Mechanical Seal

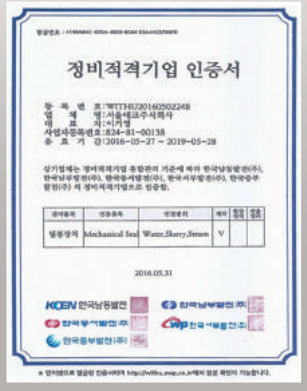
서울테크주식회사

Seoul Tech Co.,Ltd.

History

Corporate History

1996년	10월	서울테크 설립
2000년	4월	Rubber Bellows Seal 개발
2000년	10월	Mechanical Seal 고정자 규격 표준화
2010년	2월	수중펌프용 Rubber Bellows Seal(560D) 개발
2010년	4월	Metal Bellows 개발
2011년	1월	Cartridge Type Seal 개발
2011년	3월	Agitator 전용 Unit Seal 개발
2011년	11월	수중펌프용 Multi spring type Seal(SMHD) 개발
2012년	3월	ISO 9001:2008 품질 경영 시스템 인증
2013년	11월	화학 교반기용 Dry Running Seal 개발
2015년	7월	서울테크 주식회사로 법인설립
2017년	11월	김포 신 사옥으로 확장이전
2018년	11월	Metal Bellows 회사인수 및 확장



BRIEF INTRODUCTION

Seoul Tech Co, Ltd is located in Kimpo city, Korea
Our company is established in 1996.

We are one of the largest manufacturer of Mechanical seal in Korea.
Especially, we have been developing various mechanical seals such as rubber bellows mechanical seal, multiple and single spring mechanical seal, submersible pump seal, acid resistant seal, various cartridge Seal, dry running seal and seal unit for agitator etc.

These mechanical seals are used in water pump, chemical pump, oil refining industry, food industry, petrochemical industry, agitator etc.

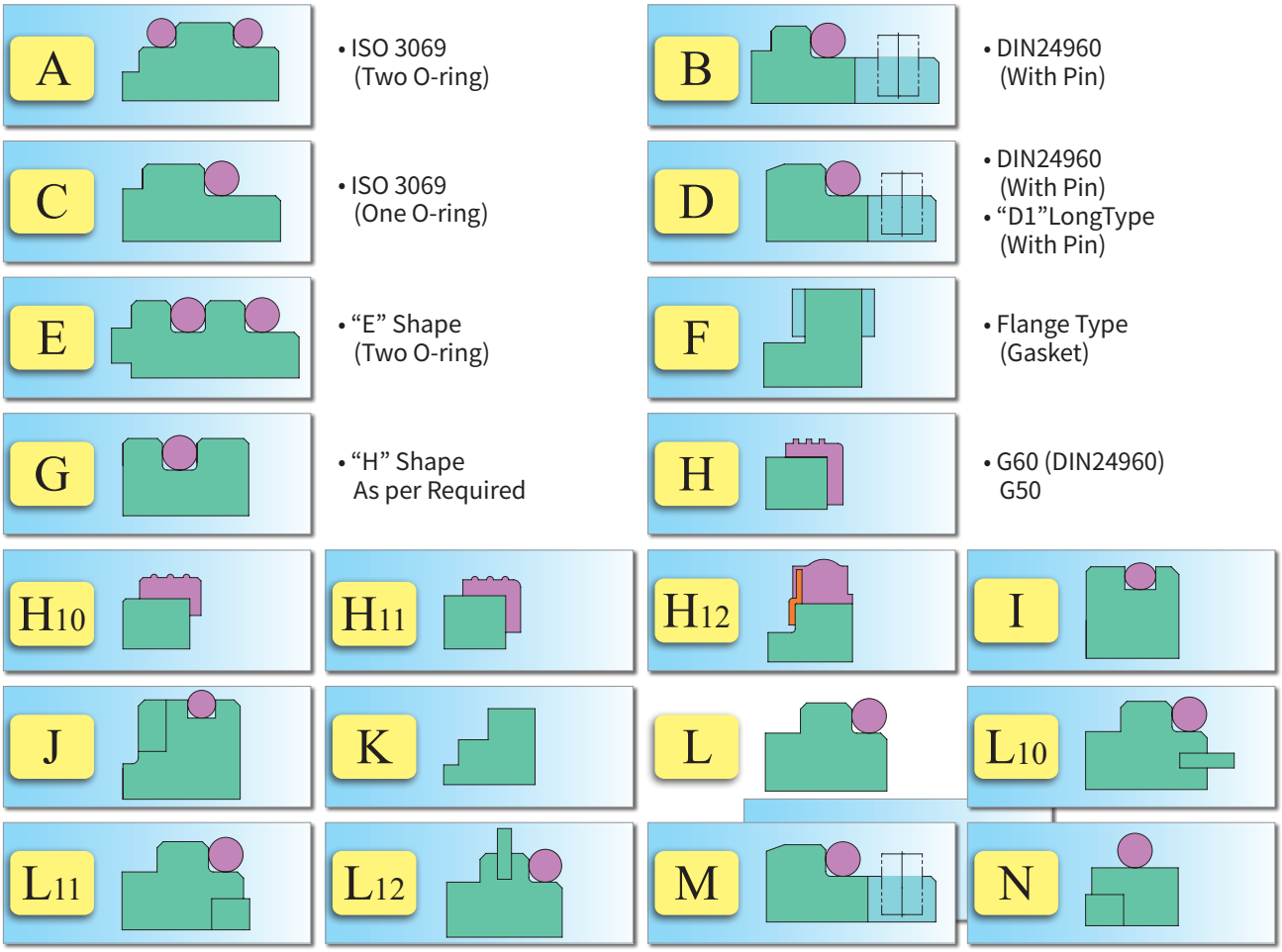
Now, we are supplying every type of mechanical seal to our customers, making them feel satisfied with our excellent quality and service.
Also, we are now enjoying great reputation from our customers.

Seoul Tech

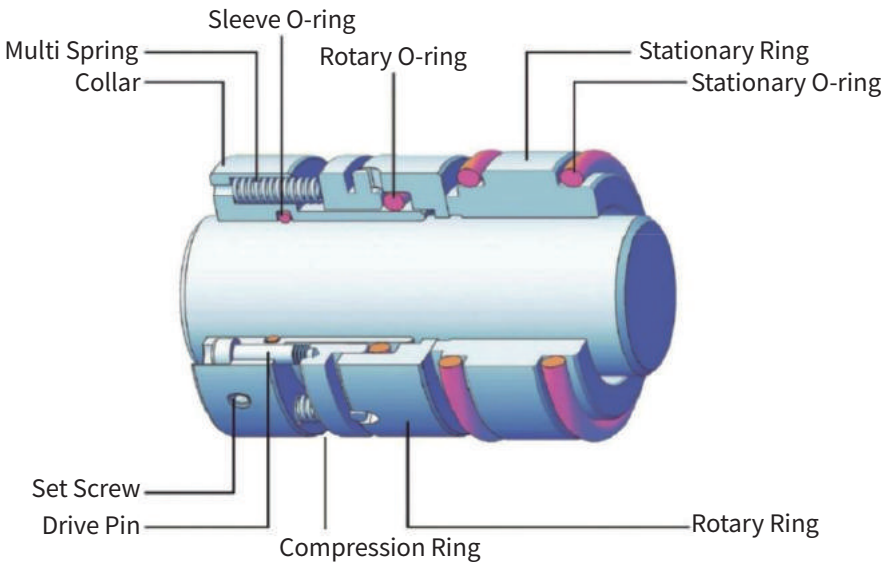
Contents

STATIONARY TYPE

Material Code



Basic Construction



Seoul Tech
Mechanical Seal Code

	First Digit	Second Digit	Third Digit	Fourth Digit	Fifth Digit	Sixth Digit
	Bellows / Collar Assembly	Rotor	Stator	Packing	Gland & Sleeve (Contact Fluid)	ETC Casing (Non-Contact Fluid)
1		Silicon Carbide (SiC)				
2		Sintered Silicon Carbide (SSiC)				
3		Tungsten Carbide (TC)				
4		Ceramic (AL2O3)				
5		Resin Carbon Graphite				
6		Antimony Carbon Graphite				
7		PTFE Carbon Graphite				
8		Ceramic Coated				
9		Tungsten Coated				
A	Alloy20	Antimony Carbon Shrink Fitted			Alloy20	
B	Duplex				Duplex	
C	SS400	Carbon Shrink Fitted		CR	SS400	
D	STS304				STS304	
E				EPDM		
F	STS316			FEP	STS316	
G	STS420J2			Graphite	STS420J2	
H	Hastelloy C				Hastelloy C	
I	DO NOT USE					
J	Hast.C+STS316					
K				Kalrez		
L	Inconel 718 / Inconel 625			GF PTFE	Inconel	
M	AM350+STS304			Chemraz		
N				NBR		
O	DO NOT USE					
P				Perfluoro		
Q						
R						
S		SiC Shrink Fitted		Silicon		
T	Titanium	TC Shrink Fitted		PTFE	Titanium	
U						
V				Viton		
W						
X	SPECIAL					
Y						
Z						

Example

SGL Spring Seal	Col. Assy	Rotor	Stator	Packing
F11V	F	1	1	V
	STS316	SiC	SiC	Viton

DBL CART.Seal	BLWS Assy		Rotor		Stator		Packing		Gland & Sleeve
	In	Out	In	Out	In	Out	In	Out	
H/J1/51/8K/VF	H	J	1	5	1	8	K	V	F
	Hast.C	Hast.C + STS316	SiC	Carbon	SiC	Ceramic Coated	Kalrez	Viton	STS316

UNIT Seal	Col. Assy	Rotor		Stator		Packing		Gland & Sleeve	Casing (ETC)
		In	Out	In	Out	In	Out		
F1/51K/VFD	F	1	5	1		K	V	F	D
	STS316	SiC	Carbon	SiC		Kalrez	Viton	STS316	STS304

Mechanical Seals

CTS

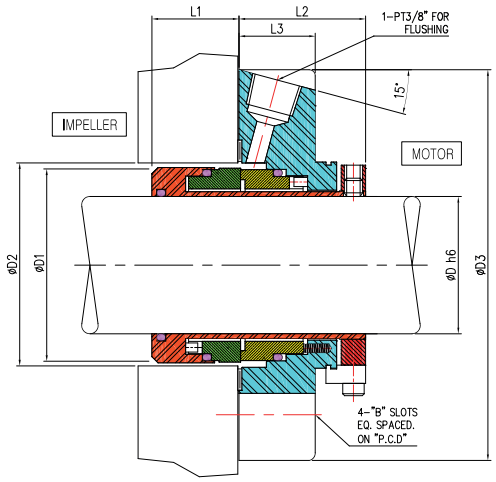
CTS는 화학 처리, 수처리 및 하수 처리장, 펄프 및 제지 공장 등의 수많은 서비스에 탁월한 싱글 푸셔 카트리지 정지형 씰입니다.
The CTS is a single pusher cartridge, stationary seal, excellent for numerous services in chemical processing, water treatment and sewage plants, and pulp and paper mills etc.

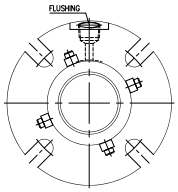
CTS의 특별한 성능

- 카트리지 디자인은 조립을 빠르게 하고, 조립시 발생 할 수 있는 오류를 방지하고, 보수를 쉽게 할 수 있습니다.
- 정지형 씰은 샤프트 또는 슬리브 마모가 없으며, 축 진동 및 축 변형으로부터 자유롭고 유연한 구성 요소를 가지고 있습니다.
- 스프링을 씰의 대기 측에 설치하여 밀봉액의 미립자로 인해 스프링 홀이 막히는 것을 방지합니다.
- 섭동면에 작용하는 압력 밸런스를 맞추어 전력 소비를 줄이는 설계를 하고 있습니다.
- 표준으로 Flush, Quench 그리고 Drain 배관을 연결할 수 있습니다.
- 슬롯형 씰 그랜드를 채용하여 다양한 볼트 PCD에 사용할 수 있습니다.

Specific Features of CTS

- Preset cartridge design, speeds installation, eliminates change of installation error, easy to repair.
- Stationary mounted seal, no wearing at shaft or sleeve, flexible components isolated from shaft vibration and the effects of shaft deflection.
- Springs on atmospheric side of the seal prevents clogging of spring pockets by particulates in media.
- Pressure balanced seal face technology for reduced power consumption
- Flush, Quench and drain can be connections with standard.
- Slotted gland plate accommodates varying bolt circle diameters.





Operating Capabilities

- Temperature : -30~200°C
- Pressure : 1.6 MPa
- Speed : 15m/sec

Materials

- Seal face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Applications

- General industry
- Process industry
- Chemical industry
- Pulp and paper industry
- Water and sewage water Technology
- ANSI process pumps

Dimensions (mm)

SEAL SIZE	D1	D2		D3	L1	L2	L3	PCD		B
		MIN.	MAX.					MIN.	MAX.	
25	44	46	51	103	28.5	41.5	25	75	81	14
30	49	51	56	108	28.5	41.5	25	80	86	14
35	54	57	65	118	28.5	41.5	25	89	96	14
40	59	62	70	123	28.5	41.5	25	94	101	14
45	64	67	75	128	28.5	41.5	25	99	106	14
50	70	73	83	149	28.5	41.5	25	107	127	14
55	75	78	88	158	28.5	41.5	25	116	130	18
60	80	84	94	168	28.5	41.5	25	122	140	18
65	85	89	99	178	29.5	41.5	25	127	150	18
70	91	95	105	188	29.5	41.5	25	133	160	18
75	101	110	120	193	33.0	51.0	28	148	165	18
80	106	115	125	198	33.0	51.0	28	153	170	18
85	111	120	130	203	33.0	51.0	28	158	175	18
90	116	125	135	208	33.0	51.0	28	163	180	18
95	121	130	140	213	33.0	51.0	28	168	185	18
100	126	135	145	218	33.0	51.0	28	173	190	18

CTDS

Mechanical Seals
Dual Cartridge

화학 처리, 수처리 및 하수 처리장, 펄프 및 제지 공장 등의 수많은 서비스에 적용한 더블 푸셔 카트리지 정지형 씰입니다.

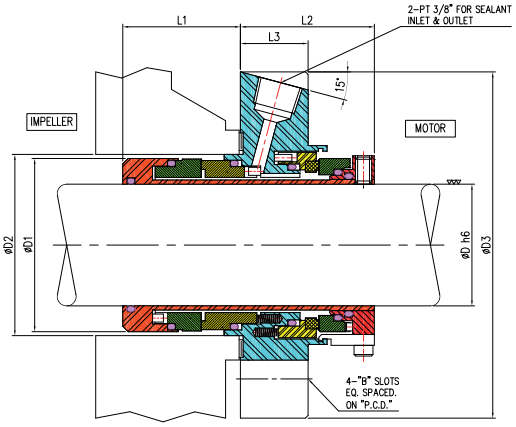
The CTDS is a double compact pusher seal design combined with cartridge installation simplicity for wide ranges of services and industries, such as chemical processing, water treatment and sewage plants, and pulp and paper applications.

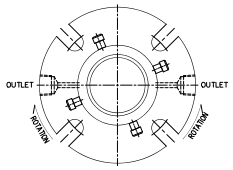
CTDS의 특별한 성능

- 카트리지 디자인은 조립을 빠르게 하고, 조립 시 발생 할 수 있는 오류를 방지하고, 보수를 쉽게 할 수 있습니다.
- 정지형 씰은 샤프트 또는 슬리브 마모가 없으며, 축 진동 및 축 변형으로부터 자유롭고 유연한 구성 요소를 가지고 있습니다.
- 스프링을 씰의 대기 측에 설치하여 밀봉액의 미립자로 인해 스프링 홀이 막히는 것을 방지합니다.
- 섭동면에 작용하는 압력 밸런스를 맞추어 전력 소비를 줄이는 설계를 하고 있습니다.
- 완충액의 흐름과 방향을 개선하기 위해 Sleeve에 널링을 설계하였습니다.
- 탠덤 또는 더블로 사용할 수 있습니다.
- 표준으로 Flush, Quench 그리고 Drain 배관을 연결할 수 있습니다.
- 슬롯형 씰 그랜드를 채용하여 다양한 볼트 PCD에 사용할 수 있습니다.

Specific Features of CTDS

- Preset cartridge design speeds installation, eliminates change of installation error, easy to repair.
- Stationary mounted seal, no shaft or sleeve wear, flexible components isolated from shaft vibration and the effects of shaft deflection.
- Springs on atmospheric side of the seal prevents clogging of spring pockets by particulates in media.
- Pressure balanced seal face technology for reduced power consumption
- Knurled sleeve plus bi-directional flow inducer for improved barrier flow
- Performs as a double or tandem
- Flush, Quench and drain connections as standard.
- Slotted gland plate accommodates varying bolt circle diameters.





Operating Capabilities

- Temperature : -30~200°C
- Pressure : 2.0 MPa
- Speed : 15m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Applications

- General industry
- Process industry
- Chemical industry
- Pulp and paper industry
- Water and sewage water Technology
- Chemical pumps

Dimensions (mm)

SEAL SIZE	D1	D2		D3	L1	L2	L3	PCD		B
		MIN.	Max.					MIN.	MAX.	
25	44	46	51	103	43.5	49.5	25	75	81	14
30	49	51	56	108	43.5	49.5	25	80	86	14
35	54	57	65	118	43.5	49.5	25	89	96	14
40	59	62	70	123	43.5	49.5	25	94	101	14
45	64	67	75	128	43.5	49.5	25	99	106	14
50	70	73	83	149	43.5	49.5	25	107	127	14
55	75	78	88	158	43.5	49.5	25	116	130	18
60	80	84	94	168	43.5	49.5	25	122	140	18
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80	106	115	125	198	52.0	58.0	28	153	170	18
85	111	120	130	203	52.0	58.0	28	158	175	18
90	116	125	135	208	52.0	58.0	28	163	180	18
95	121	130	140	213	52.0	58.0	28	168	185	18
100	126	135	145	218	52.0	58.0	28	173	190	18

Mechanical Seals
Cartridge

CTM

CTM은 어디에서나 신뢰할 수있는 성능을 제공하고 표준화된 경제적인 씰로서, 화학·펄프 및 제지 · 폐수 · 식품 · 음료 및 발전 산업의 매우 광범위한 유체에 사용됩니다.

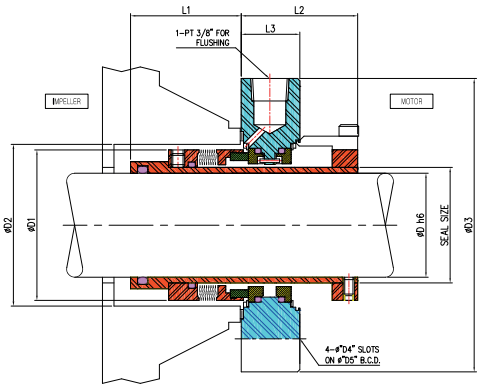
The CTM to be used in a very wide range of media in the chemical, pulp and paper, waste water, food, beverage, and power generation industries: indeed anywhere there is a need for a standardised, economical seal offering dependable performance.

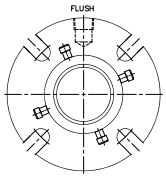
CTM의 특별한 성능

- 메탈벨로우즈 싱글 카트리지 씰 임니다.
- 카트리지 디자인은 조립을 빠르게 하고, 조립시 발생 할 수 있는 오류를 방지하고, 보수을 쉽게 할 수 있습니다.
- 운동용 오링 또는 기타 슬라이딩 부품이 없어 행업[Hang-Up]이 일어나지 않습니다.
- 세퍼레이터 또는 깨끗한 유체를 사용하는 플러시 없이 고형물 혼입액의 밀봉을 할 수 있습니다.
- 크로깅(막힘) 방지 및 자체 클린닝 하는 구조 입니다.
- 섭동면에 작용하는 압력 밸런스를 맞추어 전력 소비를 줄이고, 밀봉면의 마모를 줄여줍니다.
- 표준으로 Flush, Quench 그리고 Drain 배관을 연결할 수 있습니다.
- 슬롯형 씰 그랜드를 채용하여 다양한 볼트 PCD에 사용할 수 있습니다.
- 설치는 매우 간편하여 씰 프렌지를 씰 챔버에 볼트로 고정하고, 슬리브를 샤프트에 고정하며, 조립용 클립을 제거하면 됩니다.

Specific Features of CTM

- Metal Bellows single cartridge seal.
- Preset cartridge design speeds installation, eliminates change of installation error, easy to repair.
- No dynamic O-rings or other sliding parts to "hang-up"
- Ability to handle abrasive media without separators or clean flushes.
- Self cleaning, non-clogging construction
- Pressure balanced for low power consumption and low seal face wear.
- Flush, Quench and drain connections as standard.
- Slotted gland plate accommodates varying bolt circle diameters.
- Simply bolt the seal plate to the seal chamber, lock down the sleeve fixing screws, remove the setting clips, and the seal is ready to run.





Operating Capabilities

- Temperature : -30~200°C
- Pressure : 2.0 MPa
- Speed : 15m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Applications

- General industry
- Process industry
- Chemical industry
- Pulp and paper industry
- Food and beverage industry
- Water and sewage water Technology
- ANSI process pumps

Dimensions (mm)

SEAL SIZE	D	D1	D2		D3	D4	D5	L1	L2	L3
			MIN.	MAX.						
28	25	42.8	44	49	95	12	70.0	43.0	50.8	25.8
32	28	46.0	48	52	98	12	76.2	43.0	50.8	25.8
35	30	49.2	51	55	108	12	79.4	42.5	50.8	25.8
40	35	55.5	58	65	120	12	95.2	44.5	50.8	25.8
45	40	58.7	61	68	120	14	95.2	44.5	50.8	25.8
50	45	65.1	67	74	127	14	98.4	47.5	50.8	25.8
55	50	71.4	73	84	152	18	111.1	47.5	50.8	25.8
60	55	74.6	77	87	165	18	117.5	47.2	50.8	25.8
65	60	84.1	86	96	168	18	127.0	52.5	53.1	28.2
70	65	87.3	89	100	184	18	146.0	52.5	53.1	28.2

CTDM

Mechanical Seals
Dual Cartridge

CTDM은 컴팩트한 더블, 카트리지 씰 입니다. 내부(제품)측은 적정한 상황에 대응하기 위해 다양한 재료를 표준으로 사용하는 "서울 테크㈜" 용접 금속 벨로우즈 씰입니다.

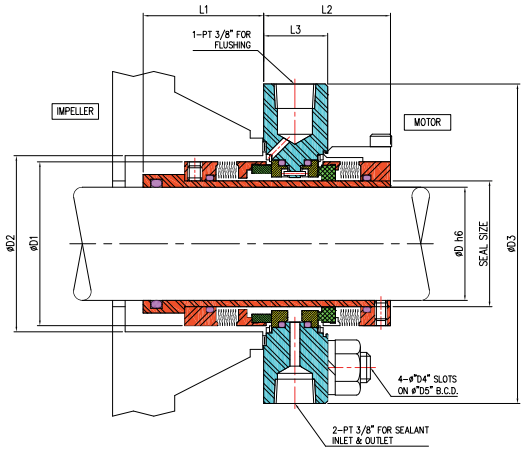
The CTDM is a compact, dual metal bellows cartridge seal. The inner (product seal) is a standard "Seoul Tech Co. Ltd" edge welded bellows seal having a variety of material options for maximum flexibility of application.

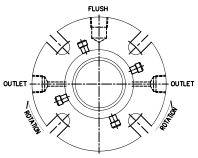
CTDM의 특별한 성능

- 메탈벨로우즈 더블 카트리지 씰 입니다.
- 카트리지 디자인은 조립을 빠르게 하고, 조립시 발생 할 수 있는 오류를 방지하고, 보수를 쉽게 할 수 있습니다.
- 운동용 오링 또는 기타 슬라이딩 부품이 없어 행업[Hang-Up]이 일어나지 않습니다.
- 세퍼레이터 또는 깨끗한 유체를 사용하는 플러시 없이 고형물 혼입액의 밀봉을 할 수 있습니다.
- 크로깅(막힘) 방지 및 자체 클린닝 하는 구조입니다.
- 섭동면에 작용하는 압력 밸런스를 맞추어 전력 소비를 줄이고, 밀봉면의 마모를 줄여줍니다.
- 표준으로 Flush, Quench 그리고 Drain 배관을 연결할 수 있습니다.
- 슬롯형 씰 그랜드를 채용하여 다양한 볼트 PCD에 사용할 수 있습니다.
- 설치는 매우 간편하여 씰 프렌지를 씰 챔버에 볼트로 고정하고, 슬리브를 샤프트에 고정하며, 조립용 클립을 제거하면 됩니다.

Specific Features of CTDM

- Metal Bellows dual cartridge seal.
- Preset cartridge design speeds installation, eliminates change of installation error, easy to repair.
- No dynamic O-rings or other sliding parts to "hang-up"
- Ability to handle abrasive media without separators or clean flushes.
- Self cleaning, non-clogging construction
- Pressure balanced for low power consumption and low seal face wear.
- Flush, Quench and drain connections as standard.
- Knurled sleeve plus bi-directional flow inducer for improved barrier flow
- Slotted gland plate accommodates varying bolt circle diameters.
- Simply bolt the seal plate to the seal chamber, lock down the sleeve fixing screws, remove the setting clips, and the seal is ready to run.





Operating Capabilities

- Temperature : -30~200°C
- Pressure : 2.0 MPa
- Speed : 15m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Applications

- General industry
- Process industry
- Chemical industry
- Pulp and paper industry
- Food and beverage industry
- Water and sewage water Technology
- ANSI process pumps

Dimensions (mm)

SEAL SIZE	D	D1	D2		D3	D4	D5	L1	L2	L3
			MIN.	MAX.						
28	25	42.8	44	49	95	12	70.0	43.0	50.8	25.8
32	28	46.0	48	52	98	12	76.2	43.0	50.8	25.8
35	30	49.2	51	55	108	12	79.4	42.5	50.8	25.8
40	35	55.5	58	65	120	12	95.2	44.5	50.8	25.8
45	40	58.7	61	68	120	14	95.2	44.5	50.8	25.8
50	45	65.1	67	74	127	14	98.4	47.5	50.8	25.8
55	50	71.4	73	84	152	18	111.1	47.5	50.8	25.8
60	55	74.6	77	87	165	18	117.5	47.2	50.8	25.8
65	60	84.1	86	96	168	18	127.0	52.5	53.1	28.2
70	65	87.3	89	100	184	18	146.0	52.5	53.1	28.2

Mechanical Seals
Cartridge

SCTS

SCTS는 밀봉유체가 스프링에 접액되지 않도록 분리 된 구조를 갖고 있으며, 고정자가 유연하게 설계되어 슬러리 펌프에 적합한 형태의 밸런스 정지형 카트리지 씰입니다.

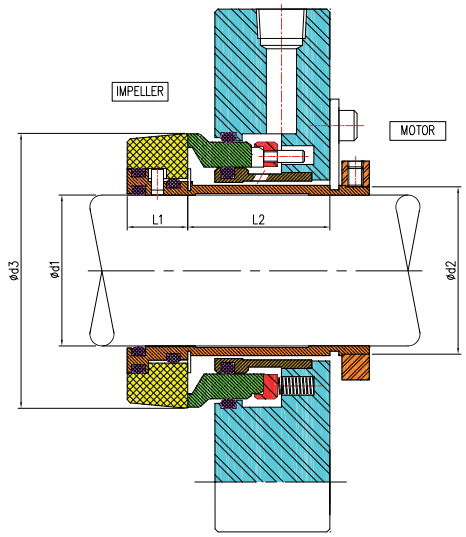
The SCTS has a separate structure that the sealing fluid does not contact the spring, and the stator is designed to be flexible, so it is a balanced static cartridge seal suitable for slurry pumps

SCTS의 특별한 성능

- 카트리지 설계는 설치 속도를 높이고 설치 오류를 방지하는 데 도움이 됩니다.
- 슬러리 펌프에 적합하게 설계 되었습니다.
- 밸런스 싱글 씰 입니다.
- 정지된 스프링은 회전하는 스프링에 비해 정렬 불량 및 편심량의 허용범위가 더 넓습니다.

Specific Features of SCTS

- Preset cartridge design speeds installation and helps to eliminate installation error.
- SCTS is suitable for slurry pump.
- Balanced single cartridge seal.
- Springs mounted on the stationary portion are more tolerant to seal misalignment and face eccentricity compared to rotating springs.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 2.0 MPa
- Speed : 30m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Applications

- Process industry
- Power plant
- Chemical industry
- Pulp, paper and steel industry
- Sugar industry
- Cement industry
- Abrasive and solids containing media
- Dredger pumps

Dimensions (mm)

SEAL SIZE (d2)	d1	d3	L1	L2
40	30	77	22.0	53.0
42	32	79	22.0	53.0
45	35	82	22.0	53.0
48	38	85	22.0	53.0
50	40	87	22.0	53.0
52	42	89	22.0	53.0
55	45	92	22.0	53.0
58	48	95	22.0	53.0
60	50	97	22.0	53.0
62	52	100	22.0	53.0
65	55	106	22.0	53.0
68	58	108	22.0	53.0
70	60	111	22.0	53.0
75	65	118	22.0	53.0
80	70	121	22.0	53.0
85	75	126	22.0	53.0
90	80	131	22.0	53.0
95	85	136	22.0	53.0
100	90	147	25.0	73.0
105	95	152	25.0	73.0
110	100	157	25.0	73.0
115	105	162	25.0	73.0
120	110	167	25.0	73.0
125	115	172	25.0	73.0
130	120	177	25.0	73.0
135	125	182	25.0	73.0
140	130	188	25.0	73.0
145	135	193	25.0	73.0
150	140	198	25.0	73.0

CHP

Mechanical Seals
Cartridge

CHP는 고압 및 고속 회전 장비에 우수한 특성을 지닌 싱글 푸셔 카트리지 정지형 씰입니다. 보일러 급수, 보일러 순환, 오일 주입 및 파이프 라인 서비스에서 신뢰성과 긴 수명이 필수 한 경우에 적합합니다.

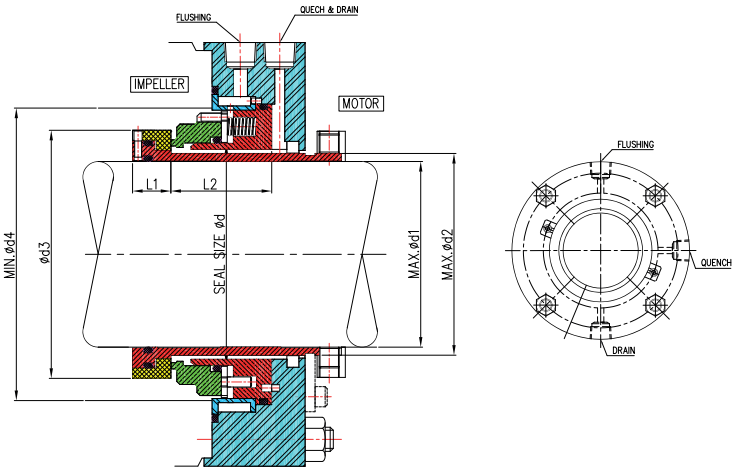
A single, pusher, cartridge stationary seal excellent for high pressure and high speed rotating equipment.
This type are used in reliability and long life for boiler feed, boiler circulation, oil field injection and pipeline services.

CHP의 특별한 성능

- 고압, 고속용에 적합하게 설계 되었습니다.
- 카트리지 디자인은 조립을 빠르게 하고, 조립시 발생 할 수 있는 오류를 없게 하고, 보수을 쉽게 할 수 있습니다.
- 정지형 구조를 채용하여 축 또는 슬리브 마모가 없으며, 유연한 구성품은 축진동 및 축변형에 대해 영향을 적게 합니다.
- 축과 섭동면 사이의 정렬불량으로 부터 씰을 보호합니다.
- 섭동면에 작용하는 압력 밸런스를 맞추어 전력 소비를 줄여줍니다.

Specific Features of CHP

- Designed for suitable high pressure and high speed.
- Preset cartridge design speeds installation, eliminates change of installation error, easy to repair.
- Stationary mounted seal, no shaft or sleeve wear, flexible components isolated from shaft vibration and the effects of shaft deflection.
- Protects the seal in case of misalignment between the seal chamber face and shaft
- Hydraulically balanced seal face technology for reduced power consumption



Operating Capabilities

- Temperature : -30~250°C
- Pressure : 5.0 MPa
- Speed : 40m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.

Applications

- Process industry
- Power plant
- Chemical industry
- Pulp, paper and steel industry
- Water and sewage water Technology

Dimensions (mm)

SEAL SIZE (d)	d1	d2	d3	d4	L1	L2
40	30	34	49	61	15.5	45.0
42	32	36	54	64	16.0	45.0
45	35	39	56	67	16.0	45.0
48	38	42	58	69	18.0	45.0
50	40	44	61	70	18.0	45.0
52	42	46	64	74	18.0	45.0
55	45	49	66	77	18.0	45.0
58	48	52	69	83	18.0	45.0
60	50	54	71	85	18.0	46.0
62	52	56	78	88	18.0	46.0
65	55	59	80	90	18.0	46.0
68	58	62	82	93	18.0	46.0
70	60	64	85	98	18.0	46.0
75	65	69	90	103	18.0	46.0
80	70	74	95	108	19.0	46.0
85	75	79	100	113	19.0	46.0
90	80	84	105	118	19.0	46.0
95	85	89	110	123	19.0	46.0
100	90	94	115	128	19.0	46.0
105	92	98	120	136	19.0	50.0
110	97	103	130	141	19.0	50.0
115	102	108	135	146	19.0	50.0
120	107	113	140	151	19.0	50.0
125	112	118	145	156	21.0	50.0
130	117	123	150	161	21.0	50.0
135	122	128	155	166	21.0	50.0
140	127	133	160	171	21.0	50.0
145	132	138	165	176	21.0	50.0
150	137	143	170	181	21.0	50.0

A balanced multi-spring Pusher seal for heavy-duty equipment

CTKB

CTKB는 고압에 적합하게 설계, 씰 면의 고 밸런스 및 저 밸런스 설계, 최적의 스프링 면압, 멀티 플러쉬 디자인 등 긴 수명을 유지하고 씰의 안정성을 유지하도록 설계된 씰입니다. CTKB는 싱글, 탠덤, 더블 씰로 구성 할 수 있어 API 682에 적합합니다.

