



TOTAL GAS ENGINEERING



# TOTAL GAS ENGINEERING

<http://msengr.co.kr>



MS ENG CO., LTD.

본사 (HEAD OFFICE / BUSAN FACTORY)

부산광역시 사상구 학장로 165

TEL : (051)312-5501~5

FAX : (051)326-3061, 327-2355

<http://msengr.co.kr>

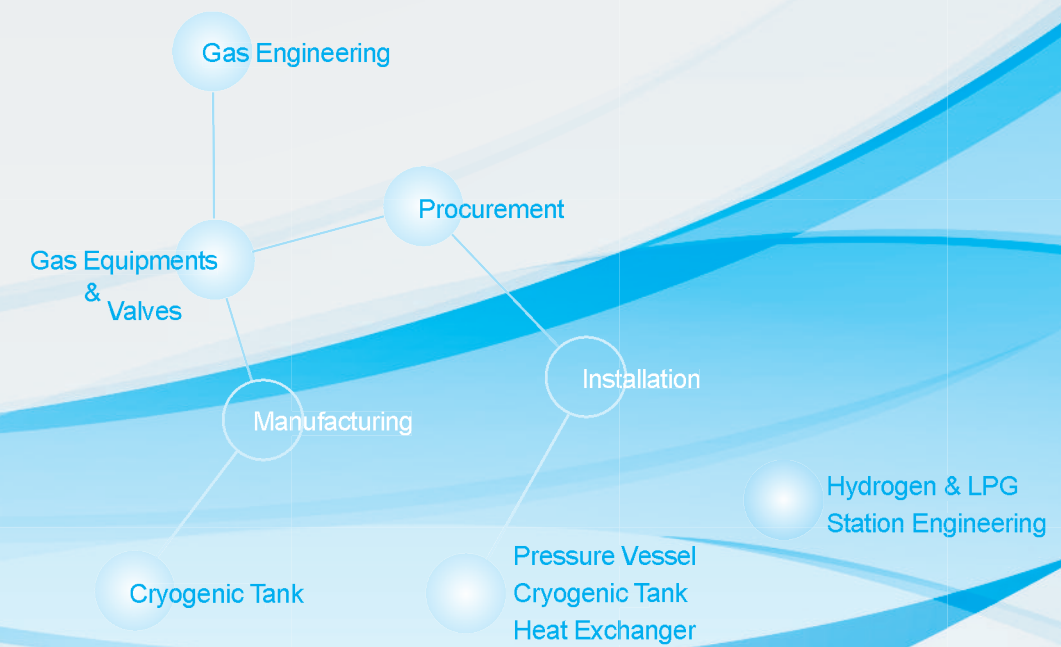
진영공장 (JIN YEONG FACTORY)

경상남도 김해시 한림면 한림로 1029

TEL : (055)343-5041~3

FAX : (055)343-5217

MS ENG CO., LTD.



## 회사개요 Overview of Summary

회사명 : (국문) 주식회사 MS엔지 / (English) MS ENG CO.,LTD.  
 회사설립 : 1982년 5월 14일  
 주요사업 : 장비개발, PLANT설비, TANK분야, 특정설비 재검사와 안전진단,  
 가스 기자재 제조와 신·재생에너지 녹색성장 분야  
 웹사이트 : <http://msengr.co.kr>  
 Company name : MS ENG CO., LTD.  
 Establish : May 14, 1982  
 Main business : Gas equipments, Plant facilities, Storage tank,  
 Inspection business of gas tank, products related with  
 gas facilities, Neo-recycle energy.  
 Web site : <http://msengr.co.kr>

### 조직도 \_ Construction



### 소재지 \_ Location

본사/공장  
 부산광역시 사상구 학장로 165  
 TEL : 051-312-5501~5 / FAX : 051-326-3061  
 진영공장  
 경상남도 김해시 한림로 1029  
 TEL : 055-343-5041~3 / FAX : 055-343-5217  
 Mother company & factory  
 #165, Hakjang-ro, Sasang-Gu, Busan, R.O.Korea  
 Tel : +82-51-312-5501~5 / Fax : +82-51-326-3061  
 Jinyoung factory  
 #1029, Halim-ro, Hanlim-Myeon, Kimhae-City,  
 Kyounghnam, R.O.Korea  
 Tel : +82-55-343-5041~3 / Fax : +82-55-343-5217

### 사훈

- 1. 장인정신**  
 맡은 일에 최선을 추구한다.  
 자기가 한 일에는 책임을 진다.
- 2. 고객제일주의**  
 회사이익 이전에 고객의 감동을 이끌어 낸다.  
 새로운 고객창조를 위해 전사적으로 노력한다.
- 3. 도전과 혁신**  
 새로운 가치 창출을 위해 끊임없이 도전한다.  
 위기를 새로운 기회로 인식하여 적극적으로 대응한다.

### Corporate ideas

- 1. Craftsmanship**  
 Becoming the best one in my job.  
 Taking the responsibility for what I did.
- 2. Our idea about customers.**  
 Driving best impression from customers.  
 Doing everything to make the customers satisfaction.
- 3. Challenge & innovation.**  
 Trying to make new value constantly.  
 Changing the risk into the best opportunity.

### 인허가증 보유현황

1. SGS ISO 9001, 14001 인증
2. 전문건설업 - 가스시설 시공업 면허
3. 특정설비 제조업 - 압력용기 등
4. 가스용품 제조업
5. 무역업 등록
6. ASME STAMP 인증획득 ("S", "U", "U2", "PP" Stamp)
7. NATIONAL BOARD 인증획득 ("S", "U", "U2", "PP" Stamp)
8. CSEL 인증획득
9. WPS BV 선급인증
10. OHSAS 18001 인증

### Status of certification

1. SGS ISO 9001, 14001
2. Acquired construction license for gas facilities.
3. Acquired production license of special products related with gas.
4. Acquired production license of products related with gas.
5. Registered trade business license.
6. Acquired 'Asem stamp' ('S', 'U', 'PP', Stamp)
7. Acquired National board ('S', 'U', 'PP', Stamp)
8. Acquired CSEL Certificate
9. Acquired WPS BV
10. Acquired OHSAS 18001



(주)MS이엔지는 가스산업 및 에너지 산업분야에 오랜 역사와 함께 기술과 능력을 인정받고 있습니다.

## 회사연혁

- 1982. 5. (주)MS이엔지 전신, (주)원기연 설립(일반고압가스 제조업) - 본사위치
- 1983. 11. 건설업 면허 취득 / 가스시설시공 사업개시
- 1988. 3. 무역업 허가(NO. 382113), 고압가스 면허 취득
- 1992. 1. L.P.G 사업시작 / L.P.G 탱크 및 설비
- 1992. 11. 우리은행으로부터 유망 중소기업 선정
- 1997. 12. 한국능률협회로부터 ISO9001 인증 취득
- 1999. 4. SGS/KGS ISO9001 인증 취득
- 2001. 1. C.I(Coporate Identity) 변경 : (주)원기연 ▶ (주)MS이엔지
- 2002. 3. '사내근로복지기금' 조성
- 2004. 1. (주)MS이엔지 진영공장 사업 개시
- 2004. 4. [가스충전등의 유류주유를 위한 제어장치 및 방법]으로 특허인증
- 2005. 3. [손잡이를 부설한 로딩암] 으로 실용신안등록 인증
- 2006. 5. 벤처기업 인증
- 2006. 7. ASME STAMP의 인증 취득("S", "U" STAMP)
- 2006. 8. NATIONAL BOARD의 인증 취득("S", "U" STAMP)
- 2006. 12. 충전기 CE MARK 인증 취득
- 2008. 5. [가스주입밸브]로 특허 취득
- 2008. 10. 한국가스공사에서 초저온 GLOBE 및 NG GAS 의 안전밸브 등록
- 2008. 10. 신.재생에너지의 전문기업으로 등록(수소, 바이오에너지)
- 2008. 10. BV(Bureau Veritas)의 인증 취득
- 2009. 3. [CE TANK의 파라이트 주입 방법] 으로 특허 인증
- 2009. 10. 한국가스안전공사에서 역화방지기의 인증 취득(대한민국 최초)

- 2011. 8. (재)재기중소기업개발원 설립
- 2012. 9. [복지용구용 다기능 세척 및 소독장치] 으로 특허 인증
- 2012. 10. [각종 복지용구의 세척 및 소독장치용 턴테이블] 로 특허 인증
- 2013. 9. (재)재기중소기업개발원 '보건복지부 장관상' 수상
- 2013. 12. 제50회 무역의 날 100만불탑 수상
- 2014. 1. 부산광역시 우수기업인 선정
- 2014. 2. ISO14001 인증 취득
- 2014. 12. OHSAS 18001:2007 인증 취득
- 2014. 12. CE-PED 인증 취득
- 2014. 12. ASME STAMP 인증 재취득("S", "U", "PP", "U2")
- 2015. 05. 기술혁신형 중소기업(INNO-BIZ) 재인증
- 2016. 03. CSEL(China Special Equipment License) 인증 취득
- 2016. 03. 청년 친화 강소기업 선정
- 2017. 03. SGS YARSLEY ISO 9001 인증 재취득
- 2018. 10. 수소 디스펜서 초도 제작
- 2019. 12. 매출액 140억 달성

**MS ENG TOTAL GAS ENGINEERING**

MS Eng has a good reputation of the technology and capability with long history in a line of Gas and Energy Industry.

## Company History

- 2017. 03. Acquired ISO 9001 renewed by SGS
- 2017. 03. Acquired ISO 14001
- 2016. 03. Appointed Youth Friendly Strong Company
- 2016. 03. Acquired CSEL(China Special Equipment Licence)
- 2016. 05. Appointed Technology Innovative Small and Medium Size Company (INNO-BIZ) again
- 2014. 12. Acquired ASME Stamp Certificate ("S" "U" "PP" "U2")
- 2014. 12. Acquired CE-PED Certificate
- 2014. 01. Appointed Superior Entrepreneur by Busan Metropolitan City
- 2013. 12. Awarded 1M Exportation Prize on 50th Trade Day
- 2013. 09. Awarded by Minister of Health and Welfare for Revitalization Center of Strained Entrepreneur
- 2012. 10. Acquired Patent for [Turntable for Sanitization and Cleaning of the equipment for Welfare Appliances]
- 2012. 09. Acquired Patent for [Equipment of Multi Function Cleaning and Sanitization for Welfare Appliances]
- 2011. 08. Set up Revitalization Center for Strained Entrepreneur
- 2010. 08. Acquired WPS BV
- 2008. 10. Registration of Neo-recycle energy company (Hydrogen, Bio energy)
- 2010. 10. Registered cryogenic valve and NG gas safety valve on KOGAS
- 2006. 12. Selected strategic industrial company in Busan
- 2006. 12. Acquired CE for dispenser.
- 2006. 05. Registered venture company on Busan small business administration.
- 2006. 04. Registered Innovation of technology company on small business administration.
- 2006. 04. Registered a company specialized in parts and material by ministry of commerce, industry and energy.
- 2006. 01. Establishing Bio business office
- 2004. 04. Acquired a patent of oil supply equipment
- 2004. 01. Establish branch factory in Jinyoung.
- 2003. 12. Consolidation of Dongnam industry. (Capital : US\$ 0.84 million)
- 2003. 12. Acquired Globe valve UL
- 2002. 03. Acquired the approval of inner pressure explosion proof for dispenser
- 2001. 01. Renamed as MS Eng. co. ltd.
- 2000. 05. Registered practical new device for multi gas valve.
- 1999. 04. Acquired SGS Yarsley ISO 9001.
- 1999. 04. Acquired ISO 9001 by Korean efficient association
- 1997. 12. Launching the business of inspection of liquefied oil gas tank & facility
- 1988. 03. Acquired the trade business approval : No. 382113.
- 1983. 11. Acquired the construction business and gas facility construction.
- 1982. 06. Started business under the name of Won.
- 1982. 05. Establishing company.
- 2018. 10. First production of hydrogen dispenser.
- 2019. 12. Achiered sales of KRW 14billion.



**본사 & 공장 \_ Mother company & Factory**

부산시 사상구 학장로 165  
 TEL : 051-312-5501~5 / FAX : 051-326-3061  
 #165, Hakjang-Ro, Sasang-Gu, Busan Korea.  
 Tel : +82-51-312-5501~5 / Fax : +82-51-326-3061



**진영공장 \_ Jinyeong Factory**

경남 김해시 한림면 한림로 1029  
 TEL : 055-343-5041~3 / FAX : 055-343-5217  
 #1029, Hanrim-Ro, Hanrim-Myeon, Kimhae-City, KyoungNam, Korea.  
 Tel : +82-55-343-5041~3 / Fax : +82-55-343-5217



**(주)MS유니켄 \_ MS Unichem Co., Ltd.**

충청남도 예산군 고덕면 예당산단 4길 62  
 TEL : 041-338-2301 FAX : 041-338-2302  
 #62 4Gil, YedangSandan, Go-Deok Myeon, Ye-San Gun, ChungNam, Korea.  
 Tel : +82-41-338-2301 / Fax : +82-41-338-2302



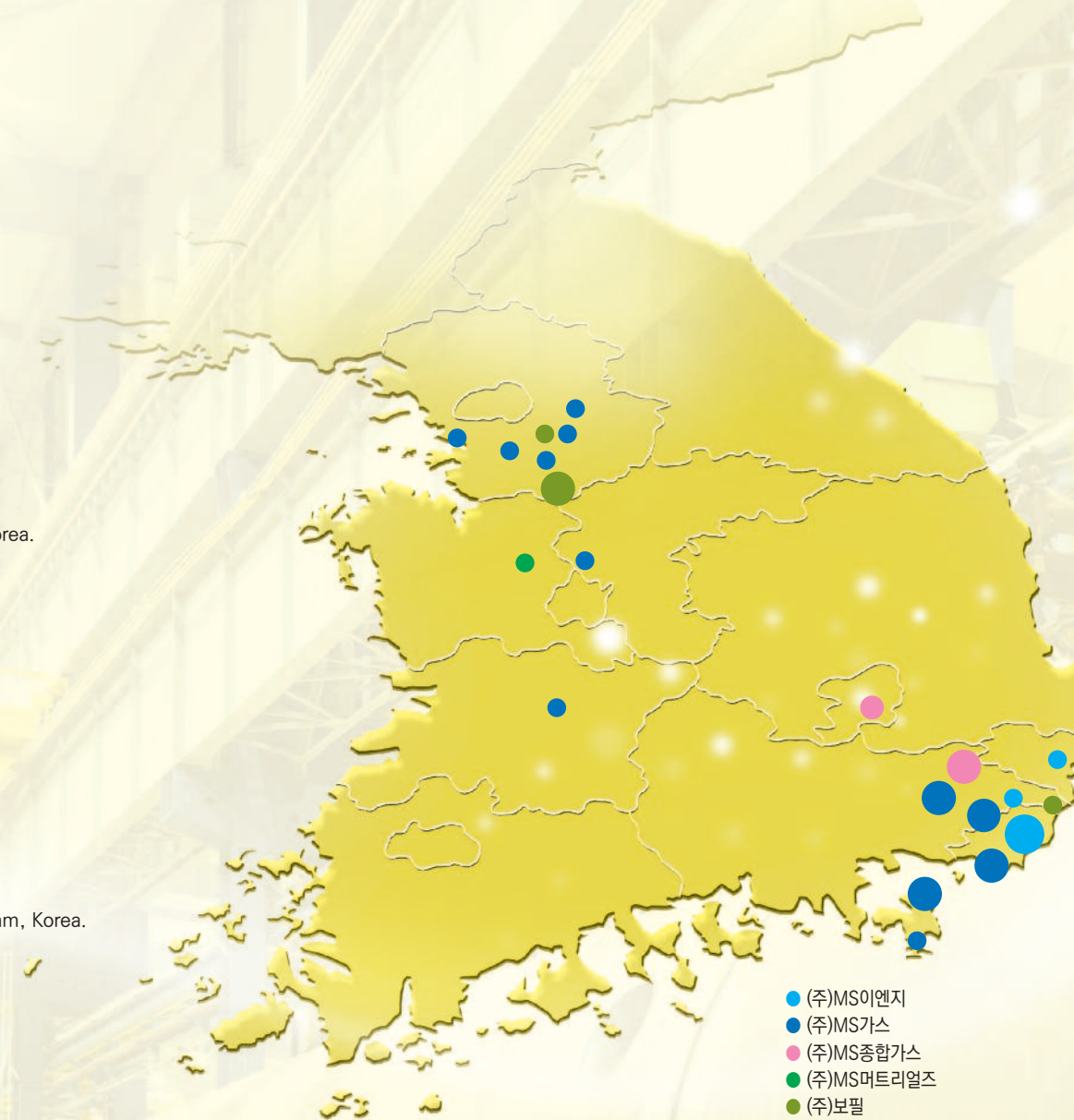
**MS죽도연수원**  
**MS Jukdo Island training institute**  
 경남 통영시 한산면 매죽리 죽도길 15-27  
 TEL : 055-642-2301 / FAX : 055-642-2308  
 #407 Maejuk-ri Hansan-myeon, Tongyeong-si, Gyeongnam, Korea  
 Tel : +82-55-642-2301 / Fax : +82-55-642-2308

**사회봉사 계열 \_ Social Service Division**

**(재)재기중소기업개발원**  
**Foundation Jaegi : Revitalization Center for Strained Entrepreneur**

부산 사상구 학장로 165  
 부산사무소 TEL : 051-316-4050 FAX : 051-311-5612  
 서울사무소 : 02-516-4050  
 264-5, Hakjang-dong, Sasang-Gu, Busan, Korea  
 Busan Office TEL : +82-51-316-4050 / FAX : +82-51-311-5612  
 Seoul Office TEL : +82-2-516-4050

**관계사 현황 / Affiliate Companies**



- (주)MS이엔지
  - (주)MS가스
  - (주)MS종합가스
  - (주)MS머트리얼즈
  - (주)보필
- 
- MS ENG Co., Ltd.
  - MS Gas Co., Ltd.
  - MS General Gas Co., Ltd.
  - MS Materials Co., Ltd.
  - Bofeel Co., Ltd.

**MS 계열회사 \_ MS Affiliated Companies**

**MS인천가스(주)**  
**MS Incheon Gas**  
 인천시 동구 방축로 9번길 40  
 TEL : 032-581-7001 FAX : 032-581-7130  
 #140-26 Songhyeon-dong, Dong-gu, Incheon, Korea  
 Tel : +82-32-581-7001 / Fax : +82-32-581-7130

**MS에너지(주)**  
**MS Energy**  
 경남 김해시 한림면 한림로 1029  
 TEL : 055-345-1117 FAX : 055-342-1557  
 #1029, Hanrim-Ro, Hallim-myeon, Gimhae-si, Gyeongnam, Korea  
 Tel : +82-55-345-1117 / Fax : +82-55-342-1557



**(주)MS가스 \_ MS Gas Co., Ltd.**

부산광역시 사상구 가야대로 176번길 92 TEL : 051-325-5501 FAX : 051-323-5277  
 276-22, Hakjang-dong, Sasang-Gu, Busan, Korea  
 Tel : +82-51-325-5501 / Fax : +82-51-323-5277

**영업종류 \_ Business**  
 1) 일반 산업용 가스 제조 및 판매 2) 액화석유가스 충전 및 판매 3) 특수가스 제조 및 수입판매  
 4) 용기 재검사, Purge 및 기밀 시험(대형 5) 일반고압가스 및 LPG, 특수가스, E.O등 운송  
 6) 가스 기자재 판매 및 설비 7) 무역업(가스, 기자재, 가스플랜트, 화공약품류 : 수출입)  
 1) Industrial gas, 2) LPG Manufacturing & filling, 3) special gas manufacturing & import  
 4) re-inspection of tank, Purge, gas tight test. 5) transportation of general high pressure gas & special gas, EO,  
 6) Sales of gas equipments. 7) Trade business ( Gas equipments, gas plant, chemical products, import & export)



**MS종합가스(주) \_ MS General Gas Co., Ltd.**

경남 양산시 소주공단 2길 48(주남동) TEL : 055-366-5522 FAX : 055-366-5517  
 #541-10 Junam-dong, Yangsan-si, Gyeongnam, Korea / Tel : +82-55-366-5522 / Fax : +82-55-366-517

**영업종류 \_ Business**  
 1) 일반가스 제조 및 충전 2) 혼합가스 제조 3) LPG(부탄, 프로판)가스 판매 4) 독성, 특수, 의료용가스 판매  
 1) Manufacturing general gas and filling, 2) Manufacturing mixed gas. 3) LPG(Butane, Propane) sales.  
 4) Toxic, special, medical gas sales.



**(주)MS머트리얼즈 \_ MS Materials Co., Ltd.**

충남 공주시 우성면 군량골길 25-52 TEL : 041-856-5551 FAX : 041-856-5561  
 #249-3 Donggok-ri, Useong-myeon, Gongju-si, Chungnam, Korea Tel : +82-41-856-5551 / Fax : +82-41-856-5561

**영업종류 \_ Business**  
 표준가스, 다성분 혼합가스, UHP Pure Gas, 반도체용 가스, 특수가스등 제조 및 가스분석  
 Criterion gas, Mixed gas, UHP Pure Gas, Semi conductor gas, special gas analysis.



**(주)보필 \_ Bofeel Co., Ltd.**

경기도 안성시 미양면 안성맞춤대로 717 TEL : 031-677-9924 FAX : 031-675-9918  
 #717 Anseongmatchum street, Anseong-si, Gyeonggi, Korea / Tel : +82-31-677-9924 / Fax : +82-31-675-9918

**영업종류 \_ Business**  
 전통형 침대, 수동형 침대, 휠체어, 전동 스쿠터, 욕창 방지용품, 이동형 좌변기, 목욕의자, 욕실 안전손잡이, 보행 보조기(실버카), 미끄럼방지용품, 지팡이, 기능성 신발 및 의류, 기타 복지용품일체, 보호대  
 Motor bed, Manual bed, Safety grip of bath room, Wheel chair, Motor scooter, Bedsore protector, Potable toilet bowl, Bath chair, Zimmer frame, Slippery protector, Cane, Practical clothes and shoes, Other welfare products.

**서울사무소 \_ Seoul office**

서울특별시 강남구 논현로 635 우림빌딩2층 TEL : 02-3446-9924  
 635 Urim building second floor, Nonhyeon-ro, Seoul Korea. Tel : +82-2-3446-9924

## 밸브 및 장비사업 Valve & Equipment Business

### 장비 제작품 \_ Equipment

- 가스압축기 \_ Gas compressor
- 액이송 펌프 \_ LPG Vane Pump
- 로딩암 \_ Loading arm

### 밸브류 \_ Valves

- 안전 밸브 \_ Safety valve
- 역류방지 밸브 \_ Check valve
- 스트레이너 \_ Strainer
- 바이패스 릴리프 밸브 \_ By-Pass relief valve
- 커플링 \_ Coupling
- 긴급차단 밸브 \_ Emergency shut - off valve
- 글로브 밸브 \_ Globe valve
- 기타 밸브 \_ Other Valve
- 로타리 레벨 게이지 \_ Rotary level gauge
- 초저온용 글로브 밸브 \_ Cryogenic globe valve
- 초저온용 체크 밸브 \_ Cryogenic check valve
- 초저온용 이코노마이저 \_ Cryogenic economizer
- 초저온용 조정기 \_ Cryogenic regulator
- 초저온용 Manifold \_ Cryogenic manifold
- 초저온용 Divert 밸브 \_ Cryogenic divert valve
- 초저온용 안전 밸브 \_ Cryogenic safety valve
- 초저온용 긴급차단 밸브 \_ Cryogenic emergency shut-off valve
- 초저온용 진공센서 밸브 \_ Vacuum sensor valve
- 초저온용 진공배기 밸브 \_ Vacuum exhaust valve
- 초저온용 탱크 약세서리 \_ Accessory for Cryogenic tank
- 초저온용 레벨게이지 \_ Cryogenic level gauge (Bottom meter)
- 초고압 안전밸브 \_ High pressure safety valve (H2)

### 충전기 \_ Dispenser

- LPG충전기 \_ LPG Dispenser
- 수소충전기 \_ H2 Dispenser



가스장비 관련 제품군  
Products related to Gas Equipment

가스산업의 동반 성장을 위해  
연구/개발 투자로 경쟁력 있는 다양한 제품들  
을 생산하고 있습니다.

MS ENG has manufactured a various  
type and competitive of products  
through Research and Development  
for WIN-WIN Growth of Gas Industry.



액화석유가스 관련 제품군  
Products related to LPG

초저온가스 관련 제품군  
Products related to Cryogenic Gas

## Plant 사업 Plant Business

### Gas Industry

- Water Bath Heater
- Heat Exchanger
- Electric Heater
- Gas Filter
- Ko Drum
- Cryogenic Gas Tank
- Pressure Vessel & Storage Tank
- Vaporizer

### Power Plant Industry

- Fuel Gas Treatment System
- NH<sub>3</sub> Storage and Supply System for SCR

### Plant Facility

- Utility Package System
- LNG Satellite Station
- H<sub>2</sub> Car Filling Station
- Hydrogen Generator

### 설계 & 시공 \_ Deign & Construction

- LPG 용기 자동차 충전시설
- 암모니아 저장 및 공급장치
- 특수가스 및 혼합가스 충전장치
- 고순도 고압가스 배관공사 및 정제장치
- LPG 및 고압가스 용기 재검사시설
- 일반고압가스 제조, 저장, 충전시설
- 기타 독성가스 중화조 제조 및 설치공사
- 수소스테이션 Engineering 및 수소 제조장치 공급(일본 MKK 제품)
- 프레온 등 냉매 저장 및 공급장치
- LPG storage tank & filling facilities.
- Ammonia storage tank and supply facility.
- The facility filling special gas and mixed gas
- Piping construction of high purity of pressure gas and purification facility.
- Facilities to inspect the LPG storage tank and high-pressure gas tank.
- Production, storage and filling facility for general high pressure gas.
- Construction of dilution tank for manifold intense poison gas.
- Supply H<sub>2</sub> Station Engineering and Hydrogen Production Equipment (Cooperation with MKK in Japan)
- H<sub>2</sub> station construction and approval process.
- Storage tank and supplying facility of freon
- Storage tank and vaporizer
- Chemical design and facility
- Toxic Gas catalyzer deodorization facility.

창조적인 가스플랜트 분야  
전문기업으로 인정받고 있습니다.

We are acknowledged as a creative  
company in gas plant industrial field.



색인 \_ Index

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가스압축기 \_ LPG COMPRESSOR

액이송펌프 \_ LPG VANE PUMP

로딩암 \_ LPG LOADING ARM

LPG 소형저장탱크 \_ LPG PACKAGE TANK

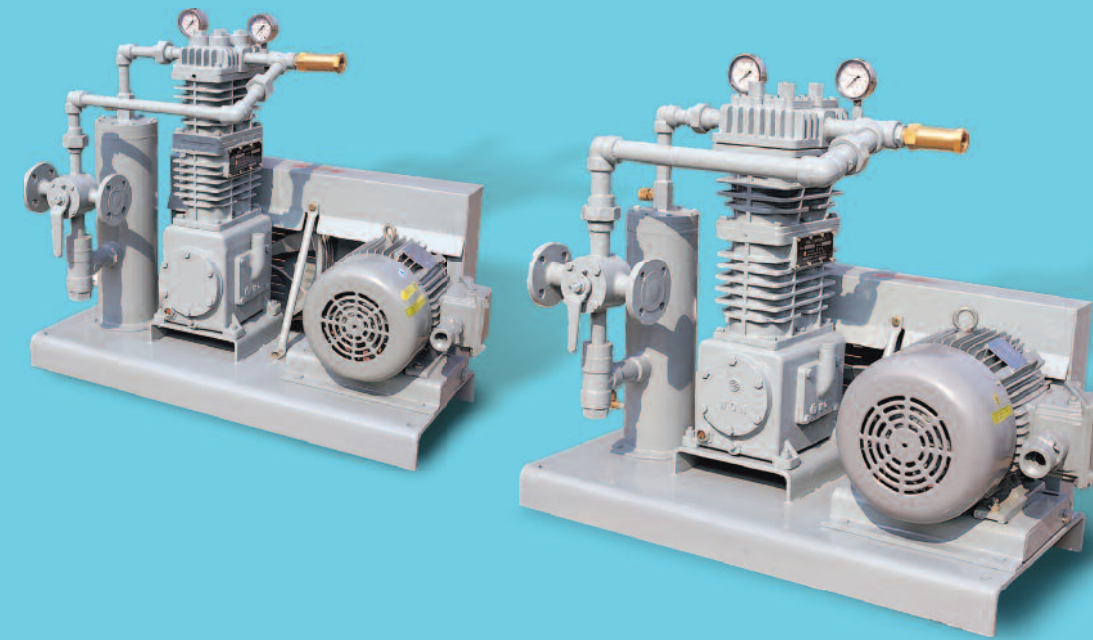
기화기 \_ LPG VAPORIZER

가스충전기 \_ LPG DISPENSER

수소충전기 \_ H<sub>2</sub> DISPENSER

## GAS COMPRESSOR

WGCL-7122 (LPG)  
WGCL-7222 (NH<sub>3</sub>)



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	CRANK CASE	FCD45	6	CROSS PISTON	AC8B
2	CROSS CYLINDER	FCD45	7	CONNECTING ROD	AL
3	COMPRESSOR CYLINDER	FCD45	8	SUCTION VALVE	09CH17N-3SC
4	HEAD	FCD45	9	DISCHARGE VALVE	09CH17N-3SC
5	CRANK SHAFT	FCD50	10	ROD PACKING	PTFE+CARBON

### SPECIFICATION

PART	7.5HP	15HP
MOTOR CAPACITY	7.5 HP	15HP
CONNECTION	25A JIS-20K RF	40A JIS-20K RF
PISTON DIAMETER	Ø80	Ø105
STROKE	65mm	78mm
MOTOR TYPE	Ex D2G4	Ex D2G4
MOTOR PULLEY	B 3-LANE 6.5"	B 3-LANE 6.5"
COOLING PULLEY	B 3-LANE 16"	B 3-LANE 16"
REVOLUTION PER MINUTE	707 rpm	713 rpm
DISCHARGED VOLUME	370 ℓ /min	770 ℓ /min
FILLING TIME OF 10 TON LPG	55~70 min	26~34 min

- Application :  
Transfer & collect gas, which compressed gas and generate differential pressure from tank lorry to storage tank
- Hydrostatic test pressure : 30kg/cm<sup>2</sup>
- Pneumatic test pressure : 22kg/cm<sup>2</sup>
- Fluid : LPG, NH<sub>3</sub>

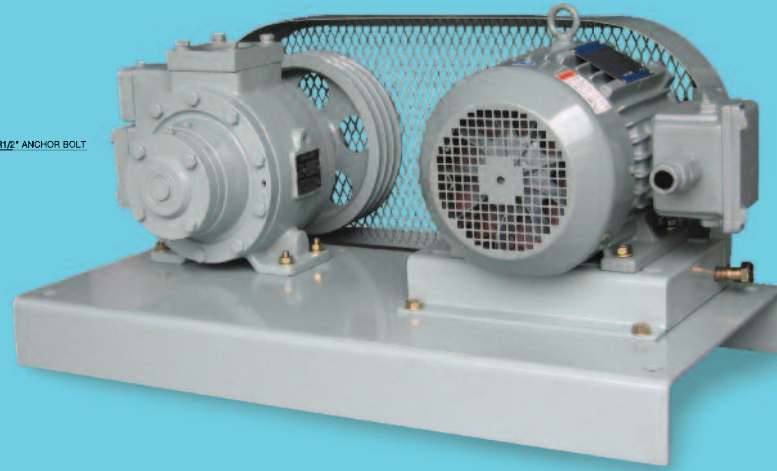
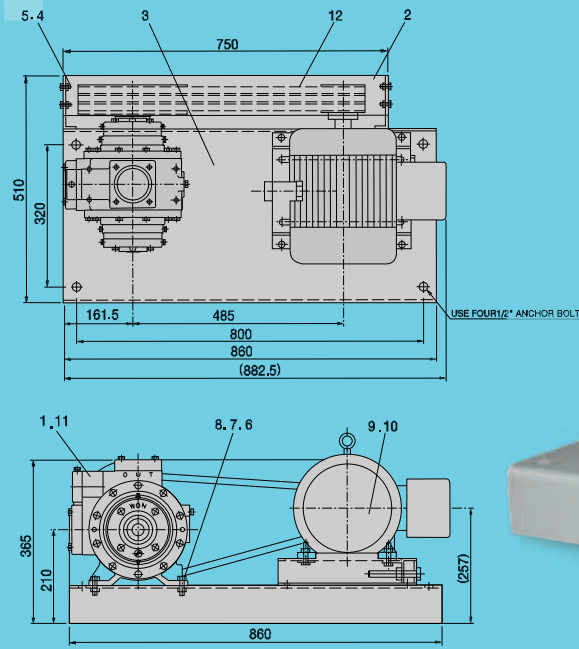
※ REMARK : 1.MATERIAL IS TO BE CHANGED IN CASE OF NH<sub>3</sub> / 2.PLEASE CONTACT US WHEN APPLYING FOR OTHER GASES

※참고 : 1.암모니아용일 경우 일부 재질을 변경함. / 2.다른 가스 용도로 사용할 경우 당사로 연락바람.



