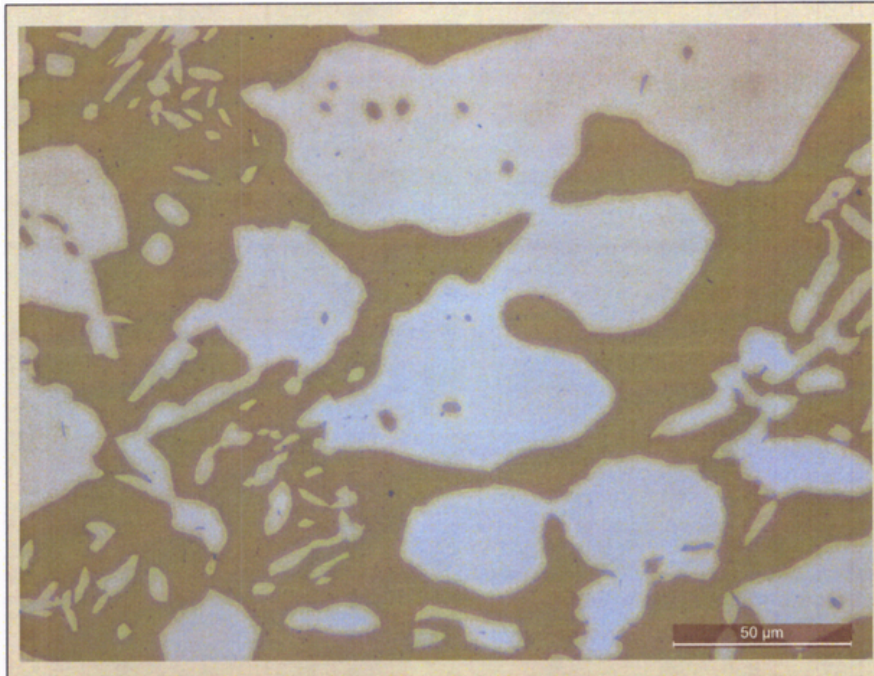
## ATTACHMENT REPORT

Report NO. : TAK-2018-175533

Test Completion Date : 2015. 11. 21.

Test Item : Sodium Hydroxide Etch Test, (500×) Test Method : ASTM A923-14(Method A)

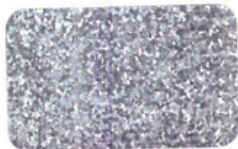
Sample : Metallic Specimen (A182F53/E81937)



This is duplex stainless steel microstructure, ferrite matrix and austenite. And this microstructure are classified unaffected structure type, compared with ASTM A 923 method A etch structures, which interface boundaries between austenite and ferrite have no detrimental phases, such as intermetallic phases or precipitate.

Specimen preparation : ASTM E3





# TEST REPORT

15, Jongga-ro, Jung-gu, Ulsan, 44412, Korea

TEL 82-51-464-0771

FAX 82-51-462-2115

Report No : TAK-2018-175530

Receipt Date : 2018.11.16.

Representative : KYUNG MAN KIM

Test Completion Date : 2018.11.21.

Company name : SAMBU STAINLESS FORGING.Co., Ltd.

Address : # 17, Hwajeonsandan 5-ro 14beon-gil, Gangseo-gu, Busan, Korea

Sample name : Metallic Specimen(A182F51/SD35345)

## Test Results

| TEST ITEM                         | UNIT | SAMPLE | RESULT         | TEST METHOD            |
|-----------------------------------|------|--------|----------------|------------------------|
| Sodium Hydroxide Etch Test(500× ) | -    | -      | See Attachment | ASTM A923-14(Method A) |

\*\* Total Attachment Page(s) : 1 Page(s)

- Usage of Report : QUALITY CONTROL

- Note :
1. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client. You Can check website ([www.ktr.or.kr](http://www.ktr.or.kr)) or QR code to verify the authenticity of the certificate.
  2. This test report shall be used only within the purpose of its defined usage and shall not be used to public relation, advertisement and lawsuit.
  3. This test report is only valid when printed on KTR original report paper with hologram and when re-issued by KTR. The copy and the electronic file of the test report are only for reference.

*Lim Kyoungmin*

Prepared by Lim Kyoungmin

Tel : 052-279-0436

*Choi Jinseok*

Reviewed by Choi Jinseok

Tel : 1577-0091(ARS ①→④)

2018.11.21

## Korea Testing & Research Institute

President *Byun, Jong-Rip*



QR Code for forgery

Page : 1 of 1



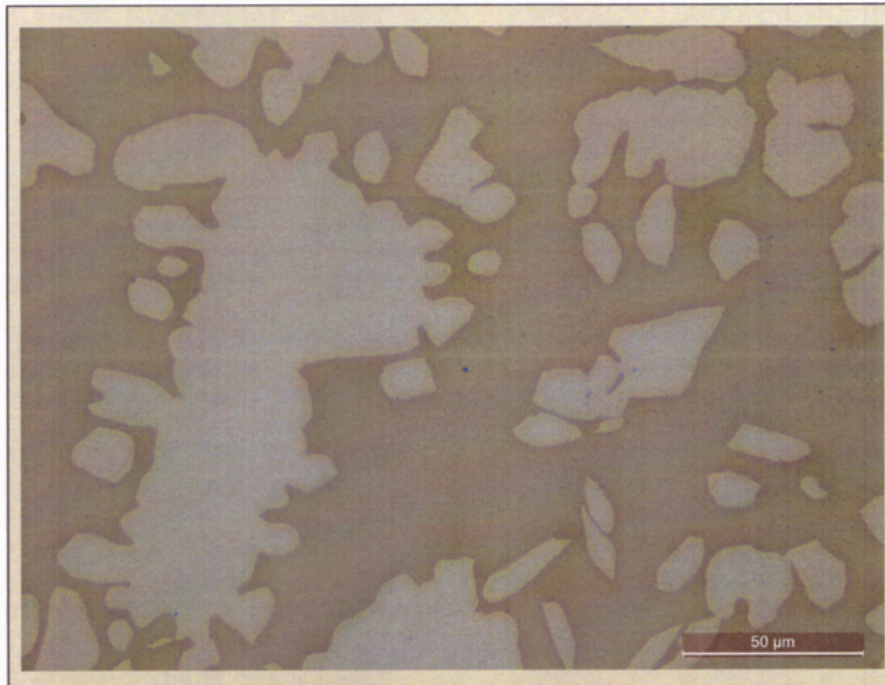
## ATTACHMENT REPORT

Report NO. : TAK-2018-175530

Test Completion Date : 2015. 11. 21.

Test Item : Sodium Hydroxide Etch Test, (500×) Test Method : ASTM A923-14(Method A)

Sample : Metallic Specimen (A182F51/SD35345)



This is duplex stainless steel microstructure, ferrite matrix and austenite. And this microstructure are classified unaffected structure type, compared with ASTM A 923 method A etch structures, which interface boundaries between austenite and ferrite have no detrimental phases, such as intermetallic phases or precipitate.

Specimen preparation : ASTM E3





# 납품 실적

| No | CLIENT               | PO No. / LOCATION     | PROJECT               | MATERIAL  | PERIOD  | REMARK    |
|----|----------------------|-----------------------|-----------------------|-----------|---------|-----------|
| 1  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1270-<br>2 | D1412                 | C.S / S.S | 2014.12 | Indonesia |
| 2  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1178-<br>4 | D1415                 | C.S       | 2015.01 | Indonesia |
| 3  | PT.DAEKYUNG<br>INDAH | PO-PROC-15-<br>0024-1 | M1450,M1452           | C.S       | 2015.01 | Indonesia |
| 4  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1404-<br>2 | D1409,D1410           | C.S       | 2015.01 | Indonesia |
| 5  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1371-<br>1 | D1410                 | C.S       | 2015.01 | Indonesia |
| 6  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1449       | D1406,D1407           | C.S       | 2014.12 | Indonesia |
| 7  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1279-<br>4 | D1408,D1414,D141<br>6 | C.S / S.S | 2014.12 | Indonesia |
| 8  | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1305-<br>2 | D1415                 | C.S       | 2015.01 | Indonesia |
| 9  | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0228-<br>1 | D1418                 | C.S       | 2015.03 | Indonesia |
| 10 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0328       | D1419,D1420,M15<br>07 | C.S / S.S | 2015.03 | Indonesia |
| 11 | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1394-<br>1 | D1411                 | C.S       | 2015.03 | Indonesia |
| 12 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0277       | D1411,M1503,M15<br>12 | C.S       | 2015.03 | Indonesia |
| 13 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0183-<br>1 | M1506                 | C.S       | 2015.03 | Indonesia |
| 14 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0284       | D1412,D1414,D141<br>0 | C.S       | 2015.03 | Indonesia |
| 15 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0269       | D1412                 | C.S       | 2015.03 | Indonesia |
| 16 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0113-<br>1 | M1503                 | C.S       | 2015.02 | Indonesia |
| 17 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0060       | M1501                 | C.S       | 2015.01 | Indonesia |
| 18 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-<br>0013-2 | D1406 etc.            | C.S       | 2015.04 | Indonesia |
| 19 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0079       | D1406                 | C.S       | 2015.01 | Indonesia |
| 20 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0377       | M1506                 | C.S       | 2015.04 | Indonesia |



| No | CLIENT               | PO No. / LOCATION     | PROJECT               | MATERIAL | PERIOD  | REMARK    |
|----|----------------------|-----------------------|-----------------------|----------|---------|-----------|
| 21 | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1254-1     | D1413                 | C.S      | 2015.04 | Indonesia |
| 22 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0270-<br>2 | D1412                 | C.S      | 2015.04 | Indonesia |
| 23 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0228-<br>2 | D1418                 | C.S      | 2015.04 | Indonesia |
| 24 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0356-<br>1 | D1413,M1515,D14<br>18 | C.S      | 2015.04 | Indonesia |
| 25 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0437-<br>1 | D1502,D1413           | C.S      | 2015.04 | Indonesia |
| 26 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0291-<br>2 | D1420                 | C.S      | 2015.05 | Indonesia |
| 27 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0480-<br>2 | D1504,M1510           | C.S      | 2015.05 | Indonesia |
| 28 | PT.DAEKYUNG<br>INDAH | PO-PROC-14-1274-4     | D1413                 | C.S      | 2015.06 | Indonesia |
| 29 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0587       | M1531                 | C.S      | 2015.05 | Indonesia |
| 30 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0547       | D1420                 | C.S      | 2015.05 | Indonesia |
| 31 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0532       | D1420                 | S.S      | 2015.05 | Indonesia |
| 32 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0358-<br>3 | D1503                 | C.S      | 2015.06 | Indonesia |
| 33 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0498-<br>1 | D1503,D1412           | C.S      | 2015.05 | Indonesia |
| 34 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0671       | D1507,D1412,D14<br>11 | C.S, S.S | 2015.06 | Indonesia |
| 35 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0649-<br>1 | D1503,D1412           | C.S      | 2015.06 | Indonesia |
| 36 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0708       | M1527                 | C.S      | 2015.06 | Indonesia |
| 37 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0633-<br>1 | D1412,D1413,D15<br>02 | C.S      | 2015.06 | Indonesia |
| 38 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0778-1     | D1512,D1412           | C.S, S.S | 2015.07 | Indonesia |
| 39 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0861       | D1412                 | C.S      | 2015.07 | Indonesia |
| 40 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0677-<br>2 | D1512                 | C.S      | 2015.07 | Indonesia |
| 41 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0820       | D1501,D1504           | C.S      | 2015.07 | Indonesia |
| 42 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0824-<br>1 | D1515                 | C.S      | 2015.08 | Indonesia |
| 43 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0922       | D1501                 | C.S      | 2015.08 | Indonesia |
| 44 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0916       | D1505,D1413           | C.S      | 2015.08 | Indonesia |
| 45 | PT.DAEKYUNG<br>INDAH | PO-PROC-15-0588-<br>4 | D1509,D1501,D1<br>415 | C.S, S.S | 2015.08 | Indonesia |

| No | CLIENT                    | PO No. / LOCATION | PROJECT                          | MATERIAL            | PERIOD  | REMARK    |
|----|---------------------------|-------------------|----------------------------------|---------------------|---------|-----------|
| 46 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-0826-2 | D1508                            | C.S                 | 2015.9  | Indonesia |
| 47 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-0825-3 | D1508                            | C.S                 | 2015.1  | Indonesia |
| 48 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1267   | D1514                            | C.S                 | 2015.11 | Indonesia |
| 49 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1417   | D1515,D1516                      | C.S                 | 2015.12 | Indonesia |
| 50 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1381-2 | D1517,D1508<br>etc               | C.S                 | 2015.12 | Indonesia |
| 51 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1380-1 | D1514                            | C.S                 | 2015.12 | Indonesia |
| 52 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1435   | D1516                            | C.S                 | 2015.12 | Indonesia |
| 53 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1293-2 | D1514                            | C.S                 | 2015.12 | Indonesia |
| 54 | PT.DAEKYUNG<br>INDAH      | PO-PROC-16-0090   | M1567                            | C.S                 | 2016.01 | Indonesia |
| 55 | PT.DAEKYUNG<br>INDAH      | PO-PROC-16-0011   | M1567                            | C.S                 | 2016.01 | Indonesia |
| 56 | PT.DAEKYUNG<br>INDAH      | PO-PROC-15-1475-1 | D1516                            | C.S                 | 2016.01 | Indonesia |
| 57 | DHACHANG HRSG             | SAMSUNG C&T CO.   | 대산 저가원료 PJT                      | C.S                 | 2014.05 | Korea     |
| 58 | DUKWON VALVES<br>CO.,LTD. | 세창상사              | HITACHI 태안화<br>력소 1호 증기          | S.S                 | 2014.05 | Korea     |
| 59 | DUKWON VALVES<br>CO.,LTD. | 엔투비               | 포스코 Riser<br>slide gate 250A     | S.S                 | 2014.06 | Korea     |
| 60 | WONIL T&I CO.,LTD.        | DHACHANG HRSG     | SAMSUNG C&T<br>CO./KNBC          | S.S/316L<br>OVERLAY | 2013.11 | Korea     |
| 61 | WONIL T&I CO.,LTD.        | DHACHANG HRSG     | SAMSUNG C&T<br>CO./KNBC          | C.S / S.S           | 2014.01 | Korea     |
| 62 | DUKWON VALVES<br>CO.,LTD. | DUK VALVES        | RISER GUIDE<br>LEG               | S.S                 | 2014.04 | Korea     |
| 63 | ALPEC CO.,LTD.            | ALPEC             | ICHTHYS PJT                      | C.S                 | 2014.03 | Korea     |
| 64 | DUKWON VALVES<br>CO.,LTD. | POSCO             | POSCO 3FINEX<br>Slide gate valve | S.S                 | 2014.02 | Korea     |
| 65 | WONIL T&I CO.,LTD.        | KOGAS             | 신한울 1,2<br>M220A                 | C.S / S.S           | 2013.09 | Korea     |
| 66 | WONIL T&I CO.,LTD.        | KOGAS             | 안산관리소 열교환<br>기                   | C.S                 | 2013.12 | Korea     |
| 67 | WONIL T&I CO.,LTD.        | KOGAS             | AN SAN GAS<br>HEATER             | C.S                 | 2013.12 | Korea     |
| 68 | WONIL T&I CO.,LTD.        | KOGAS             | TRIPOLI WEST                     | C.S                 | 2013.12 | Korea     |
| 69 | WONIL T&I CO.,LTD.        | YULCHON           | YULCHON<br>PLANT #1,2            | C.S+304S.S          | 2013.12 | Korea     |
| 70 | WONIL T&I CO.,LTD.        | KOGAS             | 안산 G/S 건설공사                      | C.S                 | 2013.12 | Korea     |



| No | CLIENT             | PO No. / LOCATION        | PROJECT               | MATERIAL | PERIOD  | REMARK |
|----|--------------------|--------------------------|-----------------------|----------|---------|--------|
| 71 | WONIL T&I CO.,LTD. | PR-13020-03              | GAS FILTER 2기(동두천 2기) | S.S      | 2014.01 | Korea  |
| 72 | WONIL T&I CO.,LTD. | 김포                       | PR-14015-01           | C.S      | 2014.01 | Korea  |
| 73 | WONIL T&I CO.,LTD. | KOGAS                    | TRIPOLI WEST          | C.S      | 2014.02 | Korea  |
| 74 | WONIL T&I CO.,LTD. | KOGAS                    | DAE GOT GAS HEATER    | C.S      | 2014.03 | Korea  |
| 75 | WONIL T&I CO.,LTD. | 수도산업/동안산기                | 인천 SCV(V-341 I/J)     | S.S      | 2014.04 | Korea  |
| 76 | WONIL T&I CO.,LTD. | KOGAS                    | GOE JE GAS HEATER     | S.S      | 2014.04 | Korea  |
| 77 | WONIL T&I CO.,LTD. | KOGAS                    | 삼성중공업(DNV선급)          | S.S      | 2014.04 | Korea  |
| 78 | WONIL T&I CO.,LTD. | PR-14001-06              | GOE JE GAS HEATER     | C.S      | 2014.06 | Korea  |
| 79 | WONIL T&I CO.,LTD. | PR-14003-1-04            | 한화건설 BISKRA           | S.S      | 2014.06 | Korea  |
| 80 | WONIL T&I CO.,LTD. | KOGAS                    | PR-11058-24,25(R1)    | S.S      | 2014.07 | Korea  |
| 81 | WONIL T&I CO.,LTD. | KOGAS                    | PR-13035-47,48,50     | S.S      | 2014.07 | Korea  |
| 82 | WONIL T&I CO.,LTD. | KOGAS                    | PR-13035-36,37,39     | C.S      | 2014.07 | Korea  |
| 83 | WONIL T&I CO.,LTD. | KOGAS                    | 초평 G/S 건설공사           | S.S      | 2014.08 | Korea  |
| 84 | WONIL T&I CO.,LTD. | KOGAS                    | PR-11023-05,08(R1)    | S.S      | 2014.08 | Korea  |
| 85 | WONIL T&I CO.,LTD. | KOGAS                    | PR-11023-16           | S.S      | 2014.09 | Korea  |
| 86 | WONIL T&I CO.,LTD. | KOGAS                    | PR-13035              | C.S      | 2014.09 | Korea  |
| 87 | WONIL T&I CO.,LTD. | KOGAS                    | KOGAS FILTER 25 SETS  | S.S      | 2014.12 | Korea  |
| 88 | WONIL T&I CO.,LTD. | PO-14-006                | PR-14006-31           | S.S      | 2014.12 | Korea  |
| 89 | WONIL T&I CO.,LTD. | SAMSUNG HEAVY INDUSTRIES | BW FSRU PJT / DNV     | S.S      | 2014.12 | Korea  |
| 90 | WONIL T&I CO.,LTD. | PO-11-102                | PR-11102-27           | S.S      | 2015.01 | Korea  |
| 91 | WONIL T&I CO.,LTD. | PO-14-006                | PR-14006-37           | S.S      | 2015.01 | Korea  |
| 92 | WONIL T&I CO.,LTD. | PO-14-018                | JIN HAE GAS HEATER    | C.S      | 2015.01 | Korea  |
| 93 | WONIL T&I CO.,LTD. | PO-14-018                | PR-14018-04           | C.S      | 2015.02 | Korea  |
| 94 | WONIL T&I CO.,LTD. | PO-14-015                | KOGAS FILTER 25 SETS  | S.S      | 2015.02 | Korea  |
| 95 | WONIL T&I CO.,LTD. | PO-14-016                | PR-14016-01,02 / BV   | S.S      | 2015.03 | Korea  |

| No  | CLIENT             | PO No. / LOCATION | PROJECT                                 | MATERIAL | PERIOD  | REMARK |
|-----|--------------------|-------------------|-----------------------------------------|----------|---------|--------|
| 96  | WONIL T&I CO.,LTD. | PO-11-058         | UAE BARAKAH 1,2 ESW DEBRIS              | S.S      | 2015.04 | Korea  |
| 97  | WONIL T&I CO.,LTD. | PO-15-004-12      | QIU YU LING SCV PJT SMV 1SET(E-2201)    | C.S, S.S | 2015.06 | Korea  |
| 98  | WONIL T&I CO.,LTD. | PO-15-002         | SINOPEC SCV PJT SMV 3                   | C.S, S.S | 2015.06 | Korea  |
| 99  | WONIL T&I CO.,LTD. | PO-15-007         | SENDOUT GAS FILTER                      | C.S      | 2015.07 | Korea  |
| 100 | WONIL T&I CO.,LTD. | PO-15-008         | KOGAS FILTER 12 SETS (15008-101-000-01) | C.S      | 2015.09 | Korea  |
| 101 | WONIL T&I CO.,LTD. | PO-15-008         | KOGAS FILTER 12 SETS (15008-MA-000-01)  | C.S      | 2015.11 | Korea  |
| 102 | PMS CO.,LTD.       | PMS-PO-0611       | HM CO                                   | C.S      | 2015.06 | Korea  |
| 103 | PMS CO.,LTD.       | PMS-PO-0614       | KSM.CO.LTD                              | S.S      | 2015.06 | Korea  |
| 104 | PMS CO.,LTD.       | PMS-PO-0705       | SEKWANG ENG                             | S.S      | 2015.07 | Korea  |
| 105 | PMS CO.,LTD.       | PMS-PO-0720       | SEKWANG ENG                             | C.S, S.S | 2015.07 | Korea  |
| 106 | PMS CO.,LTD.       | PMS-PO-0717       | GSM                                     | S.S      | 2015.07 | Korea  |
| 107 | PMS CO.,LTD.       | PMS-PO-0719       | GSM                                     | C.S, S.S | 2015.07 | Korea  |
| 108 | PMS CO.,LTD.       | PMS-PO-0802       | SEKWANG ENG                             | S.S      | 2015.08 | Korea  |
| 109 | PMS CO.,LTD.       | PMS-PO-0909       | SEKWANG ENG                             | S.S      | 2015.09 | Korea  |
| 110 | PMS CO.,LTD.       | PMS-PO-1001       | SEKWANG ENG                             | S.S      | 2015.1  | Korea  |
| 111 | PMS CO.,LTD.       | PMS-PO-1004       | SEKWANG ENG                             | S.S      | 2015.1  | Korea  |
| 112 | PMS CO.,LTD.       | PMS-PO-1049       | SEKWANG ENG                             | S.S      | 2015.1  | Korea  |
| 113 | PMS CO.,LTD.       | PMS-PO-0118       | SEKWANG ENG                             | S.S      | 2015.11 | Korea  |
| 114 | PMS CO.,LTD.       | PMS-PO-1126       | SEKWANG ENG                             | S.S      | 2015.11 | Korea  |
| 115 | PMS CO.,LTD.       | PMS-PO-1207-1     | HM CO                                   | C.S      | 2015.12 | Korea  |
| 116 | PMS CO.,LTD.       | PMS-PO-1126       | SEKWANG ENG                             | C.S, S.S | 2015.12 | Korea  |
| 117 | PMS CO.,LTD.       | PMS-PO-1222       | GSM                                     | S.S      | 2015.12 | Korea  |
| 118 | PMS CO.,LTD.       | PMS-PO-1223       | SEKWANG ENG                             | S.S      | 2015.12 | Korea  |
| 119 | PMS CO.,LTD.       | PMS-PO-1227       | SEKWANG ENG                             | S.S      | 2015.12 | Korea  |
| 120 | PMS CO.,LTD.       | PMS-PO-0105       | SEKWANG ENG                             | S.S      | 2016.01 | Korea  |



| No  | CLIENT        | PO No. /<br>LOCATION | PROJECT                                | MATERIAL | PERIOD  | REMARK |
|-----|---------------|----------------------|----------------------------------------|----------|---------|--------|
| 121 | PMS CO.,LTD.  | PMS-PO-0106          | SEKWANG ENG                            | S.S      | 2016.01 | Korea  |
| 122 | PMS CO.,LTD.  | PMS-PO-0114          | SEKWANG ENG                            | S.S      | 2016.01 | Korea  |
| 123 | PMS CO.,LTD.  | PMS-PO-0123          | SEKWANG ENG                            | S.S      | 2016.01 | Korea  |
| 124 | IPEG ENG Ltd. | IAD1432-PO-50995     | STAR PROJECT                           | C.S, S.S | 2015.05 | Korea  |
| 125 | IPEG ENG Ltd. | ISC1506-PO-51100     | CLEAN FUELS PJT                        | C.S      | 2015.06 | Korea  |
| 126 | IPEG ENG Ltd. | IAD1432-PO-51338     | STAR PROJECT                           | C.S      | 2015.09 | Korea  |
| 127 | IPEG ENG Ltd. | ISK1508-PO-51429     | KARBALA<br>REFINERY                    | S.S      | 2015.1  | Korea  |
| 128 | IPEG ENG Ltd. | IAD1432-PO-51448     | STAR PROJECT                           | C.S, S.S | 2015.1  | Korea  |
| 129 | IPEG ENG Ltd. | ISC1450-PO-51468     | ZUBAIR OIL FIELD<br>DEVELOPMENT        | C.S      | 2015.11 | Korea  |
| 130 | IPEG ENG Ltd. | IAD1432-PO-51495     | STAR PROJECT                           | C.S, S.S | 2015.11 | Korea  |
| 131 | IPEG ENG Ltd. | ISK1508-PO-51431     | KARBALA<br>REFINERY                    | C.S      | 2015.1  | Korea  |
| 132 | IPEG ENG Ltd. | ISC1506-PO-51547     | CLEAN FUELS PJT                        | C.S      | 2015.12 | Korea  |
| 133 | IPEG ENG Ltd. | ISC1506-PO-51530     | CLEAN FUELS PJT                        | C.S      | 2015.12 | Korea  |
| 134 | IPEG ENG Ltd. | IAD1544-PO-51605     | SAMAC MMA-<br>PMMA PJT                 | C.S, S.S | 2015.12 | Korea  |
| 135 | IPEG ENG Ltd. | IAD1544-PO-51549     | SAMAC MMA-<br>PMMA PJT                 | C.S, S.S | 2015.12 | Korea  |
| 136 | IPEG ENG Ltd. | IAD1434-PO-51632     | STAR PROJECT                           | C.S      | 2016.01 | Korea  |
| 137 | IPEG ENG Ltd. | ISC1506-PO-51666     | CLEAN FUELS PJT                        | C.S      | 2016.01 | Korea  |
| 138 | JUAN TECH     | 2015-072             | Increased<br>Metallocene/TTCL          | S.S      | 2015.01 | Korea  |
| 139 | JUAN TECH     | 2015-306             | RPCL PJT                               | C.S, S.S | 2015.04 | Korea  |
| 140 | JUAN TECH     | 2015-448             | ATLAS COPCO<br>DAELIM SOHAR            | C.S      | 2015.08 | Korea  |
| 141 | JUAN TECH     | 2015-461             | 고리 3,4호기 냉각기                           | C.S      | 2015.08 | Korea  |
| 142 | JUAN TECH     | 2015-615             | RMS(77-No.2 KD<br>HDS)                 | C.S      | 2015.09 | Korea  |
| 143 | JUAN TECH     | 2015-624             | HANYANG Ind.                           | C.S      | 2015.09 | Korea  |
| 144 | JUAN TECH     | 2015-646             | Punta Catalina_HP<br>Feedwater Heaters | C.S      | 2015.1  | Korea  |
| 145 | JUAN TECH     | 2015-742             | KALA                                   | C.S      | 2015.1  | Korea  |

| No  | CLIENT    | PO No. / LOCATION | PROJECT                                  | MATERIAL | PERIOD  | REMARK |
|-----|-----------|-------------------|------------------------------------------|----------|---------|--------|
| 146 | JUAN TECH | 2015-674          | Theddingworth_DTR&Storage TK             | C.S      | 2015.1  | Korea  |
| 147 | JUAN TECH | 2015-612          | Theddingworth_DTR&Storage TK             | C.S      | 2015.09 | Korea  |
| 148 | JUAN TECH | 2015-563          | South Helwan in Egypt_Sur face Condenser | C.S      | 2015.09 | Korea  |
| 149 | JUAN TECH | 2015-600          | South Helwan in Egypt_Sur face Condenser | S.S      | 2015.09 | Korea  |
| 150 | JUAN TECH | 2015-653          | MV-29/Modec PJT                          | C.S      | 2015.1  | Korea  |
| 151 | JUAN TECH | 2015-706          | MV-29/Modec PJT                          | C.S, S.S | 2015.1  | Korea  |
| 152 | JUAN TECH | 2015-731          | KNPC CFP PJT                             | C.S      | 2015.1  | Korea  |
| 153 | JUAN TECH | 2015-743          | MV-29/Modec PJT                          | C.S, S.S | 2015.1  | Korea  |
| 154 | JUAN TECH | 2015-778          | MV-29/Modec PJT                          | S.S      | 2015.11 | Korea  |
| 155 | JUAN TECH | 2015-786          | MV-29/Modec PJT                          | S.S      | 2015.11 | Korea  |
| 156 | JUAN TECH | 2015-794          | UKAN PJT                                 | C.S      | 2015.11 | Korea  |
| 157 | JUAN TECH | 2015-804          | MV-29/Modec PJT                          | C.S      | 2015.11 | Korea  |
| 158 | JUAN TECH | 2015-821          | CPC PJT                                  | C.S      | 2015.11 | Korea  |
| 159 | JUAN TECH | 2015-825          | Nishi Nagoya_Condenser                   | C.S      | 2015.11 | Korea  |
| 160 | JUAN TECH | 2015-826          | Nishi Nagoya_Condenser                   | C.S      | 2015.11 | Korea  |
| 161 | JUAN TECH | 2015-832          | 소음기 BO-2151-C 나주                         | C.S      | 2015.12 | Korea  |
| 162 | JUAN TECH | 2015-833          | MVR PJT                                  | C.S      | 2015.12 | Korea  |
| 163 | JUAN TECH | 2015-839          | UOP Libra FPSO PJT                       | S.S      | 2015.12 | Korea  |
| 164 | JUAN TECH | 2015-843          | 국방과학연구소                                  | C.S      | 2015.12 | Korea  |
| 165 | JUAN TECH | 2015-849          | KNPC CFP PJT                             | C.S      | 2015.12 | Korea  |
| 166 | JUAN TECH | 2015-854          | 소음기 BO-2151-C 나주                         | S.S      | 2015.12 | Korea  |
| 167 | JUAN TECH | 2015-859          | Mong Duong 1 Thermal Power Plant         | C.S      | 2015.12 | Korea  |
| 168 | JUAN TECH | 2015-860          | Mong Duong 1 Thermal Power Plant         | C.S      | 2015.12 | Korea  |
| 169 | JUAN TECH | 2015-879          | Nishi Nagoya_Condenser                   | C.S      | 2015.12 | Korea  |
| 170 | JUAN TECH | 2015-890          | UKAN PJT                                 | C.S      | 2015.12 | Korea  |



| No  | CLIENT     | PO No. / LOCATION | PROJECT                       | MATERIAL | PERIOD  | REMARK |
|-----|------------|-------------------|-------------------------------|----------|---------|--------|
| 171 | JUAN TECH  | 2015-903          | HANYANG F&E                   | C.S      | 2015.12 | Korea  |
| 172 | JUAN TECH  | 2015-911          | 춘천 집단에너지<br>_Condenser        | C.S, S.S | 2015.12 | Korea  |
| 173 | JUAN TECH  | 2016-017          | SOHAR(1800U<br>NIT) PJT       | C.S      | 2016.01 | Korea  |
| 174 | JUAN TECH  | 2016-024          | Nishi<br>Nagoya_Conde<br>nser | C.S      | 2016.01 | Korea  |
| 175 | JUAN TECH  | 2016-007          | MV-29/Modec<br>PJT            | S.S      | 2016.01 | Korea  |
| 176 | JUAN TECH  | 2016-010          | MV-29/Modec<br>PJT            | C.S, S.S | 2016.01 | Korea  |
| 177 | JUAN TECH  | 2016-046          | TGPC PJT                      | C.S, S.S | 2016.01 | Korea  |
| 178 | JUAN TECH  | 2016-056          | SOHAR(1800U<br>NIT) PJT       | C.S      | 2016.01 | Korea  |
| 179 | JUAN TECH  | 2016-057          | 산소 압축기<br>VENT구               | S.S      | 2016.01 | Korea  |
| 180 | JUAN TECH  | 2016-061          | HANYANG F&E                   | C.S      | 2015.12 | Korea  |
| 181 | JUAN TECH  | 2016-068          | MV-29/Modec<br>PJT            | S.S      | 2016.01 | Korea  |
| 182 | H.C. PLANT | 20150727-01       | JUNGBONG                      | S.S      | 2015.07 | Korea  |
| 183 | H.C. PLANT | 20151104-01       | JUNGBONG                      | S.S      | 2015.11 | Korea  |
| 184 | H.C. PLANT | 20151211-01       | JUNGBONG                      | C.S, S.S | 2015.12 | Korea  |
| 185 | H.C. PLANT | 20151218-01       | JUNGBONG                      | S.S      | 2015.12 | Korea  |
| 186 | H.C. PLANT | 20151223-01       | JUNGBONG                      | C.S, S.S | 2015.12 | Korea  |
| 187 | H.C. PLANT | 20151228-01       | JUNGBONG                      | S.S      | 2015.12 | Korea  |
| 188 | H.C. PLANT | 20160113-01       | JUNGBONG                      | S.S      | 2016.01 | Korea  |
| 189 | H.C. PLANT | 20160115-01       | JUNGBONG                      | S.S      | 2016.01 | Korea  |

| No  | CLIENT            | LOCATION          | PROJECT               | MATERIAL | PERIOD  | REMARK    |
|-----|-------------------|-------------------|-----------------------|----------|---------|-----------|
| 190 | PT.DAEKYUNG INDAH | PO-PROC-16-1158-5 | D1615                 | C.S, S.S | 2017.01 | Indonesia |
| 191 | PT.DAEKYUNG INDAH | PO-PROC-16-1208-1 | D1613                 | C.S, S.S | 2017.01 | Indonesia |
| 192 | PT.DAEKYUNG INDAH | PO-PROC-16-1211   | D1613                 | C.S, S.S | 2017.01 | Indonesia |
| 193 | PT.DAEKYUNG INDAH | PO-PROC-16-1077-4 | D1612                 | C.S, S.S | 2017.01 | Indonesia |
| 194 | PT.DAEKYUNG INDAH | PO-PROC-16-1206   | D1613                 | C.S, S.S | 2017.01 | Indonesia |
| 195 | PT.DAEKYUNG INDAH | PO-PROC-16-1258   | D1615,D1613           | C.S, S.S | 2017.01 | Indonesia |
| 196 | PT.DAEKYUNG INDAH | PO-PROC-16-1255   | M1643                 | C.S, S.S | 2017.02 | Indonesia |
| 197 | PT.DAEKYUNG INDAH | PO-PROC-17-0075   | M1701                 | C.S, S.S | 2017.02 | Indonesia |
| 198 | PT.DAEKYUNG INDAH | PO-PROC-17-0011   | D1612                 | C.S, S.S | 2017.02 | Indonesia |
| 199 | PT.DAEKYUNG INDAH | PO-PROC-17-0007-1 | M1701                 | C.S, S.S | 2017.02 | Indonesia |
| 200 | PT.DAEKYUNG INDAH | PO-PROC-16-1272   | D1612                 | C.S, S.S | 2017.02 | Indonesia |
| 201 | PT.DAEKYUNG INDAH | PO-PROC-16-1234-1 | D1613                 | C.S, S.S | 2017.02 | Indonesia |
| 202 | PT.DAEKYUNG INDAH | PO-PROC-17-0097   | D1613                 | C.S, S.S | 2017.02 | Indonesia |
| 203 | PT.DAEKYUNG INDAH | PO-PROC-16-1190   | D1613                 | C.S, S.S | 2017.03 | Indonesia |
| 204 | PT.DAEKYUNG INDAH | PO-PROC-16-1163   | D1613                 | C.S, S.S | 2017.03 | Indonesia |
| 205 | PT.DAEKYUNG INDAH | PO-PROC-17-0053   | M1701                 | C.S, S.S | 2017.03 | Indonesia |
| 206 | PT.DAEKYUNG INDAH | PO-PROC-16-1168-4 | D1613                 | C.S, S.S | 2017.03 | Indonesia |
| 207 | PT.DAEKYUNG INDAH | PO-PROC-16-1153-2 | D1612                 | C.S, S.S | 2017.03 | Indonesia |
| 208 | PT.DAEKYUNG INDAH | PO-PROC-16-1234-1 | D1613                 | C.S, S.S | 2017.03 | Indonesia |
| 209 | PT.DAEKYUNG INDAH | PO-PROC-17-0176-1 | M1712                 | C.S, S.S | 2017.04 | Indonesia |
| 210 | PT.DAEKYUNG INDAH | PO-PROC-17-0177   | M1712                 | C.S, S.S | 2017.04 | Indonesia |
| 211 | PT.DAEKYUNG INDAH | PO-PROC-17-0196-1 | M1715,M1716,<br>M1717 | C.S, S.S | 2017.04 | Indonesia |
| 212 | PT.DAEKYUNG INDAH | PO-PROC-17-0202   | D1701                 | C.S, S.S | 2017.04 | Indonesia |
| 213 | PT.DAEKYUNG INDAH | PO-PROC-17-0299   | D1605, M1704          | C.S, S.S | 2017.04 | Indonesia |
| 214 | PT.DAEKYUNG INDAH | PO-PROC-17-0220-1 | M1707,M1710,<br>M1704 | C.S, S.S | 2017.04 | Indonesia |



| No  | CLIENT            | LOCATION          | PROJECT                    | MATERIAL | PERIOD  | REMARK    |
|-----|-------------------|-------------------|----------------------------|----------|---------|-----------|
| 215 | PT.DAEKYUNG INDAH | PO-PROC-17-0335   | M1704                      | C.S, S.S | 2017.06 | Indonesia |
| 216 | PT.DAEKYUNG INDAH | PO-PROC-17-0366   | M1726                      | C.S, S.S | 2017.06 | Indonesia |
| 217 | PT.DAEKYUNG INDAH | PO-PROC-17-0512   | D1709                      | C.S, S.S | 2017.07 | Indonesia |
| 218 | PT.DAEKYUNG INDAH | PO-PROC-17-0504   | D1704, D1702, D1707        | C.S, S.S | 2017.07 | Indonesia |
| 219 | PT.DAEKYUNG INDAH | PO-PROC-17-0480-1 | D1709                      | C.S, S.S | 2017.07 | Indonesia |
| 220 | PT.DAEKYUNG INDAH | PO-PROC-17-0299   | D1605, M1704               | C.S, S.S | 2017.07 | Indonesia |
| 221 | PT.DAEKYUNG INDAH | PO-PROC-17-0472   | D1704                      | C.S, S.S | 2017.07 | Indonesia |
| 222 | PT.DAEKYUNG INDAH | PO-PROC-17-0523   | D1702,D1703, D1704.D1707   | C.S, S.S | 2017.08 | Indonesia |
| 223 | PT.DAEKYUNG INDAH | PO-PROC-17-0462   | D1703                      | C.S, S.S | 2017.08 | Indonesia |
| 224 | PT.DAEKYUNG INDAH | PO-PROC-17-0524   | D1703                      | C.S, S.S | 2017.08 | Indonesia |
| 225 | PT.DAEKYUNG INDAH | PO-PROC-17-0504   | D1704, D1702, D1707        | C.S, S.S | 2017.08 | Indonesia |
| 226 | PT.DAEKYUNG INDAH | PO-PROC-17-0615   | M1744, M1748, M1733        | C.S, S.S | 2017.08 | Indonesia |
| 227 | PT.DAEKYUNG INDAH | PO-PROC-17-0572   | M1725                      | C.S, S.S | 2017.08 | Indonesia |
| 228 | PT.DAEKYUNG INDAH | PO-PROC-17-0604-3 | D1705                      | C.S, S.S | 2017.09 | Indonesia |
| 229 | PT.DAEKYUNG INDAH | PO-PROC-17-0686   | D1716,M1758                | C.S, S.S | 2017.09 | Indonesia |
| 230 | PT.DAEKYUNG INDAH | PO-PROC-17-0607   | M1758                      | C.S, S.S | 2017.09 | Indonesia |
| 231 | PT.DAEKYUNG INDAH | PO-PROC-17-0707-2 | D1716, D1703, D1705. M1753 | C.S, S.S | 2017.1  | Indonesia |
| 232 | PT.DAEKYUNG INDAH | PO-PROC-17-0746   | M1761                      | C.S, S.S | 2017.1  | Indonesia |
| 233 | PT.DAEKYUNG INDAH | PO-PROC-17-0770   | M1752                      | C.S, S.S | 2017.1  | Indonesia |
| 234 | PT.DAEKYUNG INDAH | PO-PROC-17-0785-4 | D1708                      | C.S, S.S | 2017.11 | Indonesia |
| 235 | PT.DAEKYUNG INDAH | PO-PROC-17-0882   | M1725                      | C.S, S.S | 2017.11 | Indonesia |
| 236 | PT.DAEKYUNG INDAH | PO-PROC-17-1005   | D1702                      | C.S, S.S | 2017.11 | Indonesia |
| 237 | PT.DAEKYUNG INDAH | PO-PROC-17-0992   | M1761                      | C.S, S.S | 2017.11 | Indonesia |
| 238 | PT.DAEKYUNG INDAH | PO-PROC-17-0909   | D1710                      | C.S, S.S | 2017.11 | Indonesia |
| 239 | PT.DAEKYUNG INDAH | PO-PROC-17-0769-3 | D1711                      | C.S, S.S | 2017.12 | Indonesia |
| 240 | PT.DAEKYUNG INDAH | PO-PROC-17-0801-4 | D1712                      | C.S, S.S | 2017.12 | Indonesia |

| No  | CLIENT               | LOCATION                     | PROJECT                   | MATERIAL            | PERIOD     | REMARK    |
|-----|----------------------|------------------------------|---------------------------|---------------------|------------|-----------|
| 241 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0837-2            | D1708                     | C.S, S.S            | 2017.12    | Indonesia |
| 242 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0942              | D1714                     | C.S, S.S            | 2017.12    | Indonesia |
| 243 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0930              | D1714                     | C.S, S.S            | 2017.12    | Indonesia |
| 244 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-1039              | D1713,D1711               | C.S, S.S            | 2017.12    | Indonesia |
| 245 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0943-1            | D1713,D1711               | C.S, S.S            | 2017.12    | Indonesia |
| 246 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0909              | D1710                     | C.S, S.S            | 2017.12    | Indonesia |
| 247 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0852-5            | D1710                     | C.S, S.S            | 2017.12    | Indonesia |
| 248 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0888-<br>2        | D1710, D1713              | C.S, S.S            | 2017.12    | Indonesia |
| 249 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0942              | D1714                     | C.S, S.S            | 2017.12    | Indonesia |
| 250 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0948-<br>1        | D1715                     | C.S, S.S            | 2017.12    | Indonesia |
| 251 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0801-<br>4        | D1712                     | C.S, S.S            | 2017.12    | Indonesia |
| 252 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-0929-<br>2        | D1713                     | C.S, S.S            | 2017.12    | Indonesia |
| 253 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-1109              | D1710,D1715               | C.S, S.S            | 2017.12    | Indonesia |
| 254 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-1229              | M1778                     | C.S, S.S            | 2017.12    | Indonesia |
| 255 | PT.DAEKYUNG<br>INDAH | PO-PROC-17-1091-1            | D1710                     | C.S, S.S            | 2017.12    | Indonesia |
| 256 | IPEC                 | IDC1635&1636                 | KNPC                      | C.S, S.S            | 2017.01~08 | KOREA     |
| 257 | IPEC                 | IDD1524                      | KOC / DODSAL /<br>FWTID   | C.S, S.S<br>OVERLAY | 2017.01~08 | KOREA     |
| 258 | IPEC                 | IHW1640&IHW1651-<br>PO-52306 | 한화건설                      | C.S, S.S            | 2017.01~02 | KOREA     |
| 259 | IPEC                 | ILC1725                      | LG건설                      | C.S, S.S            | 2017.01~09 | KOREA     |
| 260 | PSC                  | PSC-PO-17-001                | FADHILI PJT               | C.S, S.S            | 2017.04~09 | KOREA     |
| 261 | PSC                  | PSC-PO-17-004                | FADHILI PJT               | C.S, S.S            | 2017.04~09 | KOREA     |
| 262 | PSC                  | PSC-PO-17-005                | FADHILI PJT               | C.S, S.S            | 2017.08    | KOREA     |
| 263 | PSC                  | PSC-PO-17-017-03             | GS Caltex                 | C.S, S.S            | 2017.08    | KOREA     |
| 264 | PSC                  | P17-06-009-PO-<br>016        | Pars Oil & Gas<br>Company | C.S, S.S            | 2017.09    | KOREA     |
| 265 | PSC                  | P17-06-012-PO-013            | Pars Oil & Gas<br>Company | C.S, S.S            | 2017.09    | KOREA     |



