

# HANGOOK MACHINERY



(주)한국종합기계 · 금속  
Hangook Machinery Co., Ltd.

# CONTENTS & Greetings

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## 인사말

(주)한국종합기계·금속은 펌프 및 주강제품 전문제조회사로서 최고의 품질과 깨끗한 환경을 추구하는 기업관으로 깨끗한 환경, 밝은 사회를 후손에게 물려주기 위하여 기초소재산업을 육성, 발전시키는 건강한 기업입니다.

(주)한국종합기계·금속의 임직원들은 귀하의 사업과 미래사회 발전을 위해 최고의 품질로 보답하고자 열과 성을 다하여 최선을 다할 것을 약속드립니다.

앞으로도 정밀한 설계 및 검사와 끊임없는 노력으로 지속적인 발전과 새로운 기술개발 및 혁신을 통하여 세계적인 선박관련전문기업으로 성장할 것입니다. 기술한국의 미래를 책임진다는 각오로 (주)한국종합기계·금속은 오늘도 최고의 품질과 고객약속을 최우선으로 생각하고 책임을 다하는 기업이 되겠습니다.

(주)한국종합기계·금속  
대표이사 백형술

## Greetings

Hangook Machinery Co.,Ltd. is a professional manufacturing company that has a high level of expertise in pumps and cast steel products. Hangook Machinery Co.,Ltd. will continuously develop basic materials industry, pursue the best quality and seek clean environment to leave bright society for our descendant.

All managers and employees of Hangook Machinery Co.,Ltd. will promise to work at its utmost for its clients based on tops in technology and quality.

Hangook Machinery Co.,Ltd. will continuously proceed as a first-class marine engineering company by innovative technology development and accurate design with close examination. Hangook Machinery Co.,Ltd. will work with great social responsibilities by assuring the best quality and promising customer satisfaction as a top priority for the future of Korea industry.

**Hangook Machinery Co.,Ltd.**

# 한국종합기계 (History)

## 1999

**03월** 목포대학교 창업보육센터 내 회사설립준비  
Preparation at Support Center for Foundation in Mokpo

## 2002

**01월** 대형조선 납품  
**04월** 한진중공업 납품 시작  
**04월** 군납시작(해군초소바지 외)  
01 Delivery to Daehyung Shipbuilding  
04 Delivery to Hanjin Heavy Industry  
06 Supplying for Military(Navy etc.)

## 2007

부산 사하구 구평동 본사 입주 **10월**  
선박용 복합 살균 정수장치 특허등록 **12월**  
10 Moved The Headquarter to Gupyung-Dong Saha-Gu  
12 Registering Certification of a Sterilizing and Purifying Apparatus for Vessel

## 2004

**06월** SHOCK MOUNT 한국기계연구원  
소음, 진동, 충격시험 통과  
**07월** LPX에 온수순환펌프 납품  
**12월** 12월 현대중공업 납품 시작  
06 Passing KIMM's Shock, Noise and Impact Test  
07 Delivering Hot Water-Circulating Pump to LPX  
12 Delivery to Hyundai Heavy Industry

## 2006

KDX-III에 G/T연료유승압 **06월**  
펌프외 10종 납품  
06 Delivering G/T Fuel Pressure and Boost Pump to KDX-III

## 2003

**07월** 부산 영도구로 공장 이전  
Moved the Factory to Youngdo-Gu Busan

## 2000

**08월** (주)한국종합기계 설립(전남 무안 소재)  
**11월** 품질경영시스템 인증서 획득  
(KS A 9001:2001, ISO 9001:2000)  
선박용 펌프 제품생산 시작  
08 Hangook Machinery Founded(Muan)  
11 Obtained Quality Management System Certification  
(KS A 9001:2001, ISO 9001:2000)  
Production of Marine Pum

2013

- 기술혁신형 중소기업 인증 01월
- 부품소재 전문기업 인증 02월
- (주)한국대교산업 인수 08월
- 펌프용 구조복합재 임펠러 및 그 제조방법 특허등록 11월
- 01 Certification of INNO-BIZ
- 02 Certification of Parts Specialized Company
- 08 Hangoock Daekyo Industry M&A
- 11 Patent Registration of Impeller for Pump Using Composite Structure Material and Manufacturing Method therefor

2009

- 02월 주강제품 한국선급(KR)ISO 인증 획득
- 04월 한국선급(KR)제조법 승인 획득
- 탄소강 주강품(RSC 혹은 동등제품)
- 스테인리스강 주강품(RSSC 혹은 동등제품)
- 구리 및 구리 합금강 주강품(BC 혹은 동등제품)
- 02 Obtained Certification for (KR)ISO
- 04 Obtained Approval for Manufacturing Process by KR Carbon Steel Casting(RSC equivalent Product) Stainless Steel Casting(RSSC Orequivalent Product) Copper and Copper Alloy Steel Casting (BC or Equivalent Product)

2014

- IRSS, DEMISTER 분야 사업 진출 02월
- 02 Entering the business with IRSS, DEMITSER

2012

- 05월 벤처기업 등록
- 제수밸브 및 이에 구비된 디스크 특허등록
- 10월 (주)한국중합기계 기업부설연구소 설립
- 05 Registered as a venture company Patent registration of water gate valve and disk thereof
- 10 Establishment of Hangoock Machinery Co.,Ltd. R&D Center

2008

- 02월 (주)한국중합금속 설립
- 08월 본사 및 공장 준공완료
- 11월 연구전담부서 인증
- 02 Establishment of Hangoock Metal Co
- 08 Completion of Headquarter and Factory
- 11 Approval of Department Exclusively for R&D

# 조직도 (Organization Chart)



## 주요 납품선 (Main customer ship)



### ■ 주요 고객 (main customer)

- 해군(navy)
- 해경(Coast guard)
- 터그보트(tug boat)
- 벌크(bulk)
- 컨테이너(container)

### ■ 파트너사 (Partner)



**Veotec**  
Air Quality Solutions



**Esterline**  
Darchem Engineering

# 인증서 (Certification)

## ▶ 인증서 (Certification)

<p>제조업 공정 인증서 부산광역시사연구원</p>	<p>특허증 특허 제 10-013863호</p>	<p>협력업체 등록확인서 2013년 02월 05일</p>	<p>회원증 2007년 04월 05일</p>	<p>품질경영시스템 인증서 KRII 2007-00000000000000000000</p>
<p>APPROVAL CERTIFICATE FOR MANUFACTURING PROCESS 제조업 승인 인증서</p>	<p>특허증 특허 제 10-013863호</p>	<p>특허증 특허 제 10-013863호</p>	<p>특허증 특허 제 10-013863호</p>	<p>APPROVAL CERTIFICATE FOR MANUFACTURING PROCESS 제조업 승인 인증서</p>
<p>상학형원 필약서</p>	<p>사업자등록증 시상선 체무서장</p>	<p>복합·소재전문기업확인서 지식경제부 장관</p>	<p>기업부설연구소 인정서 한국산업기술진흥협회</p>	<p>벤처기업확인서 KIIBO 기술보증기금 이사장</p>
<p>CERTIFICATE OF APPROVAL HAN KOOK MACHINERY CO., LTD.</p>	<p>공동인증서(신증서) 2008년 06월 05일</p>	<p>가족회사 인증서 2008년 6월 5일</p>	<p>Certificate of Family Company 가족회사 인증서 2008년 6월 5일</p>	<p>CERTIFICATE OF APPROVAL HAN KOOK MACHINERY CO., LTD.</p>