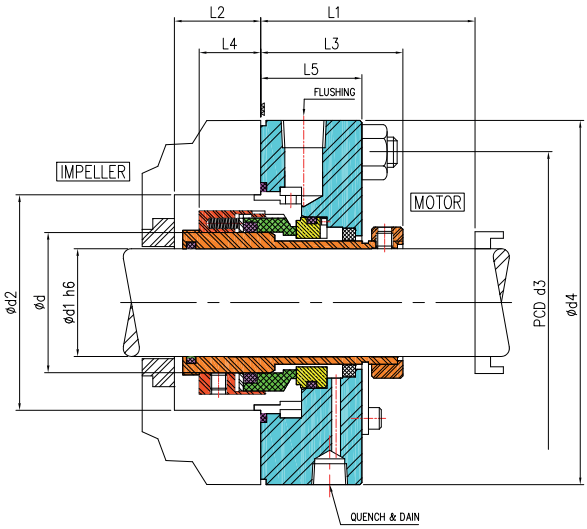
The CTKB is designed to maintain long life and stability of the seal, such as rotor design suitable for high pressure, high balance and low balance design of the seal face, optimum spring pressure, and multi-flush design. The CTKB is also available in single, tandem and dual seal configurations and meets API 682 requirements.

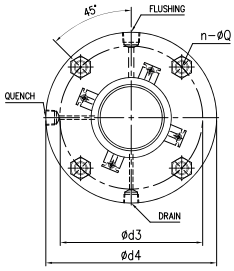
CTKB의 특별한 성능

- 고압, 밸런스 싱글 카트리지 씰 입니다.
- 대부분의 API 및 ANSI 대구경 펌프에 적합하도록 컴팩트하게 설계 되었습니다.
- 사용 조건에 따라 밸런스 비를 조절할 수 있습니다. (저 밸런스, 표준 밸런스, 고 밸런스 씰)
- 섭동면에 좁은 면폭을 적용하여 발열 및 에너지를 저감하는 구조입니다.
- 고압에서 변형이 최소화 될 수 있도록 회전자를 설계하였습니다.
- 스프링 홀더의 유체 흐름을 개선하는 설계를 적용하였습니다.
- 멀티플러싱을 사용하여 섭동면의 발생 열량을 저감할 수 있도록 설계 되었습니다.

Specific Features of CTKB

- High pressure, balanced single cartridge seal.
- Compact design to fit most API and ANSI large diameter pumps.
- You can adjust the balance ratio according to the working conditions. (Low balance, standard balance, high balance seal)
- It is a structure that reduces heat generation and energy by applying a narrow width to the seal face.
- The rotor is designed to minimize deformation from high pressure.
- A design to improve the fluid flow of the spring holder is applied.
- Designed to reduce the amount of heat generated in the seal face by using multiple flushing.





Operating Capabilities

- Temperature : -30~200°C
- Pressure : 4.0 MPa
- Speed : 23m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.

Applications

- General industry
- Process industry
- Power plant
- Chemical industry
- Pulp, paper and steel industry
- Water and sewage water Technology
- Oil and Refining industry
- Food and beverage industry

Dimensions (mm)

SIZE (d)	d1	d2	d3	d4	L1 (Min)	L2 (Min)	L3	L4	L5	N-Q
1.250	20	70	105	129	100	50	55	26	39	4-M12
1.500	25	70	105	129	100	50	58	26	40	4-M12
1.750	30	80	115	139	100	55	60	32	43	4-M12
2.000	35	80	115	139	100	55	66	32	43	4-M12
2.125	40	90	125	149	100	60	70	32	46	4-M12
2.375	45	90	125	149	100	60	70	32	46	4-M12
2.500	50	100	140	173	110	55	70	32	46	4-M16
2.750	55	100	140	173	110	55	73	39	49	4-M16
2.875	60	120	160	193	110	60	73	39	49	4-M16
3.125	65	120	160	193	110	60	78	39	51	4-M16
3.375	70	130	170	205	110	65	83	37	56	4-M16
3.500	75	130	170	205	110	65	83	37	56	4-M16
3.750	80	140	180	215	110	70	83	37	56	4-M16
3.875	85	140	180	215	110	70	83	37	56	4-M16
4.125	90	160	205	245	120	65	90	39	63	4-M20
4.250	95	160	205	245	120	65	90	39	63	4-M20
4.500	100	170	215	255	120	70	90	39	63	4-M20
4.750	105	170	215	255	120	70	92	37	65	4-M20
4.875	110	180	225	265	120	75	92	37	65	4-M20

STMX1/STMX2

STMX는 교반기 및 믹서기 상부에 사용하도록 설계된 외장 접촉형 드라이 씰 입니다.
우수한 내 화학성을 갖도록 설계되었습니다.

STMX1/STMX2의 특별한 성능

- 자기윤활성이 있는 카본 또는 충진 PTFE를 사용하여 냉각없이 드라이 상태에서 사용 할 수 있습니다.
- 유연하게 설계된 회전부는 믹서, 교반기 등의 높은 런아웃 요구 사항에 적합합니다.
- 옵션인 플러시 커넥터를 사용하면 장비에 장착 된 상태에서 씰 내부를 스팀 청소 및 살균 할 수 있습니다.
- 가역적인 압력에 적합한 이중 오링은 고정자의 변형을 방지합니다.
- 우수한 내 화학성을 위해 비금속 부품을 사용합니다.
- 섭동면의 마모 입자가 제품에 혼입되지 않도록 해야 합니다.

Specific Features of STMX1/STMX2

- Self-lubricating carbon or filled PTFE seal face runs completely dry without cooling
- Flexible rotor part designed suitable for the high run-out requirements of mixers and agitator etc.
- Optional flush connector allows steam cleaning and sterilizing of the seal's interior while mounted on the equipment
- Suitable for pressure reversible double o-ring prevents distortion of the stator.
- Use non-metallic parts for superior chemical resistance.
- Protect inflow of the particle of seal face to the products.

Operating Capabilities

- Temperature : -40~150°C
- Pressure : Vacuum~0.4 MPa
- Shaft Speed : Up to 350rpm

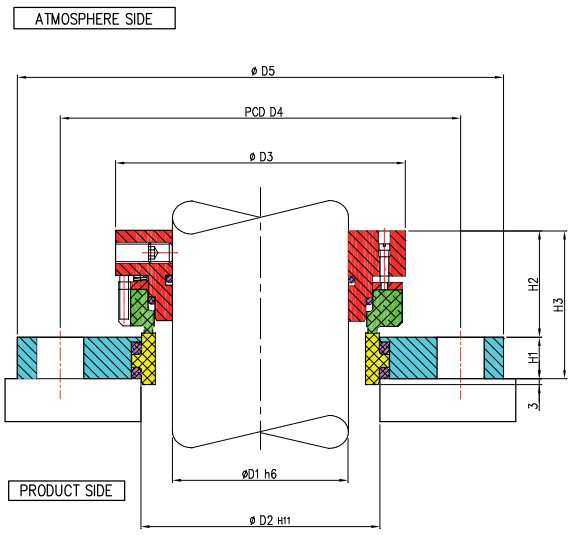
Materials

- Seal Face
-Resin Imp. Carbon
-Filled PTFE
- Mating Ring
-Silicon carbide
-Tungsten carbide
-Ceramic Coating

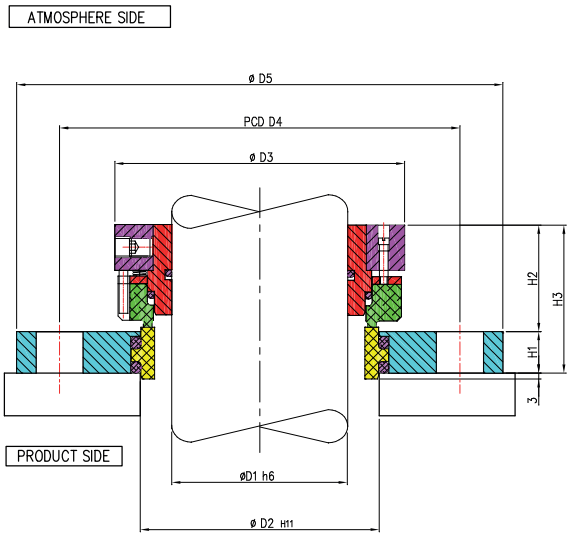
Applications

- Agitator, Mixer and Reactor
- Pharmaceutical industry
- Food and beverage industry
- Chemical industry
- Non-toxic media

An outside, contacting mounted dry running single seal designed specifically for use on top-entry agitator and mixer services. Designed for superior chemical resistance.



STMX1



STMX2

Dimensions (mm)

SIZE	D1	D2	D3	D4	D5	F	H1	H2	H3
M025	25	50	75	95	115	12	15	49.5	64.5
M030	30	55	80	100	120	12	15	49.5	64.5
M035	35	60	85	105	125	12	15	49.5	64.5
M040	40	65	90	110	130	12	15	49.5	64.5
M045	45	70	95	115	135	12	15	49.5	64.5
M050	50	75	100	125	150	14	15	49.5	64.5
M055	55	80	105	130	155	14	15	49.5	64.5
M060	60	85	110	135	160	14	15	49.5	64.5
M065	65	95	118	140	165	14	18	52.5	70.5
M070	70	100	123	145	170	14	18	52.5	70.5
M075	75	105	128	150	175	14	18	52.5	70.5
M080	80	110	133	155	180	14	18	52.5	70.5
M085	85	115	138	170	200	18	18	52.5	70.5
M090	90	120	143	175	205	18	18	52.5	70.5
M095	95	125	148	180	210	18	18	52.5	70.5
M100	100	130	153	185	215	18	20	52.5	72.5
M110	110	140	163	195	225	18	20	52.5	72.5
M120	120	150	173	205	235	18	20	52.5	72.5
M130	130	160	183	220	255	22	20	52.5	72.5
M140	140	175	195	230	265	22	20	52.5	72.5
M150	150	185	205	240	275	22	20	52.5	72.5
M160	160	195	215	250	285	22	20	52.5	72.5
M170	170	205	225	260	295	22	20	52.5	72.5
M180	180	215	235	270	305	22	20	52.5	72.5

CGS

Mechanical Seals
Cartridge

산업용 송풍기, 컴프레셔, 팬, 믹서, 교반기, 반응기 등에 사용하는 싱글 드라이 가스 씰 입니다. 고속회전 및 고압용으로 사용 할 수 있으며 최소한의 누설이 허용됩니다. CGS 씰은 싱글, 더블 또는 탠덤 카트리지 씰로 사용할 수 있습니다.

A single dry-running gas sealing for industrial blowers, fans. compressor, mixers, agitators, reactors. High performance, long life, and minimal, controlled leakage are assured. Type CGS Seals can be used in single, double or tandem cartridge arrangements.

CGS의 특별한 성능

- 고속회전 및 고압에서 건식 운전이 가능합니다.
- 비접촉으로 운전 합니다.
  : 나선형 홈의 펌핑 작용은 섭동면 사이에 가스 압력을 발생시키고, 그 압력은 양면을 메세하게 분리하는 작용을 합니다. 일반적으로 막두께는 2.5μm ~ 5.0μm 입니다.
- 윤활이 필요없습니다.
  : 드라이 런닝 기술은 섭동면 윤활 불량에 의한 잦은 유지 보수와 윤활액에 의한 제품 오염을 우려하지 않아도 됩니다.

Specific Features of CGS

- Used high speed and high pressure, no need lubrication between seal faces
- Non-Contacting Operation
  : The inward pumping action of the spiral grooves gives rise to gas pressure between the faces, and the pressure acts to separate the two faces. The typical face separation is 2.5μm to 5.0μm.
- No Lubrication
  : Dry running technology doesn't need to worry about frequent maintenance due to poor lubrication on the seal face and product contamination by lubricating fluid.

1 CGS-Single dry gas seal

This seals are used with no addition back up seal. Labyrinths seals, radial clearance seals are optional. This seal is used as an emission free with according flare or vent system.

2 CGS-Tandem seal

This seals are admissible on process gas leakage on gas pipeline compressors. This tandem arrangements are especially operational safety. Because the out-board seal act as safety seal even if the in-board seal is leakaged.

3 CGS-Double seal

The gas in-board side leakages to out-board side are inadmissible. The applications are suitable for chemical indstry. Buff er gas should be fed at higher pressure than in-board side pressure.

Operating Capabilities

- Temperature : -40 ~ 250°C
- Pressure : 5.0 Mpa
- Speed : 60 m/s

Applications

- Oil and gas industry
- Petrochemical industry
- Refining technology
- Hydrocarbon gas
- Nitrogen gas
- Refining technology
- Centrifugal compressors
- Blowers
- Compressor

Top entry Agitator Seals

Mechanical Seals for pressure mixer vessels and reactors

USWB/USWBL

생명공학, 화학, 석유화학, 제약, 식품, 광산 및 광석 처리 공장에서는 다양한 믹서, 교반기, 반응기, 필터, 건조기 및 기타 특수 장비 등이 사용되고 있습니다. 서울테크㈜의 씰 유닛은 이러한 장비들의 밀봉기기로 사용되며 높은 신뢰성을 유지합니다.

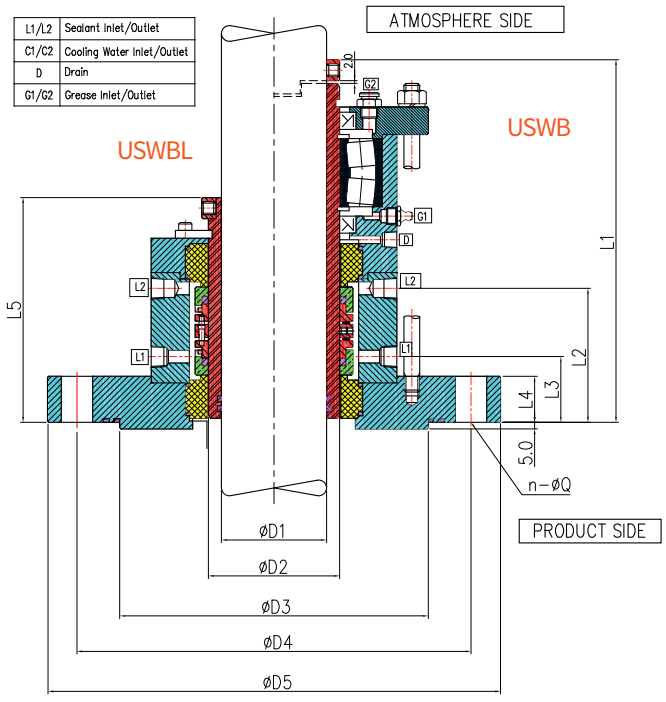
In biotechnology, chemical, petrochemical, pharmaceutical, food and ore processing plants, diverse system are employed for various mixers, agitators, reactors, filters, dryers and other special equipment. The seal units of Seoul Tech Co., Ltd. are used for these equipment and keep high reliability.

USWB / USWBL의 특별한 성능

- 액체 윤활의 접촉형 상부 조립 씰입니다.
- 베어링이 있거나 없는 카트리지 디자인입니다.
- DIN, ISO 및 기타 국제 표준에 적합하도록 설계가능 합니다.
- 부식 및 침식 방지를 위해 다양한 재료 사용이 가능 합니다.
- 누설액 처리 배관 장치를 사용할 수 있습니다. (옵션)

Specific Features of USWB / USWBL

- Liquid lubricated contacting top entry seal.
- Cartridge designs with and without a bearing.
- Designs engineered to comply with DIN, ISO, and other international standard.
- Use the various materials to combat corrosion and erosion.
- Drain Box or Leakage drain Option.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 1.6 MPa (Media Side)
- Differential Pressure(△p) :
  p1 > p3 : △pmax.=0.2 MPa
  p3 > p1 : 0.2 MPa
- Speed : 5m/sec

Materials

- Seal face:
  - Silicon Carbide
  - Tungsten Carbide
  - Resin Imp. Carbon
  - Antimony Imp. Carbon
  - Special Steel

Applications

- Agitators
- Mixer
- Reactor
- Dryer
- Chemical industry
- Pharmaceutical industry
- Toxic media with special materials
- Filter

Standards

- DIN 28136 T2 (for steel vessels)
- DIN 28141 (flange connection)
- DIN 28154 (shaft diameter and step)
  refer to dimension with (*)

Dimensions (mm)

D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	n-φQ
30	50	135	170	195	268	110	48	30	165	8-φ14
40	60	145	180	205	283	105	49	30	175	8-φ14
50	70	155	190	215	293	121	50	30	185	8-φ14
60	80	165	200	225	303	127	50	30	185	8-φ14
70	90	175	210	235	323	133	50	30	195	8-φ14
80	100	185	220	245	323	133	51	30	195	8-φ14
90	110	205	240	265	333	133	51	30	195	8-φ14
100	120	215	261	289	371	135	51	35	215	12-φ19
110	130	225	271	299	364	135	51	35	215	12-φ19
120	140	235	281	309	369	135	51	35	215	12-φ19
130	150	280	335	375	424	135	51	45	215	12-φ23
140	160	290	345	385	433	145	53	45	235	12-φ23
150	170	300	355	395	452	145	53	45	235	12-φ23
160	180	310	365	405	458	145	53	45	250	12-φ23
170	190	320	375	415	473	145	53	45	250	12-φ23
180	200	330	390	430	483	145	56	45	250	12-φ23

USWBB/USWBBL

Top entry Agitator Seals
Mechanical Seals for pressure mixer vessels and reactors

생명공학, 화학, 석유화학, 제약, 식품, 광산 및 광석 처리 공장에서는 다양한 믹서, 교반기, 반응기, 필터, 건조기 및 기타 특수 장비 등이 사용되고 있습니다. 서울테크㈜의 씰 유닛은 이러한 장비들의 밀봉기기로 사용되며 높은 신뢰성을 유지합니다.

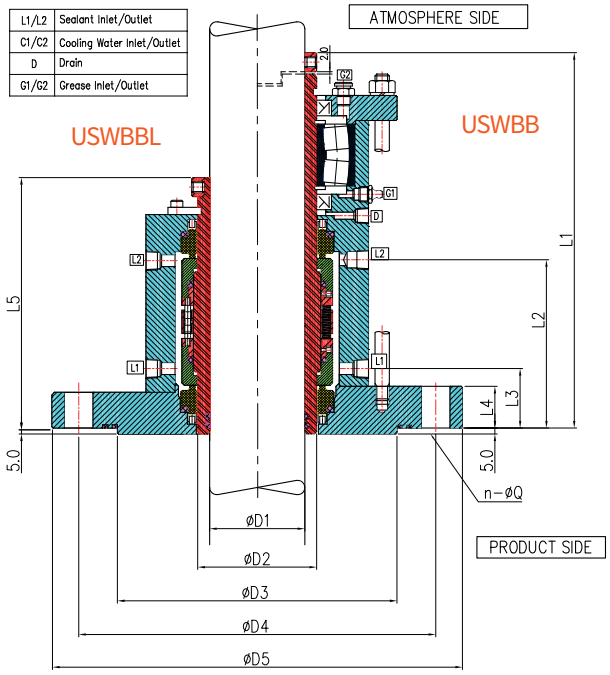
In biotechnology, chemical, petrochemical, pharmaceutical, food and ore processing plants, diverse system are employed for various mixers, agitators, reactors, filters, dryers and other special equipment. The seal units of Seoul Tech Co., Ltd. are used for these equipment and keep high reliability.

USWBB / USWBBL의 특별한 성능

- 액체 윤활의 접촉형 상부 조립 씰입니다.
- 베어링이 있거나 없는 카트리지 디자인입니다.
- 밸런스씰 구조입니다.
- 열변형, 압력변형을 균형적으로 설계하였습니다.
- DIN, ISO 및 기타 국제 표준에 적합하도록 설계가능 합니다.
- 부식 및 침식 방지를 위해 다양한 재료 사용이 가능 합니다.
- 누설액 처리 배관 장치를 사용할 수 있습니다. (옵션)

Specific Features of USWBB / USWBBL

- Liquid lubricated contacting top entry seal.
- Cartridge designs with and without a bearing.
- Hydraulically balanced mating rings.
- Balanced design between thermal and pressure deformation.
- Designs engineered to comply with DIN, ISO, and other international standard.
- Use the various materials to combat corrosion and erosion.
- Drain Box or Leakage drain Option



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 3.9 MPa (Media Side)
- Differential Pressure(△p) :
  p1 > p3 : △pmax.=0.2 MPa
  p3 > p1 : 0.2 MPa
- Speed : 5m/sec

Materials

- Seal face:
  - Silicon Carbide
  - Tungsten Carbide
  - Resin Imp. Carbon
  - Antimony Imp. Carbon
  - Special Steel

Applications

- Agitators
- Mixer
- Reactor
- Dryer
- Chemical industry
- Pharmaceutical industry
- Toxic media with special materials
- Filter

Standards

- DIN 28136 T2 (for steel vessels)
- DIN 28141 (flange connection)
- DIN 28154 (shaft diameter and step)
  refer to dimension with (*)

Dimensions (mm)

D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	n-ϕQ
30	50	135	170	195	278	120	48	30	172	8-ϕ14
40	60	145	180	205	293	115	49	30	185	8-ϕ14
50	70	155	190	215	303	131	50	30	195	8-ϕ14
60	80	165	200	225	313	137	50	30	195	8-ϕ14
70	90	175	210	235	333	143	50	30	205	8-ϕ14
80	100	185	220	245	333	143	51	30	205	8-ϕ14
90	110	205	240	265	343	143	51	30	205	8-ϕ14
100	120	215	261	289	381	145	51	35	225	12-ϕ19
110	130	225	271	299	374	145	51	35	225	12-ϕ19
120	140	235	281	309	379	145	51	35	225	12-ϕ19
130	150	280	335	375	443	145	51	45	225	12-ϕ23
140	160	290	345	385	443	155	53	45	245	12-ϕ23
150	170	300	355	395	462	155	53	45	245	12-ϕ23
160	180	310	365	405	468	155	53	45	260	12-ϕ23
170	190	320	375	415	483	155	53	45	260	12-ϕ23
180	200	330	390	430	493	155	56	45	260	12-ϕ23

Top entry Agitator Seals

Mechanical Seals for high temperature mixer vessels and reactors

USWBC/USWBCH

생명공학, 화학, 석유화학, 제약, 식품, 광산 및 광석 처리 공장에서는 다양한 믹서, 교반기, 반응기, 필터, 건조기 및 기타 특수 장비 등이 사용되고 있습니다. 서울테크㈜의 씰 유닛은 이러한 장비들의 밀봉기기로 사용되며 높은 신뢰성을 유지합니다.

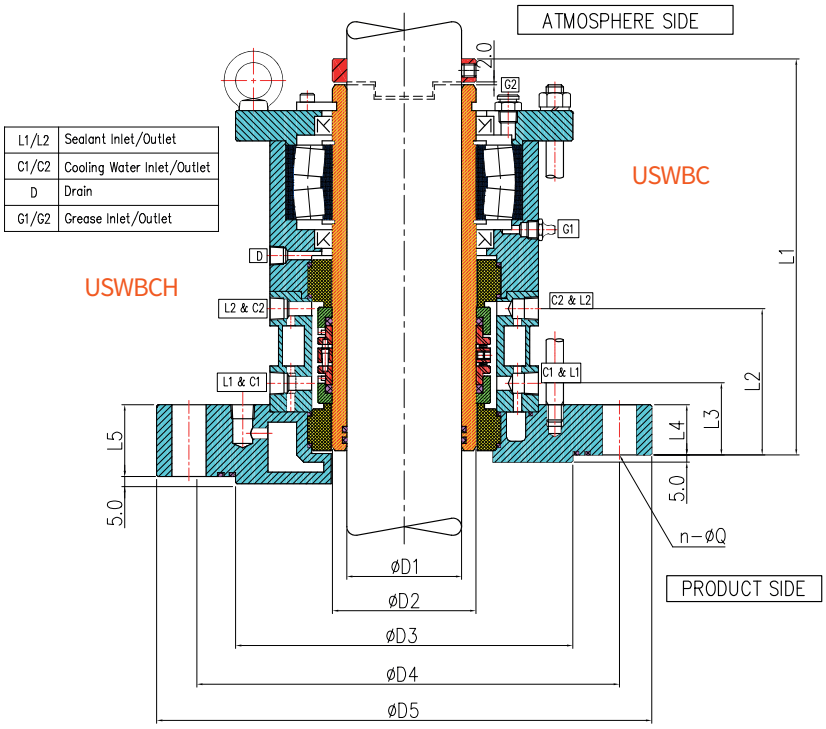
In biotechnology, chemical, petrochemical, pharmaceutical, food and ore processing plants, diverse system are employed for various mixers, agitators, reactors, filters, dryers and other special equipment. The seal units of Seoul Tech Co., Ltd. are used for these equipment and keep high reliability.

USWBC / USWBCH의 특별한 성능

- 액체 윤활의 접촉형 상부 조립 씰입니다.
- 베어링이 있거나 없는 카트리지 디자인입니다.
- 냉각 또는 가열 자켓을 사용합니다.
- DIN, ISO 및 기타 국제 표준에 적합하도록 설계가능 합니다.
- 부식 및 침식 방지를 위해 다양한 재료 사용이 가능 합니다.
- 누설액 처리 배관 장치를 사용할 수 있습니다. (옵션)

Specific Features of USWBC / USWBCH

- Liquid lubricated contacting top entry seal.
- Cartridge designs with and without a bearing.
- Use Cooling or heating Jacket.
- Designs engineered to comply with DIN, ISO, and other international standard.
- Use the various materials to combat corrosion and erosion.
- Drain Box or Leakage drain Option.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 1.6 MPa (Media Side)
- Differential Pressure(△p) :
  p1 > p3 : △pmax.=0.2 MPa
  p3 > p1 : 0.2 MPa
- Speed : 5m/sec

Materials

- Seal face:
  - Silicon Carbide
  - Tungsten Carbide
  - Resin Imp. Carbon
  - Antimony Imp. Carbon
  - Special Steel

Applications

- Agitators
- Mixer
- Reactor
- Dryer
- Chemical industry
- Pharmaceutical industry
- Toxic media with special materials
- Filter

Standards

- DIN 28136 T2 (for steel vessels)
- DIN 28141 (flange connection)
- DIN 28154 (shaft diameter and step)
  refer to dimension with (*)

Dimensions (mm)

D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	n-ϕQ
30	50	135	170	195	268	110	48	30	165	8-ϕ14
40	60	145	180	205	283	105	49	30	175	8-ϕ14
50	70	155	190	215	293	121	50	30	185	8-ϕ14
60	80	165	200	225	303	127	50	30	185	8-ϕ14
70	90	175	210	235	323	133	50	30	195	8-ϕ14
80	100	185	220	245	323	133	51	30	195	8-ϕ14
90	110	205	240	265	333	133	51	30	195	8-ϕ14
100	120	215	261	289	371	135	51	35	215	12-ϕ19
110	130	225	271	299	364	135	51	35	215	12-ϕ19
120	140	235	281	309	369	135	51	35	215	12-ϕ19
130	150	280	335	375	424	135	51	45	215	12-ϕ23
140	160	290	345	385	433	145	53	45	235	12-ϕ23
150	170	300	355	395	452	145	53	45	235	12-ϕ23
160	180	310	365	405	458	145	53	45	250	12-ϕ23
170	190	320	375	415	473	145	53	45	250	12-ϕ23
180	200	330	390	430	483	145	56	45	250	12-ϕ23

USWBG

Top entry Agitator Seals
Mechanical Seals for glass-lining mixer vessels and reactors

생명공학, 화학, 석유화학, 제약, 식품, 광산 및 광석 처리 공장에서는 다양한 믹서, 교반기, 반응기, 필터, 건조기 및 기타 특수 장비 등이 사용되고 있습니다. 서울테크㈜의 씰 유닛은 이러한 장비들의 밀봉기기로 사용되며 Glass Lining 처리를 하여 부식성이 높은 제품을 생산하는 장비에 적합하도록 설계 하였습니다.

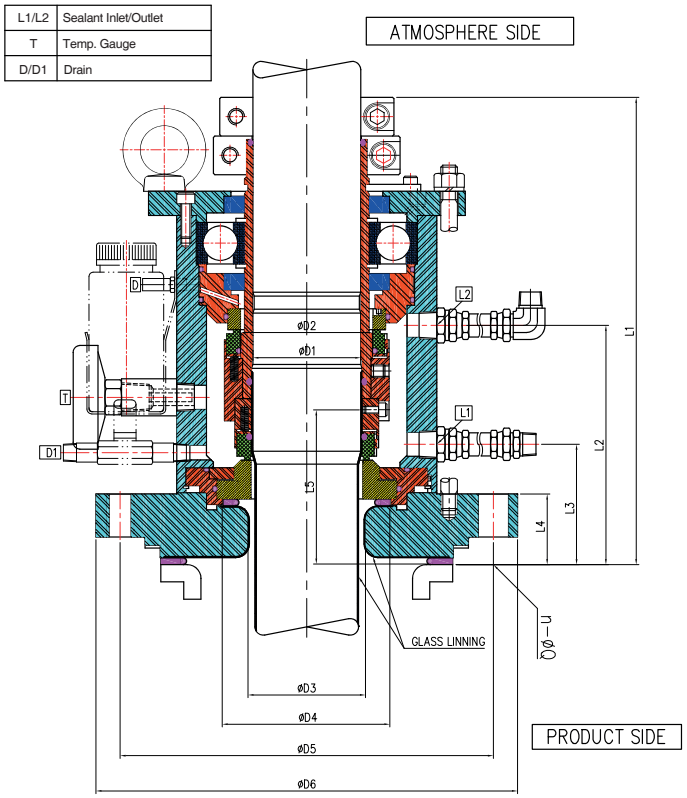
In biotechnology, chemical, petrochemical, pharmaceutical, food and ore processing plants, diverse system are employed for various mixers, agitators, reactors, filters, dryers and other special equipment.

USWBG의 특별한 성능

- 액체 윤활의 접촉형 상부 조립 씰입니다.
- 베어링을 사용하는 카트리지 디자인입니다.
- Glass Lining처리를 하여 부식성이 강한 제품을 생산하는 장비에 적합합니다.
- DIN, ISO 및 기타 국제 표준에 적합하도록 설계가능 합니다.
- 부식 및 침식 방지를 위해 다양한 재료 사용이 가능 합니다.
- 누설액 처리 배관 장치를 사용할 수 있습니다. (옵션)

Specific Features of USWBG

- Liquid lubricated contacting top entry seal.
- Cartridge designs with a bearing.
- Glass Lining unit seal for high corrosive products.
- Designs engineered to comply with DIN, ISO, and other international standard.
- Use the various materials to combat corrosion and erosion.
- Drain Box or Leakage drain Option.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 1.6 MPa (Media Side)
- Differential Pressure(△p) :
  p1 > p3 : △pmax.=0.2 MPa
  p3 > p1 : 0.2 MPa
- Speed : 5m/sec

Materials

- Seal face:
  - Silicon Carbide
  - Tungsten Carbide
  - Resin Imp. Carbon
  - Antimony Imp. Carbon
  - Special Steel

Applications

- Agitators
- Mixer
- Reactor
- Dryer
- Chemical industry
- Pharmaceutical industry
- Toxic media with special materials
- Filter

Standards

- DIN 28136 T2 (for steel vessels)
- DIN 28141 (flange connection)
- DIN 28154 (shaft diameter and step)
  refer to dimension with (*)

Dimensions (mm)

D2	D1	D3	D4	D5	D6	L1	L2	L3	L4	n-ϕQ
70	50	54	130	190	215	293	121	50	30	8-ϕ14
80	60	67	140	200	225	303	127	50	30	8-ϕ14
90	70	80	150	210	235	323	133	50	30	8-ϕ14
100	80	93	160	220	245	323	133	51	30	8-ϕ14
110	90	105	170	240	265	333	133	51	30	8-ϕ14
120	100	135	200	261	289	371	135	51	35	12-ϕ19
130	110	135	210	271	299	364	135	51	35	12-ϕ19
140	120	151	220	281	309	369	135	51	35	12-ϕ19
150	130	151	250	335	375	424	135	51	45	12-ϕ23
160	140	151	260	345	385	433	145	53	45	12-ϕ23
170	150	154	270	355	395	452	145	53	45	12-ϕ23

Top entry Agitator Seals

Mechanical Seals for high temperature
mixer vessels and reactors

USWBT

생명공학, 화학, 석유화학, 제약, 식품, 광산 및 광석 처리 공장에서는 다양한 믹서, 교반기, 반응기, 필터, 건조기 및 기타 특수 장비 등이 사용되고 있습니다. 서울테크㈜의 씰 유닛은 이러한 장비들의 밀봉기기로 사용되며 높은 신뢰성을 유지합니다.

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USWBT의 특별한 성능

- 슬리브 없이 축에 메카니컬 씰이 바로 장착 되므로 씰 구격이 작아져 경제적입니다..
- 액체 윤활의 접촉형 상부 조립 씰입니다.
- 메커니컬씰과 축을 일체화한 카트리지 디자인입니다.
- DIN, ISO 및 기타 국제 표준에 적합하도록 설계가능 합니다.
- 부식 및 침식 방지를 위해 다양한 재료를 사용 할 수 있습니다.
- 누설액 처리 배관 장치를 사용할 수 있습니다. (옵션)

Specific Features of USWBT

- The mechanical seal is attached directly to the shaft without a sleeve, so it is economical because the seal is small.
- Liquid lubricated contacting top entry seal.
- Cartridge designs with a bearing and shaft.
- Designs engineered to comply with DIN, ISO, and other international standard.
- Use the various materials to combat corrosion and erosion.
- Drain Box or Leakage drain Option.