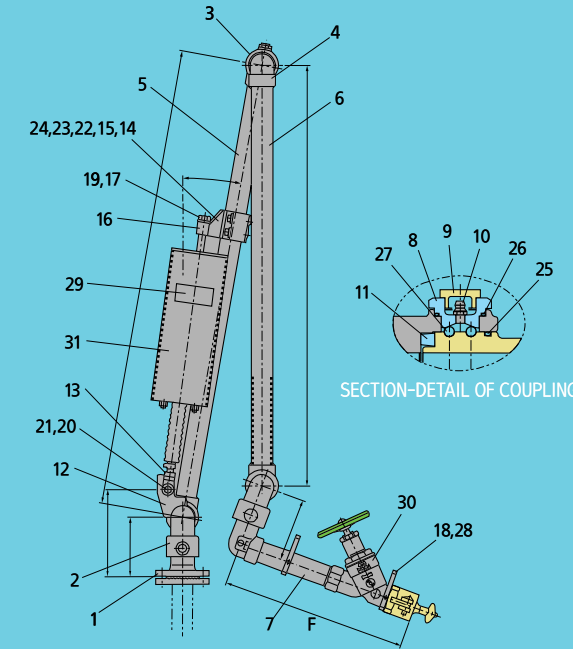
# LPG VANE PUMP 5HP

## WLVP-1000



# LOADING ARM

## WLA-7121



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	PUMP Ass'Y	GCD450	7	HEX NUT	SCM415
2	PULLY COVER ASS'Y	SS41	8	SPRING WASHER	SCM415
3	BASE PLATE ASS'Y	SS41	9	MOTOR	S.T.D
4	HEX NUT	S45C	10	MOTOR PULLEY	S.T.D
5	HEX BOLT	S45C	11	PUMP PULLEY	S.T.D
6	HEX BOLT	SCM415	12	V-BELT	S.T.D

### SPECIFICATION

SERVICE FLUID	LPG, NH <sub>3</sub>
SUCTION FLANGE	65A JIS20K (PT 2-1/2")
DISCHARGE FLANGE	50A JIS20K (PT 2)
MIN.RPM	420 RPM
MAX.RPM	950 RPM
CAPACITY(AT 950 RPM)	up to 341 LIT/MIN
MIN.TEMP.	-32 ° c
MAX.TEMP.	107 ° c
MAX.WORKING PRESSURE	2.76 MPa
MAX.DIFERENTIAL PRESSURE	0.86 MPa
MOTOR	5hp, dll G4, 220/380V 3P
MOTOR PULLEY	B3, 4"
PUMP PULLEY	B3, 10"
V-BELT	B60
PAINT (하도)	POLY-URETHANE (GREY)
PAINT (상도)	6.2BG 5.8/1.7

- Application :  
To transfer liquid LPG(NH<sub>3</sub>) from tank lorry to tank
- Hydrostatic test pressure :  
2.94 MPa
- Pneumatic test pressure :  
2.16 MPa
- Fluid : LPG, NH<sub>3</sub>

### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	FLANGE COUPLING	SCPH2	17	WASHER	STS304
2	COUPLING - A	SCPH2	18	HANDLE	SS41
3	COUPLING - B	SCPH2	19	ADJUST BOLT	S20C
4	COUPLING - C	SCPH2	20	BOLT	S45C
5	PIPE - A	STPG370	21	NUT	S45C
6	PIPE - B	STPG370	22	BOLT	S45C
7	PIPE - C	STPG370	23	SPRING WASHER	SUP6
8	RETAINER	SS41	24	NUT	S45C
9	RETAINER CAP	SS41	25	O-RING	NBR
10	NIPPLE	S.T.D	26	O-RING	NBR
11	PACKING	H-NBR	27	BALL	SUJ2
12	STOPPER	SS41	28	SET SCREW	SCM4
13	ROD BRACKET	GCD-S	29	NAME PLATE	STS304
14	UPPER SUPPORT	SS41	30	Y-VALVE	S.T.D
15	LOWER SUPPORT	SS41	31	BALANCE-UNIT ASS'Y	S.T.D
16	GUIDE RING	STPG370			

### DIMENSION

SIZE	A	B	C	D	E	E
25A	172	252	1319	1363	136	568
50A	172	252	1319	1205	203	615
80A	300	400	1500	1200	300	700

### SPECIFICATION

- Application:  
safe connection between tank lorry and storage tank
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 2.15 MPa
- Maximum filling distance : 3m
- Arm operation angle : 5 ° ~ 87 °
- Joint quantity : 5
- Fluid : LPG, NH<sub>3</sub>, CO<sub>2</sub>

※ REMARK : 1.MATERIAL IS TO BE CHANGED IN CASE OF NH<sub>3</sub> / 2.PLEASE CONTACT US WHEN APPLYING FOR OTHER GASES  
※참고 : 1.암모니아용일 경우 일부 재질을 변경함. / 2.다른 가스 용도로 사용할 경우 당사로 연락바람.

# LPG PACKAGE TANK

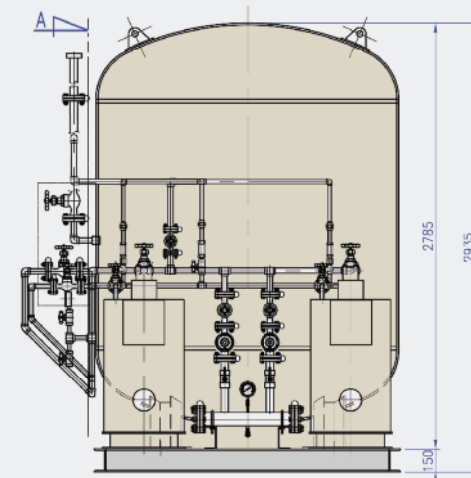
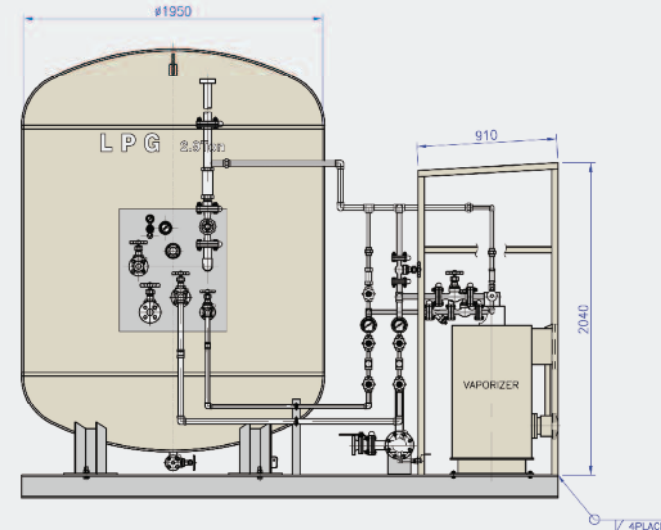
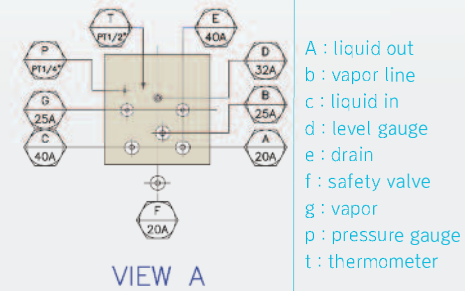
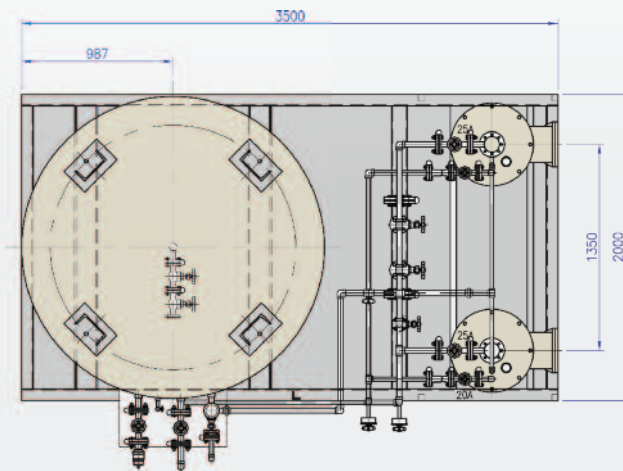
## 용량별 구성 Specification & Dimension

- LPG Tank : 0.5 / 1.0 / 1.99 / 2.99 / 2.45Ton(4.9Ton)
- Capacity : 0.5Ton\_1,237L / 1.0Ton\_2,473L / 1.99Ton\_4,737L / 2.99Ton\_7,227L / 2.45Ton\_6,107L
- Vaporizer : 50kg/h, 100kg/h, 200kg/h, 300kg/h, 400kg/h, 500kg/h
- Regulator : 50kg/h, 100kg/h, 200kg/h, 300kg/h, 400kg/h, 500kg/h
  - Mid Pressure Regulator : 0.57 ~ 0.83kg/h
  - Low Pressure Regulator : 2.8Kpa(50K, 100K, 150K, 200K)
  - Semi Low Pressure Regulator : 25Kpa(50K, 100K, 200K)
- Main Glove Valve Applied
- R-Tank Flexible Type & Piping Connection, Double Connection Applicable(Optional)
- Natural Vaporizer Single/Double(Optional)
- Bulk Coupling for Liquid/Vapor
- Float Type Level Gauge
- Pressure Gauge
- Cabinet Box : SUS304



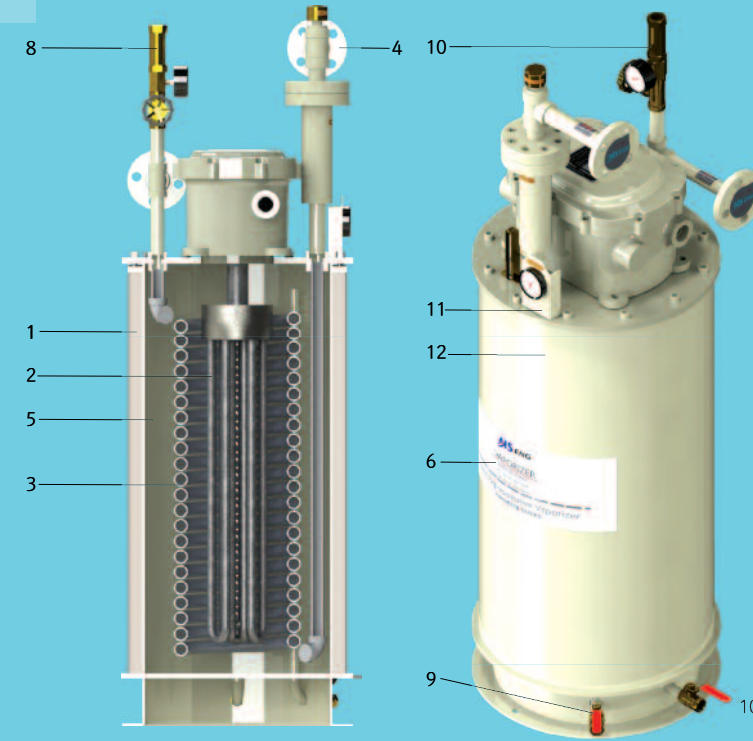
용도 : 소량으로 가스를 사용하고자 하는 APT, 산업체, 일체형으로 제작된 LPG공급설비  
Application : It is using for companies and apartment which use small quantity of LPG.

- \* 1. 상기 사항은 별크리형이며 사용량에 따라 기화기 및 압력조정기가 선택된다.  
The above is for bulk lorry, and vaporizer and regulator is to be chosen according to using capacity.
- \* 2. 내압방폭형 판넬부착가능(선택사양) Explosion proof panel can be installed upon requirement(option)
- \* 3. 일체형으로 한국가스안전공사 검사필한후 출고. (선택사양) As package system, it has to be supplied after being approved by KGS (option)
- \* 4. 탱크크리형을 요구시 펌프, 로리호스등 추가 (금액 및 사양변경) When requesting the system for tank lorry, pump and lorry hose are to be included additionally (specification will be changed)



# ELECTRIC LPG VAPORIZER

## EV50~EV400



### MATERIAL

NO.	PART NAME	MATERIAL
1	WATER TANK INSTALL	SS400
2	HEATER & BOX INSTALL	AC2A
3	COIL & COVER INSTALL	STPG 370
4	LIQUID TRAP INSTALL	A106-B
5	INSULATER INSTALL	Artilon
6	MARKING ASS'Y	Sticker
7	PRESSURE GAUGE	PVC + BC
8	SAFETY VALVE	C3604B
9	WATER DRAIN VALVE	BC
10	OVER-WATER, OVER-FLOWING	BC
11	HEX BOLT & WASHER	S45C
12	I-BOLT	S45C

### SPECIFICATION

MODEL	Capacity (kg/hr)	LPG Liquid Inlet Size	LPG Vapor Outlet Size	Heater Capacity (KW)	Empty Weight (kg)	Water Capacity (Liter)	Pressure Safety Valve Size
MS-EV50	50	3/4"	1"	7.5	65	50	3/4"
MS-EV100	100	3/4"	1"	15	85	60	3/4"
MS-EV150	150	3/4"	1"	22.5	125	70	3/4"
MS-EV200	200	3/4"	1"	30	150	120	3/4"
MS-EV300	300	3/4"	1"	45	185	150	3/4"
MS-EV400	400	3/4"	1"	60	300	150	3/4"

### DIMENSION

SIZE	A702	B	C	D	E	F	H	Volume(Liter)
50KG	702	436	410	450	852	1106	1132	50
100KG	801	436	410	450	951	1196	1233	60
150KG	921	436	410	450	1071	1316	1397	70
200KG	921	576	560	600	1071	1316	1397	120
300KG	1041	576	560	600	1191	1436	1474	150
400KG	1041	576	560	600	1191	1436	1474	150

unit : mm

# LPG DISPENSER

## WLD-4



### 1 사계절 정확한 GAIN 관리 Accurate weighing during 4 seasons

최첨단의 전자식 시스템과 우수한 기기들의 조화가 재고 손실을 방지함으로써 가장 정확하게 365일 충전소의 재고관리를 해드립니다.  
Accurate weighing can be strictly guaranteed during 4 seasons by taking state-of-the-art electronic system.



### 2 PRE-SET 기능 / Pre-set function

다양한 기능을 100% 활용할 수 있어, 제품의 품위와 함께 신속하고 편리한 업무를 구현해 낼 수 있습니다.  
This system can realize quick and convenient calculation of the price and filled gas by using 100% of various functions.



### 3 4-Piston 유량계 채택 4-Piston type Flowmeter.

4-Piston(윤척식)type으로 고정밀도의 계량 공차를 유지하며 Soft Seat(자기 윤활성 수지) 및 STS 재질 사용으로 저소음과 반영구적인 수명을 자랑합니다.  
MS ENG L.P.G dispenser takes 4 piston type flowmeter which shows accurate calculation and has the semi-permanent lifetime and low noise by using Soft Seat STS.



### 4 최정상의 계량정밀도 Highly accurate flowrate measurement.

고정밀 유량계와 자동온도 보정장치의 구성으로 최정상의 계량 정밀도를 자랑합니다.  
법적허용공차내(±0.25%~±0.5% 이내)  
Installing highly accurate flowmeter and Automatic Temperature Compensator(A.T.C), Keeps the highest flowrate accuracy (± 0.25 ~ ±0.5%)



### 5 One Touch ON/OFF 방식 One Touch operation

기계식과 다른 차원의 전자식 SWITCH를 내장하여 충전시 한번의 작동만으로 ON/OFF를 제어할 수 있습니다.  
Electronic On/Off switch is built-in. One touch operation system makes the filling convenient.



### 6 POS 연결 사용 가능 POS connection system

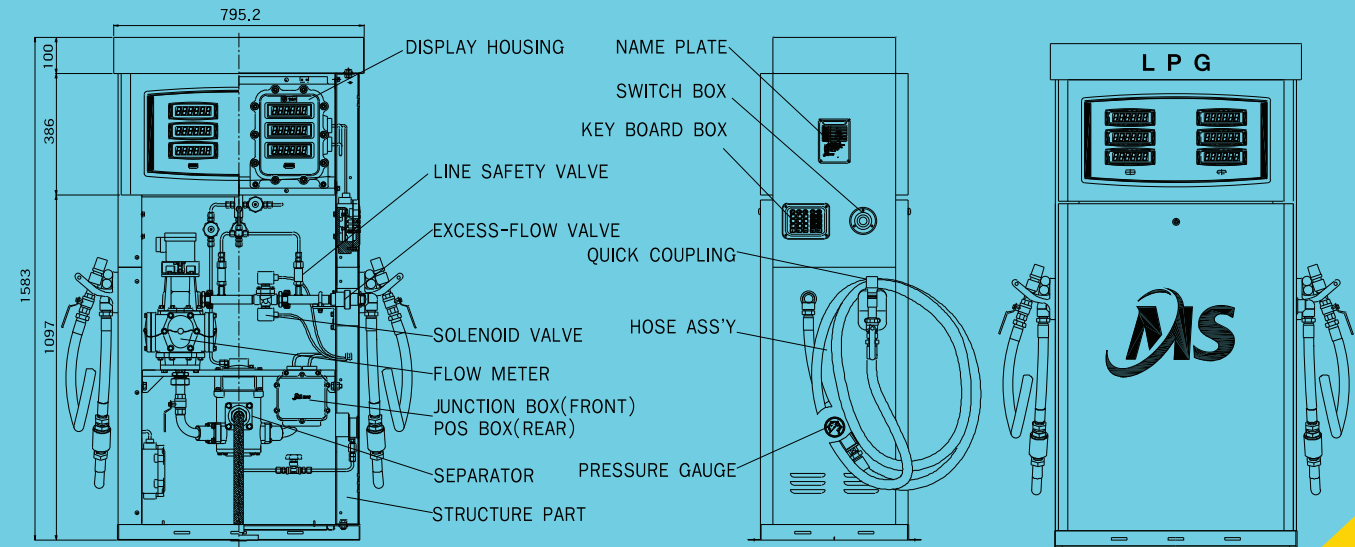
인터페이스 내장으로 손쉽게 POS설치가 가능하므로 POS에 내장된 프로그램으로 재고관리 및 편리성을 극대화 할 수 있습니다.  
Having interface within dispenser keeps connection with ODT easy. POS maximize the convenience for managing the stock.

#### 충전소의 POLE DESIGN

※ 각 정유사별 충전기 DESIGN이므로 참고 하십시오.



## 외형도 및 주요부품 LIST



#### SPECIFICATION

ITEMS		CONTENTS
MODEL		WLD - 4
WEIGHT		256 (kg)
VOLTAGE		220V, 60Hz or 50Hz
FLANGE SIZE	LIQUID LINE	25a × 20K
	VAPOR LINE	15a × 20K
FLOW METER	TYPE	4 - piston
	ACCURACY	±0.25% ±0.5%
	FLOWRATE	5 ~ 67(ℓ /min)
PRESSURE CAPACITY	MAX. WORKING PRESSURE	20kg/cm <sup>2</sup> (1.96 MPa)
	PNEUMATIC TEST PRESSURE	18kg/cm <sup>2</sup> (1.76 MPa)
	HYDRAULIC TEST PRESSURE	27kg/cm <sup>2</sup> (2.64 MPa)
SOLENOID VALVE	HIGH SPEED	20a
	LOW SPEED	10A
PRESET		SET THE REQUIRED FILLING QUANTITY AND FILLING AMOUNT IN ADVANCE
MONITOR	DISPLAY	FIP TYPE 1"(FLUORESCENT INDICATOR PANEL)
	CONTENTS	FILLING PRICE, AMOUNT, UNIT PRICE IN 3 COLUMN
	FILLING AMOUNT	1~999,999
	FILLING QUANTITY	1~999,999ℓ
	UNIT PRICE	1~999,999
TOTAL COUNTER	1~99,999,999(ℓ )	
HOSE		4.5m
SEPARATOR		STRAINER (200mesh)
AUTOMATIC TEMPERATURE		-30.C ~ +50.C
SAFETY COUPLING		DISCONNECTING : PRESSURE-MORE THEN 27kg/cm <sup>2</sup> FORCE-MORE THEN 50kg-f

※ THE SPECIFICATION AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE

# H2 DISPENSER

## HYDROGEN-NX LF & LS / NX H / NX M

- ADAPTED TO 82MPA HIGH PRESSURE FILLING
- COMPACT & STYLISH BODY WITH LARGE DISPLAYS
- SUPPORTS BOTH ON-SITE AND OFF-SITE HYDROGEN PRODUCTION
- COMPLIES WITH THE INTERNATIONAL STANDARD FILLING PROTOCOL
- PRE-COOLING AT -40°C
- CONNECTABLE WITH EXISTING POS SYSTEM

Fill Pressure	87.5 MPa (max)
Measuring Accuracy	±1.5 %
Measuring Range	0.25~5.0 kg/min

### HYDROGEN-NX LF & LS

High-class model with highest installation numbers in Japan

- Choice of the nozzle position on the side or on the front panels.
- Choice of the nozzle position on the side or on the front panels.



### HYDROGEN-NX H

Compact desing optimal for space minimalization

- Width reduced by 18% (compared to our conventional model)
- Side nozzle and operation buttons on both sides for easy both-side filling.



### HYDROGEN-NX M

Dispenser for Movable H2 stations

- Compact design that fits in trailer easily.
- Built for high workability during daily maintenances.
- Easy filling operation without climbing on the trailer sides for easy both-side filling.



# H2 DISPENSER

## HYDROGEN-NX F

- DESIGNED SPECIFICALLY FOR 35MPA
- COMPACT DESIGN SUITABLE FOR INSTALLATIONS IN LIMITED SPACES

Fill Pressure	87.5 MPa (max)
Measuring Accuracy	±1.5 %
Measuring Range	0.25~5.0 kg/min

### HYDROGEN-NX F

Design suitable for space minimalization.

- Displays and operation buttons on both sides.
- Connectable with remote management systems for real-time monitoring.
- Connectable with POS terminals for easy totaling and card management.



## Hydrogen Corioil Mass Flowmeter (120MPa Class)

- Optimal for ultra-high-pressure measurement
- Accuracy ±0.5%, Low pressure loss
- High employment results



### 2in 1 model

Model	FM-1135
Features	New Integrated model
Pressure	Max. 120 Mpa
Accuracy	±0.5% (10 to 360kg/h)
Fluid Temp.	-50°C to +85°C
Ex.-proof	Exd[ib]IIC T1IS, IECEx, ATEX
Output	Pulse 2ch, Modbus, Bluetooth



### Detached Model

Model	BA-1025
Features	Separated model
Pressure	Max. 120 Mpa
Accuracy	±0.5% (10 to 360kg/h)
Fluid Temp.	-50°C to +85°C
Ex.-proof	Exd[ib]IIB+H2 T1IS, IECEx, ATEX, NEPSI
Output	Pulse 2ch, 4~20mA 2ch, LCD Display

# VALVE & EQUIPMENT DIVISION VALVE & INSTRUMENTS

## LPG PARTS

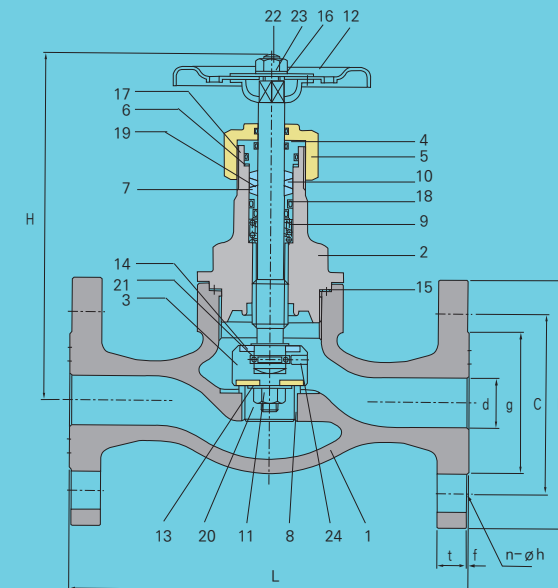
- 글로브 밸브 \_ GLOBE VALVE
- 역류방지 밸브 \_ CHECK VALVE
- 스트레너 \_ STRAINER
- 긴급차단 밸브 \_ EMERGENCY SHUT-OFF VALVE
- 바이패스 릴리프 밸브 \_ BY-PASS RELIEF VALVE
- 앵글타입 볼체크 밸브 \_ ANGLE TYPE BALL CHECK VALVE
- Y타입 글로브 밸브 \_ Y TYPE GLOBE VALVE
- 트랜스퍼 볼 밸브 \_ TRANSFER BALL VALVE
- 탱크로리용 긴급차단밸브 \_ EMERGENCY SHUT-OFF VALVE FOR TANK LORRY
- 인터널 안전밸브 \_ INTERNAL SAFETY VALVE
- 벌크로리 암 커플링 \_ BULK LORRY FEMALE COUPLING
- 벌크로리용 수 커플링 \_ BULK LORRY MALE COUPLING
- 로타리 레벨 게이지 \_ ROTARY LEVEL GAUGE
- 차량충전용 암 커플링 \_ FEMALE COUPLING FOR CAR FILLING
- 부탄 충전기용 안전 커플링 \_ SAFETY COUPLING FOR DISPENSER
- 안전밸브 \_ SAFETY VALVE
- 초고압 안전밸브 \_ HIGH PRESSURE SAFETY VALVE
- 기타 LPG & NH<sub>3</sub> 등 \_ STORAGE TANKS FOR LPG AND NH<sub>3</sub>, ETC

## CRYOGENIC PARTS

- 초저온용 글로브 밸브 \_ CRYOGENIC GLOBE VALVE
- 초저온용 체크 밸브 \_ CRYOGENIC CHECK VALVE
- 초저온용 조절기 \_ CRYOGENIC REGULATOR
- 초저온용 이코노마이저 \_ CRYOGENIC ECONOMIZER
- 초저온용 MANIFOLD \_ CRYOGENIC MANIFOLD
- 초저온용 DIVERT 밸브 \_ CRYOGENIC DIVERT VALVE
- 초저온용 안전 밸브 \_ CRYOGENIC SAFETY VALVE
- 초저온용 긴급차단 밸브 \_ CRYOGENIC EMERGENCY SHUT-OFF VALVE
- 초저온용 진공센서 밸브 \_ VACUUM SENSOR VALVE
- 초저온용 진공배기 밸브 \_ VACUUM EXHAUST VALVE

## 20KG/CM<sup>2</sup> FLANGED GLOBE VALVE

WGV-1121 (LPG)  
WGV-1221 (NH<sub>3</sub>)



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	GCD-S	13	VALVE SEAT	P.T.F.E
2	BONNET	S20C	14	BACK SEAT	P.T.F.E
3	VALVE DISK	S20C	15	GASKET	LB200
4	SPINDLE	STS 304	16	NAME PLATE	AL
5	GLAND NUT	S20C	17	O-RING	N.B.R
6	GLAND	C3604B	18	O-RING	N.B.R
7	PACKING GLAND	C3604B	19	O-RING	N.B.R
8	SEAT RING	STS 304	20	NUT	STS 304
9	SPRING	STS 304	21	BALL	SUJ2
10	PACKING	P.T.F.E	22	NUT	S20C
11	WASHER	STS 304	23	SPRING WASHER	STS 304
12	HANDLE	SPCC	24	SET SCREW	STS 304

### SPECIFICATION

- hydrostatic test pressure : 2.94MPa
- pneumatic test pressure : 1.96MPa
- Fluid : LPG, NG, NH<sub>3</sub>

### DIMENSION

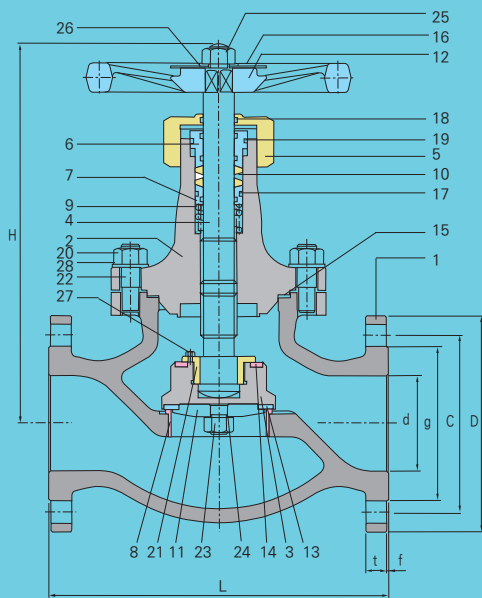
SIZE	H	L	d	g	C	D	t	f	n-øh	unit : mm
										Lift
15A	140	152	15	50	70	95	13	1	4-15	10
20A	148	178	20	56	75	100	15	1	4-15	11
25A	170	203	25	67	90	125	15	1	4-19	13
40A	194	229	40	81	105	140	16	2	4-19	17
50A	219	267	50	96	120	155	16	2	8-19	19