# 특허증 (Patent)



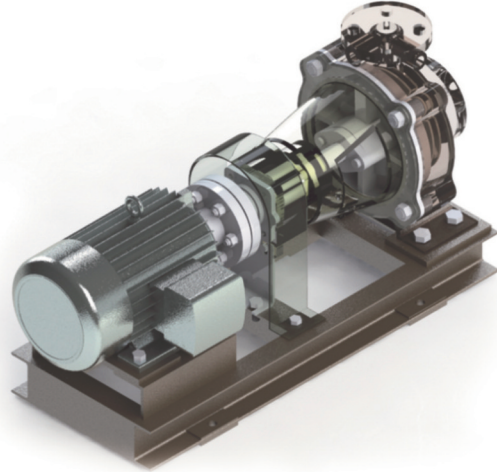
## ▶ 특허증 (Patent)



# HC (Hangook Centrifugal Pump) Series

## ■ 제품일반(General)

원심 펌프 - 수평형  
Centrifugal Pump - Horizontal



### 설계 및 운전 특징

1. 용도 : 청수펌프, 발라스트펌프, 해수펌프, 오수펌프, 온수순환펌프, 빌지 펌프  
잡용 · 음용수 펌프, 냉각수펌프, 생활하수배출펌프
2. 사용압력 : 10 ~ 16kg/cm<sup>2</sup> 까지
3. 베어링 구조 : 볼 베어링
4. 축씰링 : 기계니컬 씰
5. 펌핑온도 : 최대 90℃
6. 플랜지 : KS B 1511 10K, RF/FF
7. 회전수 : 900/1200/1800/3600 RPM
8. 취급액 : 청수, 해수 외
9. 표준용량 : 2~1000 m<sup>3</sup>/hr

### Design and operation features

1. Application : Fresh water pump, Ballast pump, Sea water pump, Sewage pump  
Shot water-circulating pump, Sbilge pump, General service pump, Scooling-water pump, Sewage pump
2. Pressure : Up to 10 ~ 16kg/cm<sup>2</sup>
3. Bearings Structure : Ball Bearing
4. Shaft sealing : Mechanical Sealing
5. Pumping Temperature : Maximum 90℃
6. Flanges : KS B 1511 10K, RF/FF
7. Number of revolutions : 900/1200/1800/3600 RPM
8. Handling fluid : Fresh water, Sea water etc
9. Standard Capacity : 2~1000 m<sup>3</sup>/hr

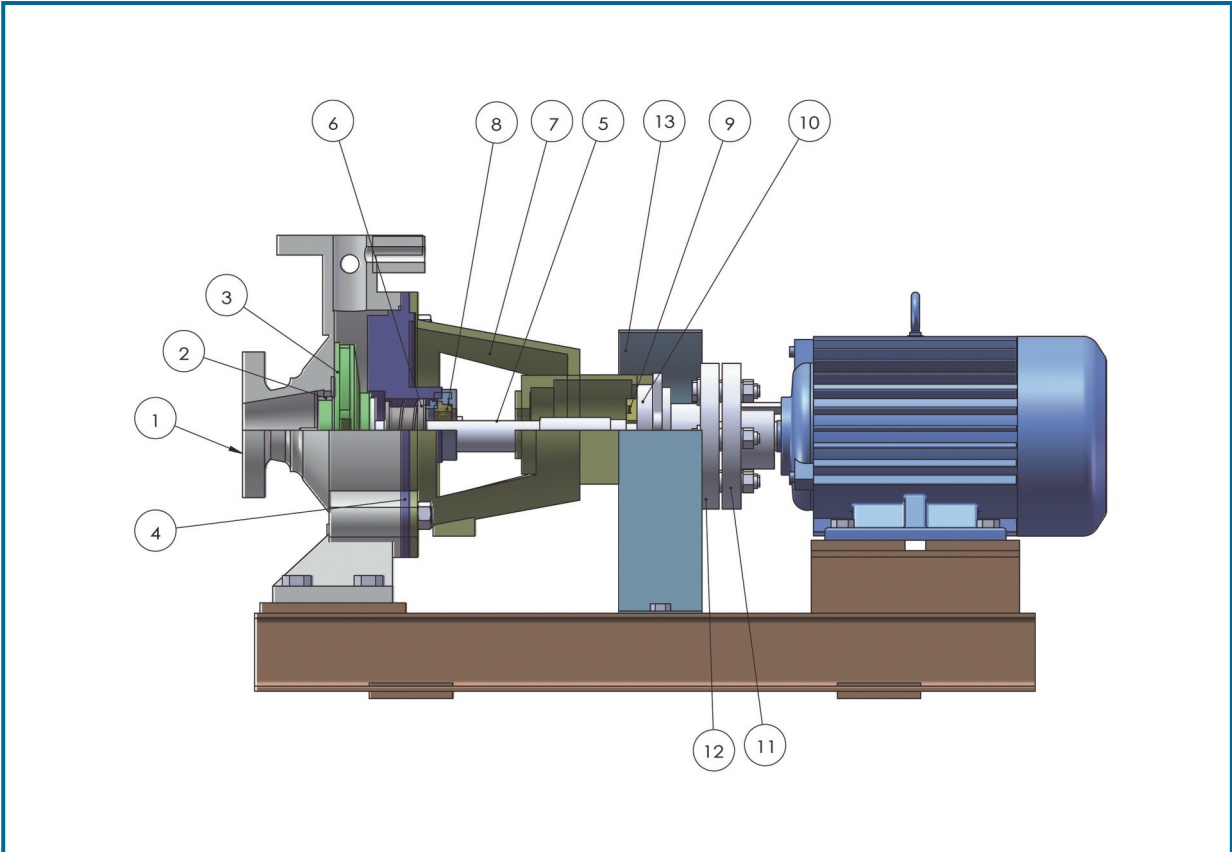
### 형식 표시 방법 Type nomenclature

## HC4032A

HC	40	32	A
시리즈 Series	흡입 구경 Suction-Diameter	토출 구경 Discharge-Diameter	임펠라 외경 등급 Impeller-Diameter-Rating