Operating Capabilities

- Temperature : -30~200°C
- Pressure : 1.6 MPa (Media Side)
- Speed : 5m/sec

Materials

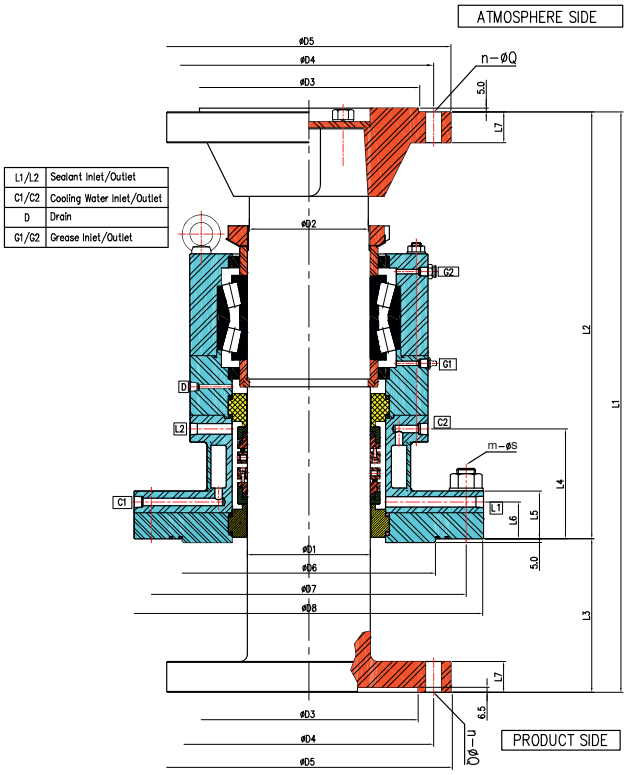
- Seal face:
  - Silicon Carbide
  - Tungsten Carbide
  - Resin Imp. Carbon
  - Antimony Imp. Carbon
  - Special Steel

Applications

- Agitators
- Mixer
- Reactor
- Dryer
- Chemical industry
- Pharmaceutical industry
- Toxic media with special materials
- Filter

Standards

- DIN 28136 T2 (for steel vessels)
- DIN 28141 (flange connection)
- DIN 28154 (shaft diameter and step) refer to dimension with)



Dimensions (mm)

D1	D2	D3	D4	D5	D6	D7	D8	L1	L2	L3	L4	L5	L6	L7	n-ϕQ	m-ϕs
50	45	70	110	140	135	170	195	389	294	95	110	54	43	20	8-ϕ14	8-ϕ14
60	55	80	120	150	145	180	205	424	324	100	105	55	44	25	8-ϕ14	8-ϕ14
70	65	90	130	160	155	190	215	449	344	105	121	58	45	30	8-ϕ18	8-ϕ14
80	75	100	140	170	165	200	225	469	364	105	127	58	45	30	8-ϕ18	8-ϕ14
90	85	110	150	180	175	210	235	494	389	105	133	58	45	30	8-ϕ18	8-ϕ14
100	95	120	160	190	185	220	245	503	398	105	133	60	46	30	8-ϕ18	8-ϕ14
110	105	125	165	195	205	240	265	518	408	110	133	60	46	35	8-ϕ19	8-ϕ14
120	115	135	180	210	215	261	289	558	438	120	135	60	46	40	8-ϕ19	12-ϕ19
130	125	145	190	220	225	271	299	581	461	120	135	60	46	40	8-ϕ19	12-ϕ19
140	135	155	200	230	235	281	309	593	473	120	135	60	46	40	8-ϕ19	12-ϕ19
150	145	180	230	270	280	335	375	681	541	140	135	60	46	45	8-ϕ23	12-ϕ23
160	155	190	240	280	290	345	385	700	560	140	145	62	48	45	8-ϕ23	12-ϕ23
170	165	200	250	290	300	355	395	724	584	140	145	62	48	45	8-ϕ23	12-ϕ23
180	175	210	270	310	310	365	405	745	605	140	145	62	48	50	8-ϕ23	12-ϕ23
190	185	220	280	320	320	375	415	765	625	140	145	62	48	50	8-ϕ23	12-ϕ23
200	195	230	290	330	330	390	430	785	645	140	145	62	48	50	8-ϕ23	12-ϕ23

STM85

Mechanical Seals
Non Pusher Type
Metal Bellows Type

STM85는 어디에서나 신뢰할 수있는 성능을 제공하고 표준화된 경제적 인 씰로서 화학, 석유화학, 펄프 및 제지, 폐수, 식품, 음료 및 발전 산업의 매우 광범위한 유체에 사용됩니다.
The STM85 is used in a very wide range of media in the chemical, petrochemical, pulp and paper, waste water, food, beverage, oil & gas and power generation industries etc indeed anywhere there is a need for a standardised, economical seal offering dependable performance.

STM85의 특별한 성능

- 운동용 오링 또는 기타 슬라이딩 부품이 없어 행업[Hang-Up]이 일어나지 않습니다.
- 세퍼레이터 또는 깨끗한 유체를 사용하는 플러시 없이 고형물 혼입액의 밀봉을 할 수 있습니다.
- STM85의 슬림한 단면 덕분에 작은 폭의 스터핑 박스에 사용할 수 있습니다.
- 크로깅(막힘) 방지 및 자체 클린닝 하는 구조 입니다.
- 부식에 강합니다.
- 섭동면에 작용하는 압력 밸런스를 맞추어 전력 소비를 감소하고, 밀봉면의 마모를 줄여줍니다.

Specific Features of STM85

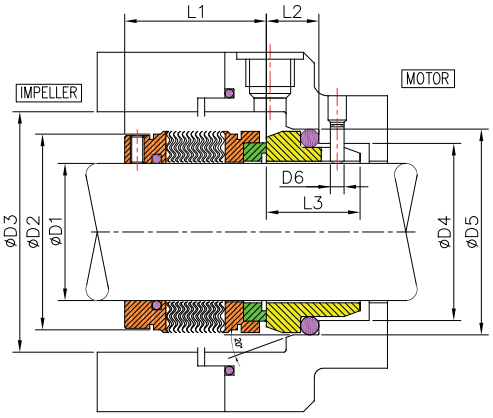
- No dynamic O-rings and other sliding parts, so no "hang-up"
- Ability to seal abrasive media without separators or clean flushes.
- Slim cross section allows the STM85 to fit into small stuffing boxes.
- Self cleaning, non-clogging construction.
- Highly corrosion resistant.
- Designed suitable for pressure balanced for low power consumption and low seal face abrasion.

Operating Capabilities

- Temperature : -30~300°C (depending on materials)
- Pressure : Up to 2.5 MPa
- Speed : 15m/sec

Materials

- Seal face :
  - Silicon Carbide
  - Antimony Imp. Carbon
  - Tungsten Carbide
  - Resin Imp. Carbon
- Metal Bellows :
  - AM350, STS 316, Hastelloy-C, Inconel



Dimensions (mm)

MODEL	D1	D2	D3	D4	D5	D6	L1	L2	L3
STM85-018	18	31.8	34	27	33	3	27.5	10.0	17.0
STM85-020	20	33.3	36	29	35	3	27.5	10.0	17.0
STM85-022	22	36.5	38	31	37	3	27.5	10.0	17.0
STM85-024	24	38.1	40	33	39	3	30.0	10.0	17.0
STM85-025	25	39.3	41	34	40	3	30.0	10.0	17.0
STM85-028	28	42.2	44	37	43	3	32.5	10.0	17.0
STM85-030	30	44.2	46	39	45	3	32.5	10.0	17.0
STM85-032	32	46.0	48	42	48	3	32.5	10.0	17.0
STM85-033	33	47.2	49	42	48	3	32.5	10.0	17.0
STM85-035	35	49.2	51	44	50	3	32.5	10.0	17.0
STM85-038	38	52.4	58	49	56	4	34.0	11.0	18.0
STM85-040	40	55.5	60	51	58	4	34.0	11.0	18.0
STM85-043	43	58.7	63	54	61	4	34.0	11.0	18.0
STM85-045	45	58.7	65	56	63	4	34.0	11.0	18.0
STM85-048	48	61.9	68	59	66	4	34.0	11.0	18.0
STM85-050	50	65.1	70	62	70	4	34.5	13.0	20.0
STM85-053	53	68.2	73	65	73	4	34.5	13.0	20.0
STM85-055	55	71.4	75	67	75	4	34.5	13.0	20.0
STM85-058	58	74.6	83	70	78	4	39.5	13.0	20.0
STM85-060	60	74.6	85	72	80	4	39.5	13.0	20.0
STM85-063	63	80.9	88	75	83	4	39.5	13.0	20.0
STM85-065	65	84.1	90	77	85	4	39.5	13.0	20.0
STM85-068	68	87.3	93	81	90	4	37.2	15.3	22.3
STM85-070	70	87.3	95	83	92	4	44.7	15.3	22.3
STM85-075	75	95.2	104	88	97	4	44.7	15.3	22.3
STM85-080	80	101.6	109	95	105	4	44.4	15.7	22.7
STM85-085	85	104.8	114	100	110	4	44.3	15.7	22.7
STM85-090	90	111.1	119	105	115	4	49.3	15.7	22.7
STM85-095	95	114.3	124	110	120	4	49.3	15.7	22.7
STM85-100	100	120.6	129	115	125	4	49.3	15.7	22.7

Mechanical Seals
Pusher Type

MSU

MSU는 언밸런스, 멀티스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수 처리장, 펄프 및 제지 공장, 철강산업 등에 일반적으로 적용하는 범용적인 씰입니다.

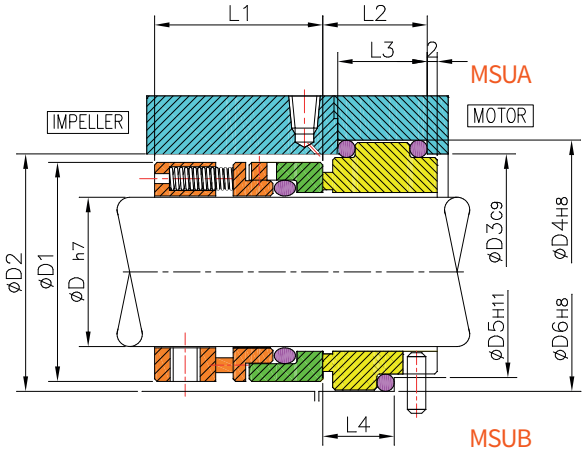
The MSU is a simple, rotating, multi-spring, unbalanced 'O'-ring mounted, pusher type seal for general-purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

MSU의 특별한 성능

- 단순하고 견고한 범용 언밸런스 씰 입니다.
- 다수의 스프링으로 구성되어 있어 씰 면압이 균일하고 안정적입니다.
- 회전부분은 축을 기준으로 자동으로 센터링합니다.
- 단순하고 견고하며 개방적인 회전부분은 사용하는 유체 또는 완충 유체에 난류흐름을 만들어 부식성, 침식성, 점성이 높은 유체에 저항하며, 섭동면에 발생하는 마찰열을 제거합니다.

Specific Features of MSU

- Simple and robust, unbalance, it is a universal seal.
- The multi-springs keep even pressure of seal face, so its stable.
- The rotating part is automatically centered based on the axis.,
- The simple, rugged, and open rotating part creates turbulent flow in the fluid or buffer fluid used to resist corrosive, erosive, and viscous fluids, and removes frictional heat generated on the seal face.



Dimensions (mm)

MODEL	D	D1	D2	L1	ISO (A Type)				DIN (B Type)		
					D3	D4	L2	L3	D5	D6	L4
MSU-20	20	34	36	35	42	36	23	18	29	35	9.5
MSU-22	22	36	38	35	44	38	23	18	31	37	9.5
MSU-25	25	39	41	35	47	41	23	18	34	40	10.0
MSU-28	28	42	44	35	50	44	23	18	37	43	10.0
MSU-30	30	44	46	35	52	46	23	18	39	45	10.0
MSU-32	32	46	48	35	54	48	23	18	42	48	10.0
MSU-35	35	49	51	35	57	51	23	18	44	50	10.0
MSU-38	38	54	58	35	64	58	25	20	49	56	13.0
MSU-40	40	56	90	35	66	60	25	20	51	58	13.0
MSU-42	42	58	62	35	68	62	25	20			
MSU-43	43	59	63	43					54	61	13.0
MSU-45	45	61	65	43	71	65	25	20	56	63	13.0
MSU-48	48	64	68	43	74	68	25	20	59	66	13.0
MSU-50	50	66	70	43	76	70	25	20	62	70	15.5
MSU-52	52	68	72	43	78	72	25	20			
MSU-53	53	69	73	43					65	73	15.5
MSU-55	55	71	75	43	81	75	25	20	67	75	15.5
MSU-58	58	78	83	43	89	83	28	22	70	78	16.0
MSU-60	60	80	85	43	91	85	28	22	72	80	16.0
MSU-62	62	82	87	43	93	87	28	22			
MSU-63	63	83	88	43					75	83	16.0
MSU-65	65	85	90	43	96	90	28	22	77	85	16.0
MSU-68	68	88	93	43	99	93	30	24	81	90	16.0
MSU-70	70	90	95	43	101	95	30	24	83	92	19.0
MSU-75	75	95	104	44	110	104	30	24	88	97	19.0
MSU-80	80	100	109	44	115	109	31	25	95	105	19.0
MSU-85	85	105	114	44	120	114	31	25	100	110	19.0
MSU-90	90	110	119	44	125	119	31	25	105	115	19.0
MSU-95	95	115	124	44	130	124	31	25	110	120	19.0
MSU-100	100	120	129	44	135	129	31	25	115	125	19.0
MSU-105	105	125	134	44	140	134	31	25	-	-	-
MSU-110	110	130	139	44	145	139	31	25	-	-	-
MSU-120	120	145	150	47	160	150	40.8	29.6	-	-	-
MSU-130	130	155	160	47	170	160	40.8	29.6	-	-	-
MSU-140	140	165	175	47	185	175	40.8	29.6	-	-	-
MSU-150	150	175	190	47	200	190	40.8	29.6	-	-	-

Operating Capabilities

- Temperature : -30~200°C (depending on materials)
- Pressure : Up to 1.5 MPa
- Speed : 15m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 0.5w%

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

MSUD

Mechanical Seals
Pusher Type Dual Seals

MSUD는 MSU의 BACK-TO-BACK DUAL 씰입니다. MSUD는 언밸런스, 멀티스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수처리장, 펄프 및 제지 공장 등에 일반적으로 적용하는 범용적인 씰입니다.

MSUD is MSU's BACK-TO-BACK DUAL Seal. The MSU is a simple, rotating, multi-spring, unbalanced 'O'-ring mounted, pusher type seal for general-purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

MSUD의 특별한 성능

- 단순하고 견고한 범용 언밸런스 씰 입니다.
- 다수의 스프링으로 구성되어 있어 씰 면압이 균일하고 안정적입니다.
- 회전부분은 축을 기준으로 자동으로 센터링합니다.
- 단순하고 견고하며 개방적인 회전부분은 사용하는 유체 또는 완충 유체에 난류흐름을 만들어 부식성, 침식성, 점성이 높은 유체에 저항하며, 섭동면에 발생하는 마찰열을 제거합니다.
- MSUD는 밀봉하는 유체가 가스체, 고온, 저온, 진공, 슬러리, 고점도, 폭발성, 인화성, 독성 유체에 사용합니다.
- MSUD의 완충액은 흡입압력 보다 1.5~2 BAR 높은 압력이 되어야 펌프 흡입 압력 변동에 의해 펌핑액이 역류되지 않습니다.

Specific Features of MSUD

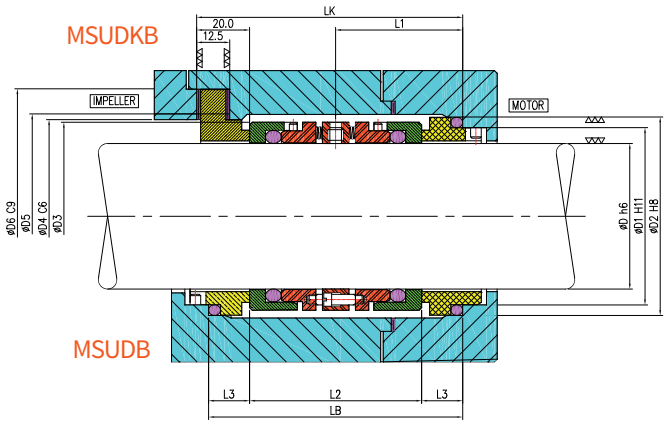
- Simple and robust, unbalance, dual seal it is a universal seal.
- The multi-springs keep even pressure of seal face, so its stable.
- The rotating part is automatically centered based on the axis.
- The simple, rugged, and open rotating part creates turbulent flow in the fluid or buffer fluid used to resist corrosive, erosive, and viscous fluids, and removes frictional pyrexia on the seal face.
- MSUD is used for gaseous fluids, high temperature, low temperature, vacuum, slurry, high viscosity, explosive, flammable, and toxic fluids.
- MSUD's buffer should be used at a pressure 1.5~2 bar higher pressure than the suction pressure so that the pumping liquid does not flow back.

Operating Capabilities

- Temperature : -30~200°C (depending on materials)
  -10~150°C (limit for shrink connection)
- Pressure : Up to 1.5 MPa
- Speed : 15m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 0.5w%

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel



Dimensions (mm)

MODEL	D	D1	D2	D3	D4	D5	D6	LK	KB	L1	L2	L3
MSUD-25	25	34	40	39	41.5	42	54.5	91	81	40.5	61	10
MSUD-30	30	39	45	44	46.5	47	63	91	81	40.5	61	10
MSUD-35	35	44	50	49	51	51.5	62.5	91	81	40.5	61	10
MSUD-40	40	51	58	56	60.5	61	73.5	94	87	43.5	61	13
MSUD-45	45	56	63	61	64	65	80	98	91	45.5	65	13
MSUD-50	50	62	70	66	70	71	89.5	100.5	96	48	65	15.5
MSUD-55	55	67	75	71	73.5	75	96	100.5	96	48	65	15.5
MSUD-60	60	72	80	80	78	85	99.5	101	97	48.5	65	16
MSUD-65	65	77	85	85	85	90	105	101	97	48.5	65	16
MSUD-70	70	83	92	90	90	95	110	104	103	51.5	65	19
MSUD-75	75	88	97	95	95	104	115	106	105	52.5	67	19
MSUD-80	80	95	105	100	109	110	126	106	105	52.5	67	19
MSUD-85	85	100	110	105	114	115	131	106	105	52.5	67	19
MSUD-90	90	105	115	110	119	120	136	106	105	52.5	67	19

Mechanical Seals
Pusher Type

MSB

MSB는 밸런스, 멀티스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수 처리장, 펄프 및 제지 공장 등에 일반적으로 적용하는 범용적인 씰입니다.

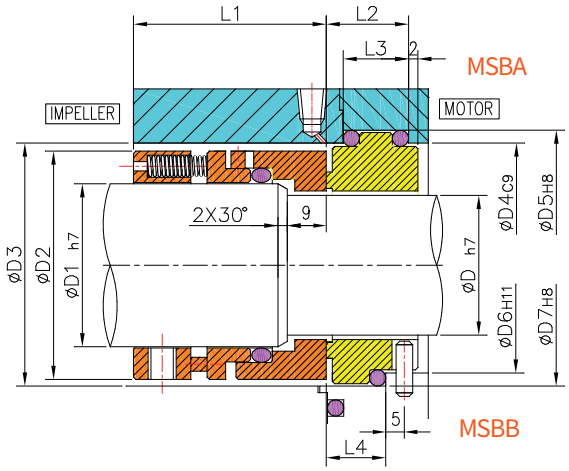
The MSB is a simple, rotating, multi-spring, balanced 'O'-ring mounted, pusher type seal for general-purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

MSB의 특별한 성능

- 고압에서 사용할 수 있는 밸런스 씰입니다.
- 단순하고 견고한 범용적인 밸런스 씰 입니다.
- 다수의 스프링으로 구성되어 있어 씰 면압이 균일하고 안정적입니다.
- 회전부분은 축을 기준으로 자동으로 센터링합니다.
- 단순하고 견고하며 개방적인 회전부분은 사용하는 유체 또는 완충 유체에 난류흐름을 만들어 부식성, 침식성, 점성이 높은 유체에 저항하며, 섭동면에 발생하는 마찰열을 제거합니다.

Specific Features of MSB

- The balance seal use at high pressure.
- Simple and robust, balance it is a universal seal.
- The stationary Insert part has a flexible mounted to prevent distortion.
- The multi-springs keep even pressure of seal face, so its stable.
- The rotating part is automatically centered based on the axis.
- The simple, rugged, and open rotating part creates turbulent flow in the fluid or buffer fluid used to resist corrosive, erosive, and viscous fluids, and removes frictional heat generated on the seal face.



Operating Capabilities

- Temperature : -30~200°C
  (depending on materials)
  -10~150°C
  (limit for shrink connection)
- Pressure : Up to 2.5 MPa
- Speed : 20m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 0.5w%

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Dimensions (mm)

						ISO (A Type)				DIN (B Type)		
MODEL	D	D1	D2	D3	L1	D4	D5	L2	L3	D6	D7	L4
MSB-024	20	24	38	40	44	40	46	23	18	29	35	9.5
MSB-026	22	26	40	42	44	42	48	23	18	31	37	9.5
MSB-030	25	30	44	46	44	46	52	23	18	34	40	10.0
MSB-033	28	33	47	49	44	49	55	23	18	37	43	10.0
MSB-035	30	35	49	51	44	51	57	23	18	39	45	10.0
MSB-040	35	40	56	60	44	60	66	25	20	44	50	10.0
MSB-043	38	43	59	63	52	63	69	25	20	49	56	13.0
MSB-045	40	45	61	65	52	65	71	25	20	51	58	13.0
MSB-048	43	48	64	68	52	68	74	25	20	54	61	13.0
MSB-050	45	50	66	70	52	70	76	25	20	56	63	13.0
MSB-053	48	53	69	73	52	73	79	25	20	59	66	13.0
MSB-055	50	55	71	75	52	75	81	25	20	62	70	15.5
MSB-058	53	58	78	83	52	83	89	28	22	65	73	15.5
MSB-060	55	60	80	85	52	85	91	28	22	67	75	15.5
MSB-065	60	65	85	90	52	90	96	28	22	72	80	16.0
MSB-070	65	70	90	95	52	95	101	30	24	77	85	16.0
MSB-075	70	75	95	104	53	104	110	30	24	83	92	19.0
MSB-080	75	80	100	109	53	109	115	31	25	88	97	19.0
MSB-085	80	85	105	114	53	114	120	31	25	95	105	19.0
MSB-090	85	90	110	119	53	119	125	31	25	100	110	19.0
MSB-095	90	95	115	124	53	124	130	31	25	105	115	19.0
MSB-100	95	100	120	129	53	129	135	31	25	110	120	19.0
MSB-105	100	105	125	134	53	134	140	31	25	115	125	19.0
MSB-110	105	110	130	139	53	139	145	31	25	-	-	-
MSB-120	110	120	145	150	56	150	160	40.8	29.6	-	-	-
MSB-130	120	130	155	160	56	160	170	40.8	29.6	-	-	-
MSB-140	130	140	165	175	56	175	185	40.8	29.6	-	-	-
MSB-150	140	150	175	190	56	190	200	40.8	29.6	-	-	-
MSB-160	150	160	185	200	56	200	210	40.8	29.6	-	-	-

ST8KU

Mechanical Seals
Pusher Type
Equivalent to Eagle Burgmann M7N

ST8KU는 언밸런스, 멀티스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수 처리장, 펄프 및 제지 공장, 철강산업 등에 일반적으로 적용하는 범용적인 씰입니다.

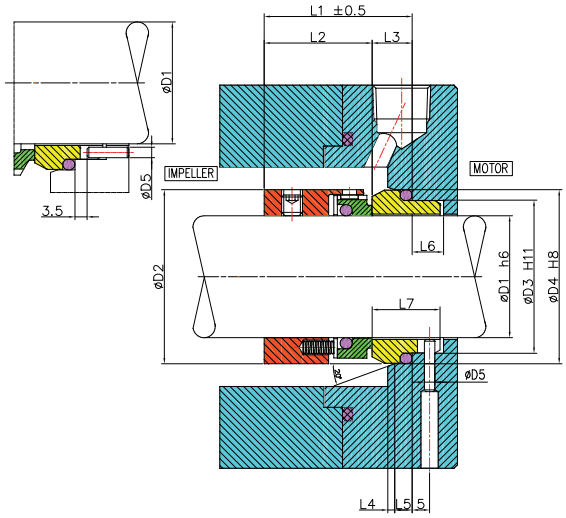
The ST8KU is a simple, rotating, multi-spring, unbalanced 'O'-ring mounted, pusher type seal for general purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

ST8KU의 특별한 성능

- 구조가 간단한 언밸런스, 멀티스프링 타입 입니다.
- 다수의 스프링으로 구성되어 있어 씰 면압이 균일하고 안정적입니다.
- 회전하는 씰 페이스 구동 메커니즘은 탁월한 토크 전달을 제공합니다.
- 씰 챔버 수정없이 DIN EN21756-2001 표준 펌프에 설치할 수 있습니다.
- 보조 장치 및 지원 시스템과 함께 싱글, 더블 또는 탠덤 배열로 설계 된 구조로 사용 될 수 있습니다.

Specific Features of ST8KU

- Simple structure, unbalance, multi-spring type
- The multi-springs keep even pressure of seal face, so its stable.
- The rotating seal face drive mechanism provides excellent torque transmission. [3 point torque transmitter]
- Can be installed in DIN EN 12756-2001 standard pumps without seal chamber modification.
- Can be provided as an engineered cartridge construction in single, double or tandem arrangements with a complete range of auxiliary sealing devices and seal support systems.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 2.5 MPa (D1=10- 50mm)
  2.0 MPa (D1=53-100mm)
  1.6 MPa (D1=105-200mm)
- Speed : 20m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Dimensions (mm)

D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7
10	20	17.0	21.0	3	32.5	25.0	10.0	1.5	4	8.5	17.5
12	22	19.0	23.0	3	32.5	25.0	10.0	1.5	4	8.5	17.5
14	24	21.0	25.0	3	35.0	25.0	10.0	1.5	4	8.5	17.5
16	26	23.0	27.0	3	35.0	25.0	10.0	1.5	4	8.5	17.5
18	32	27.0	33.0	3	37.5	26.0	11.5	2.0	5	9.0	19.5
20	34	29.0	35.0	3	37.5	26.0	11.5	2.0	5	9.0	19.5
22	36	31.0	37.0	3	37.5	26.0	11.5	2.0	5	9.0	19.5
24	38	33.0	39.0	3	40.0	28.5	11.5	2.0	5	9.0	19.5
25	39	34.0	40.0	3	40.0	28.5	11.5	2.0	5	9.0	19.5
28	42	37.0	43.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
30	44	39.0	45.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
32	46	42.0	48.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
33	47	42.0	48.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
35	49	44.0	50.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
38	54	49.0	56.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
40	56	51.0	58.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
43	59	54.0	61.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
45	61	56.0	63.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
48	64	59.0	66.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
50	66	62.0	70.0	4	47.5	32.5	15.0	2.5	6	9.0	23.0
53	69	65.0	73.0	4	47.5	32.5	15.0	2.5	6	9.0	23.0
55	71	67.0	75.0	4	47.5	32.5	15.0	2.5	6	9.0	23.0
58	78	70.0	78.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
60	80	72.0	80.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
63	83	75.0	83.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
65	85	77.0	85.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
68	88	81.0	90.0	4	52.5	34.5	18.0	2.5	7	9.0	26.0
70	90	83.0	92.0	4	60.0	42.0	18.0	2.5	7	9.0	26.0
75	99	88.0	97.0	4	60.0	42.0	18.0	2.5	7	9.0	26.0
80	104	95.0	105.0	4	60.0	41.8	18.2	3.0	7	9.0	26.2
85	109	100.0	110.0	4	60.0	41.8	18.2	3.0	7	9.0	26.2
90	114	105.0	115.0	4	65.0	46.8	18.2	3.0	7	9.0	26.2
95	119	110.0	120.0	4	65.0	47.8	17.2	3.0	7	9.0	25.2
100	124	115.0	125.0	4	65.0	47.8	17.2	3.0	7	9.0	25.2
105	138	122.2	134.3	5	67.0	47.0	20.0	2.0	10	-	30.0
110	143	128.2	140.3	5	67.0	47.0	20.0	2.0	10	-	30.0
115	148	136.2	148.3	5	67.0	47.0	20.0	2.0	10	-	30.0
120	153	138.2	150.3	5	67.0	47.0	20.0	2.0	10	-	30.0
125	158	142.2	154.3	5	67.0	47.0	20.0	2.0	10	-	30.0
130	163	146.2	158.3	5	67.0	47.0	20.0	2.0	10	-	30.0
135	168	152.2	164.3	5	67.0	47.0	20.0	2.0	10	-	30.0
140	173	156.2	168.3	5	67.0	47.0	20.0	2.0	10	-	30.0
145	178	161.2	173.3	5	67.0	47.0	20.0	2.0	10	-	30.0
150	183	168.2	180.3	5	69.0	47.0	22.0	2.0	10	-	32.0
155	191	173.2	185.3	5	80.0	56.0	24.0	2.0	12	-	34.0
160	196	178.2	190.3	5	80.0	56.0	24.0	2.0	12	-	34.0
165	201	183.2	195.3	5	80.0	56.0	24.0	2.0	12	-	34.0
170	206	188.2	200.3	5	80.0	56.0	24.0	2.0	12	-	34.0
175	211	193.2	205.3	5	80.0	56.0	24.0	2.0	12	-	34.0
180	216	207.5	219.3	5	84.0	56.0	28.0	2.0	12	-	38.0
185	221	212.5	224.3	5	84.0	56.0	28.0	2.0	12	-	38.0
190	226	217.5	229.3	5	84.0	56.0	28.0	2.0	12	-	38.0
195	231	222.5	234.2	5	84.0	56.0	28.0	2.0	12	-	38.0
200	236	227.5	239.3	5	84.0	56.0	28.0	2.0	12	-	38.0

Mechanical Seals

Pusher Type
Wave Spring Type
Equivalent to Eagle Burgmann M7N

ST81KU

ST81KU는 언밸런스, 웨이브 스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수 처리장, 펄프 및 제지 공장, 철강산업 등에 일반적으로 적용하는 범용적인 씰입니다.

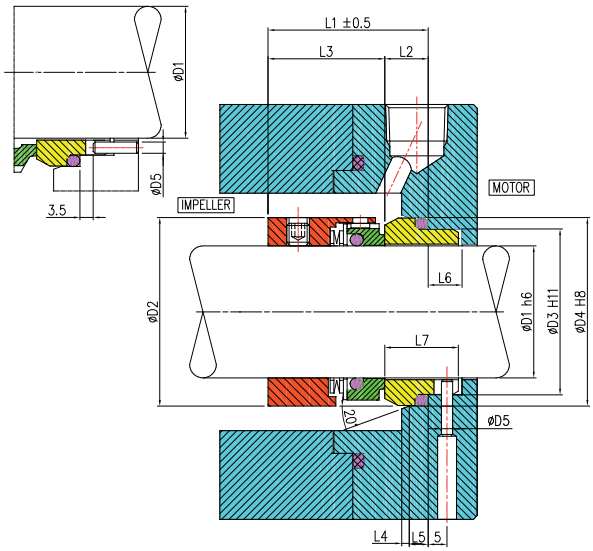
The ST81KU is a simple, rotating, wave-spring, unbalanced 'O'-ring mounted, pusher type seal for general purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

ST81KU의 특별한 성능

- 구조가 간단한 언밸런스, 웨이브 스프링 타입 입니다.
- 회전하는 씰 페이스 구동 메커니즘은 탁월한 토크 전달을 제공합니다.
- 씰 챔버 수정없이 DIN EN21756-2001 표준 펌프에 설치할 수 있습니다.
- 보조 장치 및 지원 시스템과 함께 싱글, 더블 또는 탠덤 배열로 설계 된 구조로 사용 될 수 있습니다.