#### ※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

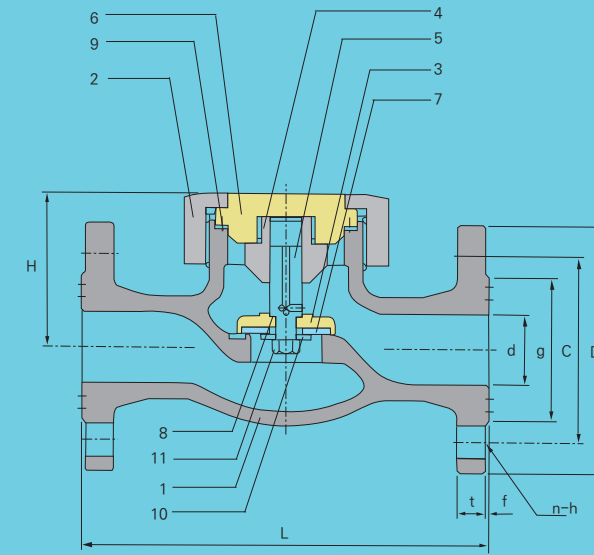
# 20KG/CM<sup>2</sup> FLANGED GLOBE VALVE

WGV-1122 (LPG)  
WGV-1222 (NH<sub>3</sub>)



# 20KG/CM<sup>2</sup> FLANGED CHECK VALVE

WCV-2121 (LPG)  
WCV-2221 (NH<sub>3</sub>)



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	GCD-S	15	GASKET	LB200
2	BONNET	GCD-S	16	NAME PLATE	AL
3	VALVE DISK	S20C	17	O-RING	N.B.R
4	SPINDLE	STS 304	18	O-RING	N.B.R
5	GLAND NUT	GCD-S	19	O-RING	N.B.R
6	GLAND	C3604B	20	NUT	N.B.R
7	PACKING GLAND	C3604B	21	DISK STEM RING	S25C
8	SEAT RING	STS 304	22	STUD BOLT	SS41
9	SPRING	STS 304	23	NUT	S25C
10	PACKING	P.T.F.E	24	SPRING WASHER	STS 304
11	WASHER	STS 304	25	NUT	S25C
12	HANDLE	GCD-S	26	SPRING WASHER	SUP 6
13	VALVE SEAT	P.T.F.E	27	WRENCH BOLT	SCM 415
14	BACK SEAT	P.T.F.E	28	SPRING WASHER	SUP6

### DIMENSION

SIZE	H	L	d	g	C	D	t	f	n-øh	Lift
65A	272	292	65	116	140	175	18	2	8-19	22
80A	311	318	80	132	160	200	20	2	8-23	26
100A	400	356	100	160	185	225	22	2	8-23	43

unit : mm

#### ※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

### SPECIFICATION

- hydrostatic test pressure : 2.94MPa
- pneumatic test pressure : 1.96MPa
- Fluid : LPG, NG, NH<sub>3</sub>

### MATERIAL

NO.	PART NAME	MATERIAL
1	BODY	GCD-S
2	GLAND NUT	S45C
3	VALVE DISK	STS 304
4	GUIDE	C3604B
5	SPINDLE	STS 304
6	CAP	SS41
7	VALVE SEAT	P.T.F.E
8	BACK SEAT	P.T.F.E
9	GASKET	NBR O-RING
10	WASHER	STS 304
11	NYLON NUT	STS 304

### DIMENSION

SIZE	H	L	d	g	C	D	t	f	n-øh
25A	71	203	25	67	90	125	15	1	4-15
40A	87	229	40	81	105	140	16	2	4-19
50A	100	267	50	96	120	155	16	2	8-19

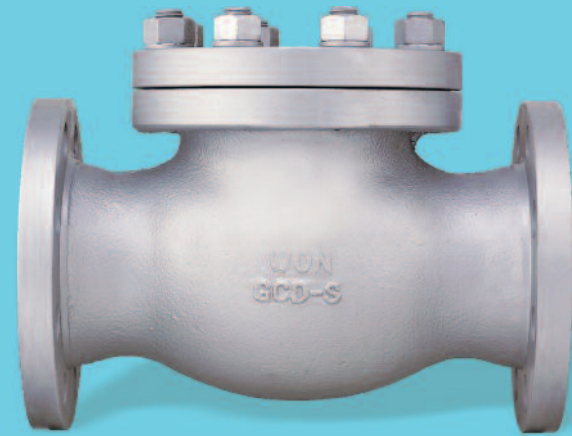
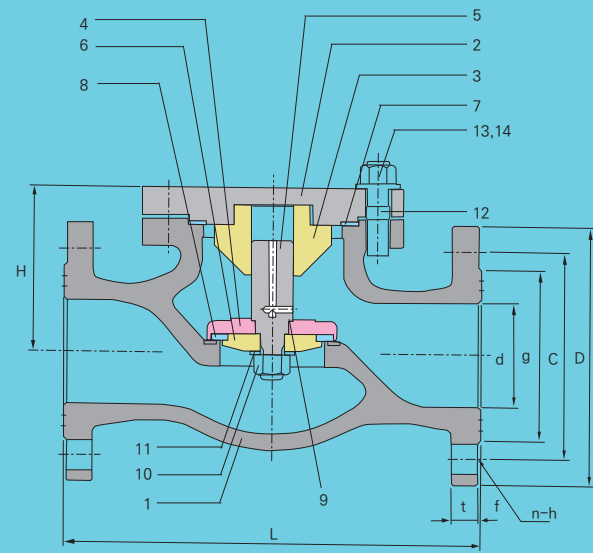
unit : mm

#### ※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

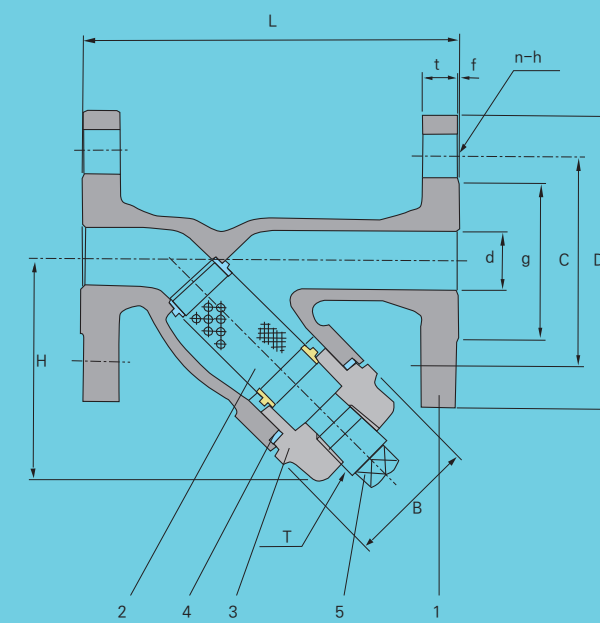
# 20KG/CM<sup>2</sup> FLANGED CHECK VALVE

WCV-1121 (LPG)  
WCV-1221 (NH<sub>3</sub>)



# 20KG/CM<sup>2</sup> FLANGED STRAINER

WST-3121



### MATERIAL

NO.	PART NAME	MATERIAL
1	BODY	GCD-S
2	CAP	SS41
3	GUIDE	C3604B
4	VALVE DISK	STS 304
5	SPINDLE	STS 304
6	WASHER	STS 304
7	GASKET	LB200
8	VALVE SEAT	P.T.F.E
9	BACK SEAT	P.T.F.E
10	NUT	STS 304
11	WASHER	STS 304
12	STUD BOLT	S45C
13	NUT	S45C
14	SPRING WASHER	SUP6

### SPECIFICATION

- Application : to prevent back - flowing
- Hydrostatic test pressure : 2.94MPa
- Pneumatic test pressure : 1.96MPa
- Fluid : LPG, NG, NH<sub>3</sub>

### DIMENSION

SIZE	H	L	d	g	C	D	t	f	n-Øh	unit : mm
65A	119	292	65	116	140	175	18	2	8-19	
80A	129	318	80	132	160	200	20	2	8-23	
100A	161	356	100	160	185	225	22	2	8-23	

※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

### MATERIAL

NO.	PART NAME	MATERIAL
1	BODY	GCD-S
2	SCREEN	STS 304
3	CAP	GCD-S
4	PACKING	NON-ASBESTOS
5	PLUG	SF45

### SPECIFICATION

- Hydrostatic test pressure : 2.94MPa
- Pneumatic test pressure : 1.96MPa
- Screen size : 60 mesh
- Fluid : LPG, NG, NH<sub>3</sub>, steam

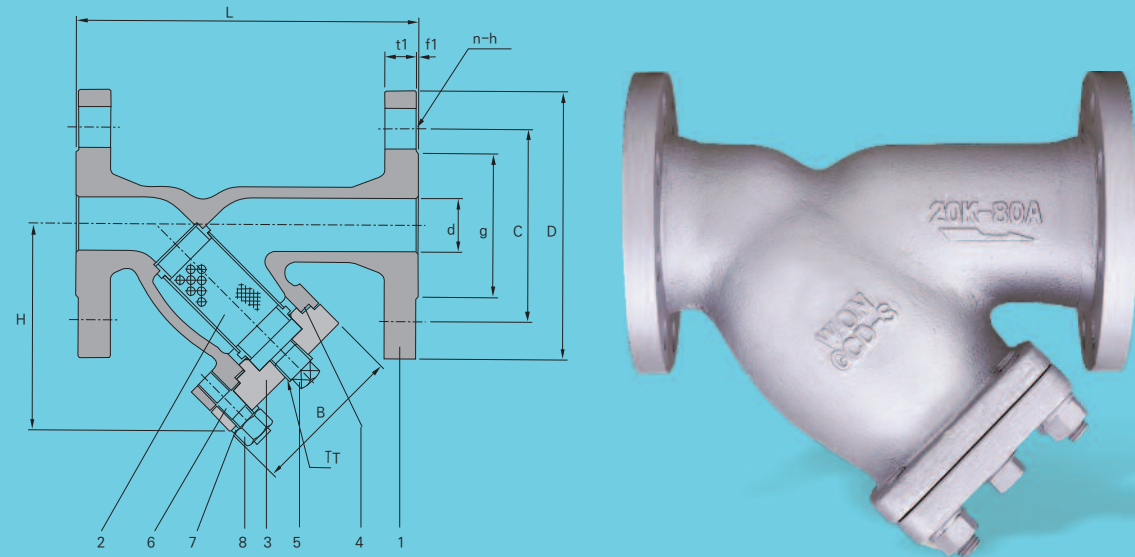
### DIMENSION

SIZE	H	L	B	d	g	C	D	t	f	n-Øh	T	unit : mm
15A	80	130	48	15	51	70	95	13	1	4-15	-	
20A	80	140	50	20	56	75	100	15	1	4-15	-	
25A	95	160	56	25	67	90	125	15	1	4-19	-	
40A	130	210	76	40	81	105	140	16	2	4-19	pt 1/2"	
50A	150	250	96	50	96	120	155	16	2	8-19	pt 3/4"	

※참고\_Remark : 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ Please contact us when applying for other gases.

# 20KG/CM<sup>2</sup> STRAINER

WST-3122



### MATERIAL

NO.	PART NAME	MATERIAL
1	BODY	GCD-S
2	SCREEN	STS 304
3	CAP	GCD-S
4	PACKING	NON-ASBESTOS
5	PLUG	SF45
6	STUD BOLT	S20C
7	SPRING WASHER	SUP6
8	NUT	S45C

### SPECIFICATION

- Hydrostatic test pressure : 2.94MPa
- Pneumatic test pressure : 1.96MPa
- Screen size : 60 mesh
- Fluid : LPG, NG, NH<sub>3</sub>, steam

### DIMENSION

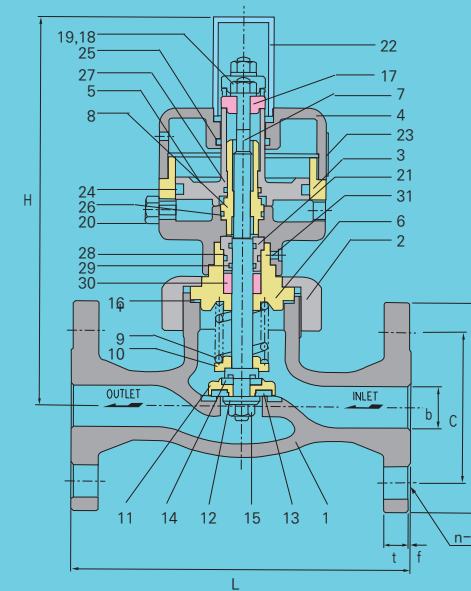
SIZE	H	L	B	d	g	C	D	t	f	n-øh	T
80A	240	320	□144	80	132	160	200	20	2	8-23	PT 3/4"
100A	280	380	□176	100	160	185	225	22	2	8-23	PT 3/4"

unit : mm

※참고\_Remark : 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ Please contact us when applying for other gases.

# 20KG/CM<sup>2</sup> EMERGENCY SHUT-OFF VALVE

WEV-4121 (LPG)  
WEV-4221 (NH<sub>3</sub>)



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2	17	WASHER	STS 304
2	GLAND NUT	SCPH2	18	SPRING WASHER	STS 304
3	CYLINDER	SCS13A	19	NUT	STS 304
4	CYLINDER CAP	SCS13A	20	FUSE METAL	C3604B/PB
5	PISTON	C3604B	21	BUSH	C3604B
6	BONNET	S45C	22	CAP	P.V.C
7	SPINDLE	STS 304	23	NAME PLATE	STS 304
8	BUSH DISK	C3604B	24	O-RING	N.B.R
9	SPRING	STS 304	25	O-RING	N.B.R
10	SPRING DISK	STS 304	26	O-RING	N.B.R
11	VALVE DISK	STS 304	27	O-RING	N.B.R
12	WASHER	STS 304	28	O-RING	VITON
13	VALVE SEAT	P.T.F.E	29	O-RING	VITON
14	BACK SEAT	P.T.F.E	30	PACKING	P.T.F.E
15	NYLON NUT	STS 304	31	SET SCREW	STS 304
16	GASKET	NON-ASBESTOS			

### SPECIFICATION

- Application : It is operated by air pressure when emergency situation happens.
- Hydrostatic test pressure : 2.94MPa
- Pneumatic test pressure : 1.96MPa
- Pneumatic cylinder working pressure : 0.29~0.49MPa
- Pneumatic connector : pt 1/4"
- Melting temperature of fuse metal : 75°C
- Fluid : LPG, NG, NH<sub>3</sub>

### DIMENSION

SIZE	H	L	d	C	D	t	f	n-øh
25A	225	203	25	90	125	15	1	4-19
50A	275	267	50	120	155	16	2	8-19

unit : mm

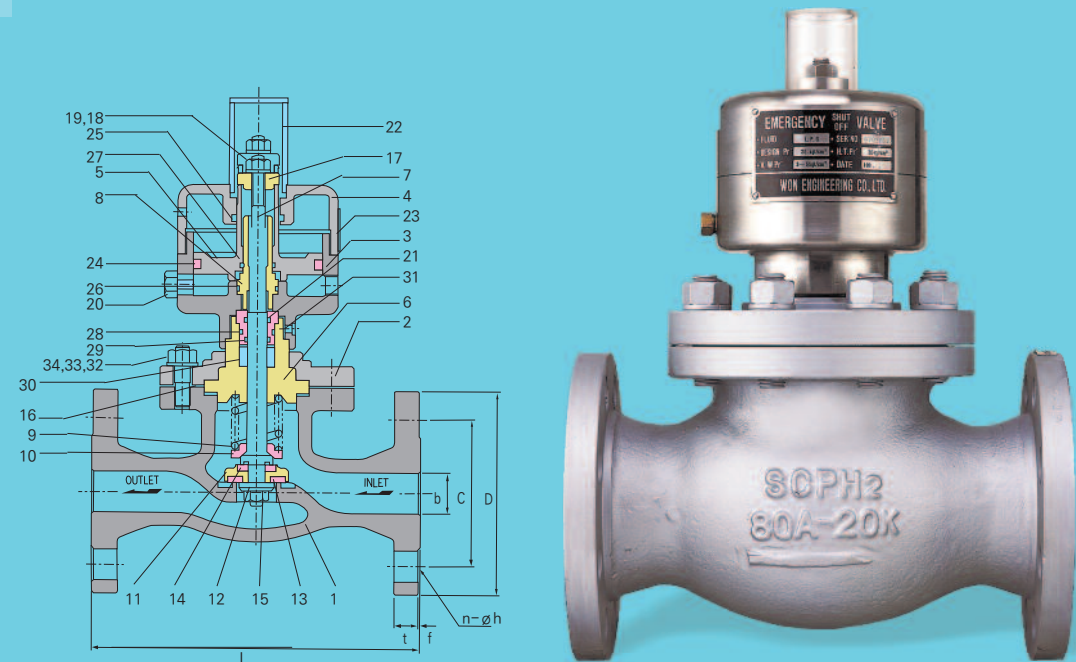
※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases



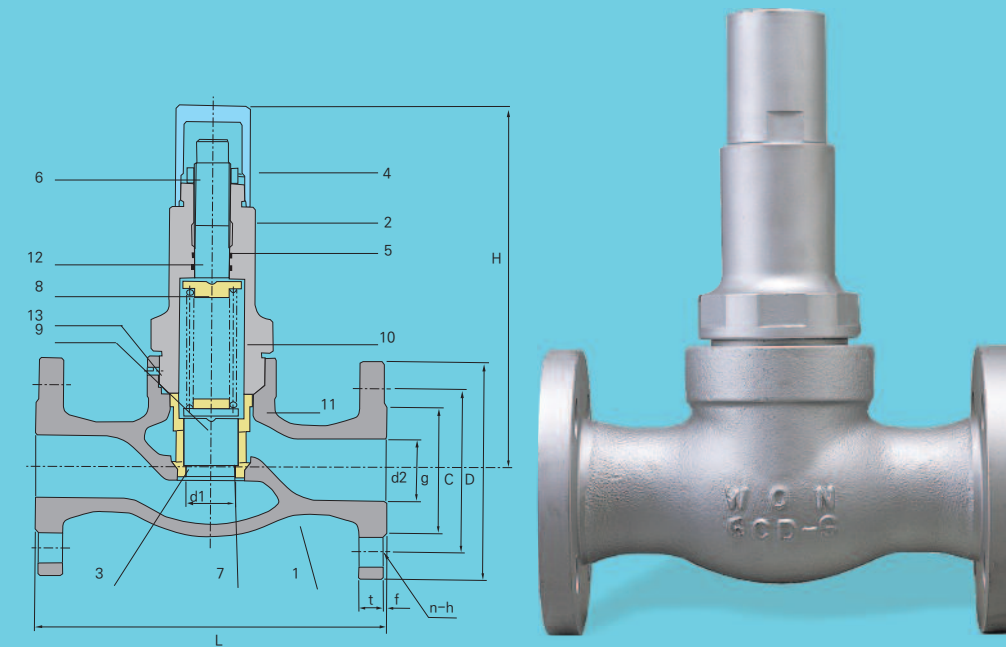
# 20KG/CM<sup>2</sup> EMERGENCY SHUT-OFF VALVE

WEV-4122 (LPG)  
WEV-4222 (NH<sub>3</sub>)



# BY-PASS RELIEF VALVE

WBRV-1125 (LPG)  
WBRV-1225 (NH<sub>3</sub>)



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2	18	SPRING WASHER	STS 304
2	BONNET CAP	SS 41	19	NUT	STS 304
3	CYLINDER	SCS13A	20	FUSE METAL	C3604B/PB
4	CYLINDER CAP	SCS13A	21	BUSH	C3604B
5	PISTON	C3604B	22	CAP	P.V.C
6	BONNET	S45C	23	NAME PLATE	STS 304
7	SPINDLE	STS 304	24	O-RING	N.B.R
8	BUSH DISK	C3604B	25	O-RING	N.B.R
9	SPRING	STS 304	26	O-RING	N.B.R
10	SPRING DISK	STS 304	27	O-RING	N.B.R
11	VALVE DISK	STS 304	28	O-RING	VITON
12	WASHER	STS 304	29	O-RING	VITON
13	VALVE SEAT	P. T.F.E	30	PACKING	P.T.F.E
14	BACK SEAT	P. T.F.E	31	SET SCREW	STS 304
15	NYLON NUT	STS 304	32	STUD BOLT	S45C
16	GASKET	NON-ASBESTOS	33	NUT	S25C
17	WASHER	STS 304	34	SPRING WASHER	SUP6

### DIMENSION

SIZE	H	L	d	C	D	t	f	n-Øh
65A	275	292	65	140	175	18	2	8-19
80A	320	318	80	160	200	20	2	8-23
100A	390	356	100	185	225	22	2	8-23

#### \*참고\_Remark

- 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
- 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

### SPECIFICATION

- Application : It is operated by air pressure when emergency situation happens.
- Hydrostatic test pressure : 2.94MPa
- Pneumatic test pressure : 1.96MPa
- Pneumatic cylinder working pressure : 0.29~0.49MPa
- Pneumatic connector : pt 1/4"
- Melting temperature of fuse metal : 75°C
- Fluid : LPG, NG, NH<sub>3</sub>

### MATERIAL

NO.	PART NAME	MATERIAL
1	BODY	GCD-S
2	BONNET	S20C
3	DISK GUIDE	C3604B
4	CAP	S20C
5	ADJUST BOLT	S45C
6	ADJUST NUT	S45C
7	VALVE DISK	STS 304
8	UPPER SPRING DISK	S45C
9	LOWER SPRING DISK	S45C
10	SPRING	SWO - V
11	O-RING	VITON
12	O-RING	VITON
13	SCREW	SM41

### DIMENSION

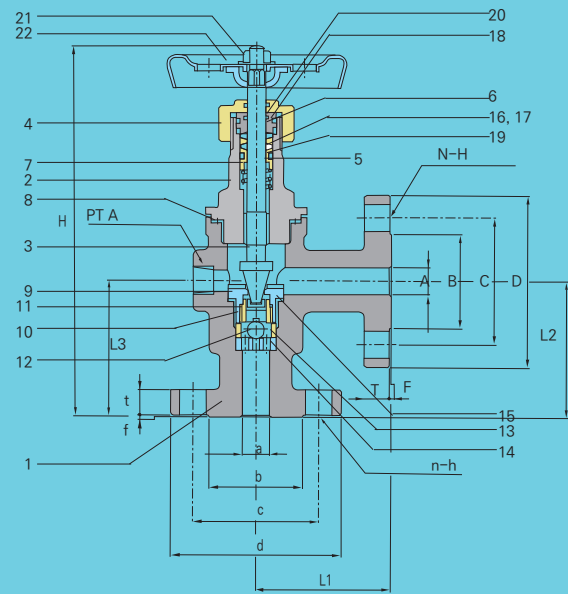
SIZE	H	L	B	d	g	C	D	t	f	n-Øh
40A	235	229	32	40	81	105	140	16	2	4-19

#### \*참고\_Remark

- 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
- 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

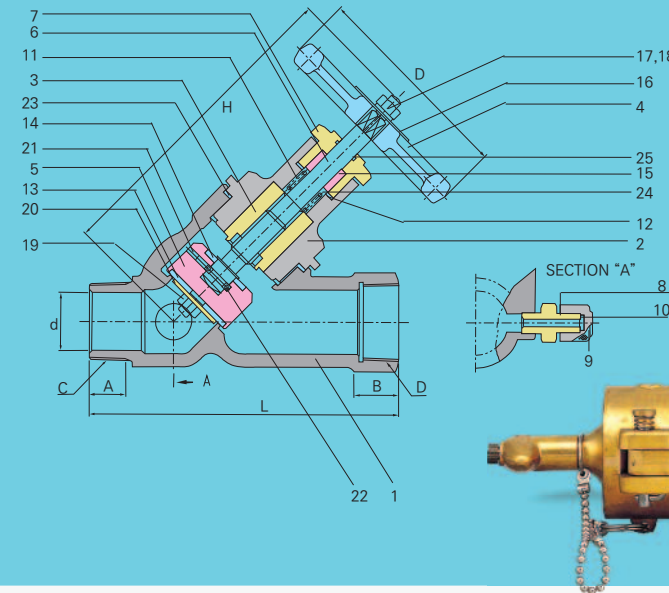
# ANGLE TYPE BALL CHECK VALVE

WBCV-1126 (LPG)  
WBCV-1226 (NH<sub>3</sub>)



# Y-TYPE GLOBE VALVE

WYV-1113



## MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	GCD-S	12	BALL	STS 304
2	BONNET	S20C	13	COLLAR	C3604B
3	SPINDLE	STS 304	14	BALL REST	C3604B
4	GLAND NUT	S20C	15	PACKING	P.T.F.E
5	PACKING GLAND	C3604B	16	V-PACKING	P.T.F.E
6	GLAND	C3604B	17	V-PACKING	P.T.F.E
7	SPRING	STS 304	18	O-RING	N.B.R
8	GASKET	NON-ASBESTOS	19	O-RING	N.B.R
9	VALVE DISK	C3604B	20	O-RING	N.B.R
10	VALVE SEAT	C3604B	21	NUT	S25C
11	PACKING	P.T.F.E	22	HANDLE	SPCC

## SPECIFICATION

- Application : to prevent the gas leakage in tank when klinger type level gauge was destroyed.
- Hydrostatic test pressure : 2.94MPa
- Pneumatic test pressure : 1.96MPa
- Maximum working pressure : 1.96MPa
- Fluid : LPG, NG, NH<sub>3</sub>

## DIMENSION

SIZE	H	L1	L2	L3	PT A	INLET FLANGE							OUTLET FLANGE						
						a	b	c	d	t	f	n-øh	A	B	C	D	T	F	n-øh
15A	205	75	75	75	PT1/2	15	52	70	95	14	1	4-14	15	52	70	95	14	1	4-14

### 참고 Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

## MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2	14	BACK SEAT	P.T.F.E
2	BONNET	S20C	15	V-PACKING	P.T.F.E
3	SCREW BUSH	C3604B	16	NAME PLATE	AL
4	HANDLE	GCD-S	17	HANDLE NUT	S25C
5	VALVE DISK	S25C	18	SPRING WASHER	SUP6
6	SPINDLE	STS304	19	NUT	STS304
7	GLAND CAP	S25C	20	WASHER	STS304
8	HOLDER	C3604B	21	SET SCREW	STS304
9	DRAIN CAP	C3604B	22	BALL	SUJ2
10	PACKING	N.B.R	23	GASKET	NON-ASBESTOS
11	SPRING	STS304	24	GASKET	NON-ASBESTOS
12	PACKING PLATE	C3604B	25	O-RING	N.B.R
13	VALVE SEAT	P.T.F.E			

## SPECIFICATION

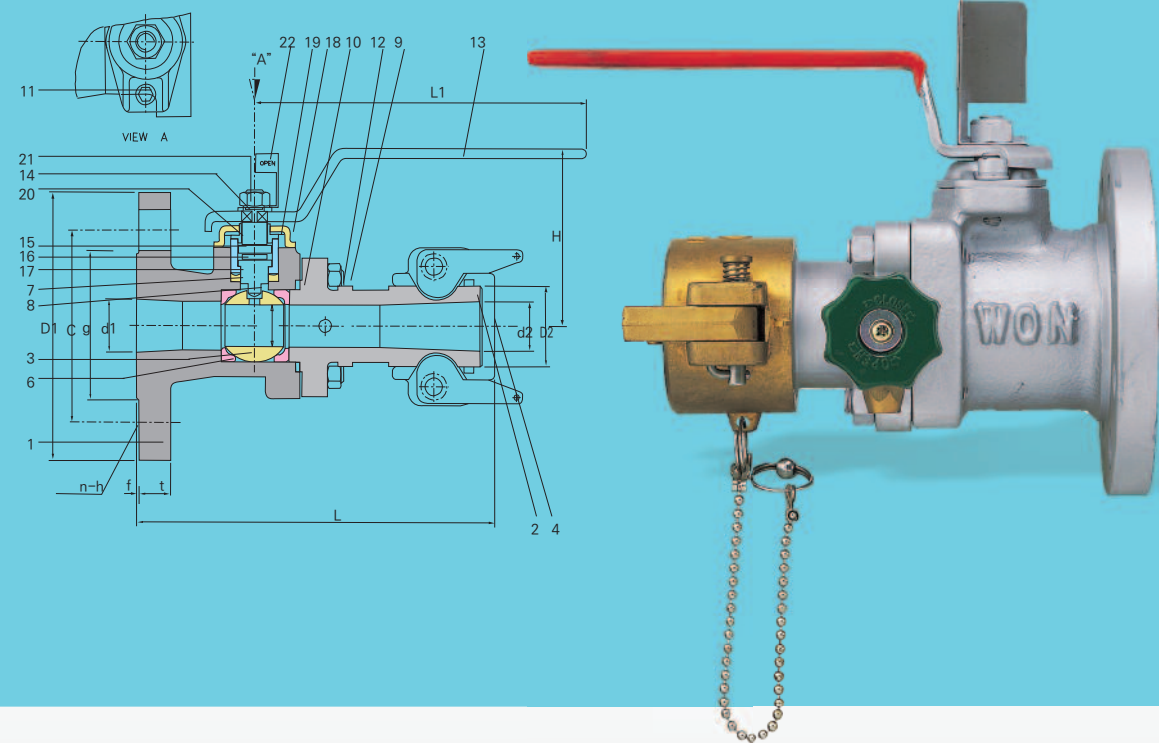
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 1.96 MPa
- Y-Valve & Coupling Assembly  
Test Pressure : 2.35 MPa
- Fluid : LPG, NG, NH<sub>3</sub>

## DIMENSION

SIZE	L	H	D	d	A	B	A	B
25A	160	186	125	22	23	27	PT 1"	PT 1"
50A	200	254	160	45	28	38	PT 2"	PT 2"

# TRANSFER BALL VALVE

WTBV - 1124



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2	13	LEVER	SS41
2	COUPLER	SCS 13A	14	SPRING WASHER	S20C
3	BALL DISK	STS 304	15	PACKING	P.T.F.E
4	COUPLER CAP	C3604	16	O-RING	N.B.R
5	DRAIN VALVE	C3604	17	O-RING	N.B.R
6	BALL SEAT	P.T.F.E	18	GLAND	STS 304
7	BALL SEAT	P.T.F.E	19	BONNET	SS41
8	SPINDLE	STS 304	20	SPRING	SUP9
9	STUD BOLT	S45C	21	GLAND BUSH	STS 304
10	GASKET	NON-ASBESTOS	22	U-NUT	S20C
11	WRENCH BOLT	S45C	23	NAME PLATE	STS 304
12	NUT	S45C			

### DIMENSION

SIZE	H	L	L1	d1	d2	g	C	D1	D2	t	f	n-øh
25A	98	168	160	25	22	68	90	125	38	15	1	4-19
50A	120	215	200	50	40	96	120	155	65	17	2	8-19