# HC (Hangook Centrifugal Pump) Series

## ■ 조립 단면도(Sectional Drawing)

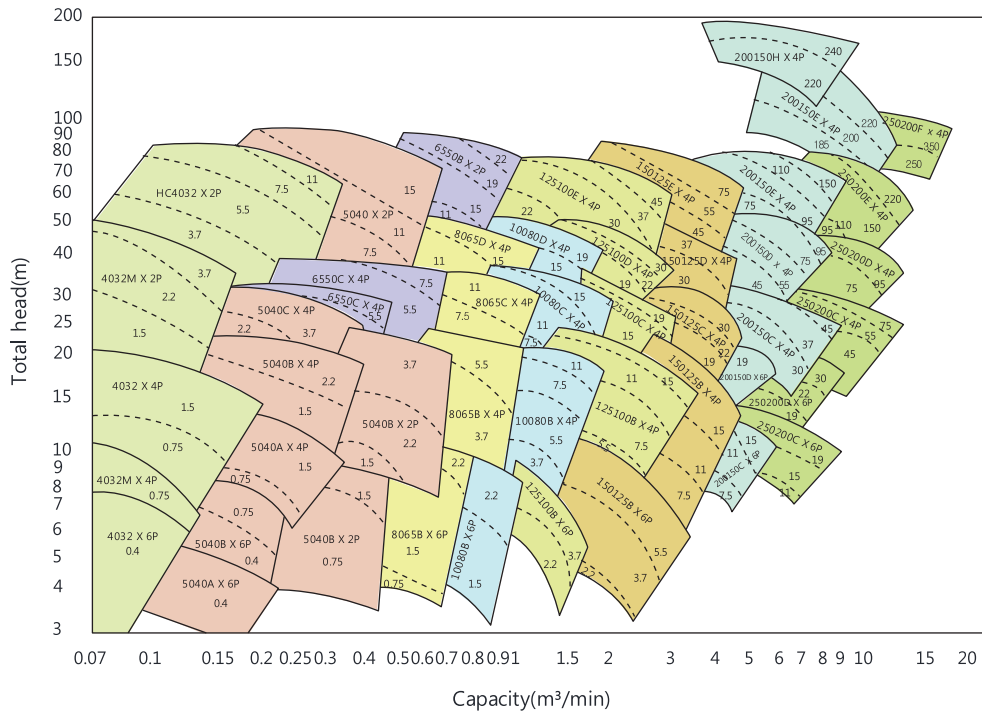


NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	케이싱 (Casing)	GC200	CAC406, SSC13, SSC14	1
2	케이싱 링 (Casing Ring)	CAC406	SSC13, SSC14	2
3	임펠러 (Impeller)	CAC502	CAC406, SSC13, SSC14	1
4	케이싱 커버 (Casing Cover)	GC200	CAC406, SSC13, SSC14	1
5	샤프트 (Shaft)	STS316	STS304	1
6	미케니컬 씰 (Mechanical Seal)	Sic / Carbon	-	1
7	베어링 하우징 (Bearing Housing)	GC200	-	1
8	볼 베어링 (Ball Bearing)	Steel	-	1
9	볼 베어링 (Ball Bearing)	Steel	-	1
10	베어링 카바 (Bearing Cover)	GC200	-	1
11	전동기 커플링 (Motor Coupling)	GC200	SM45C	1
12	펌프 커플링 (Pump Coupling)	GC200	SM45C	1
13	안전 커버 (Safety Cover)	SS400	-	1