Specific Features of ST81KU

- Simple structure, unbalance, wave-spring type
- The rotating seal face drive mechanism provides excellent torque transmission. [3 point torque transmitter]
- Can be installed in DIN EN 12756-2001 standard pumps without seal chamber modification.
- Can be provided as an engineered cartridge construction in single, double or tandem arrangements with a complete range of auxiliary sealing devices and seal support systems.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 2.5 MPa (D1=10- 50mm)
  2.0 MPa (D1=53-100mm)
  1.6 MPa (D1=105-200mm)
- Speed : 20m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Dimensions (mm)

D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7
10	20	17.0	21.0	3	32.5	25.0	10.0	1.5	4	8.5	17.5
12	22	19.0	23.0	3	32.5	25.0	10.0	1.5	4	8.5	17.5
14	24	21.0	25.0	3	35.0	25.0	10.0	1.5	4	8.5	17.5
16	26	23.0	27.0	3	35.0	25.0	10.0	1.5	4	8.5	17.5
18	32	27.0	33.0	3	37.5	26.0	11.5	2.0	5	9.0	19.5
20	34	29.0	35.0	3	37.5	26.0	11.5	2.0	5	9.0	19.5
22	36	31.0	37.0	3	37.5	26.0	11.5	2.0	5	9.0	19.5
24	38	33.0	39.0	3	40.0	28.5	11.5	2.0	5	9.0	19.5
25	39	34.0	40.0	3	40.0	28.5	11.5	2.0	5	9.0	19.5
28	42	37.0	43.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
30	44	39.0	45.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
32	46	42.0	48.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
33	47	42.0	48.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
35	49	44.0	50.0	3	42.5	31.0	11.5	2.0	5	9.0	19.5
38	54	49.0	56.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
40	56	51.0	58.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
43	59	54.0	61.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
45	61	56.0	63.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
48	64	59.0	66.0	4	45.0	31.0	14.0	2.0	6	9.0	22.0
50	66	62.0	70.0	4	47.5	32.5	15.0	2.5	6	9.0	23.0
53	69	65.0	73.0	4	47.5	32.5	15.0	2.5	6	9.0	23.0
55	71	67.0	75.0	4	47.5	32.5	15.0	2.5	6	9.0	23.0
58	78	70.0	78.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
60	80	72.0	80.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
63	83	75.0	83.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
65	85	77.0	85.0	4	52.5	37.5	15.0	2.5	6	9.0	23.0
68	88	81.0	90.0	4	52.5	34.5	18.0	2.5	7	9.0	26.0
70	90	83.0	92.0	4	60.0	42.0	18.0	2.5	7	9.0	26.0
75	99	88.0	97.0	4	60.0	42.0	18.0	2.5	7	9.0	26.0
80	104	95.0	105.0	4	60.0	41.8	18.2	3.0	7	9.0	26.2
85	109	100.0	110.0	4	60.0	41.8	18.2	3.0	7	9.0	26.2
90	114	105.0	115.0	4	65.0	46.8	18.2	3.0	7	9.0	26.2
95	119	110.0	120.0	4	65.0	47.8	17.2	3.0	7	9.0	25.2
100	124	115.0	125.0	4	65.0	47.8	17.2	3.0	7	9.0	25.2
105	138	122.2	134.3	5	67.0	47.0	20.0	2.0	10	-	30.0
110	143	128.2	140.3	5	67.0	47.0	20.0	2.0	10	-	30.0
115	148	136.2	148.3	5	67.0	47.0	20.0	2.0	10	-	30.0
120	153	138.2	150.3	5	67.0	47.0	20.0	2.0	10	-	30.0
125	158	142.2	154.3	5	67.0	47.0	20.0	2.0	10	-	30.0
130	163	146.2	158.3	5	67.0	47.0	20.0	2.0	10	-	30.0
135	168	152.2	164.3	5	67.0	47.0	20.0	2.0	10	-	30.0
140	173	156.2	168.3	5	67.0	47.0	20.0	2.0	10	-	30.0
145	178	161.2	173.3	5	67.0	47.0	20.0	2.0	10	-	30.0
150	183	168.2	180.3	5	69.0	47.0	22.0	2.0	10	-	32.0
155	191	173.2	185.3	5	80.0	56.0	24.0	2.0	12	-	34.0
160	196	178.2	190.3	5	80.0	56.0	24.0	2.0	12	-	34.0
165	201	183.2	195.3	5	80.0	56.0	24.0	2.0	12	-	34.0
170	206	188.2	200.3	5	80.0	56.0	24.0	2.0	12	-	34.0
175	211	193.2	205.3	5	80.0	56.0	24.0	2.0	12	-	34.0
180	216	207.5	219.3	5	84.0	56.0	28.0	2.0	12	-	38.0
185	221	212.5	224.3	5	84.0	56.0	28.0	2.0	12	-	38.0
190	226	217.5	229.3	5	84.0	56.0	28.0	2.0	12	-	38.0
195	231	222.5	234.2	5	84.0	56.0	28.0	2.0	12	-	38.0
200	236	227.5	239.3	5	84.0	56.0	28.0	2.0	12	-	38.0

ST8KB

Mechanical Seals
Pusher Balance Type
Equivalent to Eagle Burgmann H75

ST8KB는 밸런스, 멀티스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수 처리장, 펄프 및 제지 공장, 철강산업 등에 일반적으로 적용하는 범용적인 씰입니다.

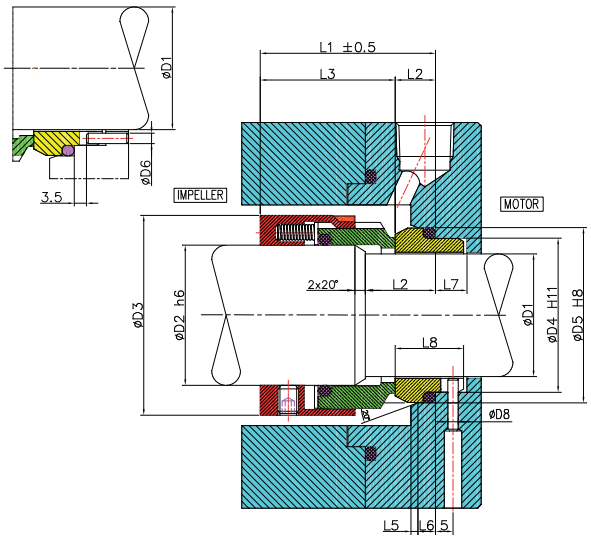
The ST8KB is a simple, rotating, multi-spring, balanced 'O'-ring mounted, pusher type seal for general purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

ST8KB의 특별한 성능

- 구조가 간단하고, 고압에서 사용 할 수 있는 밸런스 씰, 멀티스프링, 푸셔 씰 입니다.
- 다수의 스프링으로 구성되어 있어 씰 면압이 균일하고 안정적입니다.
- 회전하는 씰 페이스 구동 메커니즘은 탁월한 토크 전달을 제공합니다.
- 씰 챔버 수정없이 DIN EN21756-2001 표준 펌프에 설치할 수 있습니다.
- 보조 장치 및 지원 시스템과 함께 싱글, 더블 또는 탠덤 배열로 설계된 구조로 사용 될 수 있습니다.

Specific Features of ST8KB

- Simple structure, balanced seal use at high pressure, multi-spring, pusher seal.
- The multi-springs keep even pressure of seal face, so its stable.
- The rotating seal face drive mechanism provides excellent torque transmission. [3 point torque transmitter]
- Can be installed in DIN EN 12756-2001 standard pumps without seal chamber modification.
- Can be provided as an engineered cartridge construction in single, double or tandem arrangements with a complete range of auxiliary sealing devices and seal support systems.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 7.5 MPa (D1=10- 50mm)
  7.0 MPa (D1=53-100mm)
  2.5 MPa (D1=105-200mm)
- Speed : 20m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Dimensions (mm)

D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8
10	14	24	17.0	21.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
12	16	26	19.0	23.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
14	18	33	21.0	25.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
16	20	35	23.0	27.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
18	22	37	27.0	33.0	3	45.0	20	33.5	11.5	2.0	5	9.0	19.5
20	24	39	29.0	35.0	3	45.0	20	33.5	11.5	2.0	5	9.0	19.5
22	26	41	31.0	37.0	3	45.0	20	33.5	11.5	2.0	5	9.0	19.5
24	28	43	33.0	39.0	3	47.5	20	36.0	11.5	2.0	5	9.0	19.5
25	30	45	34.0	40.0	3	47.5	20	36.0	11.5	2.0	5	9.0	19.5
28	33	48	37.0	43.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
30	35	50	39.0	45.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
32	38	55	42.0	48.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
33	38	55	42.0	48.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
35	40	57	44.0	50.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
38	43	60	49.0	56.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
40	45	62	51.0	58.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
43	48	65	54.0	61.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
45	50	67	56.0	63.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
48	53	70	59.0	66.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
50	55	72	62.0	70.0	4	57.5	25	42.5	15.0	2.5	6	9.0	23.0
53	58	79	65.0	73.0	4	57.5	25	42.5	15.0	2.5	6	9.0	23.0
55	60	81	67.0	75.0	4	57.5	25	42.5	15.0	2.5	6	9.0	23.0
58	63	84	70.0	78.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
60	65	86	72.0	80.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
63	68	89	75.0	83.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
65	70	91	77.0	85.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
70	75	99	83.0	92.0	4	70.0	28	52.0	18.0	2.5	7	9.0	26.0
75	80	104	88.0	97.0	4	70.0	28	52.0	18.0	2.5	7	9.0	26.0
80	85	109	95.0	105.0	4	70.0	28	51.8	18.2	3.0	7	9.0	26.2
85	90	114	100.0	110.0	4	75.0	28	56.8	18.2	3.0	7	9.0	26.2
90	95	119	105.0	115.0	4	75.0	28	56.8	18.2	3.0	7	9.0	26.2
95	100	124	110.0	120.0	4	75.0	28	57.8	17.2	3.0	7	9.0	25.2
100	105	129	115.0	125.0	4	75.0	28	57.8	17.2	3.0	7	9.0	25.2
105	115	148	122.2	134.3	5	73.0	32	53.0	20.0	3.0	10	-	30.0
110	120	153	128.2	140.3	5	73.0	32	53.0	20.0	3.0	10	-	30.0
115	125	158	136.2	148.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
120	130	163	138.2	150.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
125	135	168	142.2	154.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
130	140	173	146.2	158.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
135	145	178	152.2	164.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
140	150	183	156.2	168.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
145	155	191	161.2	173.3	5	83.0	34	63.0	20.0	2.0	10	-	30.0
150	160	196	168.2	180.3	5	85.0	36	63.0	22.0	2.0	10	-	32.0
155	165	201	173.2	185.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
160	170	206	178.2	190.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
165	175	211	183.2	195.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
170	180	216	188.2	200.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
175	185	221	193.2	205.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
180	190	226	207.5	219.3	5	91.0	42	63.0	28.0	2.0	12	-	38.0
185	195	231	212.5	224.3	5	91.0	42	63.0	28.0	2.0	12	-	38.0
190	200	236	217.5	229.3	5	91.0	42	63.0	28.0	2.0	12	-	38.0
195	205	245	222.5	234.2	5	94.0	43	66.0	28.0	2.0	12	-	38.0
200	210	250	227.5	239.3	5	94.0	43	66.0	28.0	2.0	12	-	38.0

Mechanical Seals

Pusher Type
Balanced Wave Spring Seal
Equivalent to Eagle Burgmann H7N

ST81KB

ST81KB는 밸런스, 웨이브 스프링, 오링, 푸셔타입 씰로서 화학, 석유화학, 오일 가스, 수처리 및 하수 처리장, 펄프 및 제지 공장, 철강산업 등에 일반적으로 적용하는 범용적인 씰입니다.

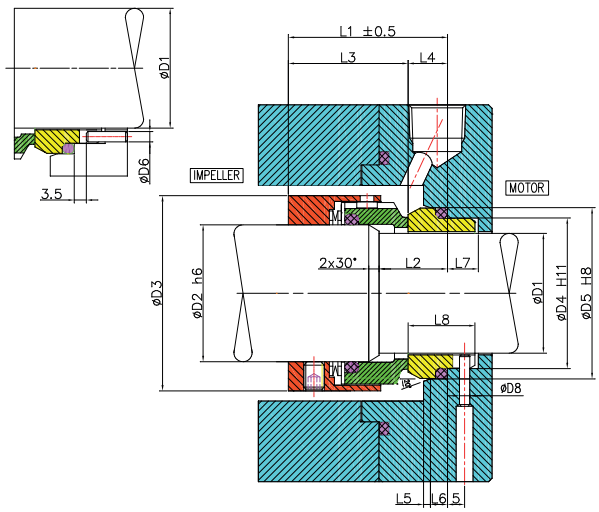
The ST81KB is a simple, rotating, wave-spring, balanced 'O'-ring mounted, pusher type seal for general-purpose application in chemical, petrochemical, oil & gas processing, water treatment and sewage plants, and pulp and paper mills, steel facility etc with ANSI chemical pumps.

ST81KB의 특별한 성능

- 구조가 간단하고 고압에서 사용 할 수 있는 밸런스 씰, 웨이브 스프링, 푸셔 타입 씰 입니다.
- 회전하는 씰 페이스 구동 메커니즘은 탁월한 토크 전달을 제공합니다.
- 씰 챔버 수정없이 DIN EN21756-2001 표준 펌프에 설치할 수 있습니다.
- 보조 장치 및 지원 시스템과 함께 싱글, 더블 또는 탠덤 배열로 설계 된 구조로 사용 될 수 있습니다.

Specific Features of ST81KB

- Simple structure, balanced seal use at high pressure, wave spring, pusher type seal.
- The rotating seal face drive mechanism provides excellent torque transmission. [3 point torque transmitter]
- Can be installed in DIN EN 12756-2001 standard pumps without seal chamber modification.
- Can be provided as an engineered cartridge construction in single, double or tandem arrangements with a complete range of auxiliary sealing devices and seal support systems.



Operating Capabilities

- Temperature : -30~200°C
- Pressure : 7.5 MPa (D1=10- 50mm)
  7.0 MPa (D1=53-100mm)
  2.5 MPa (D1=105-200mm)
- Speed : 20m/sec

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Special Steel

Dimensions (mm)

D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8
10	14	24	17.0	21.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
12	16	26	19.0	23.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
14	18	33	21.0	25.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
16	20	35	23.0	27.0	3	42.5	18	32.5	10.0	1.5	4	8.5	17.5
18	22	37	27.0	33.0	3	45.0	20	33.5	11.5	2.0	5	9.0	19.5
20	24	39	29.0	35.0	3	45.0	20	33.5	11.5	2.0	5	9.0	19.5
22	26	41	31.0	37.0	3	45.0	20	33.5	11.5	2.0	5	9.0	19.5
24	28	43	33.0	39.0	3	47.5	20	36.0	11.5	2.0	5	9.0	19.5
25	30	45	34.0	40.0	3	47.5	20	36.0	11.5	2.0	5	9.0	19.5
28	33	48	37.0	43.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
30	35	50	39.0	45.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
32	38	55	42.0	48.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
33	38	55	42.0	48.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
35	40	57	44.0	50.0	3	50.0	20	38.5	11.5	2.0	5	9.0	19.5
38	43	60	49.0	56.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
40	45	62	51.0	58.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
43	48	65	54.0	61.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
45	50	67	56.0	63.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
48	53	70	59.0	66.0	4	52.5	23	38.5	14.0	2.0	6	9.0	22.0
50	55	72	62.0	70.0	4	57.5	25	42.5	15.0	2.5	6	9.0	23.0
53	58	79	65.0	73.0	4	57.5	25	42.5	15.0	2.5	6	9.0	23.0
55	60	81	67.0	75.0	4	57.5	25	42.5	15.0	2.5	6	9.0	23.0
58	63	84	70.0	78.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
60	65	86	72.0	80.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
63	68	89	75.0	83.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
65	70	91	77.0	85.0	4	62.5	25	47.5	15.0	2.5	6	9.0	23.0
70	75	99	83.0	92.0	4	70.0	28	52.0	18.0	2.5	7	9.0	26.0
75	80	104	88.0	97.0	4	70.0	28	52.0	18.0	2.5	7	9.0	26.0
80	85	109	95.0	105.0	4	70.0	28	51.8	18.2	3.0	7	9.0	26.2
85	90	114	100.0	110.0	4	75.0	28	56.8	18.2	3.0	7	9.0	26.2
90	95	119	105.0	115.0	4	75.0	28	56.8	18.2	3.0	7	9.0	26.2
95	100	124	110.0	120.0	4	75.0	28	57.8	17.2	3.0	7	9.0	25.2
100	105	129	115.0	125.0	4	75.0	28	57.8	17.2	3.0	7	9.0	25.2
105	115	148	122.2	134.3	5	73.0	32	53.0	20.0	3.0	10	-	30.0
110	120	153	128.2	140.3	5	73.0	32	53.0	20.0	3.0	10	-	30.0
115	125	158	136.2	148.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
120	130	163	138.2	150.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
125	135	168	142.2	154.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
130	140	173	146.2	158.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
135	145	178	152.2	164.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
140	150	183	156.2	168.3	5	73.0	32	53.0	20.0	2.0	10	-	30.0
145	155	191	161.2	173.3	5	83.0	34	63.0	20.0	2.0	10	-	30.0
150	160	196	168.2	180.3	5	85.0	36	63.0	22.0	2.0	10	-	32.0
155	165	201	173.2	185.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
160	170	206	178.2	190.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
165	175	211	183.2	195.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
170	180	216	188.2	200.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
175	185	221	193.2	205.3	5	87.0	38	63.0	24.0	2.0	12	-	34.0
180	190	226	207.5	219.3	5	91.0	42	63.0	28.0	2.0	12	-	38.0
185	195	231	212.5	224.3	5	91.0	42	63.0	28.0	2.0	12	-	38.0
190	200	236	217.5	229.3	5	91.0	42	63.0	28.0	2.0	12	-	38.0
195	205	245	222.5	234.2	5	94.0	43	66.0	28.0	2.0	12	-	38.0
200	210	250	227.5	239.3	5	94.0	43	66.0	28.0	2.0	12	-	38.0

PTWB2

Mechanical Seals
PTFE Bellows Type
Non Pusher Seal

PTWB2는 강산 및 강 알칼리 등 부식성이 강한 유체를 이송하는 내식용 펌프에 적용하기 적합한 테프론 벨로우즈, 아웃사이드 씰입니다.
PTWB2 is for pump of strong acid and alkali, PTFE Bellows outside seal.

PTWB2의 특별한 성능

- PTFE Bellows Seal입니다.
- 부식성이 강한 유체에 사용 할 수 있습니다.
- 금속부분은 유체에 접액되지 않는 구조입니다.
- 외장형 메카니컬 씰 입니다.
- 스터핑 박스 외부에 쉽게 설치됩니다.
- 씰 페이스를 쉽게 교체 할 수 있습니다.

Specific Features of PTWB2

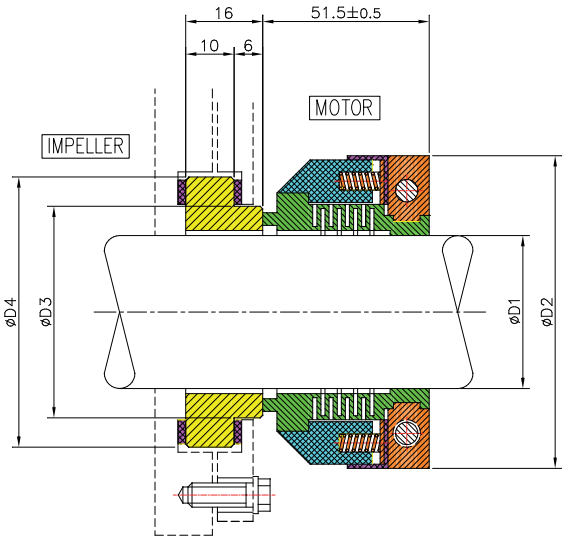
- PTFE Bellows Seal
- Used for strong corrosion fluid.
- The metal parts are not contact with fluid.
- Outside Mounted Mechanical Seal.
- Installs easily on outside of stuffing box.
- Seal Faces is easily Replaceable.

Operating Capabilities

- Temperature : -10~100°C
- Pressure : 0.8 MPa
- Speed : 10m/sec

Applications

- General industry
- Process industry
- Chemical industry
- Resist Acid pumps



Dimensions (mm)

MODEL	D1 (h6)	D2	D3 (A10)	D4	L1	L2
PTWB2-25	27	69	41.5	54.5	13	17.5
PTWB2-30	32	74	46.5	63.0	13	17.5
PTWB2-35	37	79	51.0	62.5	13	17.5
PTWB2-40	42	84	60.5	73.5	13	17.5
PTWB2-45	47	89	64.0	80.0	13	17.5
PTWB2-50	52	94	70.0	89.5	13	17.5
PTWB2-55	57	99	73.0	96.0	13	17.5
PTWB2-60	62	104	78.0	99.5	13	17.5

Mechanical Seals

Pusher Type
Outside mounted seal
Equivalent to Chesterton 440

CRF

CRF는 강산 및 강 알칼리 그룹과 같은 부식성 유체에 적용 가능한 싱글 회전형 외장형 씰입니다. 모든 종류의 화학 펌프에 적용이 가능하며 고성능과 우수한 내구성을 가지고 있습니다.

CRF is a single, rotating outside seal for corrosive fluid such as strong acid and alkali group. It is applicable for all kinds of chemical pumps and demonstrate high performance and good durability.

CRF의 특별한 성능

- 강산, 강 알칼리 등 부식성이 강한 유체를 이송하는 펌프에 적용 가능합니다.
- 플라스틱, 유리 등의 비금속 재질로 만들어 진 펌프의 스터핑 박스 외부에서 쉽게 설치 할 수 있습니다.
- 금속과 스프링이 접액되지 않는 아웃 사이드 구조이기 때문에 내식성이 강합니다.

Specific Features of CRF

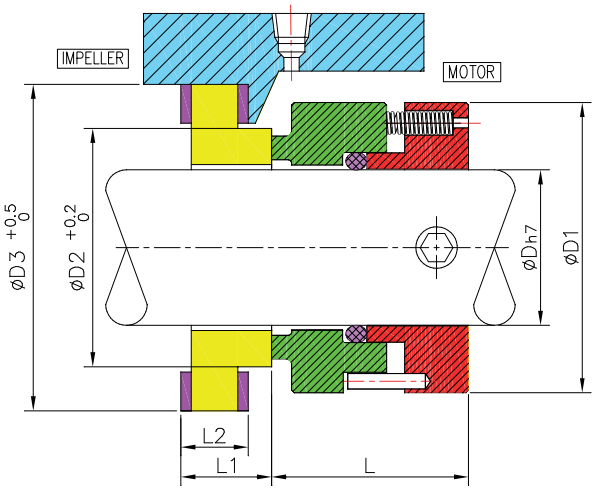
- Used for strong acid and alkali pump.
- Installs easily on the outside of the stuffing box including plastic, glass, and other non-metallic pumps.
- As it is a structure that does not contact metal and spring, it has strong corrosion resistance.

Operating Capabilities

- Temperature : -30~200°C
- Pressure : Up to 1.5 MPa
- Speed : 15m/sec

Materials

- Seal face :
  - Silicon carbide
  - Resin Imp. Carbon



Dimensions (mm)

MODEL	D	D1	D2	D3	L	L1	L2
CRF-025	25	51	41.5	54.5	38	17.5	13
CRF-028	28	54	45	57.5	38	17.5	13
CRF-030	30	56	46.5	63	38	17.5	13
CRF-032	32	58	48	60.5	38	17.5	13
CRF-035	35	61	51	62.5	38	17.5	13
CRF-040	40	66	60.5	73.5	38	17.5	13
CRF-045	45	71	64	80	38	17.5	13
CRF-050	50	76	70	89.5	38	17.5	13
CRF-055	55	81	73.5	96	38	17.5	13
CRF-060	60	86	78	99.5	38	17.5	13
CRF-065	65	91	83	105	38	17.5	13

SUC

Mechanical Seals
Pusher Type
Clutch torque transmission

SUC는 다양한 응용 분야의 프로세스 펌프에 사용하는 회전형, 싱글 스프링, 클러치 구동 언밸런스, 오링을 사용한 씰입니다. 특히 펄프 및 제지 용도, 슬러리 작업 및 고점도 매체에 사용하기에 적합합니다.

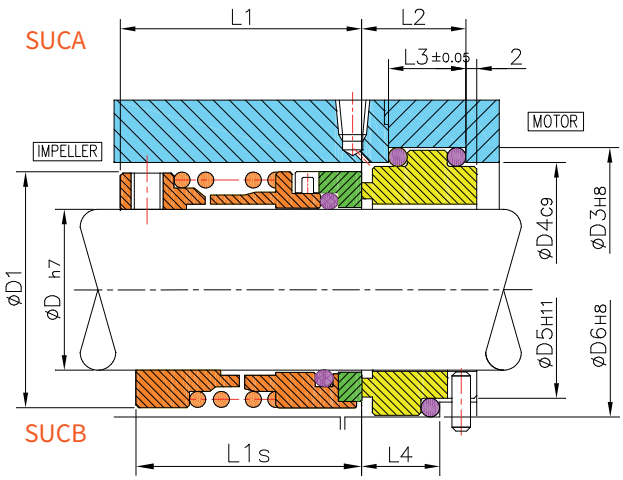
The SUC is a robust, rotating, single coil spring, clutch drive, unbalanced 'O'-ring mounted seal for use in process pumps in a wide range of applications. Particularly suited to use in pulp and paper applications, slurry duties and high viscosity media.

SUC의 특별한 성능

- 싱글 코일 스프링으로 부식 및 슬러리, 점도에 대한 우수한 내성을 제공하므로 클로깅(막힘) 현상이 발생하지 않습니다.
- 양방향, 씰은 씰 헤드와 드라이브 칼라 사이의 클러치 드라이브를 통해 구동되어 탁월한 토크 전달을 제공합니다.
- 정지/기동 전환 및 정/역 회전이 많은 유체 기계에 가장 적합합니다.

Specific Features of the SUC Seal

- Single, coil spring, not subject to clogging because providing excellent resistance to corrosion and slurry, viscosity.
- Direction free, the seal is driven through a clutch drive between seal head and drive collar, providing excellent torque transmission.
- It is best suited for fluid machinery subject to frequent start/stop switching and forward/reverse rotation.



Operating Capabilities

- Temperature : -30~160°C (depending on materials)
- Pressure : Up to 1.5 MPa
- Speed : 15m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 7wt%

Materials

- Seal Face
-Silicon carbide
-Tungsten carbide
-Antimony Imp. Carbon
-Resin Imp. Carbon.
-Silicon carbide shrink fitted
-Tungsten carbide shrink fitted

Dimensions (mm)

MODEL	D	D1	D2	L1	L1s	ISO (A Type)				DIN (B Type)		
						D3	D4	L2	L3	D5	D6	L4
SUC-20	20	34	36	43	38	42	36	23	18	29	35	9.5
SUC-22	22	36	38	44	39	44	38	23	18	31	37	9.5
SUC-25	25	39	41	46	41	47	41	23	18	34	40	10.0
SUC-28	28	42	44	46	41	50	44	23	18	37	43	10.0
SUC-30	30	44	46	48	43	52	46	23	18	39	45	10.0
SUC-32	32	46	48	48	43	54	48	23	18	42	48	10.0
SUC-35	35	49	51	50	45	57	51	23	18	44	50	10.0
SUC-38	38	54	58	50	45	64	58	25	20	49	56	13.0
SUC-40	40	56	60	50	45	66	60	25	20	51	58	13.0
SUC-42	42	58	62	52	47	68	62	25	20			
SUC-43	43	59	63	52	47					54	61	13.0
SUC-45	45	61	65	52	47	71	65	25	20	56	63	13.0
SUC-48	48	64	68	59	54	74	68	25	20	59	66	13.0
SUC-50	50	66	70	59	54	76	70	25	20	62	70	15.5
SUC-52	52	68	72	63	58	78	72	25	20			
SUC-53	53	69	73	63	58					65	73	15.5
SUC-55	55	71	75	63	58	81	75	25	20	67	75	15.5
SUC-58	58	78	83	66	61	89	83	28	22	70	78	16.0
SUC-60	60	80	85	68	63	91	85	28	22	72	80	16.0
SUC-62	62	82	87	68	63	93	87	28	22			
SUC-63	63	83	88	68	63					75	83	16.0
SUC-65	65	85	90	71	66	96	90	28	22	77	85	16.0
SUC-68	68	88	93	72	67	99	93	30	24	81	90	16.0
SUC-70	70	90	95	73	68	101	95	30	24	83	92	19.0
SUC-75	75	95	104	74	69	110	104	30	24	88	97	19.0
SUC-80	80	100	109	76	71	115	109	31	25	95	105	19.0
SUC-85	85	105	114	77	72	120	114	31	25	100	110	19.0
SUC-90	90	110	119	78	73	125	119	31	25	105	115	19.0
SUC-95	95	115	124	80	75	130	124	31	25	110	120	19.0
SUC-100	100	120	129	81	76	135	129	31	25	115	125	19.0

L1s : Seal face unification with shrinking connection (short version)

Mechanical Seals
Pusher Type
Non-Clutch Type

SUNC

SUNC는 화학 처리, 수처리 및 하수 처리장, 펄프 및 제지 공장에 일반적으로 적용하는 회전형, 싱글스프링, 언밸런스, 오링 사용 씰입니다.
특히 모든 산업에서 냉각수 시스템(공업용 수, 폐수, 해수)에 사용하기에 적합합니다.

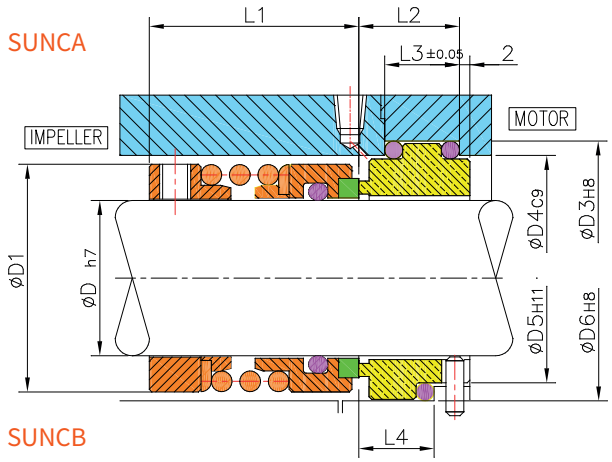
The SUNC is a rotating, single coil spring, unbalanced O-ring mounted seal for general purpose application in chemical processing, water treatment and sewage plants, and pulp and paper mills. Particularly suitable to use for cooling water system (industrial water, waste water, sea water) in any industries.

SUNC의 특별한 성능

- 구조가 단순하고 경제적입니다.
- 싱글 스프링을 사용하여 클로깅(막힘)과 화학적 부식에 강합니다.

Specific Features of SUNC

- Simple structure and economical.
- Resistant to clogging and chemical attack by using a robust single spring.



Operating Capabilities

- Temperature : -30~160°C
  (depending on materials)
- Pressure : Up to 1.0 MPa
- Speed : 10m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 7wt%

Materials

- Seal Face
-Silicon carbide
-Resin Imp. Carbon.
-Silicon carbide shrink fitted
-Tungsten carbide shrink fitted

Dimensions (mm)

MODEL	D	D1	D2	L1	ISO (A Type)				DIN (B Type)		
					D3	D4	L2	L3	D5	D6	L4
SUNC-20	20	34	36	38	42	36	23	18	29	35	9.5
SUNC-22	22	36	38	39	44	38	23	18	31	37	9.5
SUNC-25	25	39	41	41	47	41	23	18	34	40	10.0
SUNC-28	28	42	44	41	50	44	23	18	37	43	10.0
SUNC-30	30	44	46	43	52	46	23	18	39	45	10.0
SUNC-32	32	46	48	43	54	48	23	18	42	48	10.0
SUNC-35	35	49	51	45	57	51	23	18	44	50	10.0
SUNC-38	38	54	58	45	64	58	25	20	49	56	13.0
SUNC-40	40	56	60	47	66	60	25	20	51	58	13.0
SUNC-42	42	58	62	47	68	62	25	20			
SUNC-43	43	59	63	47					54	61	13.0
SUNC-45	45	61	65	47	71	65	25	20	56	63	13.0
SUNC-48	48	64	68	54	74	68	25	20	59	66	13.0
SUNC-50	50	66	70	59	76	70	25	20	62	70	15.5
SUNC-52	52	68	72	58	78	72	25	20			
SUNC-53	53	69	73	58					65	73	15.5
SUNC-55	55	71	75	58	81	75	25	20	67	75	15.5
SUNC-58	58	78	83	61	89	83	28	22	70	78	16.0
SUNC-60	60	80	85	63	91	85	28	22	72	80	16.0
SUNC-62	62	82	87	63	93	87	28	22			
SUNC-63	63	83	88	63					75	83	16.0
SUNC-65	65	85	90	66	96	90	28	22	77	85	16.0
SUNC-68	68	88	93	67	99	93	30	24	81	90	16.0
SUNC-70	70	90	95	68	101	95	30	24	83	92	19.0
SUNC-75	75	95	104	69	110	104	30	24	88	97	19.0
SUNC-80	80	100	109	71	115	109	31	25	95	105	19.0
SUNC-85	85	105	114	72	120	114	31	25	100	110	19.0
SUNC-90	90	110	119	73	125	119	31	25	105	115	19.0
SUNC-95	95	115	124	75	130	124	31	25	110	120	19.0
SUNC-100	100	120	129	76	135	129	31	25	115	125	19.0

SU

Mechanical Seals
Pusher Type
(Z) Stooper Ring option available

SU는 화학 처리, 수처리 및 하수 처리장, 펄프 및 제지 공장에 일반적으로 적용하는 회전형, 싱글스프링, 언밸런스, 오링 사용 씰입니다.
특히 모든 산업에서 냉각수 시스템(공업용 수, 폐수, 해수)에 사용하기에 적합합니다.

The SU is a rotating, single coil spring, unbalanced O-ring mounted seal for general-purpose application in chemical processing, water treatment and sewage plants, and pulp and paper mills. Particularly suited to use for cooling water system (industrial water, waste water, sea water) in any industeries.

SU의 특별한 성능

- 구조가 단순하고 경제적입니다.
- 싱글 스프링을 사용하여 클로깅(막힘)과 화학적 부식에 강합니다.

Specific Features of SU

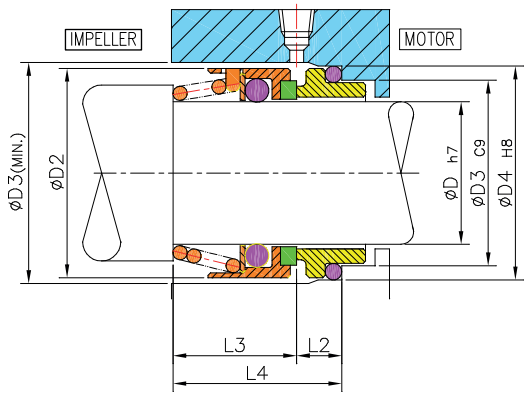
- Simple structure and economical.
- Resistant to clogging and chemical attack by using a robust single spring.