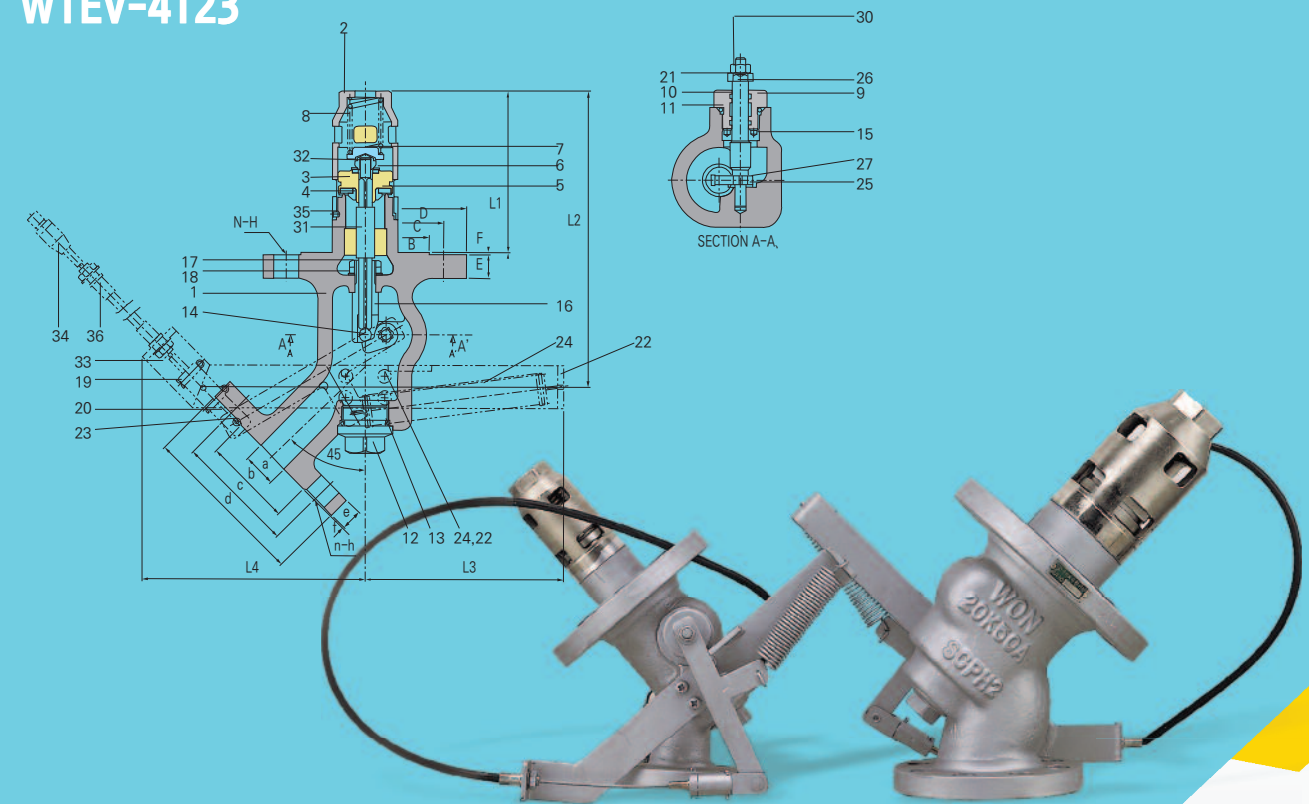
unit : mm

### SPECIFICATION

- Application : to be Installed on tank lorry
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 1.96 MPa
- Fluid : LPG, NH<sub>3</sub>

# TANK LORRY EMERGENCY SHUT-OFF VALVE

WTEV-4123



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2	19	SPLIT PIN	SWRM10
2	BONNET	SCS13A	20	JOINT	C3604B
3	VALVE DISK	STS 304	21	ARM	SS41
4	GLAND NUT	STS 304	22	SPRING	SWPA
5	VALVE SEAT	P.T.F.E	23	PIN	SS41
6	BACK SEAT	P.T.F.E	24	BRACKET	SS41
7	SPRING DISK	STS 304	25	RING	STS 304
8	SPRING	STS 304	26	SPINDLE	STS 304
9	GLAND BOLT	C3604B	27	CAM	STS 304
10	O-RING	N.B.R	28	BOLT	S20C
11	O-RING	N.B.R	29	SPRING WASHER	S20C
12	PLUG BOLT	SS41	30	U-NUT	S20C
13	O-RING	N.B.R	31	ROD	STS 304/96
14	BALL	SUJ	32	PILOT VALVE	STS 304/96
15	BUSH SCREW	C3604B	33	FUSE METAL	C3604B
16	ADJUST BOLT	SS41	34	FUSE METAL	STS 304
17	LOCK NUT	SS41	35	WRENCH BOLT	S45C
18	WASHER	STS 304	36	CABLE	

### DIMENSION

SIZE	L1	L2	L3	L4	A	a	INLET FLANGE						OUTLET FLANGE					
							B	C	D	E	F	N-øh	b	c	d	e	f	n-øh
25A	123	224	150	170	50	25	98	120	155	18	1.5	8-19	67	90	125	16	1	4-19
50A	168	258	180	160	80	50	132	160	200	20	2	8-23	96	120	155	18	2	8-19

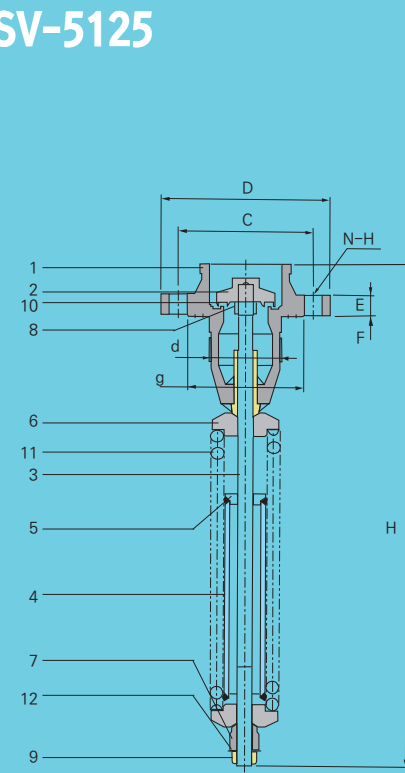
unit : mm

### SPECIFICATION

- Application : to close the valve against emergency
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 1.96 MPa
- Maximum working pressure : 2.35 MPa
- Working temperature : -5~+40°C
- Melting temperature of fuse metal : 75°C
- Fluid : LPG, NH<sub>3</sub>

# INTERNAL SAFETY VALVE

WTSV-5125



### MATERIAL

NO.	PART NAME	MATERIAL
1	BODY	SCPH2
2	VALVE DISK	STS 304
3	STEM	STS 304
4	STOPPER	SS 41
5	STOPPER COVER	SS 41
6	SPRING DISK	SS 41
7	ADJUST NUT	SS 41
8	LOCK NUT	STS 304
9	NUT	STS 304
10	VALVE SEAT	P. T.F.E
11	SPRING	HSW
12	WASHER	STS 304

### SPECIFICATION

- Application : Safety valve for tank lorry
- Orifice diameter :  $\varnothing 46$
- Connection flange : 65A JIS - 20K RF
- Fluid : LPG, other gases

### DIMENSION

SIZE	H	d	g	C	D	E	F	n- $\varnothing$ h
65A	470	74	120	140	175	21	2	8-19

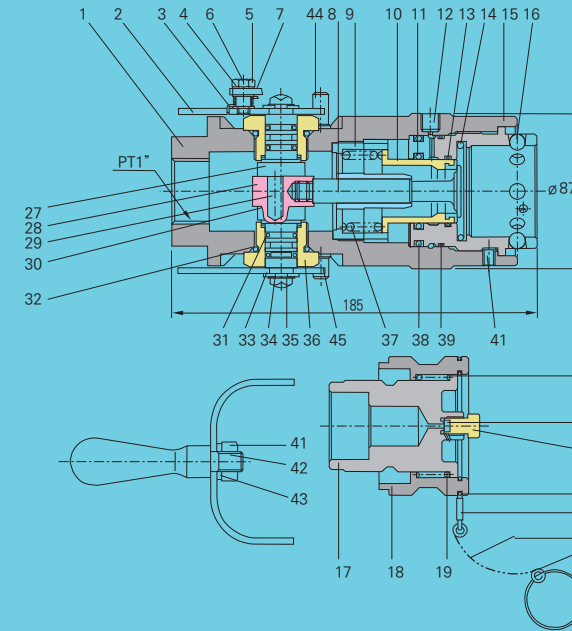
unit : mm

#### ※참고 Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

# BULK LORRY FEMALE COUPLE RING

WBFC-6112



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	A6061P	24	CLIP	STS 304
2	LEVER	SPCC	25	CHAIN ASS'Y	
3	SPRING LOCK ARM	STS 304	26	RING CHAIN	STS 304
4	FLAT WASHER	STS 304	27	CAM SHAFT	STS 304
5	NUT	STS 304	28	CAM	SCM4
6	HINGE	STS 304	29	PIN	SCM4
7	LOCK ARM	SPCC	30	BACK-UP RING	P.T.F.E
8	STEM	STS 304	31	O-RING	N.B.R
9	GUIDE STEM	C3604	32	O-RING	N.B.R
10	CHECK V/V, SEAT	C3604, N.B.R	33	FLAT WASHER	C3604
11	O-RING	N.B.R	34	WASHER	SPS
12	SET SCREW	MSWR	35	R.H.C SCREW	MSWR57
13	O-RING	N.B.R	36	BUSH HINGE	C3604
14	O-RING	N.B.R	37	SPRING SEAT	STS 304
15	FEMALE COUPLING	STS 304	38	O-RING	N.B.R
16	BALL	STS 304	39	O-RING	N.B.R
17	PLUG COUPLER	A6061P	40	SET SCREW	STS 304
18	CASE PLUG COPULER	A6061P	41	NUT	MSWR
19	SPRING PLUG COPULER	STS 304	42	HANDLE	C3604
20	RING CLIP	STS 304	43	SPRING WASHER	HSWR
21	STOP RING	STS 304	44	STOP PIN R.H	STS 304
22	PACKING PLUG	N.B.R	45	STOP PIN L.H	STS 304
23	PLUG	C3604			

### SPECIFICATION

- The filling connector to bulk lorry
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 1.96 MPa
- Fluid : LPG

# BULK LORRY MALE COUPLING

WBLC - 6111



**SPECIFICATION**

- Application : The filling connector between bulk lorry and storage tank
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 1.96 MPa
- Material : C3604B / STS 304
- Connection : pt 1"
- Fluid : LPG

# FEMALE COUPLING FOR CAR FILLING

WFC - 6114

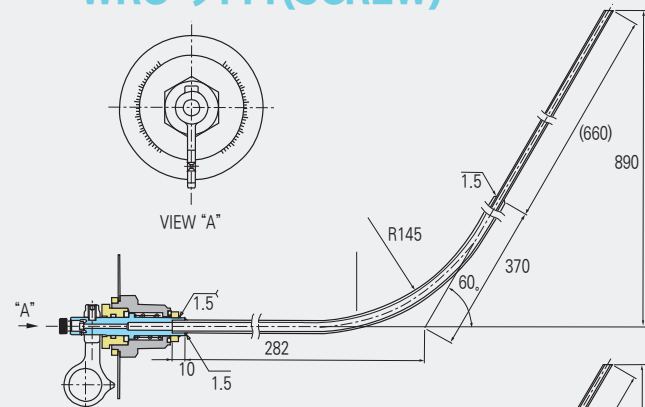


**SPECIFICATION**

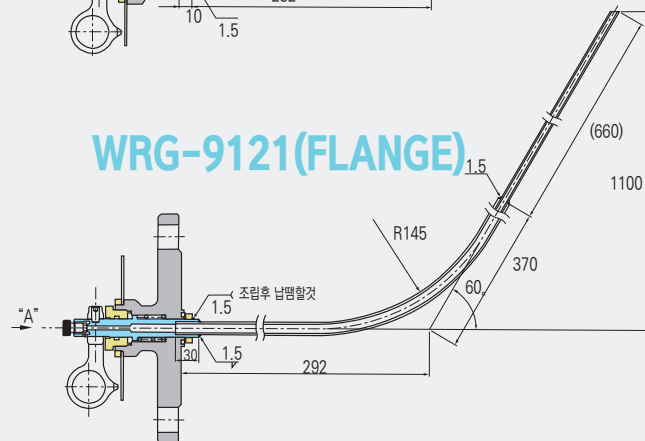
- The Automobile filling connector
- Hydrostatic test pressure : 2.94 MPa
- Pneumatic test pressure : 1.76 MPa
- Fluid : LPG(Butane)

# ROTARY LEVEL GAUGE

WRG-9111(SCREW)



WRG-9121(FLANGE)



※ CONNECTION : WRG-9111 → PT 1" / WRG-9121 → 65A JIS-20K



# SAFETY COUPLING FOR DISPENSER

WBSC - 6113

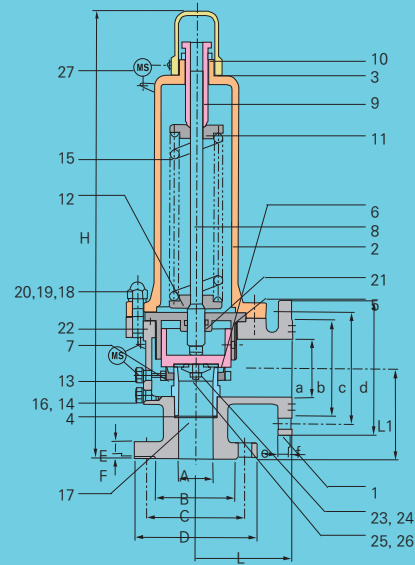


**SPECIFICATION**

- Application : To cut off the filling hose automatically against over-power
- Pneumatic test pressure : 2.45 MPa
- Tensional test pressure : 2.65 ~ 0.05 MPa
- Fluid : LPG(Butane)

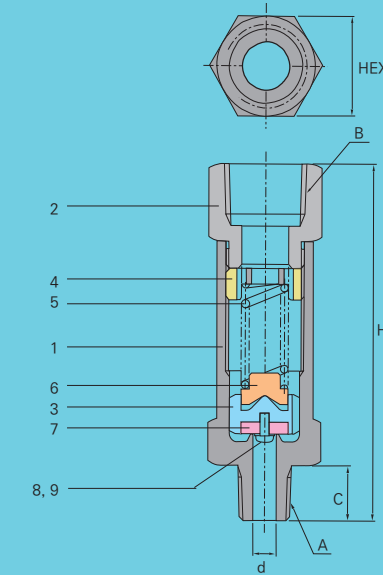
# STORAGE TANK SAFETY VALVE

WSLT-5124M(S) (LPG)  
WSLT-5224M(S) (NH<sub>3</sub>)



# LINE SAFETY VALVE

WSL-5111 (LPG)  
WSL-5211 (NH<sub>3</sub>)



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2	15	SPRING	SUP9A
2	BONNET	SCPH2	16	PACKING	C1100P
3	CAP	SCPH2	17	PACKING	C1100P
4	NOZZLE	STS 304	18	SPRING WASHER	S20C
5	GUIDE	STS 304	19	CAP NUT	S20C
6	VALVE DISK	STS 304	20	STUD BOLT	S25C
7	ADJUST RING	STS 304	21	O - RING	N.B.R
8	SPINDLE	STS 304	22	O - RING	N.B.R
9	ADJUST SCREW	C3604B	23	VALVE SEAT	P.T.F.E
10	SET NUT	S25C	24	WASHER	STS 304
11	UPPER SPRING DISK	S20C	25	NUT	STS 304
12	LOWER SPRING DISK	S20C	26	SPRING WASHER	STS 304
13	SET BOLT	S25C	27	SEAL	Pb
14	PLUG BOLT	S25C			

### DIMENSION

SIZE	H	L	L1	A	a	INLET FLANGE						OUTLET FLANGE					
						B	C	D	E	F	N-∅h	b	c	d	e	f	n-∅h
25A	380	110	100	25	40	70	90	125	20	1	4-19	85	105	140	22	2	4-19
40A	500	150	120	40	65	85	105	140	22	2	8-19	120	140	175	24	2	8-19
50A	580	150	140	50	80	100	120	155	22	2	8-23	135	160	200	26	2	8-23
80A	734	184	154	80	100	135	160	200	26	2	8-23	160	185	225	28	2	8-23
100A	935	220	180	100	130	160	185	225	28	2	8-23	195	225	270	30	2	8-23

※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

### MATERIAL

NO.	PART NAME	LPG	NH <sub>3</sub>
1	BODY	C3604B	STS 304
2	SOCKET	C3604B	STS 304
3	VALVE DISK	C3604B	STS 304
4	ADJUST SCREW	C3604B	STS 304
5	SPRING	HSW	HSW
6	SPRING DISK	C3604B	STS 304
7	VALVE SEAT	N.B.R	PTFE
8	WASHER	STS 304	STS 304
9	SCREW	STS 304	STS 304

### DIMENSION

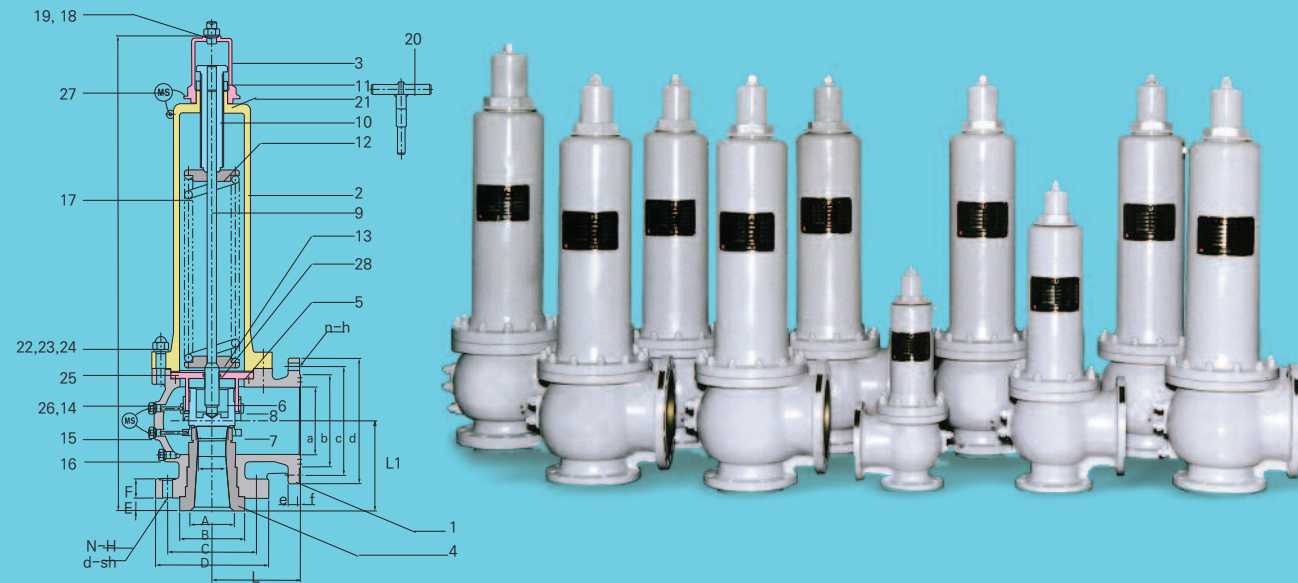
SIZE	H	D	d	C	A	B	LIFT
8A	90	25	6	14	PT1/4	PT1/4	0.86
15A	107	32	10	18	PT1/2	PT1/2	1.43
20A	129	41	14	22	PT3/4	PT3/4	2
25A	147	45	19	25	PT1	PT1	2.72
40A	167	64	24	30	PT1 1/2	PT1 1/2	3.43

※참고\_Remark

1. 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
2. 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

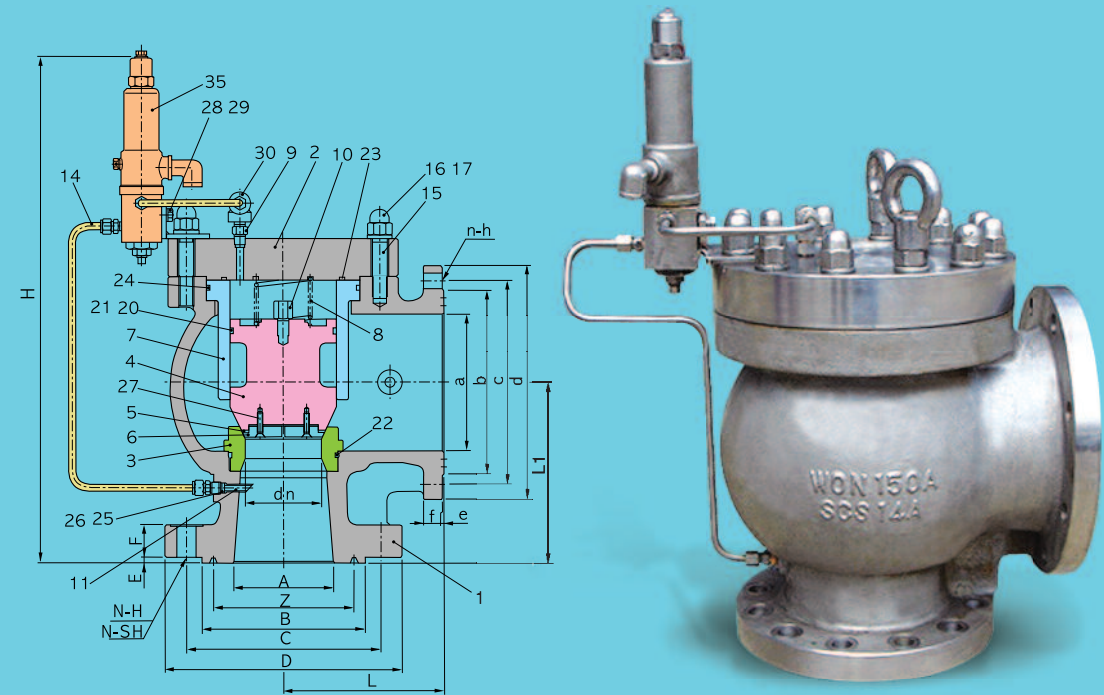
# SPECIAL SAFETY VALVE

## WSNG-5120



# PILOT OPERATED SAFETY VALVE

## WPSV-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCPH2/A216-WCC	15	LOWER SET BOLT	STS 304
2	BONNET	SCPH2/A216-WCC	16	DRAIN BOLT	STS 304
3	CAP	SCPH2/A216-WCC	17	SPRING	SUP 9A
4	NOZZLE	STS 304	18	PLUG BOLT	STS 304
5	GUIDE	SSC 13A	19	PACKING	C1100P
6	VALVE DISK	STS 304	20	TEST GAG	STS 304
7	LOWER ADJUST RING	SSC 13A	21	PACKING	ASBESTOS
8	UPPER ADJUST RING	SSC 13A	22	STUD BOLT	S25C
9	SPINDLE	STS 304	23	SPRING WASHER	SUP 6
10	ADJUST SCREW	C3604B	24	CAP NUT	S45C
11	SET NUT	STS 304	25	GASKET	NON-ASBESTOS
12	UPPER SPRING DISK	SS 41	26	PACKING	C1100P
13	LOWER SPRING DISK	SS 41	27	SEAL	Pb
14	UPPER SET BOLT	STS 304	28	O - RING	N.B.R

### DIMENSION

SIZE	H	D	d1	L	L1	INLET FLANGE						OUTLET FLANGE					
						D	C	g	t	f	n-øh	D1	C1	g1	t1	f1	n1-h1
50A	605	38	32	150	140	165	127	84.1	22.5	14	8-20	191	152	108	24	1	4-20
80A	755	43	37	184	170	210	168.3	117.5	29	15	8-23	229	190	135	24	2	4-20
100A	1065	73	63	210	188	254	200	146	32	17	8-23	279.4	242	192	25.5	2	8-23
150A	1260	86	80	256	260	316	270	206.4	37	20	12-23	343	298	246	29	2	8-23
200A	1600	163	141	300	280	381	330	260	42	30	12-26	406	362	305	31	2	12-26

#### 참고\_Remark

- 암모니아용일 경우 일부 재질을 변경함. \_ 1. Material is to be changed in case of NH<sub>3</sub>
- 다른 가스 용도로 사용할 경우 당사로 연락바람. \_ 2. Please contact us when applying for other gases

### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SSC 14A	19	EYE NUT	STS 316
2	COVER FLANGE	STS 316	20	BACK-UP RING	PTFE
3	NOZZLE	STS 316	21	O-RING	NBR
4	VALVE DISK	STS 316	22	O-RING	NBR
5	VALVE SEAT	PTFE	23	O-RING	NBR
6	SEAT RETAINER	STS 316	24	O-RING	NBR
7	GUIDE	SSC 14A	25	SCREEN	STS 316
8	SPRING	STS 316	26	SNAP RING	STS 316
9	CONNECTOR	STS 316	27	FLUCH BOLT	STS 316
10	STOPPER	STS 316	28	BOLT	STS 316
11	SENSE TUBE	STS 316	29	SPRING WASHER	STS 316
12	SUPPORT	STS 304	30	TEE	STS 316
13	TUBE A.	STS 316	31	TUBE CONNECTOR	STS 316
14	TUBE B.	STS 316	32	TUBE CONNECTOR	STS 316
15	STUD BOLT	STS 316	33	PLUG	STS 316
16	SPRING WASHER	STS 316	34	NAME PLATE	STS 304
17	CAP NUT	STS 316	35	PILOT VALVE ASS'Y	STS 316
18	NUT	STS 316			

#### 1. 6" x #600 - 8 x #150

SIZE	H	L	L1	dn	INLET FLANGE								OUTLET FLANGE							
					A	Z	B	C	D	E	F	N-øH	N-øSH	a	b	c	d	e	f	n-øh
WPSV-150A	745	241	265	114.7	150	211.1	245	292.1	355.6	8	48	12-29	12-48	200	269	298.5	343	2	29	8-23

#### 1. 6" x #300 - 8 x #150

SIZE	H	L	L1	dn	INLET FLANGE								OUTLET FLANGE							
					A	B	C	D	E	F	N-øH	N-øSH	a	b	c	d	e	f	n-øh	
WPSV-150B	727	241	238	114.7	150	240	269.8	317.5	2	37	12-23	12-36	200	269	298.5	343	2	2	8-23	

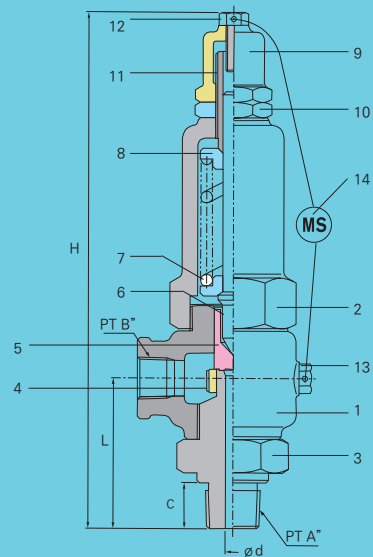
#### 1. 6" x #150 - 8 x #150

SIZE	H	L	L1	dn	INLET FLANGE								OUTLET FLANGE							
					A	B	C	D	E	F	N-øH	N-øSH	a	b	c	d	e	f	n-øh	
WPSV-150C	717	241	238	114.7	150	198	228.6	279.5	2	27	8-23	8-36	200	269	298.5	343	2	2	8-23	

- SPRING TYPE(CONVENTIONAL) 안전밸브 보다 제품의 크기가 작고 유지보수가 용이함.(빠른조치 가능)
- 설정 압력의 편차가 적고 정밀도가 우수함.
- 사용 범위가 넓음.
- VALVE SEAT 재질을 PTFE를 적용하여 기밀 유지 능력이 우수함.
- SIZE별 별도 주문제작 가능함.