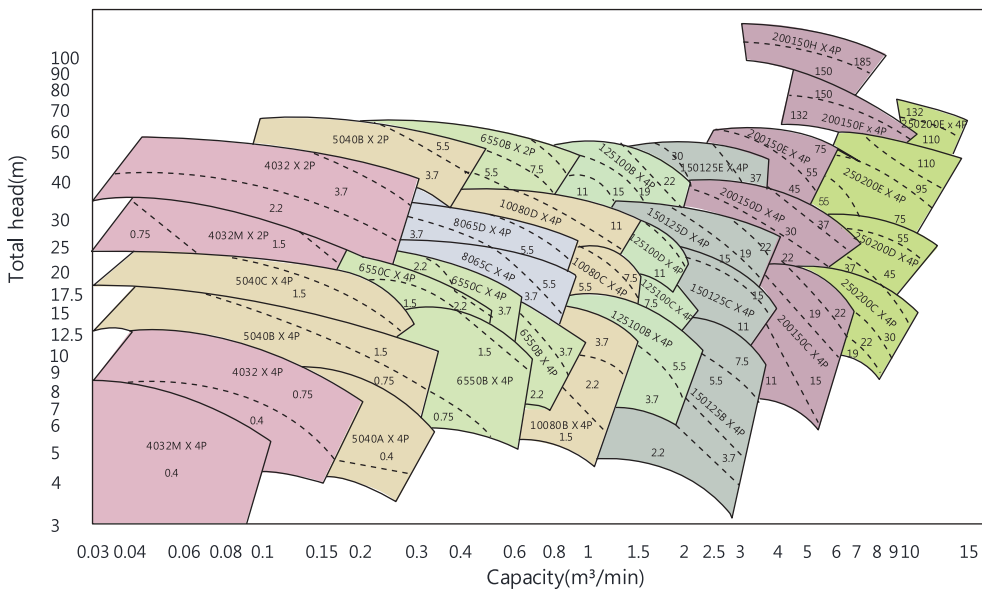
# HC (Hangook Centrifugal Pump) Series

## ■ 선정도 (Selection Chart)

### 60Hz 선정표

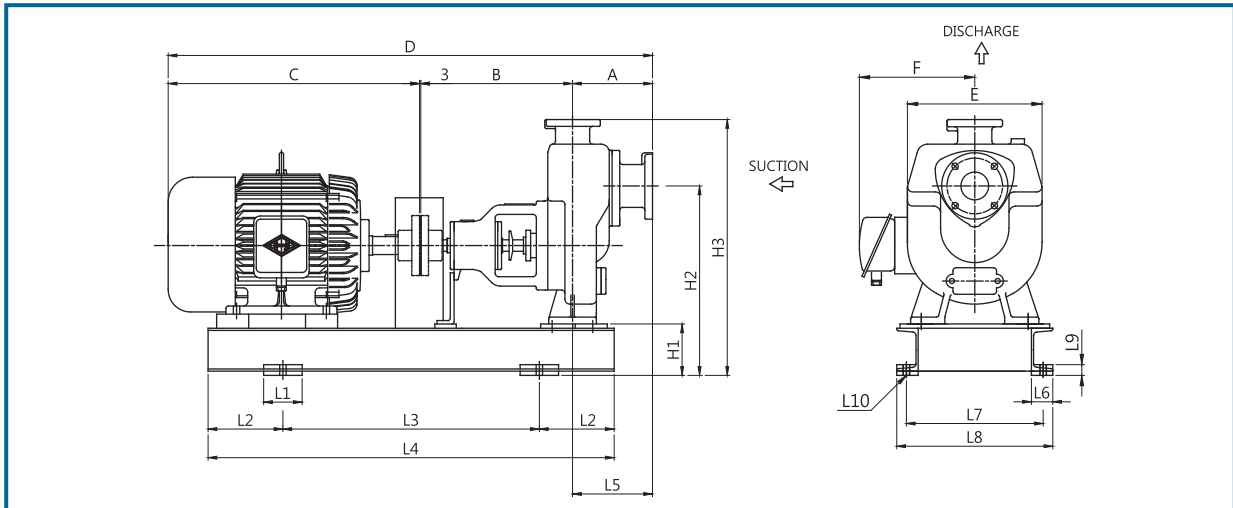


### 50Hz 선정표



# HC (Hangook Centrifugal Pump) Series

## 외형 치수도(Outline Dimension)



TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)									BED (mm)										Weight (kg)			
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total
HC4032M	71M	ø40	ø32	80	360	240	683	207	145	95	227	387	80	100	400	600	120	40	255	290	25	15	24	9	22	55
	80M			80	360	273	716	207	159	95	227	387	80	125	450	700	125	40	255	290	25	15	24	15	22	61
	90L			80	360	335	778	207	174	95	227	387	80	125	450	700	145	40	255	290	25	15	24	24	23	71
	100L			80	360	372	815	207	196	95	227	387	80	125	450	700	145	40	255	290	25	15	24	30	24	78
	112M			80	360	377	820	207	206	95	227	387	80	125	450	700	145	40	255	290	25	15	24	39	25	88
	132S			80	360	439	882	207	229	95	227	387	80	150	500	800	170	40	280	315	25	15	24	56	23	103
132M	80	360	477	920	207	229	95	227	387	80	150	500	800	170	40	280	315	25	15	24	70	23	117			
HC4032	71M	ø40	ø32	80	360	240	683	260	145	95	255	435	80	100	400	600	120	40	280	315	25	15	32	9	23	64
	80M			80	360	273	716	260	159	95	255	435	80	100	450	650	120	40	280	315	25	15	32	15	23	70
	90L			80	360	335	778	260	174	95	255	435	80	125	450	700	145	40	280	315	25	15	32	24	25	81
	100L			80	360	372	815	260	196	95	255	435	80	125	450	700	145	40	280	315	25	15	32	30	28	90
	112M			80	360	377	820	260	206	95	255	435	80	125	450	700	145	40	280	315	25	15	32	39	26	97
	132S			80	360	439	882	260	229	95	255	435	80	150	500	800	170	40	280	315	25	15	32	56	30	118
	132M			80	360	477	920	260	229	95	255	435	80	150	500	800	170	40	280	315	25	15	32	70	30	132
	160M			80	360	583	1026	260	294	120	280	460	100	175	600	950	195	50	290	335	25	19	32	109	35	176
160L	80	360	627	1070	260	294	120	280	460	100	175	600	950	195	50	290	335	25	19	32	136	35	203			
HC5040A	71M	ø50	ø40	80	360	240	683	228	145	95	227	387	80	100	400	600	120	40	255	290	25	15	26	9	22	57
	80M			80	360	273	716	228	159	95	227	387	80	125	450	700	145	40	255	290	25	15	26	15	22	63
	90L			80	360	335	778	228	174	95	227	387	80	125	450	700	145	40	255	290	25	15	26	24	23	73
	100L			80	360	372	815	228	196	95	227	387	80	125	450	700	145	40	255	290	25	15	26	30	24	80
	112M			80	360	377	820	228	206	95	227	387	80	125	450	700	145	40	255	290	25	15	26	39	25	90
	132S			80	360	439	882	228	229	95	227	387	80	150	500	800	170	40	280	315	25	15	26	56	23	105
	132M			80	360	477	920	228	229	95	227	387	80	150	500	800	170	40	280	315	25	15	26	70	23	119
HC5040B	80M	ø50	ø40	100	360	273	736	268	159	95	225	435	80	100	450	650	140	40	280	315	25	15	37	15	23	75
	90L			100	360	335	798	268	174	95	225	435	80	125	450	700	165	40	280	315	25	15	37	24	25	86
	100L			100	360	372	835	268	196	95	225	435	80	125	450	700	165	40	280	315	25	15	37	30	28	95
	112M			100	360	377	840	268	206	95	225	435	80	125	450	700	165	40	280	315	25	15	37	39	26	102
	132S			100	360	439	902	268	229	95	225	435	80	150	500	800	190	40	280	315	25	15	37	56	30	123
	132M			100	360	477	940	268	229	95	225	435	80	150	500	800	190	40	280	315	25	15	37	70	30	137
	160M			100	360	583	1046	268	294	120	280	460	100	175	600	950	215	50	290	335	25	19	37	109	35	181
	160L			100	360	627	1090	268	294	120	280	460	100	175	600	950	215	50	290	335	25	19	37	136	35	208
HC5040C	90L	ø50	ø40	100	360	335	798	340	174	95	275	500	80	125	450	700	152.5	40	315	350	25	15	57	24	27	108
	100L			100	360	372	835	340	196	95	275	500	80	125	500	750	152.5	40	315	350	25	15	57	30	29	116
	112M			100	360	377	840	340	206	95	275	500	80	125	500	750	152.5	40	315	350	25	15	57	39	29	125
	132S			100	360	439	902	340	229	95	275	500	80	150	500	800	177.5	40	315	350	25	15	57	56	30	143
	132M			100	360	477	940	340	229	95	275	500	80	150	500	800	177.5	40	315	350	25	15	57	70	30	157
	160M			100	360	583	1046	340	294	120	300	525	100	175	500	950	202.5	50	325	370	25	19	57	109	42	208
	160L			100	360	627	1090	340	294	120	300	525	100	175	600	950	202.5	50	325	370	25	19	57	136	42	235
	180M			100	360	665	1118	340	317	120	300	525	100	200	600	1000	227.5	50	350	395	25	19	57	161	39	257
HC6550A	80M	ø65	ø50	100	360	273	736	286	159	95	255	455	80	100	450	650	140	40	280	315	25	15	43	15	23	81
	90L			100	360	335	798	286	174	95	255	455	80	125	450	700	165	40	280	315	25	15	43	24	25	83
	100L			100	360	372	835	286	196	95	255	455	80	125	450	700	165	40	280	315	25	15	43	30	28	101
	112M			100	360	377	840	286	206	95	255	455	80	125	450	700	165	40	280	315	25	15	43	39	26	108