Operating Capabilities

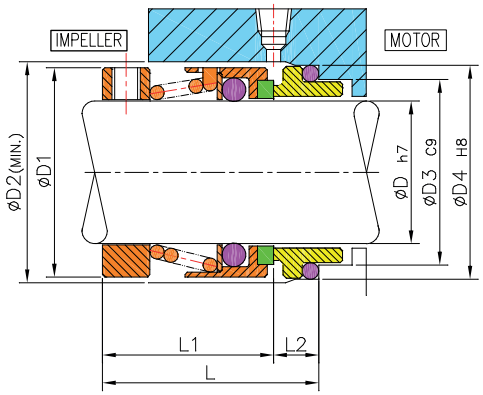
- Temperature : -30~160°C
  (depending on materials)
- Pressure : Up to 1.0 MPa
- Speed : 10 m/sec

Materials

- Seal Face
-Silicon carbide
-Resin Imp. Carbon.
-Silicon carbide shrink fitted
-Tungsten carbide shrink fitted



SU TYPE



SUZ TYPE

Dimensions (mm)

MODEL	D	D1	D2	D3	D4	L	L1	L2	L3	L4
SU-20	20	34	36	30	36	45	34	11	24	35
SU-22	22	36	38	32	38	47	36	11	26	37
SU-25	25	39	41	35	41	48	36	12	26	38
SU-28	28	42	44	38	44	48	36	12	26	38
SU-30	30	44	46	40	45	49	36	13	26	39
SU-32	32	46	48	42	48	51	38	13	28	41
SU-35	35	49	51	45	51	51	38	13	28	41
SU-40	40	56	60	50	56	58	44	14	34	48
SU-45	45	61	65	55	61	61	47	14	37	51
SU-50	50	66	70	60	66	68	53	15	43	58
SU-55	55	71	75	65	71	74	59	15	49	64
SU-60	60	78	85	72	80	83	67	16	55	71
SU-65	65	83	90	77	85	83	67	16	55	71

Mechanical Seals

Pusher Type
Clutch torque transmission

SBC

SBC는 다양한 응용 분야의 프로세스 펌프에 사용하는 회전형, 싱글 스프링, 클러치 구동, 밸런스, 오링을 사용한 푸셔 씰입니다. 특히 펄프 및 제지 용도, 슬러리 작업 및 고점도 매체에 사용하기에 적합합니다.

The SBC is a robust, rotating, single coil spring, clutch drive, balanced 'O'-ring mounted pusher seal for use in process pumps in a wide range of applications. Particularly suitable to use in pulp and paper applications, slurry duties and high viscosity media.

SBC의 특별한 성능

- 싱글 코일 스프링으로 고압에서 사용 할 수 있는 밸런스 씰 이며, 부식 및 슬러리, 점도에 대한 우수한 내성을 제공하여 클로깅(막힘) 현상이 발생하지 않습니다.
- 씰은 양방향에 사용하며 클러치 드라이브를 통해 구동되어 탁월한 토크 전달을 제공합니다.
- 정지/기동 전환 및 정/역 회전이 많은 유체 기계에 가장 적합합니다.

Specific Features of the SBC Seal

- Single, coil spring, balance seal for high pressure, not subject to clogging because providing excellent resistance to corrosion and slurry, viscosity.
- Direction free, the seal is driven through a clutch drive, providing excellent torque transmission.
- It is best suited for fluid machinery subject to frequent start/stop switching and forward/reverse rotation.

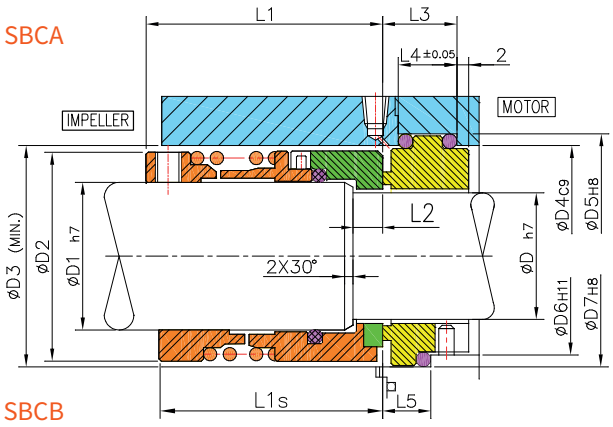
Operating Capabilities

- Temperature : -30~160°C
  (depending on materials)
- Pressure : Up to 2.5 MPa
- Speed : 10m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 7wt%

Materials

- Seal Face
-Silicon carbide
-Resin Imp. Carbon
-Silicon carbide shrink fitted
-Tungsten carbide shrink fitted

SBCA



SBCB

Dimensions (mm)

MODEL	D	D1	D2	D3	L1	L1s	L2	ISO (A Type)				DIN (B Type)		
								D4	D5	L3	L4	D6	D7	L5
SBC-024	20	24	38	40	55	50	7	40	46	23	18	29	35	9.5
SBC-026	22	26	40	42	55	50	7	42	48	23	18	31	37	9.5
SBC-030	25	30	44	46	57	52	7	46	52	23	18	34	40	10.0
SBC-033	28	33	47	49	57	52	7	49	55	23	18	37	43	10.0
SBC-035	30	35	49	51	59	54	7	51	57	23	18	39	45	10.0
SBC-040	35	40	56	60	59	54	7	60	66	25	20	44	50	10.0
SBC-043	38	43	59	63	61	56	7	63	69	25	20	49	56	13.0
SBC-045	40	45	61	65	61	56	8	65	71	25	20	51	58	13.0
SBC-048	43	48	64	68	68	63	8	68	74	25	20	54	61	13.0
SBC-050	45	50	66	70	68	63	8	70	76	25	20	56	63	13.0
SBC-053	48	53	69	73	72	67	8	73	79	25	20	59	66	13.0
SBC-055	50	55	71	75	72	67	8	75	81	25	20	62	70	15.5
SBC-058	53	58	78	83	75	70	8	83	89	28	22	65	73	15.5
SBC-060	55	60	80	85	77	72	8	85	91	28	22	67	75	15.5
SBC-065	60	65	85	90	80	75	8	90	96	28	22	72	80	16.0
SBC-070	65	70	90	95	82	77	9	95	101	30	24	77	85	16.0
SBC-075	70	75	95	104	83	78	9	104	110	30	24	83	92	19.0
SBC-080	75	80	100	109	85	80	9	109	115	31	25	88	97	19.0
SBC-085	80	85	105	114	86	81	9	114	120	31	25	95	105	19.0
SBC-090	85	90	110	119	87	82	9	119	125	31	25	100	110	19.0
SBC-095	90	95	115	124	89	84	9	124	130	31	25	105	115	19.0
SBC-100	95	100	120	129	90	85	9	129	135	31	25	110	120	19.0
SBC-105	100	105	125	134	90	85	9	134	140	31	25	115	125	19.0

SBNC

Mechanical Seals
Pusher Type

SBNC는 화학 처리, 수처리 및 하수 처리장, 펄프 및 제지 산업에 일반적으로 적용하는 회전형, 싱글스프링, 밸런스, 오링 사용 푸셔 씰 입니다. 특히 모든 산업에서 냉각수 시스템 (공업용 수, 폐수, 해수)에 사용하기에 적합합니다.

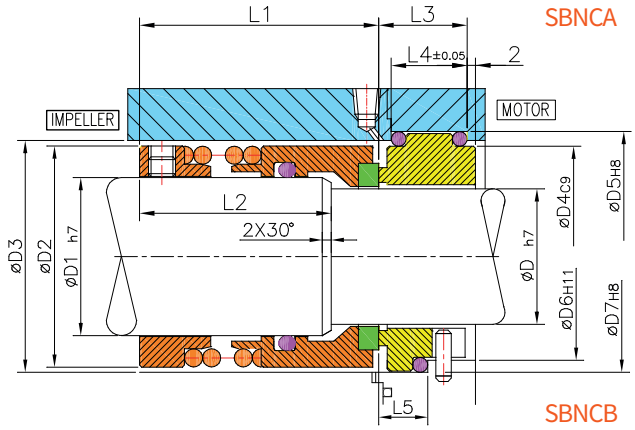
The SBNC is a rotating, single coil spring, balanced, O-ring mounted seal for general purpose application in chemical processing, water treatment and sewage plants, and pulp and paper mills. Particularly suited to use for cooling water system (industrial water, waste water, sea water) in any industries.

SBNC의 특별한 성능

- 구조가 단순한 밸런스 씰 이고 경제적입니다.
- 싱글 스프링을 사용하여 클로깅(막힘)과 화학적 부식에 강합니다.

Specific Features of SBNC

- Simple structure balance seal and economical.
- Resistant to clogging and chemical attack by using a robust single spring.



Operating Capabilities

- Temperature : -30~160°C (depending on materials)
- Pressure : Up to 2.0 MPa
- Speed : 10m/sec
- Viscosity : Less than 300cP
- Slurry concentration : Less than 7wt%

Materials

- Seal Face
-Silicon carbide
-Resin Imp. Carbon
-Silicon carbide shrink fitted
-Tungsten carbide shrink fitted

Dimensions (mm)

MODEL	D	D1	D2	D3	L1	L2	ISO (A Type)				DIN (B Type)		
							D4	D5	L3	L4	D6	D7	L5
SBNC-024	20	24	38	40	50	43	40	46	23	18	29	35	9.5
SBNC-026	22	26	40	42	50	43	42	48	23	18	31	37	9.5
SBNC-030	25	30	44	46	52	45	46	52	23	18	34	40	10.0
SBNC-033	28	33	47	49	52	45	49	55	23	18	37	43	10.0
SBNC-035	30	35	49	51	54	47	51	57	23	18	39	45	10.0
SBNC-040	35	40	56	60	54	47	60	66	25	20	44	50	10.0
SBNC-043	38	43	59	63	56	49	63	69	25	20	49	56	13.0
SBNC-045	40	45	61	65	56	48	65	71	25	20	51	58	13.0
SBNC-048	43	48	64	68	63	55	68	74	25	20	54	61	13.0
SBNC-050	45	50	66	70	63	55	70	76	25	20	56	63	13.0
SBNC-053	48	53	69	73	67	59	73	79	25	20	59	66	13.0
SBNC-055	50	55	71	75	67	59	75	81	25	20	62	70	15.5
SBNC-058	53	58	78	83	70	62	83	89	28	22	65	73	15.5
SBNC-060	55	60	80	85	72	64	85	91	28	22	67	75	15.5
SBNC-065	60	65	85	90	75	67	90	96	28	22	72	80	16.0
SBNC-070	65	70	90	95	77	68	95	101	30	24	77	85	16.0
SBNC-075	70	75	95	104	78	69	104	110	30	24	83	92	19.0
SBNC-080	75	80	100	109	80	71	109	115	31	25	88	97	19.0
SBNC-085	80	85	105	114	81	72	114	120	31	25	95	105	19.0
SBNC-090	85	90	110	119	82	73	119	125	31	25	100	110	19.0
SBNC-095	90	95	115	124	84	75	124	130	31	25	105	115	19.0
SBNC-100	95	100	120	129	85	76	129	135	31	25	110	120	19.0
SBNC-105	100	105	125	134	85	76	134	140	31	25	115	125	19.0

Mechanical Seals
Cartridge Type

STGR

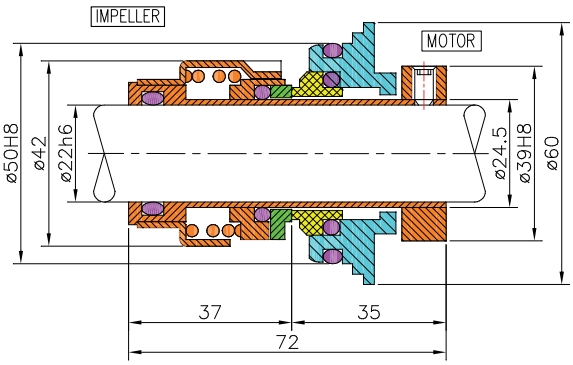
STGR은 Grundfos® CR, CRI, CRIE 시리즈 수직 다단 펌프에 사용되는 카트리지 씰입니다.
STGR is a cartridge for Grundfos® CR, CRI and CRIE series, vertical multi-stage pumps.

STGR의 특별한 성능

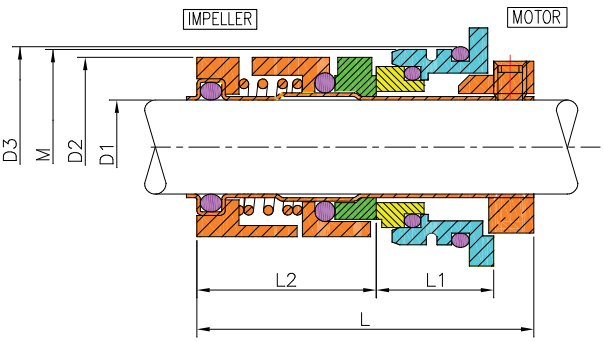
- 카트리지 씰로 안전하고 쉽게 교체 할 수 있습니다.
- 밸런스, 오링 사용 씰 유형으로 고압 응용 분야에 사용합니다.
- 싱글 스프링 및 견고한 토크 전달 시스템으로 인해 고점도, 먼지 및 섬유 함유 유체에 탁월합니다.

Specific Features of STGR

- This seal type is assembled in a cartridge unit which makes replacement safe and easy.
- Due to the balancing, O-ring seal type is suitable for high-pressure applications.
- The seal is excellent for high-viscosity, dirt- and fibre-containing liquids because single spring and rigid torque transmission system.



STGR-22



STGR-12, STGR-16

Materials

- Seal Face
-Tungsten Carbide
-Silicon Carbide

Dimensions (mm)

MODEL	D1(h6)	D2	M	D3(H8)	L	L1	L2
STGR-12	12	25	M28x1.5	29	55	19	30
STGR-16	12	30.5	M33x1.5	34	57.5	20	30.5
STGR-22	22	42	-	50	72	35	37

It is suitable to GRUNDFOS pumps :

CR 1,3,5,10,15,20,32,45,90 Ordinary mechanical seals of water pump
Temperature : -30~180°C

CRN 1,3,5,10,15,20,32,45,64,90 Ordinary mechanical seals of water pump
Temperature : -20~90°C

ST560D

Mechanical Seals
Elastomer Bellows Type
Equivalent to EKK560D

ST560D는 수중펌프 씰로 개발한 고무 몰딩 더블 씰입니다.
ST560D is developed for a submersible pump, rubber molded dual seal.

ST560D의 특별한 성능

- 수중펌프용 고무 몰딩 더블씰입니다.
- ST560D는 느슨하게 삽입 된 씰면과 벨로우즈의 신축성으로 샤프트 오정렬, 처짐 그리고 씰면의 마모에 대해 자동 조정됩니다.

Specific Features of ST560D

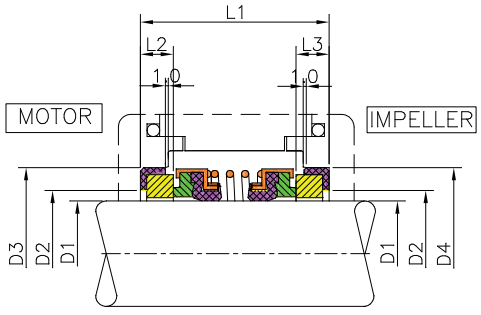
- For submersible pump seal, rubber moulded, dual seal.
- The ST560D is self-adjusting to shaft misalignments, deflections and seal face wear because of the loosely inserted seal face as well as the ability of the bellows to stretch and tighten.

Operating Capabilities

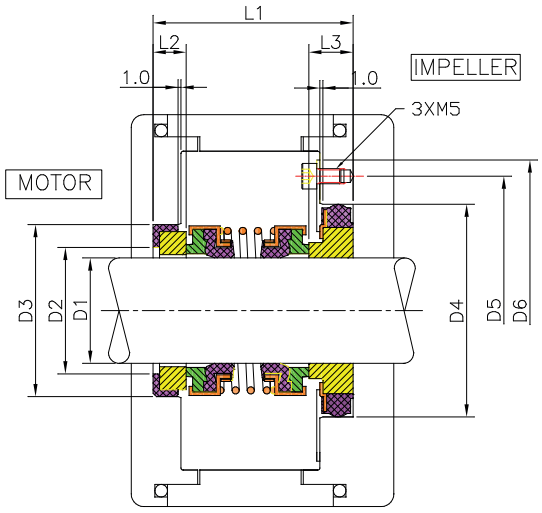
- Temperature : -20~90°C
- Pressure : Up to 0.5 MPa
- Speed : 10m/sec
- Axial movement : ±1.0 mm

Materials

- Seal Face
  - Silicon carbide
  - Resin Imp. Carbon
  - Aluminium Oxide



Ø14



Ø20 ~ Ø70

Dimensions (mm)

MODEL	D1 (h6)	D2	D3 (H8)	D4 (H8)	D5	D6	L1	L2	L3
ST560D-14	14	17	32	32	/	/	43	7.0	5.0
ST560D-20	20	23	38	44	60	72	50	9.0	8.5
ST560D-25	25	28	44	50	60	72	50	7.0	7.0
ST560D-30	30	33	44	57	70	82	60	7.0	9.0
ST560D-35	35	38	54	57	70	82	60	9.5	8.5
ST560D-40	40	43	68	70	85	100	65	12.0	9.0
ST560D-45	45	48	68	70	90	105	65	12.0	10.5
ST560D-50	50	53	75	80	95	109	75	9.0	10.5
ST560D-60	60	63	85	95	110	124	85	9.0	10.5
ST560D-70	70	73	95	105	120	134	85	17.0	15.0

Mechanical Seals
Pusher Type
Dual Seals

SMHD

SMHD는 수중 펌프, 물 펌프 및 수처리 시설등에 사용하기 위하여 개발된 언밸런스형 멀티스프링 더블씰입니다.
The SMHD is an unbalanced, multi-spring, dual seal, specially developed for submersible pumps, water pump and water treatment facilities.

SMHD의 특별한 성능

- 단순하고 견고한 범용 씰 입니다.
- 회전부분은 축을 기준으로 자동으로 센터링하며 다수의 스프링과 핀이 하중을 분산시키는 구조입니다.
- 단순하고 견고하며 개방적인 회전부분은 사용하는 유체 또는 완충 유체에 난류흐름을 만들어 부식성, 침식성, 점성이 높은 유체에 저항하며, 섭동면에 발생하는 마찰열을 제거합니다.

Specific Features of SMHD

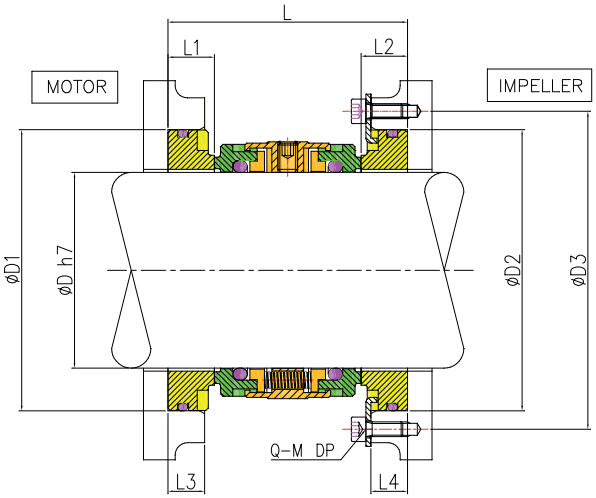
- Simple and robust, it is a universal seal.
- The rotating part is automatically centered based on the axis, and a number of springs and pins distribute the load.
- The simple, rugged, and open rotating part creates turbulent flow in the fluid or buffer fluid used to resist corrosive, erosive, and viscous fluids, and removes frictional heat generated on the seal face.

Operating Capabilities

- Temperature : -20~100°C
- Pressure : Up to 0.5 MPa
- Speed : 10m/sec
- Axial movement : ±1.0 mm(D1≦100)
  ±1.5 mm(D1 >100)

Materials

- Seal Face
  - Silicon carbide
  - Resin Imp. Carbon



Dimensions (mm)

MODEL	D (h7)	D1 (H8)	D2 (H8)	D3 (H8)	L	L1	L2	L3	L4	Q-M DP
SMHD-30	30	44	57	70	60	9.5	10.5	7.0	9.0	3-M5 DP15
SMHD-35	35	54	57	70	60	9.5	10.5	8.0	8.5	3-M5 DP15
SMHD-40	40	68	70	85	65	10.5	11.5	9.0	10.0	3-M5 DP15
SMHD-45	45	68	70	90	65	10.5	11.5	9.0	10.0	3-M5 DP15
SMHD-50	50	75	80	95	75	14	11	12.0	9.5	3-M5 DP15
SMHD-60	60	85	95	110	85	17	15	15.0	13.0	3-M5 DP15
SMHD-70	70	95	105	120	85	17	15	15.0	13.0	3-M5 DP15
SMHD-80	80	115	115	130	98	19	19	15.0	15.0	4-M6 DP15
SMHD-90	90	125	125	140	98	19	19	15.0	15.0	4-M6 DP15
SMHD-100	100	135	135	150	98	19	19	15.0	15.0	4-M6 DP15
SMHD-110	110	145	145	160	102	19	19	15.0	15.0	4-M6 DP15
SMHD-120	120	155	155	170	102	19	19	15.0	15.0	4-M6 DP15
SMHD-130	130	156	165	180	105	19	19	15.0	15.0	4-M6 DP15
SMHD-140	140	175	175	190	105	19	19	15.0	15.0	4-M6 DP15
SMHD-150	150	185	185	200	105	19	19	16.0	16.0	4-M6 DP15
SMHD-160	160	195	195	210	106	19.5	19.5	16.0	16.0	4-M6 DP15

STG1/STG2/STG3

STG 시리즈의 메카니컬 씰은 고무 벨로우즈 디자인으로 뛰어난 유연성과 내구성을 제공하여 메카니컬 씰 중에서 가장 일반적으로 널리 사용됩니다.
STG 시리즈의 메카니컬 씰은 STG1, STG2, STG3 중 EN12756의 피팅 길이에 따라 선택할 수 있습니다

STG series의 특별한 성능

- 전체 씰 길이에 대한 축을 보호 합니다.
- 회전방향에 관계없이 사용 가능합니다.
- 큰 축 방향 움직임에 추종하므로 축 편향에 민감하지 않습니다.
- 다양하게 응용·적용할 수 있습니다.

Specific Features of STG series

- Shaft protection over entire seal length.
- Direction free.
- Insensitive to shaft deflections due to large axial movement ability.
- Universal application opportunities.

Operating Capabilities

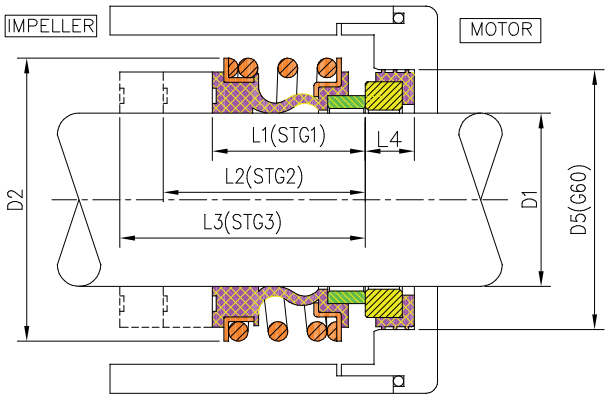
- Temperature : -20~140°C
- Pressure : Up to 1.2 MPa
- Speed : 10m/sec
- Axial movement : ±1.0 mm

Materials

- Seal Face
- Silicon carbide
- Tungsten carbide
- Aluminium Oxide
- Resin Imp. Carbon

STG1

STG2 / STG3

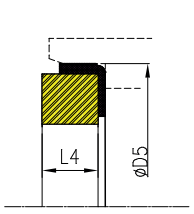


Type STG1/ STG2/ STG3 are Equivalent to Eagle Burgmann Mechanical seal MG1/ MG12/ MG13

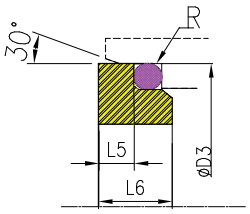
Elastomer Bellows Seal

Unbalanced Single Seal
Equivalent to Eagle Burgmann MG1, MG12, MG13

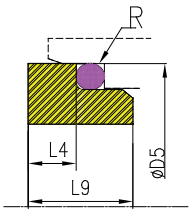
The mechanical seals of the STG series are the most commonly used mechanical seals, as they are robust, heavy duty bellows design, for provides excellent flexibility and durability. The mechanical seal of the STG series could be selected according to fitting length of EN12756 among STG1, STG2, STG3.



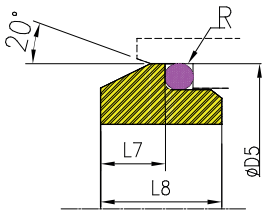
G60
EN12756



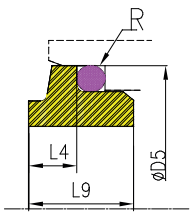
G4



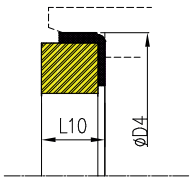
G6
EN12756



G9
EN12756



G606
EN12756



G50
EURO STANDARD

Dimensions (mm)

MODEL	D1 (h6)	D2	D3	D4	D5 (H8)	L1 (±0.5)	L2 (±0.5)	L3 (±0.5)	L4	L5	L6	L7	L8	L9	L10
STG...-10	10	22.5	19.2	24.6	21	14.5	25.9	33.4	6.6	6.6	7.5	10.0	17.5	7.5	9.0
STG...-12	12	25.0	21.6	27.8	23	15.0	25.9	33.4	6.6	5.6	6.5	10.0	17.5	7.5	9.0
STG...-14	14	28.5	24.6	30.9	25	17.0	28.4	33.4	6.6	5.6	6.5	10.0	17.5	7.5	10.5
STG...-16	16	28.5	28.0	30.9	27	17.0	28.4	33.4	6.6	7.5	805	10.0	17.5	7.5	10.5
STG...-18	18	32.0	30.0	34.0	33	19.5	30.0	37.5	7.5	8.0	9.0	11.5	19.5	8.5	10.5
STG...-20	20	37.0	35.0	35.7	35	21.5	30.0	37.5	7.5	7.5	8.5	11.5	19.5	8.5	10.5
STG...-22	22	37.0	35.0	37.3	37	21.5	30.0	37.5	7.5	7.5	8.5	11.5	19.5	8.5	10.5
STG...-24	24	42.5	38.0	40.5	39	22.5	32.5	42.5	7.5	7.5	8.5	11.5	19.5	8.5	10.5
STG...-25	25	42.5	38.0	40.5	40	23.0	32.5	42.5	7.5	7.5	8.5	11.5	19.5	8.5	10.5
STG...-28	28	49.0	42.0	47.6	43	26.5	35.0	42.5	7.5	9.0	10.0	11.5	19.5	8.5	12.0
STG...-30	30	49.0	45.0	50.8	45	26.5	35.0	42.5	7.5	10.5	11.5	11.5	19.5	8.5	12.0
STG...-32	32	53.5	48.0	50.8	48	27.5	35.0	47.5	7.5	10.5	11.5	11.5	19.5	8.5	12.0
STG...-33	33	53.5	50.0	54.0	48	27.0	35.0	47.5	7.5	11.0	12.0	11.5	19.5	8.5	12.0
STG...-35	35	57.0	52.0	54.0	50	28.5	35.0	47.5	7.5	11.0	12.0	11.5	19.5	8.5	12.0
STG...-38	38	59.0	55.0	57.1	56	30.0	36.0	46.0	9.0	10.3	11.3	14.0	22.0	10.0	12.0
STG...-40	40	62.0	58.0	60.3	58	30.0	36.0	46.0	9.0	10.8	11.8	14.0	22.0	10.0	12.0
STG...-43	43	65.5	62.0	63.5	61	30.0	36.0	51.0	9.0	12.0	13.2	14.0	22.0	10.0	12.0
STG...-45	45	68.0	64.0	63.5	63	30.0	36.0	51.0	9.0	11.6	12.8	14.0	22.0	10.0	12.0
STG...-48	48	70.5	68.4	66.7	66	30.5	36.0	51.0	9.0	11.6	12.8	14.0	22.0	10.0	12.0
STG...-50	50	74.0	69.3	69.8	70	30.5	38.0	50.5	9.5	11.6	12.8	15.0	23.0	10.5	13.5
STG...-53	53	78.5	72.3	73.0	73	33.0	36.5	59.0	11.0	12.3	13.5	15.0	23.0	12.0	13.5
STG...-55	55	81.0	75.4	76.2	75	35.0	36.5	59.0	11.0	13.3	14.5	15.0	23.0	12.0	13.5
STG...-58	58	85.5	78.4	79.4	78	37.0	41.5	59.0	11.0	13.3	14.5	15.0	23.0	12.0	13.5
STG...-60	60	88.5	80.4	79.4	80	38.0	41.5	59.0	11.0	13.3	14.5	15.0	23.0	12.0	13.5
STG...-65	65	93.5	85.4	92.1	85	40.0	41.5	69.0	11.0	13.0	14.2	15.0	23.0	12.0	16.0
STG...-68	67	96.5	91.5	95.2	90	40.0	41.2	68.7	11.3	13.7	14.9	18.0	26.0	12.5	16.0
STG...-70	70	99.5	92.0	95.2	92	40.0	48.7	68.7	11.3	13.0	14.2	18.0	26.0	12.5	16.0
STG...-75	75	107.0	99.0	101.6	97	40.0	48.7	68.7	11.3	14.0	15.2	18.0	26.0	12.5	16.0
STG...-80	80	112.0	104.0	114.3	105	40.0	48.0	78.0	12.0	15.0	16.2	18.2	26.0	13.0	20.0
STG...-85	85	120.0	109.0	117.5	110	41.0	46.0	76.0	14.0	14.8	16.0	18.2	26.0	15.0	20.0
STG...-90	90	127.0	114.0	123.8	115	45.0	51.0	76.0	14.0	14.8	16.0	18.2	26.0	15.0	20.0
STG...-95	95	132.0	120.3	127.0	120	46.0	51.0	76.0	14.0	15.8	17.0	17.2	25.2	15.0	20.0
STG...-100	100	137.0	123.3	133.3	125	47.0	51.0	76.0	14.0	15.8	17.0	17.2	25.2	15.0	20.0

STRB2100

Mechanical Seals
Heavy-duty Elastomer Bellows Seal
Equivalent to John crane Mechanical Seal Type 2100

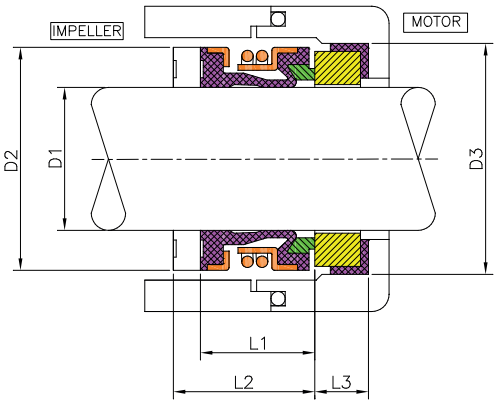
STRB2100은 Bellows 특유의 유연성을 가지며 콤팩트 한 일체형 싱글 스프링, 고무 벨로우즈 씰입니다.
STRB2100 has a idiosyncratic flexibility of rubber bellows. Also it's a compact single spring rubber bellows seal.

STRB2100의 특별한 성능

- 통합 구조로 빠르고 쉽게 설치 및 교체 할 수 있습니다.
- 혁신적인 벨로우즈 디자인은 압력에 의해 지지되며 고압에서 주름지거나 접히지 않습니다.
- 싱글 스프링은 모든 작동 단계에서 밀봉면을 닫고 올바르게 유지합니다.
- 클러치를 통한 포지티브 드라이브는 고부하 상태에서 미끄러지거나 깨지지 않습니다.

Specific Features of STRB2100

- Unitized construction allows for fast and easy installation and replacement.
- Innovative bellows design is pressure-supported and will not crease or fold under high pressure.
- Single spring keeps seal faces closed and properly tracking during all phases of operation.
- Positive drive through clutch will not slip or break free during upset conditions.



Dimensions (mm)

MODEL	D1 (h6)	D2 (max)	D3	L1 (±1.0)	L2 (±1.0)	L3
STRB2100-10	10	20	21	15	27.5	5
STRB2100-12	12	22	23	15	26.5	6
STRB2100-14	14	24	25	15	29.0	6
STRB2100-15	15	25	26	15	29.0	6
STRB2100-16	16	26	27	15	29.0	6
STRB2100-18	18	32	33	20	31.5	6
STRB2100-20	20	34	35	20	31.5	6
STRB2100-22	22	36	37	20	31.5	6
STRB2100-24	24	38	39	20	34.0	6
STRB2100-25	25	39	40	20	34.0	6
STRB2100-28	28	42	43	26	36.5	6
STRB2100-30	30	44	45	26	35.5	7
STRB2100-32	32	46	48	26	35.5	7
STRB2100-33	33	47	48	26	35.5	7
STRB2100-35	35	49	50	26	34.5	8
STRB2100-38	38	54	56	30	37.0	8
STRB2100-40	40	56	58	30	37.0	8
STRB2100-43	43	59	61	30	37.0	8
STRB2100-45	45	61	63	30	37.0	8
STRB2100-48	48	64	66	30	35.0	10
STRB2100-50	50	66	70	30	37.5	10
STRB2100-53	53	69	73	30	37.5	10
STRB2100-55	55	71	75	30	37.5	10
STRB2100-58	58	78	78	33	37.5	10
STRB2100-60	60	80	80	33	40.5	12
STRB2100-63	63	83	83	33	40.5	12
STRB2100-65	65	85	85	33	40.5	12
STRB2100-68	68	88	90	33	40.5	12
STRB2100-70	70	90	92	33	48.0	12
STRB2100-75	75	99	97	33	48.0	12

Operating Capabilities

- Temperature : -20~90°C
- Pressure : Up to 1.2 MPa
- Speed : 15m/sec
- Axial movement : ±1.0 mm

Materials

- Seal Face
- Silicon carbide
- Resin Imp. Carbon

(inch)

MODEL	D1 (-0.002)	D2 (max)	D3	L1 (±0.04)	L2 (±0.04)	L3 (±0.04)
STRB2100-0.375"	0.375	0.787	0.875	0.591		0.311
STRB2100-0.500"	0.500	0.945	1.000	0.591	0.812	0.311
STRB2100-0.625"	0.625	1.024	1.250	0.591	0.875	0.406
STRB2100-0.750"	0.750	1.260	1.375	0.787	0.875	0.406
STRB2100-0.875"	0.875	1.417	1.500	0.787	0.937	0.406
STRB2100-1.000"	1.000	1.535	1.625	0.787	1.000	0.437
STRB2100-1.125"	1.125	1.654	1.750	1.024	1.062	0.437
STRB2100-1.250"	1.250	1.811	1.875	1.024	1.062	0.437
STRB2100-1.375"	1.375	1.929	2.000	1.024	1.125	0.437
STRB2100-1.500"	1.500	2.216	2.125	1.181	1.187	0.437
STRB2100-1.625"	1.625	2.205	2.375	1.181	1.375	0.500
STRB2100-1.750"	1.750	2.402	2.500	1.181	1.375	0.500
STRB2100-1.875"	1.875	2.520	2.625	1.181	1.500	0.500
STRB2100-2.000"	2.000	2.598	2.750	1.181	1.500	0.500
STRB2100-2.125"	2.125	2.717	3.000	1.181	1.687	0.563
STRB2100-2.250"	2.250	3.031	3.125	1.299	1.687	0.563
STRB2100-2.375"	2.375	3.150	3.250	1.299	1.812	0.563
STRB2100-2.500"	2.500	3.268	3.375	1.299	1.812	0.563
STRB2100-2.625"	2.625	3.465	2.375	1.299	-	0.626
STRB2100-2.750"	2.750	3.504	3.500	1.299	-	0.626
STRB2100-2.875"	2.875	3.780	3.750	1.299	-	0.626
STRB2100-3.000"	3.000	3.898	3.875	1.575	-	0.626

Mechanical Seals
Elastomer Bellows Type
Equivalent to EKK EA560A

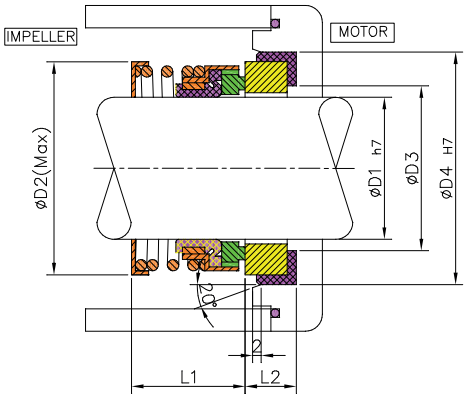
ST560A

ST560A는 간단한 구조로 되어 경제적이며, 주로 사용 조건이 좋은 청수 펌프에 사용합니다.
The ST560A is simple structure and economical, it's mainly used in good work condition as clean water.