# HIGH PRESSURE SAFETY VALVE

WHS-5316



**MATERIAL**

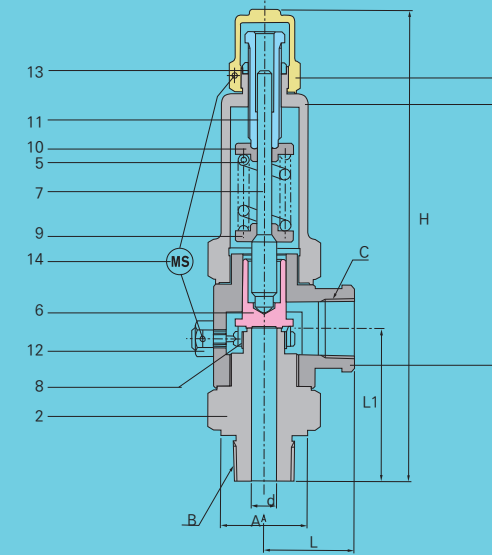
NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SCS 13A	9	CAP	STS 304
2	BONNET	SCS 13A	10	LOCK NUT	STS 304
3	NOZZLE	STS 304	11	ADJUST SCREW	C3604B
4	ADJUST RING	STS 304	12	PLUG BOLT	STS 304
5	VALVE DISK	STS 304	13	SET BOLT	STS 304
6	SPINDLE	S45C	14	SEAL	Pb
7	SPRING	STS 304	15	NAME PLATE	STS 304
8	SPRING DISK	C3604B			

**DIMENSION**

SIZE	H	L	C	d	A	B	unit : mm
15A	203	59	18	6	PT 1/2"	PT 3/4"	
20A	203	59	18	10	PT 3/4"	PT 3/4"	
25A	302	84	25	20	PT 1"	PT 1"	

# HIGH PRESSURE SAFETY VALVE

WLS-5317



**MATERIAL**

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	STS 304	8	ADJUST RING	STS 304
2	NOZZLE	STS 304	9	LOWER SPRING DISK	STS 304
3	BONNET	STS 304	10	UPPER SPRING DISK	STS 304
4	CAP	STS 304	11	ADJUST SCREW	STS 304
5	SPRING	STS 304	12	SET BOLT	STS 304
6	VALVE DISK	STS 304	13	SET NUT	STS 304
7	SPINDLE	STS 304	14	SEAL	Pb

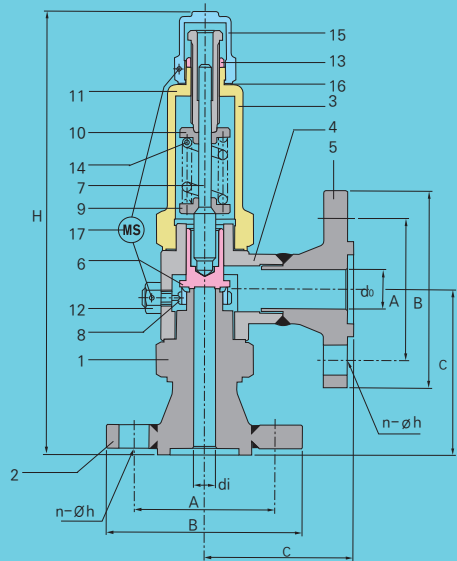
**DIMENSION**

SIZE	H	L	L1	d	A	B	C	unit : mm
10A	205	35	62	8	30	PT 3/8"	PT 3/8"	
15A	214	39	67	10	35	PT 1/2"	PT 1/2"	
20A	237	42	78	12	36	PT 3/4"	PT 3/4"	
25A	270	50	84	16	42	PT 1"	PT 1"	
40A	324	70	100	19	45	PT 1 1/2"	PT 1 1/2"	
50A	470	86	125	24	48	PT 2"	PT 2"	



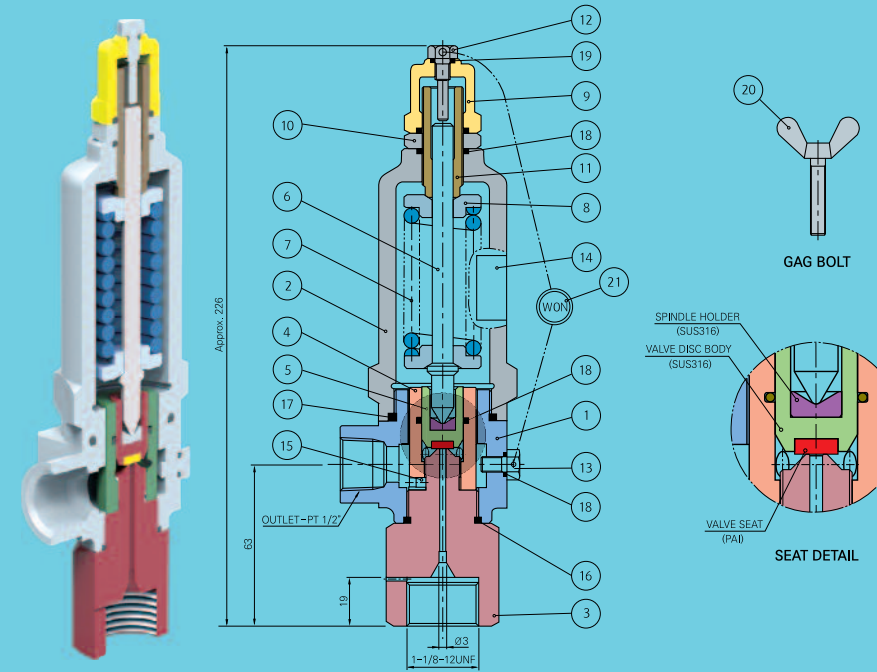
# SAFETY VALVE FOR SPECIAL GAS

WSSG-5329



# HIGH PRESSURE SAFETY VALVE (H<sub>2</sub>)

WHLS



VALVE & EQUIPMENT DIVISION  
VALVE & INSTRUMENTS

■ MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	NOZZLE	STS 304	10	UPPER SPRING DISK	STS 304
2	INLET FLANGE	STS 304	11	ADJUST SCREW	STS 304
3	BONNET	STS 304	12	SET BOLT	STS 304
4	BODY	STS 304	13	SET NUT	STS 304
5	OUTLET FLANGE	STS 304	14	SPRING	STS 304
6	VALVE DISK	STS 304	15	CAP	STS 304
7	SPINDLE	STS 304	16	GASKET	P.T.F.E
8	ADJUST RING	STS 304	17	SEAL	PB
9	LOWER SPRING DISK	STS 304			

■ DIMENSION

SIZE	H	A	B	C	d <sub>1</sub>	d <sub>0</sub>	n - øh
15A	220	70	95	80	10	15	4 - 15
20A	250	75	100	90	12	20	4 - 15
25A	280	90	125	95	16	25	4 - 19
40A	340	105	140	120	19	40	4 - 19
50A	380	120	155	125	26	50	8 - 19

unit : mm

■ MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	STS316	12	LIFT SET BOLT	STS304
2	BONNET	STS316	13	SET BOLT	STS304
3	NOZZLE	STS316	14	NAME PLATE	A1050P
4	GUIDE	STS316	15	무두 BOLT	STS304
5	VALVE DISK ASS'Y	-	16	O-RING	VITON
6	SPINDLE	STS304	17	O-RING	VITON
7	SPRING	STS304	18	O-RING	VITON
8	SPRING DISK	STS304	19	O-RING	VITON
9	CAP	STS316	20	GAG BOLT	STS304
10	LOCK NUT	STS316	21	SEAL	PB
11	ADJUST SCREW	STS304			

■ DIMENSION

Inlet Diameter	Inlet Thread Type	Size of Inlet Thread	Metal(M) Soft(S)	Over-or Less MPa	Type and Size of Outlet Thread
10 MM	PT, NPT	3/4	M, S	5.4 - 18.2	3/4 PT, NPT
10 MM	PT, NPT	1/2	M, S	0.04 - 5.4	1/2 PT, NPT
8 MM	PT, NPT	3/4	M, S	6.9 - 29.4	3/4 PT, NPT
8 MM	PT, NPT	1/2	M, S	0.04 - 6.9	3/8 PT, NPT
6 MM	PT, NPT	1/2	M, S	4.9 - 37.3	1/2 PT, NPT
6 MM	PT, NPT	1/2	M, S	4.9 - 12.8	3/8 PT, NPT
5 MM	PT, NPT	1/2	M, S	4.9 - 16.2	3/8 PT, NPT
4 MM	PT, NPT	1/2	M, S	9.8 - 27.0	3/8 PT, NPT
3 MM	UNF	9/16~1*1/8	M, S	29.4 - 122.6	1/2 PT, NPT

■ SPECIFICATION

평가 항목	단위	현재 기술 수준	제품 성능	평가방법
1. 내압 성능	BAR	국내 500 / 국외 1500	1500	KGS AA319 공인시험성적서
2. POPPING 성능	BAR	국내 400 / 국외 1100	1100	
3. BLOW DOWN	%	국내 < 10	< 7	
4. 설정압 오차	%	국외 < ±3	< ±3	공인시험성적서
5. 수명 시험	CYCLE	-	40	
6. 분출 계수	%	국외 > 0.8	> 0.8	공인시험성적서
7. 기밀 성능	CM <sup>3</sup> /MIN	국내 < 11.8	< 3	KS B 6216 공인시험성적서

- Design Pressure : 98Mpa
- Design Temperature : -40 ~ 50°C

TRIM : Soft / Metal Seat Type

LIFT 조절

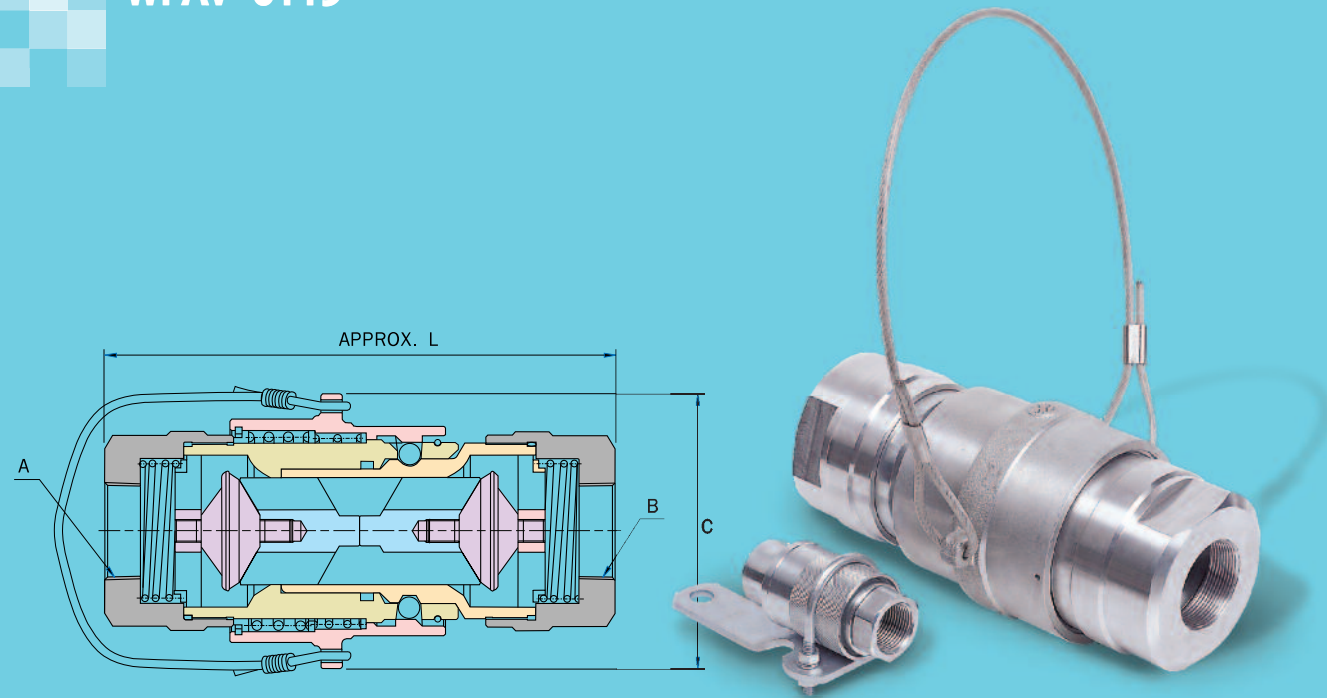
안전밸브 작동시 Lift Set Bolt(Gag bolt)가 Spindle의 과도한 상승을 제한

SPINDLE 및 DISC 응력집중방지

- Popping시 집중되는 응력에 의해 Spindle이 변형되는 경우를 방지하기 위한 Stellite용접
- Valve Disc Body와 Spindle Holder 분리

# PULL AWAY VALVE

WPAV-6115



## ■ 용도 및 구조

PULL AWAY VALVE는 액화석유가스를 탱크로리에 적재 또는 저장탱크의 하역작업시 로리호스의 파손으로 인하여 발생할 수 있는 불의의 가스 사고로부터 보호할 수 있도록 특별히 디자인 되었다. PULL AWAY VALVE는 로리호스에 설치되며 과도한 힘으로 호스를 잡아 당기면 분리되고, 내부에 있는 두개의 배압 체크가 자동으로 닫히면서 가스가 외부로 누출되는 것을 방지한다. 다만 소량의 가스만 분리 누설된다. 밸브를 재조합할 경우는 각 커플링 내부의 압력을 빼주는 것이 안전하다. 재조합 하기 위해서는 숏카플링을 암카플링 안으로 불이 흡에 완전히 들어갈 때까지 밀어 넣는다. 재조합 후 가스가 새는지 체크한다.

Pull away valve was specially designed to protect an unex-pected GAS accident which will be happened by broken lorry hose when loading at tank lorry with Liquid Propane Gas or unloading it. Pull away valve is installed on lorry hose. It can be separated by excessive power, and then the internal both check valves of Pull away valve can be closed automatically and prevent leakage LP Gas. However may flow out a few of LP Gas when it was separated. When you are going to set again Pull away valve after operated it, should pull out the inside pressure for safety. To reset Pull away valve after separated, have to push the male coupling into the female valve closely till reach to the groove of it. Have to check whether it can be leak LP Gas or not after reset.

## ■ SPECIFICATION

- HYDROSTATIC TEST PRESSURE : 2.94 MPa
- PNEUMATIC TEST PRESSURE : 2.16 MPa
- MATERIAL : A2024 / STS304 / S45C

## ■ DIMENSION

SIZE	DIMENSION				LPG LIQUID FLOW CAPACITY AT VARIOUS DIFFERENTIAL PRESSURE (M <sub>3</sub> /HR)				DISCONNECT FORCE
	A	B	C	L	0.35 kg/cm <sup>2</sup>	0.7 kg/cm <sup>2</sup>	1.76 kg/cm <sup>2</sup>	3.52 kg/cm <sup>2</sup>	
25A	PT 1"	PT 2"	84	166	4.77	6.81	10.67	15.22	31 kgf
50A	PT 2"	PT 2"	172	312	56.78	79.49	124.91	170.33	45 kgf

unit : mm

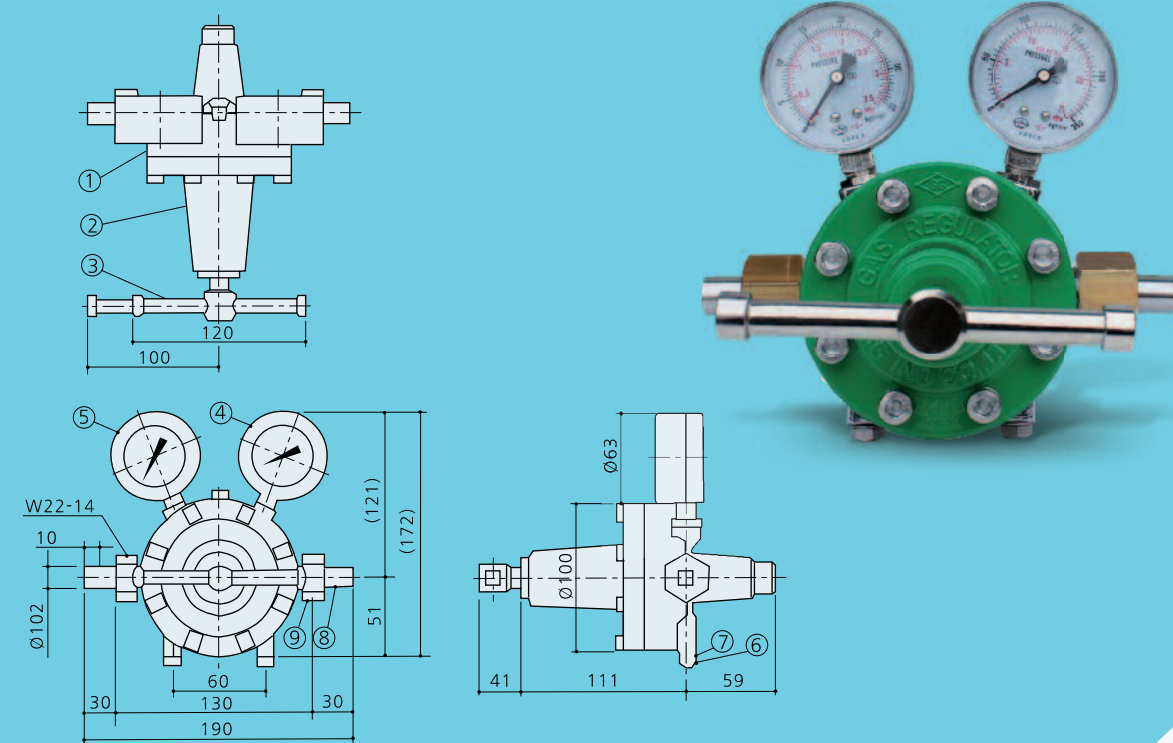
## ■ 주의 \_ NOTE

- PULL AWAY VALVE는 적어도 한달에 한번 정도 분리가 잘 되는지 테스트 해 보는것이 좋으며, 테스트는 건조한 질소나 다른 비활성 가스를 이용하면 좋다.
- You'd better test whether pull away valve is normally operated by using dry nitrogen or non-active gas for this test at least once a month.

※ 제품의 품질 향상을 위하여 사양이 예고 없이 변경될 수 있습니다. ※ The specification and design are subject to change without notice

# REGULATOR FOR MANIFOLDER

MS-140 / MS-140L / MS-140H



## ■ MATERIAL

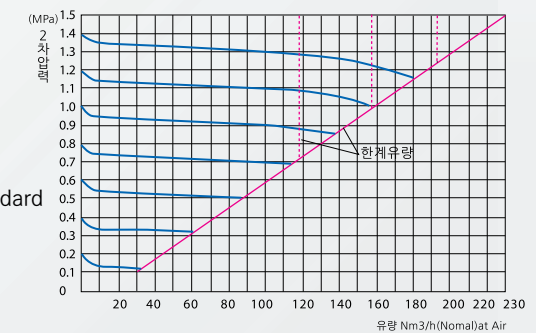
NO.	PART NAME
1	BODY
2	COVER
3	HANDLE
4	HP GAUGE
5	LP GAUGE
6	MOUNT BOLT
7	MOUNT WASHER
8	NUT
9	TAIL PIECE

## ■ SPECIFICATION

- Strong Point of SG Regulator
- High Quality
- Reasonable Price
- Perfect Service
- Design complied International Standard
- Wide Range of item related

## Application

Supplying of Small and Medium Sized Gas like Hospital, Shipyard, Steel Mill (O<sub>2</sub>, N<sub>2</sub>, Ar, H<sub>2</sub>, He, Co<sub>2</sub>)



## ■ DIMENSION

SIZE	DIMENSION		INLET	OUTLET	FLOW RATE (NM <sub>3</sub> /HR)	FLUID	WEIGHT
	HIGH	LOW					
MS-140	0-25	0-2.5	16.5	1.5	155	Air	3.5
MS-140H	0-35	0-2.5	22	1.5	280	H <sub>2</sub>	3.5
MS-140L	0-5	0-1.5	3.0	1.0	150	Air	3.5

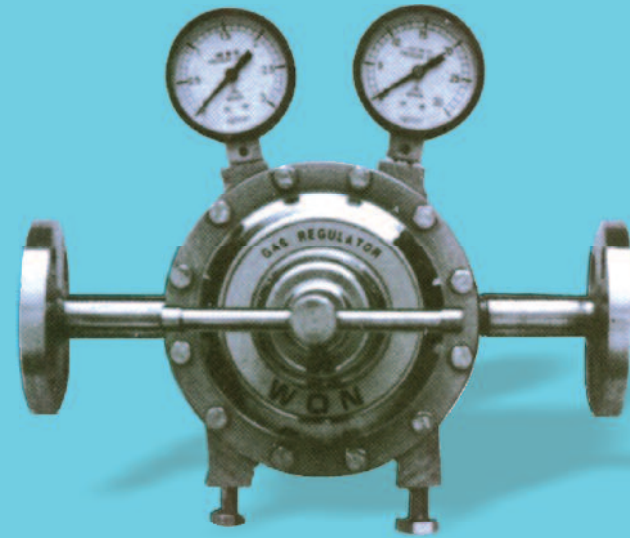
unit : mm

## ■ REGULATOR FOR MANIFOLDER AND PIPING

- Supplying Mass Flow Gas(O<sub>2</sub>, Nitrogen, Argon, H<sub>2</sub>, Helium, CO<sub>2</sub>) stable as Pressure Regulator for Manifold high pressured filled
- Perfect Degreasing by Ultrasonic Oxygen Cleaning complied international standard to use Mass Gas freely
- Pressure Gauge can be handled to confirm Set Pressure complied International Standard.
- If Low Pressure Set is needed, please contact us.

# NH<sub>3</sub> REGULATOR

WRN-30



### ■ DIMENSION

SERVICE FLUID		NH <sub>3</sub>
REQUIRED CAPACITY		30 NM <sup>3</sup> /HR
INLET PRESSURE		0.29MPA~2.18MPA
OUTLET PRESSURE		0.03MPA~0.15MPA
CONNECTOR	IN OUT	15A 20K FLANGED
MATERIAL		ALL STS 304
DIAPHRAGM		CR / P.T.F.E
PRESSURE GAUGE	IN	0 ~3.5MPA
	OUT	0 ~0.3MPA
FACE TO FACE		280 MM
WEIGHT		7.0 KG

# FLAME ARRESTOR

MSFA-1000

### 기능

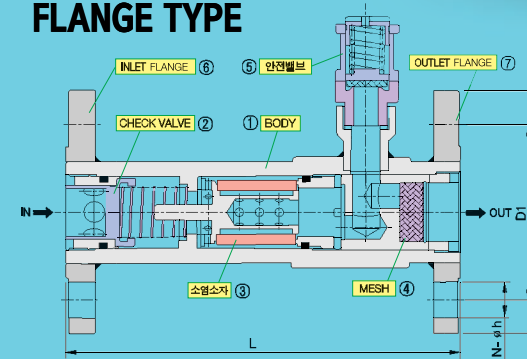
용접용 가스배관에 설치되어 용접 작업시 역화가 발생하는 경우 폭발 압력에 의해 발생하는 소음을 방지하고 불꽃을 방출하지 않도록 하여 안전사고를 방지함.

### 사용처

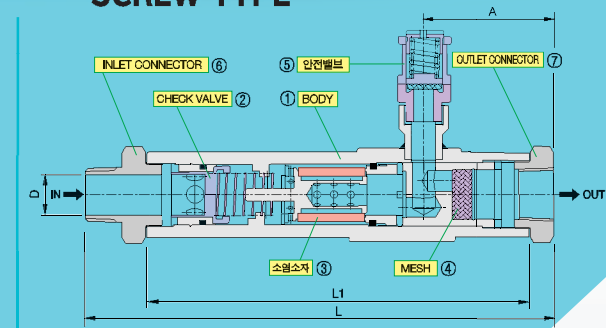
- 2009년 3월 23일 부터 법규 변경으로 역화방지기 부착이 의무화 됨. (지식경제부 고시 제2009-52호)  
1kg/cm<sup>2</sup>미만 : KSG승인 / 1kg/cm<sup>2</sup>이상 : 산단 인증
- 대형 조선소, 중소형 조선업체, 철판 용접 또는 용단작업 업체



### FLANGE TYPE



### SCREW TYPE



### ■ FLANGE TYPE

NO.	PART NAME	MAT'L	REMARK
1	BODY	S20C	
2	CHECK VALVE	C3604	
3	소염소자	STS304	
4	MESH	STS304	
5	안전밸브	C3604	
6	INLET FLANGE	SF440A	25A JIS 10K
7	OUTLET FLANGE	SF440A	25A JIS 10K

### ■ DESIGN DATA

FLUID	C <sub>2</sub> H <sub>2</sub> , LPG, C <sub>2</sub> H <sub>4</sub> , LNG, H <sub>2</sub>
DESIGN PRESSURE	0.1 Mpa
MAX. FLOW RATE	7,000 Liter/Hr
WORKING PRESSURE	0.1 Mpa 이하
SAFETY WORKING PRESSURE	0.3 Mpa

### ■ TESTING

HYDRO TEST PRESSURE	4.9 Mpa
PNEUMATIC TEST PRESSURE	0.11 Mpa
CHECK V/V TEST PRESSURE	9.8 Mpa

### ■ DIMENSION

SIZE	D	D1	L	N	h
25A	125	90	200	4	19

### ■ FLANGE TYPE

NO.	PART NAME	MAT'L	REMARK
1	BODY	S20C	
2	CHECK VALVE	C3604	
3	소염소자	STS304	
4	MESH	STS304	
5	안전밸브	C3604	
6	INLET FLANGE	SF440A	PT 1"(FEMALE)
7	OUTLET FLANGE	SF440A	PT 1"(MALE)

### ■ DESIGN DATA

FLUID	C <sub>2</sub> H <sub>2</sub> , LPG, C <sub>2</sub> H <sub>4</sub> , LNG, H <sub>2</sub>
DESIGN PRESSURE	0.1 Mpa
MAX. FLOW RATE	7,000 Liter/Hr
WORKING PRESSURE	0.1 Mpa 이하
SAFETY WORKING PRESSURE	0.3 Mpa

### ■ TESTING

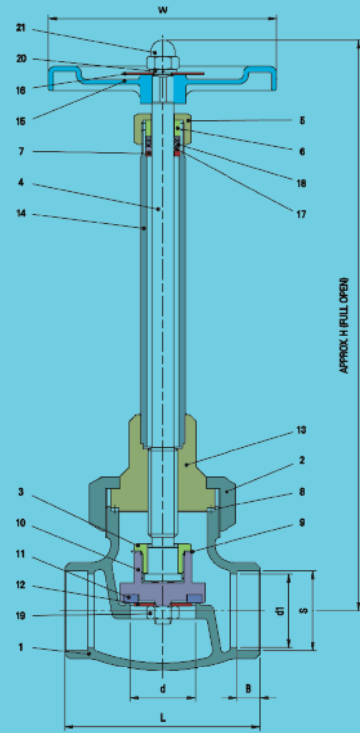
HYDRO TEST PRESSURE	4.9 Mpa
PNEUMATIC TEST PRESSURE	0.11 Mpa
CHECK V/V TEST PRESSURE	9.8 Mpa

### ■ DIMENSION

SIZE	D	L1	L	A
25A	Ø25	230	284	79.5

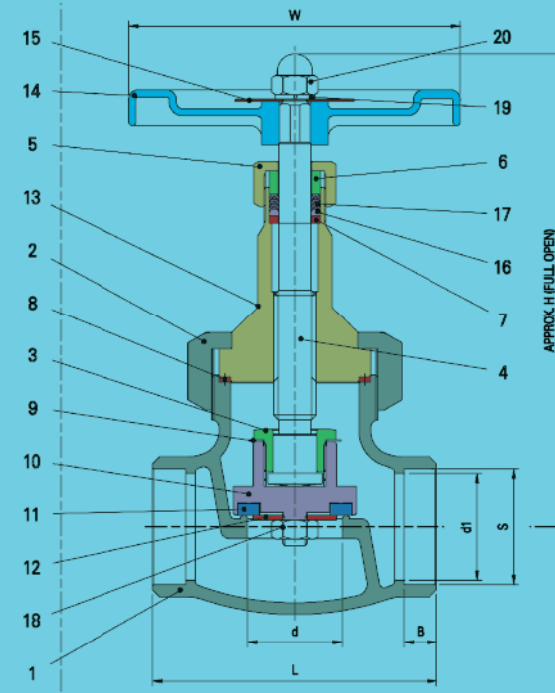
# CRYOGENIC GLOBE VALVE (LONG STEM)

MCGL-1000



# CRYOGENIC GLOBE VALVE (SHORT STEM)

MCGS-1000



**MATERIAL**

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	BC7	12	WASHER	STS304
2	UNION NUT	BC7	13	BONNET	C3604
3	STEM RING	C3604	14	STEM	STS304
4	SPINDLE	STS304	15	HANDLE	ALDC2
5	GLAND NUT	C3604	16	NAME PLATE	A1050P
6	GLAND	C3604	17	PACKING	PTFE
7	PACKING GLAND	C3604	18	V-PACKING	PTFE
8	GASKET	V#7020	19	LOCK NUT	STS304
9	STOPPER	C1100P	20	SPRING WASHER	STS304
10	VALVE DISK	C3604	21	CAP NUT	STS304
11	VALVE SEAT	PCTFE			

**SPECIFICATION**

- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.0 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar
- Design temperature : -196°C ~ +75°C

**DIMENSION**

SIZE	d	d1	L	S	B	W	H
8A	15	10	62	14.3	6	65	219
10A	15	13	60	17.4	7	65	219
15A	15	20	65	21.8	8	80	241
20A	20	25	80	27.3	9	80	245.8
25A	23	31	90	34.1	10	100	274
40A	40	45	120	48.7	14	140	340
50A	52	53	142	60.5	11	140	367

unit : mm

**MATERIAL**

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	BC7	11	VALVE SEAT	PCTFE
2	UNION NUT	BC7	12	WASHER	STS304
3	STEM RING	C3604	13	BONNET	C3604
4	SPINDLE	STS304	14	HANDLE	ALDC2
5	GLAND NUT	C3604	15	NAME PLATE	A1050P
6	GLAND	C3604	16	PACKING	PTFE
7	PACKING GLAND	C3604	17	V-PACKING	PTFE
8	GASKET	V#7020	18	LOCK NUT	STS304
9	STOPPER	C1100P	19	SPRING WASHER	STS304
10	VALVE DISK	C3604	20	CAP NUT	STS304

**SPECIFICATION**

- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.0 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar
- Design temperature : -196°C ~ +75°C

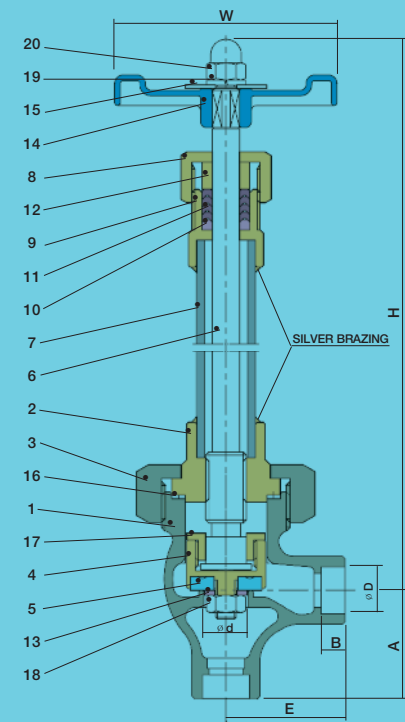
**DIMENSION**

SIZE	d	d1	L	S	B	W	H
8A							
10A	15	13	60	17.4	7	65	125
15A	15	20	65	21.8	8	80	145
20A	20	25	80	27.3	9	80	151
25A	23	31	90	34.1	10	100	174
40A	40	45	120	48.7	14	140	212
50A	52	53	142	60.5	11	140	221

unit : mm

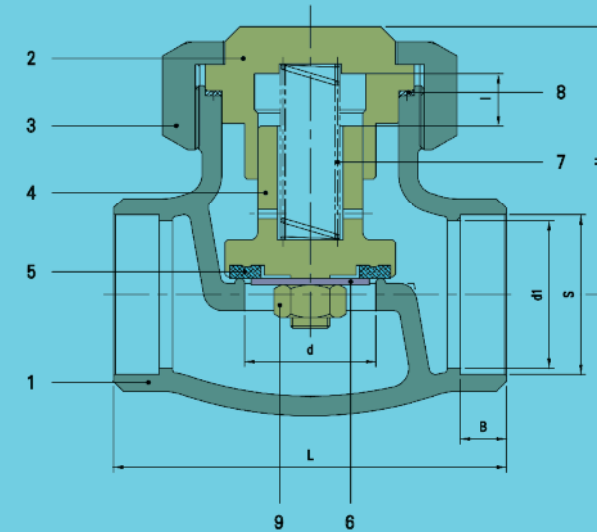
# CRYOGENIC GLOBE VALVE (LONG STEM-ANGLE TYPE)

MCGL-1001



# CRYOGENIC CHECK VALVE

MCCV-1000



**MATERIAL**

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	BC7	11	V-PACKING	PTFE
2	BONNET	C3604	12	GLAND	C3604
3	UNION NUT	BC7	13	WASHER	STS304
4	VALVE DISK	C3604	14	HANDLE	ALDC2
5	VALVE SEAT	PCTFE	15	NAME PLATE	A1050P
6	SPINDLE	STS304	16	GASKET	V#7020
7	STEM	STS304	17	STEM RING	C3604
8	GLAND NUT	C3604	18	LOCK NUT	STS304
9	SOCKET	C3604	19	SPRING WASHER	STS304
10	PACKING	PTFE	20	CAP NUT	STS304

**SPECIFICATION**

- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.0 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar
- Design temperature : -196°C ~ +75°C

**DIMENSION**

SIZE	A	B	d	D	E	H	W
8A	30	7	13	13.9	30	178	65

unit : mm

**MATERIAL**

NO.	PART NAME	MATERIAL
1	BODY	BC7
2	BONNET	C3604
3	UNION NUT	BC7
4	STEM	C3604
5	VALVE SEAT	PCTFE
6	WASHER	STS304
7	SPRING	STS304
8	GASKET	V#7020
9	LOCK NUT	STS304

**SPECIFICATION**

- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.0 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar
- Design temperature : -196°C ~ +75°C