| No  | CLIENT  | LOCATION          | PROJECT                    | MATERIAL | PERIOD  | REMARK |
|-----|---------|-------------------|----------------------------|----------|---------|--------|
| 266 | PSC     | P17-06-012-PO-012 | Pars Oil & Gas Company     | C.S, S.S | 2017.1  | KOREA  |
| 267 | PSC     | P17-06-012-PO-006 | Pars Oil & Gas Company     | C.S, S.S | 2017.1  | KOREA  |
| 268 | PSC     | P17-06-012-PO-008 | Pars Oil & Gas Company     | C.S, S.S | 2017.1  | KOREA  |
| 269 | PSC     | P17-06-012-PO-007 | Pars Oil & Gas Company     | C.S, S.S | 2017.1  | KOREA  |
| 270 | PSC     | P17-06-012-PO-006 | Pars Oil & Gas Company     | C.S, S.S | 2017.1  | KOREA  |
| 271 | PSC     | P17-06-019-PO-006 | Pars Oil & Gas Company     | C.S, S.S | 2017.1  | KOREA  |
| 272 | PSC     | P17-06-012-PO-006 | Pars Oil & Gas Company     | C.S, S.S | 2017.11 | KOREA  |
| 273 | PSC     | P17-06-012-PO-026 | Pars Oil & Gas Company     | C.S, S.S | 2017.12 | KOREA  |
| 274 | PMS     | PO-204            | Sekwang(GS E&C)            | C.S, S.S | 2017.02 | KOREA  |
| 275 | PMS     | PO-0302           | Sekwang(GS E&C)            | C.S, S.S | 2017.03 | KOREA  |
| 276 | PMS     | PO-0417           | Sekwang(GS E&C)            | C.S, S.S | 2017.04 | KOREA  |
| 277 | PMS     | PO-0605           | Sekwang(GS E&C)            | C.S, S.S | 2017.06 | KOREA  |
| 278 | PMS     | PO-0512           | Sekwang(GS E&C)            | C.S, S.S | 2017.06 | KOREA  |
| 279 | PSC     | PO-0606           | Sekwang(GS E&C)            | C.S, S.S | 2017.06 | KOREA  |
| 280 | KPP     | KP16-16-012-1551  | KALSEL-1(HYUNDAI E&C)      | C.C      | 2017.04 | KOREA  |
| 281 | KPP     | KP17-15-017-0375  | 포천 CHIP PJT(GS E&C)        | C.C      | 2017.04 | KOREA  |
| 282 | PTK     | juan-2018-024     | IMC/SKC P-SF PITCH FEEDING | C.S, S.S | 2018    | KOREA  |
| 283 | 한양인더스트리 | juan-2018-155     | LG MMA M3 REVAMPING        | C.S, S.S | 2018    | KOREA  |
| 284 | PTK     | juan-2018-181     | OCI 말레이시아 필터 하우스           | C.S, S.S | 2018    | KOREA  |
| 285 | PTK     | juan-2018-180     | OCI 말레이시아 필터 하우스           | C.S, S.S | 2018    | KOREA  |
| 286 | PTK     | juan-2018-182     | OCI 말레이시아 필터 하우스           | C.S, S.S | 2018    | KOREA  |
| 287 | PTK     | juan-2018-186     | OCI 말레이시아 필터 하우스           | C.S, S.S | 2018    | KOREA  |
| 288 | 한양인더스트리 | juan-2018-188     | HDO PJT                    | C.S, S.S | 2018    | KOREA  |
| 289 | 한양인더스트리 | juan-2018-213     | LG MMA M3 REVAMPING 2차부    | C.S, S.S | 2018    | KOREA  |
| 290 | PTK     | juan-2018-333     | LG화학 P.I증설 FILTER HSG      | C.S, S.S | 2018    | KOREA  |

| No  | CLIENT             | LOCATION                 | PROJECT                     | MATERIAL       | PERIOD | REMARK |
|-----|--------------------|--------------------------|-----------------------------|----------------|--------|--------|
| 291 | CORE Plant Co.,LTD | Lebe Industrial Co.,Ltd  | Petrobras FPSO Carioca MV30 | C.S/S.S        | 2018   | KOREA  |
| 292 | JEON JIN entech    |                          | HPC PJT                     | C.S            | 2018   | KOREA  |
| 293 | WINTECH            |                          | WT20019                     | C.S/S.S        | 2019   | KOREA  |
| 294 | CORE Plant Co.,LTD | Lebe Industrial Co.,Ltd  | Petrobras FPSO Carioca MV31 | C.S/S.S        | 2019   | KOREA  |
| 295 | BYUCK GANG         | AMORE                    |                             | C.S/S.S        | 2019   | KOREA  |
| 296 | HAN SHIN METAL     | PSC CORP.                | M2 MTBE PJT                 | C.S/S.S        | 2020   | KOREA  |
| 297 | YOUNG HAE Ltd.     | HSD                      | HSD-SCR PJT                 | C.S/S.S        | 2020   | KOREA  |
| 298 | BMS                | MITSUBISHI POWER LTD     | MARLIM AZUL I P IT          | C.S, S.S/A6061 | 2020   | KOREA  |
| 299 | KYUNG NAM          | HYOSUNG                  |                             | S.S            | 2021   | KOREA  |
| 300 | CORE Plant Co.,LTD |                          | WEL/Scarborough FPU         | C.S/S.S        | 2021   | KOREA  |
| 301 | CORE Plant Co.,LTD | Lebe Industrial Co.,Ltd  | MODEC PA14 Bacalhau FPSO    | C.S/S.S        | 2021   | KOREA  |
| 302 | HAN SHIN METAL     | PSC CORP.                | M2 MTBE PJT                 | C.S/S.S        | 2021   | KOREA  |
| 303 | YOUNG HAE Ltd.     |                          | HSD-SCR PJT                 | C.S            | 2021   | KOREA  |
| 304 | JUAN Co.,Ltd       |                          | 이천 CCPP PJT                 | C.S            | 2021   | KOREA  |
| 305 | HAN SHIN METAL     | PSC CORP.                | OCI 광양 GYHP PJT             | C.S/S.S        | 2021   | KOREA  |
| 306 | WINTECH            | 한국석유공업                   | WT21002                     | S.S            | 2021   | KOREA  |
| 307 | SKF CO.,LTD        | MAXICO                   | DESARROLLO DEL PJT          | C.S/S.S        | 2021   | KOREA  |
| 308 | SKF CO.,LTD        | MAXICO                   | DESARROLLO DEL PJT          | SB564/A6061    | 2021   | KOREA  |
| 309 | CORE Plant Co.,LTD | Lebe Industrial Co., Ltd | MODEC PA08 sangomarFPSO     | S.S            | 2021   | KOREA  |
| 310 | CORE Plant Co.,LTD |                          | SCAR FPU                    | S.S/F51        | 2022   | KOREA  |
| 311 | HAN SHIN METAL     | INDONASIA                |                             | C.S/S.S        | 2022   | KOREA  |
| 312 | KYUNG NAM          | 효성                       |                             | S.S            | 2022   | KOREA  |
| 313 | CORE Plant Co.,LTD |                          | ISS JERUN                   | S.S            | 2022   | KOREA  |
| 314 | HAN SHIN METAL     | PSC                      | LG CHEM                     | C.S/S.S        | 2022   | KOREA  |
| 315 | HAN SHIN METAL     | P.T DAE KYUNG            |                             | S.S            | 2022   | KOREA  |
| 316 | CORE Plant Co.,LTD | Labe Industrial Co.,Ltd  | MODEC PA08 sangomarFPSO     | S.S/A694F65    | 2022   | KOREA  |
| 317 | CORE Plant Co.,LTD | Labe Industrial Co.,Ltd  | MODEC PA14 sangomarFPSO     | C.S/S.S        | 2022   | KOREA  |



| No  | CLIENT             | LOCATION                | PROJECT                      | MATERIAL     | PERIOD | REMARK |
|-----|--------------------|-------------------------|------------------------------|--------------|--------|--------|
| 318 | CORE Plant Co.,LTD | SINGAPORE               | MODEC / EM-Uaru EPSO         | C.S/S.S      | 2023   | KOREA  |
| 319 | CORE Plant Co.,LTD |                         | Hu-Chema 5 Nitric Acid Plant | S.S          | 2023   | KOREA  |
| 320 | CORE Plant Co.,LTD |                         | MODEC / PA14 Bacalban        | F51          | 2023   | KOREA  |
| 321 | CORE Plant Co.,LTD | DL Chemical             | EPO Planr                    | C.S/S.S      | 2023   | KOREA  |
| 322 | HAN SHIN METAL     | 고려플랜트                   |                              | C.S/S.S      | 2023   | KOREA  |
| 323 | HAN SHIN METAL     | PSC CORP.               | M2 MTBE PJT                  | C.S/S.S      | 2023   | KOREA  |
| 324 | YOUNG HAE Ltd.     |                         | HSD-SCR PJT                  | C.S/S.S      | 2023   | KOREA  |
| 325 | KYUNG NAM          | HYOSUNG                 |                              | C.S          | 2023   | KOREA  |
| 326 | KYUNG NAM          | HYOSUNG                 |                              | S.S          | 2023   | KOREA  |
| 327 | SKF CO.,LTD        | MAXICO                  |                              | C.S          | 2023   | KOREA  |
| 328 | CORE Plant Co.,LTD | Lebe Industrial Co.,Ltd | MODEC PA14 Bacalban EPSO     | C.S/S.S      | 2023   | KOREA  |
| 329 | HAN SHIN METAL     | INDONASIA               |                              | C.S/S.S      | 2023   | KOREA  |
| 330 | HAN SHIN METAL     | PSC                     | LG CHEM PJT                  | S.S          | 2023   | KOREA  |
| 331 | HAN SHIN METAL     | PSC                     | C3 IPA EXPANSION P.IT        | C.S/S.S      | 2023   | KOREA  |
| 332 | HAN SHIN METAL     | PT DAEKYUNG             |                              | SB151-C70600 | 2024   | KOREA  |
| 333 | HAN SHIN METAL     | PSC                     | GS CALTEX                    | C.S/S.S      | 2024   | KOREA  |
| 334 | HAN SHIN METAL     | PSC                     | GS 바이오 NO.2 P.IT             | C.S/S.S      | 2024   | KOREA  |
| 335 | CORE Plant Co.,LTD |                         | MODEC/Equinor RAIA EPSO      | F51/F53      | 2024   | KOREA  |
| 336 | CORE Plant Co.,LTD |                         | SHELL Merox 3 P.IT           | S.S          | 2024   | KOREA  |
| 337 | CORE Plant Co.,LTD |                         | MODEC/EM-Uaru EPSO           | A694F65      | 2024   | KOREA  |
| 338 | CORE Plant Co.,LTD |                         | MODEC/EM-Uaru EPSO           | TEE외 S.S     | 2024   | KOREA  |
| 339 | CORE Plant Co.,LTD |                         | MODEC/Equinor RAIA EPSO      | A694F70      | 2024   | KOREA  |
| 340 | CORE Plant Co.,LTD |                         | MODEC/EM-Uaru EPSO           | S.S          | 2024   | KOREA  |
| 341 | ENSOL INC.         | 에코프로                    | RMP3                         | S.S          | 2024   | KOREA  |
| 342 | SELIM SP CO.,LTD   |                         | 나주 3M TANK제자                 | S.S          | 2024   | KOREA  |
| 343 | BUK KANG           |                         | LGES SLURRY 저장탱크             | S.S          | 2025   | KOREA  |
| 344 | (주)경남산기            |                         | 효성중공업 창원공장                   | C.S/S.S      | 2025   | KOREA  |

| No  | CLIENT             | LOCATION                | PROJECT                         | MATERIAL      | PERIOD | REMARK |
|-----|--------------------|-------------------------|---------------------------------|---------------|--------|--------|
| 355 | CORE Plant Co.,LTD | SINGAPORE               | MODEC / EM-Uaru FPSO            | C.S/S.S       | 2025   | KOREA  |
| 319 | CORE Plant Co.,LTD | SINGAPORE               | Hu-Chema 5 Nitric Acid Plant #2 | S.S           | 2025   | KOREA  |
| 320 | CORE Plant Co.,LTD | SINGAPORE               | MODEC / PA14 Bacalhan           | F51/A694F65   | 2025   | KOREA  |
| 321 | 신우산업개발(주)          | POSCO                   | 4배수 종말처리시설                      | C.S/S.S       | 2025   | KOREA  |
| 322 | HAN SHIN METAL     | PT DAEKYUNG             | 인도네시아사                          | C.S/S.S       | 2025   | KOREA  |
| 323 | HAN SHIN METAL     | PT DAEKYUNG             | 인도네시아사                          | F310S         | 2025   | KOREA  |
| 324 | KYUNG NAM          | HYOSUNG                 |                                 | A6061-BE      | 2025   | KOREA  |
| 325 | KYUNG NAM          | HYOSUNG                 |                                 | C.S           | 2025   | KOREA  |
| 326 | KYUNG NAM          | HYOSUNG                 |                                 | S.S           | 2025   | KOREA  |
| 327 | SKF CO.,LTD        | MAXICO                  |                                 | C.S           | 2025   | KOREA  |
| 328 | CORE Plant Co.,LTD | Lebe Industrial Co.,Ltd | MODEC/EM-Uaru FPSO              | A694F65       | 2025   | KOREA  |
| 329 | CORE Plant Co.,LTD | Lebe Industrial Co.,Ltd | MODEC/EM-Uaru FPSO              | TEE외 S.S      | 2025   | KOREA  |
| 330 | HAN SHIN METAL     | PSC                     | LG CHEM PJT                     | S.S/C.S       | 2025   | KOREA  |
| 331 | HAN SHIN METAL     | PSC                     | C3 IPA EXPANSION PJT            | C.S/S.S/ALLOY | 2025   | KOREA  |
| 332 | CORE Plant Co.,LTD |                         | MODEC/Equinor RAIA FPSO         | A694F70       | 2025   | KOREA  |
| 333 | KYUNG NAM          | HYOSUNG                 |                                 | C.S/S.S       | 2025   | KOREA  |
| 334 | KYUNG NAM          | HYOSUNG                 |                                 | C.S/S.S       | 2025   | KOREA  |
| 335 | DAE JIN            | 한양인더스트리                 | S-OIL SHN PJT                   | C.S/S.S       | 2025   | KOREA  |
| 336 | DAE JIN            | 한양인더스트리                 | SKM 20CELL                      | MONEL400      | 2025   | KOREA  |
| 337 | DAE JIN            | 한양인더스트리                 | HDO #6 선석 DDS SKID 제작           | C.S/S.S       | 2025   | KOREA  |

# DATA SHEET



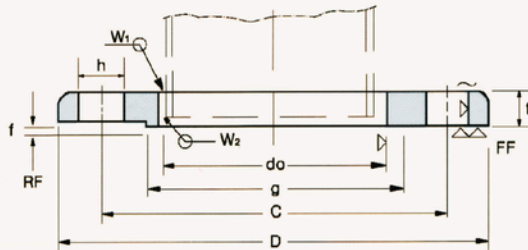


# Stainless Steel Flanges

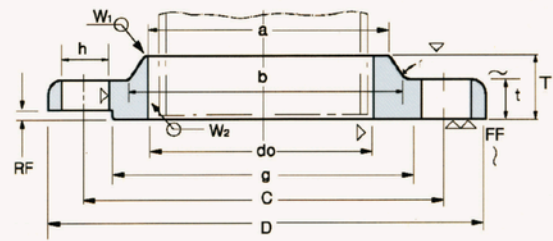
5kg/cm<sup>2</sup>

JIS B2220-1984 (KSB 1506-2000)  
SLIP-ON WELDING STAINLESS STEEL PIPE FLANGES

SOP TYPE  
NOMINAL SIZE 10-1000mm



SOH TYPE  
NOMINAL SIZE 450-1000mm



Unit : mm

| Nominal<br>Bore of<br>Flange | Outside<br>Diam.of<br>Appli-<br>Cable<br>Pipe | Inside<br>Diam.of<br>Flange<br>do | Outside<br>Diam.of<br>Flange<br>D | Sectional Dimensions of Flange |    |                 |      |             |                |                                 | Dia. of Bolt                    |                               |                    | Nominal<br>Bolt<br>Size | Weight(kg) |       |       |
|------------------------------|-----------------------------------------------|-----------------------------------|-----------------------------------|--------------------------------|----|-----------------|------|-------------|----------------|---------------------------------|---------------------------------|-------------------------------|--------------------|-------------------------|------------|-------|-------|
|                              |                                               |                                   |                                   | t                              | T  | Diam. of<br>Hub |      | Rad<br>-ius | Raised<br>Face | Diam. of<br>Raised<br>Face<br>g | Diam. of<br>Bolt<br>Circle<br>c | Number<br>of<br>Bolt<br>Holes | Hole<br>Diam.<br>h |                         | SOP        | BL    | SOH   |
|                              |                                               |                                   |                                   |                                |    | a               | b    |             |                |                                 |                                 |                               |                    |                         |            |       |       |
| (10)A                        | 17.3                                          | 17.8                              | 75                                | 9                              | —  | —               | —    | —           | 1              | 39                              | 55                              | 4                             | 12                 | M10                     | 0.27       | 0.3   | —     |
| 15A                          | 21.7                                          | 22.2                              | 80                                | 9                              | —  | —               | —    | —           | 1              | 44                              | 60                              | 4                             | 12                 | M10                     | 0.30       | 0.4   | —     |
| (20)A                        | 27.2                                          | 27.7                              | 85                                | 10                             | —  | —               | —    | —           | 1              | 49                              | 65                              | 4                             | 12                 | M10                     | 0.37       | 0.5   | —     |
| 25A                          | 34.0                                          | 34.5                              | 95                                | 10                             | —  | —               | —    | —           | 1              | 59                              | 75                              | 4                             | 12                 | M10                     | 0.45       | 0.6   | —     |
| (32)A                        | 42.7                                          | 43.2                              | 115                               | 12                             | —  | —               | —    | —           | 2              | 70                              | 90                              | 4                             | 15                 | M12                     | 0.78       | 0.9   | —     |
| 40A                          | 48.6                                          | 49.1                              | 120                               | 12                             | —  | —               | —    | —           | 2              | 75                              | 95                              | 4                             | 15                 | M12                     | 0.83       | 1.0   | —     |
| 50A                          | 60.5                                          | 61.1                              | 130                               | 14                             | —  | —               | —    | —           | 2              | 85                              | 105                             | 4                             | 15                 | M12                     | 1.07       | 1.4   | —     |
| 65A                          | 76.3                                          | 77.1                              | 155                               | 14                             | —  | —               | —    | —           | 2              | 110                             | 130                             | 4                             | 15                 | M12                     | 1.49       | 2.0   | —     |
| 80A                          | 89.1                                          | 90.0                              | 180                               | 14                             | —  | —               | —    | —           | 2              | 121                             | 145                             | 4                             | 19                 | M16                     | 1.99       | 2.7   | —     |
| (90)A                        | 101.6                                         | 102.6                             | 190                               | 14                             | —  | —               | —    | —           | 2              | 131                             | 155                             | 4                             | 19                 | M16                     | 2.09       | 3.0   | —     |
| 100A                         | 114.3                                         | 115.4                             | 200                               | 16                             | —  | —               | —    | —           | 2              | 141                             | 165                             | 8                             | 19                 | M16                     | 2.39       | 3.7   | —     |
| 125A                         | 139.8                                         | 141.2                             | 235                               | 16                             | —  | —               | —    | —           | 2              | 176                             | 200                             | 8                             | 19                 | M16                     | 3.23       | 5.2   | —     |
| 150A                         | 165.2                                         | 166.6                             | 265                               | 18                             | —  | —               | —    | —           | 2              | 206                             | 230                             | 8                             | 19                 | M16                     | 4.41       | 7.5   | —     |
| (175)A                       | 190.7                                         | 192.1                             | 300                               | 18                             | —  | —               | —    | —           | 2              | 232                             | 260                             | 8                             | 23                 | M20                     | 5.51       | 9.5   | —     |
| 200A                         | 216.3                                         | 218.0                             | 320                               | 20                             | —  | —               | —    | —           | 2              | 252                             | 280                             | 8                             | 23                 | M20                     | 6.33       | 12.2  | —     |
| (225)A                       | 241.8                                         | 243.7                             | 345                               | 20                             | —  | —               | —    | —           | 2              | 277                             | 305                             | 12                            | 23                 | M20                     | 6.64       | 14.0  | —     |
| 250A                         | 267.4                                         | 269.5                             | 385                               | 22                             | —  | —               | —    | —           | 2              | 317                             | 345                             | 12                            | 23                 | M20                     | 9.45       | 19.3  | —     |
| 300A                         | 318.5                                         | 321.0                             | 430                               | 22                             | —  | —               | —    | —           | 3              | 360                             | 390                             | 12                            | 23                 | M20                     | 10.3       | 24.3  | —     |
| 350A                         | 355.6                                         | 358.1                             | 480                               | 24                             | —  | —               | —    | —           | 3              | 403                             | 435                             | 12                            | 25                 | M22                     | 14.0       | 33.2  | —     |
| 400A                         | 406.4                                         | 409.0                             | 540                               | 24                             | —  | —               | —    | —           | 3              | 463                             | 495                             | 16                            | 25                 | M22                     | 16.9       | 41.9  | —     |
| 450A                         | 457.2                                         | 460.0                             | 605                               | 24                             | 40 | 495             | 500  | 5           | 3              | 523                             | 555                             | 16                            | 25                 | M22                     | 21.6       | 53.0  | 24.8  |
| 500A                         | 508.0                                         | 511.0                             | 655                               | 24                             | 40 | 546             | 552  | 5           | 3              | 573                             | 605                             | 20                            | 25                 | M22                     | 23.1       | 61.9  | 26.69 |
| (550)A                       | 558.8                                         | 562.0                             | 720                               | 26                             | 42 | 597             | 603  | 5           | 3              | 630                             | 665                             | 20                            | 27                 | M24                     | 30.3       | 81.2  | 34.1  |
| 600A                         | 609.6                                         | 613.0                             | 770                               | 26                             | 44 | 648             | 654  | 5           | 3              | 680                             | 715                             | 20                            | 27                 | M24                     | 32.7       | 93.2  | 37.5  |
| (650)A                       | 660.4                                         | 664.0                             | 825                               | 26                             | 48 | 702             | 708  | 5           | 3              | 735                             | 770                             | 24                            | 27                 | M24                     | 35.9       | 106.9 | 42.8  |
| 700A                         | 711.2                                         | 715.0                             | 875                               | 26                             | 48 | 751             | 758  | 5           | 3              | 785                             | 820                             | 24                            | 27                 | M24                     | 38.2       | 120.6 | 45.4  |
| (750)A                       | 762.0                                         | 766.0                             | 945                               | 28                             | 52 | 802             | 810  | 5           | 3              | 840                             | 880                             | 24                            | 33                 | M30                     | 48.7       | 150.5 | 57.4  |
| 800A                         | 812.8                                         | 817.0                             | 995                               | 28                             | 52 | 854             | 862  | 5           | 3              | 890                             | 930                             | 24                            | 33                 | M30                     | 51.2       | 167.4 | 60.8  |
| (850)A                       | 863.6                                         | 868.0                             | 1045                              | 28                             | 54 | 904             | 912  | 5           | 3              | 940                             | 980                             | 24                            | 33                 | M30                     | 54.4       | 185.1 | 63.5  |
| 900A                         | 914.4                                         | 919.0                             | 1095                              | 30                             | 56 | 956             | 964  | 5           | 3              | 990                             | 1030                            | 24                            | 33                 | M30                     | 61.1       | 218.1 | 75.3  |
| 1000A                        | 1016.0                                        | 1021.0                            | 1195                              | 32                             | 60 | 1058            | 1066 | 5           | 3              | 1090                            | 1130                            | 28                            | 33                 | M30                     | 70.5       | 277.3 | 88.5  |
| *(1100)A                     | 1117.6                                        | 1123.0                            | 1305                              | 32                             | —  | —               | —    | —           | 3              | 1200                            | 1240                            | 28                            | 33                 | M30                     | 81.7       | 331.9 | —     |
| *1200A                       | 1219.2                                        | 1225.0                            | 1420                              | 34                             | —  | —               | —    | —           | 3              | 1305                            | 1350                            | 32                            | 33                 | M30                     | 102.0      | 417.8 | —     |
| *1350A                       | 1371.6                                        | 1377.0                            | 1575                              | 34                             | —  | —               | —    | —           | 3              | 1460                            | 1505                            | 32                            | 33                 | M30                     | 115.9      | 515.6 | —     |
| *1500A                       | 1524.0                                        | 1529.0                            | 1730                              | 36                             | —  | —               | —    | —           | 3              | 1615                            | 1660                            | 36                            | 33                 | M30                     | 157.4      | 659.2 | —     |

1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.
2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.
3. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고2를 참조.
4. 무게 계산은 KS D 3695에 따른다.

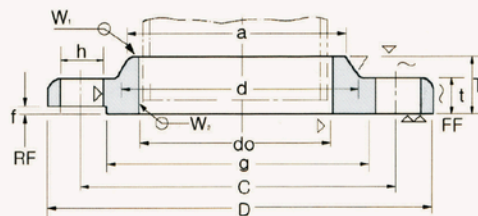
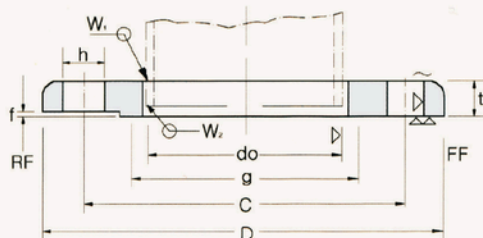
10kg/cm<sup>2</sup>

JIS B2220-1984 (KSB 1506-2000)

SLIP-ON WELDING STAINLESS STEEL PIPE FLANGES

SOP TYPE  
NOMINAL SIZE 10-800mm

SOH TYPE  
NOMINAL SIZE 250-1000mm



Unit : mm

| Nominal<br>Bore of<br>Flange | Outside<br>Diam.of<br>Appli-<br>Cable<br>Pipe | Inside<br>Diam.of<br>Flange<br>do | Outside<br>Diam.of<br>Flange<br>D | Sectional Dimensions of Flange |    |              |      |                      |                         |                                 | Dia. of Bolt                    |                               |                    | Nominal<br>Bolt<br>Size | Weight(kg) |       |       |
|------------------------------|-----------------------------------------------|-----------------------------------|-----------------------------------|--------------------------------|----|--------------|------|----------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|--------------------|-------------------------|------------|-------|-------|
|                              |                                               |                                   |                                   | t                              | T  | Diam. of Hub |      | Rad-<br>ius<br><br>r | Raised<br>Face<br><br>f | Diam. of<br>Raised<br>Face<br>g | Diam. of<br>Bolt<br>Circle<br>c | Number<br>of<br>Bolt<br>Holes | Hole<br>Diam.<br>h |                         | SOP        | BL    | SOH   |
|                              |                                               |                                   |                                   |                                |    | a            | b    |                      |                         |                                 |                                 |                               |                    |                         |            |       |       |
| 10A                          | 17.3                                          | 17.8                              | 90                                | 12                             | —  | —            | —    | —                    | 1                       | 46                              | 65                              | 4                             | 15                 | M12                     | 0.52       | 0.54  | —     |
| 15A                          | 21.7                                          | 22.2                              | 95                                | 12                             | —  | —            | —    | —                    | 1                       | 51                              | 70                              | 4                             | 15                 | M12                     | 0.57       | 0.61  | —     |
| 20A                          | 27.2                                          | 27.7                              | 100                               | 14                             | —  | —            | —    | —                    | 1                       | 56                              | 75                              | 4                             | 15                 | M12                     | 0.73       | 0.79  | —     |
| 25A                          | 34.0                                          | 34.5                              | 125                               | 14                             | —  | —            | —    | —                    | 1                       | 67                              | 90                              | 4                             | 19                 | M16                     | 1.13       | 1.24  | —     |
| 32A                          | 42.7                                          | 43.2                              | 135                               | 16                             | —  | —            | —    | —                    | 2                       | 76                              | 100                             | 4                             | 19                 | M16                     | 1.48       | 1.66  | —     |
| 40A                          | 48.6                                          | 49.1                              | 140                               | 16                             | —  | —            | —    | —                    | 2                       | 81                              | 105                             | 4                             | 19                 | M16                     | 1.56       | 1.81  | —     |
| 50A                          | 60.5                                          | 61.1                              | 155                               | 16                             | —  | —            | —    | —                    | 2                       | 96                              | 120                             | 4                             | 19                 | M16                     | 1.88       | 2.23  | —     |
| 65A                          | 76.3                                          | 77.1                              | 175                               | 18                             | —  | —            | —    | —                    | 2                       | 116                             | 140                             | 4                             | 19                 | M16                     | 2.60       | 3.3   | —     |
| 80A                          | 89.1                                          | 90.0                              | 185                               | 18                             | —  | —            | —    | —                    | 2                       | 126                             | 150                             | 8                             | 19                 | M16                     | 2.61       | 3.5   | —     |
| (90)A                        | 101.6                                         | 102.6                             | 195                               | 18                             | —  | —            | —    | —                    | 2                       | 136                             | 160                             | 8                             | 19                 | M16                     | 2.76       | 4.0   | —     |
| 100A                         | 114.3                                         | 115.4                             | 210                               | 18                             | —  | —            | —    | —                    | 2                       | 151                             | 175                             | 8                             | 19                 | M16                     | 3.14       | 4.6   | —     |
| 125A                         | 139.8                                         | 141.2                             | 250                               | 20                             | —  | —            | —    | —                    | 2                       | 182                             | 210                             | 8                             | 23                 | M20                     | 4.77       | 7.3   | —     |
| 150A                         | 165.2                                         | 166.6                             | 280                               | 22                             | —  | —            | —    | —                    | 2                       | 212                             | 240                             | 8                             | 23                 | M20                     | 6.34       | 10.1  | —     |
| (175)A                       | 190.7                                         | 192.1                             | 305                               | 22                             | —  | —            | —    | —                    | 2                       | 237                             | 265                             | 12                            | 23                 | M20                     | 6.82       | 11.8  | —     |
| 200A                         | 216.3                                         | 218.0                             | 330                               | 22                             | —  | —            | —    | —                    | 2                       | 262                             | 290                             | 12                            | 23                 | M20                     | 7.53       | 14.0  | —     |
| (225)A                       | 241.8                                         | 243.7                             | 350                               | 22                             | —  | —            | —    | —                    | 2                       | 282                             | 310                             | 12                            | 23                 | M20                     | 7.74       | 15.8  | —     |
| 250A                         | 267.4                                         | 269.5                             | 400                               | 24                             | 36 | 288          | 292  | 6                    | 2                       | 324                             | 355                             | 12                            | 25                 | M22                     | 11.8       | 22.7  | 12.7  |
| 300A                         | 318.5                                         | 321.0                             | 445                               | 24                             | 38 | 340          | 346  | 6                    | 3                       | 368                             | 400                             | 16                            | 25                 | M22                     | 12.7       | 27.8  | 13.8  |
| 350A                         | 355.6                                         | 358.1                             | 490                               | 26                             | 42 | 380          | 386  | 6                    | 3                       | 413                             | 445                             | 16                            | 25                 | M22                     | 16.4       | 37.1  | 18.2  |
| 400A                         | 406.4                                         | 409.0                             | 560                               | 28                             | 44 | 436          | 442  | 6                    | 3                       | 475                             | 510                             | 16                            | 27                 | M24                     | 23.0       | 52.5  | 25.2  |
| 450A                         | 457.2                                         | 460.0                             | 620                               | 30                             | 48 | 496          | 502  | 6                    | 3                       | 530                             | 565                             | 20                            | 27                 | M24                     | 29.5       | 68.8  | 33.0  |
| 500A                         | 508.0                                         | 511.0                             | 675                               | 30                             | 48 | 548          | 554  | 6                    | 3                       | 585                             | 620                             | 20                            | 27                 | M24                     | 33.5       | 82.1  | 37.6  |
| (550)A                       | 558.8                                         | 562.0                             | 745                               | 32                             | 52 | 604          | 610  | 6                    | 3                       | 640                             | 680                             | 20                            | 33                 | M30                     | 43.1       | 105.8 | 49.7  |
| 600A                         | 609.6                                         | 613.0                             | 795                               | 32                             | 52 | 656          | 662  | 6                    | 3                       | 690                             | 730                             | 24                            | 33                 | M30                     | 45.7       | 120.2 | 52.6  |
| (650)A                       | 660.4                                         | 664.0                             | 845                               | 34                             | 56 | 706          | 712  | 6                    | 3                       | 740                             | 780                             | 24                            | 33                 | M30                     | 52.1       | 145.0 | 60.6  |
| 700A                         | 711.2                                         | 715.0                             | 905                               | 34                             | 58 | 762          | 770  | 6                    | 3                       | 800                             | 840                             | 24                            | 33                 | M30                     | 59.5       | 167.2 | 70.6  |
| (750)A                       | 762.0                                         | 766.0                             | 970                               | 36                             | 62 | 816          | 824  | 6                    | 3                       | 855                             | 900                             | 24                            | 33                 | M30                     | 73.2       | 204.2 | 85.8  |
| 800A                         | 812.8                                         | 817.0                             | 1020                              | 36                             | 64 | 868          | 876  | 6                    | 3                       | 905                             | 950                             | 28                            | 33                 | M30                     | 76.4       | 225.4 | 91.2  |
| (850)A                       | 863.6                                         | 868.0                             | 1070                              | 36                             | 66 | 920          | 928  | 6                    | 3                       | 955                             | 1000                            | 28                            | 33                 | M30                     | 80.7       | 248.8 | 98.6  |
| 900A                         | 914.4                                         | 919.0                             | 1120                              | 38                             | 70 | 971          | 979  | 6                    | 3                       | 1005                            | 1050                            | 28                            | 33                 | M30                     | 89.4       | 288.4 | 109.0 |
| 1000A                        | 1016.0                                        | 1021.0                            | 1235                              | 40                             | 74 | 1073         | 1081 | 6                    | 3                       | 1110                            | 1160                            | 28                            | 39                 | M36                     | 109.2      | 367.7 | 133.0 |
| *(1100)A                     | 1117.6                                        | 1123.0                            | 1345                              | 42                             | 76 | —            | —    | —                    | 3                       | 1220                            | 1270                            | 28                            | 39                 | M36                     | 131.6      | 460.0 | —     |
| *1200A                       | 1219.2                                        | 1225.0                            | 1465                              | 44                             | 78 | —            | —    | —                    | 3                       | 1325                            | 1380                            | 32                            | 39                 | M36                     | 163.5      | 572.2 | —     |
| *1350A                       | 1371.6                                        | 1337.0                            | 1630                              | 48                             | 82 | —            | —    | —                    | 3                       | 1480                            | 1540                            | 36                            | 45                 | M42                     | 204.7      | 769.0 | —     |
| *1500A                       | 1524.0                                        | 1529.0                            | 1795                              | 50                             | 90 | —            | —    | —                    | 3                       | 1635                            | 1700                            | 40                            | 45                 | M42                     | 250.2      | 974.9 | —     |

1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.
2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.
3. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고2를 참조.
4. 무게 계산은 KS D 3695에 따른다.



# Stainless Steel Flanges

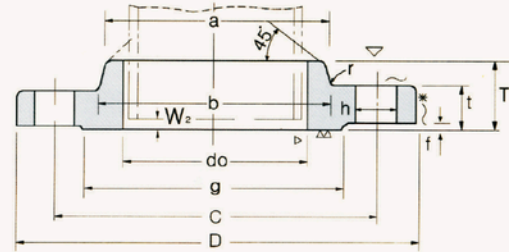
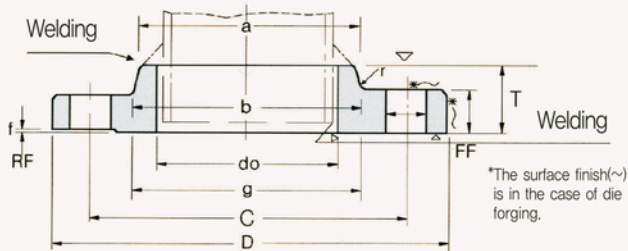
16kg/cm<sup>2</sup>

JIS B2220-1984 (KSB 1506-2000)

SLIP-ON WELDING STAINLESS STEEL PIPE FLANGES

NOMINAL SIZE 10-600mm

NOMINAL SIZE 650-1200mm



Unit : mm

| Nominal<br>Bore of<br>Flange | Outside<br>Diam.of<br>Appli-<br>Cable<br>Pipe | Inside<br>Diam.of<br>Flange<br>do | Outside<br>Diam.of<br>Flange<br>D | Sectional Dimensions of Flange |     |              |      |                      |                         |                                 | Dia. of Bolt                    |                               |                    | Nominal<br>Bolt<br>Size | Weight(kg) |        |       |
|------------------------------|-----------------------------------------------|-----------------------------------|-----------------------------------|--------------------------------|-----|--------------|------|----------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|--------------------|-------------------------|------------|--------|-------|
|                              |                                               |                                   |                                   | t                              | T   | Diam. of Hub |      | Rad-<br>ius<br><br>r | Raised<br>Face<br><br>f | Diam. of<br>Raised<br>Face<br>g | Diam. of<br>Bolt<br>Circle<br>c | Number<br>of<br>Bolt<br>Holes | Hole<br>Diam.<br>h |                         | SOP        | BL     | SOH   |
|                              |                                               |                                   |                                   |                                |     | a            | b    |                      |                         |                                 |                                 |                               |                    |                         |            |        |       |
| 10A                          | 17.3                                          | 17.8                              | 90                                | 12                             | 16  | 26           | 28   | 4                    | 1                       | 46                              | 65                              | 4                             | 15                 | M12                     | 0.52       | 0.54   | 0.52  |
| 15A                          | 21.7                                          | 22.2                              | 95                                | 12                             | 16  | 30           | 32   | 4                    | 1                       | 51                              | 70                              | 4                             | 15                 | M12                     | 0.57       | 0.61   | 0.58  |
| 20A                          | 27.2                                          | 27.7                              | 100                               | 14                             | 20  | 38           | 42   | 4                    | 1                       | 56                              | 75                              | 4                             | 15                 | M12                     | 0.73       | 0.79   | 0.75  |
| 25A                          | 34.0                                          | 34.5                              | 125                               | 14                             | 20  | 46           | 50   | 4                    | 1                       | 67                              | 90                              | 4                             | 19                 | M16                     | 1.13       | 1.24   | 1.16  |
| 32A                          | 42.7                                          | 43.2                              | 135                               | 16                             | 22  | 56           | 60   | 5                    | 2                       | 76                              | 100                             | 4                             | 19                 | M16                     | 1.48       | 1.66   | 1.53  |
| 40A                          | 48.6                                          | 49.1                              | 140                               | 16                             | 24  | 62           | 66   | 5                    | 2                       | 81                              | 105                             | 4                             | 19                 | M16                     | 1.56       | 1.81   | 1.64  |
| 50A                          | 60.5                                          | 61.1                              | 155                               | 16                             | 24  | 76           | 80   | 5                    | 2                       | 96                              | 120                             | 8                             | 19                 | M16                     | 1.8        | 2.3    | 1.83  |
| 65A                          | 76.3                                          | 77.1                              | 175                               | 18                             | 26  | 94           | 98   | 5                    | 2                       | 116                             | 140                             | 8                             | 19                 | M16                     | 2.5        | 3.1    | 2.58  |
| 80A                          | 89.1                                          | 90.0                              | 200                               | 20                             | 28  | 108          | 112  | 6                    | 2                       | 132                             | 160                             | 8                             | 23                 | M20                     | 3.5        | 4.5    | 3.66  |
| 90A                          | 101.6                                         | 102.6                             | 210                               | 20                             | 30  | 120          | 124  | 6                    | 2                       | 145                             | 170                             | 8                             | 23                 | M20                     | 3.7        | 5.0    | 3.95  |
| 100A                         | 114.3                                         | 115.4                             | 225                               | 22                             | 34  | 134          | 138  | 6                    | 2                       | 160                             | 185                             | 8                             | 23                 | M20                     | 4.5        | 6.3    | 4.94  |
| 125A                         | 139.8                                         | 141.2                             | 270                               | 22                             | 34  | 164          | 170  | 6                    | 2                       | 195                             | 225                             | 8                             | 25                 | M22                     | 6.5        | 9.2    | 7.0   |
| 150A                         | 165.2                                         | 166.6                             | 305                               | 24                             | 38  | 196          | 202  | 6                    | 2                       | 230                             | 260                             | 12                            | 25                 | M22                     | 8.7        | 12.8   | 9.62  |
| 200A                         | 216.3                                         | 218.0                             | 350                               | 26                             | 40  | 244          | 252  | 6                    | 2                       | 275                             | 305                             | 12                            | 25                 | M22                     | 10.9       | 18.6   | 12.1  |
| 250A                         | 267.4                                         | 269.5                             | 430                               | 28                             | 44  | 304          | 312  | 6                    | 2                       | 345                             | 380                             | 12                            | 27                 | M24                     | 18.0       | 30.6   | 20.0  |
| 300A                         | 318.5                                         | 321.0                             | 480                               | 30                             | 48  | 354          | 364  | 8                    | 3                       | 395                             | 430                             | 16                            | 27                 | M24                     | 21.5       | 40.7   | 24.4  |
| 350A                         | 355.6                                         | 358.1                             | 540                               | 34                             | 52  | 398          | 408  | 8                    | 3                       | 440                             | 480                             | 16                            | 33                 | M30×3                   | 30.8       | 57.8   | 35.0  |
| 400A                         | 406.4                                         | 409.0                             | 605                               | 38                             | 60  | 446          | 456  | 10                   | 3                       | 495                             | 540                             | 16                            | 33                 | M30×3                   | 42.8       | 82.2   | 46.2  |
| 450A                         | 457.2                                         | 460.0                             | 675                               | 40                             | 64  | 504          | 514  | 10                   | 3                       | 560                             | 605                             | 20                            | 33                 | M30×3                   | 55.1       | 107.6  | 61.9  |
| 500A                         | 508.0                                         | 511.0                             | 730                               | 42                             | 68  | 558          | 568  | 10                   | 3                       | 615                             | 660                             | 20                            | 33                 | M30×3                   | 65.1       | 133.1  | 73.25 |
| (550)A                       | 558.8                                         | 562.0                             | 795                               | 44                             | 70  | 612          | 622  | 10                   | 3                       | 670                             | 720                             | 20                            | 39                 | M36×3                   | 77.9       | 164.1  | 88.1  |
| 600A                         | 609.6                                         | 613.0                             | 845                               | 46                             | 74  | 666          | 676  | 10                   | 3                       | 720                             | 770                             | 24                            | 39                 | M36×3                   | 86.0       | 193.2  | 98.8  |
| (650)A                       | 660.4                                         | 664                               | 895                               | 48                             | 77  | 704          | 726  | 10                   | 5                       | 770                             | 820                             | 24                            | 39                 | M36×3                   | 96.3       | 227.5  | 101.0 |
| 700A                         | 711.2                                         | 715                               | 960                               | 50                             | 80  | 754          | 776  | 10                   | 5                       | 820                             | 875                             | 24                            | 42                 | M39×3                   | 114.1      | 272.6  | 120.0 |
| (750)A                       | 762.0                                         | 766                               | 1020                              | 52                             | 83  | 806          | 832  | 10                   | 5                       | 880                             | 935                             | 24                            | 42                 | M39×3                   | 132.7      | 321.9  | 141.0 |
| 800A                         | 812.8                                         | 817                               | 1085                              | 54                             | 86  | 865          | 885  | 10                   | 5                       | 930                             | 990                             | 24                            | 48                 | M45×3                   | 152.1      | 375.6  | 161.0 |
| (850)A                       | 863.6                                         | 868                               | 1135                              | 56                             | 89  | 916          | 936  | 10                   | 5                       | 980                             | 1040                            | 24                            | 48                 | M45×3                   | 166.5      | 428.1  | 177.0 |
| 900A                         | 914.4                                         | 919                               | 1185                              | 58                             | 93  | 968          | 986  | 10                   | 5                       | 1030                            | 1090                            | 28                            | 48                 | M45×3                   | 178.1      | 481.8  | 191.0 |
| 1000A                        | 1016.0                                        | 1021                              | 1320                              | 62                             | 99  | 1070         | 1098 | 12                   | 5                       | 1140                            | 1210                            | 28                            | 56                 | M52×3                   | 235.3      | 636.0  | 230.0 |
| 1100A                        | 1117.6                                        | 1123                              | 1420                              | 66                             | 105 | 1108         | 1200 | 12                   | 5                       | 1240                            | 1310                            | 32                            | 56                 | M52×3                   | 267.9      | 784.0  | 289.0 |
| 1200A                        | 1219.2                                        | 1225                              | 1530                              | 70                             | 112 | 1282         | 1302 | 12                   | 5                       | 1350                            | 1420                            | 32                            | 56                 | M52×3                   | 321.1      | 972.4  | 348.0 |
| 1300A                        | 1320.8                                        | 1326                              | 1645                              | 74                             | -   | -            | -    | -                    | 5                       | 1450                            | 1530                            | 32                            | 62                 |                         | 378.6      | 1185.2 | -     |
| 1350A                        | 1371.6                                        | 1377                              | 1700                              | 76                             | -   | -            | -    | -                    | 5                       | 1510                            | 1590                            | 32                            | 62                 |                         | 410.0      | 1303.8 | -     |
| 1400A                        | 1422.4                                        | 1428                              | 1755                              | 78                             | -   | -            | -    | -                    | 5                       | 1560                            | 1640                            | 36                            | 62                 |                         | 436.0      | 1422.5 | -     |
| 1500A                        | 1524.0                                        | 1529                              | 1865                              | 80                             | -   | -            | -    | -                    | 5                       | 1670                            | 1750                            | 36                            | 62                 |                         | 496.4      | 1656.6 | -     |

1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.