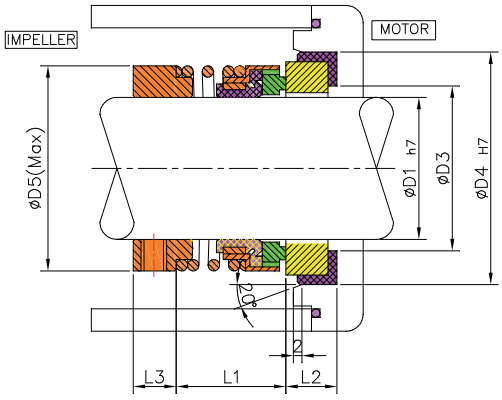
ST560A의 특별한 성능
- 구조가 단순합니다.
- 가격이 경제적입니다.

Specific Features of ST560A
- It has a simple structure.
- The price is economical.

Materail : S/S/V



ST560A



ST560A1 : Stopper type

Operating Capabilities
- Temperature : -20~100°C
- Pressure : Up to 0.5 MPa
- Speed : 10m/sec
- Axial movement : ±1.0 mm

Materials
- Seal Face
- Silicon carbide
- Aluminium Oxide
- Resin Imp. Carbon

Dimensions (mm)

MODEL	D1	D2	D3	D4	D5	L1	L2	L3
ST560A-10	10	20.5	16	24	22.5	16	7	8
ST560A-11	11	20.5	16	24	22.5	16	7	8
ST560A-12	12	23.5	17	26	25.0	17	7	8
ST560A-14	14	24.5	21	28	26.5	18	7	9
ST560A-15	15	24.5	21	28	27.0	18	7	9
ST560A-16	16	26.5	22	32	28.5	19	8	9
ST560A-18	18	30.5	25	35	31.0	18	8	10
ST560A-20	20	32.0	27	38	34.0	20	8	10
ST560A-22	22	34.5	29	40	36.0	20	8	10
ST560A-25	25	40.0	32	44	42.0	20	9	10
ST560A-28	28	42.0	34	46	44.0	21	9	12
ST560A-30	30	45.0	38	50	47.0	22	9	12
ST560A-32	32	46.0	40	54	48.0	24	9	12
ST560A-35	35	50.0	44	58	52.0	26	10	12
ST560A-38	38	55.0	46	60	56.0	27	10	12
ST560A-40	40	57.0	48	64	58.0	28	10	12
ST560A-45	45	61.5	52	66	63.0	30	10	14
ST560A-50	50	67.5	58	72	69.0	32	10	14
ST560A-55	55	73.0	62	75	73.0	43	11	14

ST301

Mechanical Seals
Elastomer Bellows Type
Equivalent to PAC Mechanical Seal Type 7

ST301은 단순한 구조로 되어 있는 고무벨로우즈 씰 입니다. 또한 조립 길이가 짧아 조립공간에 좁은 곳에 장착하기에 용이합니다.
ST301 type is rubber bellows and simple structure. It's short fitting length, therefor it's easy to fit in narrow space.

ST301의 특별한 성능

- 일반적으로 다량의 상업용, 가정용, 산업용 용수설비에 사용됩니다.
- ST301은 일반적으로 수영장, 스파풀, 샤워 펌프, 중앙 난방 시스템, 관개 및 저부하 유체 기기 등의 응용 분야에 사용됩니다.

Specific Features of ST301

- Commonly utilized in commercial, housing and industrial water systems.
- ST301 is generally serve applications such as swimming pools, spa pools, shower pumps, central heating systems, irrigation and food industry etc.

Operating Capabilities

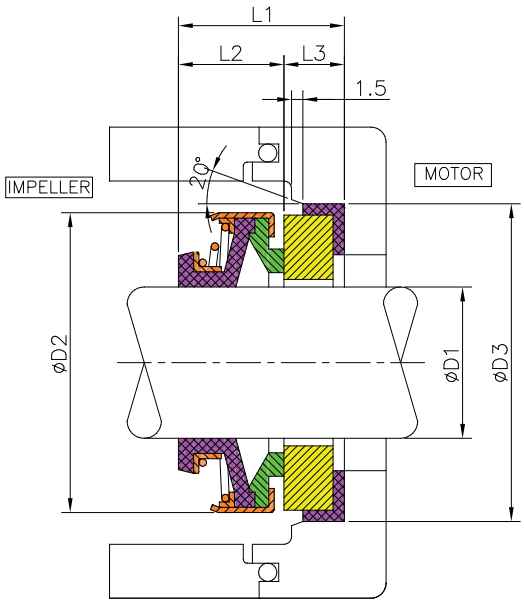
- Temperature : -20~120°C
- Pressure : Up to 0.4 MPa
- Speed : 10m/sec

Applications

- Water Pumps
- Swimming pool Pumps
- Waste Water Pumps

Materials

- Seal Face
- Silicon carbide
- Aluminium Oxide
- Resin Imp. Carbon



Dimensions (mm)

MODEL	D1 (h6)	D2 (max)	D3 (H8)	L1 (±1.5)	L2	L3
ST301-6	6	18	18	14	10	4
ST301-8	8	18	22	15	11	4
ST301-8M	8	20	21	19	13	6
ST301-8L	8	24	26	19	11	8
ST301-10	10	24	26	19	11	8
ST301-11	11	24	26	21	13	8
ST301-12	12	24	26	21	13	8
ST301-13	13	24	26	18.5	13	5.5
ST301-13H	13	24	26	21	13	8
ST301-14P	14	26	28/28.5	21	13	8
ST301-14	14	28	28/28.5	21	13	8
ST301-14L	14	32	29.5	21	13	8
ST301-15L	15	28	30	21	13	8
ST301-15	15	32	29.5	21	13	8
ST301-15L	15	39	38	21	13	8
ST301-16P	16	28	30	21	13	8
ST301-16	16	32	29.5	21	13	8
ST301-16L	16	39	42	21	13	8
ST301-17	17	39	42	21	13	8
ST301-18	18	39	42	21	13	8
ST301-19	19	39	42	21	13	8
ST301-20P	20	35	38	21	13	8

MODEL	D1 (h6)	D2 (max)	D3 (H8)	L1 (±0.5)	L2	L3
ST301-20	20	39	42	21	13	8
ST301-20L	20	42	45	23	13	10
ST301-22P	22	39	42	21	13	8
ST301-22	22	42	45	23	13	10
ST301-23	23	42	50	23.5	23.5	10
ST301-24	24	47	50	23.5	23.5	10
ST301-25	25	47	50	23.5	23.5	10
ST301-25P	25	41.5	45/50	23.5	23.5	10
ST301-26	26	47	50	23.5	23.5	10
ST301-27	27	47	50	23.5	23.5	10
ST301-28	28	54	57	25	15	10
ST301-30	30	54	57	25	15	10
ST301-32	32	54	57	25	15	10
ST301-35	35	60	63	26	16	10
ST301-38	38	65	68	30	18	12
ST301-40	40	65	68	30	18	12
ST301-45	45	70	73	32	20	12
ST301-50	50	85	88	38	23	15
ST301-55	55	85	88	38	23	15
ST301-60	60	105	110	45	30	15
ST301-65	65	105	110	45	30	15
ST301-70	70	105	110	47	32	15

Mechanical Seals
Pusher Type

ST155

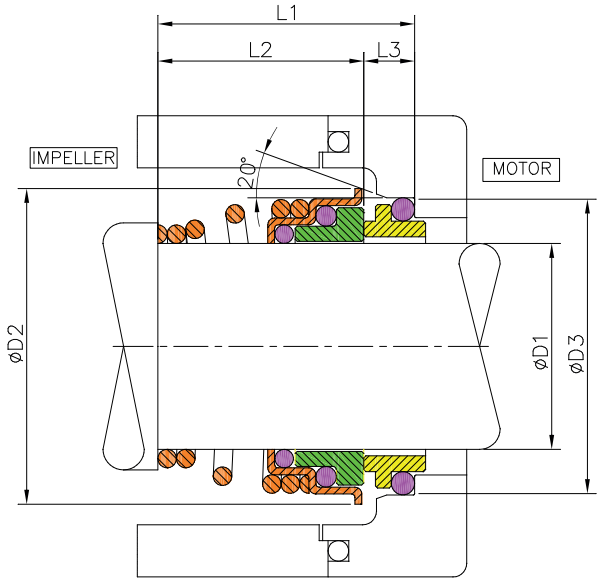
ST155는 O-Ring 타입이며, 단순한 구조로 되어 있으며 경제적이다.
ST155 is a O-Ring type, simple structure and economical.

ST155의 특별한 성능

- 회전자와 고정자 면은 쉽게 변경하고 교체 할 수 있습니다.
- 단순하고 경제적인 설계로 경 부하 조건이나 일반 용도에 광범위하게 사용 할 수 있습니다.
- 탄력적인 오링과 싱글 스프링 설계의 조합은 오정렬과 진동을 흡수하여 기술적으로 효율적이고 다양한 설계를 가능하게 합니다.

Specific Features of ST155

- Seal ring and seat faces can be readily changed and replaced.
- Simple and economical design makes this seal suitable for a wide variety of lighter and general duty applications.
- The combination of a resilient 'O'-Ring and single spring design results in a technically efficient and versatile design, that accommodates both mis-alignment and vibrations.



Dimensions (mm)

MODEL	D1 (h6)	D2 (max)	D3 (H8)	L1 (±0.5)	L2	L3
ST155-10	10	20	18.1	20.5	15	5.5
ST155-11	11	22	20.6	23.5	18	5.5
ST155-12	12	22	20.6	23.5	18	5.5
ST155-13	13	25	23.1	28.0	22	6
ST155-14	14	25	23.1	28.0	22	6
ST155-15	15	29	26.9	30.0	23	7
ST155-16	16	29	26.9	30.0	23	7
ST155-17	17	29	26.9	30.0	23	7
ST155-18	18	33	30.9	32.0	24	8
ST155-19	19	33	30.9	33.0	25	8
ST155-20	20	33	30.9	33.0	25	8
ST155-22	22	38	35.4	33.0	25	8
ST155-24	24	38	35.4	35.0	27	8
ST155-25	25	40	38.2	35.5	27	8.5
ST155-28	28	46	43.3	39.0	30	9
ST155-29	29	46	43.3	39.0	30	9
ST155-30	30	46	43.3	39.0	30	9
ST155-32	32	46	43.3	39.0	30	9
ST155-33	55	48	53.5	50.5	39	11.5
ST155-35	35	50	53.5	50.5	39	11.5
ST155-38	38	58	60.5	50.5	39	11.5
ST155-40	40	58	60.5	50.5	39	11.5

Operating Capabilities

- Temperature : -30~90°C
- Pressure : Up to 1.0 MPa
- Speed : 15m/sec

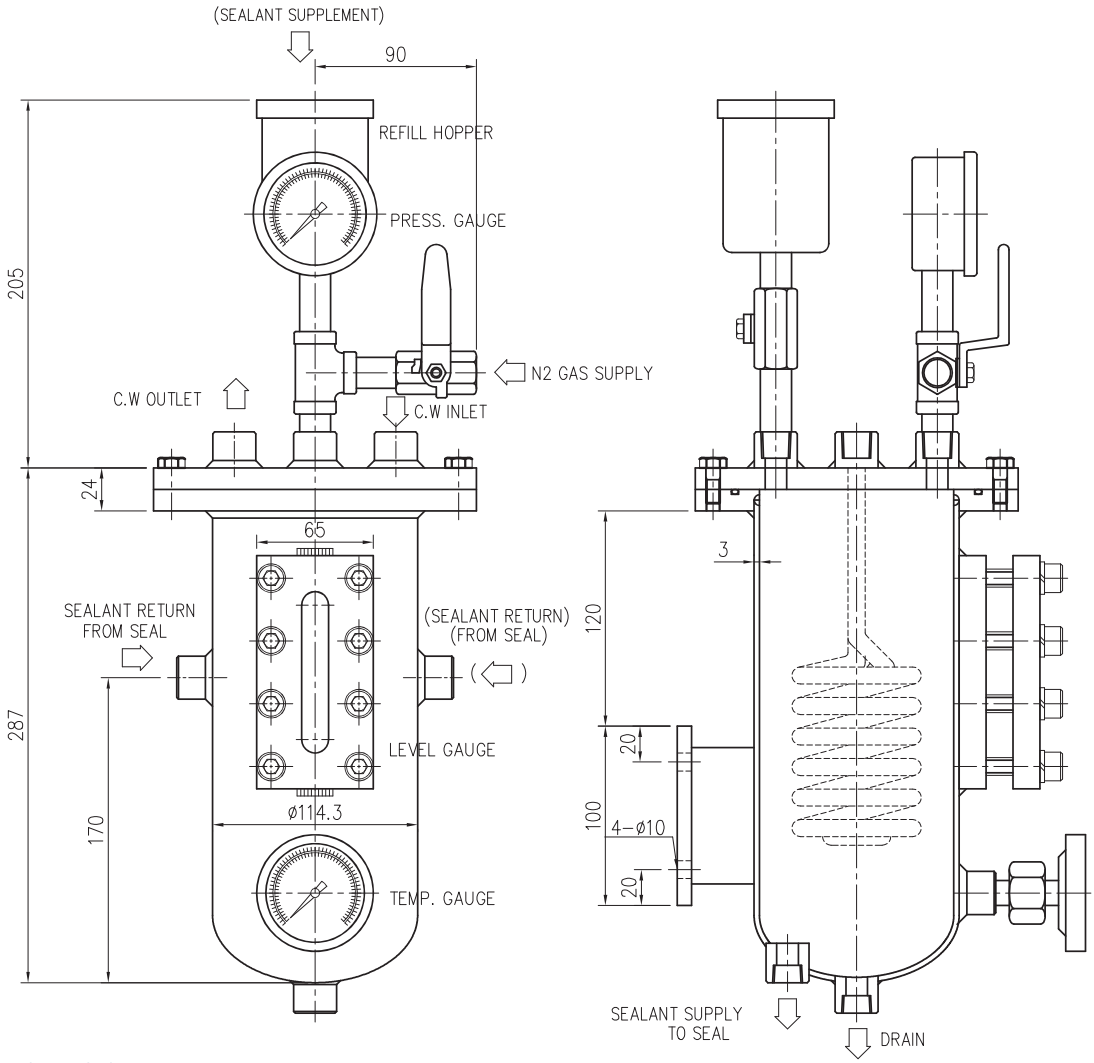
Materials

- Seal Face
- Silicon carbide
- Aluminium Oxide
- Resin Imp. Carbon

SP-16-2

Seal port for seal supply

The seal port is capable to supply buffer fluid to double and tandem seal arrangements.
The buffer fluid flows via the rising pipe into the vessel and is cooled.
Use compressed air or nitrogen for pressurization.



Seal Port SP-16-2

With flange ends, sight-glass for level indication and incorporated cooling coil.

- Buffer fluid IN (PT3/8)
- Buffer fluid OUT (PT3/8)
- Cooling water IN (PT3/8)
- Cooling water OUT (PT3/8)
- Refill hopper
- Pressure gas connection (PT3/8)
- Drain (PT3/8)

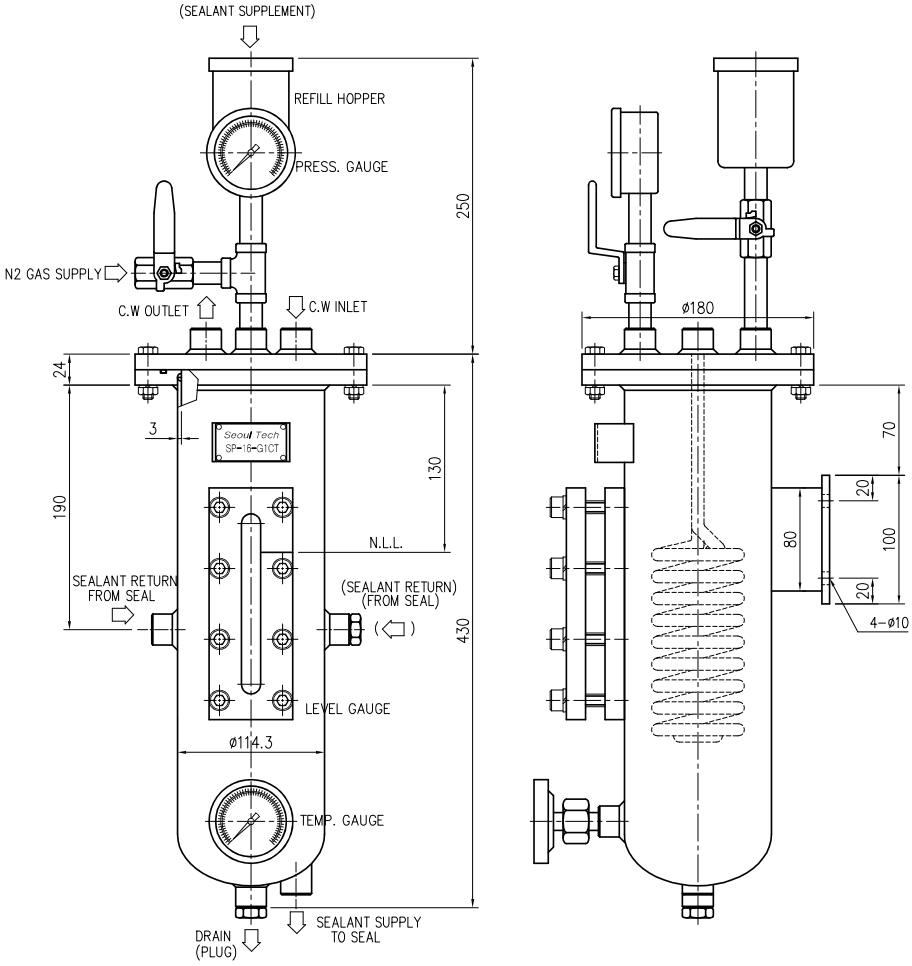
* Other end connections can also be provided on request.
* Bracket for refill unit possible
* Bottom side welded flat end possible

Design Data	
Volume	2 liters
Permissible operating pressure	16 bar
Permissible operating temperature	-60 ~ 200 °C
Required cooling water rate	0.25 m³/h
Metal part	As required
Sight-glass	Boro-silicate

SP-16-G1

Seal port for seal supply

The seal port is capable to supply buffer fluid to double and tandem seal arrangements.
The buffer fluid flows via the rising pipe into the vessel and is cooled.
Use compressed air or nitrogen for pressurization.



Seal Port SP-16-G1

With flange ends, sight-glass for level indication and incorporated cooling coil.

- Buffer fluid IN (PT3/8)
- Buffer fluid OUT (PT3/8)
- Cooling water IN (PT3/8)
- Cooling water OUT (PT3/8)
- Refill hopper
- Pressure gas connection (PT3/8)
- Drain (PT3/8)

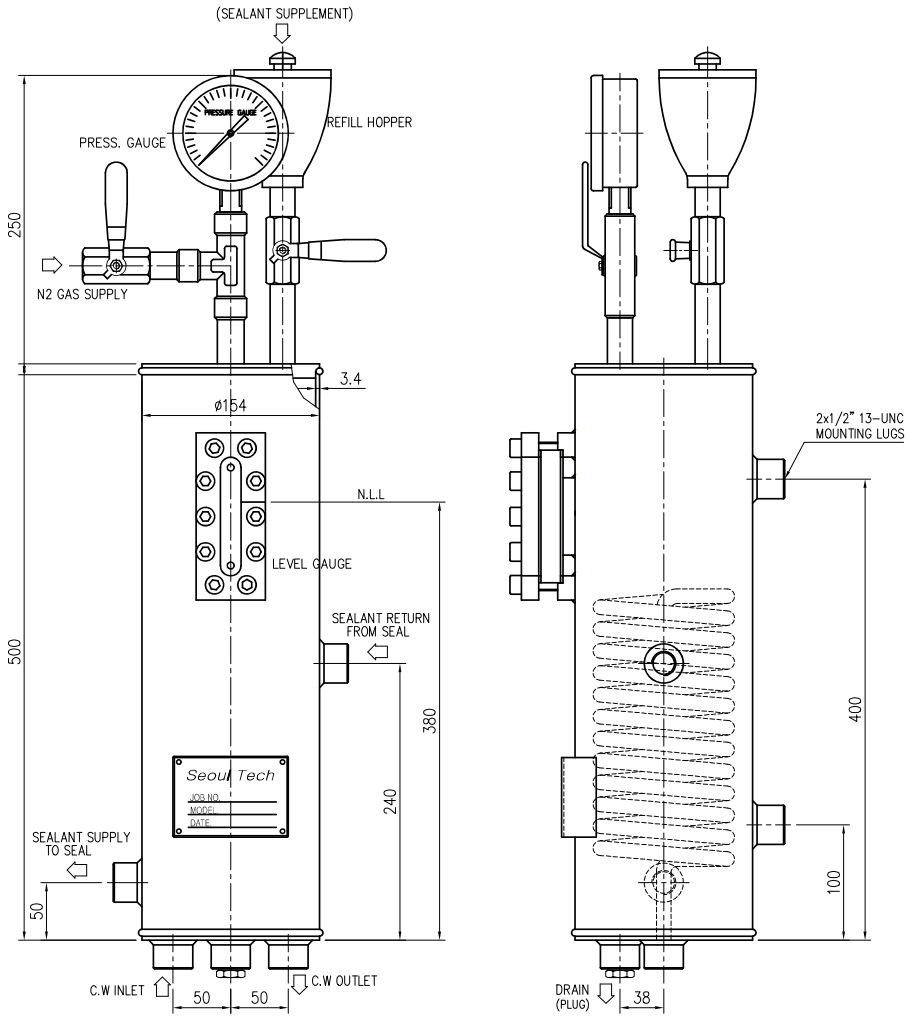
* Other end connections can also be provided on request.
* Bracket for refill unit possible
* Bottom side welded flat end possible

Design Data	
Volume	1 Gallon (3.8ℓ)
Permissible operating pressure	16 bar
Permissible operating temperature	-60 ~ 200 °C
Required cooling water rate	0.3 ㎥/h
Metal part	As required
Sight-glass	Boro-silicate

SP-16-G2

Seal port for seal supply

The seal port is capable to supply buffer fluid to double and tandem seal arrangements.
The buffer fluid flows via the rising pipe into the vessel and is cooled.
Use compressed air or nitrogen for pressurization.



Seal Port SP-16-G2

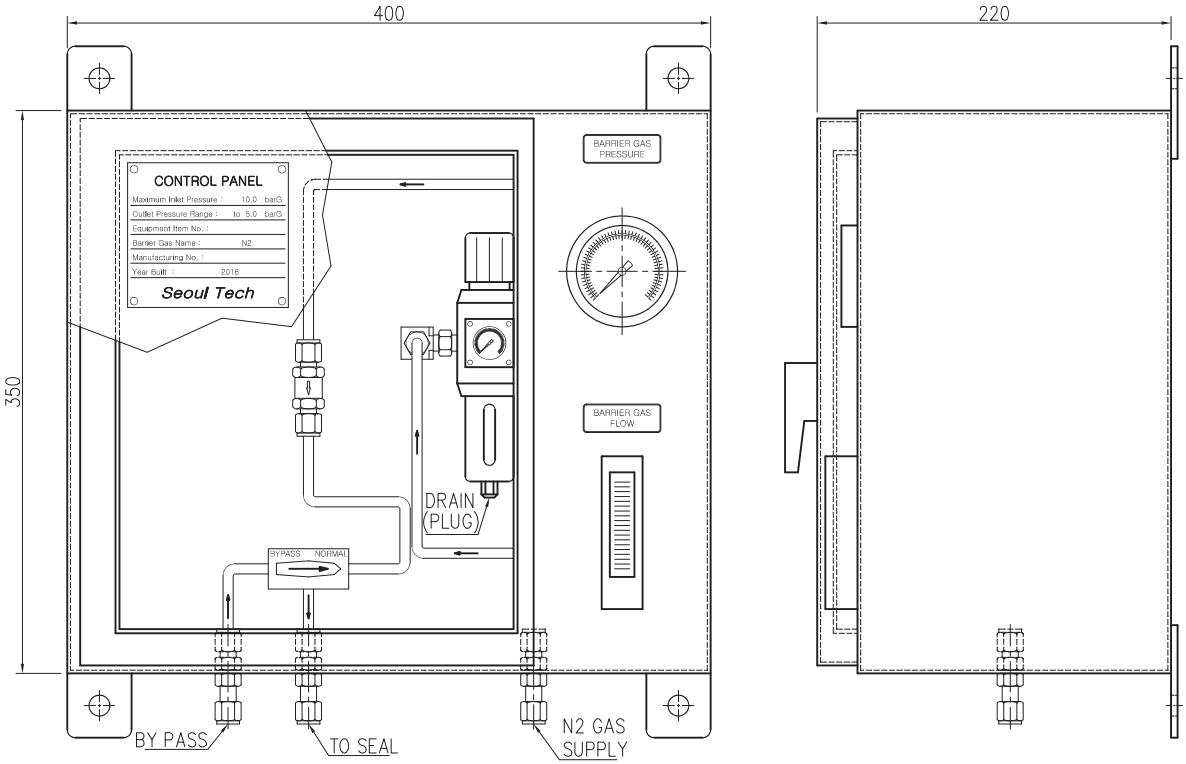
With flange ends, sight-glass for level indication and incorporated cooling coil.

- Buffer fluid IN (NPT1/2)
- Buffer fluid OUT (NPT1/2)
- Cooling water IN (NPT1/2)
- Cooling water OUT (NPT1/2)
- Refill hopper
- Pressure gas connection (NPT1/2)
- Drain (NPT1/2)

* Other end connections can also be provided on request.
* Bracket for refill unit possible
* Bottom side welded flat end possible

Design Data	
Volume	2 Gallon (7.6ℓ)
Permissible operating pressure	16 bar
Permissible operating temperature	-60 ~ 200 °C
Required cooling water rate	0.4 ㎥/h
Metal part	As required
Sight-glass	Boro-silicate

The seal port is capable to supply buffer fluid to double and tandem seal arrangements.
The buffer fluid flows via the rising pipe into the vessel and is cooled.
Use compressed air or nitrogen for pressurization.



Features

Gas supply system of the GCP10 range are specially designed for contact-free operated, gas lubricated mechanical seals.

Operating

- Pressure : Up to 1.0 Mpa

Applications

- Oil and gas industry
- Chemical industry
- Petrochemical industry
- Refining technology
- Pharmaceutical industry
- Food and beverage industry

Mechanical Seal Material

Sic ring

- Reaction bonded silicon Carbide ring
- Pressureless silicon Carbide ring

Tungsten Carbide ring

- Cobalt binder Tungsten carbide
- Nickel binder Tungsten carbide ring

Cabon goods

- Resin Impregnated carbon Graphite
- Antimony Impregnated carbon Graphite
- Babbitt Impregnated carbon Graphite
- Copper Impregnated carbon Graphite
- Resin bonded carbon

Alumina goods

Rotary Joint

Model SRJH-10

- Steam, Hot Oil
- Metal Bellows
- Heating
- Operating limits
  - Max. pressure : 30kg.cm^2 (420psi)
  - Max. Temp. : 230°C (440°F)
  - Speed : 500 rpm

Model SRJAP-25

- Air, Vacuum
- Air Press
- Operating limits
  - Max. pressure : 12kg.cm^2 (170psi)
  - Max. Temp. : 100°C (210°F)
  - Speed : 100 rpm

Model SRJS-A30

- Steam, Hot Oil
- Heating
- Operating limits
  - Max. pressure : 20kg.cm^2 (280psi)
  - Max. Temp. : 230°C (440°F)
  - Speed : 200 rpm

Model SRJP-252F

- Coolant, Hydraulic Oil
- High speed for Gun-drill
- Operating limits
  - Max. pressure : 70kg.cm^2(1,000psi)
  - Max. Temp. : 100°C (210°F)
  - Speed : 10,000 rpm

Model SRJA-25

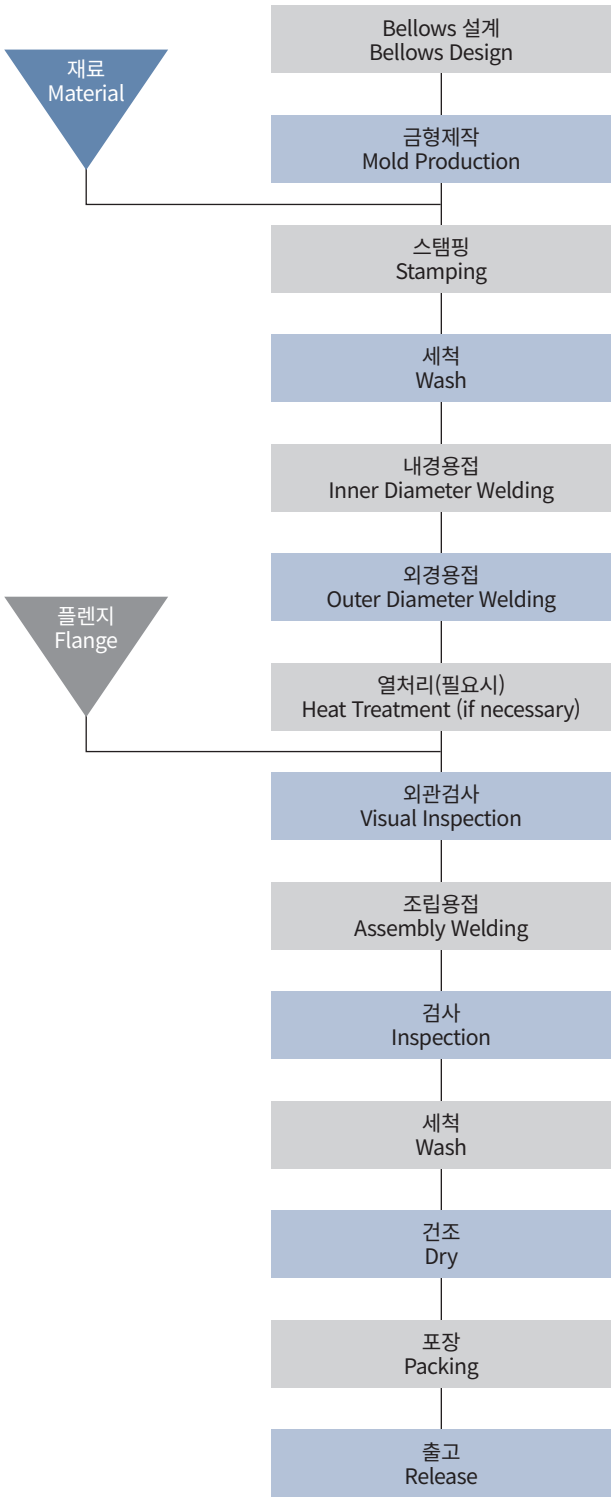
- Air, Vacuum
- Cooling
- Operating limits
  - Max. pressure : 10kg.cm^2 (140psi)
  - Max. Temp. : 100°C (210°F)
  - Speed : 500 rpm

Metal Bellows

용접 벨로우즈 (엣지 용접벨로우즈 또는 다이어프램 벨로우즈라고도 함)는 개별적으로 형성된 여러 다이어프램을 서로 용접하여 제조됩니다.

제조 공정도

Manufacturing Process Chart



용접형 메탈벨로우즈의 장점

- 용접이 가능한 모든 재료로 만들 수 있습니다.
- 크기와 모양에 제한 없이 생산이 가능 합니다.
- 직진성과 유연성이 탁월하며 기밀성이 매우 우수하여 초고진공에 적합하다.
- 내구성이 우수하여 수명이 길고 고열에 강하다

용접형 메탈벨로우즈의 용도

- 계측 및 센서 [속도, 변위, 압력 및 온도 계측]
- 밸브 Stem부 밀봉
- Mechanical Seal에서의 사용
- 액츄에이터, 축압기, 균압기 등에 사용
- 벨로우즈 커플링에 사용 (백래쉬가 0이며, 정렬 불량과 높은 RPM을 보상 함)
- 초고진공에 사용

Advantages of welded metal bellows

- It can be made of any material that can be welded.
- Production is possible without limitation in size and shape.
- Excellent straightness and flexibility, and excellent airtightness, suitable for ultra-high vacuum.
- Excellent durability, long service life and strong against high temperatures.