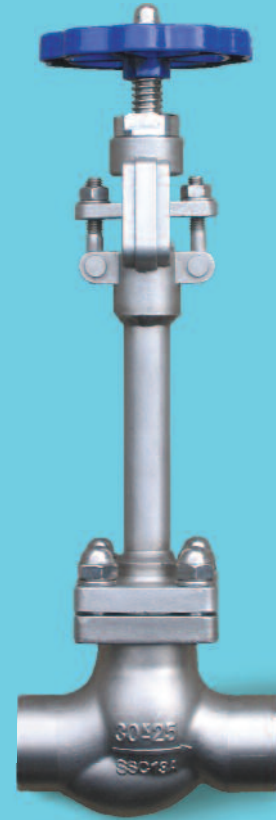
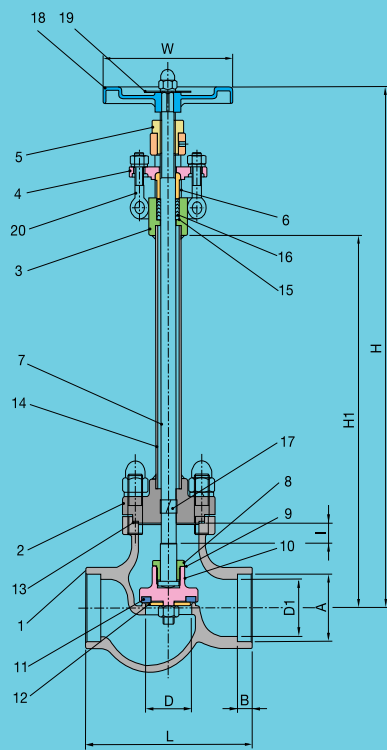
**DIMENSION**

SIZE	d	d1	L	S	B	H
10A	15	13	60	17.4	7	125
15A	15	20	65	21.8	8	145
20A	20	25	80	27.3	9	151
25A	23	31	90	34.1	10	174
40A	40	45	120	48.7	14	212
50A	52	53	142	60.5	11	221

unit : mm

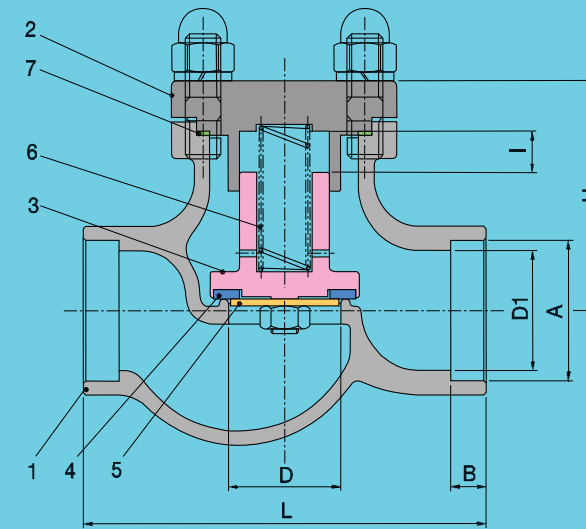
# CRYOGENIC SUS GLOBE VALVE

MCSG-1000



# CRYOGENIC SUS CHECK VALVE

MCSC-1000



**MATERIAL**

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SSC13A	11	VALVE SEAT	PCTFE
2	BONNET	SSC13A	12	WASHER	STS304
3	YOKE	SSC13A	13	GASKET	V#7020
4	GLAND FLANGE	SSC13A	14	STEM	STS304
5	YOKE BUSH	C3604	15	PACKING	PTFE
6	GLAND	C3604	16	V-PACKING	PTFE
7	SPINDLE	STS304	17	PACKING BUSH	PTFE
8	STEM RING	C3604	18	HANDLE	ALDC2
9	STOPPER	C1100P	19	NAME PLATE	A1050P
10	VALVE DISK	C3604	20	YOKE BOLT	STS304

**SPECIFICATION**

- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.3 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

**DIMENSION**

SIZE	A	B	D	D1	I	L	H1	H	W
15A	22	9.5	15	16	10	90	253	370	80
20A	27.5	10	20	21	13	100	253	370	80
25A	34	12	25	26	14	120	252	370	100
40A	49	13	40	42	16	150	335	470	140
50A	61	16	50	52	18	180	335	470	140
65A	87	21	65	72	28	225	450	590	140
80A	116	27	80	92	32	262	570	710	140

unit : mm

**MATERIAL**

NO.	PART NAME	MATERIAL
1	BODY	SSC13A
2	BONNET	SSC13A
3	STEM	C3604
4	VALVE SEAT	PTFE
5	WASHER	STS304
6	SPRING	STS304
7	GASKET	V#7020

**SPECIFICATION**

- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.3 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

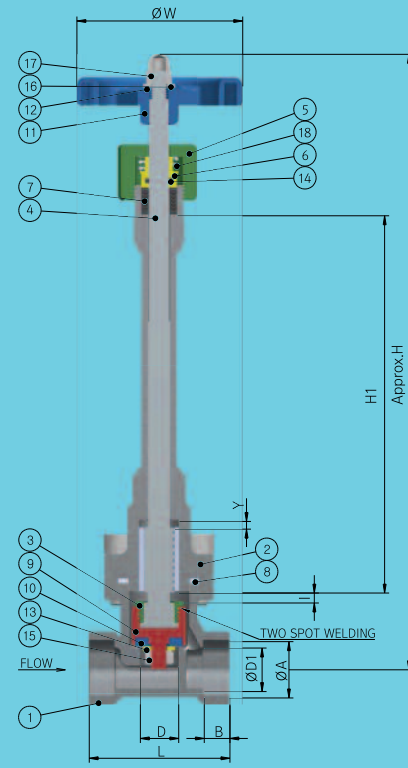
**DIMENSION**

SIZE	A	B	D	D1	I	L	H
15A	22	9.5	15	16	6	90	62.5
20A	27.5	10	20	21	10	100	69.5
25A	34	12	25	26	14	120	75
40A	49	13	40	42	16	150	86
50A	61	16	50	52	18	180	100
65A	87	21	65	72	20	225	120
80A	116	27	80	92	24	262	150

unit : mm

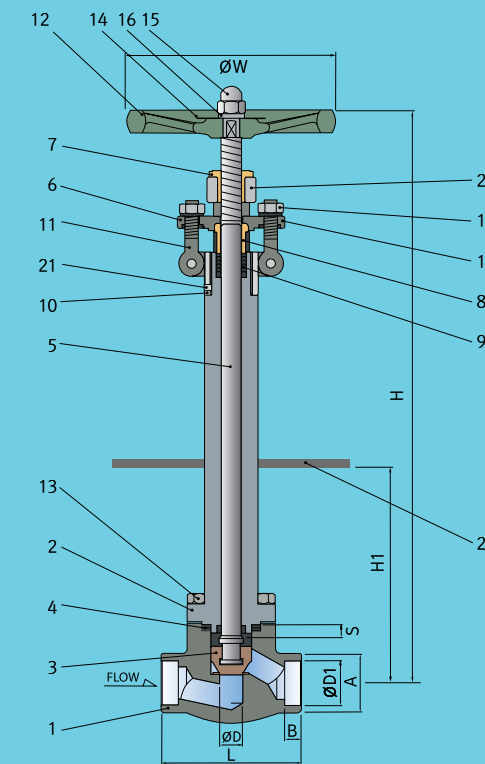
# CRYOGENIC SUS GLOBE VALVE

## MCCG-1000 (50KG/CM<sup>2</sup>)



# LNG FORGED VALVE

## MCFG-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	A351-CF8	11	HANDLE	ALDC2
2	BONNET ASS'Y	A351-CF8	12	NAME PLATE	A1050P
3	STEM RING	A276-304L	13	SEAT WASHER	STS304
4	SPINDLE	A276-304L	14	O-RING	N.B.R
5	GLAND NUT	C3604	15	LOCK NUT	STS304
6	GLAND	C3604	16	SPRING WASHER	STS304
7	PACKING ASS'Y	PTFE	17	CAP NUT	STS304
8	GASKET	V#7020	18	SPRING	STS304
9	VALVE DISK	A276-304L	19	WRENCH BOLT	A320-B8
10	VALVE SEAT	PTFE			

### SPECIFICATION

- Hydrostatic test pressure : 7.35 MPa
- Pneumatic test pressure : 5.39 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

### DIMENSION

SIZE	A	B	D	D1	I	L	H1	H	W
15A	22.2	9.6	15	16	6.5	55	160	65	5
20A	27.5	12.7	20	21	8	70	178	80	6.5
25A	34	12.7	25	27	10.5	80	192	100	9.5
40A	49.1	12.7	31	41	15	105	245	140	13.5
50A	61.5	16.5	41	52	21	125	299	140	14.5

unit : mm

### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	A182-F304L	13	HEX BOLT	A320-B8
2	BONNET	A182-F304L	14	NAME PLATE	A1050P
3	VALVE DISK	A276-304L	15	CAP NUT	STS304
4	SPRIAL WOUND	STS304+GRAPHITE	16	SPRING WASHER	STS304
5	SPINDLE	A276-304L	17	SPRING WASHER	STS304
6	GLAND FLANGE	SSC13A	18	NUT	STS304
7	YOKE BUSH	C3604	19	무두볼트	STS304
8	GLAND	C3604	20	무두볼트	STS304
9	PACKING ASS'Y	PTFE	21	무두볼트	STS304
10	YOKE	SSC13A	22	INSULATION PLATE	A240 304
11	YOKE BOLT	STS304	23	TAG NO. PLATE(NO LD)	STS304
12	HANDLE	GCD-S	24	SUS WIRE	STS304

### SPECIFICATION

- 당사의 밸브제작 30여년 노하우가 집약되어 제작되어진 GLOBE V/V는 뛰어난 기밀성, 부드러운 조작성, 화려한 외관을 가진 3위일체 완성형 GLOBE V/V입니다.
- CLASS API 800, 1500
  - ANSI 150, 300, 600, 900, 1500
  - SIZE 1/2", 1", 1 1/2"

ASTM A105, A182-F5, A182-F9, A182-F11, A182-F22, A182-F304, A182-F316, A182-F304L, A182-F316L, A350-LF2 END CONNECTION SOCKET WELDING, THREADED, BUTT WELDING, FLANGED FEATURE BOLTED BONNET, OUTSIDE SCREW & YOKE, PLUG DISC INTEGRAL SEAT

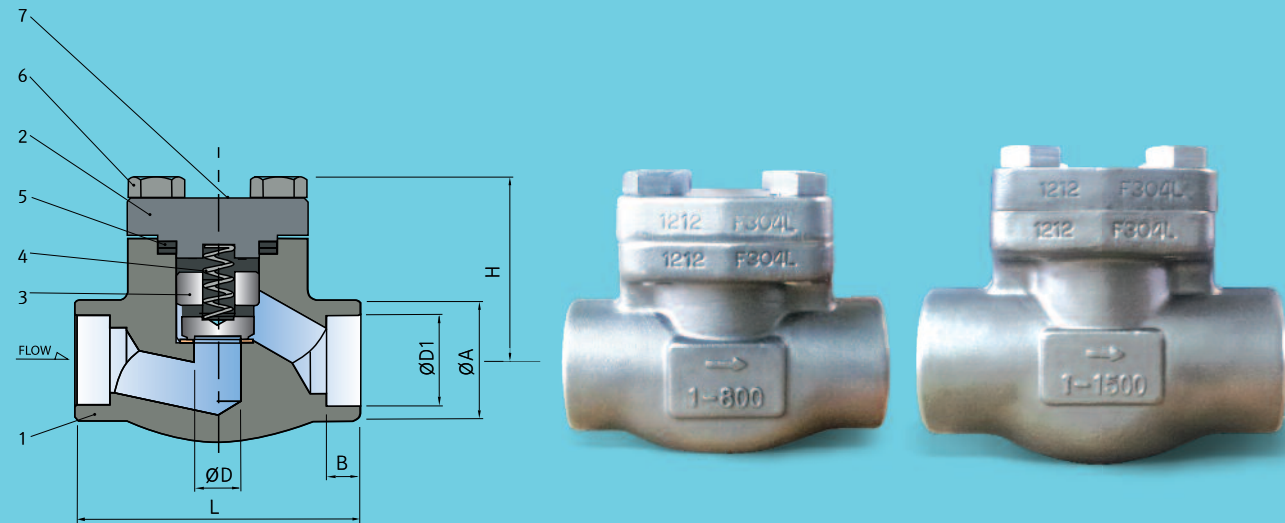
### DIMENSION

SIZE	CLASS	A	B	D	D1	S	L	H1	H	W
1/2"	800	22.5	13	10	16	9.54	111	180.5	448	165
	1500	25.5	13	10	16	18.5	152	206.5	478	165
1"	800	34.5	13	18	25	9.54	111	180.5	448	165
	1500	34.5	13	18	25	18.5	152	206.5	478	165
1-1/2"	800	49	13	30	34	25.7	172	222	584	212
	1500	49	13	30	34	25.7	172	222	584	212

unit : mm

# LNG FORGED CHECK VALVE

## MCFC-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	A182-F304L	5	SPIRAL WOUND	STS316L+GRAPHITE
2	BONNET	A182-F304L	6	HEX BOLT	A302-B8 A194-8
3	VALVE DISK	A276-304L	7	NAME PLATE	STS304
4	SPRING	STS304			

ASTM A105, A182-F5, A182-F9, A182-F11, A182-F22

A182-F304, A182-F316, A182-F304L, A182-F316L, A350-LF2

END CONNECTION SOCKET WELDING, THREADED, BUTT WELDING, FLANGED

FEATURE BOLTED BONNET, OUTSIDE SCREW & YOKE, PLUG DISC

INTEGRAL SEAT

### DIMENSION

SIZE	CLASS	A	B	D	D1	L	H
1/2"	800	22.5	13	10	16	111	70.8
	1500	25.5	13	10	16	152	90.5
1"	800	34.5	13	18	25	111	70.8
	1500	34.5	13	18	25	152	90.5
1-1/2"	800	49	13	30	34	172	106
	1500	49	13	30	34	172	106

unit : mm

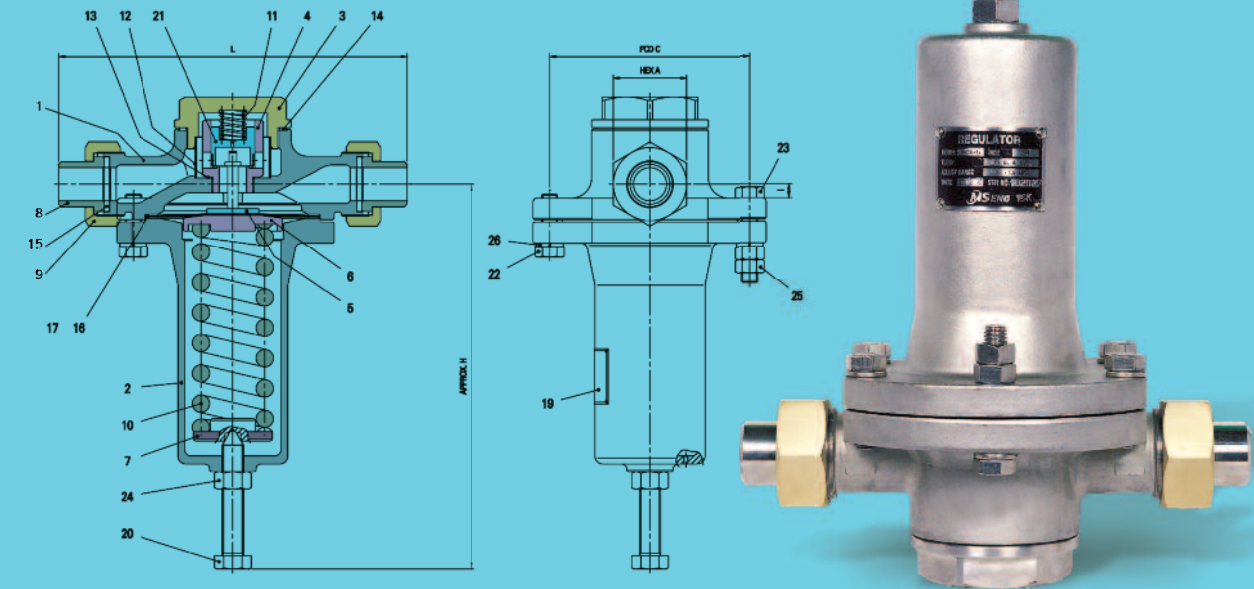
### SPECIFICATION

당사의 밸브제작 30여년 노하우가 집약되어 제작되어진 GLOBE V/V는 뛰어난 기밀성, 부드러운 조작성, 화려한 외관을 가진 3위일체 완성형 GLOBE V/V입니다.

- CLASS API 800, 1500
- ANSI 150, 300, 600, 900, 1500
- SIZE 1/2", 1", 1 1/2"

# CRYOGENIC REGULATOR

## WRCG-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SSC13A	14	GASKET	V#7020
2	BONNET	SSC13A	15	GASKET	V#7020
3	BOTTOM COVER	STS304	16	GASKET	PTFE
4	NOZZLE	C3604	17	DIAPHRAGM	PTFE
5	STEM	C3604	18	DIAPHRAGM	STS304
6	UPPER SPRING DISK	C3604	19	NAME PLATE	STS304
7	LOWER SPRING DISK	C3604	20	ADJUST BOLT	C3604
8	SLEEVE	STS304	21	VALVE DISK ASS'Y	C3604
9	UNION NUT	C3604	22	HEX BOLT	STS304
10	SPRING	SAE9254	23	HEX BOLT	STS304
11	SPRING	STS304	24	HEX NUT	STS304
12	STRAINER	STS304	25	HEX NUT	STS304
13	GASKET	PTFE	26	SPRING WASHER	STS304

### DIMENSION

SIZE	A	C	H	I	L
25A	55	151	292	10.5	263
40A	70	168	357	17	300

unit : mm

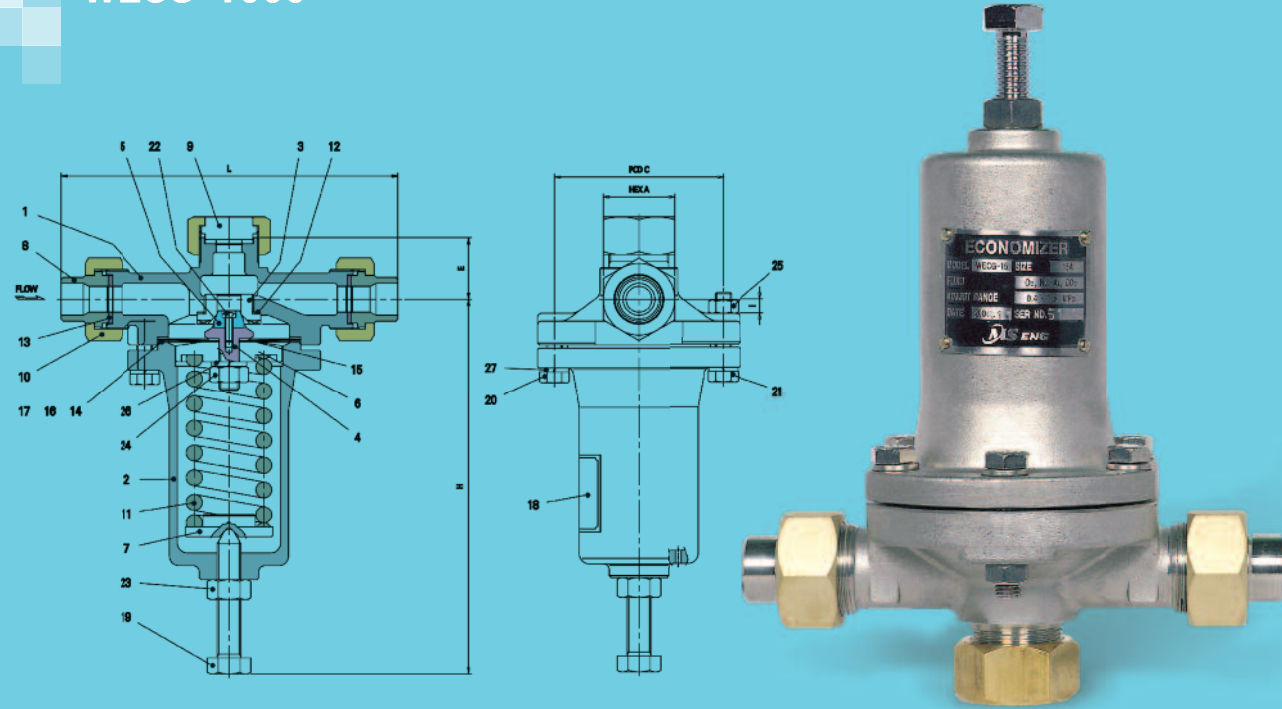
### SPECIFICATION

- Basic setting pressure: 0.7 MPa, 1.4 MPa, 2.4 MPa
- Adjust range : 0.4~1.5 MPa, 1.5~2.5 MPa
- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.0 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C



# CRYOGENIC ECONOMIZER

## WECG-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SSC13A	15	GASKET	PTFE
2	BONNET	SSC13A	16	DIAPHRAGM	PTFE
3	NOZZLE	C3604	17	DIAPHRAGM	STS304
4	VALVE DISK	STS304	18	NAME PLATE	STS304
5	VALVE SEAT	PTFE	19	ADJUST BOLT	C3604
6	UPPER SPRING DISK	C3604	20	HEX BOLT	STS304
7	LOWER SPRING DISK	C3604	21	HEX BOLT	STS304
8	SLEEVE	STS304	22	남비머리 작은나사	STS304
9	BLIND SLEEVE	C3604	23	HEX NUT	STS304
10	UNION NUT	C3604	24	HEX NUT	STS304
11	SPRING	HSW	25	HEX NUT	STS304
12	GASKET	PTFE	26	SPRING WASHER	STS304
13	GASKET	V#7020	27	SPRING WASHER	STS304
14	GASKET	PTFE			

### DIMENSION

SIZE	A	C	E	H	I	L
15A	36	85	31	188	7	170

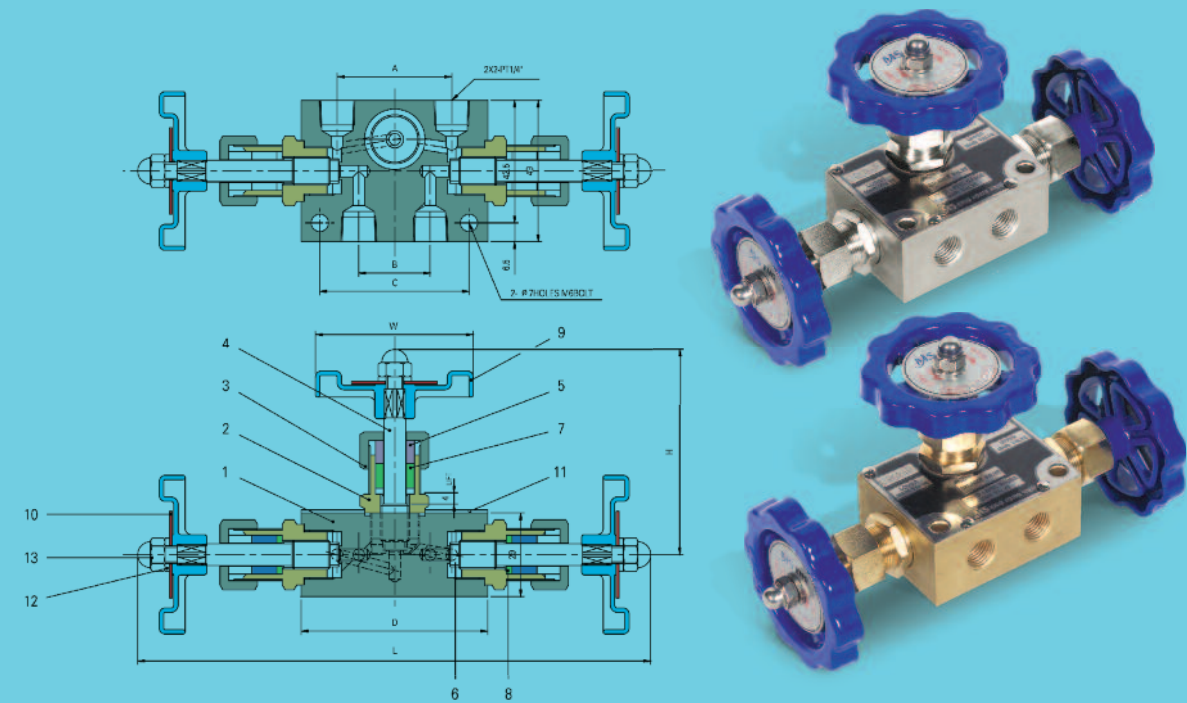
unit : mm

### SPECIFICATION

- Basic setting pressure: 0.8 MPa, 1.5 MPa, 2.5 MPa
- Adjust range : 0.4~1.5 MPa, 1.5~2.5 MPa
- Hydrostatic test pressure : 4.5 MPa
- Pneumatic test pressure : 3.0 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

# CRYOGENIC MANIFOLD

## MCMV-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	C3604	8	PACKING RING	C3604
2	BONNET	C3604	9	HANDLE	ALDC2
3	GLAND NUT	C3604	10	NAME PLATE	A1050P
4	STEM	C3604	11	NAME PLATE	STS304
5	BUSH	C3604	12	SPRING WASHER	STS304
6	VALVE SEAT	PCTFE	13	CAP NUT	STS304
7	PACKING	PTFE			

### DIMENSION

SIZE	A	B	C	D	H	L	W
8A	40	25	52	65	75.5	187	65

unit : mm

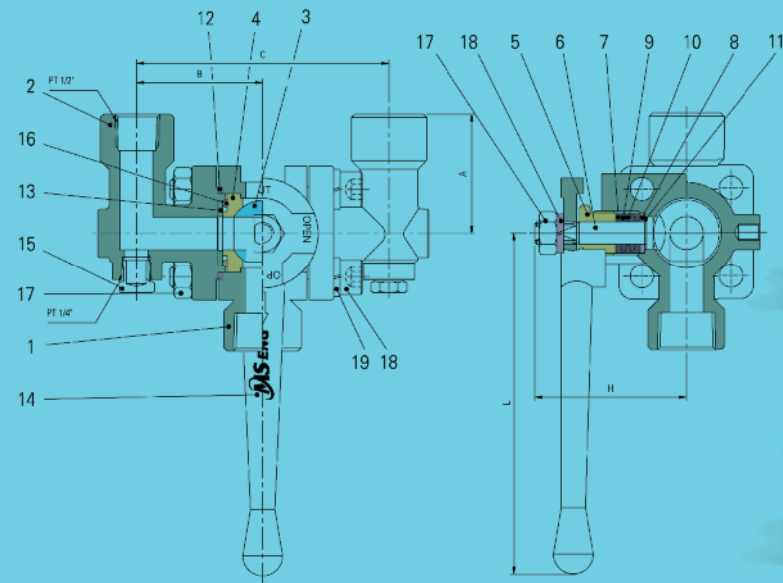
※LNG용은 일부부품 STS304로 재질 변경.

### SPECIFICATION

- Hydrostatic test pressure : 4.5 Mpa
- Pneumatic test pressure : 3.0 Mpa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75

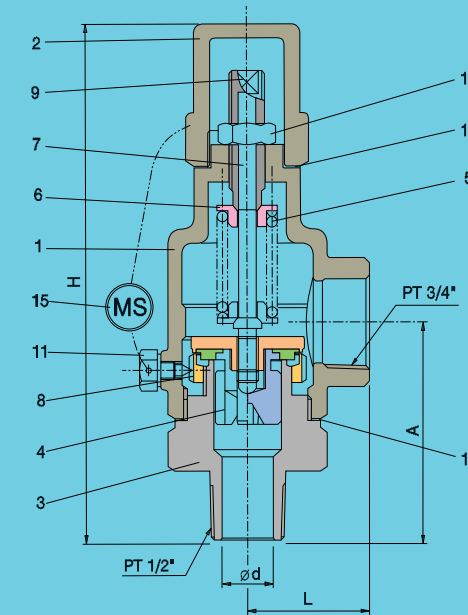
# CRYOGENIC DIVERT VALVE

## MCDV-1000



# CRYOGENIC SAFETY VALVE

## MCSV-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	C3771	11	GASKET	PTFE
2	CAP	C3771	12	GASKET	PTFE
3	BALL	STS304	13	GASKET	PTFE
4	BALL SEAT	PTFE	14	HANDLE	C3771
5	GLAND	C3604	15	PLUG BOLT	C3064
6	STEM	STS304	16	O-RING	NBR
7	PACKING(F)	PTFE	17	HEX NUT	STS304
8	PACKING(M)	PTFE	18	SPRING WASHER	STS304
9	V-PACKING	PTFE	19	WRENCH BOLT	STS304
10	LINER	PTFE			

### DIMENSION

SIZE	A	B	C	H	L	Remark
20A	54	55	110	68	155	BC,SUS
25A	60	70	140	84	155	SUS

\*LNG용은 일부부품 STS304로 재질 변경.

### SPECIFICATION

- Hydrostatic test pressure : 4.5 Mpa
- Pneumatic test pressure : 3.0 Mpa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	BC7	8	SPRING DISK	C3604
2	CAP	BC7	9	SPINDLE	C3604
3	NOZZLE	STS304	10	ADJUST RING	C3604
4	VALVE DISK #1	STS304	11	ADJUST SCREW	C3604
5	VALVE DISK #2	STS304	12	SET NUT	STS304
6	VALVE SEAT	PCTFE	13	SET BOLT	C3604
7	SPRING	STS304	14	MARKING	PB

### DIMENSION

SIZE	A	B	C	H	Remark
15A	67	14.5	150	34.5	BC, SUS
20A	73.5	14.5	167	40	SUS
25A	79	20	198	46	SUS

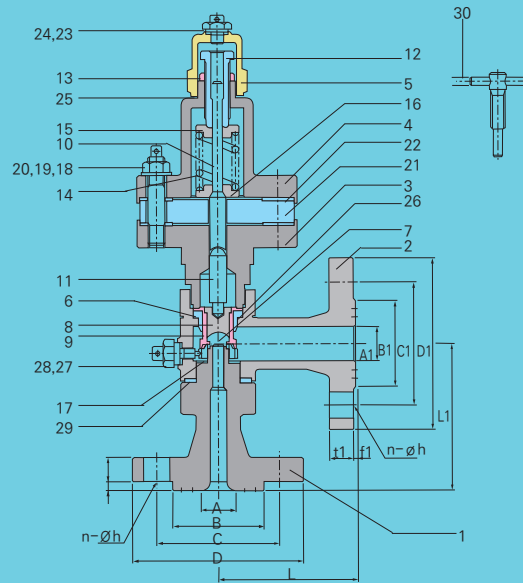
\*LNG용은 일부부품 STS304로 재질 변경.