2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.

3. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고2를 참조.

4. 무게 계산은 KS D 3695에 따른다.



20kg/cm<sup>2</sup>

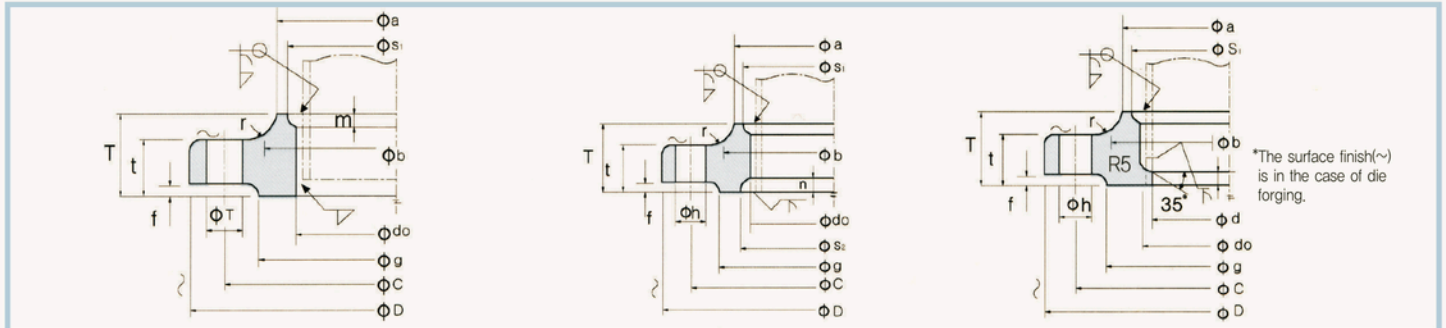
JIS B2220-1984 (KSB 1506-2000)

SLIP-ON WELDING STAINLESS STEEL PIPE FLANGES

A-TYPE  
NOMINAL SIZE 10-600mm

B-TYPE  
NOMINAL SIZE 10-50mm

C-TYPE  
NOMINAL SIZE 65-600mm



Unit : mm

| Nominal Diameter of Flange | Outside Diameter of Steel Pipe | Inside Diameter of Flange do | Outside Diameter of Flange D | Sectional Dimensions of Flange |    |              |     |           |   |      |       | Dia. of Bolt           |                      |              |                  | Reference      |    |                |     |   | Weight(kg) |       |       |
|----------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|----|--------------|-----|-----------|---|------|-------|------------------------|----------------------|--------------|------------------|----------------|----|----------------|-----|---|------------|-------|-------|
|                            |                                |                              |                              | t                              | T  | Diam. of Hub |     | Rad - ius | f | g    | d     | Bolt Circle Diameter C | Number of Bolt Holes | Hole Diam. h | Number Bolt Size | S <sub>1</sub> | m  | S <sub>2</sub> | n   | 1 | SOP        | BL    | SOH   |
|                            |                                |                              |                              |                                |    | a            | b   |           |   |      |       |                        |                      |              |                  |                |    |                |     |   |            |       |       |
| 10A                        | 17.3                           | 17.8                         | 90                           | 14                             | 20 | 30           | 32  | 4         | 1 | 46   | -     | 65                     | 4                    | 15           | M12              | 27             | 4  | 27             | 4   | - | 0.6        | 0.6   | 0.59  |
| 15A                        | 21.7                           | 22.2                         | 95                           | 14                             | 20 | 34           | 36  | 4         | 1 | 51   | -     | 70                     | 4                    | 15           | M12              | 31             | 4  | 31             | 4   | - | 0.7        | 0.7   | 0.65  |
| 20A                        | 27.2                           | 27.7                         | 100                          | 16                             | 22 | 40           | 42  | 4         | 1 | 56   | -     | 75                     | 4                    | 15           | M12              | 37             | 4  | 37             | 4   | - | 0.8        | 0.9   | 0.81  |
| 25A                        | 34.0                           | 34.5                         | 125                          | 16                             | 24 | 48           | 50  | 4         | 1 | 67   | -     | 90                     | 4                    | 19           | M16              | 44             | 4  | 44             | 4.5 | - | 1.3        | 1.5   | 1.29  |
| 32A                        | 42.7                           | 43.2                         | 135                          | 18                             | 26 | 56           | 60  | 5         | 2 | 76   | -     | 100                    | 4                    | 19           | M16              | 53             | 4  | 53             | 5   | - | 1.6        | 1.8   | 1.60  |
| 40A                        | 48.6                           | 49.1                         | 140                          | 18                             | 26 | 62           | 66  | 5         | 2 | 81   | -     | 105                    | 4                    | 19           | M16              | 58             | 4  | 59             | 5.5 | - | 1.7        | 2.0   | 1.69  |
| 50A                        | 60.5                           | 61.1                         | 155                          | 18                             | 26 | 76           | 80  | 5         | 2 | 96   | -     | 120                    | 8                    | 19           | M16              | 70             | 4  | 72             | 5.5 | - | 1.9        | 2.4   | 1.89  |
| 65A                        | 76.3                           | 77.1                         | 175                          | 20                             | 30 | 100          | 104 | 5         | 2 | 116  | 65.9  | 140                    | 8                    | 19           | M16              | 94             | 6  | 85             | 6   | 6 | 2.6        | 3.4   | 2.60  |
| 80A                        | 89.1                           | 90.0                         | 200                          | 22                             | 34 | 113          | 117 | 6         | 2 | 132  | 78.1  | 160                    | 8                    | 23           | M20              | 107            | 6  | -              | -   | 6 | 3.8        | 4.9   | 3.93  |
| (90)A                      | 101.6                          | 102.6                        | 210                          | 24                             | 36 | 126          | 130 | 6         | 2 | 145  | 90.2  | 170                    | 8                    | 23           | M20              | 120            | 6  | -              | -   | 6 | 4.4        | 6.0   | 4.56  |
| 100A                       | 114.3                          | 115.4                        | 225                          | 24                             | 36 | 138          | 142 | 6         | 2 | 160  | 102.3 | 185                    | 8                    | 23           | M20              | 132            | 6  | -              | -   | 6 | 4.9        | 6.9   | 5.13  |
| 125A                       | 139.8                          | 141.2                        | 270                          | 26                             | 40 | 166          | 172 | 6         | 2 | 195  | 126.6 | 225                    | 8                    | 25           | M22              | 160            | 7  | -              | -   | 6 | 7.8        | 11.0  | 8.30  |
| 150A                       | 165.2                          | 166.6                        | 305                          | 28                             | 42 | 196          | 202 | 6         | 2 | 230  | 151.0 | 260                    | 12                   | 25           | M22              | 186            | 8  | -              | -   | 6 | 10.1       | 14.9  | 10.6  |
| 200A                       | 216.3                          | 218.0                        | 350                          | 30                             | 46 | 244          | 252 | 6         | 2 | 275  | 199.9 | 305                    | 12                   | 25           | M22              | 237            | 9  | -              | -   | 6 | 12.6       | 21.4  | 13.3  |
| 250A                       | 267.4                          | 269.5                        | 430                          | 34                             | 52 | 304          | 312 | 6         | 2 | 345  | 248.8 | 380                    | 12                   | 27           | M24              | 290            | 10 | -              | -   | 6 | 21.9       | 37.2  | 23.4  |
| 300A                       | 457.2                          | 321.0                        | 480                          | 36                             | 56 | 354          | 364 | 8         | 3 | 395  | 297.9 | 430                    | 16                   | 27           | M24              | 345            | 11 | -              | -   | 6 | 25.8       | 48.8  | 27.7  |
| 350A                       | 508.8                          | 358.1                        | 540                          | 40                             | 62 | 398          | 408 | 8         | 3 | 440  | 333.4 | 480                    | 16                   | 33           | M30×3            | 384            | 12 | -              | -   | 6 | 36.2       | 68.0  | 39.2  |
| 400A                       | 558.8                          | 409.0                        | 605                          | 46                             | 70 | 446          | 456 | 10        | 3 | 495  | 381.0 | 540                    | 16                   | 33           | M30×3            | 437            | 13 | -              | -   | 7 | 51.7       | 99.4  | 54.2  |
| 450A                       | 609.6                          | 460.0                        | 675                          | 48                             | 78 | 504          | 514 | 10        | 3 | 560  | 431.8 | 605                    | 20                   | 33           | M30×3            | 490            | 15 | -              | -   | 7 | 66.1       | 129.1 | 71.7  |
| 500A                       | 660.4                          | 511.0                        | 730                          | 50                             | 84 | 558          | 568 | 10        | 3 | 615  | 482.6 | 660                    | 20                   | 33           | M30×3            | 544            | 16 | -              | -   | 7 | 77.4       | 158.4 | 86.2  |
| (550)A                     | 711.2                          | 562.0                        | 795                          | 52                             | 90 | 612          | 622 | 10        | 3 | 670  | 533.4 | 720                    | 20                   | 39           | M36×3            | 595            | 16 | -              | -   | 7 | 92.2       | 194.0 | 105.0 |
| 600A                       | 762.0                          | 613.0                        | 845                          | 54                             | 96 | 666          | 676 | 10        | 3 | 720  | 584.2 | 790                    | 24                   | 39           | M36×3            | 646            | 18 | -              | -   | 7 | 101.1      | 226.9 | 119.0 |
| (650)A                     | 812.8                          | 664.0                        | 945                          | 60                             | -  | -            | -   | -         | 5 | 790  | -     | 850                    | 24                   | 48           | M45×3            | -              | -  | -              | -   | - | 147.6      | 311.6 | -     |
| 700A                       | 863.6                          | 715.0                        | 995                          | 64                             | -  | -            | -   | -         | 5 | 840  | -     | -                      | -                    | -            | -                | -              | -  | -              | -   | - | 168.0      | 370.9 | -     |
| (750)A                     | 762.0                          | 766.0                        | 1080                         | 68                             | -  | -            | -   | -         | 5 | 900  | -     | 970                    | 24                   | 56           | M52×3            | -              | -  | -              | -   | - | 212.7      | 460.1 | -     |
| 800A                       | 812.8                          | 817.0                        | 1140                         | 72                             | -  | -            | -   | -         | 5 | 960  | -     | 1030                   | 24                   | 56           | M52×3            | -              | -  | -              | -   | - | 248.5      | 546.5 | -     |
| (850)A                     | 863.6                          | 868.0                        | 1200                         | 74                             | -  | -            | -   | -         | 5 | 1020 | -     | 1090                   | 24                   | 56           | M52×3            | -              | -  | -              | -   | - | 280.5      | 626.2 | -     |
| 900A                       | 914.4                          | 919.0                        | 1250                         | 76                             | -  | -            | -   | -         | 5 | 1070 | -     | 1070                   | 28                   | 56           | M52×3            | -              | -  | -              | -   | - | 296.9      | 694.9 | -     |

1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.

2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.

3. d치수는 KS D 3562, KS D 3564 및 KS D 3570 의 스케줄 40인 경우를 참조로 해서 표시한 것이다.

다만, 호칭 지름 450 이상인 것은 관의 안지름 두께를 12.7mm로 했다.

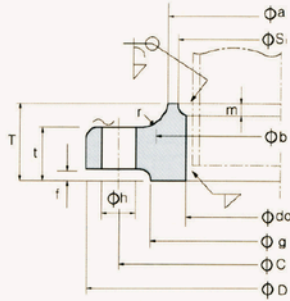
4. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고2를 참조.

5. 무게 계산은 KS D 3695에 따른다.

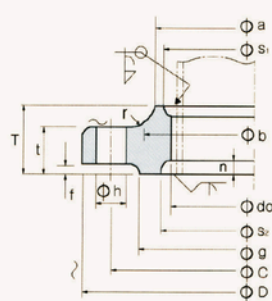
# Stainless Steel Flanges

**30kg/cm<sup>2</sup>** JIS B2220-1984 (KSB 1506-2000)  
SLIP-ON WELDING STAINLESS STEEL PIPE FLANGES

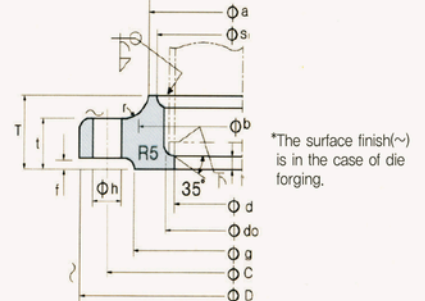
**A-TYPE**  
NOMINAL SIZE 10-400mm



**B-TYPE**  
NOMINAL SIZE 10-50mm



**C-TYPE**  
NOMINAL SIZE 65-400mm



Unit : mm

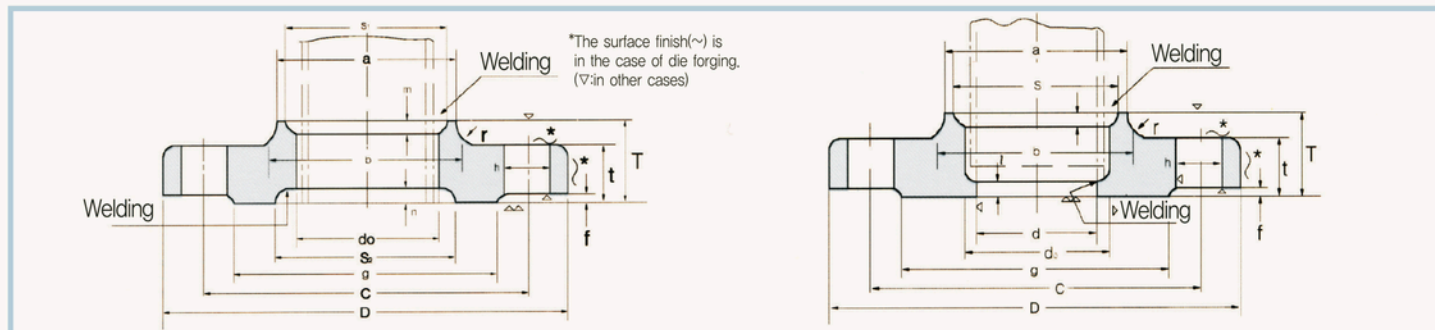
| Nominal Diameter of Flange | Outside Diameter of Steel Pipe | Inside Diameter of Flange do | Outside Diameter of Flange D | Sectional Dimensions of Flange |    |                 |     |          |   |     |       | Dia. of Bolt           |                      |                 |                  | Reference      |     |                |   |   | Approx Weight(kg) |      |
|----------------------------|--------------------------------|------------------------------|------------------------------|--------------------------------|----|-----------------|-----|----------|---|-----|-------|------------------------|----------------------|-----------------|------------------|----------------|-----|----------------|---|---|-------------------|------|
|                            |                                |                              |                              | t                              | T  | Diameter of Hub |     | Radius r | f | g   | d     | Bolt Circle Diameter C | Number of Bolt Holes | Hole Diameter h | Number Bolt Size | S <sub>1</sub> | m   | S <sub>2</sub> | n | 1 | SOH               | BL   |
|                            |                                |                              |                              |                                |    | a               | b   |          |   |     |       |                        |                      |                 |                  |                |     |                |   |   |                   |      |
| 10A                        | 17.3                           | 17.8                         | 110                          | 16                             | 24 | 30              | 34  | 4        | 1 | 52  | -     | 75                     | 4                    | 19              | M16              | -              | -   | -              | - | - | 0.99              | 1.00 |
| 15A                        | 21.7                           | 22.2                         | 115                          | 18                             | 26 | 36              | 40  | 5        | 1 | 55  | -     | 80                     | 4                    | 19              | M16              | 31             | 4   | 40             | 5 | - | 1.23              | 1.25 |
| 20A                        | 27.2                           | 27.7                         | 120                          | 18                             | 28 | 42              | 46  | 5        | 1 | 60  | -     | 85                     | 4                    | 19              | M16              | 37             | 5   | 44             | 5 | - | 1.34              | 1.38 |
| 25A                        | 34.0                           | 34.5                         | 130                          | 20                             | 30 | 50              | 54  | 5        | 1 | 70  | -     | 95                     | 4                    | 19              | M16              | 44             | 6   | 52             | 5 | - | 1.76              | 1.84 |
| 32A                        | 42.7                           | 43.2                         | 140                          | 22                             | 32 | 60              | 64  | 6        | 2 | 80  | -     | 105                    | 4                    | 19              | M16              | 52             | 6   | 60             | 5 | - | 2.15              | 2.32 |
| 40A                        | 48.6                           | 49.1                         | 160                          | 22                             | 34 | 66              | 70  | 6        | 2 | 90  | -     | 120                    | 4                    | 23              | M20              | 58             | 6   | 66             | 5 | - | 2.82              | 3.00 |
| 50A                        | 60.5                           | 61.1                         | 165                          | 22                             | 36 | 82              | 86  | 6        | 2 | 105 | -     | 130                    | 8                    | 19              | M16              | 70             | 6.5 | 78             | 5 | - | 2.89              | 3.14 |
| 65A                        | 76.3                           | 77.1                         | 200                          | 26                             | 40 | 102             | 106 | 8        | 2 | 130 | 65.9  | 160                    | 8                    | 23              | M20              | 96             | 9.5 | 94             | 5 | 6 | 4.70              | 5.50 |
| 80A                        | 89.1                           | 90.0                         | 210                          | 28                             | 44 | 115             | 121 | 8        | 2 | 140 | 78.1  | 170                    | 8                    | 23              | M20              | 109            | 9.5 | -              | - | 6 | 5.36              | 6.63 |
| (90)A                      | 101.6                          | 102.6                        | 230                          | 30                             | 46 | 128             | 134 | 8        | 2 | 150 | 90.2  | 185                    | 8                    | 25              | M22              | 122            | 9.5 | -              | - | 6 | 6.85              | 8.55 |
| 100A                       | 114.3                          | 115.4                        | 240                          | 32                             | 48 | 141             | 147 | 8        | 2 | 160 | 102.3 | 195                    | 8                    | 25              | M22              | 135            | 9.5 | -              | - | 6 | 7.89              | 10.0 |
| 125A                       | 139.8                          | 141.2                        | 275                          | 36                             | 54 | 166             | 172 | 8        | 2 | 195 | 126.6 | 230                    | 8                    | 25              | M22              | 160            | 9.5 | -              | - | 6 | 11.4              | 15.3 |
| 150A                       | 165.2                          | 166.6                        | 325                          | 38                             | 58 | 196             | 204 | 8        | 2 | 235 | 151.0 | 275                    | 12                   | 27              | M24              | 186            | 9.5 | -              | - | 6 | 16.7              | 22.2 |
| 200A                       | 216.3                          | 218.0                        | 370                          | 42                             | 64 | 248             | 256 | 8        | 2 | 280 | 199.9 | 320                    | 12                   | 27              | M24              | 237            | 9.5 | -              | - | 6 | 20.6              | 32.6 |
| 250A                       | 267.4                          | 269.5                        | 450                          | 48                             | 72 | 306             | 314 | 10       | 2 | 345 | 248.8 | 390                    | 12                   | 33              | M30×3            | 290            | 10  | -              | - | 6 | 36.1              | 55.2 |
| 300A                       | 318.5                          | 321.0                        | 515                          | 52                             | 78 | 360             | 370 | 10       | 3 | 405 | 297.9 | 450                    | 16                   | 33              | M30×3            | 345            | 12  | -              | - | 6 | 49.9              | 77.9 |
| 350A                       | 355.6                          | 358.1                        | 560                          | 54                             | 84 | 402             | 412 | 12       | 3 | 450 | 333.4 | 495                    | 16                   | 33              | M30×3            | 383            | 13  | -              | - | 6 | 61.2              | 96.9 |
| 400A                       | 406.4                          | 409.0                        | 630                          | 60                             | 92 | 456             | 468 | 15       | 3 | 510 | 381.0 | 560                    | 16                   | 39              | M36              | 435            | 14  | -              | - | 7 | 85.2              | 136  |

- ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.
- 프랜지의 개스킷 자리는 KS B 1519에 따른다.
- d치수는 KS D 3562, KS D 3564 및 KS D 3570의 스케줄 40인 경우를 참조로해서 표시한 것이다.  
다만, 호칭 지름 450 이상인 것은 관의 안지름 두께를 12.7mm로 했다.
- 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고2를 참조.
- 무게 계산은 KS D 3695에 따른다.

# 40kg/cm<sup>2</sup> JIS B2216 SLIP-ON WELDING STAINLESS STEEL PIPE FLANGES

NOMINAL SIZE 60-65mm

NOMINAL SIZE 65-400mm



Unit : mm

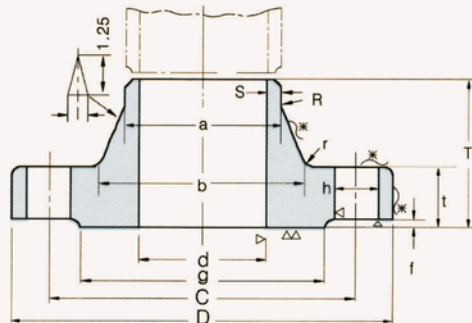
| Nominal<br>Diameter<br>of<br>Flange | Outside<br>Diameter<br>of Steel<br>Pipe | Inside<br>Diameter<br>of<br>Flange<br>do | Outside<br>Diameter<br>of<br>Flange<br>D | Sectional Dimensions of Flange |    |                    |     |             |   |     |       | Dia. of Bolt                     |                            |                        |                        | Reference      |     |                |     |   | Approx<br>Weight<br>(kg) |
|-------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|--------------------------------|----|--------------------|-----|-------------|---|-----|-------|----------------------------------|----------------------------|------------------------|------------------------|----------------|-----|----------------|-----|---|--------------------------|
|                                     |                                         |                                          |                                          | t                              | T  | Diameter<br>of hub |     | Rad<br>-ius | f | g   | d     | Bolt<br>Circle<br>Diamete<br>r C | Number<br>of Bolt<br>Holes | Hole<br>Diamete<br>r h | Number<br>Bolt<br>Size | S <sub>1</sub> | m   | S <sub>2</sub> | n   | 1 |                          |
|                                     |                                         |                                          |                                          |                                |    | a                  | b   |             |   |     |       |                                  |                            |                        |                        |                |     |                |     |   |                          |
| 10A                                 | 17.3                                    | 17.8                                     | 110                                      | 18                             | 26 | 34                 | 38  | 5           | 1 | 52  | —     | 75                               | 4                          | 19                     | M16                    | 28.0           | 6   | 28             | 5   |   | 1.11                     |
| 15A                                 | 21.7                                    | 22.2                                     | 115                                      | 20                             | 30 | 39                 | 43  | 5           | 1 | 55  | —     | 80                               | 4                          | 19                     | M16                    | 32.5           | 6   | 32.5           | 5   |   | 1.39                     |
| 20A                                 | 27.2                                    | 27.7                                     | 120                                      | 20                             | 30 | 45                 | 49  | 5           | 1 | 60  | —     | 85                               | 4                          | 19                     | M16                    | 38.0           | 6   | 38.0           | 5   |   | 1.51                     |
| 25A                                 | 34.0                                    | 34.5                                     | 130                                      | 22                             | 32 | 55                 | 59  | 5           | 1 | 70  | —     | 95                               | 4                          | 19                     | M16                    | 47.8           | 6   | 47.8           | 5   |   | 1.97                     |
| 32A                                 | 42.7                                    | 43.2                                     | 140                                      | 24                             | 35 | 64                 | 68  | 6           | 2 | 80  | —     | 105                              | 4                          | 19                     | M16                    | 56.5           | 6   | 56.5           | 5   |   | 2.50                     |
| 40A                                 | 48.6                                    | 49.1                                     | 160                                      | 24                             | 35 | 70                 | 74  | 6           | 2 | 90  | —     | 120                              | 4                          | 23                     | M20                    | 62.5           | 6   | 62.5           | 5   |   | 3.26                     |
| 50A                                 | 60.5                                    | 61.1                                     | 165                                      | 26                             | 38 | 86                 | 90  | 6           | 2 | 105 | —     | 130                              | 8                          | 19                     | M16                    | 74.5           | 6   | 74.5           | 5.5 |   | 3.47                     |
| 65A                                 | 76.3                                    | 77.1                                     | 200                                      | 30                             | 44 | 106                | 110 | 8           | 2 | 130 | 62.3  | 160                              | 8                          | 23                     | M20                    | 91.5           | 7   | 91.5           | 7   |   | 5.97                     |
| 80A                                 | 89.1                                    | 90.3                                     | 210                                      | 32                             | 46 | 118                | 124 | 8           | 2 | 140 | 73.9  | 170                              | 8                          | 23                     | M20                    | 105.5          | 7.5 | 105.5          | 7   |   | 6.76                     |
| 100A                                | 114.3                                   | 115.4                                    | 250                                      | 36                             | 52 | 145                | 151 | 8           | 2 | 165 | 97.1  | 205                              | 8                          | 25                     | M22                    | 133.0          | 8.5 | 133.0          | 7   |   | 10.78                    |
| 125A                                | 139.8                                   | 141.4                                    | 300                                      | 40                             | 58 | 182                | 188 | 8           | 2 | 200 | 120.8 | 250                              | 8                          | 27                     | M24                    | 160.5          | 9.5 | 160.5          | 7   |   | 16.97                    |
| 150A                                | 165.2                                   | 167.0                                    | 355                                      | 44                             | 64 | 200                | 208 | 8           | 2 | 240 | 143.2 | 295                              | 12                         | 33                     | M30                    | 188.0          | 11  | 188.0          | 7   |   | 22.6                     |
| 200A                                | 216.3                                   | 218.2                                    | 405                                      | 50                             | 72 | 255                | 263 | 8           | 2 | 290 | 190.9 | 345                              | 12                         | 33                     | M30                    | 243.0          | 13  | 243.0          | 7   |   | 34.9                     |
| 250A                                | 267.4                                   | 269.5                                    | 475                                      | 56                             | 80 | 310                | 318 | 10          | 2 | 355 | 237.2 | 410                              | 12                         | 33                     | M30                    | 298.0          | 15  | 298.0          | 7   |   | 41.1                     |

1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.
2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.
3. d치수는 KS D 3562, KS D 3564 및 KS D 3570의 스케줄 80인 경우를 참조로해서 표시한 것이다.  
다만, 호칭 지름 450 이상인 것은 관의 안지름 두께를 12.7mm로 했다.
4. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고2를 참조.
5. 무게 계산은 KS D 3695에 따른다.



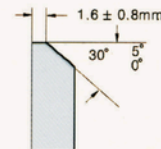
# Stainless Steel Flanges

10kg/cm<sup>2</sup> WELDING STAINLESS STEEL PIPE FLANGES



\*The surface finish shown above is in the case of forging (▽ marks: In other cases)

Reference: Beveling



When particularly necessary customers can order another beveling from above.

Unit : mm

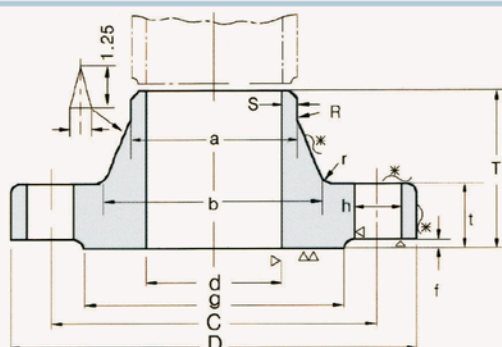
| Nominal Bore of Flange | Outside Diam of steel Pipe | Inside Diam of Flange d      | Outside Diam of Flange D | Sectional Dimensions of Flange |       |             |     |             |               | Dia of Bolt           |                        |                      |            | Nominal Bolt Size | Length of wecr Depat P *4 | Approx Weight (kg) |
|------------------------|----------------------------|------------------------------|--------------------------|--------------------------------|-------|-------------|-----|-------------|---------------|-----------------------|------------------------|----------------------|------------|-------------------|---------------------------|--------------------|
|                        |                            |                              |                          | t                              | T *1  | Diam of Hub |     | Radius r *3 | Raised Face f | Diam of Raised Face g | Bolt Circle Bolt Holes | Number of Bolt Holes | Hole Dia h |                   |                           |                    |
|                        |                            |                              |                          |                                |       | a           | b   |             |               |                       |                        |                      |            |                   |                           |                    |
| 10A                    | 17.3                       | To be specified by purchaser | 90                       | 12                             | 28.9  | 17.3        | 25  | 4           | 1             | 46                    | 65                     | 4                    | 15         | M12               | 3.5                       |                    |
| 15A                    | 21.7                       |                              | 95                       | 12                             | 30.6  | 21.7        | 33  | 4           | 1             | 51                    | 70                     | 4                    | 15         | M12               | 4.5                       |                    |
| 20A                    | 27.2                       |                              | 100                      | 14                             | 33.9  | 27.2        | 38  | 4           | 1             | 56                    | 75                     | 4                    | 15         | M12               | 6.4                       |                    |
| 25A                    | 34                         |                              | 125                      | 14                             | 36.3  | 34.0        | 47  | 4           | 1             | 67                    | 90                     | 4                    | 19         | M16               | 6.0                       |                    |
| 32A                    | 42.7                       |                              | 135                      | 16                             | 40.3  | 42.7        | 57  | 5           | 2             | 76                    | 100                    | 4                    | 19         | M16               | 6.4                       |                    |
| 40A                    | 48.6                       |                              | 140                      | 16                             | 41.2  | 48.6        | 64  | 5           | 2             | 81                    | 105                    | 4                    | 19         | M16               | 5.9                       |                    |
| 50A                    | 60.5                       |                              | 155                      | 16                             | 42.9  | 60.5        | 77  | 5           | 2             | 96                    | 120                    | 4                    | 19         | M16               | 6.3                       |                    |
| 65A                    | 76.3                       |                              | 175                      | 18                             | 53.0  | 76.3        | 97  | 5           | 2             | 116                   | 140                    | 4                    | 19         | M16               | 9.1                       |                    |
| 80A                    | 89.1                       |                              | 185                      | 18                             | 53.0  | 89.1        | 109 | 6           | 2             | 126                   | 150                    | 8                    | 19         | M16               | 9.6                       |                    |
| (90)A                  | 101.6                      |                              | 195                      | 18                             | 50.6  | 101.6       | 120 | 6           | 2             | 136                   | 160                    | 8                    | 19         | M16               | 9.6                       |                    |
| 100A                   | 114.3                      |                              | 210                      | 18                             | 54.3  | 114.3       | 135 | 6           | 2             | 151                   | 175                    | 8                    | 19         | M16               | 10.4                      |                    |
| 125A                   | 139.8                      |                              | 250                      | 20                             | 56.2  | 139.8       | 160 | 6           | 2             | 182                   | 210                    | 8                    | 23         | M20               | 10.9                      |                    |
| 150A                   | 165.2                      |                              | 280                      | 22                             | 65.3  | 165.2       | 190 | 6           | 2             | 212                   | 240                    | 8                    | 23         | M20               | 12.3                      |                    |
| (175)A                 | 190.7                      |                              | 305                      | 22                             | 66.1  | 190.7       | 215 | 6           | 2             | 237                   | 265                    | 12                   | 23         | M20               | 13.7                      |                    |
| 200A                   | 216.3                      |                              | 330                      | 22                             | 66.1  | 216.3       | 240 | 6           | 2             | 262                   | 290                    | 12                   | 23         | M20               | 14.4                      |                    |
| (225)A                 | 241.8                      |                              | 350                      | 22                             | 62.3  | 241.8       | 262 | 6           | 2             | 282                   | 310                    | 12                   | 23         | M20               | 15.0                      |                    |
| 250A                   | 267.4                      |                              | 400                      | 24                             | 70.7  | 267.4       | 292 | 6           | 2             | 324                   | 355                    | 12                   | 25         | M22               | 15.9                      |                    |
| 300A                   | 318.5                      |                              | 445                      | 24                             | 75.9  | 318.5       | 346 | 6           | 3             | 268                   | 400                    | 16                   | 25         | M22               | 17.5                      |                    |
| 350A                   | 355.6                      |                              | 490                      | 26                             | 83.0  | 355.6       | 386 | 8           | 3             | 413                   | 445                    | 16                   | 25         | M22               | 19.0                      |                    |
| 400A                   | 406.4                      |                              | 560                      | 28                             | 94.4  | 406.4       | 442 | 8           | 3             | 475                   | 510                    | 16                   | 27         | M24               | 21.9                      |                    |
| 450A                   | 457.2                      |                              | 620                      | 30                             | 107.9 | 457.2       | 502 | 10          | 3             | 530                   | 565                    | 20                   | 27         | M24               | 21.9                      |                    |
| 500A                   | 508                        |                              | 675                      | 30                             | 110.2 | 508.0       | 554 | 10          | 3             | 585                   | 620                    | 20                   | 27         | M24               | 22.7                      |                    |
| 550A                   | 558.8                      |                              | 745                      | 32                             | 119.9 | 558.8       | 610 | 10          | 3             | 640                   | 680                    | 20                   | 33         | M30               | 23.9                      |                    |
| 600A                   | 609.6                      |                              | 795                      | 32                             | 123.6 | 609.6       | 662 | 10          | 3             | 690                   | 730                    | 24                   | 33         | M30               | 26.1                      |                    |

1. \*1 \*2 \*4 DIMENSIONS OF "T" "r" "S" "P" ARE MAKER, KWANG SIN'S STANDARD.

2. \*2 UNDER NOMINAL SIZE 225mm & UNDER DIMENSION OF "b" IS MAKER, KWANG JIN'S STANDARD.

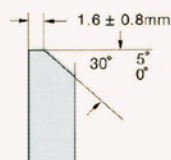
3. ALL DIMENSIONS OF FLANGE WERE DESIGNED ON JIS B2220 & KS B1506 BASE

# 20kg/cm<sup>2</sup> WELDING STAINLESS STEEL PIPE FLANGES



\*The surface finish shown above is in the case of forging (▽ marks: in other cases)

Reference: Beveling



When particularly necessary customers can order another beveling from above.

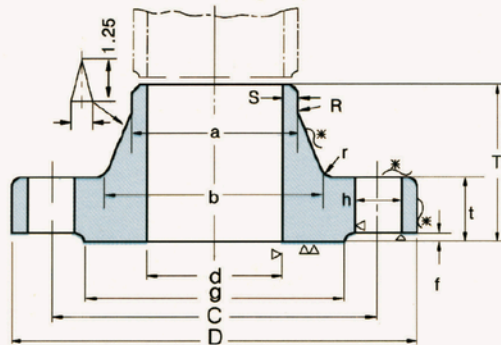
Unit : mm

| Nominal Diameter of Flange | Outside Diameter of Steel Pipe | Outside Diameter of Flange D | Sectional Dimensions of Flange |                              |       |     |                              |       |      |        |   |     | Dia of Bolt            |                      |                    | Nominal Bolt Size | Approx Weight (kg) |
|----------------------------|--------------------------------|------------------------------|--------------------------------|------------------------------|-------|-----|------------------------------|-------|------|--------|---|-----|------------------------|----------------------|--------------------|-------------------|--------------------|
|                            |                                |                              | t                              | d                            | a     | b   | S                            | T     | P    | Radius | f | g   | Bolt Diameter Circle C | Number of Bolt Holes | Diameter of Hole h |                   |                    |
| 10A                        | 17.3                           | 90                           | 14                             | To be specified by purchaser | 17.3  | 32  | To be specified by purchaser | 35.9  | 3.5  | 4      | 1 | 46  | 65                     | 4                    | 15                 | M12               |                    |
| 15A                        | 21.7                           | 95                           | 14                             |                              | 21.7  | 36  |                              | 36.4  | 4.5  | 4      | 1 | 51  | 70                     | 4                    | 15                 | M12               |                    |
| 20A                        | 27.2                           | 100                          | 16                             |                              | 27.2  | 42  |                              | 40.9  | 6.4  | 4      | 1 | 56  | 75                     | 4                    | 15                 | M12               |                    |
| 25A                        | 34.0                           | 125                          | 16                             |                              | 34.0  | 50  |                              | 42.0  | 6.0  | 4      | 1 | 67  | 90                     | 4                    | 19                 | M16               |                    |
| 32A                        | 42.7                           | 135                          | 18                             |                              | 42.7  | 60  |                              | 46.0  | 6.4  | 5      | 2 | 76  | 100                    | 4                    | 19                 | M16               |                    |
| 40A                        | 48.6                           | 140                          | 18                             |                              | 48.6  | 66  |                              | 45.7  | 5.9  | 5      | 2 | 81  | 105                    | 4                    | 19                 | M16               |                    |
| 50A                        | 60.5                           | 155                          | 18                             |                              | 60.5  | 80  |                              | 48.7  | 6.3  | 5      | 2 | 96  | 120                    | 8                    | 19                 | M16               |                    |
| 65A                        | 76.3                           | 175                          | 20                             |                              | 76.3  | 104 |                              | 63.7  | 9.1  | 5      | 2 | 116 | 140                    | 8                    | 19                 | M16               |                    |
| 80A                        | 89.1                           | 200                          | 22                             |                              | 89.1  | 117 |                              | 66.5  | 9.6  | 6      | 2 | 132 | 160                    | 8                    | 23                 | M20               |                    |
| 90A                        | 101.6                          | 210                          | 24                             |                              | 101.6 | 130 |                              | 68.9  | 9.6  | 6      | 2 | 145 | 170                    | 8                    | 23                 | M20               |                    |
| 100A                       | 114.3                          | 225                          | 24                             |                              | 114.3 | 142 |                              | 69.0  | 10.4 | 6      | 2 | 160 | 185                    | 8                    | 23                 | M20               |                    |
| 125A                       | 139.8                          | 270                          | 26                             |                              | 139.8 | 172 |                              | 77.2  | 10.9 | 6      | 2 | 195 | 225                    | 8                    | 25                 | M22               |                    |
| 150A                       | 165.2                          | 305                          | 28                             | To be specified by purchaser | 165.2 | 202 | To be specified by purchaser | 86.3  | 12.3 | 6      | 2 | 230 | 260                    | 12                   | 25                 | M22               |                    |
| 200A                       | 216.3                          | 350                          | 30                             |                              | 216.3 | 252 |                              | 89.0  | 14.4 | 6      | 2 | 275 | 305                    | 12                   | 25                 | M22               |                    |
| 250A                       | 267.4                          | 430                          | 34                             |                              | 267.4 | 312 |                              | 105.7 | 15.9 | 6      | 2 | 345 | 380                    | 12                   | 27                 | M24               |                    |
| 300A                       | 318.5                          | 480                          | 36                             |                              | 318.5 | 364 |                              | 110.4 | 17.5 | 8      | 3 | 395 | 430                    | 16                   | 27                 | M24               |                    |
| 350A                       | 355.6                          | 540                          | 40                             |                              | 355.6 | 408 |                              | 124.5 | 19.0 | 8      | 3 | 440 | 480                    | 16                   | 33                 | M30×3             |                    |
| 400A                       | 406.4                          | 605                          | 46                             |                              | 406.4 | 456 |                              | 129.9 | 21.9 | 10     | 3 | 495 | 540                    | 16                   | 33                 | M30×3             |                    |
| 450A                       | 457.2                          | 675                          | 48                             |                              | 457.2 | 514 |                              | 140.9 | 21.9 | 10     | 3 | 560 | 605                    | 20                   | 33                 | M30×3             |                    |
| 500A                       | 508.0                          | 730                          | 50                             |                              | 508.0 | 568 |                              | 147.7 | 22.7 | 10     | 3 | 615 | 660                    | 20                   | 33                 | M30×3             |                    |
| 550A                       | 558.8                          | 795                          | 52                             |                              | 558.8 | 622 |                              | 154.9 | 23.9 | 10     | 3 | 670 | 720                    | 20                   | 39                 | M36×3             |                    |
| 600A                       | 609.6                          | 845                          | 54                             |                              | 609.6 | 676 |                              | 163.1 | 26.1 | 10     | 3 | 720 | 770                    | 24                   | 39                 | M36×3             |                    |

NOTE : DIMENSIONS ARE MAKER KWANG JIN STANDARD AND DESIGN BASE IS JIS B2220-1984 & KS B1506 BASE

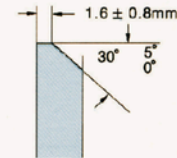
# Stainless Steel Flanges

**30kg/cm<sup>2</sup>** JIS B2220-1984 (KSB 1506-2000)  
WELDING STAINLESS STEEL PIPE FLANGES



\*The surface finish shown above is in the case of forging (▽ marks in other cases)

Reference: Beveling



When particularly necessary customers can order another beveling from above.

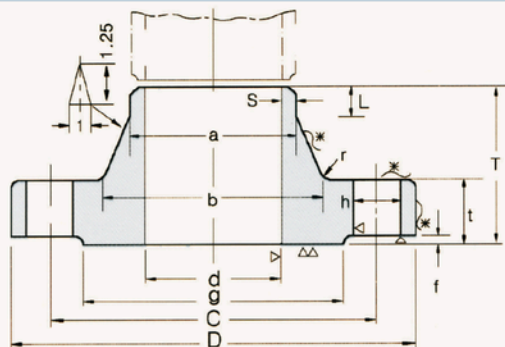
Unit : mm

| Nominal Diameter of Flange | Outside Diameter of Steel Pipe | Outside Diameter of Flange D | Sectional Dimensions of Flange |       |       |     |      |     |    |          |   |     | Dia of Bolt            |                      |                   | Nominal Bolt Size | Approx Weight (kg) |
|----------------------------|--------------------------------|------------------------------|--------------------------------|-------|-------|-----|------|-----|----|----------|---|-----|------------------------|----------------------|-------------------|-------------------|--------------------|
|                            |                                |                              | t                              | d     | a     | b   | S    | T   | R  | Radius r | f | g   | Bolt Diameter Circle C | Number of Bolt Holes | Hole Diameter r h |                   |                    |
| 15A                        | 21.7                           | 115                          | 18                             | 15.8  | 22.0  | 40  | 3.1  | 45  | 20 | 6        | 1 | 55  | 80                     | 4                    | 19                | M16               | 1.33               |
| 20A                        | 27.2                           | 120                          | 18                             | 21.1  | 27.5  | 44  | 3.2  | 45  | 20 | 6        | 1 | 60  | 85                     | 4                    | 19                | M16               | 1.47               |
| 25A                        | 34.0                           | 130                          | 20                             | 26.8  | 34.4  | 52  | 3.8  | 48  | 20 | 6        | 1 | 70  | 95                     | 4                    | 19                | M16               | 1.95               |
| 32A                        | 42.7                           | 140                          | 22                             | 35.1  | 43.1  | 62  | 4.0  | 52  | 30 | 6        | 2 | 80  | 105                    | 4                    | 19                | M16               | 2.43               |
| 40A                        | 48.6                           | 160                          | 22                             | 40.7  | 49.1  | 70  | 4.2  | 54  | 30 | 6        | 2 | 90  | 120                    | 4                    | 23                | M20               | 3.16               |
| 50A                        | 60.5                           | 165                          | 22                             | 52.2  | 61.0  | 84  | 4.4  | 57  | 30 | 8        | 2 | 105 | 130                    | 8                    | 19                | M16               | 3.33               |
| 65A                        | 76.3                           | 200                          | 26                             | 65.3  | 76.9  | 104 | 5.8  | 69  | 30 | 8        | 2 | 130 | 160                    | 8                    | 23                | M20               | 5.91               |
| 80A                        | 89.1                           | 210                          | 28                             | 77.5  | 89.7  | 118 | 6.1  | 73  | 30 | 8        | 2 | 140 | 170                    | 8                    | 23                | M20               | 7.05               |
| (90)A                      | 101.6                          | 230                          | 30                             | 89.5  | 102.3 | 130 | 6.4  | 74  | 30 | 8        | 2 | 150 | 185                    | 8                    | 25                | M22               | 8.54               |
| 100A                       | 114.3                          | 240                          | 32                             | 101.5 | 115.1 | 142 | 6.8  | 76  | 30 | 8        | 2 | 160 | 195                    | 8                    | 25                | M22               | 9.72               |
| 125A                       | 139.8                          | 275                          | 36                             | 125.7 | 140.7 | 172 | 7.5  | 86  | 50 | 10       | 2 | 195 | 230                    | 8                    | 25                | M22               | 14.4               |
| 150A                       | 165.2                          | 325                          | 38                             | 150.0 | 166.2 | 202 | 8.1  | 95  | 50 | 10       | 2 | 235 | 275                    | 12                   | 27                | M24               | 20.6               |
| 200A                       | 216.3                          | 370                          | 42                             | 198.7 | 217.5 | 254 | 9.4  | 102 | 50 | 10       | 2 | 280 | 320                    | 12                   | 27                | M24               | 28.7               |
| 250A                       | 267.4                          | 450                          | 48                             | 247.5 | 268.7 | 312 | 10.6 | 118 | 50 | 12       | 2 | 345 | 390                    | 12                   | 33                | M30×3             | 47.3               |
| 300A                       | 318.5                          | 515                          | 52                             | 296.4 | 320.0 | 366 | 11.8 | 127 | 50 | 15       | 3 | 405 | 450                    | 16                   | 33                | M30×3             | 62.8               |
| 350A                       | 355.6                          | 560                          | 54                             | 331.8 | 357.2 | 406 | 12.7 | 134 | 80 | 15       | 3 | 450 | 495                    | 16                   | 33                | M30×3             | 77.0               |
| 400A                       | 406.4                          | 630                          | 60                             | 379.1 | 408.3 | 462 | 14.6 | 149 | 80 | 20       | 3 | 510 | 560                    | 16                   | 39                | M36×3             | 108.0              |

- REMARKS 1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.  
 2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.  
 3. d 및 S치수는 관의 두께가 KS D 3562, KS D 3564 및 KS D 3570의 ANSI스케줄 40인 경우를 참고로 해서 표시한 것으로서, 이 외의 치수가 필요한 경우에는 인수인도 당사자 사이의 협정에 따른다.  
 4. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고 2를 참조.  
 5. 무게 계산은 KS D 3695에 따른다.