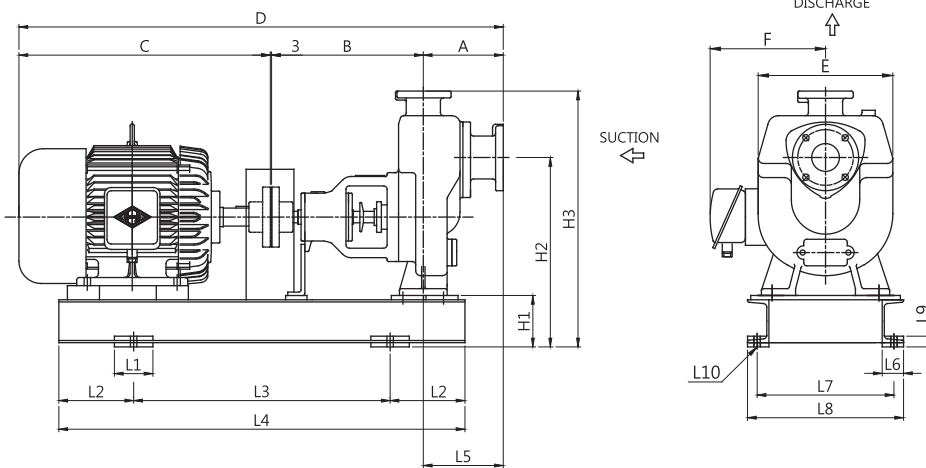
# HC (Hangook Centrifugal Pump) Series

## 외형 치수도(Outline Dimension)

TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)										BED (mm)							Weight (kg)					
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total
HC6550B	132S	ø65	ø50	100	360	439	902	286	229	95	255	455	80	150	500	800	190	40	280	315	25	15	43	56	30	129
	132M			100	360	477	940	286	229	95	255	455	80	150	500	800	190	40	280	315	25	15	43	70	30	143
	160M			100	360	583	1046	286	294	120	280	480	100	175	600	950	215	50	290	335	25	19	43	109	35	187
	160L			100	360	627	1090	286	294	120	280	480	100	175	600	950	215	50	290	335	25	19	43	136	35	214
	180M			100	360	655	1118	286	317	140	300	500	100	175	600	950	215	50	350	395	25	19	43	161	42	246
	180L			100	360	715	1178	286	312	140	300	500	100	200	600	1000	240	50	350	395	25	19	43	182	42	267
HC6550C	90L	ø65	ø50	100	360	335	798	340	174	95	275	500	80	125	450	700	152.5	40	315	350	25	15	60	24	27	111
	100L			100	360	372	835	340	196	95	275	500	80	125	500	750	152.5	40	315	350	25	15	60	30	29	119
	112M			100	360	377	840	340	206	95	275	500	80	125	500	750	152.5	40	315	350	25	15	60	39	29	128
	132S			100	360	439	902	340	229	95	275	500	80	150	500	800	177.5	40	315	350	25	15	60	56	30	146
	132M			100	360	477	940	340	229	95	275	500	80	150	500	800	177.5	40	315	350	25	15	60	70	30	160
	160M			100	360	583	1046	340	294	120	300	525	100	175	600	950	202.5	50	325	370	25	19	60	109	42	211
	160L			100	360	627	1090	340	294	120	300	525	100	175	600	950	202.5	50	325	370	25	19	60	136	42	238
	180M			100	360	655	1118	340	317	120	300	525	100	200	600	1000	227.5	50	350	395	25	19	60	161	39	260
	180L			100	360	715	1178	340	312	120	300	525	100	200	600	1000	227.5	50	350	395	25	19	60	182	39	281
HC8065B	90L	ø80	ø65	100	360	335	798	326	174	95	275	500	80	125	450	700	152.5	40	315	350	25	15	49	24	27	100
	100L			100	360	372	835	326	196	95	275	500	80	125	500	750	152.5	40	315	350	25	15	49	30	29	108
	112M			100	360	377	840	326	206	95	275	500	80	125	500	750	152.5	40	315	350	25	15	49	39	29	117
	132S			100	360	439	902	326	229	95	275	500	80	150	500	800	177.5	40	315	350	25	15	49	56	30	135
	132M			100	360	477	940	326	229	95	275	500	80	150	500	800	177.5	40	315	350	25	15	49	70	30	149
	160M			100	360	583	1046	326	294	120	300	525	100	175	600	950	202.5	50	325	370	25	19	49	109	42	200
	160L			100	360	627	1090	326	294	120	300	525	100	175	600	950	202.5	50	325	370	25	19	49	136	42	227
HC8065C	112M	ø80	ø65	100	360	487	950	364	206	120	320	570	100	175	550	900	185	50	365	410	25	19	67	39	43	149
	132S			100	360	549	1012	364	229	120	320	570	100	175	600	950	185	50	365	410	25	19	67	56	46	169
	132M			100	360	587	1050	364	229	120	320	570	100	175	600	950	185	50	365	410	25	19	67	70	46	183
	160M			100	360	693	1156	364	294	122	322	572	100	125	400	1050	140	50	365	410	25	19	67	109	50	226
	160L			100	360	737	1200	364	294	122	322	572	100	125	400	1050	140	50	365	410	25	19	67	136	50	253
HC8065D	132S	ø80	ø65	125	470	439	1037	413	229	120	345	625	100	175	600	950	210	50	395	440	25	19	73	56	48	177
	132M			125	470	477	1075	413	229	120	345	625	100	175	600	950	210	50	395	440	25	19	73	70	48	191
	160M			125	470	583	1181	413	294	120	345	625	100	125	400	1050	165	50	395	440	25	19	73	109	53	235
	160L			125	470	627	1225	413	294	120	345	625	100	125	400	1050	165	50	395	440	25	19	73	136	53	262
	180M			125	470	655	1253	413	317	120	345	625	100	150	400	1100	190	50	395	440	25	19	73	161	63	297
	180L			125	470	715	1313	413	312	120	345	625	100	150	400	1100	190	50	395	440	25	19	73	182	63	318
HC10080B	112M	ø100	ø80	125	470	377	975	349	206	120	300	550	100	175	550	900	225	50	365	410	25	19	76	39	39	154
	132S			125	470	439	1037	349	229	120	300	550	100	175	600	950	225	50	365	410	25	19	76	56	39	171
	132M			125	470	477	1075	349	229	120	300	550	100	175	600	950	225	50	365	410	25	19	76	70	39	185
	160M			125	470	583	1181	349	294	120	300	550	100	125	400	1050	175	50	365	410	25	19	76	109	43	228
HC10080B	160L	ø100	ø80	125	470	627	1225	349	294	120	300	550	100	125	400	1050	175	50	365	410	25	19	76	136	43	255
	180M			125	470	655	1253	349	317	120	300	550	100	150	400	1100	200	50	365	410	25	19	76	161	41	278
	180L			125	470	715	1313	349	312	120	300	550	100	150	400	1100	200	50	365	410	25	19	76	182	41	299
HC10080C	132S	ø100	ø80	125	470	439	1037	390	229	120	345	625	100	175	600	950	210	50	395	440	25	19	68	56	48	172
	132M			125	470	477	1075	390	229	120	345	625	100	175	600	950	210	50	395	440	25	19	68	70	48	186
	160M			125	470	583	1181	390	294	120	345	625	100	125	400	1050	170	50	395	440	25	19	68	109	53	230
	160L			125	470	627	1225	390	294	120	345	625	100	125	400	1050	170	50	395	440	25	19	68	136	53	257
	180M			125	470	655	1253	390	317	120	345	625	100	150	400	1100	190	50	395	440	25	19	68	161	63	292
	180L			125	470	715	1313	390	312	120	345	625	100	150	400	1100	190	50	395	440	25	19	68	182	63	313
	200L			125	470	810	1408	390	364	120	345	625	100	150	150	1200	185	50	395	440	25	19	68	295	58	421
HC10080D	132S	ø100	ø80	125	470	439	1037	430	229	120	370	685	100	175	600	950	210	50	395	440	25	19	87	56	49	192
	132M			125	470	477	1075	430	229	120	370	685	100	175	600	950	210	50	395	440	25	19	87	70	49	206
	160M			125	470	583	1181	430	294	120	370	685	100	125	400	1050	170	50	395	440	25	19	87	109	55	251
	160L			125	470	627	1225	430	294	120	370	685	100	125	400	1050	170	50	395	440	25	19	87	136	55	278
	180M			125	470	655	1253	430	317	120	370	685	100	150	400	1100	190	50	395	440	25	19	87	161	59	307
	180L			125	470	715	1313	430	312	120	370	685	100	150	400	1100	190	50	395	440	25	19	87	182	59	328
	200M			125	470	708	1306	430	331	120	370	685	100	125	450	1150	165	50	395	440	28	19	87	250	53	390
200L	125	470	810	1408	430	364	120	370	685	100	150	450	1200	185	50	395	440	25	19	87	295	56	438			
HC125100B	112M	ø125	ø100	125	470	377	975	373	206	120	320	600	100	175	550	900	210	50	365	410	25	19	83	39	43	165
	132S			125	470	439	1037	373	229	120	320	600	100	175	600	950	210	50	365	410	25	19	83	56	46	185
	132M			125	470	477	1075	373	229	120	320	600	100	175	600	950	210	50	365	410	25	19	83	70	46	199
	160M			125	470	583	1181	373	294	122	322	602	100	125	40											