### SPECIFICATION

- Basic setting pressure : 1.0 MPa, 1.7 MPa
- Design capacity (N<sub>2</sub>) :  
2457 kg/h (1.0 MPa), 4648 kg/h (1.7 MPa)
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

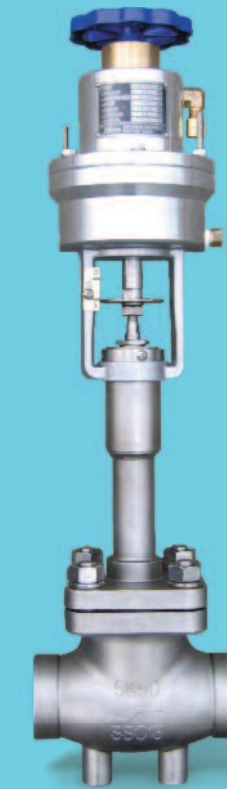
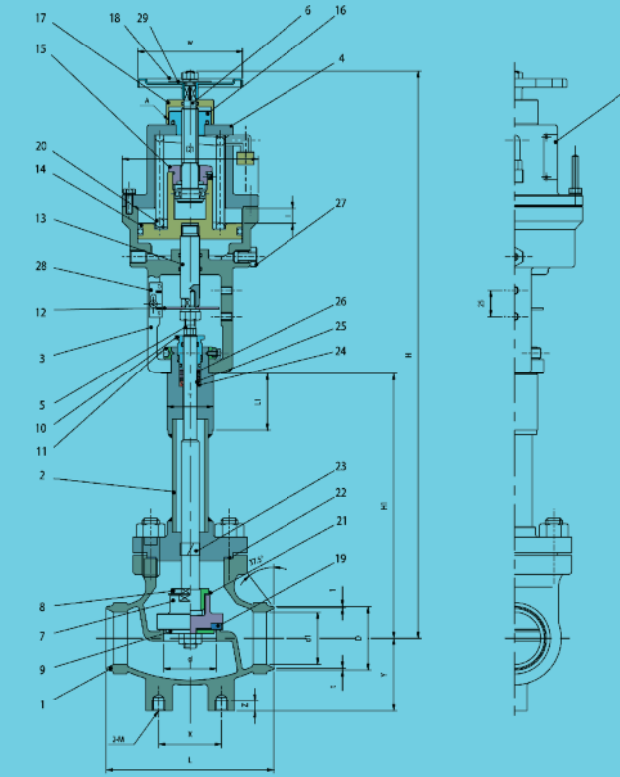
# CRYOGENIC SAFETY VALVE

## MCSV-5328



# CRYOGENIC EMERGENCY SHUT-OFF VALVE

## MCEV-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	NOZZLE	STS 316L	16	LOWER SPRING DISK	STS 316L
2	BODY	STS 316L	17	ADJUST RING	STS 316L
3	EXTENSION BONNET	STS 316L	18	STUD BOLT	STS 304
4	BONNET	STS 316L	19	NUT	STS 304
5	CAP	STS 316L	20	SPRING WASHER	STS 304
6	GUIDE	STS 316L	21	THERMAL BARRIER	ASBESTORITH
7	DISK PLATE	STS 316L	22	GASKET	KLINGER OILIT
8	DISK HOLDER	STS 316L	23	PLUG BOLT	STS 316L
9	VALVE DISK	STS 316L	24	PACKING	KLINGER OILIT
10	SPINDLE	STS 316L	25	PACKING	KLINGER OILIT
11	SPINDLE LINK	STS 316L	26	PACKING	KLINGER OILIT
12	ADJUST SCREW	STS 316L	27	SET BOLT	STS 316L
13	SET NUT	STS 316L	28	PACKING	KLINGER OILIT
14	SPRING	STS 304	29	NOZZLE GASKET	KLINGER OILIT
15	UPPER SPRING DISK	STS 316L	30	TEST GAG	KLINGER OILIT

### DIMENSION

SIZE	H	L	L1	A	a	INLET FLANGE						OUTLET FLANGE						WEIGHT
						B	C	D	E	F	N-ØH	b	c	d	e	f	n-Øh	
25A	328	100	100	25	25	60	90	125	15	1	4-19	67	90	125	15	1	4-19	10kg
50A																		13kg
80A																		24kg

s : soft seat  
m : metal seat

### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	SSC13A	16	COLLAR	C3604
2	BONNET	SSC13A	17	CAP	C3604
3	CYLINDER	AC4A-F	18	HANDLE	ALDC2
4	CYLINDER CAP	AC4A-F	19	VALVE SEAT	PCTFE
5	SPINDLE #1	STS304	20	SPRING	HSW
6	SPINDLE #2	STS304	21	STOPPER	STS304
7	VALVE DISK	STS304	22	GASKET	V#7020
8	STEM RING	STS304	23	PACKING	PTFE
9	WASHER	STS304	24	PACKING	PTFE
10	BUSH	STS304	25	PACKING	PTFE
11	SET NUT #1	STS304	26	PACKING	PTFE
12	INDICATION PLATE	STS304	27	FUSE METAL	C3604 / PB
13	CONNECTION BAR	STS304	28	MARK PLATE	C2600P
14	PISTON	C3604	29	NAME PLATE	A1050P
15	SET NUT #2	C3604	30	NAME PLATE	A1050P

### DIMENSION

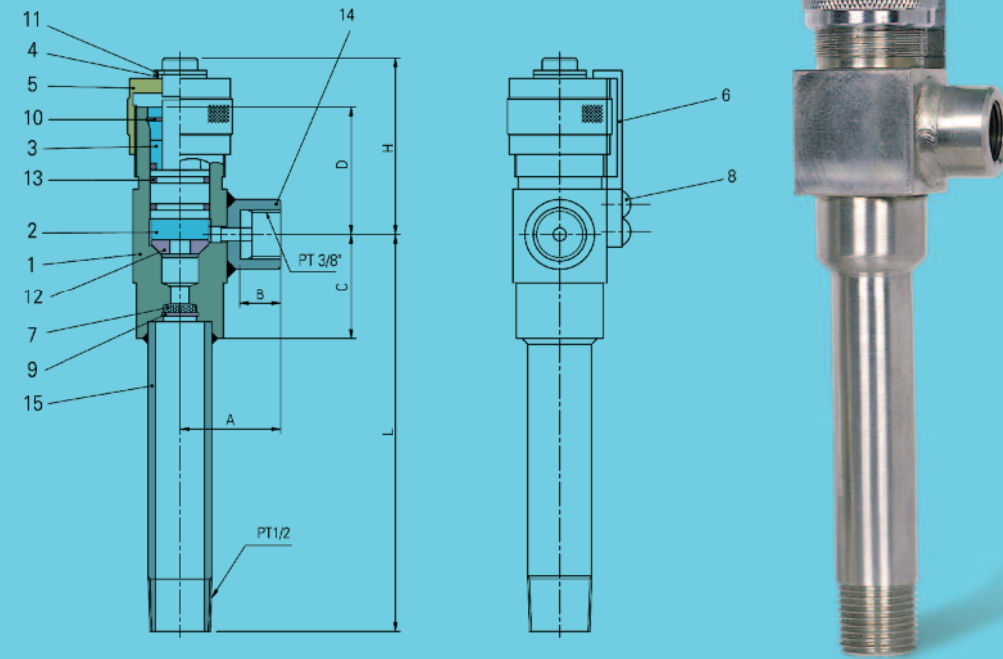
SIZE	d	d1	L	D	t	I	D1	W	H1	H	T	L1	Y	X	M	Z	WEIGHT
25A	25	34	100	41	3.5	11	80	65	162.5	360	28	34	45	40	M10	10	10kg
50A	50	50	160	61	3.5	14	130	100	253	542	44	54	70	60	M12	10	13kg
80A	80	80	240	89	4	30	160	140	550	800	66	70	100	80	M16	12	24kg

### SPECIFICATION

- Hydrostatic test pressure : 0.75 MPa
- Pneumatic test pressure : 0.55 MPa
- Fluid : L- O<sub>2</sub>, N<sub>2</sub>, Ar, LNG
- Design temperature : -196°C ~ +75°C

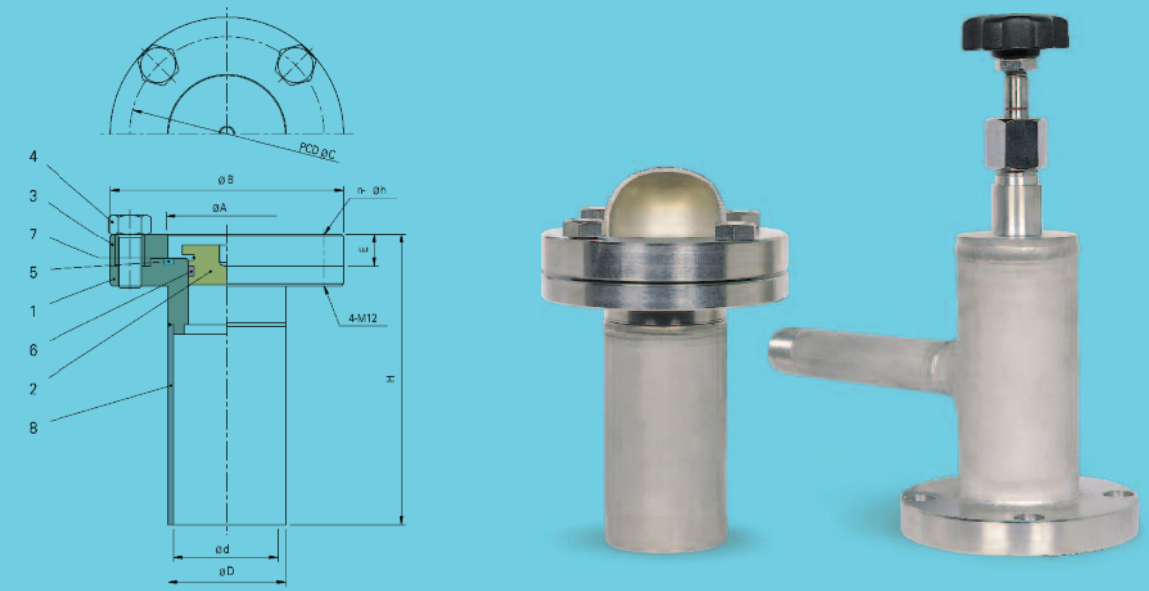
# VACUUM SENSOR VALVE

## WWSV-1000



# VACUUM EXHAUST VALVE

## WVEV-1000



### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	STS304	9	SNAP RING	STS304
2	SPINDLE	C3604	10	SNAP RING	STS304
3	BUSH	C3604	11	SNAP RING	STS304
4	LINER	C3604	12	O-RING	VITON
5	GLAND NUT	C3604	13	O-RING	VITON
6	STOPPER	C3604	14	SOCKET	STS304
7	FILTER	CAC406	15	PIPE	STS304
8	CROSSED BOLT	STS304			

### DIMENSION

SIZE	A	B	C	D	H	L
8A						
10A	34	14	36	44	60	136

unit : mm

### SPECIFICATION

- Fluid : L- O<sub>2</sub>, L-N<sub>2</sub>, L-Ar, LNG
- Design temperature : -20°C ~ 40°C

### MATERIAL

NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BODY	STS304	5	BEVEL RING	VITON
2	PISTON	C3604	6	O-RING	VITON
3	BONNET	STS304	7	O-RING	VITON
4	HEX NUT	STS304	8	PIPE	STS304

### DIMENSION

SIZE	A	B	C	d	D	E	H	n-øh
50A	61	120	100	54.9	60.5	1	150	4-ø15

unit : mm

안전밸브 선정표

안전밸브의 제작범위

분출용량 계산식

안전밸브의 기초자료 (고압가스 안전관리법)

저압 배관치수 조건표

관로의 손실수두

LPG STORAGE TANK 별 비교표

철강제 관플랜지 기본치수

ANSI관 플랜지 기본치수

## 안전밸브 선정표

구 분 유체 및 법규 형 식	유체에 의한 선정			용도, 구성재료에 의한 선정							적용 법규 (APPLIED LAW)		
	AIR 공기	COMPRESSED GAS 압축가스	VAPOR GAS 기화가스	FOR LOW TEMPERATURE 저 온 용	CORROSION GAS 부식성가스	NON-COR- ROSION GAS 비부식성가스	CORROSION LIQUID 부식성액체	ALKALI 알칼리	Cl <sub>2</sub> 염 소	NH <sub>3</sub> 암모니아	HIGH PRE +SSURE GAS 기화가스	ASME SEC VIII	API RP520
WSL-51110			●			●					●		
WSO-5312			●			●		●			●		
WSC-5313	●		●			●		●			●		
WSC-5313A	●		●	●		●		●			●		
WLS-5317	●	●	●		●	●	●	●		●	●	●	●
WLS-5317A	●	●	●	●	●	●	●	●		●	●	●	●
WSSG-5329	●	●	●	●	●	●	●	●	●	●	●	●	●
WSLT-5124	●		●			●		●		●	●		
WSLT-5224	●		●		●	●	●	●		●	●	●	●
WTSV-5125			●			●					●		
WHS-5316	●	●	●	●			●	●		●	●	●	●
WSNG-5120	●		●		●	●	●	●		●	●	●	●
WSNG-5120A	●	●	●	●	●	●	●	●	●	●	●	●	●
WCSV-5328	●	●	●	●	●	●	●	●	●	●	●	●	●

- ※ 참고
1. 안전밸브의 최고 설정 압력은 사용유체, 밸브크기, 온도조건에 따라 다르므로 안전밸브의 주문은 별도의 상담을 하여 주십시오.
  2. 상기표에 기재되지 않은 유체에 대하여도 주문제작을 하고 있습니다.
  3. 유체가 액체일 경우 사양을 검토하여 형식 결정을 하여야 하기 때문에 용도, 압력, 비중, 점도, 온도 등을 기재하여 주문하시기 바랍니다.

## 안전밸브의 제작범위

MODEL	BODY MATERIAL	OTHERS MATERIAL	PRESSURE RANGE	TEMPERATURE RANGE	CONNECTION	REMARK
WSL-5110 5211	C3604B STS 304	C3604B/N.B.R STS 304/P.T.F.E	4K~20K	-5, C ~ 50, C -45, C ~ 145, C	SCREWED	L.P.G NH <sub>3</sub>
WSO-5312	C3604B	C3604B/N.B.R STS 304/P.T.F.E	7K~20K	-5, C ~ 50, C -5, C ~ 50, C	SCREWED	O <sub>2</sub> , LO <sub>2</sub>
WSC-5313	BC6 C3604B	STS 304/P.T.F.E	4K~30K	-196, C ~ 200, C	SCREWED	CO <sub>2</sub> C <sub>2</sub> , H <sub>2</sub>
WSC-5313A	SCS 13A	STS 304/P.T.F.E	4K~30K	-196, C ~ 200, C	SCREWED	TOXIC GAS NH <sub>3</sub>
WLS-5317	C3604B	STS 304/P.T.F.E	1K~30K	-196, C ~ 200, C	SCREW	NH <sub>3</sub> , AIR CO <sub>2</sub> , N <sub>2</sub>
WLS-5317A	STS 316 STS 304	STS 316 STS 304	30K~185K	-196, C ~ 400, C	SCREW	COMPRESSED AIR & GAS
WSSG-5329	STS 316 STS 304	STS/P.T.F.E	4K~80K	-196, C ~ 400, C	FLANGED	TOXIC GAS CORROSION GAS
WSLT-5124	SCS 13A SCPH <sub>2</sub>	STS/P.T.F.E	1K~20K	-5, C ~ 120, C	FLANGED	FLAMMABLE GAS NH <sub>3</sub>
WSLT-5224\	SCS 13A SCPH <sub>2</sub>	STS 304	1K~20K	-50, C ~ 120, C	FLANGED	FLAMMABLE GAS NH <sub>3</sub>
WTSV-5125	SCS 13A SCPH <sub>2</sub>	STS/P.T.F.E	5K~30K	-50, C ~ 120, C	FLANGED	CO <sub>2</sub> COMPRESSED GAS
WHS-5316	SCS 13A	STS 304	20K~165K	-50, C ~ 120, C	SCREW	COMPRESSED AIR COMPRESSED GAS
WSNG-5120	SCS 13A SCPH <sub>2</sub>	STS/P.T.F.E	1K~40K	-5, C ~ 120, C	FLANGED	NG, L.P.G FLAMMABLE GAS
WSNG-5120A	SCS 13A SCPH <sub>2</sub>	STS 316 STS 304	10K~80K	-5, C ~ 120, C	FLANGED	TOXIC GAS CORROSION GAS
WCSV-5328	STS 316 STS 316L	STS 316 STS 316L	10K~150K	-196, C ~ 200, C	FLANGED	CRYOGENIC GAS COMPRESSED GAS

### 주문사항에 대하여

안전밸브의 주문 사양은 최적의 제품을 제작하기 위하여 다음 항목을 상세히 기재하여 주문바랍니다.  
(형식, 구경 결정을 당사에 위임할 경우, 발주자의 구경선택이 잘되어 있는지 확인할 경우)  
1. 사용유체 2. 설정압력(Kg/cm<sup>2</sup>) 3. 사용온도(, C) 4. 분출용량(Kg/h) 5. 크 기(입구×출구) 6. 재질 7. 적용규격 8. 접속방법

## 분출용량 계산식

### 과압안전장치 분출면적

안전밸브, 파열판 또는 릴리프밸브의 분출면적 또는 유출면적은 다음 계산식에 따라 계산한 면적 이상으로 한다.

$$A = \frac{13160W \sqrt{TZ}}{CK_d K_b K_c P_1 \sqrt{M}}$$

\* P1 : 분출량 결정압력(절대압력으로 설정압력과 초과압력의 합) [Kpa(a)]

$$\frac{P_{cf}}{P_1} = \left[ \frac{2}{k+1} \right]^{\frac{k}{k-1}}$$

Pcf : 임계흐름압력(절대압력을 말한다) [Kpa(a)]

k : 비열비  $\left( \frac{C_p}{C_v} \right)$ 의 수치

Cp : 정압비열, Cv : 정적비열

\* P2 : 대기압을 포함하는 배압(절대압력을 말한다) [Kpa(a)]

\* A : 필요분출면적(mm<sup>2</sup>)

\* W : 필요분출량(kg/h)

\* C : 비열용량계수

\* T : 분출량 결정압력에서 가스의 절대온도(K)

\* M : 가스의 분자량

\* Kd : 분출계수(제작자의 설계분출계수)로서 안전밸브는 0.975, 파열판은 0.62로 한다.

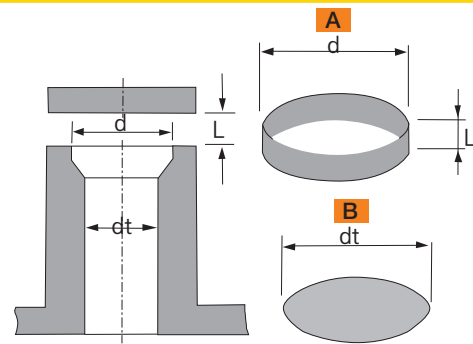
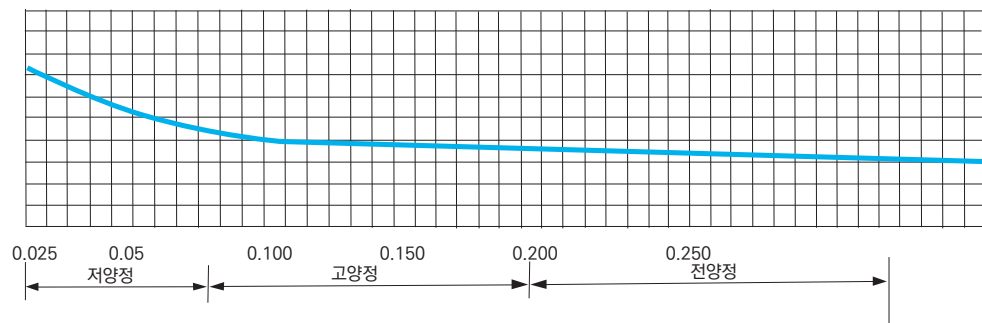
### 용어

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>(1)설정 압력</li> <li>(2)시취 압력</li> <li>(3)취출 압력</li> <li>(4)취출량결정압력</li> <li>(5)취지 압력</li> <li>(6)취하 압력</li> <li>(7)리프트</li> <li>(8)취출량</li> <li>(9)취출 계수</li> <li>(10)변좌구의 지름</li> <li>(11)취출 면적</li> <li>(12)목부의 지름</li> <li>(13)배압</li> </ul> | <p>안전밸브의 작동으로서, 설계상 정한 시취압력<br/>실제로 안전밸브가 시취할때의 압력으로서, 출구측에 미세한 유출이 검지될 때의 입구측 압력.<br/>안전밸브가 시취하여 유체가 취출 할 때의 입구측에 있어서의 주력으로서, 계속할 수 있는 정도의 리프트를 가지거나 또는 연속된 배출상태를 인지 할 수 있는 상태로 되는 압력.</p> <p>안전밸브의 취출량을 결정하는 근거가 되는 압력<br/>안전밸브가 폐쇄되고, 유체의 흐름이 실질적으로 멈춰지고 리프트가 제로로 되었을 때의 입구측에 있어서의 압력.80%이하 14.4kg/cm<sup>2</sup> 이상<br/>주)성적량에 기재되는 취지압력은 당사의 시험설비에 있어서의 수치이므로 실기에 있어서의 수치와 차이가 생기는 경우가 있습니다.</p> <p>시취압력 또는 취출압력과 취지압력과의 차<br/>폐쇄위치에서 안전밸브 취출중의 폐쇄위치까지의 변체 또는 변봉의 축방향의 이동량<br/>안전밸브를 통과하는 량<br/>취출량에 적용하는 계수<br/>변체와 변좌와의 닿는 면의 내경<br/>취출량의 계산에 쓰이는 면적으로서 안전밸브를 통과하는 유량을 결정하는 부분의 면적<br/>유량취입구에서 변좌면에 이르는 노즐이 최첨부의 내경<br/>안전밸브의 출구측의 압력 이에는 다음 두 가지가 있음.<br/>a)안전밸브의 취출했을 때, 배기측의 저항에 의해 안전밸브의 출구측에 생기는 압력<br/>b)안전밸브가 취출하기 전에, 이미 배기측에 존재하는 압력.</p> |
|--|---|

# 안전밸브의 기초자료 (고압가스 안전관리법)

# 저압 배관치수 조건표

취출계수(K)를 구하는 표 전량은 K=0.777 L:리프트(mm) D:변사구의 경(mm)



A:높이L로 외경 d의 단관의 측면도  
( $A=\pi \times d \times L$ )

B:목부의 경dt의 단의 면적  
( $B=1/4 \times \pi \times dt^2$ )

L/D	1/40	1/15	1/7	1/4
K	0.883	0.729	0.680	0.650

표 1

k	c	k	c	k	c	k	c
1.00	234	1.20	251	1.40	265	1.60	277
1.02	237	1.22	252	1.42	266	1.62	278
1.04	238	1.24	254	1.44	267	1.64	280
1.06	240	1.26	255	1.46	268	1.66	281
1.08	242	1.28	257	1.48	270	1.68	282
1.10	244	1.30	258	1.50	271	1.70	283
1.12	245	1.32	260	1.52	272	1.80	289
1.14	246	1.34	261	1.54	274	1.90	293
1.16	248	1.36	263	1.56	275	2.00	298
1.18	250	1.38	264	1.58	276	2.20	307

주 : k가 중간치를 취할 때는 보간법에 의해 C의 치를 구하고 소수점 이하는 잘라버림.

표 2

k	P <sub>2</sub> /P <sub>1</sub>	k	P <sub>2</sub> /P <sub>1</sub>	k	P <sub>2</sub> /P <sub>1</sub>	k	P <sub>2</sub> /P <sub>1</sub>
1.00	0.606	1.20	0.563	1.40	0.528	1.60	0.496
1.02	0.602	1.22	0.559	1.42	0.525	1.62	0.493
1.04	0.597	1.24	0.556	1.44	0.522	1.64	0.490
1.06	0.593	1.26	0.552	1.46	0.518	1.66	0.488
1.08	0.588	1.28	0.549	1.48	0.515	1.68	0.485
1.10	0.584	1.30	0.545	1.50	0.512	1.70	0.482
1.12	0.580	1.32	0.542	1.52	0.509	1.80	0.468
1.16	0.571	1.36	0.535	1.56	0.502	2.00	0.444
1.18	0.567	1.38	0.531	1.58	0.499	2.20	0.422

주 : k가 중간치를 취할 때는 보간법에 의해 P<sub>2</sub>/P<sub>1</sub>의 치를 구하고 소수점 이하는 잘라버림.

배관의 길이(m)	배관중의 압력손실(mmH <sub>2</sub> O)																					
	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	10.0	12.0	14.0	16.0
3	0.4	0.7	1.1	1.3	1.7	2.0	2.4	2.7	3.1	3.3	4.0	4.7	5.3	6.0	6.7	8.0	9.3	10.7	13.7	16.0	18.7	21.3
4	0.5	0.8	1.3	1.7	2.2	2.5	3.0	3.3	3.8	4.2	5.0	5.8	6.7	7.5	8.3	10.0	11.7	13.3	16.3	20.0	23.3	26.9
5	0.6	1.0	1.6	2.0	2.6	3.0	3.6	4.0	4.6	5.0	6.0	7.0	8.0	9.0	10.0	12.0	14.0	16.0	20.0	24.0	28.0	
6	0.7	1.2	1.9	2.3	3.0	3.5	4.2	4.7	5.4	5.8	7.0	8.2	9.3	10.5	11.7	14.0	16.3	18.7	23.7	28.0		
7	0.8	1.3	2.1	2.7	3.5	4.0	4.8	5.3	6.1	6.7	8.0	9.3	10.7	12.0	13.3	16.0	18.7	21.3	26.3			
8	0.9	1.5	2.4	3.0	3.9	4.5	5.4	6.0	6.9	7.5	9.0	10.5	12.0	13.5	15.0	18.0	21.0	24.0	30.0			
9	1.0	1.7	2.7	3.3	4.3	5.0	6.0	6.8	7.7	8.3	10.0	11.7	13.3	15.0	16.7	20.0	23.3	26.7				
10	1.25	2.1	3.3	4.2	5.4	6.2	7.5	8.3	9.6	10.4	12.5	14.6	16.7	18.7	20.8	25.0	29.2					
12.5	1.5	2.5	4.0	5.0	6.5	7.5	9.0	10.0	11.5	12.5	15.0	17.5	20.0	22.5	25.0	30.0						
15	1.75	2.9	4.7	5.8	7.6	8.7	10.5	11.7	13.4	14.6	17.5	20.4	23.3	26.2	29.2							
17.5	2.0	3.3	5.3	6.7	8.7	10.0	12.0	13.3	15.3	16.7	20.0	23.3	26.7	30.0								
20	2.25	3.8	6.0	7.5	9.8	11.3	13.5	15.0	17.3	18.8	22.5	26.3	30.0									
22.5	2.5	4.2	6.7	8.3	10.8	12.5	15.0	16.7	19.2	20.8	25.0	29.2										
25	2.75	4.6	7.3	9.2	11.9	13.7	16.5	18.3	21.1	22.9	27.5											
27.5	3.0	5.0	8.0	10.0	13.0	15.0	18.0	20.0	23.0	25.0	30.0											
30	3.0	5.0	8.0	10.0	13.0	15.0	18.0	20.0	23.0	25.0	30.0											

배관치수	가스 유량 (kg/hr)																					
	0.05	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.20	0.21	0.23	0.24	0.26	0.29	0.32	0.34	0.37
8 <sup>ø</sup>	0.11	0.14	0.18	0.20	0.23	0.25	0.27	0.29	0.31	0.32	0.35	0.38	0.41	0.53	0.46	0.50	0.54	0.58	0.65	0.71	0.76	0.82
10 <sup>ø</sup>	0.37	0.48	0.61	0.68	0.77	0.83	0.91	0.96	1.03	1.07	1.17	1.27	1.36	1.44	1.52	1.66	1.79	1.92	2.14	2.35	2.54	2.71
3/8B	0.73	0.95	1.20	1.34	1.53	1.64	1.80	1.90	2.03	2.12	2.32	2.51	2.68	2.84	3.00	3.28	3.55	3.79	4.24	4.64	5.02	5.36
1/2B	1.70	2.19	2.77	3.10	3.53	3.79	4.16	4.38	4.70	4.90	5.37	5.80	6.20	6.57	6.93	7.59	8.20	8.76	9.80	10.7	11.6	12.4
3/4B	3.39	4.37	5.53	6.18	7.05	7.59	8.30	8.75	9.38	9.78	10.7	11.6	12.4	13.1	13.8	15.1	16.4	17.5	19.6	21.4	23.1	24.7
1B	6.94	8.97	11.3	12.7	14.5	15.5	17.0	17.9	19.2	20.0	22.0	23.7	25.4	26.9	28.4	31.1	33.5	35.9	40.1	43.9	47.4	59.7
1 1/4B	10.6	13.9	17.7	19.4	22.1	23.7	26.0	27.4	29.4	30.6	33.5	36.2	38.7	41.1	43.3	47.4	51.2	54.7	61.2	67.0	72.4	77.4
1 1/2B	10.6	13.9	17.7	19.4	22.1	23.7	26.0	27.4	29.4	30.6	33.5	36.2	38.7	41.1	43.3	47.4	51.2	54.7	61.2	67.0	72.4	77.4

배관의 길이가 긴 경우

배관의 길이(m)	배관중의 압력손실(mmH <sub>2</sub> O)																			
	1.4	2.8	4.2	5.8	7	14	21	28	35	42	49	56	63	70	77	84	91	98	106	
30	1.6	3.2	4.8	6.9	8	16	24	32	40	48	56	64	72	80	96	104	110	112	120	
40	2	4	6	8	10	20	30	40	50	60	70	80	90	100	122	130	132			
50	2.4	4.8	7.2	9.6	12	24	36	48	60	72	84	96	108	120						
60	3.2	6.4	9.6	13	16	32	48	64	80	96	112	128	144							
80	4	8	14	16	20	40	70	80	100	120										
100	4.3	9.6	15	19	24	48	72	96	120											
120	5.6	11	17	22	28	56	84	112												
140	6.4	13	19	26	32	64	96	128												
160	7.2	14	22	29	36	72	108													
180	8	16	24	32	40	80	120													
200	10	20	30	40	50	100														
250	12	24	36	48	60	120														
300	14	28	42	56	70															
350	16	32	48	64	80															
400	18	36	54	72	90															
450	20	40	60	80	100															
500	20	40	60	80	100															

배관치수	가스 유량 (kg/hr)																			
	2.90	4.11	5.03	5.81	6.49	9.18	11.2	13.0	14.5	15.9	17.2	18.4	19.5	20.5	21.5	22.5	23.4	24.3	26.2	
1B	5.53	7.82	9.57	11.1	12.4	17.5	12.4	24.7	27.6	30.3	32.7	35.0	37.1	39.1	41.0	42.8	44.6	46.2	47.9	
1 1/4B	7.96	11.2	13.8	15.9	17.8	25.2	30.8	35.6	39.8	43.6	47.1	50.3	53.4	56.2	59.0	61.6	64.1	66.6	68.9	
1 1/2B	14.8	20.9	25.6	29.5	33.0	46.7	57.2	66.1	73.9	80.9	87.4	93.4	99.1	102	104	114	119	124	128	
2B	42.5	60.6	73.5	84.9	94.9	134	164	190	212	233	251	269	285	300	315	329	342	355	368	
3B	82.6	117	143	165	185	261	320	369	413	452	488	522	554	584	612	640	666	691	715	

# 관로의 손실수두

밸브류에 적합한 관의 길이 (표1)

호칭지름 (mm)	적합한 관 길이 (m)						
	90° 엘보	45° 엘보	90T자관 (분류)	90T자관 (직류)	게이트밸브	볼밸브	앵글밸브 후드밸브
15	0.6	0.36	0.9	0.18	0.12	4.5	2.4
20	0.75	0.45	1.2	0.24	0.15	6.0	3.6
25	0.95	0.54	1.5	0.27	0.18	7.5	4.5
32	1.2	0.72	1.8	0.36	0.24	10.5	5.4
40	1.6	0.9	2.1	0.45	0.3	13.5	7.6
50	2.1	1.2	3.0	0.6	0.39	16.5	8.4
65	2.4	1.5	3.6	0.75	0.48	19.5	10.2
80	3.0	1.8	4.5	0.90	0.63	20.0	12.0
100	4.2	2.4	6.3	1.20	0.81	37.5	16.5
125	5.1	3.0	7.5	1.50	0.99	42.0	21.0
150	6.0	3.6	9.0	1.80	1.20	49.5	24.0
200	6.5	3.7	14.0	4.0	1.40	70.0	33.0
250	8.0	4.2	20.0	5.0	1.70	90.0	43.0

## 배관의 마찰손실

(윌리엄스 해젠식)  $Q=1.67Cd^{2.63}i^{0.54} \times 10^4$

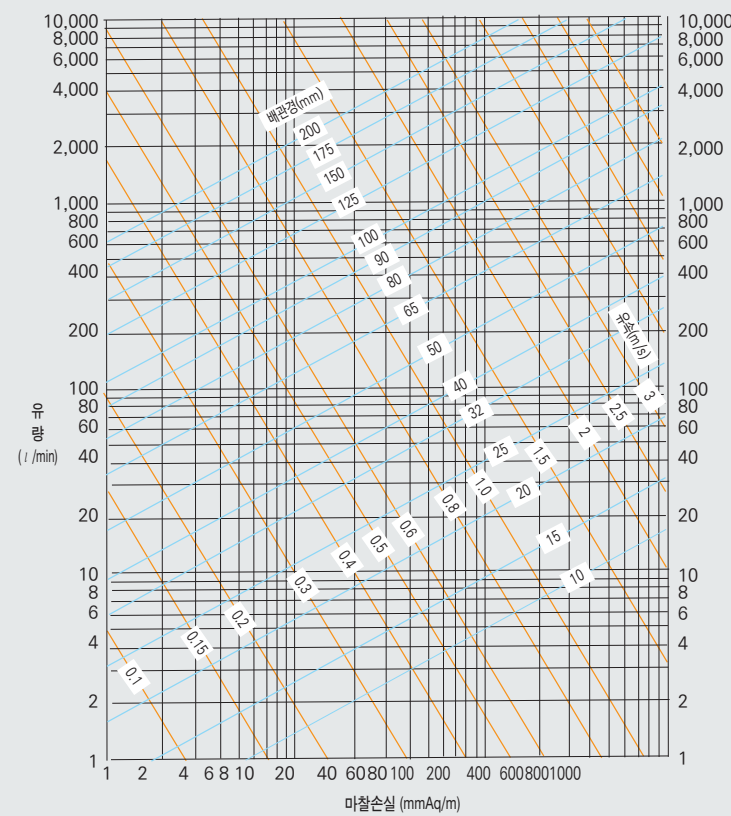
Q=유량(l/min)

C=유량계수(넓은 주철 또는 강철관은 100)

d:관의 내경(m)

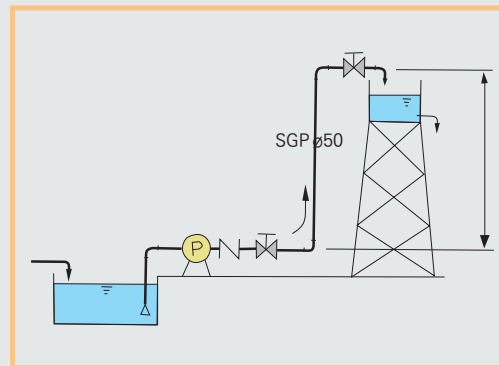
i:동수경배(mAq/m)

## 관로의 손실수두표



## 계산예

호칭지름 50의 강관(실제길이 36m)에서 물탱크로부터 다른 물탱크(실제양정 20m)에 매분 150ℓ를 양수할 때 손실되는 모든 수두(全損失水頭) 및 펌프의 소요양정(20m)을 구할 경우.