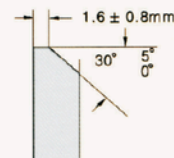


# 40kg/cm<sup>2</sup> JIS B2219-1984 WELDING STAINLESS STEEL PIPE FLANGES



\*The surface finish shown above is in the case of forging (▽ marks: in other cases)

Reference: Beveling



When particularly necessary customers can order another beveling from above.

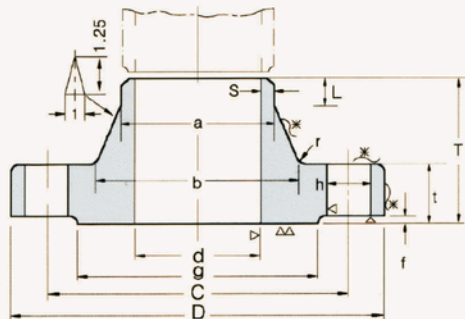
Unit : mm

| Nominal Diameter of Flange | Outside Diameter of Steel Pipe | Outside Diameter of Flange D | Sectional Dimensions of Flange |       |       |     |      |     |    |          |   |     | Dia of Bolt            |                      |                    | Nominal Bolt Size | Approx Weight(kg) |       |
|----------------------------|--------------------------------|------------------------------|--------------------------------|-------|-------|-----|------|-----|----|----------|---|-----|------------------------|----------------------|--------------------|-------------------|-------------------|-------|
|                            |                                |                              | t                              | d     | a     | b   | S    | T   | L  | Radius r | f | g   | Bolt Diameter Circle C | Number of Bolt Holes | Diameter of Hole h |                   | #40               | #80   |
| 15A                        | 21.7                           | 115                          | 20                             | 15.8  | 21.7  | 40  | 3.1  | 50  | 10 | 6        | 1 | 55  | 80                     | 4                    | 19                 | M16               | 1.53              | 1.55  |
| 20A                        | 27.2                           | 120                          | 20                             | 21.1  | 27.2  | 44  | 3.2  | 50  | 10 | 6        | 1 | 60  | 85                     | 4                    | 19                 | M16               | 1.72              | 1.74  |
| 25A                        | 34.0                           | 130                          | 22                             | 26.8  | 34.0  | 52  | 3.8  | 52  | 12 | 6        | 1 | 70  | 95                     | 4                    | 19                 | M16               | 2.24              | 2.28  |
| 32A                        | 42.7                           | 140                          | 24                             | 35.1  | 42.7  | 62  | 4.0  | 56  | 14 | 6        | 2 | 80  | 105                    | 4                    | 19                 | M16               | 2.24              | 2.86  |
| 40A                        | 48.6                           | 160                          | 24                             | 40.7  | 48.6  | 70  | 4.2  | 60  | 14 | 6        | 2 | 90  | 120                    | 4                    | 23                 | M20               | 2.93              | 3.01  |
| 50A                        | 60.5                           | 165                          | 26                             | 52.2  | 60.5  | 84  | 4.4  | 64  | 16 | 8        | 2 | 105 | 130                    | 8                    | 19                 | M16               | 4.2               | 4.41  |
| 65A                        | 76.3                           | 200                          | 30                             | 65.3  | 76.3  | 104 | 5.8  | 75  | 18 | 8        | 2 | 130 | 160                    | 8                    | 23                 | M20               | 7.32              | 7.52  |
| 80A                        | 89.1                           | 210                          | 32                             | 77.5  | 89.1  | 118 | 6.1  | 80  | 18 | 8        | 2 | 140 | 170                    | 8                    | 23                 | M20               | 8.47              | 8.80  |
| (90)A                      | 104.6                          | 230                          | 34                             | 89.5  | 104.6 | 130 | 6.4  | 88  | 18 | 8        | 2 | 150 | 185                    | 8                    | 25                 | M22               | 9.4               | -     |
| 100A                       | 114.3                          | 250                          | 36                             | 101.5 | 114.3 | 148 | 6.8  | 90  | 24 | 8        | 2 | 165 | 205                    | 8                    | 25                 | M22               | 13.25             | 13.82 |
| 125A                       | 139.8                          | 300                          | 40                             | 125.7 | 139.8 | 186 | 7.5  | 108 | 26 | 10       | 2 | 200 | 250                    | 8                    | 27                 | M24               | 21.64             | 22.5  |
| 150A                       | 165.2                          | 355                          | 44                             | 150.0 | 165.2 | 218 | 8.1  | 122 | 30 | 10       | 2 | 240 | 295                    | 12                   | 33                 | M30               | 32.45             | 35.1  |
| 200A                       | 216.3                          | 405                          | 50                             | 198.7 | 216.3 | 272 | 9.4  | 132 | 38 | 10       | 2 | 290 | 345                    | 12                   | 33                 | M30               | 45.5              | 47.2  |
| 250A                       | 267.4                          | 475                          | 56                             | 247.5 | 267.4 | 338 | 10.6 | 138 | 44 | 12       | 2 | 355 | 410                    | 12                   | 33                 | M30               | 69.6              | -     |
| 300A                       | 318.5                          | 540                          | 60                             | 296.4 | 318.5 | 400 | 11.8 | 159 | 48 | 15       | 2 | 410 | 470                    | 16                   | 39                 | M36               | 96.0              | -     |
| 350A                       | 355.6                          | 585                          | 64                             | 331.8 | 355.6 | 432 | 12.7 | 168 | 50 | 15       | 3 | 455 | 515                    | 16                   | 39                 | M36               | 115.0             | -     |
| 400A                       | 406.4                          | 645                          | 70                             | 379.1 | 406.4 | 466 | 14.6 | 181 | 50 | 20       | 3 | 515 | 570                    | 16                   | 39                 | M36               | 143.0             | -     |

- REMARKS 1. ( )를 붙인 호칭 지름은 가능한 한 사용하지 않는다.  
 2. 플랜지의 개스킷 자리는 KS B 1519에 따른다.  
 3. d 및 S치수는 관의 두께가 KS D 3562, KS D 3564 및 KS D 3570의 ANSI스케줄 40인 경우를 참고로 해서 표시한 것으로서, 이 외의 치수가 필요한 경우에는 인수인도 당사자 사이의 협정에 따른다.  
 4. 볼트 및 너트의 재료와 모양에 대해서는 KS B 1511의 참고 2를 참조.

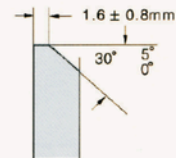
# Stainless Steel Flanges

**63kg/cm<sup>2</sup>** JIS B2220-1984 (KSB 1506-2000)  
WELDING STAINLESS STEEL PIPE FLANGES



\*The surface finish shown above is in the case of forging (▽ marks: in other cases)

Reference: Beveling

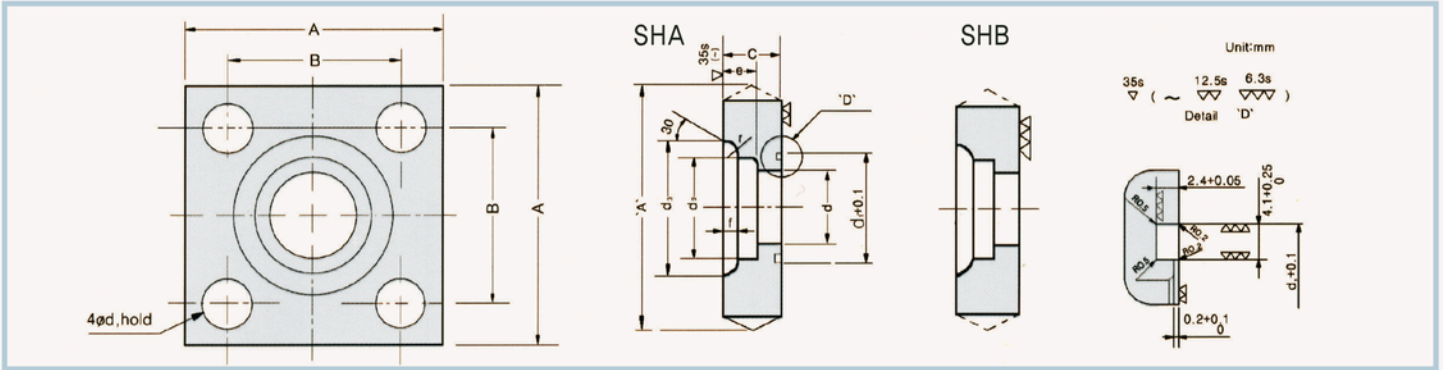


When particularly necessary customers can either another beveling from above.

Unit : mm

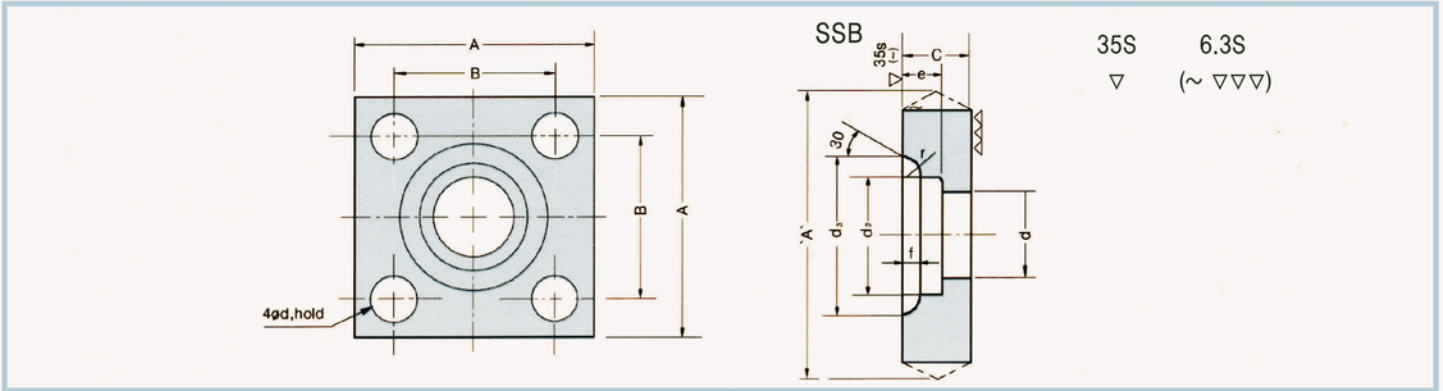
| Nominal Diameter of Flange | Outside Diameter of Steel Pipe | Outside Diameter of Flange D | Sectional Dimensions of Flange |                               |         |       |      |       |    |          |   |     | Dia of Bolt            |                      |                    | Nominal Bolt Size | Approx Weight(kg) |       |
|----------------------------|--------------------------------|------------------------------|--------------------------------|-------------------------------|---------|-------|------|-------|----|----------|---|-----|------------------------|----------------------|--------------------|-------------------|-------------------|-------|
|                            |                                |                              | t                              | d                             | a       | b     | S    | T     | L  | Radius r | f | g   | Bolt Diameter Circle C | Number of Bolt Holes | Diameter of Hole h |                   | #80               | #160  |
| 15A                        | 21.7                           | 120                          | 23                             | To be specified by purchaser. | 21.7    | 45    | 3.1  | 60    | 10 | 6        | 1 | 55  | 85                     | 4                    | 19                 | M16               | 2.07              | 2.09  |
| 20A                        | 27.2                           | 135                          | 25                             |                               | 27.2    | 50    | 3.2  | 62    | 12 | 6        | 1 | 60  | 95                     | 4                    | 23                 | M20               | 2.80              | 2.85  |
| 25A                        | 34.0                           | 140                          | 27                             |                               | 34.0    | 54    | 3.8  | 62    | 13 | 6        | 1 | 70  | 100                    | 4                    | 23                 | M20               | 3.29              | 3.33  |
| 32A                        | 42.7                           | 150                          | 31                             |                               | 42.7    | 64    | 4.0  | 66    | 13 | 6        | 2 | 80  | 110                    | 4                    | 23                 | M20               | 4.12              | 4.2   |
| 40A                        | 48.6                           | 175                          | 33                             |                               | 48.6    | 78    | 4.2  | 78    | 14 | 6        | 2 | 90  | 130                    | 4                    | 25                 | M22               | 6.17              | 6.31  |
| 50A                        | 60.5                           | 185                          | 35                             |                               | 60.5    | 84    | 4.4  | 84    | 16 | 8        | 2 | 105 | 145                    | 8                    | 23                 | M20               | 7.35              | 7.85  |
| 65A                        | 76.3                           | 220                          | 39                             |                               | 76.3    | 96    | 5.8  | 96    | 18 | 10       | 2 | 130 | 175                    | 8                    | 25                 | M22               | 11.85             | 12.22 |
| 80A                        | 89.1                           | 230                          | 41                             |                               | 89.1    | 98    | 6.1  | 98    | 18 | 10       | 2 | 140 | 185                    | 8                    | 25                 | M22               | 13.23             | 13.82 |
| (90)A                      | 101.6                          | 255                          | 42                             |                               | 104.6   | 126   | 6.4  | 126   | 18 | 10       | 2 | 150 | 205                    | 8                    | 27                 | M24               | 15.2              | 15.8  |
| 100A                       | 114.3                          | 270                          | 45                             |                               | 114.3   | 107   | 6.8  | 107   | 20 | 10       | 2 | 165 | 220                    | 8                    | 27                 | M24               | 19.45             | 20.65 |
| 125A                       | 139.8                          | 325                          | 51                             |                               | (139.8) | (128) | 7.5  | (128) | 24 | 12       | 2 | 200 | 265                    | 8                    | 33                 | M30               | 31.40             | 34.0  |
| 150A                       | 165.2                          | 365                          | 55                             |                               | 165.2   | 224   | 8.1  | 142   | 26 | 15       | 2 | 240 | 305                    | 12                   | 33                 | M30               | 45.0              | 48.5  |
| 200A                       | 216.3                          | 425                          | 61                             |                               | 216.3   | 274   | 9.4  | 151   | 30 | 15       | 2 | 290 | 360                    | 12                   | 33                 | M30               | 63.60             | 70.7  |
| 250A                       | 267.4                          | 500                          | 69                             |                               | 267.4   | 340   | 10.6 | 175   | 38 | 20       | 2 | 355 | 430                    | 12                   | 39                 | M36               | 144.0             | —     |
| 300A                       | 318.5                          | 560                          | 78                             |                               | 318.5   | 402   | 11.8 | 286   | 44 | 23       | 2 | 410 | 485                    | 16                   | 39                 | M36               | 154.0             | —     |
| 350A                       | 355.6                          | 615                          | 82                             |                               | 355.6   | 438   | 12.7 | 301   | 48 | 25       | 3 | 455 | 530                    | 16                   | 46                 | M43               | 191               | —     |
| 400A                       | 406.4                          | 680                          | 81                             |                               | 406.4   | 490   | 14.6 | 314   | 48 | 25       | 3 | 515 | 590                    | 16                   | 46                 | M43               | 247               | —     |

210kgf/cm<sup>2</sup> (JIS B2291-1970)  
FLANGE FOR OIL PRESSURE



Unit : mm

| Nominal Boree | A   |      | A' (MAX) | B   |      | C  |      | d    | d <sub>1</sub> | d <sub>2</sub> |      | e  | d <sub>3</sub> | d <sub>4</sub> | f    | r | Weight (kg) | REMARK |      |
|---------------|-----|------|----------|-----|------|----|------|------|----------------|----------------|------|----|----------------|----------------|------|---|-------------|--------|------|
|               |     |      |          |     |      |    |      |      |                |                |      |    |                |                |      |   |             | O-ring | BOLT |
| 15            | 54  | ±1   | 58       | 36  | ±0.2 | 22 | 0    | 16   | 30             | 22.2           | ±0.2 | 11 | 32             | 11             | 3.5  | 5 | 0.5         | G25    | M10  |
| 20            | 58  |      | 62       | 40  |      | 22 | -1   | 20   | 35             | 27.7           | 0    | 12 | 38             | 11             | 4.0  | 5 | 0.6         | G30    | M10  |
| 25            | 68  |      | 73       | 48  |      | 28 | 0    | 25   | 40             | 34.5           | ±0.3 | 14 | 45             | 13             | 4.0  | 5 | 0.8         | G35    | M12  |
| 32            | 76  | ±1.2 | 81       | 56  | ±0.4 | 28 | -1.5 | 31.5 | 45             | 43.2           |      | 16 | 56             | 13             | 6.0  | 5 | 1.0         | G40    | M12  |
| 40            | 92  |      | 98       | 65  |      | 36 | 0    | 37.5 | 55             | 49.1           |      | 18 | 63             | 18             | 7.0  | 5 | 1.9         | G50    | M16  |
| 50            | 100 | ±1.5 | 106      | 73  |      | 36 |      | 47.5 | 65             | 61.1           | ±0.4 | 20 | 75             | 18             | 7.0  | 5 | 2.0         | G60    | M16  |
| 65            | 128 |      | 136      | 92  |      | 45 |      | 60   | 80             | 77.1           |      | 22 | 95             | 22             | 9.5  | 6 | 4.1         | G75    | M20  |
| 80            | 140 | ±2   | 148      | 103 |      | 45 |      | 71   | 90             | 90.0           |      | 25 | 108            | 24             | 11.0 | 6 | 4.7         | G85    | M22  |

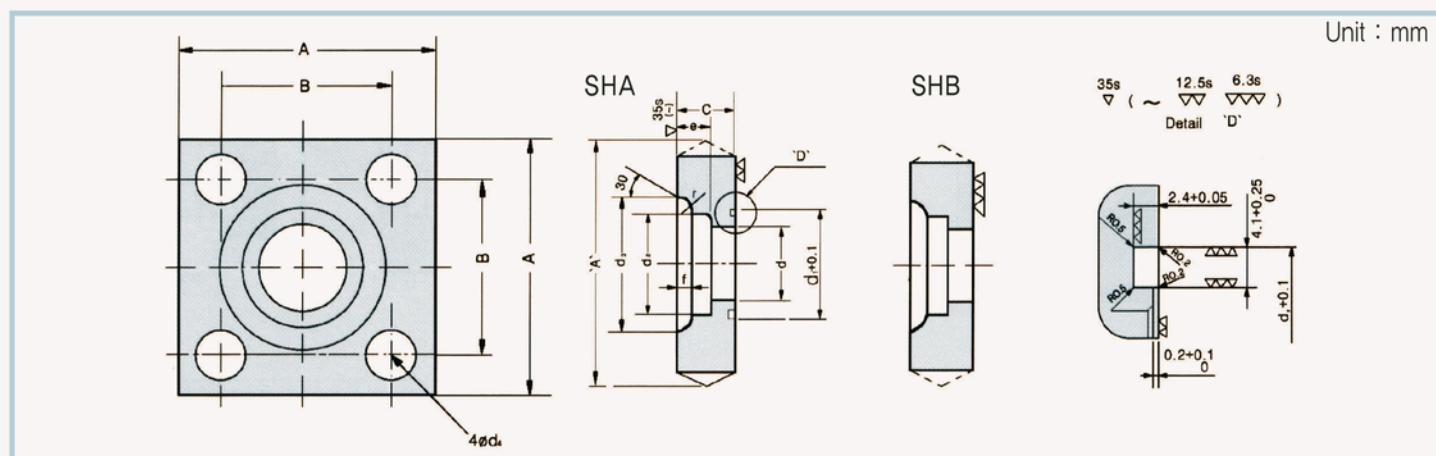


| Nominal Boree | A   |      | A' (MAX) | B   |      | C  |      | d    | d <sub>2</sub> |      | e  | d <sub>3</sub> | d <sub>4</sub> | f    | r | Weight (kg) |
|---------------|-----|------|----------|-----|------|----|------|------|----------------|------|----|----------------|----------------|------|---|-------------|
| 15            | 54  | ±1   | 58       | 36  | ±0.2 | 22 | 0    | 16   | 22.2           | ±0.2 | 11 | 32             | M10            | 3.5  | 5 | 0.5         |
| 20            | 58  |      | 62       | 40  |      | 22 | -1   | 20   | 27.7           | 0    | 12 | 38             | M10            | 4.0  | 5 | 0.6         |
| 25            | 68  |      | 73       | 48  |      | 28 | 0    | 25   | 34.5           | ±0.3 | 14 | 45             | M12            | 4.0  | 5 | 0.8         |
| 32            | 76  | ±1.2 | 81       | 56  | ±0.4 | 28 | -1.5 | 31.5 | 43.2           |      | 16 | 56             | M12            | 6.0  | 5 | 1.0         |
| 40            | 92  |      | 98       | 65  |      | 36 | 0    | 37.5 | 49.1           |      | 18 | 63             | M16            | 7.0  | 5 | 1.9         |
| 50            | 100 | ±1.5 | 106      | 73  |      | 36 |      | 47.5 | 61.1           | ±0.4 | 20 | 75             | M16            | 7.0  | 5 | 2.0         |
| 65            | 128 |      | 136      | 92  |      | 45 |      | 60   | 77.1           |      | 22 | 95             | M20            | 9.5  | 6 | 4.1         |
| 80            | 140 | ±2   | 148      | 103 |      | 45 | 0    | 71   | 90.0           |      | 25 | 108            | M22            | 11.0 | 6 | 4.7         |

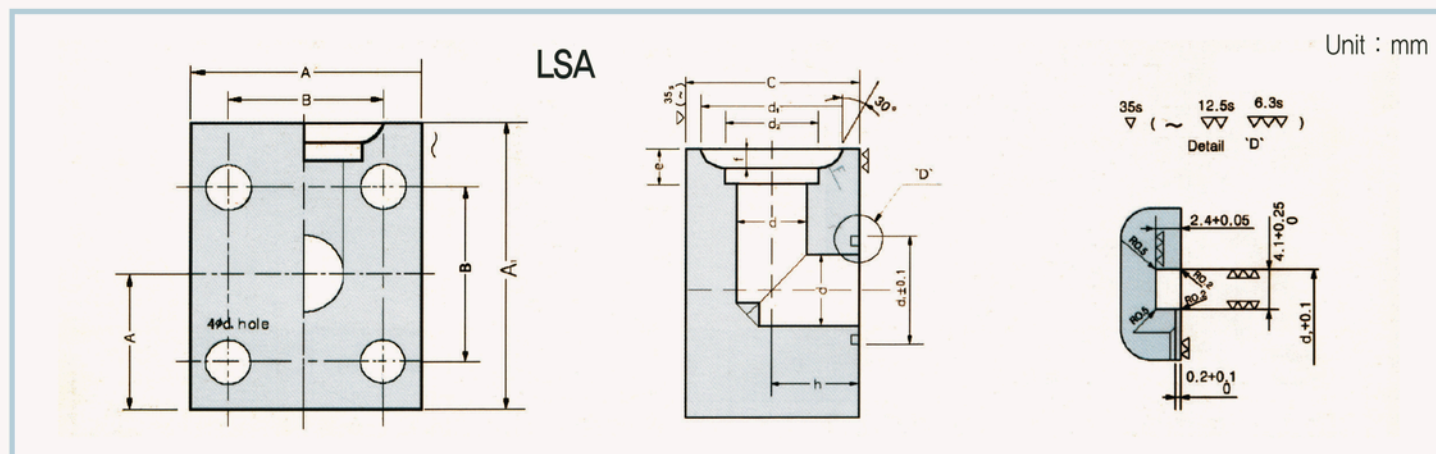


# Stainless Steel Flanges

210kgf/cm<sup>2</sup> (JIS B2291-1970)  
FLANGE FOR OIL PRESSURE

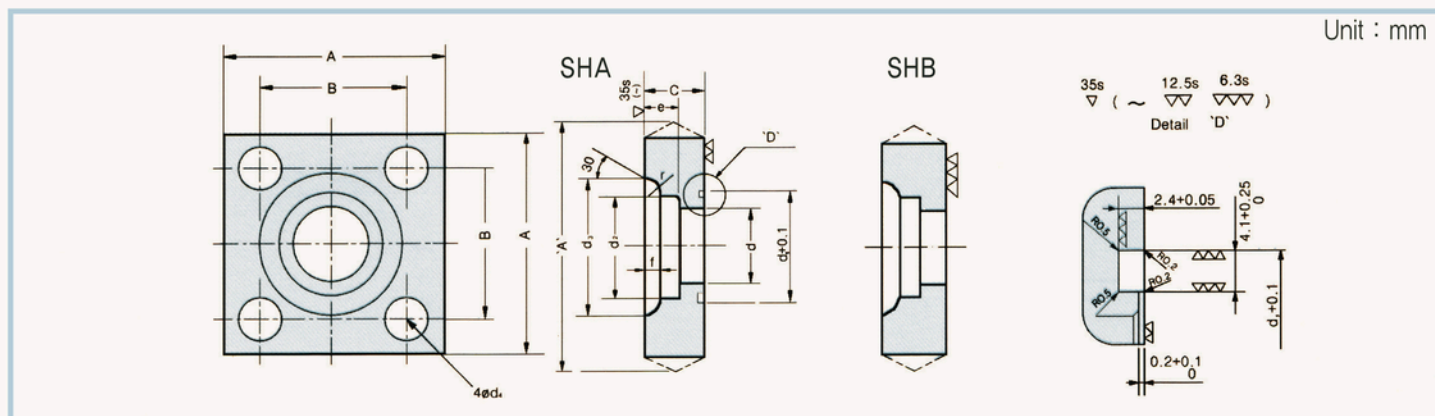


| Nominal Bore | A   |      | A' (MAX) | B   |      | C  |      | d    | d1 | d2   |      | e  | d3  | d4 | f    | r | Weight (kg) | REMARK |      |
|--------------|-----|------|----------|-----|------|----|------|------|----|------|------|----|-----|----|------|---|-------------|--------|------|
|              |     |      |          |     |      |    |      |      |    |      |      |    |     |    |      |   |             | O-ring | BOLT |
| 15           | 63  | ±1   | 67       | 40  | ±0.2 | 22 | 0    | 16   | 30 | 22.2 | ±0.2 | 11 | 32  | 11 | 3.5  | 5 | 0.6         | G25    | M10  |
| 20           | 68  |      | 72       | 45  |      | 22 | -1   | 20   | 35 | 27.7 | 0    | 12 | 38  | 11 | 4.0  | 5 | 0.7         | G30    | M10  |
| 25           | 80  |      | 85       | 53  |      | 28 | 0    | 25   | 40 | 34.5 | ±0.3 | 14 | 45  | 13 | 4.0  | 5 | 1.2         | G35    | M12  |
| 32           | 90  | ±1.2 | 95       | 63  | ±0.4 | 28 | -1.5 | 31.5 | 45 | 43.2 |      | 16 | 56  | 13 | 6.0  | 5 | 1.5         | G40    | M12  |
| 40           | 100 |      | 106      | 70  |      | 36 | 0    | 37.5 | 55 | 49.1 |      | 18 | 63  | 18 | 7.0  | 5 | 2.4         | G50    | M16  |
| 50           | 112 | ±1.5 | 118      | 80  |      | 36 | 0    | 47.5 | 65 | 61.1 | ±0.4 | 20 | 75  | 18 | 7.0  | 5 | 2.8         | G60    | M16  |
| 65           | 140 |      | 148      | 100 |      | 45 | -2   | 60   | 80 | 77.1 |      | 22 | 95  | 22 | 9.5  | 6 | 5.3         | G75    | M20  |
| 80           | 155 | ±2   | 163      | 112 |      | 45 |      | 71   | 90 | 90.0 |      | 25 | 108 | 24 | 11.0 | 6 | 6.2         | G85    | M22  |



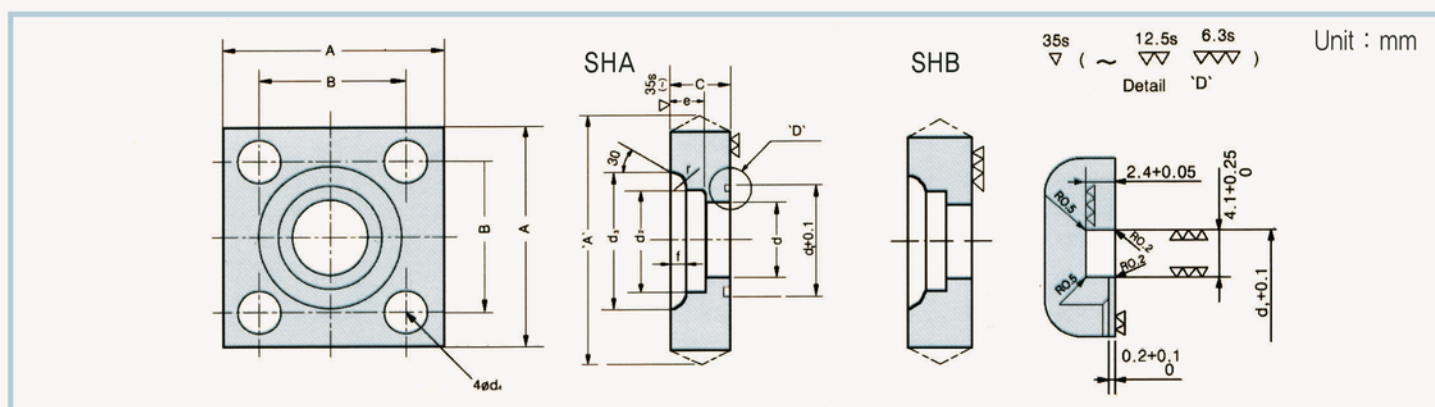
| Nominal Bore | A   |      | A' (MAX) | B   |      | C  |    | h    | d    | d1 | d2   |      | e  | d3  | d4 | f    | r | Weight (kg) | REMARK |        |
|--------------|-----|------|----------|-----|------|----|----|------|------|----|------|------|----|-----|----|------|---|-------------|--------|--------|
|              |     |      |          |     |      |    |    |      |      |    |      |      |    |     |    |      |   |             | BOLT   | O-ring |
| 15           | 63  | ±1   | 67       | 40  | ±0.2 | 22 |    | 20   | 16   | 30 | 22.2 | ±0.2 | 11 | 32  | 11 | 3.5  | 5 | 1.0         | M10    | G25    |
| 20           | 68  |      | 72       | 45  |      | 22 |    | 22.5 | 20   | 35 | 27.7 | 0    | 12 | 38  | 11 | 4.0  | 5 | 1.3         | M10    | G30    |
| 25           | 80  |      | 85       | 53  |      | 28 |    | 25   | 25   | 40 | 34.5 | ±0.3 | 14 | 45  | 13 | 4.0  | 5 | 1.9         | M12    | G35    |
| 32           | 90  | ±1.2 | 95       | 63  | ±0.4 | 28 | 0  | 31.5 | 31.5 | 45 | 43.2 |      | 16 | 56  | 13 | 6.0  | 5 | 2.9         | M12    | G40    |
| 40           | 100 |      | 106      | 70  |      | 36 | -2 | 35.5 | 37.5 | 55 | 49.1 |      | 18 | 63  | 18 | 7.0  | 5 | 4.7         | M16    | G50    |
| 50           | 112 | ±1.5 | 118      | 80  |      | 36 |    | 42.5 | 47.5 | 65 | 61.1 | ±0.4 | 20 | 75  | 18 | 7.0  | 5 | 6.8         | M16    | G60    |
| 65           | 140 |      | 148      | 100 |      | 45 | 0  | 53   | 60   | 80 | 77.1 |      | 22 | 95  | 22 | 9.5  | 6 | 12.8        | M20    | G75    |
| 80           | 155 | ±2   | 163      | 112 |      | 45 |    | 59   | 71   | 90 | 90.0 |      | 25 | 108 | 24 | 11.0 | 6 | 17.0        | M22    | G85    |

# 280kgf/cm<sup>2</sup> FLANGE FOR OIL PRESSURE



| Nominal Bore | A   |      | A' (MAX) | B   |      | C  |      | d    | d <sub>1</sub> | d <sub>2</sub> |      | e  | d <sub>3</sub> | d <sub>4</sub> | f    | r | Weight (kg) |
|--------------|-----|------|----------|-----|------|----|------|------|----------------|----------------|------|----|----------------|----------------|------|---|-------------|
| 15           | 66  | ±1   | 70       | 43  | ±0.2 | 22 | 0    | 12.3 | 24             | 22.2           | ±0.2 | 12 | 34             | 11             | 4.0  | 5 | 0.63        |
| 20           | 75  |      | 76       | 48  |      | 25 | -1   | 16.2 | 30             |                |      | 12 | 40             | 11             | 4.5  | 5 | 0.85        |
| 25           | 85  | ±1.2 | 91       | 58  | ±0.2 | 35 | 0    | 21.2 | 35             | 34.5           | ±0.3 | 14 | 48             | 13.5           | 5.0  | 5 | 1.64        |
| 32           | 98  |      | 104      | 68  |      | 35 | -1.5 | 29.9 | 45             |                |      | 18 | 60             | 17.5           | 6.5  | 5 | 2.03        |
| 40           | 105 | ±1.5 | 112      | 74  | ±0.4 | 40 | 0    | 34.4 | 50             | 43.2           | 0    | 20 | 66             | 17.5           | 7.5  | 5 | 2.66        |
| 50           | 130 |      | 139      | 90  |      | 50 | 0    | 43.1 | 60             |                |      | 20 | 79             | 22             | 8.0  | 5 | 5.14        |
| 65           | 150 | ±2   | 161      | 108 | ±0.4 | 60 | -2   | 57.3 | 75             | 77.1           | ±0.4 | 25 | 100            | 24             | 10.0 | 6 | 7.95        |
| 80           | 170 |      | 181      | 120 |      | 65 |      | 66.9 | 85             |                |      | 25 | 114            | 26             | 12.0 | 6 | 11.0        |

# 350kgf/cm<sup>2</sup> FLANGE FOR OIL PRESSURE



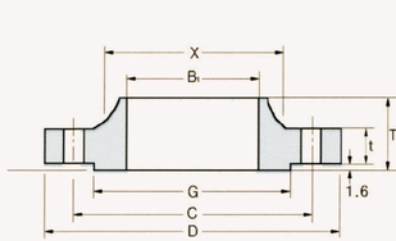
| Nominal Bore | A   |      | A' (MAX) | B   |      | C  |      | d    | d <sub>1</sub> | d <sub>2</sub> |      | e  | d <sub>3</sub> | d <sub>4</sub> | f    | r | Weight (kg) |
|--------------|-----|------|----------|-----|------|----|------|------|----------------|----------------|------|----|----------------|----------------|------|---|-------------|
| 15           | 66  | ±1   | 73       | 45  | ±0.2 | 28 | 0    | 12.3 | 24             | 22.2           | ±0.2 | 12 | 37.5           | 11             | 4    | 5 | 0.88        |
| 20           | 82  |      | 87       | 55  |      | 30 | 0    | 16.2 | 30             |                |      | 12 | 43.5           | 13.5           | 5    | 5 | 1.34        |
| 25           | 95  | ±1.2 | 101      | 65  | ±0.2 | 35 | -1.5 | 21.2 | 35             | 34.5           | ±0.3 | 14 | 53             | 17.5           | 5.5  | 6 | 2.02        |
| 32           | 100 |      | 106      | 70  |      | 35 |      | 23.3 | 40             |                |      | 18 | 63             | 17.5           | 7    | 6 | 2.16        |
| 40           | 105 | ±1.5 | 112      | 75  | ±0.4 | 42 | 0    | 28.2 | 45             | 43.2           | 0    | 20 | 70             | 17.5           | 8    | 6 | 2.84        |
| 50           | 132 |      | 140      | 92  |      | 50 | 0    | 38.3 | 55             |                |      | 25 | 84             | 22             | 9    | 6 | 5.30        |
| 65           | 160 | ±2   | 170      | 112 | ±0.4 | 60 | -2   | 48.3 | 65             | 77.1           | ±0.4 | 30 | 105            | 26             | 12   | 7 | 9.92        |
| 80           | 190 |      | 202      | 130 |      | 68 |      | 58.7 | 75             |                |      | 30 | 120            | 33             | 13.5 | 7 | 14.8        |



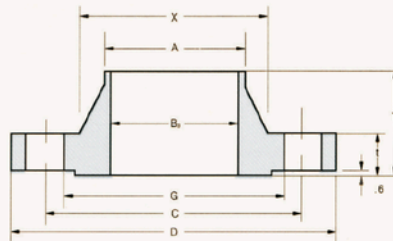
# Stainless Steel Flanges

## CLASS 150-300 FLANGES

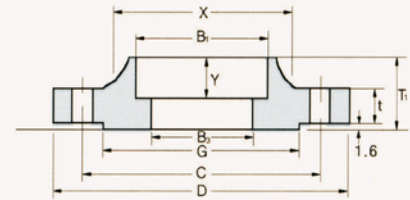
JPI 7S-15-84 & ANSI B16.5



SLIP-ON



WELDING NECK



SOCKET WELDING

### Class 150

Unit : mm

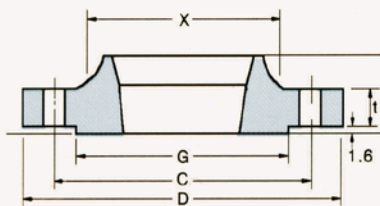
| Nominal<br>Pipe<br>Size |      | Outside<br>Dia, of<br>Flanges | Dia of Bore                       |       |                             |       |                       |       |        |       |       |        | Dia of Hub<br>at Bevel<br>A |       | Dia, of<br>hub at<br>Base | Dia, of<br>hub at<br>Face | Thick<br>of<br>Flanges | Radius<br>of<br>Fillet |
|-------------------------|------|-------------------------------|-----------------------------------|-------|-----------------------------|-------|-----------------------|-------|--------|-------|-------|--------|-----------------------------|-------|---------------------------|---------------------------|------------------------|------------------------|
|                         |      |                               | Slip-on<br>Socket, B <sub>1</sub> |       | Lab-Joint<br>B <sub>2</sub> |       | Welding-Neck, Scket B |       |        |       |       |        |                             |       |                           |                           |                        |                        |
|                         |      |                               |                                   |       |                             |       | JPI                   |       |        | ANSI  |       |        |                             |       |                           |                           |                        |                        |
| A                       | B    | D                             | JPI                               | ANSI  | JPI                         | ANSI  | SCH40                 | SCH80 | SCH160 | SCH40 | SCH80 | SCH160 | JPI                         | ANSI  | X                         | G                         | t                      | R                      |
| 15                      | ½    | 89                            | 22.2                              | 22.4  | 23.4                        | 22.9  | 16.1                  | 14.3  | 12.3   | 15.8  | 13.9  | 11.8   | 21.7                        | 21.3  | 30.2                      | 35.1                      | 11.2                   | 3                      |
| 20                      | ¾    | 98                            | 27.7                              | 27.7  | 28.9                        | 28.2  | 21.4                  | 19.4  | 16.2   | 20.9  | 18.8  | 15.6   | 27.2                        | 26.7  | 38.1                      | 42.9                      | 12.7                   | 3                      |
| 25                      | 1    | 108                           | 34.5                              | 34.6  | 35.6                        | 35.1  | 27.2                  | 25.0  | 21.2   | 26.6  | 24.3  | 20.7   | 34.0                        | 33.5  | 49.3                      | 50.8                      | 14.3                   | 3                      |
| (32)                    | (1¼) | 117                           | 43.2                              | 43.2  | 44.3                        | 43.7  | 35.5                  | 32.9  | 29.9   | 35.1  | 32.5  | 29.5   | 42.7                        | 42.2  | 58.7                      | 63.5                      | 15.9                   | 5                      |
| 40                      | 1½   | 127                           | 49.1                              | 49.6  | 50.4                        | 50.0  | 41.2                  | 38.4  | 34.4   | 40.9  | 38.1  | 34.0   | 48.6                        | 48.3  | 65.0                      | 73.2                      | 17.5                   | 6                      |
| 50                      | 2    | 152                           | 61.1                              | 62.0  | 62.7                        | 62.5  | 52.7                  | 49.5  | 43.1   | 52.5  | 49.3  | 42.9   | 60.5                        | 60.5  | 77.8                      | 91.9                      | 19.1                   | 8                      |
| 65                      | 2½   | 178                           | 77.1                              | 74.7  | 78.7                        | 75.5  | 65.9                  | 62.3  | 57.3   | 62.7  | 59.0  | 54.0   | 76.3                        | 73.2  | 90.4                      | 104.6                     | 22.3                   | 8                      |
| 80                      | 3    | 191                           | 90.0                              | 90.7  | 91.6                        | 91.4  | 78.1                  | 73.9  | 66.9   | 77.9  | 73.7  | 66.7   | 89.1                        | 88.9  | 108.0                     | 127.0                     | 23.9                   | 10                     |
| (90)                    | (3½) | 216                           | 102.6                             | 103.4 | 104.1                       | 104.2 | 90.2                  | 85.4  | 76.2   | 90.1  | 85.5  | —      | 101.6                       | 101.6 | 122.2                     | 139.7                     | 23.9                   | 10                     |
| 100                     | 4    | 229                           | 115.4                             | 116.1 | 116.9                       | 116.9 | 102.3                 | 97.1  | 87.3   | 102.3 | 97.2  | 87.3   | 114.3                       | 114.3 | 134.9                     | 157.2                     | 23.9                   | 11                     |
| (125)                   | (5)  | 254                           | 141.2                             | 143.8 | 143.0                       | 144.6 | 126.6                 | 120.8 | 108.0  | 128.2 | 122.3 | 109.6  | 139.8                       | 141.2 | 163.6                     | 185.7                     | 23.9                   | 11                     |
| 150                     | 6    | 279                           | 166.6                             | 170.7 | 168.4                       | 171.5 | 151.0                 | 143.2 | 128.8  | 154.1 | 146.3 | 131.8  | 165.2                       | 168.4 | 192.1                     | 215.9                     | 25.4                   | 13                     |
| 200                     | 8    | 343                           | 218.0                             | 221.5 | 219.5                       | 222.3 | 199.9                 | 190.9 | 170.3  | 202.7 | 193.7 | 173.1  | 216.3                       | 219.2 | 246.1                     | 269.7                     | 28.6                   | 13                     |
| 250                     | 10   | 406                           | 269.5                             | 276.4 | 271.7                       | 277.4 | 248.8                 | 237.2 | 210.2  | 254.4 | 242.9 | 215.9  | 267.4                       | 273.1 | 304.8                     | 323.9                     | 30.2                   | 13                     |
| 300                     | 12   | 483                           | 321.0                             | 327.2 | 322.8                       | 328.2 | 297.9                 | 283.7 | 251.9  | 303.2 | 288.9 | 257.2  | 318.5                       | 323.9 | 365.1                     | 381.0                     | 31.8                   | 13                     |
| 350                     | 14   | 533                           | 358.1                             | 359.2 | —                           | 360.2 | 333.4                 | 317.6 | 284.2  | 333.3 | 317.5 | 284.2  | 355.6                       | 355.6 | 400.1                     | 412.8                     | 35.0                   | 13                     |
| 400                     | 16   | 597                           | 409.0                             | 410.5 | —                           | 411.3 | 381.0                 | 363.6 | 325.4  | 381.0 | 363.6 | 325.2  | 406.4                       | 406.4 | 457.2                     | 469.9                     | 36.6                   | 13                     |
| 450                     | 18   | 635                           | 460.0                             | 461.8 | —                           | 462.4 | 428.6                 | 409.6 | 366.8  | 428.7 | 409.6 | 366.7  | 457.2                       | 457.2 | 504.8                     | 533.4                     | 39.7                   | 13                     |
| 500                     | 20   | 699                           | 511.0                             | 513.1 | —                           | 514.4 | 477.8                 | 455.6 | 408.0  | 477.8 | 455.6 | 408.0  | 508.0                       | 508.0 | 558.8                     | 584.2                     | 42.9                   | 13                     |
| 600                     | 24   | 815                           | 613.0                             | 616.0 | —                           | 616.0 | 574.6                 | 547.8 | 490.6  | 574.7 | 547.7 | 490.6  | 609.6                       | 609.6 | 663.6                     | 692.2                     | 47.7                   | 13                     |