# HC (Hangook Centrifugal Pump) Series

## 외형 치수도(Outline Dimension)



TYPE	MOTOR FRAMENO.	BORE		Pump & Motor (mm)									BED (mm)										Weight (kg)			
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total
HC125100C	180M	ø125	ø100	140	470	655	1268	427	317	120	345	625	100	150	400	1100	205	50	395	440	25	19	81	161	63	305
	180L			140	470	715	1328	427	312	120	345	625	100	150	400	1100	205	50	395	440	25	19	81	182	63	326
	200L			140	470	810	1423	427	364	120	345	625	100	150	450	1200	200	50	395	440	25	19	81	295	58	434
HC125100D	160M	ø125	ø100	140	470	583	1196	455	294	120	370	685	100	125	400	1050	185	50	395	440	25	19	102	109	55	266
	160L			140	470	627	1240	455	294	120	370	685	100	125	400	1050	185	50	395	440	25	19	102	136	55	293
	180M			140	470	655	1268	455	317	120	370	685	100	150	400	1100	205	50	395	440	25	19	102	161	59	322
	180L			140	470	715	1328	455	312	120	370	685	100	150	400	1100	205	50	395	440	25	19	102	182	59	343
	200L			140	470	810	1423	455	364	120	370	685	100	150	450	1200	200	50	395	440	25	19	102	295	56	453
	225S			140	470	825	1438	455	-	120	370	685	100	150	450	1200	200	50	435	480	25	19	102	365	67	534
HC125100E	160L	ø125	ø100	140	530	627	1300	533	294	120	400	755	100	125	450	1150	155	50	515	560	25	19	185	136	68	389
	180M			140	530	655	1328	533	317	120	400	755	100	150	450	1200	180	50	515	560	25	19	185	161	71	417
	180L			140	530	715	1388	533	312	120	400	755	100	150	450	1200	180	50	515	560	25	19	185	182	71	438
	200L			140	530	811	1484	533	364	150	430	755	130	150	500	1300	180	65	500	560	26	23	185	295	89	569
	225S			140	530	826	1499	533	-	150	430	755	130	150	500	1300	180	65	500	560	26	23	185	365	90	640
	225M			140	530	842	1515	533	449	150	430	755	130	150	500	1300	185	65	500	560	30	23	185	420	90	695
HC150125B	132M	ø150	ø125	140	470	477	1090	450	229	120	370	685	100	175	600	950	225	50	395	440	25	19	86	70	49	205
	160M			140	470	583	1196	450	294	120	370	685	100	125	400	1050	185	50	395	440	25	19	86	109	55	250
	160L			140	470	627	1240	450	294	120	370	685	100	125	400	1050	185	50	395	440	25	19	86	136	55	277
	180M			140	470	655	1268	450	317	120	370	685	100	150	400	1100	205	50	395	440	25	19	86	161	59	306
	180L			140	470	715	1328	450	312	120	370	685	100	150	400	1100	205	50	395	440	25	19	86	182	59	327
HC150125C	160M	ø150	ø125	140	470	583	1196	475	294	120	370	725	100	125	400	1050	185	50	395	440	25	19	88	109	55	252
	160L			140	470	627	1240	475	294	120	370	725	100	125	400	1050	185	50	395	440	25	19	88	136	55	279
	180M			140	470	655	1268	475	317	120	370	725	100	150	400	1100	205	50	395	440	25	19	88	161	59	308
	180L			140	470	715	1328	475	312	120	370	725	100	150	400	1100	205	50	395	440	25	19	88	182	59	329
	200L			140	470	810	1423	475	364	120	370	725	100	150	450	1200	200	50	395	440	25	19	88	295	56	439
HC150125D	160L	ø150	ø125	140	530	627	1300	500	294	120	400	755	100	125	450	1150	155	50	515	560	25	19	182	136	68	386
	180M			140	530	655	1328	500	317	120	400	755	100	150	450	1200	180	50	515	560	25	19	182	161	71	414
	180L			140	530	715	1388	500	312	120	400	755	100	150	450	1200	180	50	515	560	25	19	182	182	71	435
	200L			140	530	811	1484	500	364	150	430	785	130	150	500	1300	180	65	515	560	26	23	182	295	89	566
	225S			140	530	826	1499	500	-	150	430	785	130	150	500	1300	180	65	515	560	26	23	182	365	90	637
HC150125E	200L	ø150	ø125	140	530	811	1484	576	364	150	465	865	130	150	500	1300	180	65	500	560	26	23	213	295	95	603
	225S			140	530	826	1499	576	-	150	465	865	130	150	500	1300	180	65	500	560	26	23	213	365	96	674
	250			140	530	901	1574	576	-	150	465	865	130	125	550	1350	155	65	500	560	26	23	213	510	96	819
	250M			140	530	941	1614	576	-	150	465	865	130	125	550	1350	155	65	500	560	26	23	213	550	96	859
	280S			140	530	1061	1734	576	-	150	465	865	130	200	550	1500	230	65	540	600	26	23	213	690	108	1011
	280M			140	530	1116	1789	576	-	150	465	865	130	200	550	1500	230	65	540	600	26	23	213	810	108	1131
HC200150C	160M	ø200	ø150	160	530	583	1276	513	294	120	400	775	100	125	450	1150	175	50	515	560	25	19	208	109	71	388
	160L			160	530	627	1320	513	294	120	400	775	100	125	450	1150	175	50	515	560	25	19	208	136	71	415
	180M			160	530	655	1348	513	317	120	400	775	100	150	450	1200	200	50	515	560	25	19	208	161	73	442
	180L			160	530	715	1408	513	312	120	400	775	100	150	450	1200	200	50	515	560	25	19	208	182	73	463
	200L			160	530	811	1504	513	364	150	430	805	130	150	500	1300	200	65	500	560	26	23	208	295	92	595
	225S			160	530	826	1519	513	-	150	430	805	130	150	500	1300	200	65	500	560	26	23	208	365	90	663
	250S			160	530	901	1594	513	-	150	430	805	130	125	550	1350	175	65	500	560	26	23	208	510	97	815
	250M			160	530	941	1634	513	-	150	430	805	130	125	550	1350	175	65	500	560	26	23	208	550	97	855

# HC (Hangook Centrifugal Pump) Series

## 외형 치수도(Outline Dimension)

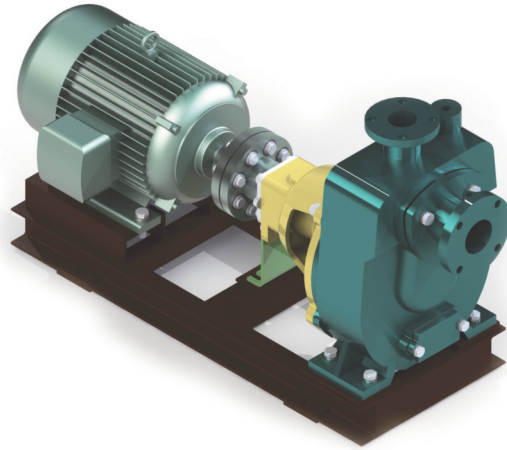
TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)										BED (mm)										Weight (kg)			
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total	
HC200150D	180M	ø200	ø150	160	530	655	1348	529	317	120	435	835	100	150	450	1200	195	50	565	610	25	19	286	161	79	526	
	180L			160	530	715	1408	529	312	120	435	835	100	150	450	1200	195	50	565	610	25	19	286	182	79	547	
	200L			160	530	811	1504	529	364	150	465	865	130	150	500	1300	195	65	550	610	26	23	286	295	99	680	
	225S			160	530	826	1519	529	-	150	465	865	130	150	500	1300	195	65	550	610	26	23	286	365	100	751	
	250S			160	530	901	1594	529	-	150	465	865	130	125	550	1350	170	65	550	610	26	23	286	510	100	896	
250M	160	530	941	1634	529	-	150	465	865	130	125	550	1350	170	65	550	610	26	23	286	550	100	936				
HC200150E	225S	ø200	ø150	160	670	826	1659	615	-	150	465	915	130	175	550	1450	220	65	550	610	26	23	300	365	106	771	
	250S			160	670	901	1734	615	-	150	465	915	130	200	550	1500	245	65	550	610	26	23	300	510	110	920	
	250M			160	670	941	1774	615	-	150	465	915	130	200	550	1500	245	65	550	610	26	23	300	550	110	960	
	280S			160	670	1061	1894	615	-	180	495	945	150	175	650	1650	220	75	570	640	30	23	300	690	152	1142	
	280M			160	670	1116	1949	615	-	180	495	945	150	175	650	1650	220	75	570	640	30	23	300	810	152	1262	
280L	160	670	1266	2099	615	-	180	495	945	150	200	650	1700	245	75	570	640	30	23	300	1090	159	1549				
HC200150F	225S	ø200	ø150	180	714	818	1715	674	446	155	510	1010	130	200	550	1500	260	65	590	650	26	23	450	345	110	905	
	250S			180	714	902	1799	674	477	155	510	1010	130	175	600	1550	235	65	590	650	26	23	450	490	115	1055	
	250M			180	714	940	1837	674	477	155	510	1010	130	175	600	1550	235	65	590	650	26	23	450	550	115	1115	
	280S			180	714	1018	1915	674	523	180	535	1035	150	200	650	1700	260	75	580	650	30	23	450	690	200	1340	
	280M			180	714	1069	1966	674	523	180	535	1035	150	200	650	1700	260	75	580	650	30	23	450	800	200	1450	
280L	180	714	1220	2117	674	523	230	585	1085	160	200	700	1800	260	80	570	650	32	27	450	950	240	1640				
HC200150H	315	ø200	ø150	225	850	2242	3320	858	945	230	675	1295	200	360	810	3150	440	80	1120	1200	20	33	856	2360	623	3839	
HC250200C	180M	ø250	ø200	200	670	656	1529	570	317	150	465	890	130	125	550	1350	190	65	570	630	26	23	340	161	108	609	
	180L			200	670	716	1589	570	312	150	465	890	130	125	550	1350	190	65	570	630	26	23	340	182	108	630	
	200L			200	670	811	1684	570	364	150	465	890	130	175	550	1450	240	65	570	630	26	23	340	295	110	745	
	225S			200	670	826	1699	570	-	150	465	890	130	175	550	1450	240	65	570	630	26	23	340	365	111	816	
	250S			200	670	901	1774	570	-	150	465	890	130	175	600	1550	240	65	570	630	26	23	340	510	113	963	
	250M			200	670	941	1814	570	-	150	465	890	130	175	600	1550	240	65	570	630	26	23	340	550	113	1003	
	280S			200	670	1061	1934	570	-	180	495	920	150	175	650	1650	240	75	560	630	30	23	340	690	151	1181	
	280M			200	670	1116	1989	570	-	180	495	920	150	175	650	1650	240	75	560	630	30	23	340	810	151	1301	
HC250200D	200L	ø250	ø200	200	670	811	1684	600	364	150	500	950	130	175	550	1450	240	65	570	630	26	23	415	295	114	824	
	225S			200	670	826	1699	600	-	150	500	950	130	175	550	1450	240	65	570	630	26	23	415	365	115	895	
	250S			200	670	901	1774	600	-	150	500	950	130	175	600	1550	240	65	570	630	26	23	415	510	121	1046	
	250M			200	670	941	1814	600	-	150	500	950	130	175	600	1550	240	65	570	630	26	23	415	550	121	1086	
	280S			200	670	1061	1934	600	-	180	530	980	150	175	650	1650	240	75	560	630	30	23	415	690	155	1260	
	280M			200	670	1116	1989	600	-	180	530	980	150	175	650	1650	240	75	560	630	30	23	415	810	155	1380	
280L	200	670	1266	2139	600	-	180	530	980	150	225	650	1750	290	75	560	630	30	23	415	1090	162	1667				
HC250200E	225S	ø250	ø200	200	720	826	1749	667	-	150	520	1020	130	200	550	1500	265	65	620	680	30	23	470	365	121	956	
	250S			200	720	901	1824	667	-	180	550	1050	150	200	600	1600	265	75	610	680	30	23	470	510	160	1140	
	250M			200	720	941	1864	667	-	180	550	1050	150	200	600	1600	265	75	610	680	30	23	470	550	160	1180	
	280S			200	720	1061	1984	667	-	180	550	1050	150	200	650	1700	265	75	610	680	30	23	470	690	167	1327	
	280M			200	720	1116	2039	667	-	180	550	1050	150	200	650	1700	265	75	610	680	30	23	470	810	167	1447	
280L	200	720	1266	2189	667	-	230	600	110	160	200	700	1800	265	80	600	680	32	27	470	1090	208	1768				
HC250200F	280L	ø250	ø200	200	735	1220	2158	830	523	230	655	1285	160	225	700	1850	280	80	770	850	32	27	600	950	245	1795	