Use of welded metal bellows

- Measurement and sensor [speed, displacement, pressure and temperature measurement]
- Valve stem sealing
- Use in Mechanical Seal
- Used for actuators, accumulators, and equalizers
- Used for bellows coupling (backlash is 0, compensation for misalignment and high RPM)
- Used for ultra-high vacuum

Metal Bellows

Welded bellows (also called edge-welded, or diaphragm bellows) are manufactured by welding a number of individually formed diaphragms to each other.

Formed Bellows

성형벨로우즈는 금속박판의 외측에 성형 금형을 고정하고 튜브 내측으로 고압유체를 가하여 성형 제작하는 액상성형(Hydraulic forming) 또는 튜브의 내측과 외측에 Roller를 교차 회전시켜 점진적으로 성형하는 롤 성형(Roll forming)으로 제작합니다.

액압성형 벨로우즈는 자유로운 신축, 휨 특성 및 밀봉기능을 갖추고 있어 진공에서 고압까지, 저온에서 고온 까지 각종유체의 제어와 운동부 등에 채용되는 등 다양하게 활용되고 있습니다. 롤성형 벨로우즈는 두꺼운 판 두께라도 성형이 용이하여 고압사용 용도에 적합합니다.

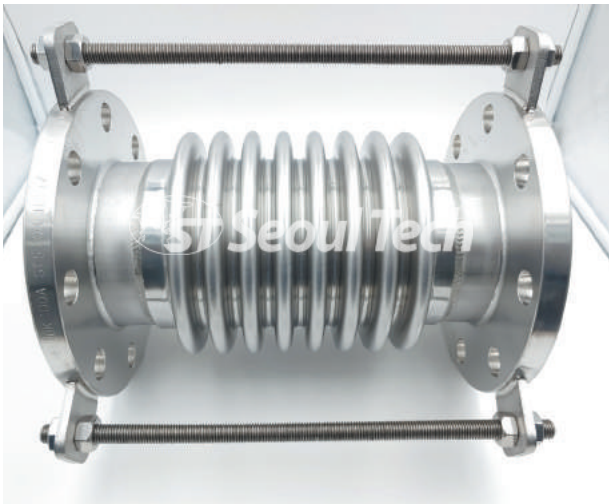
Hydraulic bellows have trait of flexible free expansion and contraction, bending and sealing functions, so they are used in various applications such as controlling various fluids from vacuum to high pressure, low to high temperature, and moving parts. Roll-formed bellows are suitable for high pressure applications because they are easy to form even if it is a thick plate.

Formed Bellows

Formed metal bellows are manufactured by that the Hydraulic pressure a metal sheet on the formed mould or using the molded roller form its.

정밀성형벨로우즈는 압력스위치, 압력게이지, 압력 전기 변환기, 액츄레이터, 유압흡수장치, 전기제어장치, 진공시스템, 밸브 등에 사용됩니다. 일반 성형벨로우즈는 신축관, 익스펜션조인트(Expansion Joint) 등에 사용됩니다.

Precision molded bellows are used for pressure switches, pressure gauges, pressure electric converters, actuators, hydraulic absorbers, electric control devices, vacuum systems, and valves. Also general molded bellows are used for expansion pipes and expansion joints.



The Selection of packing material for each fluid packing material

Packing material

- S : Kalrez, Kemraz, Perfluoro , TRPlast
- T : PTFE
- N : NBR
- V : Viton
- E : EPDM

Fluid	concen (%)	Temp (℃)	Packing material			
ABSORPTION OIL		<100	S	T	N	V
ACETALDEHYDE C_2H_4O		<100	S	T		
ACETIC ACID CH_3COOH		<100	S	T	(N)	V 10% 40℃
ACETIC ANHYDRIDE $(CH_3CO)_2O$		<100	S	T		
ACETONE CH_3COCH_3		<100	S	T		
ACETONITRILE CH_3CN		<80	S	T		V
ACETYLENE C_2H_2		<100	S	T	N	V
ACROLEIN $CH_2=CHCHO$	10	<100	S	T		V <40% 25℃
ACRYLIC ACID $CH_2=CHCOOH$			S	T		
ACRYLONITRILE $CH_2=CH-CN$		<100	S	T		
ADIPIC ACID $C_6H_{10}O_4$	10	25	S	T		
ALDOL $CH_3CHOHCH_2CHO$		<100	S	T		
ALKALI CELLULOSE			S	T		
ALLYL ACETATE $CH_3COOCH_2CHCH_2$			S	T		
ALLYL ALCOHOL $CH_2=CHCH_2OH$	all	<100	S	T	(N)	(V)
ALLYL AMINE C_3H_7N	30	<150	S	T		

Fluid	concen (%)	Temp (℃)	Packing material			
ALLYL CHLORIDE $CH_2=CHCH_2Cl$	90	<100	S	T		
ALUMINIUM CHLORIDE $AlCl_3$		<100	S	T	N 70℃	V 25℃
ALUMINIUM HYDROXIDE $Al(OH)_3$	10	<100	S	T	N	V
ALUMINIUM NITRATE $Al(NO_3)_3{\cdot}9H_2O$	10	<100	S	T	(N)	V
ALUMINIUM SULFATE $Al_2(SO_4)_3$	<50	<100	S	T	N	V 27% 50℃
AMMONIUM ALUM $(NH_4)Al(SO_4)_2$			S	T	N	
AMMONIUM BICARBONATE NH_4HCO_3	<90	<100	S	T	N 40℃	V 40℃
AMMONIUM CARBAMATE $NH_4[H_2NCO_2]$ or $H_2NCOONH_4$		<100	S	T		
AMMONIUM CARBONATE $(NH_4)_2CO_3$	70	<100	S	T	N 40% 50℃	V 40% 50℃
AMMONIUM CHLORIDE NH_4Cl		<100	S	T	N	(V) 26% 50℃
AMMONIUM FLUORIDE NH_4F	<20	25	S	T	N	
AMMONIUM HYDROGEN FLUORIDE $NH_4F{\cdot}HF$	10	25	S	T		
AMMONIUM NITRATE NH_4NO_3	all	<100	S	T	N 65℃	V
AMMONIUM NITRITE NH_4NO_2		<100	S	T	N	V 50%
AMMONIUM SULFATE $(NH_4)_2SO_4$	<50	<100	S	T	N	V
AMMONIUM SULFIDE $(NH_4)_2S$	10	<100	S	T	N 18% 50℃	V 18% 50℃

Fluid	concen (%)	Temp (°C)	Packing material			
AMMONIUM THIOCYANATED NH_4SCN	<80	<100	S	T	N	V
AMMONIUM THIOSULFATE $(NH_4)_2S_2O_3$		<100	S	T	N	
AMYL ACETATE $CH_3COO[CH_2]_4CH_3$	10	<100	S	T		
n-AMYL ALCOHOL PRIMARY $C_5H_{12}O$ or $CH_3(CH_2)_3CH_2OH$		<100	S	T		
AMYL ALCOHOL TERTIARY $CH_3CH_2C(CH_3)_2OH$ or $C_5H_{12}O$		<100	S	T		
AMYL CHLORIDE MIXED $C_5H_{11}Cl$		<100	S	T		
AMYL ETHER $C_{10}H_{22}O$		<100	S	T		
AMYL NITRATE $C_5H_{11}NO_2$		<100	S	T		
ANILINE $C_6H_5NH_2$		<100	S	T		
ANTHRACEN $C_{14}H_{10}$		>216	S	T		
ANTHRACEN OIL		<300	S	T		
APIEZON OIL			S	T	N	V
AQUA REGIA		25	S	T		V
AQUEOUS AMMONIA NH_4OH	<30	25	S	T	N 40°C	(V) 10% 40°C
ARACHIS OIL			S	T	N	V
ARSENIC ACID H_3AsO_4		<100	S	T		
ARSENIOUS ACID H_3AsO_3	10	<100	S	T		V
ASPHALT			S	T		V
BARIUM CHLORIDE $BaCl_2 \cdot 2H_2O$	<40	<100	S	T	N 70°C	V 70°C
BARIUM HYDROXIDE $Ba(OH)_2$	<50	<100	S	T	N	V
BARIUM NITRATE $Ba(NO_3)_2$	<30	<100	S	T	(N) 65°C	V
BARIUM SULFATE $BaSO_4$	10	<100	S	T	N 65°C	V
BARIUM SULFIDE	10	25	S	T	N 60% 70°C	

Fluid	concen (%)	Temp (°C)	Packing material			
BARIUM SULFITE $BaSO_3$			S	T	N	V
BAUXITE $Al_2O_3 \cdot 2H_2O$		<100	S	T	N	E
BEER			S	T	(N)	V
BEET SUGAR			S	T	N	V
BENZALDEHYDE C_6H_5CHO		<100	S	T		
BENZENE C_6H_6	<70	<100	S	T		
BENZENESULFONIC ACID $C_6H_6O_3S$	all	<100	S	T		
BENZINE			S	T	(N)	V
BENZOIC ACID $C_7H_6O_2$		<100	S	T		V
BENZYL ACETATE $C_9H_{10}O_2$		<100	S	T		
BISPHENOL A $C_{15}H_{16}O_2$			S	T		
BLACK LIQUOR		<100	S	T	(N)	V
BLAST·FURANCE GAS			S	T	N	V
BLEACHING LIQUOR $Ca(ClO)_2$		25	S	T	N	V
BLEACHING POWDER $Ca(ClO)_2 \cdot CaCl_2 \cdot 2H_2O$			S	T	N 15% 25°C	V
BOILER FEED WATER			S	T	N	V
BORAX $Na_2[B_4O_5(OH)_4] \cdot 8H_2O$	<30	<100	S	T	N 60% 70°C	V 40°C
BORIC ACID H_3BO_3		<150	S	T	N 40°C	V 40°C
BORON TRICHLORIDE BCl_3		<100	S	T		
BORON TRIFLUORIDE BF_3		<200	S	T		
BROMIC ACID $HBrO_3$	<50	25	S	T		
BROMINE Br_2		25	S	T		V 100°C
BUNKER FUEL		<100	S	T	N	V

The Selection of packing material for each fluid packing material

Fluid	concen (%)	Temp (℃)	Packing material			
BUTADIENE $CH_2=(CH)_2=CH_2$		<100	S			(V) 24℃
n-BUTANNE C_4H_{10}		<100	S	T	(N)	(V)
n-BUTANOL $CH_3(CH_2)_3OH$		<100	S	T	(N)	V
BUTYL ACETATE $CH_3COO(CH_2)_3CH_3$			S	T		
n-BUTYL ACRYLATE $C_7H_{12}O_2$		<100	S	T		
BUTYL ALDEHYDE $CH_3CH_2CH_2CHO$		<100	S	T		
BUTYL DIGLYCOL $C_8H_{18}O_3$			S	T		
BUTYL GLYCOL $C_6H_{14}O_2$		<100	S	T		
BUTYL PHENOL $C_{10}H_{14}O$		<100	S	T		
BUTYRIC ACID $C_4H_8O_2$		<100	S	T		
CACAO BUTTER			S	T	N	V
CALCIUM BISULFITE $Ca(HSO_3)_2$		25	S	T	N	V
CALCIUM CARBONATE $CaCO_3$	10	<100	S	T	N 40℃	V 40℃
CALCIUM CHLORATE $Ca(ClO_3)_2{\cdot}2H_2O$		<100	S	T	(N)	V
CALCIUM CHLORIDE $CaCl_2$	<30	<100	S	T	N 60% 75℃	V 24% 50℃
CALCIUM HYDROSULFIDE $Ca(HS)_2{\cdot}6H_2O$			S	T	N	V
CALCIUM NITRATE $Ca(NO_3)_2{\cdot}4H_2O$	<40	<100	S	T	N 65℃	V
CALCIUM PHOSPHATE DIBASIC $CaHPO_4$			S	T	N	V
CALCIUM PHOSPHATE MONOBASIC $Ca(H_2PO_4)_2{\cdot}H_2O$	10	<100	S	T	N	V
CALCIUM PHOSPHATE TRIBASIC $Ca_3(PO_4)_2$			S	T	N	V
CALCIUM SULFITE $CaSO_3{\cdot}2H_2O$	10	<100	S	T		V
CANE SUGAR LIQUORS		<100	S	T	N	V
CAPROLACTAM $(CH_2)_5CNH$ or $C_6H_{11}NO$		<100	S	T		

Fluid	concen (%)	Temp (℃)	Packing material			
CARAMEL			S	T	N	V
CARBOLIC OIL			S	T		
CARBON DISULFIDE CS_2	90	25	S	T		
CARBONIC ACID AQUEOUS			S	T	N 65℃	V
CARBON MONOXIDE CO			S	T		V
CARBON TETRACHLORIDE CCl_4	10	25	S	T	(N)	V
CASTOR OIL			S	T	N	V
CAUSTIC SODA NaOH	<50	<100	S	T	N <60% <70℃	E
CELLOSOLVE $C_4H_{10}O_2$		<100	S	T	N	(V)
CELLULOSE ACETATE		25	S	T		
					40℃	40℃
CETYL ALCOHOL $CH_3(CH_2)_{15}OH$ or $C_{16}H_{34}O$		<100	S	T		
CHILLED WATER			S	T	N	V
CHLORINE Cl_2		<25	S	T		V 100℃
CHLOROACETALDEHYDE $ClCH_2CHO$	40	<100	S	T		
CHLOROACETONE C_3H_5ClO or $ClCH_2COCH_3$		<100	S	T		
CHLOROBENZENE C_6H_5Cl	90	80	S	T		(V)
CHLOROFORM $CHCl_3$		25	S	T		
CHLOROPICRIN CCl_3NO_2		<100	S	T		
CHLOROSULFONIC ACID HSO_3Cl		25	S	T		
CHOCOLATE			S	T		
CHROMIC ANHYDRIDE CrO_3	<50	25	S	T		V <25% <70℃
CHROME ALUM $KCr(SO_4)_2{\cdot}12H_2O$	10	25	S	T	N	V
CIDER		25	S	T	N	V

Fluid	concen (%)	Temp (℃)	Packing material			
CITRIC ACID $C_6H_8O_7$	<50	<100	S	T	N 70℃	V 70℃
COAL DUST AND WATER			S	T	N	V
COAL GAS			S	T		V
COAL TAR		<300	S	T	N 65℃	V
COCONUT ACID			S	T	(N)	V
COCONUT OIL			S	T	(N)	V
COFFEE EXTRACT		<100	S	T	N	V
CONDENSATE WATER		<100	S	T	N	V
COOLING TOWER WATER			S	T	N	V
COPPER ACETATE $Cu(CH_3COO)_2 \cdot H_2O$	10	<100	S	T		V
COPPER CYANIDE CuCN	10	<100	S	T	(N)	
COPPER SULFATE $CuSO_4 \cdot 5H_2O$	<70	<100	S	T	N 40% 50℃	V 40℃
CORN OIL			S	T	N	V
COTTON SEED OIL			S	T	(N) 65℃	V 149℃
CREOSOTE		<100	S	T		V
CREOSOTE OIL			S	T		V
CRESOL C_7H_8O or $CH_3C_6H_4OH$		<100	S	T		V 40℃
CROTONALDEHYDE C_4H_6O or $CH_3CH{=}CHCHO$	<10	<100	S	T		
CROTONIC ACID $C_4H_6O_2$ or $CH_3{-}CH{=}CH{-}COOH$		<100	S	T		V
CUMENE $C_6H_5CH(CH_3)_2$		<100	S	T		
CUPRIC CHLORIDE CuCl2	<40	25	S	T	(N)	V
CUPRIC NITRATE $Cu(NO_3)_2 \cdot 2H_2O$		<100	S	T	N	V
CUPROUS CHLORIDE CuCl	<40	<80	S	T	(N) 65℃	

Fluid	concen (%)	Temp (℃)	Packing material			
CYCLOHEXANE C_6H_{12}		<100	S	T	(N) 25℃	V 25℃
CYCLOHEXANOL $C_6H_{11}OH$		<100	S	T		
CYCLOHEXANONE $C_6H_{10}O$		<100	S	T		
CYCLOHEXENE C_6H_{10}		<100	S	T	(N)	V
n-DECANE $C_{10}H_{22}$ or $CH_3(CH_2)_8CH_3$		<100	S	T		
DEVELOPING AGENT		25	S	T		V
DIACETONE ALCOHOL $C_6H_{12}O_2$ or $(CH_3)_2C(OH)CH_2COCH_3$		<100	S	T		
DIAMYL PHTHALATE $C_{18}H_{26}O_4$		<100	S	T		
DIATOMACEOUS EARTH WATER		<100	S	T	N	V
DIBASIC AMMONIUM PHOSPHATE $(NH_4)_2HPO_4$	10	<100	S	T	N 25% 70℃	
DIBASIC SODIUM PHOSPHATE $Na_2HPO_4 \cdot 12H_2O$	10	<100	S	T	N 50℃	V 50℃
DIBUTYL PHTHALATE $C_6H_4(COOC_4H_9)_2$		<200	S	T		E
O-DICHLOROBENZENE $C_6H_4Cl_2$		<100	S	T		V
P-DICHLOROBENZENE $C_6H_4Cl_2$		<100	S		V	
DICHLORO-DIPHENYL-TRICHLOROETHANE $C_{14}H_9Cl_5$		<B.P.	S	T		
β-DICHLOROETHYL ETHER $C_4H_8Cl_2O$ or $(ClCH_2CH_2)_2O$		<100	S	T		
DICHLOROPENTANE $C_5H_{10}Cl_2$		<100	S	T		
DIETHANOLAMINE $C_4H_{11}NO_2$ or $(CH_2CH_2OH)_2NH$		<100	S	T		(V)
DIETHYL AMINE $(C_2H_5)_2NH$		<100	S	T	(N)	
DIETHYL BENZENE $C_6H_4(C_2H_5)_2$			S	T		V 70℃
DIETHYL CARBONATE $C_5H_{10}O_3$ or $(C_2H_5O)_2CO$		<100	S	T		
DIETHYLENE GLYCOL $C_4H_{10}O_3$ or $(CH_2CH_2OH)_2O$	90	<150	S	T		
DIETHYLENETRIAMINE $C_4H_{13}N_3$ or $NH_2CH_2CH_2NHCH_2CH_2NH_2$		<100	S	T		

The Selection of packing material for each fluid packing material

Fluid	concen (%)	Temp (℃)	Packing material
DIETHYL PHTHALATE $C_6H_4(COOC_2H_5)_2$		<100	S T
DIISOBUTYL KETONE $C_9H_{18}O$ or $(CH_3CH(CH_3)CH_2)_2CO$		<100	S T
DIISOPROPYLAMINE $C_6H_{15}N$ or $CH_3CH(CH_3)NHCH(CH_3)CH_3$			S T
DIISOPROPYL KETONE $C_7H_{14}O$ or $(CH_3)_2CHCOCH(CH_3)_2$			S T
DIMETHYL AMINE $(CH_3)_2NH$	all	<100	S T
DIMETHYLANILINE $C_8H_{11}N$		<100	S T
DIMETHYL ETHER C_2H_6O or CH_3OCH_3		<100	S T N V
n, n-DIMETHYL FORMAMIDE $HCON(CH_3)_2$		<100	S T E
DIMETHYL TEREPHTHALATE $C_{10}H_{10}O_4$			S T V 24℃
DI-n-AMYLAMINE $C_{10}H_{23}N$ or $CH_3(CH_2)_4NH(CH_2)_4CH_3$		<100	S T
DI-n-BUTYLAMINE $C_8H_{19}N$ or $(CH_3CH_2CH_2CH_2)_2NH$		<100	S T N
DI-n-BUTYL ETHER $C_8H_{18}O$ or $(CH_3CH_2CH_2CH_2)_2O$		<100	S T
DINITROBENZENE $C_6H_4N_2O_4$		<100	S T
DINITROCHLOROBENZEN $C_6H_3ClN_2O_4$		<100	S T
DINITROTOLUENE $C_7H_6N_2O_4$		<100	S T
DIOCTYL PHTHALATE $C_6H_4(COOC_8H_{17})_2$		<100	S T N V E
1,4-DIOXANE		25	S T
DIPHENYL $C_6H_5C_5H_5$		<100	S T N V 40℃ 40℃
DIPHENYL ETHER $C_{12}H_{10}O$		<100	S T (N) V 40℃ 70℃
DIPHENYLMETHANE $(C_6H_5)_2CH_2$ or $C_{13}H_{12}$		<100	S T
DIPROPYLENE GLYCOL $C_6H_{14}O_3$		<100	S T
DODECYL BENZENE $C_{18}H_{30}$ or $C_6H_5(CH_2)_{11}CH_3$		<100	S T
DOPE			S T

Fluid	concen (%)	Temp (℃)	Packing material
DOWTHERM A			S T V 100℃
D-SORBITOL $C_6H_{14}O_6$		<100	S T N V
ENAMEL PAINT			S T
EPOCHLOROHYDRIN C_3H_5ClO		25	S T
ETHANE C_2H_6		<100	S T N V
ETHER $(C_2H_5)_2O$		<100	S T
ETHYL ACETATE $CH_3COOC_2H_5$	10	<80	S T
ETHYL ACRYLATE $CH_2CHCOOC_2H_5$ or $C_5H_8O_2$		<100	S T
ETHYL ALCOHOL CH_3CH_2OH or C_2H_6O	all	<100	S T N V E
ETHYLBENZENE $C_6H_5C_2H_5$		<100	S (V)
ETHYL BROMIDE C_2H_5Br		25	S T
ETHYL BUTYRATE $C_6H_{12}O_2$		<100	S T
ETHYL CELLULOSE $C_6H_7O_2(OH)_2OC_2H_5$		<100	S T (N)
ETHYL CHLORIDE C_2H_5Cl			S T (N)
ETHYL DIGYLCOL $C_4H_{10}O_3$			S T N V
ETHYLENE $CH_2=CH_2$		<100	S T N V
ETHYLENE CHLOROHYDRINE $ClCH_2CH_2OH$		<100	S T V
ETHYLENEDIAMINE $NH_2CH_2CH_2NH_2$		<100	S T N
ETHYLENE DICHLORIDE $ClCH_2CH_2Cl$	90	25	S T
ETHYLENE GLYCOL CH_2OHCH_2OH		<100	S T N V 25℃ 121℃
ETHYLENE OXIDE $(CH_2)_2O$		25	S T
ETHYL FORMATE $HCOOC_2H_5$		<100	S T V
ETHYL GLYCOL $C_2H_5OCH_2CH_2OH$			S T N V

Fluid	concen (%)	Temp (℃)	Packing material
2-ETHYLHEXYL ACRYLATE $C_{11}H_{20}O_2$ or $CH_2=CHCOOC_8H_{17}$		<100	S T
ETHYL MERCAPTANE C_2H_5SH		<100	S T
3-ETHYLPYRIDINE C_7H_9N			S T
ETHYL TRIGLYCOL $C_8H_{18}O_4$ or $CH_3CH_2(OCH_2CH_2)_3OH$			S T N V
FATTY ACIDS		<150	S T N V 65℃
FERRIC CHLORIDE FeCl3		25	S T V 40℃
FERRIC HYDROXIDE $Fe(OH)_3$	10	25	S T N
FERRIC NITRATE $Fe(NO_3)_3{\cdot}9H_2O$	<50	<100	S T (N) V 65℃
FERRIC SULFATE $Fe_2(SO_4)_3$	10	<100	S T N V 40% 50℃ 40℃
FERROUS CHLORIDE $FeCl_2$	<50	<100	S T
FERROUS SULFATE $FeSO_4{\cdot}7H_2O$		<100	S T N V 55℃ 40℃
FISH OIL		<100	S T N V
FLON GAS			S T (V)
FLOURINE GAS F_2		<200	S T 25℃
FORMALDEHYDE CH_2O	<40	<100	S T
FORMALIN		<100	S T N V
FORMIC ACID HCOOH	<90	<100	S T V 30% 40℃
FRUIT JUICES AND PULP			S T V
FUEL OIL			S T N V
FUMING SULFURIC ACID $H_2SO_4{+}SO_3$		<150	S T V 25℃
FURFURAL $C_4H_3O{\cdot}CHO$	<30	<100	S T
FUSEL OIL		<100	S T
GALLIC ACID $C_6H_2(OH)_3CO_2H{\cdot}H_2O$		<100	S T (N) V

Fluid	concen (%)	Temp (℃)	Packing material
GASOSINE		<100	S T N V
GELATINE			S T N V
GLUCOSE $C_6H_{12}O_6$			S T N V
GLUE			S T N V 65℃
GLYCERINE $C_3H_8O_3$ or $CH_2OH—CHOH—CH_2OH$	10	<50	S T N V
GLYCOLIC ACID $C_2H_4O_3$ or $HOCH_2COOH$	<100	<100	S T
GREASE			S T N V 65℃
GREEN LIQUOR			S T (N) V
GYPSUM $CaSO_4{\cdot}2H_2O$	10	<100	S T N V
HEAVY GAS OIL			S T N V
HEAVY WATER D_2O			S T N V
HELLIUM He			S T N V
HEPTANE $CH_3(CH_2)_5CH_3$		<100	S T N V
HEPTYL ALCOHOL $CH_3(CH_2)_6OH$ or $C_7H_{16}O$		<100	S T
HEXANE $CH_3(CH_2)_4CH_3$		<100	S T N V
I-HEXENE C_6H_{12} or $CH_2=CH(CH_2)_3CH_3$			S T (N) V
n-HEXYL ALCOHOL $CH_3(CH_2)_4CH_2OH$		<100	S T N V
HYDRAULIC OIL			S T N V
HYDRAZINE N_2H_4	<50	25	S T
HYDRAZINE HYDRATE $N_2H_4{\cdot}H_2O$		<100	S T
HYDROBROMIC ACID HBr	<40	<100	S T
HYDROCHLORIC ACID HCl	<40	25	S T N V E 5% <20% 80℃
HYDROFLUORIC ACID HF	all	25	S V 75% 70℃

The Selection of packing material for each fluid packing material

Fluid	concen (%)	Temp (°C)	Packing material			
HYDROGEN CHLORIDE HCl		25	S	T		
HYDROGEN CYANIDE HCN	<10	<100	S	T		
HYDROGEN FLUORIDE HF		<50	S	T		
HYDROGEN PEROXIDE H_2O_2		25	S	T	N 3%	V 90%
HYDROGEN SULFIDE H_2S		25	S	T	(N)	
HYDROIODIC ACID HI	<50	25	S	T		
HYDROQUINONE $C_6H_4(OH)_2$	10	<100	S	T	N	
HYDROSILICOFLUORIC ACID F_6H_2Si			S	T		
HYDROXYCITRONELLAL $C_{10}H_{20}O_2$		<100	S	T		
HYPOCHLOROUS ACID HOCl		25	S	T		(V)
INK			S	T	(N)	
IODINE I_2		25	S	T		V
IODOFORM CHI_3		<100	S	T		
ISOBUTANE C_4H_{10}			S	T	N	V
ISO-BUTANOL $(CH_3)_2CHCH_2OH$		<100	S	T	(N)	V
ISOBUTENE C_4H_8 or $CH_2=C(CH_3)_2$			S	T	N 26°C	V
ISOBUTHYL ALCOHOL $(CH_3)_2CHCH_2OH$			S	T	(N)	V 25°C
ISOBUTHYL ALDEHYDE $(CH_3)_2CHCHO$			S	T		
ISOOCTANE $CH_3C(CH_3)_2CH_2CH(CH_3)_2$ or C_8H_{18}		<100	S	T	N 70°C	V 70°C
ISOPENTANE C_5H_{12} or $(CH_3)_2—CH—CH_2—CH_3$			S	T	N	V
ISOPRENE $CH_2=C(CH_3)CH=CH_2$			S	T		
ISOPROPYL ACETATE $C_5H_{10}O_2$ or $(CH_3)_2CHCOOCH_3$			S	T		
ISOPROPYL ALCOHOL $(CH_3)_2CHOH$		<100	S	T	N	V

Fluid	concen (%)	Temp (°C)	Packing material			
ISOPROPYL AMINE $(CH_3)_2CHNH_2$		<100	S	T	N	V
ISOPROPYL CHLORIDE C_3H_7Cl		<100	S	T		
ISOPROPYL ETHER $(CH_3)_2CHOCH(CH_3)_2$			S	T	N	(V)
KAOLINE $Al_2Si_2O_5(OH)_4$			S	T	N	V
KEROSENE			S	T	N 40°C	V 150°C
KETCHUP			S	T	N	V
KSK-OIL			S	T		
LACTIC ACID $C_3H_6O_3$		<100	S	T	(N)	V <85% <70°C
LARD			S	T	N	V
LATEX			S	T	(N)	(V)
LAURIC ACID $C_{12}H_{24}O_2$			S	T		
LAURYL ALCOHOL $CH_3(CH_2)_{10}CH_2OH$		<100	S	T		
LAVENDER OIL			S	T	(N)	V
LEAD ACERATE $Pb(CH_3COO)_2{\cdot}3H_2O$		<100	S	T		V <33% <50°C
LEAD NITRATE $Pb(NO_3)_2$	<60	<100	S	T	N 40°C	V 40°C
LEAD SULFATE $PbSO_4$		<100	S	T		
LEMON OIL			S	T		
LIGHT GAS OIL	<300		S	T	N	V
LIGNIN			S	T		
LIGROIN			S	T		V 38°C
LIME WATER		<100	S	T	N 65°C	V
LINSEED OIL		25	S	T	N	V 121°C
LIQUEFIED CARBON DIOXIDE LCO_2			S	T		V

Fluid	concen (%)	Temp (°C)	Packing material			
LIQUEFIED NATURAL GAS			S	T		V
LIQUEFIED PETROLEUM GAS			S	T		V
LIQUID AMMONIA NH_3			S	T	N	
LIQUID ARGON LAr			S	T		V
LIQUID NITROGEN LN_2			S	T		V
LIQUID OXYGEN LO_X			S	T		V
LITHIUM BROMIDE LiBr		<100	S	T	N	V
LITHIUM CHLORIDE LiCl	<60	<100	S	T	N 25°C	
LIVER OIL		<100	S	T	N	V
1-MENTHOL $C_{10}H_{20}O$		<100	S	T		
LUBRICATING OIL			S	T	N	V
LYE		<100	S	T	N	
MAGNESIUM CARBONATE $MgCO_3$	10	<100	S	T		
MAGNESIUM CHLORIDE $MgCl_2$	<50	<100	S	T	N 65°C	V 30°C 50°C
MAGNESIUM HYDROXIDE $Mg(OH)_2$	<10	<100	S	T		
MAGNESIUM NITRATE $Mg(NO_3)_2{\cdot}6H_2O$	all	<100	S	T	N	V
MAGNESIUM SULFATE $MgSO_4{\cdot}7H_2O$	<60	<100	S	T	N 70°C	V 23°C 50°C
MAGNESIUM SULFITE $MgSO_4{\cdot}6H_2O$	10	<100	S	T	N	V
MALEIC ACID $C_4H_4O_4$ or HOOCCH=CHCOOH	<50	<100	S	T		V
MALEIC ANHYDRIDE $C_4H_2O_3$			S	T		
MALIC ACID $C_4H_6O_5$	10	<100	S	T		V
MALT BEVERAGES			S	T	N	V
MANGANESE CHLORIDE $MnCl_2$	<40	<100	S	T	N	

Fluid	concen (%)	Temp (°C)	Packing material			
MANGANESE SULFATE $MnSO_4$		<100	S	T	N	V
MASH			S	T		
MAYONNAISE			S	T	N	V
MELAMINE RESIN			S	T		
MERCAPTAN C_2H_5SH		25	S	T		
MERCURIC CHLORIDE $HgCl_2$	<10	25	S	T		V 40°C
MERCURIC NITRATE $Hg(NO_3)_2{\cdot}H_2O$	10	<100	S	T		
MERCURY Hg		<370	S	T	N	
MESITYL OXIDE $C_6H_{10}O$ or $(CH_3)_2C{=}CH{-}COCH_3$	<100		S	T		
META-XYLENE $C_6H_4(CH_3)_2$		<100	S	T		
METHACRYLIC ACID $C_4H_6O_2$ or $CH_2{=}C(CH_3)COOH$		25	S	T		
METHANE CH_4		<100	S	T	N	V
METHANOL CH_3OH	all	<100	S	T	N 40°C	E
METHYL ACETATE CH_3COOCH_3	<30	<100	S	T		
METHYL ACENTON		<100	S	T		
METHYL ACRYLATE $C_4H_6O_2$ or $CH_2{=}CHCOOCH_3$		<100	S	T		
METHYLAL $C_3H_8O_2$ or $CH_2{-}(OCH_3)_2$		<100	S	T		
METHYL BUTYRATE $C_5H_{10}O_2$		<100	S	T		
METHYL CHLORIDE CH_3Cl		<100	S	T		
METHYL CHLOROFORM $C_2H_3Cl_3$		25	S	T		V
METHYLCYCLOPENTANE C_6H_{12}		25	S	T		V
METHYLENE CHLORIDE CH_2Cl_2	90	<100	S	T		
METHYL ETHYL KETON C_4H_8O or $CH_3COCH_2CH_3$	all	<100	S	T		