### Class 300

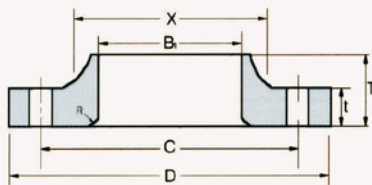
Unit : mm

| Nominal<br>Pipe<br>Size |      | Outside<br>Dia, of<br>Flanges | Dia of Bore                       |       |                             |       |                       |       |        |       |       |        | Dia of Hub<br>at Bevel<br>A |       | Dia, of<br>hub at<br>Base | Dia, of<br>hub at<br>Face | Thick<br>of<br>Flanges | Radius<br>of<br>Fillet |
|-------------------------|------|-------------------------------|-----------------------------------|-------|-----------------------------|-------|-----------------------|-------|--------|-------|-------|--------|-----------------------------|-------|---------------------------|---------------------------|------------------------|------------------------|
|                         |      |                               | Slip-on<br>Socket, B <sub>1</sub> |       | Lab-Joint<br>B <sub>2</sub> |       | Welding-Neck, Scket B |       |        |       |       |        |                             |       |                           |                           |                        |                        |
|                         |      |                               |                                   |       |                             |       | JPI                   |       |        | ANSI  |       |        |                             |       |                           |                           |                        |                        |
| A                       | B    | D                             | JPI                               | ANSI  | JPI                         | ANSI  | SCH40                 | SCH80 | SCH160 | SCH40 | SCH80 | SCH160 | JPI                         | ANSI  | X                         | G                         | t                      | R                      |
| 15                      | ½    | 95                            | 22.2                              | 22.4  | 23.4                        | 22.9  | 16.1                  | 14.3  | 12.3   | 15.8  | 13.9  | 11.8   | 21.7                        | 21.3  | 38.1                      | 35.1                      | 14.3                   | 3                      |
| 20                      | ¾    | 117                           | 27.7                              | 27.7  | 28.9                        | 28.2  | 21.4                  | 19.4  | 16.2   | 20.9  | 18.8  | 15.6   | 27.2                        | 26.7  | 47.6                      | 42.9                      | 15.9                   | 3                      |
| 25                      | 1    | 124                           | 34.5                              | 34.6  | 35.6                        | 35.1  | 27.2                  | 25.0  | 21.2   | 26.6  | 24.3  | 20.7   | 34.0                        | 33.5  | 54.0                      | 50.8                      | 17.5                   | 3                      |
| (32)                    | (1¼) | 133                           | 43.2                              | 43.2  | 44.3                        | 43.7  | 35.5                  | 32.9  | 29.9   | 35.1  | 32.5  | 29.5   | 42.7                        | 42.2  | 63.5                      | 63.5                      | 19.1                   | 5                      |
| 40                      | 1½   | 156                           | 49.1                              | 49.6  | 50.4                        | 50.0  | 41.2                  | 38.4  | 34.4   | 40.9  | 38.1  | 34.0   | 48.6                        | 48.3  | 69.9                      | 73.2                      | 20.6                   | 6                      |
| 50                      | 2    | 165                           | 61.1                              | 62.0  | 62.7                        | 62.5  | 52.7                  | 49.5  | 43.1   | 52.5  | 49.3  | 42.9   | 60.5                        | 60.5  | 84.1                      | 91.9                      | 22.4                   | 8                      |
| 65                      | 2½   | 3191                          | 77.1                              | 74.7  | 78.7                        | 75.5  | 65.9                  | 62.3  | 57.3   | 62.7  | 59.0  | 54.0   | 76.3                        | 73.2  | 100.0                     | 104.6                     | 25.4                   | 8                      |
| 80                      | 3    | 210                           | 90.0                              | 90.7  | 91.6                        | 91.4  | 78.1                  | 73.9  | 66.9   | 77.9  | 73.7  | 66.7   | 89.1                        | 88.9  | 117.5                     | 127.0                     | 28.6                   | 10                     |
| (90)                    | (3½) | 229                           | 102.6                             | 103.4 | 104.1                       | 104.2 | 90.2                  | 85.4  | 76.2   | 90.1  | 85.5  | —      | 101.6                       | 101.6 | 133.4                     | 139.7                     | 30.2                   | 10                     |
| 100                     | 4    | 254                           | 115.4                             | 116.1 | 116.9                       | 116.9 | 102.3                 | 97.1  | 87.3   | 102.3 | 97.2  | 87.3   | 114.3                       | 114.3 | 146.1                     | 157.2                     | 31.8                   | 11                     |
| (125)                   | (5)  | 279                           | 141.2                             | 143.8 | 143.0                       | 144.6 | 126.6                 | 120.8 | 108.0  | 128.2 | 122.3 | 109.6  | 139.8                       | 141.2 | 177.8                     | 185.7                     | 35.1                   | 11                     |
| 150                     | 6    | 318                           | 166.6                             | 170.7 | 168.4                       | 171.5 | 151.0                 | 143.2 | 128.8  | 154.1 | 146.3 | 131.8  | 165.2                       | 168.4 | 206.4                     | 215.9                     | 36.6                   | 13                     |
| 200                     | 8    | 381                           | 218.0                             | 221.5 | 219.5                       | 222.3 | 199.9                 | 190.9 | 170.3  | 202.7 | 193.7 | 173.1  | 216.3                       | 219.2 | 260.4                     | 269.7                     | 41.3                   | 13                     |
| 250                     | 10   | 445                           | 269.5                             | 276.4 | 271.7                       | 277.4 | 248.8                 | 237.2 | 210.2  | 254.4 | 242.9 | 215.9  | 267.4                       | 273.1 | 320.7                     | 323.9                     | 47.8                   | 13                     |
| 300                     | 12   | 521                           | 321.0                             | 327.2 | 322.8                       | 328.2 | 297.9                 | 283.7 | 251.9  | 303.2 | 288.9 | 257.2  | 318.5                       | 323.9 | 374.7                     | 381.0                     | 50.8                   | 13                     |
| 350                     | 14   | 584                           | 358.1                             | 359.2 | —                           | 360.2 | 333.4                 | 317.6 | 284.2  | 333.3 | 317.5 | 284.2  | 355.6                       | 355.6 | 425.5                     | 412.8                     | 54.0                   | 13                     |
| 400                     | 16   | 650                           | 409.0                             | 410.5 | —                           | 411.3 | 381.0                 | 363.6 | 325.4  | 381.0 | 363.6 | 325.2  | 406.4                       | 406.4 | 482.6                     | 469.9                     | 57.2                   | 13                     |
| 450                     | 18   | 710                           | 460.0                             | 461.8 | —                           | 462.4 | 428.6                 | 409.6 | 366.8  | 428.7 | 409.6 | 366.7  | 457.2                       | 457.2 | 533.4                     | 533.4                     | 60.4                   | 13                     |
| 500                     | 20   | 775                           | 511.0                             | 513.1 | —                           | 514.4 | 477.8                 | 455.6 | 408.0  | 477.8 | 455.6 | 408.0  | 508.0                       | 508.0 | 587.4                     | 584.2                     | 63.5                   | 13                     |
| 600                     | 24   | 914                           | 613.0                             | 616.9 | —                           | 616.0 | 574.6                 | 547.8 | 490.6  | 574.7 | 547.7 | 490.6  | 609.6                       | 609.6 | 701.7                     | 692.2                     | 69.9                   | 13                     |

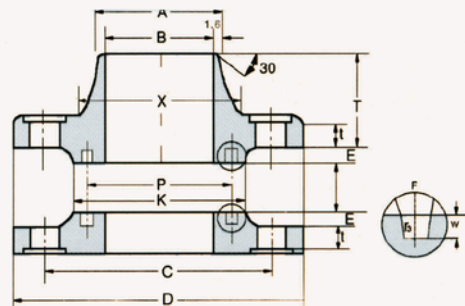




THREADED



LAP JOINT



RING JOINT

## Class 150

Unit : mm

| Length thru Hub       |                         |                         | Depth of Socket      | Drilling                |                |                   | Dia. of Raised Face for Ring Joint | Pitch Dia. of Ring & Groove | Ring No.          | RTJ Type             |                      |                   | Approx. Weight(kg)   |                      |                         |                      | Nominal Pipe Size   |                       |
|-----------------------|-------------------------|-------------------------|----------------------|-------------------------|----------------|-------------------|------------------------------------|-----------------------------|-------------------|----------------------|----------------------|-------------------|----------------------|----------------------|-------------------------|----------------------|---------------------|-----------------------|
| Slip-on Socket Thread | Lap Joint               | Welding Neck            |                      | Dia. of Bolt Circle     | Number of Bolt | Dia. of Bolt Hole |                                    |                             |                   | Depth of Groove      | Width of Groove      | Radius of Groove  | W.N                  | S.O                  | S.W                     | B.L                  |                     |                       |
| T <sub>1</sub>        | T <sub>2</sub>          | T                       | Y                    | C                       | N              | h                 | K(min)                             | P                           |                   | E                    | F                    | r <sub>1</sub>    |                      |                      |                         |                      | A                   | B                     |
| 15.9<br>15.9<br>17.5  | 15.9<br>15.9<br>17.5    | 47.6<br>52.4<br>55.6    | 9.5<br>11.1<br>12.7  | 60.5<br>70.0<br>79.5    | 4<br>4<br>4    | 16<br>16<br>16    | —<br>—<br>63.5                     | —<br>—<br>47.62             | —<br>—<br>R15     | —<br>—<br>63.5       | —<br>—<br>8.74       | —<br>—<br>0.8     | 0.50<br>0.75<br>1.02 | 0.41<br>0.57<br>0.78 | 0.42<br>0.58<br>0.80    | 0.43<br>0.62<br>0.87 | 15<br>20<br>25      | 1/2<br>3/4<br>1       |
| 20.6<br>22.2<br>25.4  | 20.6<br>22.2<br>25.4    | 57.1<br>61.9<br>63.5    | 14.3<br>15.9<br>17.5 | 89.0<br>98.5<br>120.5   | 4<br>4<br>4    | 16<br>16<br>19    | 73.0<br>82.5<br>102                | 57.15<br>69.07<br>82.55     | R17<br>R19<br>R22 | 6.35<br>6.35<br>6.35 | 8.74<br>8.74<br>8.74 | 0.8<br>0.8<br>0.8 | 1.33<br>1.72<br>2.59 | 1.03<br>1.32<br>2.09 | 1.06<br>1.35<br>2.13    | 1.16<br>1.54<br>2.46 | (32)<br>40<br>50    | (1 1/4)<br>1 1/2<br>2 |
| 28.6<br>30.2<br>31.8  | 28.6<br>30.2<br>31.8    | 69.8<br>69.8<br>71.4    | 19.0<br>20.6<br>22.2 | 139.5<br>152.5<br>178.0 | 4<br>4<br>8    | 19<br>19<br>19    | 121<br>133<br>154                  | 101.60<br>114.30<br>131.78  | R25<br>R29<br>R33 | 6.35<br>6.35<br>6.35 | 8.74<br>8.74<br>8.74 | 0.8<br>0.8<br>0.8 | 4.06<br>4.95<br>6.08 | 3.25<br>3.91<br>4.86 | 3.35<br>4.02<br>4.99    | 3.99<br>4.98<br>6.20 | 65<br>80<br>(90)    | 2 1/2<br>3<br>(3 1/2) |
| 33.3<br>36.5<br>39.7  | 33.3<br>36.5<br>39.7    | 76.2<br>88.9<br>88.9    | 23.8<br>23.8<br>27.0 | 190.5<br>216.0<br>241.5 | 8<br>8<br>8    | 19<br>22<br>22    | 171<br>194<br>219                  | 149.22<br>171.45<br>193.68  | R36<br>R40<br>R43 | 6.35<br>6.35<br>6.35 | 8.74<br>8.74<br>8.74 | 0.8<br>0.8<br>0.8 | 6.91<br>8.75<br>10.8 | 5.35<br>6.22<br>7.76 | 5.99<br>6.68<br>7.99    | 7.05<br>8.67<br>11.3 | 100<br>(125)<br>150 | 4<br>(5)<br>6         |
| 44.5<br>49.2<br>55.6  | 44.5<br>49.2<br>55.6    | 101.6<br>101.6<br>114.3 | 31.8<br>33.3<br>39.7 | 298.5<br>362.0<br>432.0 | 8<br>12<br>12  | 22<br>25<br>25    | 273<br>330<br>406                  | 247.65<br>304.80<br>381.00  | R48<br>R52<br>R56 | 6.35<br>6.35<br>6.35 | 8.74<br>8.74<br>8.74 | 0.8<br>0.8<br>0.8 | 18.0<br>24.9<br>38.6 | 12.6<br>17.6<br>27.8 | 13.29<br>19.50<br>29.03 | 19.9<br>29.0<br>43.7 | 200<br>250<br>300   | 8<br>10<br>12         |
| 57.2<br>63.5<br>68.3  | *79.3<br>*87.4<br>*95.8 | 127.0<br>127.0<br>139.7 | 41.3<br>44.5<br>49.2 | 476.0<br>539.5<br>578.0 | 12<br>16<br>16 | 29<br>29<br>32    | 425<br>483<br>546                  | 396.88<br>454.02<br>517.52  | R59<br>R64<br>R68 | 6.35<br>6.35<br>6.35 | 8.74<br>8.74<br>8.74 | 0.8<br>0.8<br>0.8 | 50.6<br>63.9<br>74.9 | 35.2<br>45.3<br>49.7 | 38.56<br>44.49<br>54.43 | 58.6<br>76.6<br>94.5 | 350<br>400<br>450   | 14<br>16<br>18        |
| 73.0<br>82.6          | *103.1<br>*111.3        | 144.5<br>152.4          | 54.0<br>63.5         | 635.0<br>749.5          | 20<br>20       | 32<br>35          | 597<br>711                         | 558.80<br>673.10            | R72<br>R76        | 6.35<br>6.35         | 8.74<br>8.74         | 0.8<br>0.8        | 93.5<br>133          | 63.5<br>90.5         | 70.31<br>95.25          | 123<br>188           | 500<br>600          | 20<br>24              |

## Class 300

Unit : mm

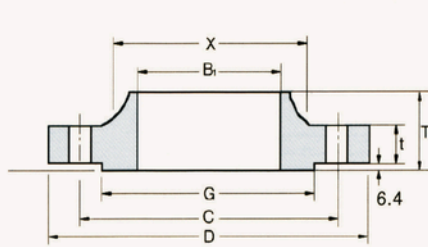
| Length thru Hub       |                            |                         | Depth of Socket      | Drilling                |                |                   | Dia. of Raised Face for Ring Joint | Pitch Dia. of Ring & Groove | Ring No.          | RTJ Type             |                         |                   | Approx. Weight(kg)   |                      |                      |                      | Nominal Pipe Size   |                       |
|-----------------------|----------------------------|-------------------------|----------------------|-------------------------|----------------|-------------------|------------------------------------|-----------------------------|-------------------|----------------------|-------------------------|-------------------|----------------------|----------------------|----------------------|----------------------|---------------------|-----------------------|
| Slip-on Socket Thread | Lap Joint                  | Welding Neck            |                      | Dia. of Bolt Circle     | Number of Bolt | Dia. of Bolt Hole |                                    |                             |                   | Depth of Groove      | Width of Groove         | Radius of Groove  | W.N                  | S.O                  | S.W                  | B.L                  |                     |                       |
| T <sub>1</sub>        | T <sub>2</sub>             | T                       | Y                    | C                       | N              | h                 | K(min)                             | P                           |                   | E                    | F                       | r <sub>1</sub>    |                      |                      |                      |                      | A                   | B                     |
| 22.2<br>25.4<br>27.0  | 22.2<br>25.4<br>27.0       | 52.4<br>57.2<br>61.9    | 9.7<br>11.2<br>12.7  | 66.5<br>82.6<br>88.9    | 4<br>4<br>4    | 16<br>19<br>19    | 51.0<br>63.5<br>70.0               | 34.14<br>42.88<br>50.80     | R11<br>R13<br>R16 | 5.56<br>6.35<br>6.35 | 7.14<br>8.74<br>8.74    | 0.8<br>0.8<br>0.8 | 0.80<br>1.25<br>1.58 | 0.65<br>1.10<br>1.35 | 0.67<br>1.12<br>1.39 | 0.65<br>10.9<br>1.38 | 15<br>20<br>25      | 1/2<br>3/4<br>1       |
| 27.0<br>30.2<br>33.3  | 27.0<br>30.2<br>33.3       | 65.1<br>68.3<br>69.8    | 14.2<br>15.8<br>17.5 | 98.6<br>114.3<br>127.0  | 4<br>4<br>8    | 19<br>19<br>19    | 79.5<br>90.5<br>108                | 60.32<br>68.28<br>82.55     | R18<br>R20<br>R23 | 6.35<br>6.35<br>7.92 | 8.74<br>8.74<br>11.91   | 0.8<br>0.8<br>0.8 | 2.05<br>2.93<br>3.40 | 1.69<br>2.54<br>2.92 | 1.74<br>2.60<br>3.02 | 1.82<br>2.70<br>3.18 | (32)<br>40<br>50    | (1 1/4)<br>1 1/2<br>2 |
| 38.1<br>42.9<br>44.5  | 38.1<br>42.9<br>44.5       | 76.2<br>79.4<br>81.0    | 19.1<br>20.6<br>22.4 | 149.4<br>168.1<br>184.2 | 8<br>8<br>8    | 22<br>22<br>22    | 127<br>146<br>159                  | 101.60<br>123.82<br>131.78  | R26<br>R31<br>R34 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 5.10<br>7.01<br>8.71 | 4.24<br>5.94<br>7.90 | 4.43<br>6.21<br>—    | 4.86<br>6.90<br>8.79 | 65<br>80<br>(90)    | 2 1/2<br>3<br>(3 1/2) |
| 47.6<br>50.8<br>52.4  | 47.6<br>50.8<br>52.4       | 85.7<br>98.4<br>98.4    | 23.9<br>23.9<br>26.9 | 200.2<br>235.0<br>269.7 | 8<br>8<br>12   | 22<br>22<br>22    | 175<br>210<br>241                  | 149.22<br>180.98<br>211.12  | R37<br>R41<br>R45 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 11.3<br>15.1<br>19.6 | 9.71<br>12.4<br>16.2 | —<br>—<br>—          | 11.6<br>15.5<br>21.2 | 100<br>(125)<br>150 | 4<br>(5)<br>6         |
| 61.9<br>66.7<br>73.0  | 61.9<br>65.3<br>101.6      | 111.1<br>117.5<br>130.2 | 31.8<br>33.3<br>39.6 | 330.2<br>387.3<br>450.9 | 12<br>16<br>16 | 26<br>29<br>32    | 302<br>356<br>413                  | 269.88<br>323.85<br>381.004 | R49<br>R53<br>R57 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 30.3<br>44.3<br>64.1 | 24.8<br>35.9<br>51   | —<br>—<br>—          | 34.5<br>53.9<br>78.9 | 200<br>250<br>300   | 8<br>10<br>12         |
| 76.2<br>82.6<br>89.9  | *111.3<br>*120.7<br>*130.0 | 142.9<br>146.0<br>158.5 | 41.4<br>44.5<br>49.3 | 514.4<br>571.5<br>628.7 | 20<br>20<br>24 | 32<br>35<br>35    | 457<br>508<br>575                  | 419.10<br>469.90<br>533.40  | R61<br>R65<br>R69 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 88.3<br>113<br>138   | 70.1<br>90.4<br>109  | —<br>—<br>—          | 106<br>136<br>175    | 350<br>400<br>450   | 14<br>16<br>18        |
| 95.2<br>106.4         | *139.7<br>*152.4           | 161.9<br>168.3          | 54.1<br>63.5         | 635.8<br>812.8          | 24<br>24       | 35<br>42          | 635<br>749                         | 584.20<br>692.15            | R73<br>R77        | 9.52<br>11.13        | 13.49<br>16.66          | 1.5<br>1.5        | 169<br>248           | 136<br>204           | —<br>—               | 222<br>340           | 500<br>600          | 20<br>24              |



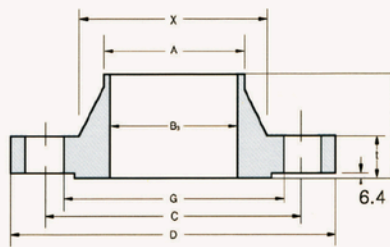
# Stainless Steel Flanges

## CLASS 400-600 FLANGES

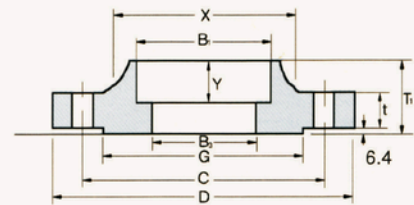
JPI 7S-15-84 & ANSI B16.5



SLIP-ON



WELDING NECK



SOCKET WELDING

### Class 400

Unit : mm

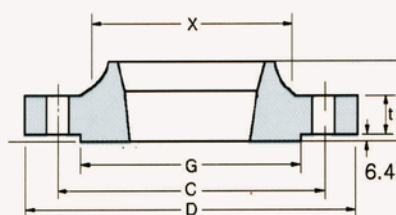
| Nominal<br>Pipe<br>Size |      | Outside<br>Dia, of<br>Flanges | Dia of Bore                       |       |                             |       |                       |       |        |       |       |        | Dia of Hub<br>at Bevel<br>A |       | Dia, of<br>hub at<br>Base | Dia, of<br>hub at<br>Face | Thick<br>of<br>Flanges | Radius<br>of<br>Fillet |
|-------------------------|------|-------------------------------|-----------------------------------|-------|-----------------------------|-------|-----------------------|-------|--------|-------|-------|--------|-----------------------------|-------|---------------------------|---------------------------|------------------------|------------------------|
|                         |      |                               | Slip-on<br>Socket, B <sub>1</sub> |       | Lab-Joint<br>B <sub>2</sub> |       | Welding-Neck, Scket B |       |        |       |       |        |                             |       |                           |                           |                        |                        |
|                         |      |                               |                                   |       |                             |       | JPI                   |       |        | ANSI  |       |        |                             |       |                           |                           |                        |                        |
| A                       | B    | D                             | JPI                               | ANSI  | JPI                         | ANSI  | SCH40                 | SCH80 | SCH160 | SCH40 | SCH80 | SCH160 | JPI                         | ANSI  | X                         | G                         | t                      | R                      |
| 15                      | ½    | 95                            | 22.2                              | 22.4  | 23.4                        | 22.9  | 16.1                  | 14.3  | 12.3   | 15.8  | 13.9  | 11.8   | 21.7                        | 21.3  | 38.1                      | 34.9                      | 14.3                   | 3                      |
| 20                      | ¾    | 117                           | 27.8                              | 27.7  | 28.9                        | 28.2  | 21.4                  | 19.4  | 16.2   | 20.9  | 18.8  | 15.6   | 27.2                        | 26.7  | 47.8                      | 42.9                      | 15.9                   | 3                      |
| 25                      | 1    | 124                           | 34.5                              | 34.6  | 35.6                        | 35.1  | 27.2                  | 25.0  | 21.2   | 26.6  | 24.3  | 20.7   | 34.0                        | 33.5  | 53.8                      | 50.8                      | 17.5                   | 3                      |
| (32)                    | (1¼) | 133                           | 43.2                              | 43.2  | 44.3                        | 43.7  | 35.5                  | 32.9  | 29.9   | 35.1  | 32.5  | 29.5   | 42.7                        | 42.2  | 63.5                      | 63.5                      | 20.7                   | 5                      |
| 40                      | 1½   | 155                           | 49.1                              | 49.6  | 50.4                        | 50.0  | 41.2                  | 38.4  | 34.4   | 40.9  | 38.1  | 34.0   | 48.6                        | 48.3  | 69.9                      | 73.0                      | 22.3                   | 6                      |
| 50                      | 2    | 165                           | 61.1                              | 62.0  | 62.7                        | 62.5  | 52.7                  | 49.5  | 43.1   | 52.5  | 49.3  | 42.9   | 60.5                        | 60.5  | 84.1                      | 92.1                      | 25.4                   | 8                      |
| 65                      | 2½   | 191                           | 77.1                              | 74.7  | 78.7                        | 75.5  | 65.9                  | 62.3  | 57.3   | 62.7  | 59.0  | 54.0   | 76.3                        | 73.2  | 100.1                     | 104.8                     | 28.6                   | 8                      |
| 80                      | 3    | 210                           | 90.0                              | 90.7  | 91.6                        | 91.4  | 78.1                  | 73.9  | 66.9   | 77.9  | 73.7  | 66.7   | 89.1                        | 88.9  | 117.3                     | 127.0                     | 31.8                   | 10                     |
| (90)                    | (3½) | 229                           | 102.6                             | 103.4 | 104.1                       | 104.2 | 90.2                  | 85.4  | 76.2   | 90.1  | 85.5  | —      | 101.6                       | 101.6 | 133.4                     | 139.7                     | 35.0                   | 10                     |
| 100                     | 4    | 254                           | 115.4                             | 116.1 | 116.9                       | 116.9 | 102.3                 | 97.1  | 87.3   | 102.3 | 97.2  | 87.3   | 114.3                       | 114.3 | 146.1                     | 157.2                     | 35.0                   | 11                     |
| (125)                   | (5)  | 279                           | 141.2                             | 143.8 | 143.0                       | 144.6 | 126.6                 | 120.8 | 108.0  | 128.2 | 122.3 | 109.6  | 139.8                       | 141.2 | 177.8                     | 185.7                     | 38.1                   | 11                     |
| 150                     | 6    | 318                           | 166.6                             | 170.7 | 168.4                       | 171.5 | 151.0                 | 143.2 | 128.8  | 154.1 | 146.3 | 131.8  | 165.2                       | 168.4 | 206.2                     | 215.9                     | 41.1                   | 13                     |
| 200                     | 8    | 381                           | 218.0                             | 221.5 | 219.5                       | 222.3 | 199.9                 | 190.9 | 170.3  | 202.7 | 193.7 | 173.1  | 216.3                       | 219.2 | 260.3                     | 269.9                     | 47.7                   | 13                     |
| 250                     | 10   | 445                           | 269.5                             | 276.4 | 271.7                       | 277.4 | 248.8                 | 237.2 | 210.2  | 254.4 | 242.9 | 215.9  | 267.4                       | 273.1 | 320.5                     | 323.8                     | 54.0                   | 13                     |
| 300                     | 12   | 521                           | 321.0                             | 327.2 | 322.8                       | 328.2 | 297.9                 | 283.7 | 251.9  | 303.2 | 288.9 | 257.2  | 318.5                       | 323.9 | 374.7                     | 381.0                     | 57.2                   | 13                     |
| 350                     | 14   | 584                           | 358.1                             | 359.2 | —                           | 360.2 | 333.4                 | 317.6 | 284.2  | 333.3 | 317.5 | 284.2  | 355.6                       | 355.6 | 425.5                     | 412.8                     | 60.4                   | 13                     |
| 400                     | 16   | 648                           | 409.0                             | 410.5 | —                           | 411.3 | 381.0                 | 363.6 | 325.4  | 381.0 | 363.6 | 325.5  | 406.4                       | 406.4 | 482.6                     | 469.9                     | 63.5                   | 13                     |
| 450                     | 18   | 710                           | 460.0                             | 461.8 | —                           | 462.4 | 428.6                 | 409.6 | 366.8  | 428.7 | 409.6 | 366.7  | 457.2                       | 457.2 | 533.4                     | 533.4                     | 66.7                   | 13                     |
| 500                     | 20   | 775                           | 511.0                             | 513.1 | —                           | 514.4 | 477.8                 | 455.6 | 408.0  | 477.8 | 455.6 | 408.0  | 508.0                       | 508.0 | 587.4                     | 584.2                     | 69.9                   | 13                     |
| 600                     | 24   | 914                           | 613.0                             | 616.0 | —                           | 616.0 | 574.6                 | 547.8 | 490.6  | 574.7 | 547.7 | 490.6  | 609.6                       | 609.6 | 701.5                     | 692.2                     | 76.2                   | 13                     |

### Class 600

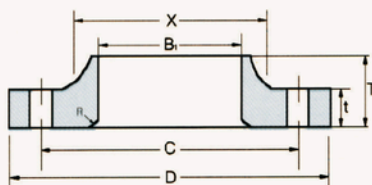
Unit : mm

| Nominal<br>Pipe<br>Size |      | Outside<br>Dia, of<br>Flanges | Dia of Bore                       |       |                             |       |                       |       |        |       |       |        | Dia of Hub<br>at Bevel<br>A |       | Dia, of<br>hub at<br>Base | Dia, of<br>hub at<br>Face | Thick<br>of<br>Flanges | Radius<br>of<br>Fillet |
|-------------------------|------|-------------------------------|-----------------------------------|-------|-----------------------------|-------|-----------------------|-------|--------|-------|-------|--------|-----------------------------|-------|---------------------------|---------------------------|------------------------|------------------------|
|                         |      |                               | Slip-on<br>Socket, B <sub>1</sub> |       | Lab-Joint<br>B <sub>2</sub> |       | Welding-Neck, Scket B |       |        |       |       |        |                             |       |                           |                           |                        |                        |
|                         |      |                               |                                   |       |                             |       | JPI                   |       |        | ANSI  |       |        |                             |       |                           |                           |                        |                        |
| A                       | B    | D                             | JPI                               | ANSI  | JPI                         | ANSI  | SCH40                 | SCH80 | SCH160 | SCH40 | SCH80 | SCH160 | JPI                         | ANSI  | X                         | G                         | t                      | R                      |
| 15                      | ½    | 95                            | 22.2                              | 22.4  | 23.4                        | 22.9  | 16.1                  | 14.3  | 12.3   | 15.8  | 13.9  | 11.8   | 21.7                        | 21.3  | 38.1                      | 34.9                      | 14.3                   | 3                      |
| 20                      | ¾    | 117                           | 27.7                              | 27.7  | 28.9                        | 28.2  | 21.4                  | 19.4  | 16.2   | 20.9  | 18.8  | 15.6   | 27.2                        | 26.7  | 47.8                      | 42.9                      | 15.9                   | 3                      |
| 25                      | 1    | 124                           | 34.5                              | 34.6  | 35.6                        | 35.1  | 27.2                  | 25.0  | 21.2   | 26.6  | 24.3  | 20.7   | 34.0                        | 33.5  | 53.8                      | 50.8                      | 17.5                   | 3                      |
| (32)                    | (1¼) | 133                           | 43.2                              | 43.2  | 44.3                        | 43.7  | 35.5                  | 32.9  | 29.9   | 35.1  | 32.5  | 29.5   | 42.7                        | 42.2  | 63.5                      | 63.5                      | 20.7                   | 5                      |
| 40                      | 1½   | 155                           | 49.1                              | 49.6  | 50.4                        | 50.0  | 41.2                  | 38.4  | 34.4   | 40.9  | 38.1  | 34.0   | 48.6                        | 48.3  | 69.9                      | 73.0                      | 22.3                   | 6                      |
| 50                      | 2    | 165                           | 61.1                              | 62.0  | 62.7                        | 62.5  | 52.7                  | 49.5  | 43.1   | 52.5  | 49.3  | 42.9   | 60.5                        | 60.5  | 84.1                      | 92.1                      | 25.4                   | 8                      |
| 65                      | 2½   | 191                           | 77.1                              | 74.7  | 78.7                        | 75.5  | 65.9                  | 62.3  | 57.3   | 62.7  | 59.0  | 54.0   | 76.3                        | 73.2  | 100.1                     | 104.8                     | 28.6                   | 8                      |
| 80                      | 3    | 210                           | 90.0                              | 90.7  | 91.6                        | 91.4  | 78.1                  | 73.9  | 66.9   | 77.9  | 73.7  | 66.7   | 89.1                        | 88.9  | 117.3                     | 127.0                     | 31.8                   | 10                     |
| (90)                    | (3½) | 229                           | 102.6                             | 103.4 | 104.1                       | 104.2 | 90.2                  | 85.4  | 76.2   | 90.1  | 85.5  | —      | 101.6                       | 101.6 | 133.4                     | 139.7                     | 35.0                   | 10                     |
| 100                     | 4    | 273                           | 115.4                             | 116.1 | 116.9                       | 116.9 | 102.3                 | 97.1  | 87.3   | 102.3 | 97.2  | 87.3   | 114.3                       | 114.3 | 152.4                     | 157.2                     | 38.1                   | 11                     |
| (125)                   | (5)  | 330                           | 141.2                             | 143.8 | 143.0                       | 144.6 | 126.6                 | 120.8 | 108.0  | 128.2 | 122.3 | 109.6  | 139.8                       | 141.2 | 189.0                     | 185.7                     | 44.5                   | 11                     |
| 150                     | 6    | 356                           | 166.6                             | 170.7 | 168.4                       | 171.5 | 151.0                 | 143.2 | 128.8  | 154.1 | 146.3 | 131.8  | 165.2                       | 168.4 | 222.3                     | 215.9                     | 47.7                   | 13                     |
| 200                     | 8    | 419                           | 218.0                             | 221.5 | 219.5                       | 222.3 | 199.9                 | 190.9 | 170.3  | 202.7 | 193.7 | 173.1  | 216.3                       | 219.2 | 273.1                     | 269.9                     | 55.5                   | 13                     |
| 250                     | 10   | 508                           | 269.5                             | 276.4 | 271.7                       | 277.4 | 248.8                 | 237.2 | 210.2  | 254.4 | 242.9 | 215.9  | 267.4                       | 273.1 | 342.9                     | 323.8                     | 63.5                   | 13                     |
| 300                     | 12   | 559                           | 321.0                             | 327.2 | 322.8                       | 328.2 | 297.9                 | 283.7 | 251.9  | 303.2 | 288.9 | 257.2  | 318.5                       | 323.9 | 400.1                     | 381.0                     | 66.7                   | 13                     |
| 350                     | 14   | 603                           | 358.1                             | 359.2 | —                           | 360.2 | 333.4                 | 317.6 | 284.2  | 333.3 | 317.5 | 284.2  | 355.6                       | 355.6 | 431.8                     | 412.8                     | 69.9                   | 13                     |
| 400                     | 16   | 686                           | 409.0                             | 410.5 | —                           | 411.3 | 381.0                 | 363.6 | 325.4  | 381.0 | 363.6 | 325.5  | 406.4                       | 406.4 | 495.3                     | 469.9                     | 76.2                   | 13                     |
| 450                     | 18   | 743                           | 460.0                             | 461.8 | —                           | 462.4 | 428.6                 | 409.6 | 366.8  | 428.7 | 409.6 | 366.7  | 457.2                       | 457.2 | 546.1                     | 533.4                     | 82.6                   | 13                     |
| 500                     | 20   | 813                           | 511.0                             | 513.1 | —                           | 514.4 | 477.8                 | 455.6 | 408.0  | 477.8 | 455.6 | 408.0  | 508.0                       | 508.0 | 609.6                     | 584.2                     | 88.9                   | 13                     |
| 600                     | 24   | 940                           | 613.0                             | 616.0 | —                           | 616.0 | 574.6                 | 547.8 | 490.6  | 574.7 | 547.7 | 490.6  | 609.6                       | 609.6 | 717.6                     | 692.2                     | 101.6                  | 13                     |

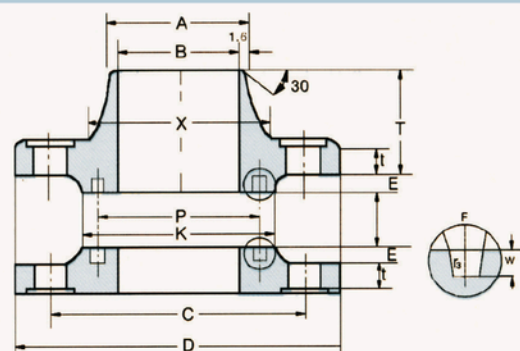




THREADED



LAP JOINT



RING JOINT

## Class 400

Unit : mm

| Length thru Hub       |                       |                         | Depth of Socket      | Drilling                |                |                   | Dia. of Raised Face for Ring Joint | Pitch Dia. of Ring & Groove | Ring No.          | RTJ Type             |                         |                   | Approx. Weight(kg)   |                      |                      |                      | Nominal Pipe Size   |                       |
|-----------------------|-----------------------|-------------------------|----------------------|-------------------------|----------------|-------------------|------------------------------------|-----------------------------|-------------------|----------------------|-------------------------|-------------------|----------------------|----------------------|----------------------|----------------------|---------------------|-----------------------|
| Slip-on Socket Thread | Lap Joint             | Welding Neck            |                      | Dia. of Bolt Circle     | Number of Bolt | Dia. of Bolt Hole |                                    |                             |                   | Depth of Groove      | Width of Groove         | Radius of Groove  | W.N                  | S.O                  | S.W                  | B.L                  |                     |                       |
| T <sub>1</sub>        | T <sub>2</sub>        | T                       | Y                    | C                       | N              | h                 | K(min)                             | P                           |                   | E                    | F                       | r <sub>1</sub>    |                      |                      |                      |                      | A                   | B                     |
| 22.4<br>25.4<br>26.9  | 22<br>25<br>27        | 52.3<br>57.2<br>62.0    | 9.5<br>11.1<br>12.7  | 66.5<br>82.6<br>88.9    | 4<br>4<br>4    | 16<br>19<br>19    | 51.0<br>63.5<br>70.0               | 34.14<br>42.88<br>50.80     | R11<br>R13<br>R16 | 5.56<br>6.35<br>6.35 | 7.14<br>8.74<br>8.74    | 0.8<br>0.8<br>0.8 | 0.86<br>1.40<br>1.76 | 0.74<br>1.24<br>1.51 | 0.77<br>1.28<br>1.57 | 0.76<br>1.27<br>1.59 | 15<br>20<br>25      | 1/2<br>3/4<br>1       |
| 28.4<br>31.8<br>36.6  | 29<br>32<br>37        | 66.5<br>69.9<br>73.2    | 14.3<br>15.9<br>17.5 | 98.6<br>114.3<br>127.0  | 4<br>4<br>8    | 19<br>19<br>19    | 79.5<br>90.5<br>108                | 60.32<br>68.28<br>82.55     | R18<br>R20<br>R23 | 6.35<br>6.35<br>7.92 | 8.74<br>8.74<br>11.91   | 0.8<br>0.8<br>0.8 | 2.41<br>3.44<br>4.18 | 2.03<br>3.01<br>3.62 | 2.11<br>3.11<br>3.77 | 2.24<br>3.30<br>4.11 | (32)<br>40<br>50    | (1/4)<br>1 1/2<br>2   |
| 41.1<br>46.0<br>49.3  | 41<br>46<br>49        | 79.2<br>82.6<br>85.9    | 19.0<br>20.6<br>22.2 | 149.4<br>168.1<br>184.2 | 8<br>8<br>8    | 22<br>22<br>25    | 127<br>146<br>159                  | 101.60<br>123.82<br>131.78  | R26<br>R31<br>R34 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 6.11<br>8.27<br>10.3 | 5.20<br>7.08<br>8.86 | 5.58<br>7.47<br>—    | 6.20<br>8.51<br>10.9 | 65<br>80<br>(90)    | 2 1/2<br>3<br>(3 1/2) |
| 50.8<br>53.8<br>57.2  | 51<br>54<br>57        | 88.9<br>101.6<br>103.1  | 23.8<br>23.8<br>27.0 | 200.2<br>235.0<br>269.7 | 8<br>8<br>12   | 25<br>25<br>25    | 175<br>210<br>241                  | 149.22<br>180.98<br>211.12  | R37<br>R41<br>R45 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 12.9<br>17.1<br>22.6 | 11.1<br>14.2<br>18.9 | —<br>—<br>—          | 13.7<br>18.6<br>25.7 | 100<br>(125)<br>150 | 4<br>(5)<br>6         |
| 68.3<br>73.2<br>79.2  | 68<br>101.6<br>108.0  | 117.3<br>124.0<br>136.7 | 31.8<br>33.3<br>39.7 | 330.2<br>387.4<br>450.9 | 12<br>16<br>16 | 29<br>32<br>35    | 302<br>356<br>413                  | 269.88<br>323.85<br>381.00  | R49<br>R53<br>R57 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 35.5<br>50.4<br>73.8 | 29.4<br>41.1<br>59.2 | —<br>—<br>—          | 42.9<br>64.6<br>95.7 | 200<br>250<br>300   | 8<br>10<br>12         |
| 84.1<br>93.7<br>98    | 117.3<br>127<br>136.7 | 149.4<br>152.4<br>165.1 | 44.3<br>44.5<br>49.2 | 514.4<br>571.5<br>628.7 | 20<br>20<br>24 | 35<br>39<br>39    | 457<br>508<br>575                  | 419.10<br>469.90<br>533.40  | R61<br>R65<br>R69 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 99.0<br>125<br>153   | 80.0<br>103<br>123   | —<br>—<br>—          | 125<br>162<br>205    | 350<br>400<br>450   | 14<br>16<br>18        |
| 101.6<br>114.3        | *146.1<br>158.8       | 168.1<br>174.8          | 54.0<br>63.5         | 685.8<br>812.8          | 24<br>24       | 42<br>48          | 635<br>749                         | 584.20<br>692.15            | R73<br>R77        | 9.52<br>11.13        | 13.49<br>16.66          | 1.5<br>1.5        | 184<br>270           | 148<br>223           | —<br>—               | 255<br>388           | 500<br>600          | 20<br>24              |

## Class 600

Unit : mm

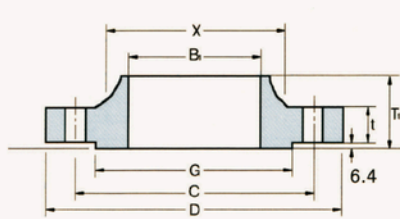
| Length thru Hub        |                         |                         | Depth of Socket      | Drilling                |                |                   | Dia. of Raised Face for Ring Joint | Pitch Dia. of Ring & Groove | Ring No.          | RTJ Type             |                         |                   | Approx. Weight(kg)   |                      |                      |                      | Nominal Pipe Size   |                       |
|------------------------|-------------------------|-------------------------|----------------------|-------------------------|----------------|-------------------|------------------------------------|-----------------------------|-------------------|----------------------|-------------------------|-------------------|----------------------|----------------------|----------------------|----------------------|---------------------|-----------------------|
| Slip-on Socket Thread  | Lap Joint               | Welding Neck            |                      | Dia. of Bolt Circle     | Number of Bolt | Dia. of Bolt Hole |                                    |                             |                   | Depth of Groove      | Width of Groove         | Radius of Groove  | W.N                  | S.O                  | S.W                  | B.L                  |                     |                       |
| T <sub>1</sub>         | T <sub>2</sub>          | T                       | Y                    | C                       | N              | h                 | K(min)                             | P                           |                   | E                    | F                       | r <sub>1</sub>    |                      |                      |                      |                      | A                   | B                     |
| 22.4<br>25.4<br>26.9   | 22<br>25<br>27          | 52.3<br>57.2<br>62.0    | 9.5<br>11.1<br>12.7  | 66.5<br>82.6<br>88.9    | 4<br>4<br>4    | 16<br>19<br>19    | 51.0<br>63.5<br>70.0               | 34.14<br>42.88<br>50.80     | R11<br>R13<br>R16 | 5.56<br>6.35<br>6.35 | 7.14<br>8.74<br>8.74    | 0.8<br>0.8<br>0.8 | 0.88<br>1.44<br>1.81 | 0.74<br>1.24<br>1.51 | 0.78<br>1.29<br>1.58 | 0.76<br>1.27<br>1.59 | 15<br>20<br>25      | 1/2<br>3/4<br>1       |
| 28.4<br>31.8<br>36.6   | 29<br>32<br>37          | 66.5<br>69.9<br>73.2    | 14.3<br>15.9<br>17.5 | 98.6<br>114.3<br>127.0  | 4<br>4<br>8    | 19<br>19<br>19    | 79.5<br>90.5<br>108                | 60.32<br>68.28<br>82.55     | R18<br>R20<br>R23 | 6.35<br>6.35<br>7.92 | 8.74<br>8.74<br>11.91   | 0.8<br>0.8<br>0.8 | 2.49<br>3.55<br>4.34 | 2.03<br>3.01<br>3.62 | 2.14<br>3.14<br>3.82 | 2.24<br>3.30<br>4.11 | (32)<br>40<br>50    | (1/4)<br>1 1/2<br>2   |
| 41.1<br>46.0<br>49.3   | 41<br>46<br>49          | 79.2<br>82.6<br>85.9    | 19.0<br>20.6<br>22.2 | 149.4<br>168.1<br>184.2 | 8<br>8<br>8    | 22<br>22<br>26    | 127<br>146<br>159                  | 101.60<br>123.82<br>131.78  | R26<br>R31<br>R34 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 6.41<br>8.62<br>10.8 | 5.20<br>7.08<br>8.86 | 5.57<br>7.59<br>—    | 6.20<br>8.51<br>10.9 | 65<br>80<br>(90)    | 2 1/2<br>3<br>(3 1/2) |
| 53.8<br>60.5<br>66.5   | 54<br>60<br>67          | 101.6<br>114.3<br>117.3 | 23.8<br>23.8<br>27.0 | 215.9<br>266.9<br>292.1 | 8<br>8<br>12   | 26<br>29<br>29    | 175<br>210<br>241                  | 149.22<br>180.98<br>211.12  | R37<br>R41<br>R45 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 17.6<br>29.4<br>35.7 | 14.6<br>24.6<br>29.6 | —<br>—<br>—          | 17.4<br>29.4<br>36.4 | 100<br>(125)<br>150 | 4<br>(5)<br>6         |
| 76.2<br>85.9<br>91.9   | 76<br>111.3<br>117.3    | 133.4<br>152.4<br>155.4 | 31.8<br>33.3<br>39.7 | 349.3<br>431.8<br>489.0 | 12<br>16<br>20 | 32<br>35<br>35    | 302<br>356<br>413                  | 269.88<br>323.85<br>381.004 | R49<br>R53<br>R57 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 54.6<br>90.7<br>110  | 44.0<br>73.3<br>87.0 | —<br>—<br>—          | 58.8<br>98.4<br>124  | 200<br>250<br>300   | 8<br>10<br>12         |
| 93.7<br>106.4<br>117.3 | 127.0<br>139.7<br>152.4 | 165.1<br>177.8<br>184.2 | 44.3<br>44.5<br>49.2 | 527.1<br>603.3<br>654.1 | 20<br>20<br>20 | 39<br>42<br>45    | 457<br>508<br>575                  | 419.10<br>469.90<br>533.40  | R61<br>R65<br>R69 | 7.92<br>7.92<br>7.92 | 11.91<br>11.91<br>11.91 | 0.8<br>0.8<br>0.8 | 130<br>183<br>225    | 99.8<br>142<br>176   | —<br>—<br>—          | 152<br>214<br>275    | 350<br>400<br>450   | 14<br>16<br>18        |
| 127.0<br>139.7         | 165.1<br>184.2          | 190.5<br>203.2          | 54.0<br>63.5         | 723.9<br>838.2          | 24<br>24       | 45<br>51          | 635<br>749                         | 584.20<br>692.15            | R73<br>R77        | 9.52<br>11.13        | 13.49<br>16.66          | 1.5<br>1.5        | 284<br>408           | 224<br>317           | —<br>—               | 352<br>536           | 500<br>600          | 20<br>24              |