# HS (Hangook Self-priming Pump) Series

## ■ 제품일반(General)

자흡식 펌프

Self-priming Pump : Centrifugal Type



### 설계 및 운전 특징

### Design and operation features

1. 용도 : 청수펌프, 발라스트펌프, 해수펌프, 오수펌프, 온수순환펌프, 빌지 펌프  
 잡용 : 음용수 펌프, 냉각수펌프, 생활하수배출펌프
2. 사용압력 : 10 kg/cm<sup>2</sup> 까지
3. 베어링 구조 : 볼 베어링
4. 축씰링: 기계식 씰
5. 펌핑온도 : 최대 90℃
6. 플랜지 : KS B 1511 10K, RF/FF
7. 회전수 : 900/1200/1800/3600 RPM
8. 취급액 : 청수, 해수 외
9. 표준용량 : 2~300 m<sup>3</sup>/hr

1. Application : Fresh water pump, Ballast pump, Sea water pump, Sewage pump  
 Hot water-circulating pump, Bilge pump, General service pump, Cooling-water pump, Sewage pump
2. Pressure : Up to 10 kg/cm<sup>2</sup>
3. Bearings Structure : Ball Bearing
4. Shaft sealing : Mechanical Sealing
5. Pumping Temperature : Maximum 90℃
6. Flanges : KS B 1511 10K, RF/FF
7. Number of revolutions : 900/1200/1800/3600 RPM
8. Handling fluid : Fresh water, Sea water etc
9. Standard Capacity : 2~300 m<sup>3</sup>/hr

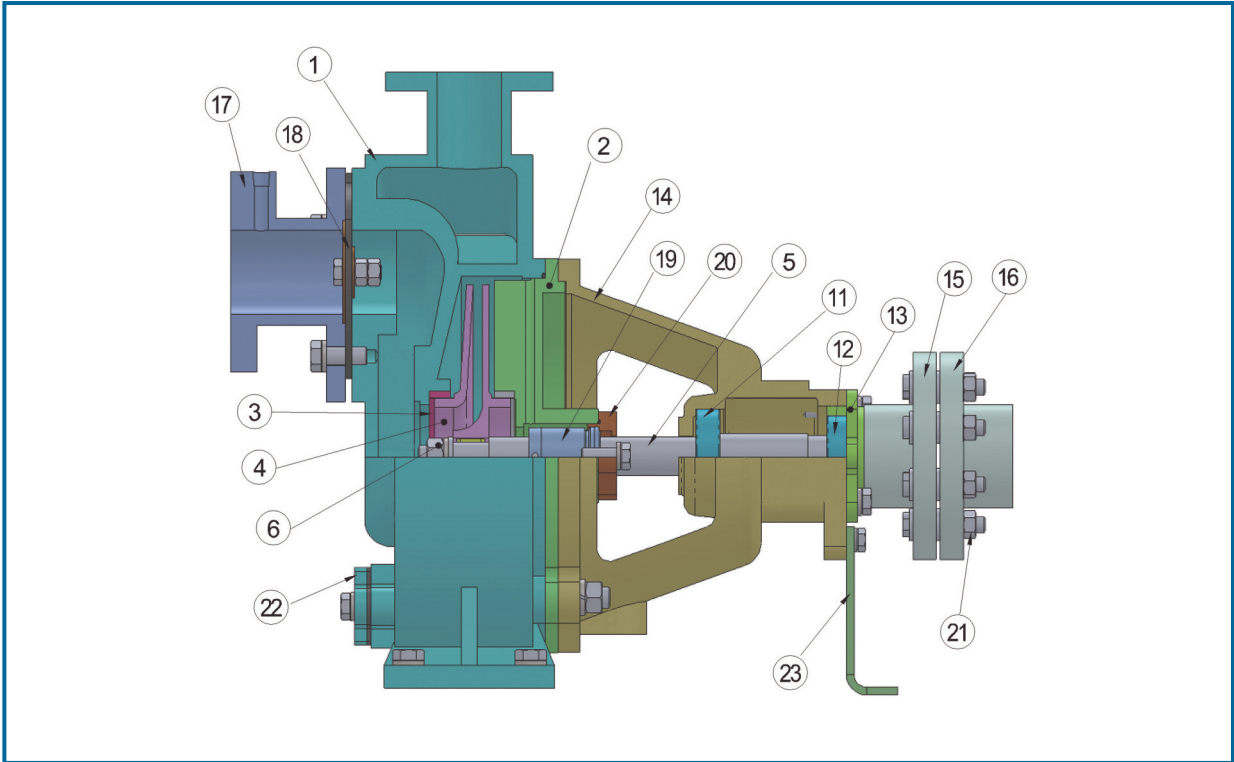
### 형식 표시 방법 Type nomenclature

#### HS4032A

HS	40	32	A
시리즈 Series	흡입 구경 Suction-Diameter	토출 구경 Discharge-Diameter	임펠러 외경 등급 Impeller-Diameter-Rating