The Selection of packing material for each fluid packing material

Fluid	concen (%)	Temp (℃)	Packing material			
METHYL FORMATE $HCOOCH_3$	<30	<100	S	T		
METHYL ISOBUTYL KETONE $C_6H_{12}O$ or $CH_3COCH_2CH(CH_3)_2$		<100	S	T		
METHYL ISOPROPYL KETONE $CH_3COCH(CH_3)_2$		25	S	T		
METHYL MERCAPTAN CH_3SH			S	T		
METHYL METHACRYLATE $CH_2C(CH_3)COOCH_3$ or $C_5H_8O_2$		<100	S	T		
α-METHYL-NAPHTHALENE $C_{11}H_{10}$		<100	S	T		
β-METHYL-NAPHTHALENE $C_{11}H_{10}$		<100	S	T		
METHYL-n-BUTYL KETONE $C_{11}H_{22}O$		<100	S	T		
α-METHYL STYRENE $C_6H_5C(CH_3)=CH_2$		25	S	T		
METHYL TRICHLOROSILANE CH_3SiCl_3		25	S	T		
MILK			S	T	(N)	V
MILK OF LIME		<100	S	T	N	V
MINERAL OIL		<100	S	T	N	V
MINERAL SPIRITS			S	T	N	V
MINE WATER		<100	S	T		V
MIXED ACID	all	25	S	T		
MOBIL THERM			S	T		
MOLASSES			S	T	N	V
MONOBASIC AMMONIUM PHOSPHATE $(NH_4)_3PO_4$	10	<100	S	T	N 25% 70°C	
MONOBASIC SODIUM PHOSPHATE $NaH_2PO_4 \cdot 2H_2O$	all	<100	S	T	N 10% 50°C	V 10% 50°C
MONOCHLOROACETIC ACID $ClCH_2CO_2H$ or $C_2H_3ClO_2$		25	S	T		(V) 30%
MONOETHANOLAMINE C_2H_7NO or $H_2NCH_2CH_2OH$	all	<100	S	T	N	
MONOETHYLAMINE $C_2H_5NH_2$	all	<100	S	T	N 65%	

Fluid	concen (%)	Temp (℃)	Packing material			
MONOMETHYLAMINE CH_3NH_2	all	<100	S	T		
MONO-n-BUTYLAMINE $C_4H_{11}N$ or $CH_3(CH_2)_3NH_2$		<100	S	T	N	
MONOSODIUM L-GLUTAMATE $C_5H_8NO_4Na$	<30	<100	S	T		
MUDDY WATER			S	T	N	V
NAPHTHA			S	T	(N)	V 70°C
NAPHTHALENE $C_{10}H_8$			S	T		V
NAPHTHENIC ACID			S	T	N	V
Neo-SK OIL			S	T		
NICKEL ACETATE $Ni(CH_3CO_2)_2 \cdot 4H_2O$	<100		S	T		V 52% 50°C
NICKEL CHLORIDE $NiCl_2$	<40	<100	S	T	(N) 25°C	V
NICKEL SULFATE $NiSO_4$	<60	<100	S	T	N 40°C	V 18% 50°C
NICOTINE SULFATE $C_{10}H_{14}N_2 \cdot H_2SO_4$		25	S	T	N	V
NITCOTINIC ACID $C_6H_5NO_2$			S	T		
NITRIC ACID HNO_3	all	<100	S	T		
NITROBENZENE $C_6H_5NO_2$		<100	S	T		(V)
NITROCELLULOSE		<100	S	T		
NITROCELLULOSE LACQUAR			S	T		
NITROETHANE $C_2H_5NO_2$		<100	S	T		
NITROMETHANE CH_3NO_2		<100	S	T		
m-NITROPHENOL $C_6H_5NO_3$			S	T		
O-NITROPHENOL $C_6H_5NO_3$		25	S	T		
P-NITROPHENOL $C_6H_5NO_3$			S	T		
1-NITROPROPANE $CH_3CH_2CH_2NO_2$		<100	S	T		

Fluid	concen (%)	Temp (°C)	Packing material			
2-NITROPROPANE $C_3H_7NO_2$ or $CH_3CHNO_2CH_3$	<30	<100	S	T		
O-NITROTOLUENE $C_7H_7NO_2$		<100	S	T		
P-NITROTOLUENE $C_7H_7NO_2$		<100	S	T		
NITROUS ACID HNO_2		25	S	T		V
NITROUS OXIDE N_2O		25	S	T		V
NONANE C_9H_{20} or $CH_3(CH_2)_7CH_3$		<100	S	T		
NONYL ALCOHOL $CH_3(CH_2)_8OH$ or $C_9H_{20}O$		<100	S	T		
NONYL PHENOL $C_{15}H_{24}O$		<100	S	T		
n-OCTANE C_8H_{18}		<100	S	T		
OCTANOL $CH_3(CH_2)_7OH$ or $C_8H_{18}O$		<100	S	T	N	V 24°C
OLEIC ACID $C_{18}H_{34}O_2$	<90	25	S	T	N	V
OLEYL ALCOHOL $C_{18}H_{36}O$ or $CH_3(CH_2)_7$–CH=CH–$(CH_2)_8OH$			S	T		
OLIVE OIL			S	T	N 65°C	V 65°C
ORTHO XYLENE $C_6H_4(CH_3)_2$		<100	S	T		V
OXALIC ACID $C_2H_2O_4$ or $(COOH)_2$ or HOOCCOOH	<90	25	S	T	N 40°C	
PAINTS			S	T		
PALMITIC ACID $C_{16}H_{32}O_2$ or $CH_3(CH_2)_{14}COOH$		<200	S	T	N	V
PALM-NUT OIL		<100	S	T	N	V
PALM OIL		<100	S	T	N	V
PARAFFIN WAX			S	T	N	V
PARA-XYLENE $C_6H_4(CH_3)_2$		<100	S	T		V
PECTIN			S	T	N	V
PENICILLIN $C_{16}H_{18}O_4N_2S$		<50	S	T		V

Fluid	concen (%)	Temp (°C)	Packing material			
PENTACHLOROPHENOL C_6Cl_5OH or C_6HCl_5O		<100	S	T		
n-PENTANE $CH_3(CH_2)_3CH_3$		<100	S	T	N	V
PERCHLORIC ACID $HClO_4$		25	S	T	N 10% 50°C	
PERCHLOROETHYLENE CCl_2		25	S	T		V
PERILLA OIL			S	T		
PETROLEUM			S	T	N	V
PETROLEUM BENZINE		<100	S	T		
PHENOL C_6H_5OH	90	<100	S	T		V 50% 70°C
PHENOL SULFONIC ACID $C_6H_6O_4S$	30	<100	S	T		V 65% 70°C
PHENYLACETIC ACID $C_8H_8O_2$			S	T		V
PHOSGENE $COCl_2$		<100	S	T		
PHOSPHORIC ACID H_3PO_4	<80	50	S	T	(N)	V
PHOSPHORUS OXYCHLORIDE $POCl_3$		25	S	T		
PHOSPHORUS TRICHLORIDE PCl_3	10	25	S	T		
PHTHALIC ACID $C_8H_6O_4$ or $C_6H_4(COOH)_2$			S	T	N 40°C	V 40°C
PHTHALIC ANHYDRIDE $C_8H_4O_3$		<260	S	T		(V)
PICOLINE C_5HNCH_3		<100	S	T		
PICRIC ACID $C_6H_2(NO_2)_3OH$ or $C_6H_3N_3O_7$	all	25	S	T	N	V 70°C
PINENE $C_{10}H_{16}$		<100	S	T	(N)	V 70°C
PINE OIL		<100	S	T	(N)	
PIPERAZINE $C_4H_{10}N_2$		<100	S	T	(N)	
PITCH			S	T		
POLYETHYLENE $(C_2H_4)_n$		<100	S	T		

The Selection of packing material for each fluid packing material

Fluid	concen (%)	Temp (℃)	Packing material
POLYETHYLENE GLYCOL $C_{2n}H_{4n}+2O_{n+1}$		<100	S T
POLYPROPYLENE		25	S T N
POLYPROPYLENE GLYCOL			S T
POLYSTYRENE $(C_6H_5CH=CH_2)n$		25	S T
POLYVINYL ALCOHOL			S T
POTASSIUM ALUM $KAl(SO_4)_2{\cdot}12H_2O$	<10	<100	S T N V
POTASSIUM BROMIDE KBr	<50	<100	S T N 34% 50℃ V 34% 50℃
POTASSIUM CARBONATE K_2CO_3	<70	<100	S T N V 30% 50℃
POTASSIUM CHLORATE $KClO_3$	<30	<100	S T N 40℃ V 40℃
POTASSIUM CHLORIDE KCl	<30	<100	S T N 65℃ V
POTASSIUM CHROMATE K_2CrO_4	<30	<100	S T N V
POTASSIUM CYANIDE KCN	<60	<100	S T N 60% 65℃
POTASSIUM DICHROMATE $K_2Cr_2O_7$	<60	<100	S T N 10% 25℃ (V)
POTASSIUM FERROCYANIDE $K_4(Fe(CN)_6){\cdot}3H_2O$		<100	S T N
POTASSIUM HYDROGEN CARBONATE $KHCO_3$		<100	S T N
POTASSIUM HYDROXIDE KOH	<60	<100	S T N 65℃ E
POTASSIUM IODIDE KI	<70	<100	S T N
POTASSIUM NITRATE KNO_3	<80	<100	S T N 65℃ V
POTASSIUM NITRITE KNO_2	all	<100	S T N V
POTASSIUM PERCHLORATE $KClO_4$	<20	<100	S T N V
POTASSIUM PERMANGANATE $KMnO_4$	<30	<100	S T V 40℃
POTASSIUM PERSULFATE $K_2S_2O_8$		<100	S T N V
POTASSIUM PHOSPHATE DIBASIC K_2HPO_4	10	<100	S T N
POTASSIUM PHOSPHATE,MONO BASIC KH_2PO_4	10	<100	S T N
POTASSIUM PHOSPHATE,TRIBASIC K_3PO_4	<30	<100	S T N
POTASSIUM SILICATE K_2SiO_3	all	<100	S T N
POTASSIUM SULFATE K_2SO_4	<20	<100	S T N 25% 110℃ V 10% 50℃
POTASSIUM SULFIDE K_2S	10	25	S T N 60% 70℃
POTASSIUM SULFITE $K_2SO_3{\cdot}2H_2O$	<50	<100	S T N 50℃ V 50℃
PROPANE C_3H_8		<100	S T N V
PROPIONALDEHYDE C_3H_6O		25	S T
PROPIONIC ACID $CH_3CH_2CO_2H$	<50	25	S T N <80℃
n-PROPYL ACETATE $C_5H_{10}O_2$		<100	S T
PROPYLENE C_3H_6 or CH_2CHCH_3 or CH_3CHCH_2		<100	S T
PROPYLENE DICHLORIDE $CH_3CHClCH_2Cl$		25	S T
PROPYLENE GLYCOL $C_3H_8O_2$ or $CH_3CHOHCH_2OH$	70 90	<100	S T
PROPYLENE OXIDE C_3H_6O	20	50	S T
PULP			S T
PYRETHRIN $C_{21}H_{28}O_3$			S T
PYRIDINE C_5H_5N	all	<100	S T
PYROGALLOL $C_6H_3(OH)_3$	all	25	S T
PYROPHOSPHORIC ACID $H_4P_2O_7$			S T (N) V
RAPE SEED OIL			S T N V
RED LIQUOR			S T
REFRIGERATING OIL			S T N V
RESIDUE			S T

Fluid	concen (%)	Temp (°C)	Packing material			
RESORCIN $C_6H_6O_2$		<100	S	T		
ROSINS		<370	S	T		
SAKE			S	T	N	V
SALAD OIL		<100	S	T	N	V
SALICYLIC ACID $C_7H_6O_3$	10	25	S	T		V
SALT WATER	<30	<100	S	T	N	V
SEA WATER		25	S	T	N	V
SECONDARY BUTANOL $C_4H_{10}O$ or $CH_3CHOHCH_2CH_3$		<100	S	T	(N)	V
SESAME OIL		<100	S	T	N	V
SEWAGE		<50	S	T	N	V
SHELLAC		<100	S	T		
SILICONE OIL		<100	S	T	(N)	V
SILICON TETRACHLORIDE $SiCl_4$		25	S	T		
SILVER CHLORIDE AgCl	10	25	S	T		
SILVER NITRATE $AgNO_3$		<100	S	T		V 30% 70°C
SLAKED LIME $Ca(OH)_2$		<100	S	T	N	V 40%
SLOP OIL			S	T		
SOAP SOLUTION			S	T	N 70°C	(V) 70°C
SODA ASH Na_2CO_3	<30	<100	S	T	N 60% 70°C	V 28% 50°C
SODA LIME		<100	S	T	N	
SODIUM ACETATE $CH_3COONa{\cdot}3H_2O$	<60	<100	S	T	(N) 28% 50°C	V 28% 50°C
SODIUM ALUMINATE $NaAlO_2$	<50	<100	S	T	N	V
SODIUM BICARBONATE $NaHCO_3$	<20	<100	S	T	N 60% 70°C	V 40°C

Fluid	concen (%)	Temp (°C)	Packing material			
SODIUM BROMIDE NaBr	<50	<100	S	T	N 33% 50°C	V 33% 50°C
SODIUM CHLORATE $NaClO_3$		<100	S	T		
SODIUM CHLORIDE NaCl	<30	<100	S	T	N	V
SODIUM CHROMATE $Na_2CrO_4{\cdot}10H_2O$	all	<100	S	T	N	V 26% 50°C
SODIUM CYANIDE NaCN	10	<100	S	T	N	
SODIUM DICHROMATE $Na_2Cr_2O_7{\cdot}2H_2O$	all	<100	S	T	N 40% 50°C	V 40% 50°C
SODIUM FERROCYANIDE $Na_4Fe(CN)_6{\cdot}10H_2O$		<100	S	T	N	
SODIUM FLUORIDE NaF	10	25	S	T	N	
SODIUM HYDROGEN SULFATE $HSO_4(-)$ or HO_4S-	<40	<100	S	T	N	V
SODIUM HYDROGEN SULFITE $HSO_3(-)$ or HO_3S-		<100	S	T		V
SODIUM HYDROSULFIDE $NaSH{\cdot}2H_2O$	<50	<80	S	T	N	
SODIUM HYDROSULFITE $Na_2S_2O_4$	10	<100	S	T	(N)	V
SODIUM HYPOCHLORITE NaClO	10	25	S	T	(N) 6% <50°C	V 5% <70°C
SODIUM IODIDE NaI	<60	<100	S	T	N 40°C	V 40°C
SODIUM METAPHOSPHATE $NaPO_3$	10	<100	S	T	N	V
SODIUM METASILICATE $Na_2O{\cdot}SiO_2{\cdot}5H_2O$	all	<100	S	T	N 60% 70%	
SODIUM NITRATE $NaNO_3$	<70	<100	S	T	N 50% 71°C	V 40°C
SODIUM NITRITE $NaNO_2$		<100	S	T	N	V 40%
SODIUM PEROXIDE Na_2O_2	10	<100	S	T	N 60% 70°C	V 40°C
SODIUM SILICATE Na_2SiO_3	all	<100	S	T	N 60% 70°C	V 40°C
SODIUM SULFATE Na_2SO_4	<30	<100	S	T	N 22% 50°C	V 22% 50°C
SODIUM SULFIDE Na_2S	10	<80	S	T	N 60% 70°C	(V) 40°C
SODIUM SULFITE $Na_2SO_3{\cdot}7H_2O$	10	<100	S	T	N	V 18% <50°C

The Selection of packing material for each fluid packing material

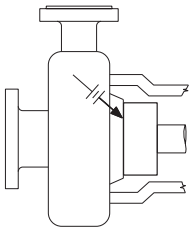
Fluid	concen (%)	Temp (℃)	Packing material					
SODIUM THIOSULFATE $Na_2S_2O_3 \cdot 5H_2O$		<100	S	T	N 33% 50℃	(V) 33% 50℃		
SOLAR OIL			S	T				
SOLVENT NAPHTHA		<100	S	T				
SOUR		<100	S	T				
SOYA BEAN OIL			S	T	N	V		
SOY OIL		<100	S	T	N	V		
STANNIC CHLORIDE $SnCl_4$		<100	S	T				
STARCH SLURRY			S	T	N	V		
STEARIC ACID $C_{18}H_{36}O_2$		<205	S	T	(N)			
STEARYL ALCOHOL $CH_3(CH_2)_{16}CH_2OH$			S	T				
STREPTOMYCIN $C_{21}H_{39}N_7O_{12}$			S	T				
STYRENE $C_6H_5CHCH_2$		<100	S	T		V		
SUCCINIC ACID $(CH_2)_2(CO_2H)_2$	50	<100	S	T				
SUGAR SOLUTIONS			S	T	N 65℃	V		
SULFITE PULP			S	T				
SULFUR S		<150	S			V		
SULFUR DIOXIDE SO_2		<100	S	T	(N) 65℃	V		
SULFURIC ACID H_2SO_4	10	25	S	T	N	V	E	
SULFURIC ANHYDRIDE SO_3		<100	S	T				
SULFUR MONOCHLORIDE S_2Cl_2		<100	S	T		V		
SULFUR OUS ACID H_2SO_3		<50	S	T		V		
SYM- DICHLOROETHYLENE ClCH=CHCl		<100	S	T	N			
SYRUP		<100	S	T	N	V		

Fluid	concen (%)	Temp (℃)	Packing material					
TALL OIL			S	T	(N) 70℃	V		
TALLOW		<100	S	T	N	V		
TANNIC ACID $C_{76}H_{52}O_{46}$	all	<100	S	T	N	V		
TAR			S	T	N	V		
TARTARIC ACID $C_4H_6O_6$	<50	<100	S	T	(N) 60℃	V		
TEREPHTHALIC ACID $C_8H_6O_4$ or $C_6H_4(COOH)_2$			S	T				
TERPHENYL $C_{18}H_{14}$			S	T				
THRTIARY BUTANOL $C_4H_{10}O$ or $(CH_3)_3COH$ or $(CH)_3COH$		<100	S	T	(N)	V		
TETRACHLOROETHANE $CHCl_2 \cdot CHCl_2$	90	<100	S	T				
TETRA- ETHYLENEPENTAMINE $(NH_2CH_2CH_2NHCH_2CH_2)_2NH$		<100	S	T				
TETRAETHYL LEAD $Pb(C_2H_5)_4$		<100	S	T		V 24℃		
TETRAHYDROFURAN C_4H_8O			S	T				
THERM-S		<300	S	T				
THIOPHENE C_4H_4S		<50	S	T				
THIOPHENOL C_6H_5SH		<100	S	T				
THIOUREA CH_4N_2S	10	<50	S	T	N			
TITANIUM TETRA CHLORIDE $TiCl_4$		25	S	T				
TOLUENE $C_6H_5CH_3$		<100	S	T		(V)		
TOLUIDINE C_7H_9N		<100	S	T				
TOOTHPASTE			S	T	N	V		
TRIBASIC AMMONIUM PHOSPHATE $(NH_4)_3PO_4$	10	<100	S	T	N 25% 70℃			
TRIBASIC SODIUM PHOSPHATE $Na_3PO_4 \cdot 12H_2O$	all	<100	S	T	N 10% 50℃	V 10% 50℃		
TRICHLOROACETIC ACID CCl_3COOH		25	S	T				

Fluid	concen (%)	Temp (°C)	Packing material
TRICHLOROBENZENE $C_6H_3Cl_3$		25	S T
TRICHLOROETHYLENE ClCH=CCl_2	90	<100	S T V
TRICRESYL PHOSPHATE $(CH_3C_6H_4O)_3PO$ or $C_{21}H_{21}O_4P$		<200	S T V E 149°C
TRIETHANOLAMINE $(CH_2OHCH_2)_3N$	all	<100	S T N
TRIETHYLAMINE $(C_2H_5)_3N$	all	<100	S T N
TRIETHYLENE GLYCOL $HOCH_2(CH_2CH_2O)_2CH_2OH$		<100	S T N V
TRIETHYLENETETRAMINE $C_6H_{18}N_4$ or $(NH_2CH_2CH_2NHCH_2)_2$		<100	S T
TRINETHYLAMINE $N(CH_2CH_3)_3$		<100	S T
TRINETHYL CHLOROSILANE $C_6H_{15}ClSi$		25	S T
TRL-n-BUTYLAMINE $C_4H_{11}N$ or $CH_3(CH_2)_3NH_2$		<100	S T N
TUNG OIL			S T N (V) 25°C
TRRKEY RED OIL		80	S T
TURPENTINE OIL		<100	S T (N) V 70°C
UREA CH_4N_2O or NH_2CONH_2	<50	<100	S T N V 70°C 70°C
URIC ACID $C_5H_4N_4O_3$		25	S T
URINE			S T N V
VASELINE			S T N V
VEGETABLE OIL		<100	S T N V
VETROCOKE SOLUTION			S T V
VINEGAR		<100	S T (N) (V)
VINYL ACETATE $CH_3COOCHCH_2$		25	S T N (V)
VINYL CHLORIDE MONOMER C_2H_3Cl			S T (N) (V)
VINYL CHLORIDE RESIN			S T

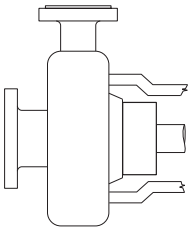
Fluid	concen (%)	Temp (°C)	Packing material
VINYLETHER C_4H_6O		25	S T
VINYL ETHYL ETHER $C_2H_5OCH=CH_2$ or C_4H_8O		25	S T
VINYLIDENE CHLORIDE $C_2H_2Cl_2$ or $H_2C=CCl_2$			S T
VINYL ISOBUTYL ETHER $C_6H_{12}O$		25	S T
VINYL METHYL ETHER C_3H_6O or $CH_3OCH=CH_2$			S T
2-VINYLPYRIDINE $CH_2CHC_5H_4N$ or C_7H_7N		25	S T
VISCOSE			S T N (V)
WALNUT OIL			S T
WATER H_2O			S T N V E
WATER GAS			S T
WHALE OIL		<100	S T N V
WHISKY			S T N V
WHITE LIQUOR			S T N
WHITE WATER			S T N V
WINE			S T N V
XYLENE C_8H_{10}		<100	S T V
ZINC ACETATE $Zn(CH_3CO_2)_2{\cdot}2H_2O$		<100	S T V
ZINC CHLORIDE $ZnCl_2$		<100	S T N V 75% 65°C 40°C
ZINC CYANIDE $Zn(CN)_2$	10	25	S T N V
ZINC NITRATE $Zn(NO_3)_2{\cdot}6H_2O$	10	<100	S T V
ZINC PHOSPHATE $Zn_3(PO_4)_2{\cdot}4H_2O$		<100	S T V
ZINC SULFATE $ZnSO_4{\cdot}7H_2O$	<40	<100	S T N V 65% 70°C

Standard Piping Plans to API682/ISO 21049



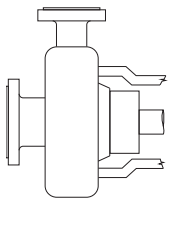
Plan 01

In Plan 01, integral (internal) recirculation is from a high pressure region of the pump to the seal chamber.



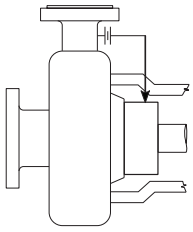
Plan 02

Plan 02 has a dead-ended seal chamber with no recirculation of flushed fluid.



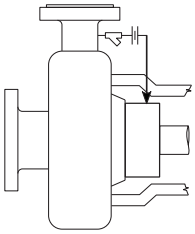
Plan 03

In Plan 03 there is circulation between the seal chamber and the pump created by the design of the seal chamber.



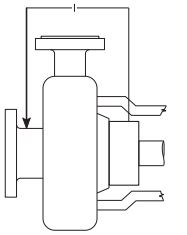
Plan 11

In Plan 11 there is recirculation from a high pressure region of the pump (typically the pump discharge or the pump discharge piping) through a flow control orifice to the seal.



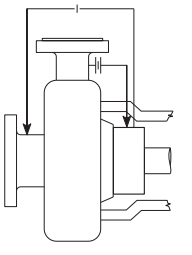
Plan 12

In Plan 12 there is recirculation from a high pressure region of the pump (typically the pump discharge or the pump discharge piping) through a strainer and a flow control orifice into the seal.



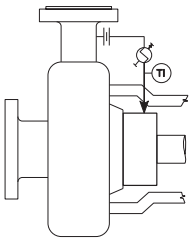
Plan 13

In Plan 13 there is recirculation from the seal chamber through a flow control orifice and back to the pump suction or pump suction piping.



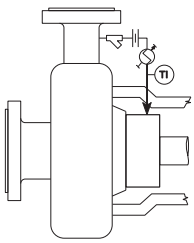
Plan 14

In Plan 14 there is recirculation from pump discharge through a flow control orifice to the seal and simultaneously from the seal chamber through a flow control orifice (if required) to pump suction.



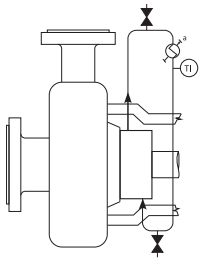
Plan 21

In Plan 21 there is recirculation from a high pressure region of the pump (typically the pump discharge or the pump discharge piping) through a flow control orifice and cooler, then into the seal chamber.



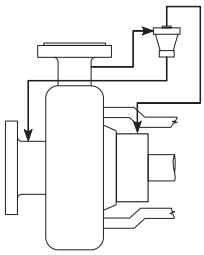
Plan 22

In Plan 22 there is recirculation from a high pressure region of the pump (typically the pump discharge or the pump discharge piping) through a strainer, a flow control orifice, a cooler, and into the seal chamber.



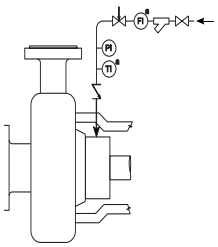
Plan 23

In Plan 23 there is recirculation from a circulation device in the seal chamber through a cooler and back into the into the seal chamber.



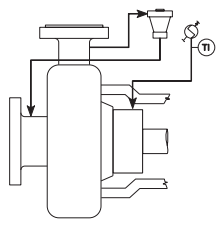
Plan 31

In Plan 31 there is recirculation from a high pressure region of the pump (typically the pump discharge or the pump discharge piping) through a cyclone separator delivering the clean fluid to the seal chamber



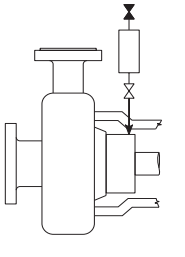
Plan 32

In Plan 32, flush is injected into the seal chamber from an external source.



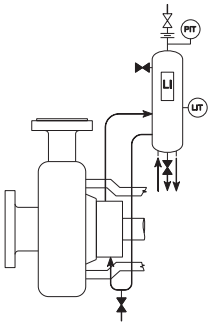
Plan 41

In Plan 41 there is recirculation from a high pressure region of the pump (typically the pump discharge or the pump discharge piping) through a cyclone separator delivering the clean fluid to a cooler and then to the seal chamber.



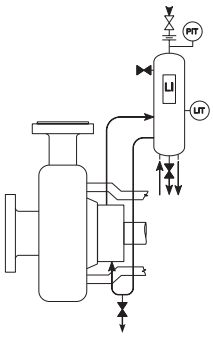
Plan 51

In Plan 51 there is an external reservoir providing a dead-ended blanket for fluid to the quench connection of the gland plate.



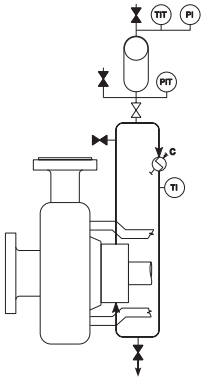
Plan 52

In Plan 52 there is an external reservoir providing buffer liquid for the outer seal of an Arrangement 2 seal. The buffer liquid shall be maintained at a pressure less than seal chamber pressure and less than 0.28 MPa (2.8 bar) (40 psi).



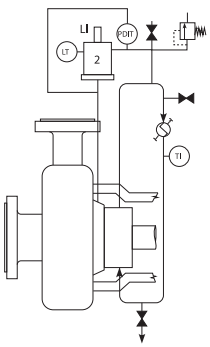
Plan 53A

In Plan 53A there is a pressurized external barrier fluid reservoir supplying clean fluid to the barrier fluid seal chamber. The barrier liquid is maintained at a pressure greater than seal chamber pressure.



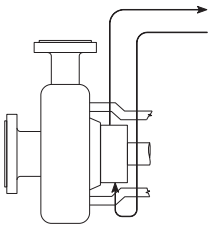
Plan 53B

In Plan 53B, there is an external barrier fluid system pressurized by a bladder accumulator supplying clean liquid to the barrier fluid seal chamber. The accumulator and barrier liquid are maintained at a pressure greater than seal chamber pressure.



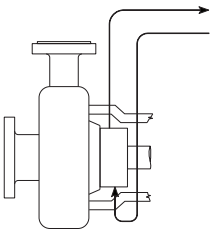
Plan 53C

In Plan 53C, there is an external barrier fluid system pressurized by a piston accumulator supplying clean liquid to the barrier fluid seal chamber. The barrier liquid is maintained at a pressure greater than seal chamber pressure.



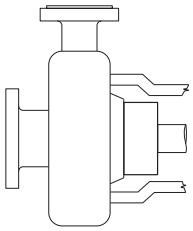
Plan 54

In Plan 54, there is a pressurized external barrier fluid system supplying clean liquid to the barrier fluid seal chamber.



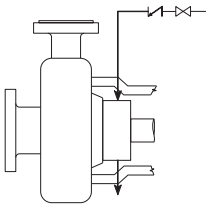
Plan 55

In Plan 55, there is an unpressurized external buffer fluid system supplying clean liquid to the buffer fluid seal chamber



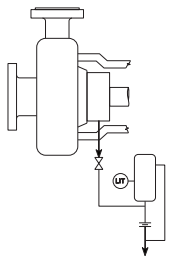
Plan 61

In Plan 61 there are tapped and plugged atmospheric-side connections for purchaser's use.



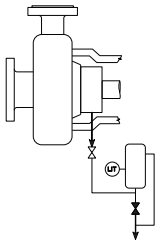
Plan 62

In Plan 62, a quench stream is brought from an external source to the atmospheric side of the seal faces.



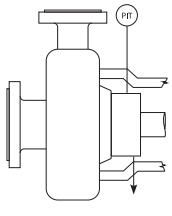
Plan 65A

In Plan 65A there is an atmospheric leakage collection and detection system for condensing leakage.



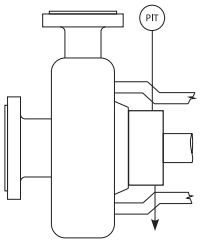
Plan 65B

In Plan 65B there is an atmospheric leakage collection and detection system for condensing leakage. Failure of the seal will be detected by a cumulative leakage into the system.



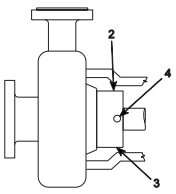
Plan 66A

In Plan 66A, the throttle bushings in the seal gland minimize the seal leakage leaving the seal gland and allow for detection of a seal failure.



Plan 66B

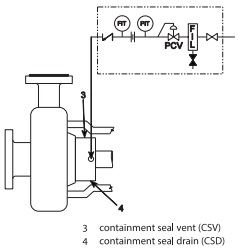
In Plan 66B, an orifice plug in the drain port minimizes the seal leakage leaving the seal gland and allows for detection of a seal failure.



2 containment seal vent (CSV), plugged
3 containment seal drain (CSD), plugged
4 gas buffer inlet (GBI), plugged

Plan 71

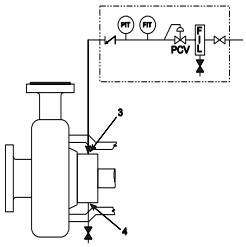
In Plan 71 there are tapped connections for the purchaser's use. Typically, this plan is used if the purchaser might use buffer gas in the future.



3 containment seal vent (CSV)
4 containment seal drain (CSD)

Plan 72

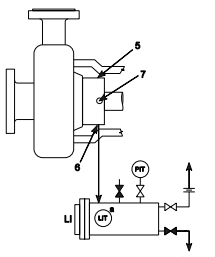
In Plan 72 there is externally supplied buffer gas for Arrangement 2 seals. Buffer gas is maintained at a pressure less than seal chamber pressure. In normal operation, the buffer gas pressure should not exceed 0.07 MPa (0.7 bar) (10 psi).



3 gas barrier inlet (GBI)
4 gas barrier outlet (GBO) (normally closed), used only to depressurize barrier

Plan 74

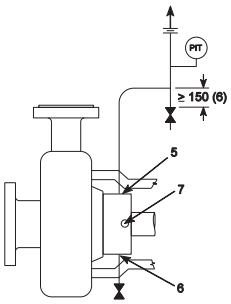
In Plan 74 there is externally supplied barrier gas for Arrangement 3 seals. Barrier gas is maintained at a pressure greater than seal chamber pressure.



5 containment seal vent (CSV), plugged
6 containment seal drain (CSD)
7 gas buffer inlet (GBI), plugged unless used with a Plan 72

Plan 75

In Plan 75 there is a containment seal chamber leakage collection system for condensing or mixed phase leakage on Arrangement 2 seals. This plan is used when pumped fluid condenses at ambient temperatures. This system is supplied by vendor.



5 containment seal vent (CSV)
6 containment seal drain (CSD), closed
7 gas buffer inlet (GBI), plugged unless used with a Plan 72

Plan 76

In Plan 76 there is a containment seal chamber drain for non-condensing leakage on Arrangement 2 seals.
This plan is used if the pumped fluid does not condense at ambient temperatures. This system is supplied by the vendor.

Instrument Symbols

flow orifice	FO
level indicator	LI
level transmitter with local indicator	LIT
differential pressure transmitter with local indicator	PDIT
pressure indicator	PI
pressure transmitter with local indicator	PIT
temperature indicator	TI
temperature transmitter with local indicator	TIT
high level alarm set point	HLA
low level alarm set point	LLA
normal liquid level	NLL

Equipment Symbols

bladder accumulator	
cyclone separator	
filter, coalescing	
flow orifice	
seal cooler	
strainer, Y	
valve, normally open	
valve, normally closed	
valve, check	
valve, needle	
valve, pressure control	
valve, pressure relief	

ISO 9001 Registered Quality Management

UKAS MANAGEMENT SYSTEMS 015

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