- 표1에 의하여 관의 길이를 구하면  
후드밸브 1개: 8.4 × 1 = 8.4  
체크밸브 1개: 4.0 × 1 = 4.0  
게이트밸브 2개: 0.39 × 2 = 0.78  
엘보 4개: 2.1 × 4 = 8.4

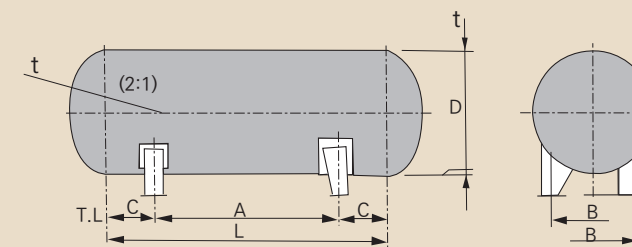
합계: 21.58m

- 환산하여 관의 길이를 구합니다.  
환산한 관의 길이 = 36 + 21.58 = 57.58m

- 도표에 의하여 호칭지름 50, 유량 150ℓ/min일 경우의 마찰손실 수두는 52mAq/m로 되고 전 손실 수두는 57.58 × 52 = 2994.16mm = 3.0m 펌프의 소요양정은 20 + 3.0 = 23m가 됩니다.

# LPG STORAGE TANK TON별 비교표

용량	구분	내용적 M³	직경 D	동체길이 L(TL-TL)	재질 및 두께	A	B	C	표면적 M²	안전변경경		안전변경경		삼수관직경	양카보울트 D×N
										지상	지하	지상	지하		
3 TON	C3H8	7.118	1720	2490	SPV50 9/10	1400	1300	545	20.1	23.9	16.9	508 <sup>a</sup>	258 <sup>a</sup>	25 <sup>a</sup>	M24×315 4EA
	C4H10	6.234	1700	2180	SPV50 9/10	1400	1270	390	18.2	23.0	16.2	50 <sup>a</sup>	25 <sup>a</sup>	25 <sup>a</sup>	M24×315 4EA
5 TON	C3H8	11.767	1800	4024	SPV50 13/13	2500	1300	762	30.3	28.3	20.0	50 <sup>a</sup>	50 <sup>a</sup>	25 <sup>a</sup>	M24×315 4EA
	C4H10	10.286	1800	3442	SPV50 13/13	2000	1300	721	27.0	27.0	19.1	50 <sup>a</sup>	25 <sup>a</sup>	25 <sup>a</sup>	M24×315 4EA
10 TON	C3H8	23.539	2500	3962	A516-70 19/21	2500	1700	731	45.6	33.5	23.3	50 <sup>a</sup>	50 <sup>a</sup>	50 <sup>a</sup>	M24×315 8EA
	C4H10	20.574	2500	3358	A516-70 19/21	2000	1700	679	40.7	31.9	22.6	50 <sup>a</sup>	50 <sup>a</sup>	50 <sup>a</sup>	M24×315 8EA
15 TON	C3H8	35.310	2500	6360	A516-70 19/21	4500	1700	930	64.7	38.6	27.3	80 <sup>a</sup>	50 <sup>a</sup>	50 <sup>a</sup>	M30×400 8EA
	C4H10	30.863	2500	5454	A516-70 19/21	4000	1700	727	57.4	36.8	26.0	50 <sup>a</sup>	50 <sup>a</sup>	50 <sup>a</sup>	M30×400 8EA
20 TON	C3H8	47.072	2500	8756	A516-70 19/21	7000	1700	878	83.8	42.9	30.4	80 <sup>a</sup>	50 <sup>a</sup>	63 <sup>a</sup>	M30×400 8EA
	C4H10	40.396	2500	7396	A516-70 19/21	5500	1700	948	74.2	40.8	28.9	80 <sup>a</sup>	50 <sup>a</sup>	63 <sup>a</sup>	M30×400 8EA
30 TON	C3H8	70.614	2500	13552	A516-70 19/21	11500	1700	1026	122.0	50.1	35.4	80 <sup>a</sup>	50 <sup>a</sup>	65 <sup>a</sup>	M30×400 8EA
	C4H10	61.719	2500	11740	A516-70 19/21	9500	1700	1120	107.6	47.6	33.6	80 <sup>a</sup>	50 <sup>a</sup>	65 <sup>a</sup>	M30×400 8EA
30 TON	C3H8	70.606	3500	6172	SPV50 18/20	4500	2700	836	95.7	45.3	32.1	80 <sup>a</sup>	50 <sup>a</sup>	80 <sup>a</sup>	M30×400 8EA
	C4H10	61.716	3500	5248	SPV50 18/20	3800	2700	724	85.4	43.3	30.6	80 <sup>a</sup>	50 <sup>a</sup>	80 <sup>a</sup>	M30×400 8EA
40 TON	C3H8	94.159	3500	8620	SPV50 18/20	7000	2700	825	122.9	50.2	35.5	80 <sup>a</sup>	50 <sup>a</sup>	80 <sup>a</sup>	M30×400 8EA
	C4H10	82.286	3500	7386	SPV50 18/20	5800	2700	793	109.2	47.9	33.9	80 <sup>a</sup>	50 <sup>a</sup>	80 <sup>a</sup>	M30×400 8EA
50 TON	C3H8	117.711	3500	11068	SPV50 18/20	9500	2700	784	150.1	54.5	38.6	80 <sup>a</sup>	80 <sup>a</sup>	80 <sup>a</sup>	M36×500 8EA
	C4H10	102.876	3500	9526	SPV50 18/20	8000	2700	763	132.9	51.9	36.7	80 <sup>a</sup>	50 <sup>a</sup>	80 <sup>a</sup>	M36×500 8EA



## NOTES

- 본 규격은 DYC S.T.D 임.
- 지상 및 지하의 탱크규격은 동일.
- 본 규격은 고압가스 안전관리법 및 KSB 6231(압력용기구조)에 근거로 작성한것임.
- 액비중 C3H8=0.472  
C4H10=0.54

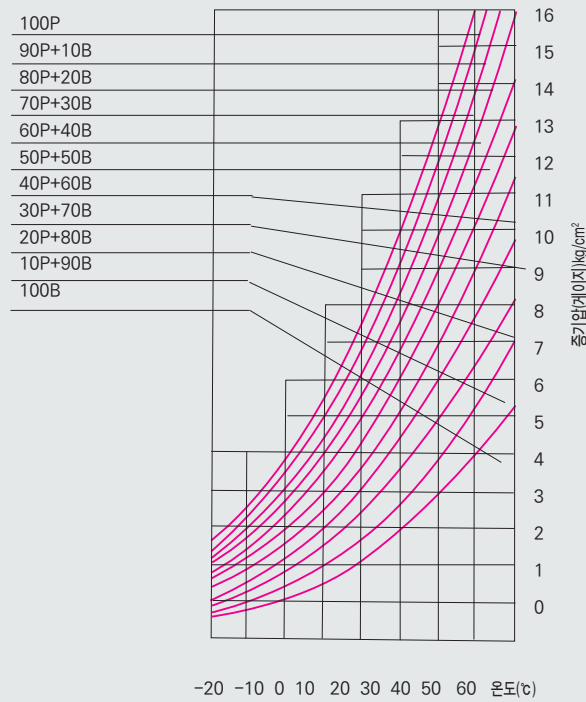


# LPG STORAGE TANK TON별 비교표

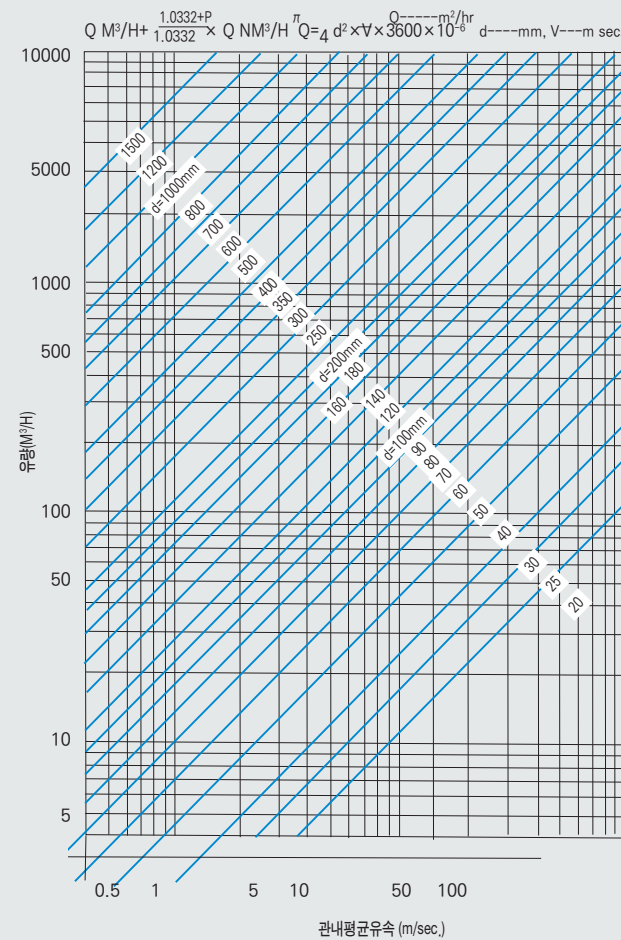
## 각종 GAS중량용량 환산표

GAS명	구분	중량 kg	액체 ℓ	기체		
				m(0°C 1atm)	m(15°C 1atm)	m(35°C 1atm)
산소	1	0.877		0.6998	0.738	0.7898
	1.14	1	0.798	0.842	0.900	
	1.429	1.254	1	1.055	1.129	
	1.355	1.189	0.948	1	1.0699	
	1.266	1.111	0.886	0.935	1	
질소	1	1.236		0.7996	0.844	0.902
	0.808	1	0.646	0.682	0.729	
	1.251	1.548	1	1.0551	1.129	
	1.186	1.468	0.948	1	1.0698	
	1.108	1.371	0.886	0.935	1	
아르곤	1	0.713		0.561	0.592	0.633
	1.402	1	0.787	0.830	0.888	
	1.782	1.271	1	1.055	1.129	
	1.6897	1.205	0.948	1	1.0698	
	1.579	1.127	0.886	0.935	1	
헬륨	1	7.994		5.596	5.907	6.315
	0.125	1	0.700	0.739	0.790	
	0.179	1.428	1	1.055	1.128	
	0.169	1.354	0.948	1	1.069	
	0.158	1.266	0.886	0.935	1	
아세틸렌	1			0.853	0.899	
	1.171			1	1.054	
				0.948	1	
탄산가스	1	0.971		0.506	0.534	0.571
	1.030	1	0.521	0.550	0.588	
	1.977	1.919	1	1.055	1.128	
	1.874	1.819	0.948	1	1.069	
	1.752	1.701	0.886	0.935	1	
프로판	1	1.97			0.529	
	1.92	3.79		1.02		
	80.7	159		42.7		
	508	1000		269		
	1.89	3.73		1		
n-부탄	1	1.71			0.395	
	2.21	3.79		0.874		
	92.9	159		36.7		
	584	1000		231		
	2.53	4.34		1		
i-부탄	1	1.78			0.396	
	2.13	3.79		0.843		
	89.5	159		35.4		
	563	1000		223		
	2.53	4.49		1		

## LPG와 부탄 혼합가스의 증기압

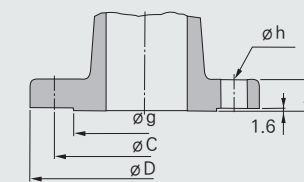
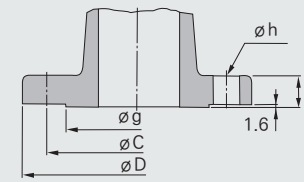


## 관을 통한 유체의 유량선도



# 철강제 관플랜지 기본치수

## KS B 1511 (JIS B 2210)



## 10kgf/cm²관 플랜지

Unit : mm

호칭 지름	사용되는 강관의외경	플랜지외경 D	플랜지 각부의 치수		보울트 구멍			보울트 나사의 호칭		
			t	f	지름 g	중심부 의 지름 C	수			
10	17.3	90	12	14	1	46	65	4	15	M12
15	21.7	95	12	16	1	51	70	4	15	M12
20	27.2	100	14	18	1	56	75	4	15	M12
25	34.0	125	14	18	1	67	90	4	19	M16
32	42.7	135	16	20	2	76	100	4	19	M16
40	48.6	140	16	20	2	81	105	4	19	M16
50	60.5	155	16	20	2	96	120	4	19	M16
65	76.3	175	18	22	2	116	140	4	19	M16
80	89.1	185	18	22	2	126	150	8	19	M16
(90)	101.6	195	18	22	2	136	160	8	19	M16
100	114.3	210	18	24	2	151	175	8	19	M16
125	139.8	250	20	24	2	182	210	8	23	M20
150	165.2	280	22	26	2	212	240	8	23	M20
200	216.3	330	22	26	2	262	290	12	23	M20
250	267.4	400	24	30	2	324	355	12	25	M22
300	318.5	445	24	32	3	368	400	16	25	M22
350	355.6	490	26	34	3	413	445	16	25	M22
400	406.4	560	28	36	3	475	510	16	27	M24
450	457.2	620	30	38	3	530	565	20	27	M24
500	508.0	675	30	40	3	585	620	20	27	M24

## 20kgf/cm²관 플랜지

Unit : mm

호칭 지름	사용되는 강관의외경	플랜지외경 D	플랜지 각부의 치수		보울트 구멍			보울트 나사의 호칭	
			t	f	지름 g	중심부 의 지름 C	수		
10	17.3	90	14	1	46	65	4	15	M12
15	21.7	95	14	1	51	70	4	15	M12
20	27.2	100	16	1	56	75	4	15	M12
25	34.0	125	16	1	67	90	4	19	M16
32	42.7	135	18	2	76	100	4	19	M16
40	48.6	140	18	2	81	105	4	19	M16
50	60.5	155	18	2	96	120	4	19	M16
65	76.3	175	20	2	116	140	8	19	M16
80	89.1	200	22	2	132	160	8	23	M20
90	101.6	210	24	2	145	170	8	23	M20
100	114.3	225	24	2	160	185	8	23	M20
125	139.8	270	26	2	195	225	8	25	M22
150	165.2	305	28	2	230	260	12	25	M22
200	216.3	350	30	2	275	305	12	25	M22
250	267.4	430	34	2	345	380	12	27	M24
300	318.5	480	36	3	395	430	16	27	M24
350	355.6	540	40	3	440	480	16	33	M30
400	406.4	605	46	3	495	540	16	33	M30
450	457.2	675	48	3	560	605	20	33	M30
500	508.0	730	50	3	615	660	20	33	M30

## 30kgf/cm²관 플랜지

Unit : mm

호칭 지름	사용되는 강관의외경	플랜지외경 D	플랜지		보울트 구멍			보울트 나사의 호칭	
			t	f	지름 g	중심부 의 지름 C	수		
10	17.3	110	16	1	52	75	4	19	M16
15	21.7	115	18	1	55	80	4	19	M16
20	27.2	120	18	1	60	85	4	19	M16
25	34.0	130	20	1	70	95	4	19	M16
32	42.7	140	22	2	80	105	4	19	M16
40	48.6	160	22	2	90	120	4	23	M20
50	60.5	165	22	2	105	130	8	19	M16
65	76.3	200	26	2	130	160	8	23	M20
80	89.1	210	28	2	140	170	8	23	M20
90	101.6	230	30	2	150	185	8	25	M22
100	114.3	240	32	2	160	195	8	25	M22
125	139.8	275	36	2	195	230	8	25	M22
150	165.2	325	38	2	235	275	12	27	M24
200	216.3	370	42	2	280	320	12	27	M24
250	267.4	450	48	2	345	390	12	33	M30
300	318.5	515	52	3	405	450	16	33	M30
350	355.6	560	54	3	450	495	16	33	M30
400	406.4	630	60	3	510	560	16	39	M36

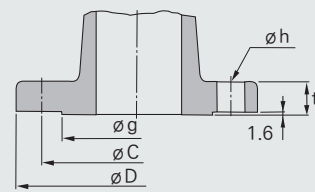
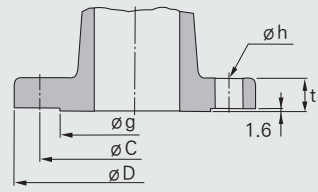
## 관 플랜지의 치수 허용차 KS B 1502 (JIS B 2203)

Unit : mm

플랜지부분	표면상태	치수구분	허용차
바깥지름 d	다듬질	300이하	±1
		300초과 600이하	±1.5
		300초과 1,000이하	±2
		1,000초과 1,500이하	±2.5
안지름 d	혹피	1,500초과하는것	±3
		16이하	±1
		16초과 63이하	±1.5
		63초과 125이하	±2
		125초과 250이하	±2.5
보울트 구멍	중심원의 지름 C	250초과 500이하	±3
		500초과 1,000이하	±4
		1,000초과하는것	±5
		250이하	±0.5
가스킷지리 f	다듬질	250초과 550이하	±0.6
		550초과 950이하	±0.8
		950초과 1,350이하	±1
두께 t	한쪽면 다듬질	8이하	±0.2
		20이하	±0.5
		20초과 50이하	±0.5
		50초과 100이하	±0.5

# ANSI관 플랜지 기본치수

## CAST IRON PIPE FLANGES ANSI B 16.1-19785



### ANSI CLASS 150

Unit : in(mm)

호칭지름 in	플랜지외경 mm	D	두께 t	가스킷 의 지름 g	보울트구멍			보울트 사이의 호칭
					중심부의지름 C	수	지름 h	
1/2	15	3.50(89)	0.44(11.2)	1.38(35)	2.38(60.5)	4	0.62(16)	1/2
3/4	20	3.88(98)	0.50(12.7)	1.69(43)	2.75(70.0)	4	0.62(16)	1/2
1	25	4.25(108)	0.56(14.3)	2.00(51)	3.12(79.5)	4	0.62(16)	1/2
1 1/4	32	4.62(117)	0.62(15.9)	2.50(64)	3.50(89.0)	4	0.62(16)	1/2
1 1/2	40	5.00(127)	0.69(17.5)	2.88(73)	3.88(98.5)	4	0.62(16)	1/2
2	50	6.00(152)	0.75(19.1)	3.62(92)	4.75(120.5)	4	0.75(19)	5/8
2 1/2	65	7.00(178)	0.88(22.3)	4.12(105)	5.50(139.5)	4	0.75(19)	5/8
3	80	7.50(191)	0.94(23.9)	5.00(127)	6.00(152.5)	4	0.75(19)	5/8
3 1/2	90	8.50(216)	0.94(23.9)	5.50(140)	7.00(178.0)	8	0.75(19)	5/8
4	100	9.00(229)	0.94(23.9)	6.19(157)	7.50(190.5)	8	0.75(19)	5/8
5	125	10.00(254)	0.94(23.9)	7.31(186)	8.50(216.0)	8	0.88(22)	3/4
6	150	11.00(279)	1.00(25.4)	8.50(216)	9.50(241.5)	8	0.88(22)	3/4
8	200	13.50(343)	1.12(28.6)	10.62(270)	11.75(298.5)	8	0.88(22)	3/4
10	250	16.00(406)	1.19(30.2)	12.75(324)	14.25(362.0)	12	1.00(25)	7/8
12	300	19.00(483)	1.25(31.8)	15.00(381)	17.00(432.0)	12	1.00(25)	7/8
14	350	21.00(533)	1.38(35.0)	16.25(413)	18.75(476.0)	12	1.12(29)	1
16	400	23.50(597)	1.44(36.6)	18.50(470)	21.25(539.5)	16	1.12(29)	1

### ANSI CLASS 300

Unit : in(mm)

호칭지름 in	플랜지외경 mm	D	두께 t	가스킷 의 지름 g	보울트구멍			보울트 사이의 호칭
					중심부의지름 C	수	지름 h	
1/2	15	3.75(95)	0.56(14.3)	1.38(35)	2.62(66.5)	4	0.62(16)	1/2
3/4	20	4.62(117)	0.62(15.9)	1.69(43)	3.25(82.5)	4	0.75(19)	5/8
1	25	4.88(124)	0.69(17.5)	2.00(51)	3.50(89.0)	4	0.75(19)	5/8
1 1/4	32	5.25(133)	0.75(19.1)	2.50(64)	3.88(98.5)	4	0.75(19)	5/8
1 1/2	40	6.12(156)	0.81(20.7)	2.88(73)	4.50(114.5)	4	0.88(22)	3/4
2	50	6.50(165)	0.88(22.3)	3.62(92)	5.00(127.0)	8	0.75(19)	5/8
2 1/2	65	7.50(191)	1.00(25.4)	4.12(105)	5.88(149.0)	8	0.88(22)	3/4
3	80	8.25(210)	1.12(28.6)	5.00(127)	6.02(168.5)	8	0.88(22)	3/4
3 1/2	90	9.00(229)	1.19(30.2)	5.50(140)	7.25(184.0)	8	0.88(22)	3/4
4	100	10.00(254)	1.25(31.8)	6.19(157)	7.88(200.0)	8	0.88(22)	3/4
5	125	11.00(279)	1.38(35.0)	7.31(186)	9.25(235.0)	8	0.88(22)	3/4
6	150	12.50(318)	1.44(36.6)	8.50(216)	10.62(270.2)	12	0.88(22)	3/4
8	200	15.00(381)	1.62(41.3)	10.62(270)	13.00(330.0)	12	1.00(25)	7/8
10	250	17.50(445)	1.88(47.7)	12.75(324)	15.25(387.5)	16	1.12(29)	1
12	300	20.50(521)	2.00(50.8)	15.00(381)	17.75(451.0)	16	1.25(32)	1 1/8
14	350	23.00(584)	2.12(54.0)	16.25(413)	20.25(514.5)	20	1.25(32)	1 1/8
16	400	25.50(648)	2.25(57.2)	18.50(470)	22.50(571.5)	20	1.38(35)	1 1/4

### ANSI CLASS 600

Unit : in(mm)

호칭지름 in	플랜지외경 mm	D	두께 t	가스킷 의 지름 g	보울트구멍			보울트 사이의 호칭
					중심부의지름 C	수	지름 h	
1/2	15	3.74(95)	0.63(15.9)	1.50(38.1)	2.62(66.7)	4	0.906(23)	1/2
3/4	20	4.606(117)	0.63(15.9)	1.87(47.6)	3.248(82.5)	4	0.906(23)	5/8
1	25	4.882(124)	0.69(17.5)	2.13(54.0)	3.500(88.9)	4	0.906(23)	5/8
1 1/4	32	5.236(133)	0.81(20.6)	2.52(63.9)	3.874(98.4)	4	0.906(23)	5/8
1 1/2	40	6.142(156)	0.87(22.2)	2.75(69.8)	4.50(114.3)	4	0.906(23)	3/4
2	50	6.496(165)	1.13(28.6)	3.31(84.1)	5.0(127.0)	8	0.906(23)	5/8
2 1/2	65	7.52(191)	1.25(31.7)	3.94(100.0)	5.874(149.2)	8	0.906(23)	3/4
3	80	8.268(210)	1.37(34.9)	4.63(117.5)	6.626(168.3)	8	0.906(23)	3/4
3 1/2	90	9.016(229)	1.56(39.7)	5.25(133.3)	7.248(184.1)	8	1.024(26)	7/8
4	100	10.75(273)	1.63(41.3)	6.00(152.4)	8.5(215.9)	8	1.024(26)	7/8
5	125	12.99(330)	1.87(47.6)	7.44(188.9)	10.5(266.7)	8	1.142(29)	1
6	150	14.02(356)	1.99(50.5)	8.75(222.2)	11.5(292.1)	12	1.142(29)	1
8	200	16.5(419)	2.25(57.1)	10.7(273.0)	13.748(349.2)	12	1.260(32)	1 1/8
10	250	20.08(510)	2.56(65.1)	13.5(342.9)	17.00(431.8)	16	1.378(35)	1 1/4
12	300	22.05(560)	2.74(69.6)	15.7(400.0)	19.248(488.9)	20	1.378(35)	1 1/4
14	350	23.82(605)	2.87(73.0)	17.0(413.8)	20.748(527.0)	20	1.535(39)	1 3/8
16	400	26.97(685)	3.06(77.8)	19.5(495.2)	23.748(603.2)	20	1.654(42)	1 1/2

### ANSI CLASS 900

Unit : in(mm)

호칭지름 in	플랜지외경 mm	D	두께 t	가스킷 의 지름 g	보울트구멍			보울트 사이의 호칭
					중심부의지름 C	수	지름 h	
1/2	15	4.764(121)	0.87(22.2)	1.50(38.1)	3.248(82.5)	4	0.906(23)	3/4
3/4	20	5.118(130)	1.00(25.4)	1.75(44.4)	3.500(88.9)	4	0.906(23)	3/4
1	25	5.866(149)	1.13(28.6)	2.06(52.4)	4.000(101.6)	4	1.024(26)	7/8
1 1/4	32	6.260(159)	1.19(30.2)	2.50(63.5)	4.374(111.1)	4	1.024(26)	7/8
1 1/2	40	7.008(178)	1.25(31.7)	2.75(69.8)	4.874(123.8)	4	1.142(29)	1
2	50	8.504(216)	1.50(38.1)	4.13(104.8)	6.500(165.1)	8	1.024(26)	7/8
2 1/2	65	9.606(244)	1.87(47.6)	4.87(123.8)	7.500(190.5)	8	1.142(29)	1
3	80	9.488(241)	1.65(41.8)	4.80(122.0)	7.500(190.5)	8	1.024(26)	7/8
4	100	11.50(292)	1.88(47.8)	6.25(158.7)	9.248(234.9)	8	1.260(32)	1 1/8
5	125	13.74(349)	2.13(54.0)	7.50(190.5)	11.000(279.4)	8	1.378(35)	1 1/4
6	150	15.00(381)	2.25(57.1)	9.25(234.9)	12.496(317.4)	12	1.260(32)	1 1/8
8	200	18.50(470)	2.50(63.5)	11.7(298.4)	15.500(393.7)	12	1.535(39)	1 3/8
10	250	21.46(545)	2.81(71.4)	10.6(268.3)	18.500(469.9)	16	1.535(39)	1 3/8
12	300	24.02(610)	3.00(76.2)	16.5(419.1)	21.000(533.4)	20	1.535(39)	1 3/8
14	350	25.20(640)	3.25(82.5)	17.7(450.8)	22.000(558.8)	20	1.654(42)	1 1/2
16	400	27.76(705)	3.37(85.7)	20.0(508.0)	24.248(615.9)	20	1.772(45)	1 5/8
18	450	30.91(785)	3.50(88.9)	22.2(565.1)	27.000(685.8)	20	2.008(51)	1 7/8