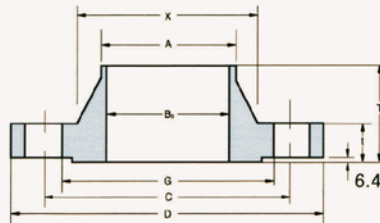
# Stainless Steel Flanges

## CLASS 900 FLANGES

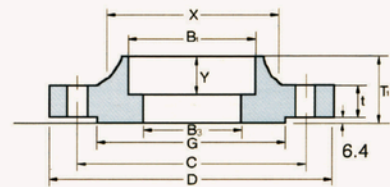
JPI 7S-15-84 & ANSI B16.5



SLIP-ON



WELDING NECK

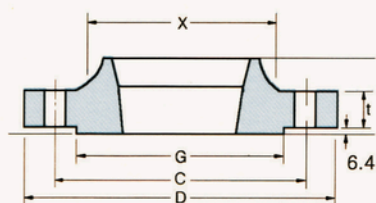


SOCKET WELDING

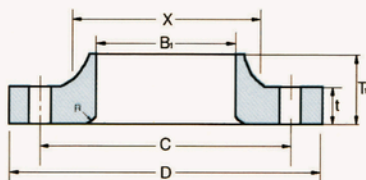
### Class 900

Unit : mm

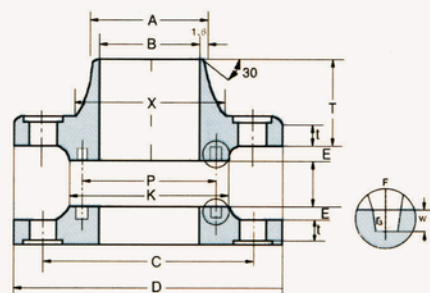
| Nominal<br>Pipe<br>Size |      | Outside<br>Dia, of<br>Flanges | Dia of Bore                       |       |                             |       |                       |       |        |       |       |        | Dia of Hub<br>at Bevel<br>A |       | Dia, of<br>hub at<br>Base | Dia, of<br>hub at<br>Face | Thick<br>of<br>Flanges | Radius<br>of<br>Fillet |
|-------------------------|------|-------------------------------|-----------------------------------|-------|-----------------------------|-------|-----------------------|-------|--------|-------|-------|--------|-----------------------------|-------|---------------------------|---------------------------|------------------------|------------------------|
|                         |      |                               | Slip-on<br>Socket, B <sub>1</sub> |       | Lab-Joint<br>B <sub>2</sub> |       | Welding-Neck, Scket B |       |        |       |       |        |                             |       |                           |                           |                        |                        |
|                         |      |                               |                                   |       |                             |       | JPI                   |       |        | ANSI  |       |        |                             |       |                           |                           |                        |                        |
| A                       | B    | D                             | JPI                               | ANSI  | JPI                         | ANSI  | SCH40                 | SCH80 | SCH160 | SCH40 | SCH80 | SCH160 | JPI                         | ANSI  | X                         | G                         | t                      | R                      |
| 15                      | ½    | 121                           | 22.2                              | 22.4  | —                           | 22.9  | 16.1                  | 14.3  | 12.3   | 15.8  | 13.9  | 11.8   | 21.7                        | 21.3  | 38.1                      | 34.9                      | 22.4                   | 3                      |
| 20                      | ¾    | 130                           | 27.7                              | 27.7  | —                           | 28.2  | 21.4                  | 19.4  | 16.2   | 20.9  | 18.8  | 15.6   | 27.2                        | 26.7  | 44.5                      | 42.9                      | 25.4                   | 3                      |
| 25                      | 1    | 149                           | 34.5                              | 34.5  | —                           | 35.1  | 27.2                  | 25.0  | 21.2   | 26.6  | 24.3  | 20.7   | 34.0                        | 33.5  | 52.3                      | 50.8                      | 28.4                   | 3                      |
| (32)                    | (1¼) | 159                           | 43.2                              | 43.2  | —                           | 43.7  | 35.5                  | 32.9  | 29.9   | 35.1  | 32.5  | 29.5   | 42.7                        | 42.2  | 63.5                      | 63.5                      | 28.4                   | 5                      |
| 40                      | 1½   | 178                           | 49.1                              | 49.5  | —                           | 50.0  | 41.2                  | 38.4  | 34.4   | 40.9  | 38.1  | 34.0   | 48.6                        | 48.3  | 69.9                      | 73.0                      | 31.8                   | 6                      |
| 50                      | 2    | 216                           | 61.1                              | 62.0  | —                           | 62.5  | 52.7                  | 49.5  | 43.1   | 52.5  | 49.3  | 42.9   | 60.5                        | 60.5  | 104.6                     | 92.1                      | 38.1                   | 8                      |
| 65                      | 2½   | 244                           | 77.1                              | 74.7  | —                           | 75.4  | 56.9                  | 62.3  | 57.3   | 62.7  | 59.0  | 54.0   | 76.3                        | 73.2  | 124.0                     | 104.8                     | 41.1                   | 8                      |
| 80                      | 3    | 241                           | 90.0                              | 90.7  | —                           | 91.4  | 78.1                  | 73.9  | 66.9   | 77.9  | 73.7  | 66.9   | 89.1                        | 88.9  | 127.0                     | 127.0                     | 38.1                   | 10                     |
| (90)                    | (3½) | —                             | —                                 | —     | —                           | —     | 90.2                  | 85.4  | 76.2   | 90.1  | 85.5  | —      | —                           | —     | —                         | —                         | —                      | —                      |
| 100                     | 4    | 292                           | 115.4                             | 116.1 | —                           | 116.9 | 102.3                 | 97.1  | 87.3   | 102.3 | 97.2  | 87.3   | 114.3                       | 114.3 | 158.8                     | 157.2                     | 44.5                   | 11                     |
| (125)                   | (5)  | 349                           | 141.2                             | 143.8 | —                           | 144.5 | 126.6                 | 120.8 | 108.0  | 128.2 | 122.3 | 109.6  | 141.2                       | 141.2 | 190.5                     | 185.7                     | 50.8                   | 11                     |
| 150                     | 6    | 381                           | 166.6                             | 170.7 | —                           | 171.5 | 151.0                 | 143.2 | 128.8  | 154.1 | 146.3 | 131.8  | 165.2                       | 168.4 | 235.0                     | 215.9                     | 55.6                   | 13                     |
| 200                     | 8    | 470                           | 218.0                             | 221.5 | —                           | 222.3 | 199.9                 | 190.9 | 170.3  | 202.7 | 193.7 | 173.1  | 216.3                       | 219.2 | 298.5                     | 269.9                     | 63.5                   | 13                     |
| 250                     | 10   | 546                           | 269.5                             | 276.4 | —                           | 277.4 | 248.8                 | 237.2 | 210.2  | 254.5 | 242.9 | 215.9  | 267.4                       | 273.1 | 368.3                     | 323.8                     | 69.9                   | 13                     |
| 300                     | 12   | 610                           | 321.0                             | 327.2 | —                           | 328.2 | 297.9                 | 283.7 | 251.9  | 303.2 | 288.9 | 257.2  | 318.5                       | 323.9 | 419.1                     | 381.0                     | 79.2                   | 13                     |
| 350                     | 14   | 641                           | 358.1                             | 359.2 | —                           | 360.2 | 333.4                 | 317.6 | 284.2  | 333.3 | 317.5 | 284.2  | 355.6                       | 355.6 | 450.9                     | 412.8                     | 85.9                   | 13                     |
| 400                     | 16   | 705                           | 409.0                             | 410.5 | —                           | 411.2 | 381.0                 | 363.6 | 325.4  | 381.0 | 363.6 | 325.5  | 406.4                       | 406.4 | 508.0                     | 469.9                     | 88.9                   | 13                     |
| 450                     | 18   | 787                           | 460.0                             | 461.8 | —                           | 462.3 | 428.6                 | 409.6 | 366.8  | 428.7 | 409.6 | 366.7  | 457.2                       | 457.2 | 565.2                     | 533.4                     | 101.6                  | 13                     |
| 500                     | 20   | 857                           | 511.0                             | 513.1 | —                           | 514.4 | 477.8                 | 455.6 | 408.0  | 477.8 | 455.6 | 408.0  | 508.0                       | 508.0 | 622.3                     | 584.2                     | 108.0                  | 13                     |
| 600                     | 24   | 1041                          | 613.0                             | 616.0 | —                           | 616.0 | 574.6                 | 547.8 | 490.6  | 574.6 | 547.6 | 490.6  | 609.6                       | 609.6 | 749.3                     | 692.2                     | 139.7                  | 13                     |



THREADED



LAP JOINT



RING JOINT

## Class 900

Unit : mm

| Length thru Hub       |                |              | Depth of Socket | Drilling            |                |                   | Dia, of Raised Face for Ring Joint | Pitch Dia. of Ring & Groove | Ring No. | RTJ Type        |                 |                  | Approx. Weight(kg) |      |      |      | Nominal Pipe Size |      |
|-----------------------|----------------|--------------|-----------------|---------------------|----------------|-------------------|------------------------------------|-----------------------------|----------|-----------------|-----------------|------------------|--------------------|------|------|------|-------------------|------|
| Slip-on Socket Thread | Lap Joint      | Welding Neck |                 | Dia, of Bolt Circle | Number of Bolt | Dia, of Bolt Hole |                                    |                             |          | Depth of Groove | Width of Groove | Radius of Groove | W.N                | S.O  | S.W  | B.L  |                   |      |
| T <sub>1</sub>        | T <sub>2</sub> | T            |                 | C                   | N              | h                 |                                    |                             |          | E               | F               | r <sub>1</sub>   |                    |      |      |      | A                 | B    |
| 31.8                  | 32             | 60.5         | 9.5             | 82.6                | 4              | 23                | 60.5                               | 39.67                       | R12      | 6.35            | 8.74            | 0.8              | 1.98               | 1.76 | 1.81 | 1.88 | 15                | ½    |
| 35.1                  | 35             | 69.9         | 11.1            | 88.9                | 4              | 23                | 66.5                               | 44.45                       | R14      | 6.35            | 8.74            | 0.8              | 2.64               | 2.32 | 2.39 | 2.50 | 20                | ¾    |
| 41.1                  | 41             | 73.2         | 12.7            | 101.6               | 4              | 26                | 71.5                               | 50.80                       | R16      | 6.35            | 8.74            | 0.8              | 3.84               | 3.44 | 3.56 | 3.68 | 25                | 1    |
| 41.1                  | 41             | 73.2         | 14.3            | 111.3               | 4              | 29                | 81.0                               | 60.32                       | R18      | 6.35            | 8.74            | 0.8              | 4.47               | 3.95 | 4.11 | 4.19 | (32)              | (1¼) |
| 44.5                  | 44             | 82.6         | 15.9            | 124.0               | 4              | 26                | 92.0                               | 68.28                       | R20      | 6.35            | 8.74            | 0.8              | 6.13               | 5.41 | 5.61 | 5.92 | 40                | 1½   |
| 57.2                  | 57             | 101.6        | 17.5            | 165.1               | 8              | 29                | 124                                | 95.25                       | R24      | 7.92            | 11.91           | 0.8              | 11.3               | 9.92 | 10.3 | 10.5 | 50                | 2    |
| 63.5                  | 64             | 104.6        | 19.0            | 190.5               | 8              | 29                | 137                                | 107.95                      | R27      | 7.92            | 11.91           | 0.8              | 15.3               | 13.5 | 14.2 | 14.2 | 65                | 2½   |
| 53.8                  | 54             | 101.6        | 20.6            | 190.5               | 8              | 26                | 156                                | 123.82                      | R31      | 7.92            | 11.91           | 0.8              | 14.2               | 11.6 | -    | 13.7 | 80                | 3    |
| -                     | -              | -            | -               | -                   | -              | -                 | -                                  | -                           | -        | -               | -               | -                | -                  | -    | -    | -    | (90)              | (3½) |
| 69.9                  | 70             | 114.3        | 23.8            | 235.0               | 8              | 32                | 181                                | 149.2                       | R37      | 7.92            | 11.91           | 0.8              | 23.1               | 19.8 | -    | 22.7 | 100               | 4    |
| 79.2                  | 79             | 127.0        | 23.8            | 279.4               | 8              | 35                | 216                                | 180.98                      | R41      | 7.92            | 11.91           | 0.8              | 37.4               | 32.4 | -    | 37.5 | (125)             | (5)  |
| 85.9                  | 86             | 139.7        | 27.0            | 317.5               | 12             | 32                | 241                                | 211.12                      | R45      | 7.92            | 11.91           | 0.8              | 49.3               | 42.1 | -    | 48.7 | 150               | 6    |
| 101.6                 | 114.3          | 162.1        | 31.8            | 393.7               | 12             | 39                | 308                                | 269.88                      | R49      | 7.92            | 11.91           | 0.8              | 83.7               | 71.6 | -    | 84.0 | 200               | 8    |
| 108.0                 | 127.0          | 184.2        | 33.3            | 469.9               | 16             | 39                | 362                                | 323.85                      | R53      | 7.92            | 11.91           | 0.8              | 124                | 102  | -    | 124  | 250               | 10   |
| 117.3                 | 142.7          | 200.2        | 39.7            | 533.4               | 20             | 39                | 419                                | 381.00                      | R57      | 7.92            | 11.91           | 0.8              | 168                | 136  | -    | 176  | 300               | 12   |
| 130.0                 | 155.4          | 212.9        | 44.3            | 558.8               | 20             | 42                | 467                                | 419.10                      | R61      | 11.13           | 16.66           | 1.5              | 194                | 153  | -    | 213  | 350               | 14   |
| 133.4                 | 165.1          | 215.9        | 44.5            | 616.0               | 20             | 45                | 524                                | 469.90                      | R66      | 11.13           | 16.66           | 1.5              | 239                | 186  | -    | 269  | 400               | 16   |
| 152.4                 | 190.5          | 228.6        | 49.2            | 685.8               | 20             | 51                | 594                                | 533.40                      | R70      | 12.70           | 19.84           | 1.5              | 326                | 258  | -    | 382  | 450               | 18   |
| 158.8                 | 209.6          | 247.7        | 54.0            | 749.3               | 20             | 54                | 648                                | 584.20                      | R74      | 12.70           | 19.84           | 1.5              | 410                | 317  | -    | 481  | 500               | 20   |
| 203.2                 | 203.2          | 292.1        | 63.5            | 901.7               | 20             | 67                | 772                                | 692.15                      | R78      | 15.58           | 26.97           | 2.4              | 758                | 607  | -    | 914  | 600               | 24   |

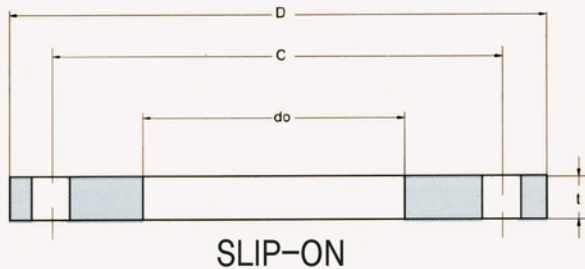


# Stainless Steel Flanges

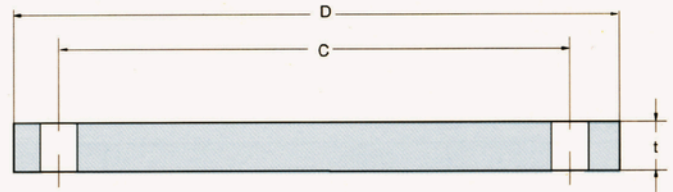
## CLASS B & D FLANGES

TABLE 1

AWWA Standard Steel Ring Flanges,  
Class B(86 psi) and Class D(175–150 psi)



SLIP-ON



BLIND

AWWA C207

Dimensions in inches

| Nominal<br>Pipe<br>Size | Outside<br>Diam. | Bore   | Thickness  |            | DRILLING                  |                    |                   |         |
|-------------------------|------------------|--------|------------|------------|---------------------------|--------------------|-------------------|---------|
|                         |                  |        |            |            | Bolt Circle<br>Diam.<br>C | Number<br>of Holes | Diam.<br>of Holes |         |
|                         | D                | do     | Class B(t) | Class D(t) |                           |                    | Class B           | Class D |
| 4                       | 9                | 4.57   | 5/8        | 5/8        | 7 1/2                     | 8                  | 3/4               | 3/4     |
| 5                       | 10               | 5.66   | 5/8        | 5/8        | 8 1/2                     | 8                  | 3/4               | 7/8     |
| 6                       | 11               | 6.72   | 11/16      | 11/16      | 9 1/2                     | 8                  | 3/4               | 7/8     |
| 8                       | 13 1/2           | 8.72   | 11/16      | 11/16      | 11 3/4                    | 8                  | 3/4               | 7/8     |
| 10                      | 16               | 10.88  | 11/16      | 11/16      | 14 1/4                    | 12                 | 3/4               | 1       |
| 12                      | 19               | 12.88  | 11/16      | 13/16      | 17                        | 12                 | 3/4               | 1       |
| 14                      | 21               | 14.19  | 11/16      | 15/16      | 18 3/4                    | 12                 | 7/8               | 1 1/8   |
| 16                      | 23 1/2           | 16.19  | 11/16      | 1          | 21 1/4                    | 16                 | 7/8               | 1 1/8   |
| 18                      | 25               | 18.19  | 11/16      | 1 1/16     | 22 3/4                    | 16                 | 7/8               | 1 1/4   |
| 20                      | 27 1/2           | 20.19  | 11/16      | 1 1/8      | 25                        | 20                 | 7/8               | 1 1/4   |
| 22                      | 29 1/2           | 22.19  | 3/4        | 1 3/16     | 27 1/4                    | 20                 | 7/8               | 1 3/8   |
| 24                      | 32 1/2           | 24.19  | 3/4        | 1 1/4      | 29 1/2                    | 20                 | 7/8               | 1 3/8   |
| 26                      | 34 1/4           | 26.19  | 13/16      | 1 5/16     | 31 3/4                    | 24                 | 7/8               | 1 3/8   |
| 28                      | 36 1/2           | 28.19  | 7/8        | 1 5/16     | 34                        | 28                 | 7/8               | 1 3/8   |
| 30                      | 38 3/4           | 30.19  | 7/8        | 1 3/8      | 36                        | 28                 | 1                 | 1 3/8   |
| 32                      | 41 3/4           | 32.19  | 15/16      | 1 1/2      | 38 1/2                    | 28                 | 1                 | 1 5/8   |
| 34                      | 43 3/4           | 34.19  | 15/16      | 1 1/2      | 40 1/2                    | 32                 | 1                 | 1 5/8   |
| 36                      | 46               | 36.19  | 1          | 1 5/8      | 42 3/4                    | 32                 | 1                 | 1 5/8   |
| 38                      | 48 3/4           | 38.19  | 1          | 1 5/8      | 45 1/4                    | 32                 | 1                 | 1 5/8   |
| 40                      | 50 3/4           | 40.19  | 1          | 1 5/8      | 47 1/4                    | 36                 | 1                 | 1 5/8   |
| 42                      | 53               | 42.19  | 1 1/8      | 1 3/4      | 49 1/2                    | 36                 | 1 1/8             | 1 5/8   |
| 44                      | 55 1/4           | 44.19  | 1 1/8      | 1 3/4      | 51 3/4                    | 40                 | 1 1/8             | 1 5/8   |
| 46                      | 57 1/4           | 46.19  | 1 1/8      | 1 3/4      | 53 3/4                    | 40                 | 1 1/8             | 1 5/8   |
| 48                      | 59 1/2           | 48.19  | 1 1/4      | 1 3/4      | 56                        | 44                 | 1 1/8             | 1 5/8   |
| 50                      | 61 3/4           | 50.19  | 1 1/4      | 2          | 58 1/4                    | 44                 | 1 1/4             | 1 7/8   |
| 52                      | 64               | 52.19  | 1 1/4      | 2          | 60 1/2                    | 44                 | 1 1/4             | 1 7/8   |
| 54                      | 66 1/4           | 54.19  | 1 3/8      | 2 1/8      | 62 3/4                    | 44                 | 1 3/8             | 1 7/8   |
| 60                      | 73               | 60.19  | 1 1/2      | 2 1/4      | 69 1/4                    | 52                 | 1 3/8             | 1 7/8   |
| 66                      | 80               | 66.19  | 1 5/8      | 2 1/2      | 76                        | 52                 | 1 3/8             | 1 7/8   |
| 72                      | 86 1/2           | 72.19  | 1 3/4      | 2 5/8      | 82 1/2                    | 60                 | 1 3/8             | 1 7/8   |
| 78                      | 93               | 78.19  | 2          | 2 3/4      | 89                        | 64                 | 1 5/8             | 2 1/8   |
| 84                      | 99 3/4           | 84.19  | 2          | 2 3/4      | 95 1/2                    | 64                 | 1 5/8             | 2 1/8   |
| 90                      | 106 1/2          | 90.19  | 2 1/4      | 3          | 102                       | 68                 | 1 7/8             | 2 3/8   |
| 96                      | 113 1/4          | 96.19  | 2 1/4      | 3          | 108 1/2                   | 68                 | 1 7/8             | 2 3/8   |
| 102                     | 120              | 102.19 | 2 1/2      | 3 1/4      | 114 1/2                   | 72                 | 2 1/8             | 2 5/8   |
| 108                     | 126 3/4          | 108.19 | 2 1/2      | 3 1/4      | 120 3/4                   | 72                 | 2 1/8             | 2 5/8   |
| 114                     | 133 1/2          | 114.19 | 2 3/4      | 3 1/2      | 126 3/4                   | 76                 | 2 3/8             | 2 7/8   |
| 120                     | 140 1/4          | 120.19 | 2 3/4      | 3 1/2      | 132 3/4                   | 76                 | 2 5/8             | 2 7/8   |

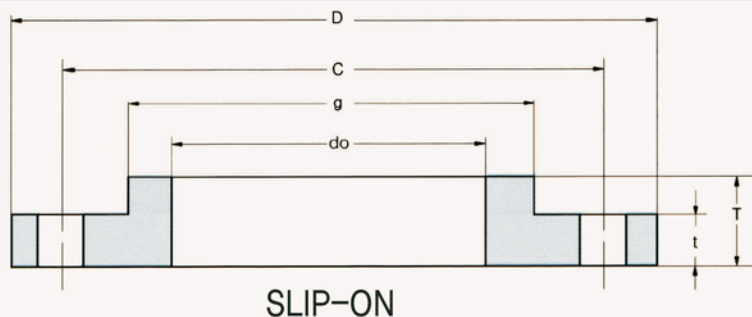
Notes : (1) The 'Bore' (B) shall be 3/16" in. larger than the nominal outside diameter of the pipe, unless otherwise specified



# CLASS B & D FLANGES

## TABLE 2

AWWA Standard Steel Hub Flanges,  
Class B(86 psi) and Class D(175–150 psi)



AWWA C207

Dimensions in inches

| Nominal<br>Pipe<br>Size | Outside<br>Diam. | Bore   | Thickness | Length<br>Through<br>Hub | Diam<br>of Hub<br>at Base | DRILLING             |                    |                   |         |
|-------------------------|------------------|--------|-----------|--------------------------|---------------------------|----------------------|--------------------|-------------------|---------|
|                         |                  |        |           |                          |                           | Bolt Circle<br>Diam. | Number<br>of Holes | Diam.<br>of Holes |         |
|                         | D                | do     | t         | T                        | g                         |                      |                    | Class B           | Class D |
| 4                       | 9                | 4.57   | 1/2       | 7/8                      | 5 1/2                     | 7 1/2                | 8                  | 3/4               | 3/4     |
| 5                       | 10               | 5.66   | 9/16      | 1 1/4                    | 6 1/2                     | 8 1/2                | 8                  | 3/4               | 7/8     |
| 6                       | 11               | 6.72   | 9/16      | 1 1/4                    | 7 1/2                     | 9 1/2                | 8                  | 3/4               | 7/8     |
| 8                       | 13 1/2           | 8.72   | 9/16      | 1 1/4                    | 9 3/4                     | 11 3/4               | 8                  | 3/4               | 7/8     |
| 10                      | 16               | 10.88  | 11/16     | 1 1/4                    | 12                        | 14 1/4               | 12                 | 3/4               | 1       |
| 12                      | 19               | 12.88  | 11/16     | 1 1/4                    | 14 3/8                    | 17                   | 12                 | 3/4               | 1       |
| 14                      | 21               | 14.19  | 3/4       | 1 1/4                    | 15 3/4                    | 18 3/4               | 12                 | 7/8               | 1 1/8   |
| 16                      | 23 1/2           | 16.19  | 3/4       | 1 1/4                    | 18                        | 21 1/4               | 16                 | 7/8               | 1 1/8   |
| 18                      | 25               | 18.19  | 3/4       | 1 1/4                    | 19 7/8                    | 22 3/4               | 16                 | 7/8               | 1 1/4   |
| 20                      | 27 1/2           | 20.19  | 3/4       | 1 1/4                    | 22                        | 25                   | 20                 | 7/8               | 1 1/4   |
| 22                      | 29 1/2           | 22.19  | 1         | 1 3/4                    | 24 1/4                    | 27 1/4               | 20                 | 7/8               | 1 3/8   |
| 24                      | 32               | 24.19  | 1         | 1 3/4                    | 26 1/8                    | 29 1/2               | 20                 | 7/8               | 1 3/8   |
| 26                      | 34 1/4           | 26.19  | 1         | 1 3/4                    | 28 1/2                    | 31 3/4               | 24                 | 7/8               | 1 3/8   |
| 28                      | 36 1/2           | 28.19  | 1         | 1 3/4                    | 30 1/2                    | 34                   | 28                 | 7/8               | 1 3/8   |
| 30                      | 38 3/4           | 30.19  | 1         | 1 3/4                    | 32 1/2                    | 36                   | 28                 | 1                 | 1 3/8   |
| 32                      | 41 3/4           | 32.19  | 1 1/8     | 1 3/4                    | 34 3/4                    | 38 1/2               | 28                 | 1                 | 1 5/8   |
| 34                      | 43 3/4           | 34.19  | 1 1/8     | 1 3/4                    | 36 3/4                    | 40 1/2               | 32                 | 1                 | 1 5/8   |
| 36                      | 46               | 36.19  | 1 1/8     | 1 3/4                    | 38 3/4                    | 42 3/4               | 32                 | 1                 | 1 5/8   |
| 38                      | 48 3/4           | 38.19  | 1 1/8     | 1 3/4                    | 40 3/4                    | 45 1/4               | 32                 | 1                 | 1 5/8   |
| 40                      | 50 3/4           | 40.19  | 1 1/8     | 1 3/4                    | 43                        | 47 1/4               | 36                 | 1                 | 1 5/8   |
| 42                      | 53               | 42.19  | 1 1/4     | 1 3/4                    | 45                        | 49 1/2               | 36                 | 1 1/8             | 1 5/8   |
| 44                      | 55 1/4           | 44.19  | 1 1/4     | 2 1/4                    | 47                        | 51 3/4               | 40                 | 1 1/8             | 1 5/8   |
| 46                      | 57 1/4           | 46.19  | 1 1/4     | 2 1/4                    | 49                        | 53 3/4               | 40                 | 1 1/8             | 1 5/8   |
| 48                      | 59 1/2           | 48.19  | 1 3/8     | 2 1/2                    | 51                        | 56                   | 44                 | 1 1/8             | 1 5/8   |
| 50                      | 61 3/4           | 50.19  | 1 3/8     | 2 1/2                    | 53                        | 58 1/4               | 44                 | 1 1/4             | 1 7/8   |
| 52                      | 64               | 52.19  | 1 3/8     | 2 1/2                    | 55                        | 60 1/2               | 44                 | 1 1/4             | 1 7/8   |
| 54                      | 66 1/4           | 54.19  | 1 3/8     | 2 1/2                    | 57                        | 62 3/4               | 44                 | 1 3/8             | 1 7/8   |
| 60                      | 73               | 60.19  | 1 1/2     | 2 3/4                    | 63                        | 69 1/4               | 52                 | 1 3/8             | 1 7/8   |
| 66                      | 80               | 66.19  | 1 1/2     | 2 3/4                    | 69                        | 76                   | 52                 | 1 3/8             | 1 7/8   |
| 72                      | 86 1/2           | 72.19  | 1 1/2     | 2 3/4                    | 75                        | 82 1/2               | 60                 | 1 3/8             | 1 7/8   |
| 78                      | 93               | 78.19  | 1 3/4     | 3                        | 81 1/4                    | 89                   | 64                 | 1 5/8             | 2 1/8   |
| 84                      | 99 3/4           | 84.19  | 1 3/4     | 3                        | 87 1/2                    | 95 1/2               | 64                 | 1 5/8             | 2 1/8   |
| 90                      | 106 1/2          | 90.18  | 2         | 3 1/4                    | 93 3/4                    | 102                  | 68                 | 1 7/8             | 2 3/8   |
| 96                      | 113 1/4          | 96.19  | 2         | 3 1/4                    | 100                       | 108 1/2              | 68                 | 1 7/8             | 2 3/8   |
| 102                     | 120              | 102.19 | 2 1/4     | 3 1/2                    | 105 3/4                   | 114 1/2              | 72                 | 2 1/8             | 2 5/8   |
| 108                     | 126 3/4          | 108.19 | 2 1/4     | 3 1/2                    | 111 1/2                   | 120 3/4              | 72                 | 2 1/8             | 2 5/8   |
| 114                     | 133 1/2          | 114.19 | 2 1/2     | 3 3/4                    | 105 3/4                   | 126 3/4              | 76                 | 2 3/8             | 2 7/8   |
| 120                     | 140 1/4          | 120.19 | 2 1/2     | 3 3/4                    | 111                       | 132 3/4              | 76                 | 2 5/8             | 2 7/8   |

Notes : (1) For standard finishes for contact face, refer to page 94.

(2) For Slip-on Flanges, (HubType Flange), the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.

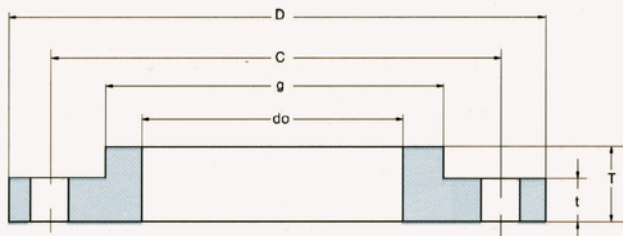
(3) The 'Bore' (B) shall be 3/16 in. larger than the nominal outside diameter of the pipe, unless otherwise specified.

# Stainless Steel Flanges

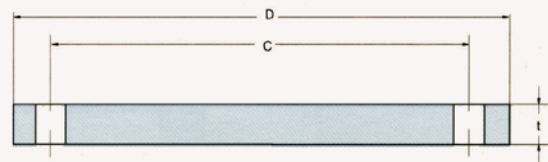
## CLASS B & D FLANGES

TABLE 3

AWWA Standard Steel Hub Flanges,  
Class E(275 psi)



SLIP-ON



BLIND

AWWA C20

Dimensions in inches

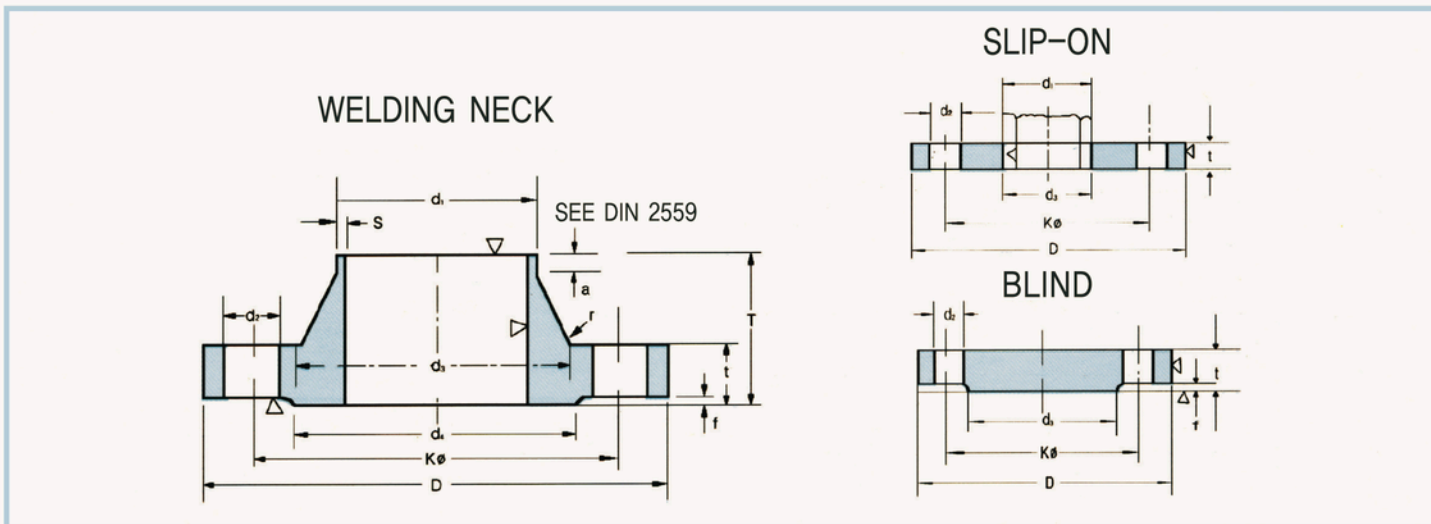
| Nominal<br>Pipe<br>Size | Outside<br>Diam.<br><br>D | Bore<br><br>do | Thickness<br><br>t | Length<br>Through<br>Hub<br><br>T | Diam<br>of Hub<br>at Base<br><br>g | DRILLING                      |                    |                   |
|-------------------------|---------------------------|----------------|--------------------|-----------------------------------|------------------------------------|-------------------------------|--------------------|-------------------|
|                         |                           |                |                    |                                   |                                    | Bolt Circle<br>Diam.<br><br>C | Number<br>of Holes | Diam.<br>of Holes |
| 4                       | 9                         | 4.57           | 15/16              | 1 5/16                            | 5 5/16                             | 7 1/2                         | 8                  | 3/4               |
| 5                       | 10                        | 5.66           | 15/16              | 1 7/16                            | 6 7/16                             | 8 1/2                         | 8                  | 7/8               |
| 6                       | 11                        | 6.72           | 1                  | 1 9/16                            | 7 9/16                             | 9 1/2                         | 8                  | 7/8               |
| 8                       | 13 1/2                    | 8.72           | 1 1/8              | 1 3/4                             | 9 11/16                            | 11 3/4                        | 8                  | 7/8               |
| 10                      | 16                        | 10.88          | 1 3/16             | 1 15/16                           | 12                                 | 14 1/4                        | 12                 | 1                 |
| 12                      | 19                        | 12.88          | 1 1/4              | 2 3/16                            | 14 3/8                             | 17                            | 12                 | 1                 |
| 14                      | 21                        | 14.19          | 1 3/8              | 2 1/4                             | 15 3/4                             | 18 3/4                        | 12                 | 1 1/8             |
| 16                      | 23 1/2                    | 16.19          | 1 7/16             | 2 1/2                             | 18                                 | 21 1/4                        | 16                 | 1 1/8             |
| 18                      | 25                        | 18.19          | 1 9/16             | 2 11/16                           | 19 7/8                             | 22 3/4                        | 16                 | 1 1/4             |
| 20                      | 27 1/2                    | 20.19          | 1 11/16            | 2 7/8                             | 22                                 | 25                            | 20                 | 1 1/4             |
| 22                      | 29 1/2                    | 22.19          | 1 13/16            | 3 1/8                             | 24                                 | 27 1/4                        | 20                 | 1 3/8             |
| 24                      | 32                        | 24.19          | 1 7/8              | 3 1/4                             | 26 1/8                             | 29 1/2                        | 20                 | 1 3/8             |
| 26                      | 34 1/4                    | 26.19          | 2                  | 3 3/8                             | 28 1/2                             | 31 3/4                        | 24                 | 1 3/8             |
| 28                      | 36 1/2                    | 28.19          | 2 1/16             | 3 7/16                            | 30 3/4                             | 34                            | 28                 | 1 3/8             |
| 30                      | 38 3/4                    | 30.19          | 2 1/8              | 3 1/2                             | 32 3/4                             | 36                            | 28                 | 1 3/8             |
| 32                      | 41 3/4                    | 32.19          | 2 1/4              | 3 5/8                             | 35                                 | 38 1/2                        | 28                 | 1 5/8             |
| 34                      | 43 3/4                    | 34.19          | 2 5/16             | 3 11/16                           | 37                                 | 40 1/2                        | 32                 | 1 5/8             |
| 36                      | 46                        | 36.19          | 2 3/8              | 3 3/4                             | 39 1/4                             | 42 3/4                        | 32                 | 1 5/8             |
| 38                      | 48 3/4                    | 38.19          | 2 3/8              | 3 3/4                             | 41 3/4                             | 45 1/4                        | 32                 | 1 5/8             |
| 40                      | 50 3/4                    | 40.19          | 2 1/2              | 3 7/8                             | 43 3/4                             | 47 1/4                        | 36                 | 1 5/8             |
| 42                      | 53                        | 42.19          | 2 5/8              | 4                                 | 46                                 | 49 1/2                        | 36                 | 1 5/8             |
| 44                      | 55 1/4                    | 44.19          | 2 5/8              | 4                                 | 48                                 | 51 3/4                        | 40                 | 1 5/8             |
| 46                      | 57 1/4                    | 46.19          | 2 11/16            | 4 1/16                            | 50                                 | 53 3/4                        | 40                 | 1 5/8             |
| 48                      | 59 1/2                    | 48.19          | 2 3/4              | 4 1/8                             | 52 1/4                             | 56                            | 44                 | 1 5/8             |
| 50                      | 61 3/4                    | 50.19          | 2 3/4              | 4 1/8                             | 56 1/4                             | 58 1/4                        | 44                 | 1 7/8             |
| 52                      | 64                        | 52.19          | 2 7/8              | 4 1/4                             | 56 1/2                             | 60 1/2                        | 44                 | 1 7/8             |
| 54                      | 66 1/4                    | 54.19          | 3                  | 4 3/8                             | 58 3/4                             | 62 3/4                        | 44                 | 1 7/8             |
| 60                      | 73                        | 60.19          | 3 1/8              | 4 1/2                             | 65 1/4                             | 69 1/4                        | 52                 | 1 7/8             |
| 66                      | 80                        | 66.19          | 3 3/8              | 4 7/8                             | 71 1/2                             | 76                            | 52                 | 1 7/8             |
| 72                      | 86 1/2                    | 72.19          | 3 1/2              | 5                                 | 78 1/2                             | 82 1/2                        | 60                 | 1 7/8             |
| 78                      | 93                        | 78.19          | 3 7/8              | 5 3/8                             | 84 1/2                             | 89                            | 64                 | 2 1/8             |
| 84                      | 99 3/4                    | 84.19          | 3 7/8              | 5 3/8                             | 90 1/2                             | 95 1/2                        | 64                 | 2 1/8             |
| 90                      | 106 1/2                   | 90.18          | 4 1/4              | 5 3/4                             | 96 3/4                             | 68                            | 68                 | 2 3/8             |
| 96                      | 113 1/4                   | 96.19          | 4 1/4              | 5 3/4                             | 102 3/4                            | 68                            | 68                 | 2 3/8             |
| 102                     | 120                       | 102.19         | 4 5/8              | 6 1/8                             | 108 3/4                            | 72                            | 72                 | 2 5/8             |
| 108                     | 126 3/4                   | 108.19         | 4 5/8              | 6 1/8                             | 114 1/2                            | 72                            | 72                 | 2 5/8             |
| 114                     | 133 1/2                   | 114.19         | 5                  | 6 1/2                             | 121 1/4                            | 126 3/4                       | 76                 | 2 7/8             |
| 120                     | 140 1/4                   | 120.19         | 5                  | 6 1/2                             | 128                                | 132 3/4                       | 76                 | 2 7/8             |

Notes : (1) The 'Bore' (B) shall be 3/16" in. larger than the nominal outside diameter of the pipe, unless otherwise specified



# 6BAR

DIN 2573 SLIP-ON FLANGES  
DIN 2527 BLIND FLANGES  
DIN 2631 WELDING NECK FLANGES



Unit : mm

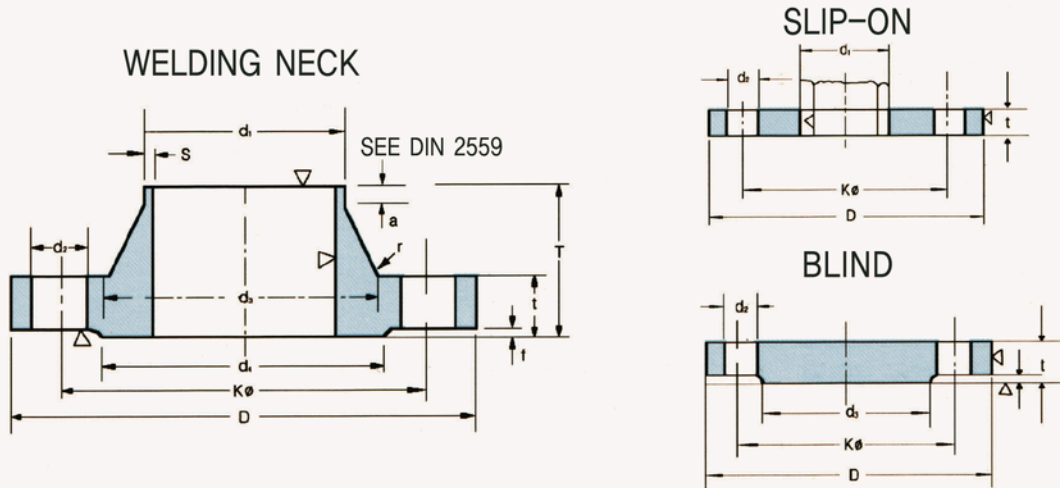
| Bore         |                    | Common Dimention |              |         |       |      |    | Welding Neck   |     |    |             | Raised Face    |   | Driling        |              |        | Approx Weight(kg) |          |          |
|--------------|--------------------|------------------|--------------|---------|-------|------|----|----------------|-----|----|-------------|----------------|---|----------------|--------------|--------|-------------------|----------|----------|
| Nominal Bore | d <sub>1</sub>     | D                | t            |         |       | k    | T  | d <sub>3</sub> | s   | r  | a<br>~<br>~ | d <sub>4</sub> | f | Number of Bolt | Dia. of Bolt |        | d <sub>2</sub>    | DIN 2573 | DIN 2631 |
|              |                    |                  | Welding Neck | Slip-on | Blind |      |    |                |     |    |             |                |   |                |              |        |                   |          |          |
| 10A          | 14<br>17.2")<br>20 | 75               | 12           | 12      | 12    | 50   | 28 | 22<br>26<br>28 | 1.8 | 4  | 6           | 35             | 2 | 4              | M10          | —      | 11.5              | 0.360    | 0.335    |
| 15A          | 21.3")<br>25       | 80               | 12           | 12      | 12    | 55   | 30 | 30<br>35       | 2.0 | 4  | 6           | 40             | 2 | 4              | M10          | —      | 11.5              | 0.410    | 0.392    |
| 20A          | 26.9")             | 90               | 14           | 14      | 14    | 65   | 32 | 38             | 2.3 | 4  | 6           | 50             | 2 | 4              | M10          | —      | 11.5              | 0.600    | 0.592    |
| 25A          | 30<br>33.7")<br>38 | 100              | 14           | 14      | 14    | 75   | 35 | 40<br>42       | 2.6 | 4  | 6           | 60             | 2 | 4              | M10          | —      | 11.5              | 0.740    | 0.747    |
| 32A          | 42.4")<br>44.5     | 120              | 14           | 16      | 14    | 90   | 35 | 50<br>55       | 2.6 | 6  | 6           | 70             | 2 | 4              | M12          | (1/2") | 14                | 1.19     | 1.05     |
| 40A          | 48.3")             | 130              | 14           | 16      | 14    | 100  | 38 | 58<br>62       | 2.6 | 6  | 7           | 80             | 3 | 4              | M12          | (1/2") | 14                | 1.39     | 1.18     |
| 50A          | 57<br>60.3")       | 140              | 14           | 16      | 14    | 110  | 38 | 70<br>74       | 2.9 | 6  | 8           | 90             | 3 | 4              | M12          | (1/2") | 14                | 1.35     | 1.34     |
| 65A          | 76.1")             | 160              | 14           | 16      | 14    | 130  | 38 | 88             | 2.9 | 6  | 9           | 110            | 3 | 4              | M12          | (1/2") | 14                | 1.89     | 1.67     |
| 80A          | 88.9")             | 190              | 16           | 18      | 16    | 150  | 42 | 102            | 3.2 | 8  | 10          | 128            | 3 | 4              | M16          | (5/8") | 18                | 2.98     | 2.71     |
| 100A         | 108<br>114.3")     | 210              | 16           | 18      | 16    | 170  | 45 | 122<br>130     | 3.6 | 8  | 10          | 148            | 3 | 4              | M16          | (5/8") | 18                | 3.46     | 3.24     |
| 125A         | 133<br>139.7")     | 240              | 18           | 20      | 18    | 200  | 48 | 148<br>155     | 4.0 | 8  | 10          | 178            | 3 | 8              | M16          | (5/8") | 18                | 4.60     | 4.49     |
| 150A         | 159<br>168.3")     | 265              | 18           | 20      | 18    | 225  | 48 | 172<br>184     | 4.5 | 10 | 12          | 202            | 3 | 8              | M16          | (5/8") | 18                | 5.22     | 5.15     |
| 200A         | 216<br>219.1")     | 320              | 20           | 22      | 20    | 280  | 55 | 230<br>236     | 5.9 | 10 | 15          | 258            | 3 | 8              | M16          | (5/8") | 18                | 7.15     | 7.78     |
| 250A         | 267<br>273")       | 375              | 22           | 24      | 22    | 335  | 60 | 282<br>290     | 6.2 | 12 | 15          | 312            | 3 | 12             | M16          | (5/8") | 18                | 9.61     | 10.8     |
| 300A         | 318<br>323.9")     | 440              | 22           | 24      | 22    | 395  | 62 | 335<br>342     | 7.1 | 12 | 15          | 365            | 4 | 12             | M20          | (3/4") | 23                | 12.6     | 14.0     |
| 350A         | 355.6")<br>368     | 490              | 22           | 26      | 22    | 445  | 62 | 385            | 7.1 | 12 | 15          | 415            | 4 | 12             | M20          | (3/4") | 23                | 15.6     | 16.1     |
| 400A         | 406.4")<br>419     | 540              | 22           | 28      | 22    | 495  | 65 | 438            | 7.1 | 12 | 15          | 455            | 4 | 16             | M20          | (3/4") | 23                | 18.4     | 18.3     |
| 500A         | 508")<br>521       | 645              | 24           | 30      | 24    | 600  | 68 | 538            | 7.1 | 12 | 15          | 570            | 4 | 20             | M20          | (3/4") | 23                | 24.5     | 24.6     |
| 600A         | 609.6")<br>622     | 755              | 24           |         |       | 705  | 70 | 640            | 7.1 | 12 | 16          | 670            | 5 | 20             | M24          | (7/8") | 27                |          |          |
| 700A         | 711.2")<br>720     | 860              | 24           |         |       | 810  | 70 | 740            | 7.1 | 12 | 16          | 775            | 5 | 24             | M24          | (7/8") | 27                |          |          |
| 800A         | 812.8")<br>820     | 975              | 24           |         |       | 920  | 70 | 842            | 7.1 | 12 | 16          | 880            | 5 | 24             | M27          | (1")   | 30                |          |          |
| 900A         | 914.4")<br>920     | 1075             | 26           |         |       | 1020 | 70 | 642            | 7.1 | 12 | 16          | 980            | 5 | 24             | M27          | (1")   | 30                |          |          |
| 1000A        | 1016")<br>1020     | 1175             | 26           |         |       | 1120 | 70 | 1045           | 7.1 | 16 | 16          | 1080           | 5 | 28             | M27          | (1")   | 30                |          |          |

NOTE \*Out side diameter of pipe complied with ISO recommendation R64

# Stainless Steel Flanges

## 10BAR

DIN 2576 SLIP-ON FLANGES  
DIN 2527 BLIND FLANGES  
DIN 2632 WELDING NECK FLANGES



Unit : mm

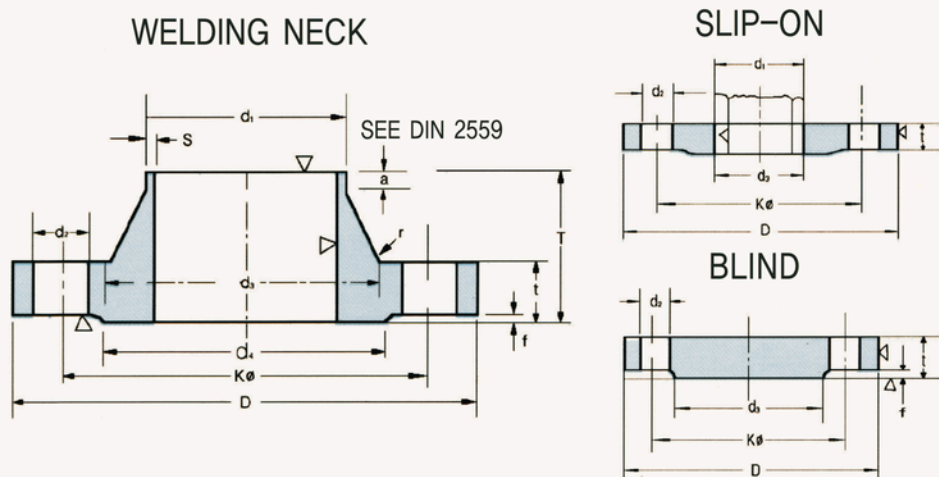
| Bore         |                 | Common Dimention |              |         |       |      | Welding Neck |            |      |    |    | Raised Face |   | Driling        |              |          | Approx Weight(kg) |          |
|--------------|-----------------|------------------|--------------|---------|-------|------|--------------|------------|------|----|----|-------------|---|----------------|--------------|----------|-------------------|----------|
| Nominal Bore | $d_1$           | D                | t            |         |       | k    | T            | $d_3$      | s    | r  | a  | $d_4$       | f | Number of Bolt | Dia. of Bolt | $d_2$    | DIN 2576          | DIN 2632 |
|              |                 |                  | Welding Neck | Slip-on | Blind |      |              |            |      |    | ~  |             |   |                |              |          |                   |          |
| 10A          | 14<br>(17.2")   | 90               | 14           | 14      | 14    | 60   | 35           | 25<br>28   | 1.8  | 4  | 6  | 40          | 2 | 4              | M12          | (1/2")   | 0.163             | 0.580    |
| 15A          | 20<br>(21.3")   | 95               | 14           | 14      | 14    | 65   | 35           | 30<br>32   | 2.0  | 4  | 6  | 45          | 2 | 4              | M12          | (1/2")   | 0.675             | 0.648    |
| 20A          | 25<br>(26.9")   | 105              | 16           | 16      | 16    | 75   | 38           | 38<br>40   | 2.3  | 4  | 6  | 58          | 2 | 4              | M12          | (1/2")   | 0.947             | 0.952    |
| 25A          | 30<br>(33.7")   | 115              | 16           | 16      | 16    | 85   | 38           | 42<br>45   | 2.6  | 4  | 6  | 68          | 2 | 4              | M12          | (1/2")   | 1.14              | 1.14     |
| 32A          | 38<br>(42.4")   | 140              | 16           | 16      | 16    | 100  | 40           | 52<br>56   | 2.6  | 6  | 6  | 78          | 2 | 4              | M16          | (5/8")   | 1.66              | 1.69     |
| 40A          | 44.5<br>(48.3") | 150              | 16           | 16      | 16    | 110  | 42           | 60<br>64   | 2.6  | 6  | 7  | 88          | 3 | 4              | M16          | (5/8")   | 1.89              | 1.86     |
| 50A          | 57<br>(60.3")   | 165              | 18           | 18      | 18    | 125  | 45           | 72<br>75   | 2.9  | 6  | 8  | 102         | 3 | 4              | M16          | (5/8")   | 2.51              | 2.53     |
| 65A          | 76.1<br>(76.1") | 185              | 18           | 18      | 18    | 145  | 45           | 90         | 2.9  | 6  | 10 | 122         | 3 | 4              | M16          | (5/8")   | 3.00              | 3.06     |
| 80A          | 88.9<br>(88.9") | 200              | 20           | 20      | 20    | 160  | 50           | 105        | 3.2  | 8  | 10 | 138         | 3 | 4              | M16          | (5/8")   | 3.79              | 3.70     |
| 100A         | 108<br>(114.3") | 220              | 20           | 20      | 20    | 180  | 52           | 125<br>131 | 3.6  | 8  | 12 | 158         | 3 | 8              | M16          | (5/8")   | 4.20              | 4.62     |
| 125A         | 133<br>(139.7") | 250              | 22           | 22      | 22    | 210  | 55           | 150<br>156 | 4.0  | 8  | 12 | 188         | 3 | 8              | M16          | (5/8")   | 5.71              | 6.30     |
| 150A         | 159<br>(168.3") | 285              | 22           | 22      | 22    | 240  | 55           | 175<br>184 | 4.5  | 10 | 12 | 212         | 3 | 8              | M20          | (3/4")   | 6.72              | 7.75     |
| 200A         | 216<br>(219.1") | 340              | 24           | 24      | 24    | 295  | 62           | 232<br>235 | 5.9  | 10 | 16 | 268         | 3 | 8              | M20          | (3/4")   | 9.50              | 11.3     |
| 250A         | 267<br>(273")   | 395              | 26           | 26      | 26    | 350  | 68           | 285<br>292 | 6.3  | 12 | 16 | 320         | 3 | 12             | M20          | (3/4")   | 12.5              | 14.7     |
| 300A         | 318<br>(323.9") | 445              | 26           | 26      | 28    | 400  | 68           | 335<br>344 | 7.1  | 12 | 16 | 370         | 4 | 12             | M20          | (3/4")   | 14.4              | 17.6     |
| 350A         | 355.6<br>(368)  | 505              | 26           | 28      | 30    | 460  | 68           | 385        | 7.1  | 12 | 16 | 430         | 4 | 16             | M20          | (3/4")   | 20.6              | 21.4     |
| 400A         | 406.4<br>(419)  | 565              | 26           | 32      | 32    | 515  | 72           | 440        | 7.1  | 12 | 16 | 482         | 4 | 16             | M24          | (7/8")   | 27.9              | 26.1     |
| 500A         | 508<br>(521)    | 670              | 28           | 38      | 34    | 620  | 75           | 542        | 7.1  | 12 | 16 | 585         | 4 | 20             | M24          | (7/8")   | 41.1              | 34.7     |
| 600A         | 609.6<br>(622)  | 780              | 28           |         |       | 725  | 80           | 642        | 7.1  | 12 | 18 | 685         | 5 | 20             | M27          | (1")     |                   |          |
| 700A         | 711.2<br>(720)  | 895              | 30           |         |       | 840  | 80           | 745        | 8.0  | 12 | 18 | 800         | 5 | 24             | M27          | (1")     |                   |          |
| 800A         | 812.8<br>(820)  | 1015             | 32           |         |       | 950  | 90           | 850        | 8.0  | 12 | 18 | 905         | 5 | 24             | M30          | (1 1/8") |                   |          |
| 900A         | 914.4<br>(920)  | 1115             | 34           |         |       | 1050 | 95           | 950        | 10.0 | 12 | 20 | 1005        | 5 | 28             | M30          | (1 1/8") |                   |          |
| 1000A        | 1016<br>(1020)  | 1230             | 34           |         |       | 1160 | 95           | 1052       | 10.0 | 16 | 20 | 1110        | 5 | 28             | M33          | (1 1/4") |                   |          |

NOTE \*Out side diameter of pipe complied with ISO recommendation R64



# 16BAR

DIN 2543 SLIP-ON FLANGES  
DIN 2527 BLIND FLANGES  
DIN 2633 WELDING NECK FLANGES



Unit : mm

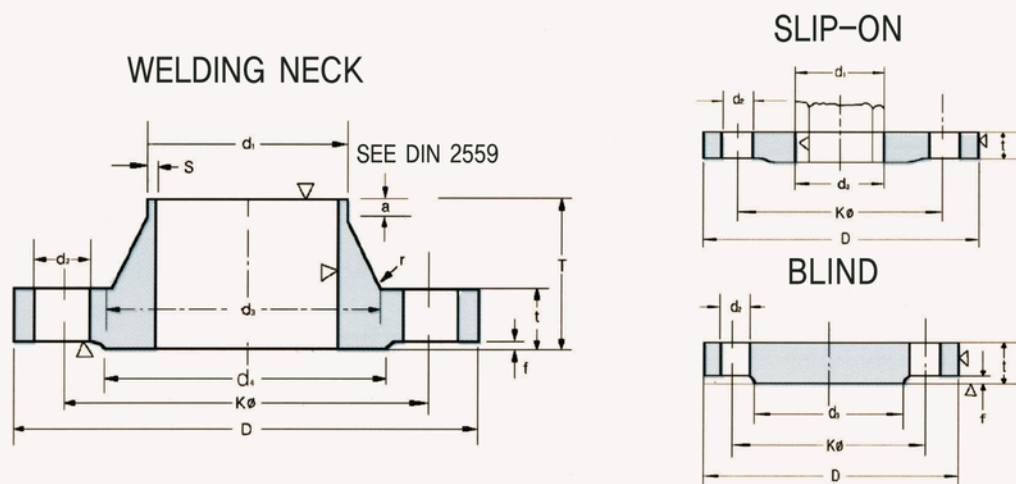
| Bore         |                  | Common Dimention |              |         |       |      | Welding Neck |                |      |    |    | Raised Face    |   | Drilling       |                 |                | Approx Weight(kg) |          |
|--------------|------------------|------------------|--------------|---------|-------|------|--------------|----------------|------|----|----|----------------|---|----------------|-----------------|----------------|-------------------|----------|
| Nominal Bore | d <sub>1</sub>   | D                | t            |         |       | k    | T            | d <sub>3</sub> | s    | r  | a  | d <sub>4</sub> | f | Number of Bolt | Dia. of Bolt    | d <sub>2</sub> | DIN 2543          | DIN 2633 |
|              |                  |                  | Welding Neck | Slip-on | Blind |      |              |                |      |    | ~  |                |   |                |                 |                |                   |          |
| 10A          | 14<br>(17.2")    | 90               | 14           |         | 14    | 60   | 35           | 25<br>28       | 1.8  | 4  | 6  | 40             | 2 | 4              | M12<br>(1/2")   | 14             | 0.63              | 0.580    |
| 15A          | 20<br>(21.3")    | 95               | 14           | 14      | 14    | 65   | 35           | 30<br>32       | 2.0  | 4  | 6  | 45             | 2 | 4              | M12<br>(1/2")   | 14             | 0.72              | 0.648    |
| 20A          | 25<br>(26.9")    | 105              | 16           | 16      | 16    | 75   | 38           | 38<br>40       | 2.3  | 4  | 6  | 58             | 2 | 4              | M12<br>(1/2")   | 14             | 1.01              | 0.952    |
| 25A          | 30<br>(33.7")    | 115              | 16           | 16      | 16    | 85   | 38           | 42<br>45       | 2.6  | 4  | 6  | 68             | 2 | 4              | M12<br>(1/2")   | 14             | 1.23              | 1.14     |
| 32A          | 38<br>(42.4")    | 140              | 16           | 16      | 16    | 100  | 40           | 52<br>56       | 2.6  | 6  | 6  | 78             | 2 | 4              | M16<br>(5/8")   | 18             | 1.80              | 1.69     |
| 40A          | 44.5<br>(48.3")  | 150              | 16           | 16      | 16    | 110  | 42           | 60<br>64       | 2.6  | 6  | 7  | 88             | 3 | 4              | M16<br>(5/8")   | 18             | 2.09              | 1.86     |
| 50A          | 57<br>(60.3")    | 165              | 18           | 18      | 18    | 125  | 45           | 72<br>75       | 2.9  | 6  | 8  | 102            | 3 | 4              | M16<br>(5/8")   | 18             | 2.88              | 2.53     |
| 65A          | 76.1")           | 185              | 18           | 18      | 18    | 145  | 45           | 90             | 2.9  | 6  | 10 | 122            | 3 | 4              | M16<br>(5/8")   | 18             | 3.66              | 3.06     |
| 80A          | 88.9")           | 200              | 20           | 20      | 20    | 160  | 50           | 105            | 3.2  | 8  | 10 | 138            | 3 | 8              | M16<br>(5/8")   | 18             | 4.77              | 3.70     |
| 100A         | 108<br>(114.3")  | 220              | 20           | 20      | 20    | 180  | 52           | 125<br>131     | 3.6  | 8  | 12 | 158            | 3 | 8              | M16<br>(5/8")   | 18             | 5.65              | 4.62     |
| 125A         | 13.3<br>(139.7") | 250              | 22           | 22      | 22    | 210  | 55           | 150<br>156     | 4.0  | 8  | 12 | 188            | 3 | 8              | M16<br>(5/8")   | 18             | 8.42              | 6.30     |
| 150A         | 159<br>(168.3")  | 285              | 22           | 22      | 22    | 240  | 55           | 175<br>184     | 4.5  | 10 | 12 | 212            | 3 | 8              | M20<br>(3/4")   | 23             | 10.4              | 7.75     |
| 200A         | 216<br>(219.1")  | 340              | 24           | 24      | 24    | 295  | 62           | 232<br>235     | 5.9  | 10 | 16 | 268            | 3 | 12             | M20<br>(3/4")   | 23             | 16.1              | 11.0     |
| 250A         | 267<br>(273")    | 405              | 26           | 26      | 26    | 355  | 70           | 285<br>292     | 6.3  | 12 | 16 | 320            | 3 | 12             | M24<br>(7/8")   | 27             | 24.9              | 15.6     |
| 300A         | 318<br>(323.9")  | 460              | 28           | 28      | 28    | 410  | 78           | 338<br>344     | 7.1  | 12 | 16 | 378            | 4 | 12             | M24<br>(7/8")   | 27             | 35.1              | 22.0     |
| 350A         | 355.6")<br>368   | 520              | 30           | 30      | 30    | 470  | 82           | 390            | 8.0  | 12 | 16 | 438            | 4 | 16             | M24<br>(7/8")   | 27             | 47.8              | 28.7     |
| 400A         | 406.4")<br>419   | 580              | 32           | 32      | 32    | 525  | 85           | 445            | 8.0  | 12 | 16 | 490            | 4 | 16             | M27<br>(1")     | 30             | 63.5              | 36.3     |
| 500A         | 508")<br>521     | 715              | 34           | 36      | 34    | 650  | 90           | 548            | 8.0  | 12 | 16 | 610            | 4 | 20             | M30<br>(1 1/8") | 33             | 102.0             | 59.3     |
| 600A         | 609.6")<br>622   | 840              | 36           | 40      |       | 770  | 95           | 652            | 8.8  | 12 | 18 | 725            | 5 | 20             | M33<br>(1 1/4") | 36             |                   |          |
| 700A         | 711.2")<br>720   | 910              | 36           |         |       | 840  | 100          | 755            | 8.8  | 12 | 18 | 795            | 5 | 24             | M33<br>(1 1/4") | 36             |                   |          |
| 800A         | 812.8")<br>820   | 1025             | 38           |         |       | 950  | 105          | 855            | 10.0 | 12 | 20 | 900            | 5 | 24             | M36<br>(1 3/8") | 39             |                   |          |
| 900A         | 914.4")<br>920   | 1125             | 40           |         |       | 1050 | 110          | 955            | 10.0 | 12 | 20 | 1000           | 5 | 28             | M36<br>(1 3/8") | 39             |                   |          |
| 1000A        | 1016")<br>1020   | 1255             | 42           |         |       | 1170 | 120          | 1058           | 10.0 | 16 | 20 | 1115           | 5 | 28             | M39<br>(1 1/2") | 42             |                   |          |

NOTE \*Out side diameter of pipe complied with ISO recommendation R64

# Stainless Steel Flanges

## 25BAR

DIN 2544 SLIP-ON FLANGES  
DIN 2527 BLIND FLANGES  
DIN 2634 WELDING NECK FLANGES



Unit : mm

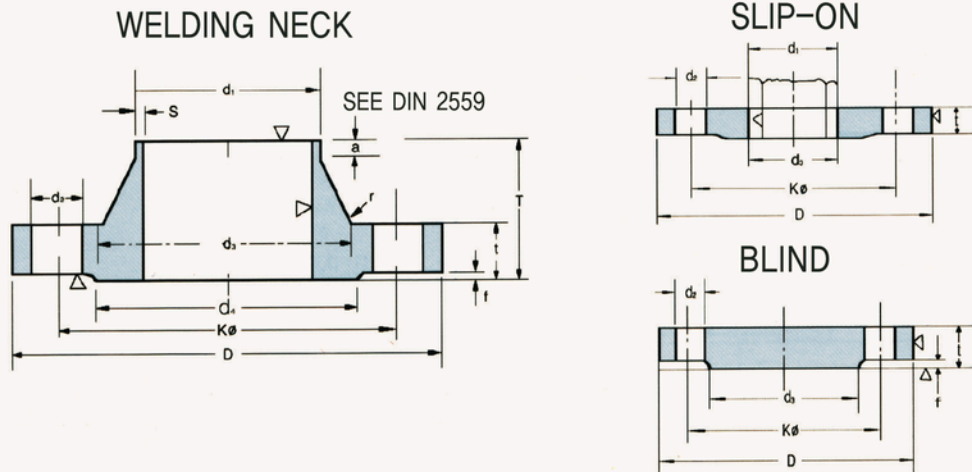
| Bore         |                | Common Dimention |              |         |       |      | Welding Neck |                |      |    | Raised Face |                | Driling |                |              |          | Approx Weight(kg) |          |          |
|--------------|----------------|------------------|--------------|---------|-------|------|--------------|----------------|------|----|-------------|----------------|---------|----------------|--------------|----------|-------------------|----------|----------|
| Nominal Bore | d <sub>1</sub> | D                | t            |         |       | k    | T            | d <sub>3</sub> | s    | r  | a<br>~<br>~ | d <sub>4</sub> | f       | Number of Bolt | Dia. of Bolt |          | d <sub>2</sub>    | DIN 2544 | DIN 2634 |
|              |                |                  | Welding Neck | Slip-on | Blind |      |              |                |      |    |             |                |         |                |              |          |                   |          |          |
| 10A          | 14<br>17.2")   | 90               | 16           |         | 16    | 60   | 35           | 25<br>28       | 1.8  | 4  | 6           | 40             | 2       | 4              | M12          | (1/2")   | 14                | 0.72     | 0.661    |
| 15A          | 20<br>21.3")   | 95               | 16           | 16      | 16    | 65   | 35           | 30<br>32       | 2.0  | 4  | 6           | 45             | 2       | 4              | M12          | (1/2")   | 14                | 0.81     | 0.746    |
| 20A          | 25<br>26.9")   | 105              | 18           | 18      | 18    | 75   | 38           | 38<br>40       | 2.3  | 4  | 6           | 58             | 2       | 4              | M12          | (1/2")   | 14                | 1.24     | 1.06     |
| 25A          | 30<br>33.7")   | 115              | 18           | 18      | 18    | 85   | 40           | 42<br>46       | 2.6  | 4  | 6           | 68             | 2       | 4              | M12          | (1/2")   | 14                | 1.38     | 1.29     |
| 32A          | 38<br>42.4")   | 140              | 18           | 18      | 18    | 100  | 45           | 52<br>56       | 2.6  | 6  | 6           | 78             | 2       | 4              | M16          | (5/8")   | 18                | 2.03     | 1.88     |
| 40A          | 44.5<br>48.3") | 150              | 18           | 18      | 18    | 110  | 45           | 60<br>64       | 2.6  | 6  | 7           | 88             | 3       | 4              | M16          | (5/8")   | 18                | 2.35     | 2.34     |
| 50A          | 57<br>60.3")   | 165              | 20           | 20      | 20    | 125  | 48           | 72<br>75       | 2.9  | 6  | 8           | 102            | 3       | 4              | M16          | (5/8")   | 18                | 3.20     | 2.82     |
| 65A          | 76.1")         | 185              | 22           | 22      | 22    | 145  | 52           | 90             | 2.9  | 6  | 10          | 122            | 3       | 8              | M16          | (5/8")   | 18                | 4.29     | 3.74     |
| 80A          | 88.9")         | 200              | 24           | 24      | 24    | 160  | 58           | 105            | 3.2  | 8  | 12          | 138            | 3       | 8              | M16          | (5/8")   | 18                | 5.88     | 4.75     |
| 100A         | 108<br>114.3") | 235              | 24           | 24      | 24    | 190  | 65           | 128<br>134     | 3.6  | 8  | 12          | 162            | 3       | 8              | M20          | (3/4")   | 23                | 7.54     | 6.52     |
| 125A         | 133<br>139.7") | 270              | 26           | 26      | 26    | 220  | 68           | 155<br>162     | 4.0  | 8  | 12          | 188            | 3       | 8              | M24          | (7/8")   | 27                | 10.8     | 9.07     |
| 150A         | 159<br>168.3") | 300              | 28           | 28      | 28    | 250  | 75           | 182<br>192     | 4.5  | 10 | 12          | 218            | 3       | 8              | M24          | (7/8")   | 27                | 14.5     | 11.8     |
| 200A         | 216<br>219.1") | 360              | 30           | 30      | 30    | 310  | 80           | 240<br>244     | 6.3  | 10 | 16          | 278            | 3       | 12             | M24          | (7/8")   | 27                | 22.3     | 17.0     |
| 250A         | 267<br>273")   | 425              | 32           | 32      | 32    | 370  | 88           | 292<br>298     | 7.1  | 12 | 18          | 335            | 3       | 12             | M27          | (1")     | 30                | 33.5     | 24.4     |
| 300A         | 318<br>323.9") | 485              | 34           | 34      | 34    | 430  | 92           | 345<br>352     | 8.0  | 12 | 18          | 395            | 4       | 16             | M27          | (1")     | 30                | 46.3     | 31.2     |
| 350A         | 355.6")<br>368 | 555              | 38           | 38      | 38    | 490  | 100          | 398            | 8.0  | 12 | 20          | 450            | 4       | 16             | M30          | (1 1/8") | 33                | 68.0     | 45.0     |
| 400A         | 406.4")<br>419 | 620              | 40           | 40      | 40    | 550  | 110          | 452            | 8.8  | 12 | 20          | 505            | 4       | 16             | M33          | (1 1/4") | 36                | 89.7     | 58.7     |
| 500A         | 508")<br>521   | 730              | 44           | 44      | 44    | 660  | 125          | 558            | 10.0 | 12 | 20          | 615            | 4       | 20             | M33          | (1 1/4") | 36                | 138.0    | 86.1     |
| 600A         | 609.6")<br>622 | 845              | 46           |         |       | 770  | 125          | 660            | 11.0 | 12 | 20          | 720            | 5       | 20             | M36          | (1 3/8") | 39                |          | 101.0    |
| 700A         | 711.2")<br>720 | 960              | 46           |         |       | 875  | 125          | 760            | 12.5 | 12 | 20          | 820            | 5       | 24             | M39          | (1 1/2") | 42                |          | 134.0    |
| 800A         | 812.8")<br>820 | 1085             | 50           |         |       | 990  | 135          | 865            | 14.2 | 12 | 22          | 930            | 5       | 24             | M45          | (1 3/4") | 48                |          | 183.0    |
| 900A         | 914.4")<br>920 | 1185             | 54           |         |       | 1090 | 145          | 968            | 16.0 | 12 | 24          | 1030           | 5       | 28             | M45          | (1 3/4") | 48                |          | 232.0    |
| 1000A        | 1016")<br>1020 | 1320             | 58           |         |       | 1210 | 155          | 1070           | 17.5 | 16 | 24          | 1140           | 5       | 28             | M52          | (2")     | 56                |          | 302.0    |

NOTE \*Out side diameter of pipe complied with ISO recommendation R64



# 40BAR

DIN 2545 SLIP-ON FLANGES  
DIN 2527 BLIND FLANGES  
DIN 2635 WELDING NECK FLANGES



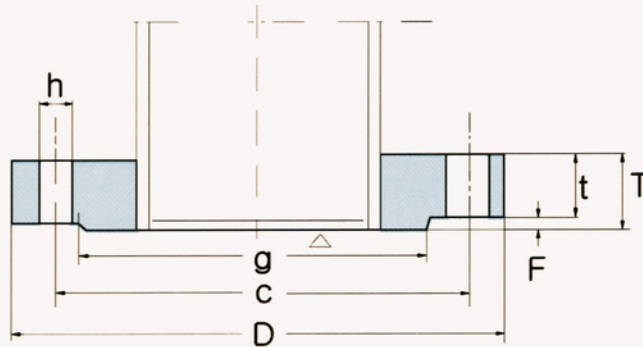
Unit : mm

| Bore         |                            | Common Dimention |              |         |       |     |     | Welding Neck   |      |    |             | Raised Face    |   | Driling        |              |                       | Approx Weight(kg) |          |          |
|--------------|----------------------------|------------------|--------------|---------|-------|-----|-----|----------------|------|----|-------------|----------------|---|----------------|--------------|-----------------------|-------------------|----------|----------|
| Nominal Bore | d <sub>1</sub>             | D                | t            |         |       | k   | T   | d <sub>3</sub> | s    | r  | a<br>~<br>~ | d <sub>4</sub> | f | Number of Bolt | Dia. of Bolt |                       | d <sub>2</sub>    | DIN 2543 | DIN 2633 |
|              |                            |                  | Welding Neck | Slip-on | Blind |     |     |                |      |    |             |                |   |                |              |                       |                   |          |          |
| 10A          | 14<br>17.2 <sup>*)</sup>   | 90               | 16           |         | 16    | 60  | 35  | 25<br>28       | 1.8  | 4  | 6           | 40             | 2 | 4              | M12          | (1/2 <sup>°</sup> )   | 14                | 0.72     | 0.661    |
| 15A          | 20<br>21.3 <sup>*)</sup>   | 95               | 16           | 16      | 16    | 65  | 38  | 30<br>32       | 2.0  | 4  | 6           | 45             | 2 | 4              | M12          | (1/2 <sup>°</sup> )   | 14                | 0.81     | 0.746    |
| 20A          | 25<br>26.9 <sup>*)</sup>   | 105              | 18           | 18      | 18    | 75  | 40  | 38<br>40       | 2.3  | 4  | 6           | 58             | 2 | 4              | M12          | (1/2 <sup>°</sup> )   | 14                | 1.24     | 1.06     |
| 25A          | 30<br>33.7 <sup>*)</sup>   | 115              | 18           | 18      | 18    | 85  | 40  | 42<br>46       | 2.6  | 4  | 6           | 68             | 2 | 4              | M12          | (1/2 <sup>°</sup> )   | 14                | 1.38     | 1.29     |
| 32A          | 38<br>42.4 <sup>*)</sup>   | 140              | 18           | 18      | 18    | 100 | 45  | 52<br>56       | 2.6  | 6  | 6           | 78             | 2 | 4              | M16          | (5/8 <sup>°</sup> )   | 18                | 2.03     | 1.88     |
| 40A          | 44.5<br>48.3 <sup>*)</sup> | 150              | 18           | 18      | 18    | 110 | 45  | 60<br>64       | 2.6  | 6  | 7           | 88             | 3 | 4              | M16          | (5/8 <sup>°</sup> )   | 18                | 2.35     | 2.33     |
| 50A          | 57<br>60.3 <sup>*)</sup>   | 165              | 20           | 20      | 20    | 125 | 48  | 72<br>75       | 2.9  | 6  | 8           | 102            | 3 | 4              | M16          | (5/8 <sup>°</sup> )   | 18                | 3.20     | 2.82     |
| 65A          | 76.1 <sup>*)</sup>         | 185              | 22           | 22      | 22    | 145 | 52  | 90             | 2.9  | 6  | 10          | 122            | 3 | 8              | M16          | (5/8 <sup>°</sup> )   | 18                | 4.29     | 3.74     |
| 80A          | 88.9 <sup>*)</sup>         | 200              | 24           | 24      | 24    | 160 | 58  | 105            | 3.2  | 8  | 12          | 138            | 3 | 8              | M16          | (5/8 <sup>°</sup> )   | 18                | 5.88     | 4.75     |
| 100A         | 108<br>114.3 <sup>*)</sup> | 235              | 24           | 24      | 24    | 190 | 65  | 128<br>134     | 3.6  | 8  | 12          | 162            | 3 | 8              | M20          | (3/4 <sup>°</sup> )   | 23                | 7.54     | 6.52     |
| 125A         | 133<br>139.7 <sup>*)</sup> | 270              | 26           | 26      | 26    | 220 | 68  | 155<br>162     | 4.0  | 8  | 12          | 188            | 3 | 8              | M24          | (7/8 <sup>°</sup> )   | 27                | 10.8     | 9.07     |
| 150A         | 159<br>168.3 <sup>*)</sup> | 300              | 28           | 28      | 28    | 250 | 75  | 182<br>192     | 4.5  | 10 | 12          | 218            | 3 | 8              | M24          | (7/8 <sup>°</sup> )   | 27                | 14.5     | 11.80    |
| (175)A       | 191<br>193.7 <sup>*)</sup> | 350              | 32           | 32      | 32    | 295 | 82  | 215<br>218     | 5.6  | 10 | 15          | 260            | 3 | 12             | M27          | (1 <sup>°</sup> )     | 30                | 22.1     | 18.2     |
| 200A         | 216<br>219.1 <sup>*)</sup> | 375              | 34           | 34      | 34    | 320 | 88  | 240<br>244     | 6.3  | 10 | 16          | 285            | 3 | 12             | M27          | (1 <sup>°</sup> )     | 30                | 27.2     | 21.5     |
| 250A         | 267<br>273 <sup>*)</sup>   | 450              | 38           | 38      | 38    | 385 | 105 | 298<br>306     | 7.1  | 12 | 18          | 345            | 3 | 12             | M30          | (1 1/8 <sup>°</sup> ) | 33                | 43.8     | 34.9     |
| 300A         | 318<br>323.9 <sup>*)</sup> | 515              | 42           | 42      | 42    | 450 | 115 | 352<br>362     | 8.0  | 12 | 18          | 410            | 4 | 16             | M30          | (1 1/8 <sup>°</sup> ) | 33                | 63.3     | 49.7     |
| 350A         | 355.6 <sup>*)</sup>        | 580              | 46           | 46      | 46    | 510 | 125 | 408            | 8.8  | 12 | 20          | 465            | 4 | 16             | M33          | (1 1/4 <sup>°</sup> ) | 36                | 89.5     | 68.1     |
| 400A         | 368<br>406.4 <sup>*)</sup> | 660              | 50           | 50      | 50    | 585 | 135 | 462            | 11.0 | 12 | 20          | 535            | 4 | 16             | M36          | (1 3/8 <sup>°</sup> ) | 39                | 127.0    | 96.5     |
| 500A         | 508 <sup>*)</sup><br>521   | 755              | 52           | 52      | 52    | 670 | 140 | 562            | 14.2 | 12 | 20          | 615            | 4 | 20             | M39          | (1 1/2 <sup>°</sup> ) | 42                | 172.0    | 117.0    |

NOTE \*Out side diameter of pipe complied with ISO recommendation R64

# Stainless Steel Flanges

## 제수변 KSD 4308



무 게 : kg  
Unit : mm

| Nominal Bore of Flange | D    | g    | T    | t    | F | C    | N  | h  | Bolt Size | Weight(kg) |
|------------------------|------|------|------|------|---|------|----|----|-----------|------------|
| 80A                    | 200  | 133  | 19.0 | 16.0 | 3 | 160  | 4  | 19 | M16       | 3.0        |
| 100A                   | 220  | 153  | 19.0 | 16.0 | 3 | 180  | 8  | 19 | M16       | 3.3        |
| 125A                   | 250  | 183  | 19.0 | 16.0 | 3 | 210  | 8  | 19 | M16       | 4.0        |
| 150A                   | 285  | 209  | 19.0 | 16.0 | 3 | 240  | 8  | 23 | M20       | 4.9        |
| 200A                   | 340  | 264  | 20.0 | 17.0 | 3 | 295  | 8  | 23 | M20       | 6.8        |
| 250A                   | 400  | 319  | 22.0 | 19.0 | 3 | 350  | 12 | 23 | M20       | 9.6        |
| 300A                   | 455  | 367  | 24.5 | 20.5 | 4 | 400  | 12 | 23 | M20       | 12.8       |
| 350A                   | 505  | 427  | 24.5 | 20.5 | 4 | 460  | 16 | 23 | M20       | 14.1       |
| 400A                   | 565  | 477  | 24.5 | 20.5 | 4 | 515  | 16 | 28 | M24       | 16.3       |
| 450A                   | 615  | 527  | 25.5 | 21.5 | 4 | 565  | 20 | 28 | M24       | 18.1       |
| 500A                   | 670  | 582  | 26.5 | 22.5 | 4 | 620  | 20 | 28 | M24       | 21.8       |
| 600A                   | 780  | 682  | 30.0 | 25.0 | 5 | 725  | 20 | 31 | M27       | 30.8       |
| 700A                   | 895  | 797  | 32.5 | 27.5 | 5 | 840  | 24 | 31 | M27       | 40.5       |
| 800A                   | 1015 | 904  | 35.0 | 30.0 | 5 | 950  | 24 | 34 | M30       | 54.8       |
| 900A                   | 1115 | 1004 | 37.5 | 32.5 | 5 | 1050 | 28 | 34 | M30       | 64.3       |
| 1000A                  | 1230 | 1111 | 40.0 | 35.0 | 5 | 1160 | 28 | 37 | M33       | 81.4       |
| 1100A                  | 1340 | 1218 | 42.5 | 37.5 | 5 | 1270 | 32 | 37 | M33       | 105.0      |
| 1200A                  | 1455 | 1328 | 45.0 | 40.0 | 5 | 1380 | 32 | 40 | M36       | 120.9      |

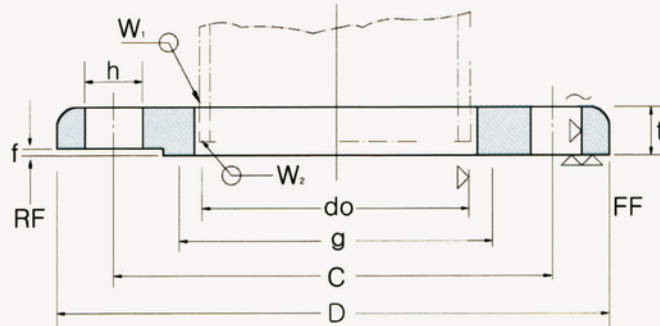


# KS B 2332-1994

수도용 제수밸브용 플랜지  
Sluice valves for water works flange

# KS B 2333-1994

수도용 버터플라이 밸브용 플랜지  
Butterfly valves for water works flange



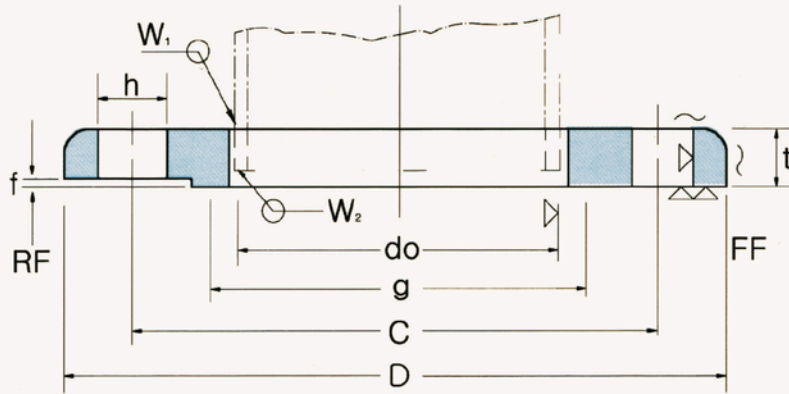
Unit : mm

| Nominal Bore of Flange | Inside Diam, of Flange do | KS B 2332-1994 수도용 제수밸브용 플랜지<br>Sluice valves for water works flange<br>Sectional Dimensions of Flange |      |      |      |   |              |    | KS B 2333-1994 수도용 버터플라이 밸브용 플랜지<br>Butterfly valves for water works flange<br>Sectional Dimensions of Flange |      |      |      |   |              |    |
|------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|------|------|------|---|--------------|----|---------------------------------------------------------------------------------------------------------------|------|------|------|---|--------------|----|
|                        |                           | T                                                                                                      | D    | C    | g    | f | Dia, of Bolt |    | T                                                                                                             | D    | C    | g    | f | Dia, of Bolt |    |
|                        |                           |                                                                                                        |      |      |      |   | h            | N  |                                                                                                               |      |      |      |   | h            | N  |
| 50A                    | 61.1                      | 20                                                                                                     | 155  | 120  | 100  | 2 | 19           | 4  |                                                                                                               |      |      |      |   |              |    |
| 80A                    | 90.0                      | 24                                                                                                     | 200  | 160  | 133  | 3 | 19           | 4  |                                                                                                               |      |      |      |   |              |    |
| 100A                   | 115.4                     | 25                                                                                                     | 220  | 180  | 153  | 3 | 19           | 8  |                                                                                                               |      |      |      |   |              |    |
| 125A                   | 141.2                     | 25                                                                                                     | 250  | 210  | 183  | 3 | 19           | 8  |                                                                                                               |      |      |      |   |              |    |
| 150A                   | 166.6                     | 26                                                                                                     | 285  | 240  | 209  | 3 | 23           | 8  |                                                                                                               |      |      |      |   |              |    |
| 200A                   | 218.0                     | 27                                                                                                     | 340  | 295  | 264  | 3 | 23           | 8  | 24                                                                                                            | 340  | 295  | 264  | 3 | 23           | 8  |
| 250A                   | 269.5                     | 29                                                                                                     | 395  | 350  | 319  | 3 | 23           | 12 | 25                                                                                                            | 395  | 350  | 319  | 3 | 23           | 12 |
| 300A                   | 321.0                     | 31                                                                                                     | 445  | 400  | 367  | 4 | 23           | 12 | 27                                                                                                            | 445  | 400  | 367  | 4 | 23           | 12 |
| 350A                   | 358.1                     | 32                                                                                                     | 505  | 460  | 427  | 4 | 23           | 16 | 28                                                                                                            | 505  | 460  | 427  | 4 | 23           | 16 |
| 400A                   | 409.0                     | 34                                                                                                     | 565  | 515  | 477  | 4 | 28           | 16 | 29                                                                                                            | 565  | 515  | 477  | 4 | 28           | 16 |
| 450A                   | 460.0                     | 35                                                                                                     | 615  | 565  | 527  | 4 | 28           | 20 | 30                                                                                                            | 615  | 565  | 527  | 4 | 28           | 20 |
| 500A                   | 511.0                     | 36                                                                                                     | 670  | 620  | 582  | 4 | 28           | 20 | 31                                                                                                            | 670  | 620  | 582  | 4 | 28           | 20 |
| 600A                   | 613.0                     | 40                                                                                                     | 780  | 725  | 692  | 4 | 31           | 20 | 32                                                                                                            | 780  | 725  | 692  | 4 | 31           | 20 |
| 700A                   | 715.0                     | 46                                                                                                     | 895  | 840  | 797  | 4 | 31           | 24 | 34                                                                                                            | 895  | 840  | 797  | 4 | 31           | 24 |
| 800A                   | 817.0                     | 49                                                                                                     | 1015 | 950  | 904  | 5 | 34           | 24 | 36                                                                                                            | 1015 | 950  | 904  | 5 | 34           | 24 |
| 900A                   | 919.0                     | 51                                                                                                     | 1115 | 1050 | 1004 | 5 | 34           | 28 | 38                                                                                                            | 1115 | 1050 | 1004 | 5 | 34           | 28 |
| 1000A                  | 1021.0                    | 55                                                                                                     | 1230 | 1160 | 1111 | 5 | 37           | 28 | 40                                                                                                            | 1230 | 1160 | 1111 | 5 | 37           | 28 |
| 1100A                  | 1122.0                    | 61                                                                                                     | 1366 | 1270 | 1200 | 5 | 37           | 32 | 42                                                                                                            | 1366 | 1270 | 1200 | 5 | 37           | 32 |
| 1200A                  | 1224.0                    | 63                                                                                                     | 1470 | 1387 | 1304 | 5 | 37           | 32 | 44                                                                                                            | 1470 | 1387 | 1304 | 5 | 37           | 32 |
| 1350A                  | 1376.0                    | 68                                                                                                     | 1642 | 1552 | 1462 | 6 | 38           | 36 | 48                                                                                                            | 1642 | 1552 | 1462 | 6 | 38           | 36 |
| 1500A                  | 1529.0                    | 74                                                                                                     | 1800 | 1710 | 1620 | 6 | 38           | 36 | 50                                                                                                            | 1800 | 1710 | 1620 | 6 | 38           | 36 |
| 1600A                  | 1617.0                    |                                                                                                        |      |      |      |   |              |    | 50                                                                                                            | 1915 | 1820 | 1760 | 6 | 40           | 40 |
| 1650A                  | 1682.0                    |                                                                                                        |      |      |      |   |              |    | 50                                                                                                            | 1950 | 1860 | 1770 | 6 | 40           | 40 |
| 1800A                  | 1817.0                    |                                                                                                        |      |      |      |   |              |    | 50                                                                                                            | 2115 | 2020 | 1960 | 6 | 48           | 44 |
| 2000A                  | 2017.0                    |                                                                                                        |      |      |      |   |              |    | 54                                                                                                            | 2325 | 2230 | 2170 | 6 | 48           | 48 |

# Stainless Steel Flanges

## 수도용 도복장 강관 이형관용(KS D 3578-1997)플랜지

Fittings of Coated Steel Pipes for Water Service



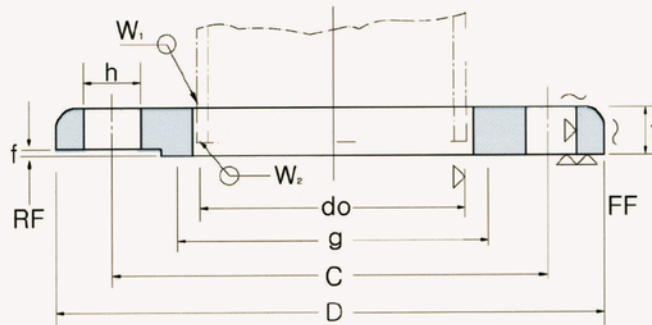
Unit : mm

| Nominal Bore of Flange | Inside Diam, of Flange do | F12 KS 3578 10kg/cm <sup>2</sup><br>Sectional Dimensions of RF Flange |      |      |      |   |           |     |             | F15 KS 3578 16kg/cm <sup>2</sup><br>Sectional Dimensions of RF Flange |      |      |      |   |           |    |             |
|------------------------|---------------------------|-----------------------------------------------------------------------|------|------|------|---|-----------|-----|-------------|-----------------------------------------------------------------------|------|------|------|---|-----------|----|-------------|
|                        |                           | T                                                                     | D    | C    | g    | f | Bolt Hole |     | Weight (kg) | T                                                                     | D    | C    | g    | f | Bolt Hole |    | Weight (kg) |
|                        |                           |                                                                       |      |      |      |   | h         | N   |             |                                                                       |      |      |      |   | h         | N  |             |
| 80A                    | 90.0                      | 18                                                                    | 211  | 160  | 133  | 2 | 19        | 4   | 3.59        | 18                                                                    | 211  | 160  | 133  | 2 | 19        | 4  | 3.59        |
| 100A                   | 115.4                     | 18                                                                    | 238  | 180  | 153  | 2 | 19        | 8   | 4.14        | 18                                                                    | 238  | 180  | 153  | 2 | 19        | 8  | 4.14        |
| 125A                   | 141.2                     | 20                                                                    | 263  | 210  | 183  | 2 | 19        | 8   | 5.36        | 20                                                                    | 263  | 210  | 183  | 2 | 19        | 8  | 5.36        |
| 150A                   | 166.6                     | 22                                                                    | 290  | 240  | 209  | 2 | 23        | 8   | 6.69        | 22                                                                    | 290  | 240  | 209  | 2 | 23        | 8  | 6.69        |
| 200A                   | 218.0                     | 22                                                                    | 342  | 295  | 264  | 2 | 23        | 8   | 8.41        | 22                                                                    | 342  | 295  | 264  | 2 | 23        | 8  | 8.41        |
| 250A                   | 269.5                     | 24                                                                    | 410  | 350  | 319  | 3 | 23        | 12  | 12.2        | 24                                                                    | 410  | 350  | 319  | 3 | 23        | 12 | 12.2        |
| 300A                   | 321.0                     | 24                                                                    | 464  | 400  | 367  | 3 | 23        | 12  | 14.5        | 24                                                                    | 464  | 400  | 367  | 3 | 23        | 12 | 17.81       |
| 350A                   | 358.1                     | 26                                                                    | 530  | 460  | 427  | 3 | 23        | 16  | 21.7        | 26                                                                    | 530  | 460  | 427  | 3 | 23        | 16 | 21.7        |
| 400A                   | 409.0                     | 26                                                                    | 582  | 515  | 477  | 3 | 27        | 16  | 24.1        | 28                                                                    | 582  | 515  | 477  | 3 | 27        | 16 | 26.1        |
| 450A                   | 460.0                     | 28                                                                    | 652  | 565  | 518  | 3 | 27        | 20  | 32.2        | 30                                                                    | 652  | 565  | 518  | 3 | 27        | 20 | 34.6        |
| 500A                   | 511.0                     | 28                                                                    | 706  | 620  | 582  | 3 | 27        | 20  | 36.3        | 30                                                                    | 706  | 620  | 582  | 3 | 27        | 20 | 39.1        |
| 600A                   | 613.0                     | 30                                                                    | 810  | 725  | 682  | 3 | 30        | 20  | 46.1        | 34                                                                    | 810  | 725  | 682  | 3 | 30        | 20 | 52.7        |
| 700A                   | 715.0                     | 32                                                                    | 928  | 840  | 797  | 3 | 30        | 24  | 62.1        | 34                                                                    | 928  | 840  | 797  | 3 | 30        | 24 | 66.2        |
| 800A                   | 817.0                     | 34                                                                    | 1034 | 950  | 904  | 3 | 33        | 24  | 76.0        | 36                                                                    | 1034 | 950  | 904  | 3 | 33        | 24 | 80.7        |
| 900A                   | 919.0                     | 36                                                                    | 1156 | 1050 | 1004 | 3 | 33        | 28  | 98.8        | 38                                                                    | 1156 | 1050 | 1004 | 3 | 33        | 28 | 105         |
| 1000A                  | 1021.0                    | 38                                                                    | 1262 | 1160 | 1111 | 3 | 36        | 28  | 117         | 42                                                                    | 1262 | 1160 | 1111 | 3 | 36        | 28 | 130         |
| 1100A                  | 1122.0                    | 41                                                                    | 1366 | 1270 | 1200 | 3 | 36        | 32  | 138         | 43                                                                    | 1366 | 1270 | 1200 | 3 | 36        | 32 | 145         |
| 1200A                  | 1224.0                    | 43                                                                    | 1470 | 1387 | 1304 | 3 | 36        | 32  | 160         | 45                                                                    | 1470 | 1387 | 1304 | 3 | 36        | 32 | 168         |
| 1350A                  | 1376.0                    | 45                                                                    | 1642 | 1552 | 1462 | 3 | 40        | 36  | 201         | 51                                                                    | 1642 | 1552 | 1462 | 3 | 40        | 36 | 229         |
| 1500A                  | 1529.0                    | 48                                                                    | 1800 | 1710 | 1620 | 3 | 40        | 36  | 244         | 53                                                                    | 1800 | 1710 | 1620 | 3 | 40        | 36 | 271         |
| 1600A                  | 1617.0                    | 53                                                                    | 1915 | 1820 | 1760 | 3 | 40        | 40  | 305         | 58                                                                    | 1915 | 1820 | 1760 | 3 | 40        | 40 | 334         |
| 1650A                  | 1682.0                    | 53                                                                    | 1965 | 1870 | 1770 | 3 | 40        | 40  | 292         | 58                                                                    | 1965 | 1870 | 1770 | 3 | 40        | 40 | 321         |
| 1800A                  | 1817.0                    | 55                                                                    | 2115 | 2020 | 1960 | 3 | 49        | 44  | 337         | 59                                                                    | 2115 | 2020 | 1960 | 3 | 49        | 44 | 362         |
| 1900A                  | 1912.0                    | 55                                                                    | 2220 | 2126 | 2066 | 4 | 49        | 44  | 378         | 59                                                                    | 2220 | 2126 | 2066 | 3 | 49        | 44 | 389         |
| 2000A                  | 2017.0                    | 58                                                                    | 2325 | 2230 | 2170 | 4 | 49        | 49  | 401         | 62                                                                    | 2325 | 2230 | 2170 | 4 | 49        | 48 | 430         |
| 2100A                  | 2121.0                    | 59                                                                    | 2440 | 2340 | 2240 | 4 | 49        | 49  | 448         | 64                                                                    | 2440 | 2340 | 2240 | 4 | 49        | 48 | 487         |
| 2200A                  | 2221.0                    | 61                                                                    | 2655 | 2440 | 2370 | 4 | 56        | 56  | 487         | 68                                                                    | 2550 | 2440 | 2370 | 4 | 56        | 52 | 545         |
| 2300A                  | 2321.0                    | 62                                                                    | 2640 | 2540 | 2440 | 4 | 56        | 52  | 522         | 69                                                                    | 2650 | 2230 | 2440 | 4 | 56        | 52 | 583         |
| 2400A                  | 2121.0                    | 64                                                                    | 2760 | 2650 | 2570 | 4 | 56        | 570 | 570         | 70                                                                    | 2760 | 2340 | 2570 | 4 | 56        | 56 | 625         |
| 2500A                  | 2521.0                    | 68                                                                    | 2860 | 2750 | 2670 | 5 | 56        | 624 | 624         | 72                                                                    | 2860 | 2440 | 2670 | 5 | 56        | 56 | 662         |
| 2600A                  | 2621.0                    | 68                                                                    | 2960 | 2850 | 2780 | 5 | 56        | 60  | 643         | 72                                                                    | 2960 | 2850 | 2780 | 5 | 56        | 60 | 682         |
| 2700A                  | 2721.0                    | 71                                                                    | 3080 | 2960 | 2850 | 5 | 56        | 60  | 740         |                                                                       |      |      |      |   |           |    |             |
| 2800A                  | 2821.0                    | 72                                                                    | 3180 | 3070 | 3000 | 5 | 56        | 64  | 779         |                                                                       |      |      |      |   |           |    |             |
| 2900A                  | 2946.0                    | 74                                                                    | 3292 | 3180 | 3104 | 5 | 56        | 64  | 861         |                                                                       |      |      |      |   |           |    |             |
| 3000A                  | 3021.0                    | 76                                                                    | 3405 | 3290 | 3210 | 5 | 56        | 64  | 952         |                                                                       |      |      |      |   |           |    |             |



# 수도용 도복장 강관 이형관용(KS D 3578-1997)플랜지

## Fittings of Coated Steel Pipes for Water Service



Unit : mm

| Nominal Bore of Flange | Inside Diam, of Flange do | F20 KS D 3578 20kgf/cm <sup>2</sup> Sectional Dimensions of RF Flange |      |      |      |   |           |    |             | F20 KS D 3578 20kgf/cm <sup>2</sup> Sectional Dimensions of Blind Flange |      |      |     |   |           |    |             |
|------------------------|---------------------------|-----------------------------------------------------------------------|------|------|------|---|-----------|----|-------------|--------------------------------------------------------------------------|------|------|-----|---|-----------|----|-------------|
|                        |                           | T                                                                     | D    | C    | g    | f | Bolt Hole |    | Weight (kg) | T                                                                        | D    | C    | g   | f | Bolt Hole |    | Weight (kg) |
|                        |                           |                                                                       |      |      |      |   | h         | N  |             |                                                                          |      |      |     |   | h         | N  |             |
| 80A                    | 90.0                      | 22                                                                    | 200  | 160  | 135  | 2 | 23        | 8  | 3.56        | 12                                                                       | 211  | 160  | 60  | 2 | 19        | 4  | 2.80        |
| 100A                   | 115.4                     | 22                                                                    | 225  | 185  | 160  | 2 | 23        | 8  | 4.26        | 12                                                                       | 238  | 180  | 85  | 2 | 19        | 8  | 3.50        |
| 125A                   | 141.2                     | 23                                                                    | 270  | 225  | 195  | 2 | 23        | 8  | 6.49        | 12                                                                       | 263  | 210  | 110 | 2 | 19        | 8  | 4.33        |
| 150A                   | 166.6                     | 27                                                                    | 305  | 260  | 230  | 2 | 25        | 12 | 9.27        | 12                                                                       | 290  | 240  | 135 | 2 | 23        | 8  | 5.25        |
| 200A                   | 218.0                     | 27                                                                    | 350  | 305  | 275  | 2 | 25        | 12 | 10.9        | 14                                                                       | 342  | 295  | 185 | 2 | 23        | 8  | 9.00        |
| 250A                   | 269.5                     | 28                                                                    | 430  | 380  | 345  | 2 | 27        | 12 | 17.7        | 16                                                                       | 410  | 350  | 235 | 2 | 23        | 12 | 15.0        |
| 300A                   | 321.0                     | 30                                                                    | 480  | 430  | 395  | 3 | 27        | 16 | 20.5        | 19                                                                       | 464  | 400  | 285 | 3 | 23        | 12 | 22.8        |
| 350A                   | 358.1                     | 34                                                                    | 540  | 480  | 440  | 3 | 33        | 16 | 29.5        | 21                                                                       | 530  | 460  | 325 | 3 | 23        | 16 | 32.9        |
| 400A                   | 409.0                     | 38                                                                    | 605  | 540  | 495  | 3 | 33        | 16 | 41.1        | 23                                                                       | 582  | 515  | 375 | 3 | 27        | 16 | 43.8        |
| 450A                   | 460.0                     | 40                                                                    | 675  | 605  | 560  | 3 | 33        | 20 | 53.2        | 26                                                                       | 652  | 565  | 425 | 3 | 27        | 20 | 62.8        |
| 500A                   | 511.0                     | 42                                                                    | 730  | 660  | 615  | 3 | 33        | 20 | 63.1        | 28                                                                       | 706  | 620  | 475 | 3 | 27        | 20 | 80.0        |
| 600A                   | 613.0                     | 46                                                                    | 845  | 770  | 720  | 3 | 39        | 24 | 83.8        | 33                                                                       | 810  | 725  | 580 | 3 | 30        | 20 | 126         |
| 700A                   | 715.0                     | 50                                                                    | 960  | 875  | 820  | 5 | 42        | 24 | 109         | 37                                                                       | 928  | 840  | 680 | 3 | 30        | 24 | 186         |
| 800A                   | 817.0                     | 54                                                                    | 1085 | 990  | 930  | 5 | 48        | 24 | 146         | 42                                                                       | 1034 | 950  | 780 | 3 | 33        | 24 | 264         |
| 900A                   | 919.0                     | 58                                                                    | 1185 | 1090 | 1030 | 5 | 48        | 28 | 171         | 47                                                                       | 1156 | 1050 | 880 | 3 | 33        | 28 | 370         |
| 1000A                  | 1021.0                    | 64                                                                    | 1320 | 1210 | 1140 | 5 | 56        | 28 | 235         | 51                                                                       | 1262 | 1160 | 980 | 3 | 36        | 28 | 480         |
| 1100A                  | 1122.0                    | 67                                                                    | 1420 | 1310 | 1240 | 5 | 56        | 32 | 264         |                                                                          |      |      |     |   |           |    |             |
| 1200A                  | 1224.0                    | 70                                                                    | 1530 | 1420 | 1350 | 5 | 56        | 32 | 313         |                                                                          |      |      |     |   |           |    |             |
| 1350A                  | 1376.0                    | 76                                                                    | 1700 | 1590 | 1510 | 5 | 62        | 32 | 400         |                                                                          |      |      |     |   |           |    |             |
| 1500A                  | 1529.0                    | 80                                                                    | 1865 | 1750 | 1670 | 5 | 62        | 36 | 485         |                                                                          |      |      |     |   |           |    |             |

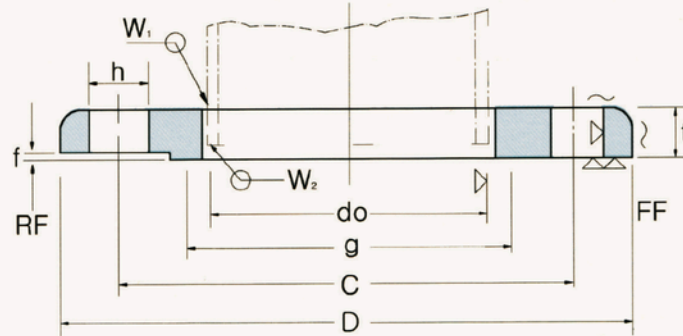
| Nominal Bore of Flange | Inside Diam, of Flange do | F20 KS D 3578 20kgf/cm <sup>2</sup> Sectional Dimensions of RF Flange |      |      |     |   |           |    |             | F20 KS D 3578 20kgf/cm <sup>2</sup> Sectional Dimensions of Blind Flange |     |     |     |   |           |    |             |
|------------------------|---------------------------|-----------------------------------------------------------------------|------|------|-----|---|-----------|----|-------------|--------------------------------------------------------------------------|-----|-----|-----|---|-----------|----|-------------|
|                        |                           | T                                                                     | D    | C    | g   | f | Bolt Hole |    | Weight (kg) | T                                                                        | D   | C   | g   | f | Bolt Hole |    | Weight (kg) |
|                        |                           |                                                                       |      |      |     |   | h         | N  |             |                                                                          |     |     |     |   | h         | N  |             |
| 80A                    | 90.0                      | 13                                                                    | 185  | 160  | 60  | 2 | 19        | 4  | 2.51        | 18                                                                       | 200 | 160 | 60  | 2 | 23        | 8  | 3.81        |
| 100A                   | 115.4                     | 13                                                                    | 210  | 180  | 85  | 2 | 19        | 8  | 3.12        | 18                                                                       | 225 | 185 | 85  | 2 | 23        | 8  | 4.77        |
| 125A                   | 141.2                     | 14                                                                    | 250  | 210  | 110 | 2 | 19        | 8  | 4.80        | 18                                                                       | 270 | 225 | 110 | 2 | 25        | 8  | 6.95        |
| 150A                   | 166.6                     | 14                                                                    | 280  | 240  | 135 | 2 | 23        | 8  | 5.95        | 22                                                                       | 305 | 260 | 135 | 2 | 25        | 12 | 10.9        |
| 200A                   | 218.0                     | 16                                                                    | 330  | 295  | 185 | 2 | 23        | 8  | 9.75        | 22                                                                       | 350 | 305 | 185 | 2 | 25        | 12 | 14.8        |
| 250A                   | 269.5                     | 17                                                                    | 400  | 350  | 235 | 2 | 23        | 12 | 15.2        | 23                                                                       | 430 | 380 | 235 | 2 | 27        | 12 | 23.8        |
| 300A                   | 321.0                     | 19                                                                    | 45   | 400  | 285 | 3 | 23        | 12 | 21.3        | 26                                                                       | 480 | 430 | 285 | 3 | 27        | 16 | 33.4        |
| 350A                   | 358.1                     | 22                                                                    | 490  | 460  | 325 | 3 | 23        | 16 | 30.0        | 28                                                                       | 540 | 480 | 325 | 3 | 33        | 16 | 45.1        |
| 400A                   | 409.0                     | 25                                                                    | 560  | 515  | 375 | 3 | 27        | 16 | 44.5        | 32                                                                       | 605 | 540 | 375 | 3 | 33        | 16 | 65.8        |
| 450A                   | 460.0                     | 27                                                                    | 620  | 565  | 425 | 3 | 27        | 20 | 59.4        | 36                                                                       | 675 | 605 | 425 | 3 | 33        | 20 | 92.9        |
| 500A                   | 511.0                     | 30                                                                    | 675  | 620  | 475 | 3 | 27        | 20 | 78.9        | 39                                                                       | 730 | 660 | 475 | 3 | 33        | 20 | 119         |
| 600A                   | 613.0                     | 35                                                                    | 795  | 725  | 580 | 3 | 30        | 20 | 129         | 45                                                                       | 845 | 770 | 580 | 3 | 39        | 24 | 183         |
| 700A                   | 715.0                     | 40                                                                    | 905  | 840  | 680 | 3 | 30        | 24 | 192         |                                                                          |     |     |     |   |           |    |             |
| 800A                   | 817.0                     | 45                                                                    | 1020 | 950  | 780 | 3 | 33        | 24 | 276         |                                                                          |     |     |     |   |           |    |             |
| 900A                   | 919.0                     | 50                                                                    | 1120 | 1032 | 880 | 3 | 33        | 28 | 371         |                                                                          |     |     |     |   |           |    |             |
| 1000A                  | 1021.0                    | 62                                                                    | 1235 | 1160 | 980 | 3 | 36        | 28 | 561         |                                                                          |     |     |     |   |           |    |             |

# Stainless Steel Flanges

K S B 6216-1998

JIS B 8210-1978

스프링 안전밸브의 설치 플랜지



Unit : mm

| Pressure<br>kgf/cm <sup>2</sup> | Nominal<br>Bore of<br>Flange | Inside<br>Diam, of<br>Flange | Sectional Dimensions of Flange |     |     |   | Bolt Hole |    |    |
|---------------------------------|------------------------------|------------------------------|--------------------------------|-----|-----|---|-----------|----|----|
|                                 |                              |                              | T                              | D   | g   | f | C         | h  | N  |
| 10K                             | 20A                          | 27.7                         | 22                             | 125 | 70  | 1 | 90        | 19 | 4  |
|                                 | 25A                          | 34.5                         | 22                             | 130 | 75  | 1 | 95        | 19 | 4  |
|                                 | 32A                          | 43.2                         | 24                             | 140 | 85  | 2 | 105       | 19 | 4  |
|                                 | 40A                          | 49.1                         | 24                             | 155 | 100 | 2 | 120       | 19 | 8  |
| 20K                             | 50A                          | 61.1                         | 26                             | 165 | 110 | 2 | 130       | 19 | 8  |
|                                 | 65A                          | 77.1                         | 28                             | 200 | 135 | 2 | 160       | 23 | 8  |
|                                 | 80A                          | 90.0                         | 30                             | 210 | 145 | 2 | 170       | 23 | 8  |
|                                 | 100A                         | 115.4                        | 32                             | 245 | 180 | 2 | 205       | 23 | 8  |
| 30K                             | 125A                         | 141.2                        | 34                             | 280 | 205 | 2 | 235       | 25 | 12 |
|                                 | 150A                         | 166.6                        | 36                             | 325 | 250 | 2 | 280       | 25 | 12 |
|                                 | 200A                         | 218.0                        | 38                             | 385 | 300 | 2 | 335       | 27 | 12 |
|                                 | 20A                          | 27.7                         | 22                             | 130 | 70  | 1 | 95        | 19 | 4  |
| 20K                             | 25A                          | 34.5                         | 22                             | 135 | 75  | 1 | 100       | 19 | 4  |
|                                 | 32A                          | 43.2                         | 24                             | 160 | 90  | 2 | 120       | 23 | 4  |
|                                 | 40A                          | 49.1                         | 24                             | 165 | 105 | 2 | 130       | 19 | 8  |
|                                 | 50A                          | 61.1                         | 26                             | 185 | 115 | 2 | 145       | 23 | 8  |
| 30K                             | 65A                          | 77.1                         | 30                             | 210 | 140 | 2 | 170       | 23 | 8  |
|                                 | 80A                          | 90.0                         | 32                             | 230 | 150 | 2 | 185       | 25 | 8  |
|                                 | 100A                         | 115.4                        | 36                             | 265 | 185 | 2 | 220       | 25 | 8  |
|                                 | 125A                         | 141.2                        | 38                             | 290 | 210 | 2 | 245       | 25 | 12 |
| 30K                             | 150A                         | 166.6                        | 42                             | 350 | 260 | 2 | 300       | 27 | 12 |
|                                 | 200A                         | 218.0                        | 46                             | 410 | 310 | 2 | 350       | 33 | 12 |
|                                 | 20A                          | 27.7                         | 24                             | 130 | 70  | 1 | 95        | 19 | 4  |
|                                 | 25A                          | 34.5                         | 24                             | 135 | 75  | 1 | 100       | 19 | 4  |
| 30K                             | 32A                          | 43.2                         | 26                             | 160 | 90  | 2 | 120       | 23 | 4  |
|                                 | 40A                          | 49.1                         | 28                             | 165 | 105 | 2 | 130       | 19 | 8  |
|                                 | 50A                          | 61.1                         | 30                             | 185 | 115 | 2 | 145       | 23 | 8  |
|                                 | 65A                          | 77.12                        | 34                             | 210 | 140 | 2 | 170       | 23 | 8  |
| 30K                             | 80A                          | 90.0                         | 36                             | 230 | 150 | 2 | 185       | 25 | 8  |
|                                 | 100A                         | 115.4                        | 40                             | 285 | 190 | 2 | 235       | 27 | 8  |
|                                 | 125A                         | 141.2                        | 44                             | 315 | 215 | 2 | 265       | 27 | 12 |
|                                 | 150A                         | 166.6                        | 48                             | 375 | 265 | 2 | 315       | 33 | 12 |
| 30K                             | 200A                         | 218.0                        | 54                             | 435 | 315 | 2 | 370       | 36 | 12 |



# 공업단위 환산표

## 길이 (Length)

| m      | cm    | in     | ft      | yd      | km    | mile   | Nautical mile |
|--------|-------|--------|---------|---------|-------|--------|---------------|
| 1      | 100   | 39.37  | 3.281   | 1.094   | 1     | 0.6214 | 0.5400        |
| 0.01   | 1     | 0.3937 | 0.03281 | 0.01094 | 1.609 | 1      | 0.8690        |
| 0.0254 | 2.510 | 1      | 0.08333 | 0.02778 | 1.852 | 10151  | 1             |
| 0.3048 | 30.48 | 12     | 1       | 0.3333  |       |        |               |
| 0.9144 | 91.44 | 36     | 3       | 1       |       |        |               |

## 면적 (Area)

| m²                     | in²  | ft²                    | yd²                    | km²                    | acre  | mile²                  | ha     |
|------------------------|------|------------------------|------------------------|------------------------|-------|------------------------|--------|
| 1                      | 1550 | 10.76                  | 1.196                  | 1                      | 247.1 | 0.3861                 | 100    |
| 6.452×10 <sup>-4</sup> | 1    | 6.944×10 <sup>-2</sup> | 7.716×10 <sup>-4</sup> | 4.407×10 <sup>-3</sup> | 1     | 1.562×10 <sup>-3</sup> | 0.4047 |
| 0.09290                | 144  | 1                      | 0.1111                 | 2.590                  | 640   | 1                      | 259.0  |
| 0.8361                 | 1296 | 9                      | 1                      | 0.01                   | 2.471 | 3.861×10 <sup>-3</sup> | 1      |

## 체적 (Volume)

| m³                     | in³   | ft³                    | yd³                    | dm³     | gal(UK)                | gal(US)                | in³   |
|------------------------|-------|------------------------|------------------------|---------|------------------------|------------------------|-------|
| 1                      | 61024 | 35.31                  | 1.308                  | 1       | 0.2200                 | 0.2642                 | 61.02 |
| 1.639×10 <sup>-5</sup> | 1     | 5.787×10 <sup>-4</sup> | 2.143×10 <sup>-5</sup> | 4.546   | 1                      | 1.201                  | 277.4 |
| 0.02832                | 1728  | 1                      | 0.03704                | 3.785   | 0.8327                 | 1                      | 231   |
| 0.7646                 | 46656 | 27                     | 1                      | 0.01639 | 3.605×10 <sup>-4</sup> | 4.329×10 <sup>-3</sup> | 1     |

## 압력 (Pressure)

| Mpa      | kgf/cm² | lbf/in² | atm     | mHg     | inHg   | mH₂O   | ftH₂O |
|----------|---------|---------|---------|---------|--------|--------|-------|
| 1        | 10.20   | 145.0   | 9.869   | 7.501   | 295.3  | 102.0  | 334.6 |
| 0.09807  | 1       | 14.22   | 0.9678  | 0.7356  | 28.96  | 10     | 32.81 |
| 0.006895 | 0.07031 | 1       | 0.06805 | 0.05171 | 2.036  | 0.7031 | 2.307 |
| 0.1013   | 1.033   | 14.70   | 1.316   | 0.76    | 29.92  | 10.33  | 33.90 |
| 0.1333   | 1.360   | 19.34   | 0.03342 | 1       | 39.37  | 13.60  | 44.60 |
| 0.003386 | 0.03453 | 0.9412  | 0.09678 | 0.0254  | 1      | 0.3453 | 1.133 |
| 0.009506 | 0.1     | 1.422   | 0.2950  | 0.07355 | 2.896  | 1      | 3.281 |
| 0.002989 | 0.03048 | 0.4335  |         | 0.02242 | 0.8827 | 0.3048 | 1     |

## 속도 (Velocity)

| m/s    | km/h  | km     | ft/s   | mil/h  |
|--------|-------|--------|--------|--------|
| 1      | 3.6   | 1.944  | 3.281  | 2.237  |
| 0.2778 | 1     | 0.5400 | 0.9113 | 0.6214 |
| 0.5144 | 151   | 1      | 1.688  | 1.151  |
| 0.3048 | 1.097 | 0.5925 | 1      | 0.6818 |
| 0.4470 | 1.609 | 0.8690 | 1.467  | 1      |

## 동력 (Power)

| KW       | PS       | HP(UK)   | kgf·m/s | ft·lbf/s | Kcal/s   | BTU/s(UK) |
|----------|----------|----------|---------|----------|----------|-----------|
| 1        | 1.360    | 1.340    | 102.0   | 737.6    | 0.2389   | 0.9180    |
| 0.7355   | 1        | 0.9859   | 75      | 542.5    | 0.1757   | 0.6973    |
| 0.746    | 1.014    | 1        | 76.07   | 550.2    | 0.1782   | 0.7072    |
| 0.009807 | 0.01333  | 0.01315  | 1       | 7.233    | 0.002343 | 0.009297  |
| 0.001356 | 0.001843 | 0.001817 | 0.1383  | 1        | 0.003239 | 0.01285   |
| 4.186    | 5.691    | 5.611    | 426.9   | 3087     | 1        | 3.968     |
| 1.055    | 1.434    | 1.414    | 107.6   | 778.0    | 0.2520   | 1         |

## 유량 (Flow)

| ℓ/s      | m³/h    | m³/s      | 영국gal/min | 미국gal/min | ft³/h  | ft³/s    |
|----------|---------|-----------|-----------|-----------|--------|----------|
| 1        | 3.6     | 0.001     | 13.197    | 15.8514   | 127.14 | 0.03532  |
| 0.2778   | 1       | 0.032778  | 3.66658   | 4.4032    | 35.317 | 0.092801 |
| 1000     | 3600    | 1         | 13197     | 15851     | 127150 | 35.3160  |
| 0.075775 | 0.27279 | 0.0475775 | 1         | 1.2011    | 9.6342 | 0.0676   |
| 0.06309  | 0.2271  | 0.046304  | 0.8325    | 1         | 8.0208 | 0.03228  |
| 0.027865 | 0.02832 | 0.057865  | 0.1038    | 0.1247    | 1      | 0.032778 |
| 28.3153  | 101.935 | 0.02832   | 373.672   | 448.833   | 3600   | 1        |

## 점도 (Viscosity)

| Poise=g/cm·s<br>(CGS단위) | centipose. Cp | kg/m·h  | kg/m·s | lb/ft·s  |
|-------------------------|---------------|---------|--------|----------|
| 1                       | 100           | 0.1     | 360    | 0.0672   |
| 0.01                    | 1             | 0.001   | 3.6    | 0.000672 |
| 10                      | 1000          | 1       | 3600   | 0.672    |
| 0.00278                 | 0.278         | 0.03278 | 1      | 0.000187 |
| 14.88                   | 1488          | 1.488   | 5356.8 | 1        |

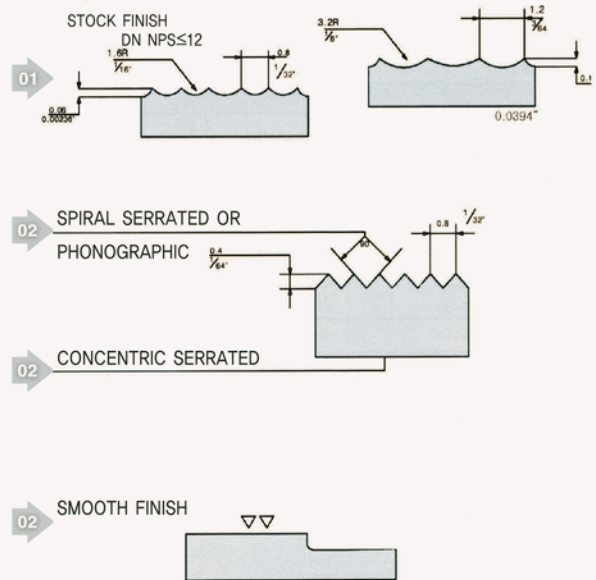
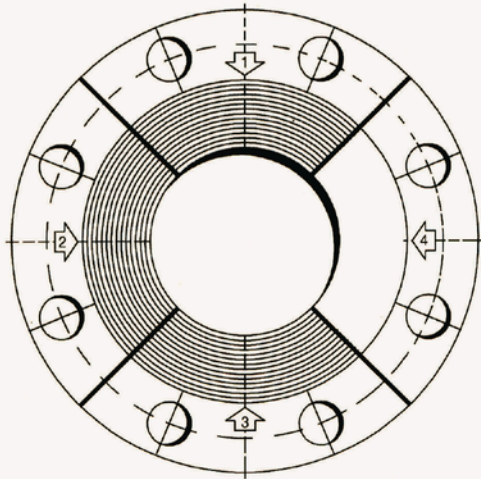
## 중량 (Weight)

| kg      | g                 | t(tonne)프랑스 | lb       | 영국(tonne) | 미국(tonne) |
|---------|-------------------|-------------|----------|-----------|-----------|
| 0.001   | 1                 | 0.051       | 0.002205 | 0.06984   | 0.051102  |
| 1       | 1000              | 0.001       | 2.2046   | 0.03984   | 0.021102  |
| 1000    | 1×10 <sup>6</sup> | 1           | 2204.6   | 0.9842    | 1.1023    |
| 0.4536  | 453.6             | 0.034536    | 1        | 0.03446   | 0.0351    |
| 1016.05 | 1016.047          | 1.01605     | 2240     | 1         | 1.12      |
| 907.185 | 907.185           | 0.90719     | 2000     | 0.86289   | 1         |

# Stainless Steel Flanges

## STANDARD FINISH

Flange 표면의 마무리 작업(MSS SP6)



유체정역학적 실험 압력

| Material             | 150psi |      | 300psi |      |
|----------------------|--------|------|--------|------|
|                      | shell  | seat | shell  | seat |
| ASTM-216-WCB         | 450    | 315  | 1125   | 815  |
| ASTM A-351-CF8, CF3  | 375    | 260  | 925    | 675  |
| ASTM A-351-F8M, CF3M | 375    | 260  | 925    | 675  |

공기실험 : 최대압력 6kgf • cm<sup>2</sup> (80psi)  
적용표준 : ANSI B16-5, JPI-75-39, KSB-2304

요구되는 실험압력의 지속시간

| Valve Size<br>(N P S) | TEST DURATION<br>Seconds<br>Minimum |              |      |
|-----------------------|-------------------------------------|--------------|------|
|                       | shell                               | Back<br>seat | seat |
| 2 and smaller         | 15                                  | 15           | 15   |
| 2-1/4 to 6            | 60                                  | 15           | 60   |
| 8 to 12               | 120                                 | 15           | 120  |
| 14 and larger         | 300                                 | 15           | 120  |

Material Comparison

(ASTM, KS AND JIS)

| Material<br>Classification            | ASTM    |         | KS       |         | JIS      |         |
|---------------------------------------|---------|---------|----------|---------|----------|---------|
|                                       | SYMBOL  | CODE NO | SYMBOL   | CODE NO | SYMBOL   | CODE NO |
| Stainless<br>Steel<br>(Casting)       | CF 8    | A-351   | SSC 13   | D 4103  | SCS 13   | G 5121  |
|                                       | CF 8M   |         | SSC 14   |         | SCS 14   |         |
|                                       | CF 3M   |         | SSC 16   |         | SCS 16   |         |
|                                       | CF 3    |         | SSC 19   |         | SCS 19   |         |
|                                       | CG 3M   | A-296   | -        |         | -        |         |
| Stainless<br>Steel<br>(Bar And Plate) | 304     | A-276   | STS 304  | D 3706  | SUS 304  | G 4303  |
|                                       | 316     |         | STS 316  |         | SUS 316  |         |
|                                       | 316L    |         | STS 316L |         | SUS 316L |         |
|                                       | -       |         | STS 317L |         | SUS 317L |         |
|                                       | 403     |         | STS 403  |         | SUS 403  |         |
|                                       | 410     |         | STS 410  |         | SUS 410  |         |
| Cast Steel<br>And<br>Cast Iron        | WCB     | A-216   | SCPH 2   | D 4107  | SCPH 2   | G 5151  |
|                                       | CLB     | A-126   | GC 20    | D 4301  | FC 20    | G 5501  |
|                                       | 60-40-8 | A-536   | GCD 40   | D 4302  | FCD 40   | G 5502  |
|                                       | 40-30-5 | A-197   | BMC 28   | D 4303  | FCNB 28  | G 5702  |
| Copper Alloy                          | N 865   | B-584   | HBs C 2  | D 6007  | HBs C 2  | G 5702  |
|                                       | N 360   | B-16    | MBsBE 2  | D 5101  | BsBM 2   | H 3422  |
|                                       | N 377   | B-124   | FBsBE 2  | D 5101  | BsBF 2   | H 3423  |



# Stainless Steel Flanges

표2 오스테나이트계의 화학성분

단위 : %

| 종류의 기호    | C         | Si        | Mn        | P        | S        | Ni          | Cr          | Mo               | Cu        | N         | 기 타          |
|-----------|-----------|-----------|-----------|----------|----------|-------------|-------------|------------------|-----------|-----------|--------------|
| STS301    | 0.15 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 6.00~8.00   | 16.00~18.00 | -                | -         | -         | -            |
| STS301L   | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 6.00~8.00   | 16.00~18.00 | -                | -         | 0.20 이하   | -            |
| STS301J1  | 0.08~0.12 | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 7.00~9.00   | 16.00~18.00 | -                | -         | -         | -            |
| STS302    | 0.15 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 8.00~10.00  | 17.00~19.00 | -                | -         | -         | -            |
| STS302B   | 0.15 이하   | 20.~3.00  | 2.00 이하   | 0.045 이하 | 0.030 이하 | 8.00~10.00  | 17.00~19.00 | -                | -         | -         | -            |
| STS303    | 0.15 이하   | 1.00 이하   | 2.00 이하   | 0.20 이하  | 0.15 이하  | 8.00~10.00  | 17.00~19.00 | ( <sup>1</sup> ) | -         | -         | -            |
| STS304    | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 8.00~10.00  | 18.00~20.00 | -                | -         | -         | -            |
| STS304L   | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 9.00~13.00  | 18.00~20.00 | -                | -         | -         | -            |
| STS304N1  | 0.08 이하   | 1.00 이하   | 2.50 이하   | 0.045 이하 | 0.030 이하 | 7.00~10.50  | 18.00~20.00 | -                | -         | 0.10~0.25 | -            |
| STS304N2  | 0.08 이하   | 1.00 이하   | 2.50 이하   | 0.045 이하 | 0.030 이하 | 7.50~10.50  | 18.00~20.00 | -                | -         | 0.15~0.30 | Nb 0.15 이하   |
| STS304LN  | 0.300 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 8.50~11.50  | 17.00~19.00 | -                | -         | 0.12~0.22 | -            |
| STS304J1  | 0.08 이하   | 1.70 이하   | 3.00 이하   | 0.045 이하 | 0.030 이하 | 6.00~9.00   | 15.00~18.00 | -                | 1.00~3.00 | -         | -            |
| STS304J2  | 0.08 이하   | 1.70 이하   | 3.00~5.00 | 0.045 이하 | 0.030 이하 | 6.00~9.00   | 15.00~18.00 | -                | 1.00~3.00 | -         | -            |
| STS305    | 0.12 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 10.50~13.00 | 17.00~19.00 | -                | -         | -         | -            |
| STS309S   | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 12.00~15.00 | 22.00~24.00 | -                | -         | -         | -            |
| STS310S   | 0.08 이하   | 1.50 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 19.00~22.00 | 24.00~26.00 | -                | -         | -         | -            |
| STS316    | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 10.00~14.00 | 16.00~18.00 | 2.00~3.00        | -         | -         | -            |
| STS316L   | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 12.00~15.00 | 16.00~18.00 | 2.00~3.00        | -         | -         | -            |
| STS316N   | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 10.00~14.00 | 16.00~18.00 | 2.00~3.00        | -         | 0.10~0.22 | -            |
| STS316LN  | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 10.50~14.50 | 16.50~18.50 | 2.00~3.00        | -         | 0.12~0.22 | -            |
| STS316Ti  | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 10.00~14.00 | 16.00~18.00 | 2.00~3.00        | -         | -         | Ti 5 × C% 이상 |
| STS316J1  | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 10.00~14.00 | 17.00~19.00 | 1.20~2.75        | 1.00~2.50 | -         | -            |
| STS316J1L | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 12.00~16.00 | 17.00~19.00 | 1.20~2.75        | 1.00~2.50 | -         | -            |
| STS317    | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 11.00~15.00 | 18.00~20.00 | 3.00~4.00        | -         | -         | -            |
| STS317L   | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 11.00~15.00 | 18.00~20.00 | 3.00~4.00        | -         | -         | -            |
| STS317LN  | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 11.00~15.00 | 18.00~20.00 | 3.00~4.00        | -         | 0.10~0.22 | -            |
| STS317J1  | 0.040 이하  | 1.00 이하   | 2.50 이하   | 0.045 이하 | 0.030 이하 | 15.00~17.00 | 16.00~19.00 | 4.00~6.00        | -         | -         | -            |
| STS317J2  | 0.06 이하   | 1.50 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 12.00~16.00 | 23.00~26.00 | 0.50~1.20        | -         | 0.25~0.40 | -            |
| STS317J3L | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 11.00~13.00 | 20.50~22.50 | 2.00~3.00        | -         | 0.18~0.30 | -            |
| STS836L   | 0.030 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 24.00~26.00 | 19.00~24.00 | 5.00~7.00        | -         | 0.25 이하   | -            |
| STS890L   | 0.020 이하  | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 23.00~28.00 | 19.00~23.00 | 4.00~5.00        | 1.00~2.00 | -         | -            |
| STS321    | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 9.00~13.00  | 17.00~19.00 | -                | -         | -         | Ti 5 × C% 이상 |
| STS347    | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 9.00~13.00  | 17.00~19.00 | -                | -         | -         | Nb 5 × C% 이상 |
| STS㉔7     | 0.08 이하   | 1.00 이하   | 2.00 이하   | 0.045 이하 | 0.030 이하 | 8.50~10.50  | 17.00~19.00 | -                | 3.00~4.00 | -         | -            |
| STS㉔15J1  | 0.08 이하   | 3.00~5.00 | 2.00 이하   | 0.045 이하 | 0.030 이하 | 11.50~15.00 | 15.00~20.00 | -                | -         | -         | -            |
| STS350    | 0.030 이하  | 1.00 이하   | 1.50 이하   | 0.35 이하  | 0.020 이하 | 20.00~23.00 | 22.00~24.00 | 6.00~6.80        | 0.40 이하   | 0.21~0.32 | -            |

주 (<sup>1</sup>) Mo는 0.06% 이하를 첨가할 수 있다.  
비고 STS XM15J1에 대하여는 필요에 따라 표2 이외의 합금 원소를 첨가할 수 있다.





MILIM TECH  
(주)미림

Phone +82-51-327-9616

FAX +82-51-327-9617

Email [khi9166@hanmail.net](mailto:khi9166@hanmail.net)