# HS (Hangook Self-priming Pump) Series

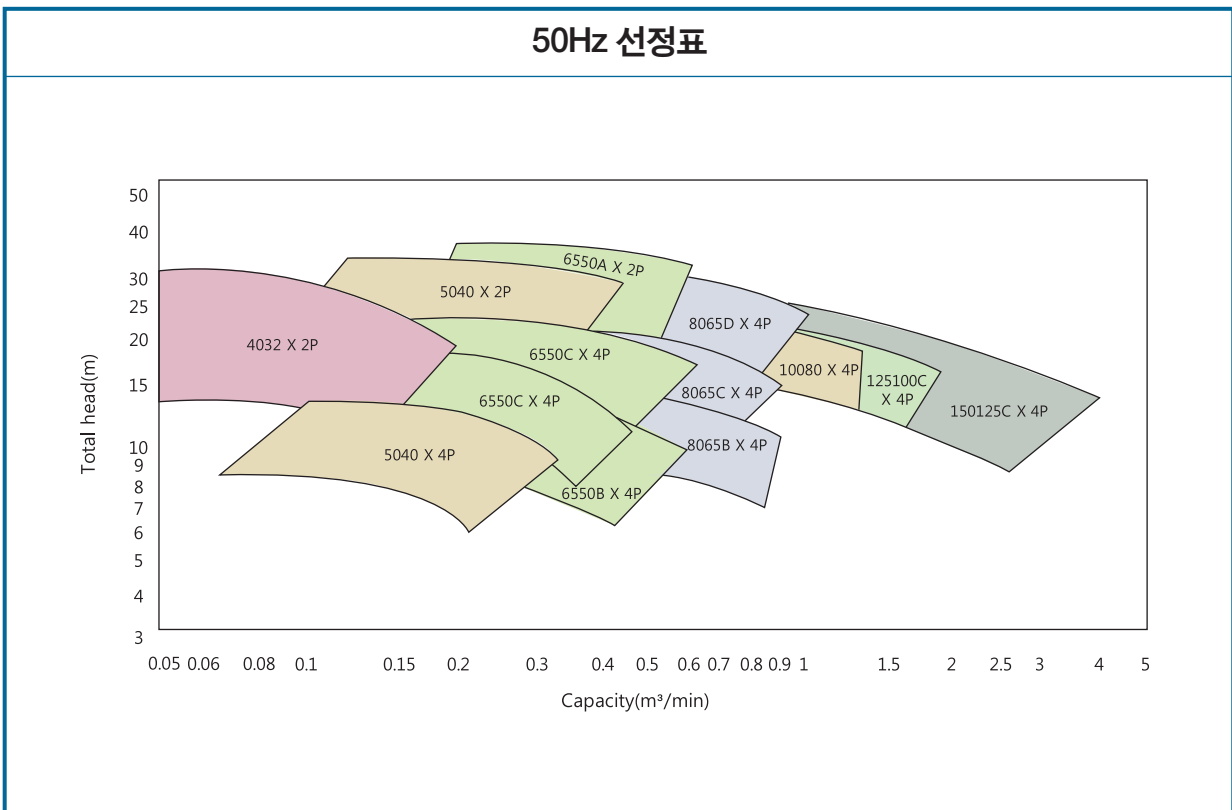
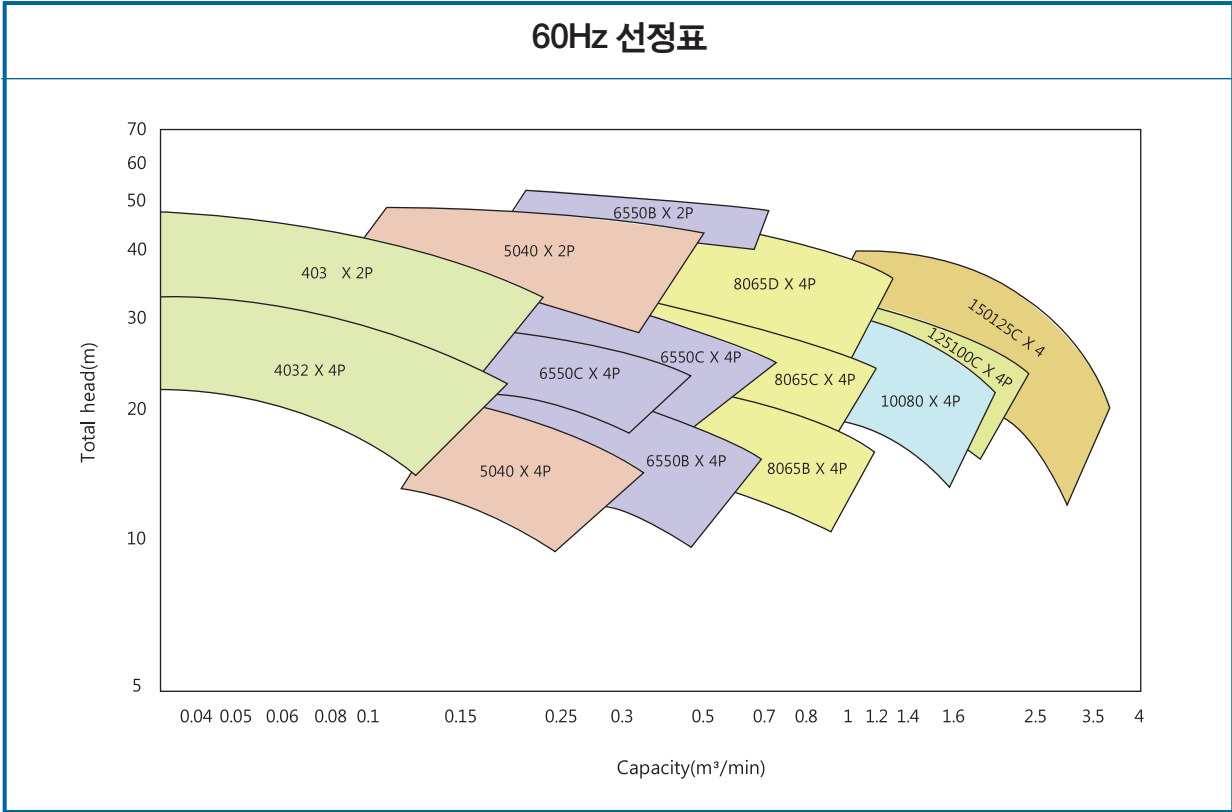
## 조립 단면도(Sectional Drawing)



NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	케이싱 (Casing)	GC200	CAC406, SSC13, SSC14	1
2	케이싱 커버 (Casing Cover)	GC200	CAC406, SSC13, SSC14	1
3	케이싱 링 (Casing Ring)	CAC406	SSC13, SSC14	2
4	임펠러 (Impeller)	CAC502	CAC406, SSC13, SSC14	1
5	샤프트 (Shaft)	STS316	STS304	1
6	너트,와셔 (Nut, Washer) Impeller	STS304	-	1
11	볼 베어링 (Ball Bearing)	Steel	-	1
12	볼 베어링 (Ball Bearing)	Steel	-	1
13	베어링 카바 (Bearing Cover)	GC200	-	1
14	베어링 하우스 (Bearing Housing)	GC200	-	1
15	펌프 커플링 (Pump Coupling)	GC200	SM45C	1
16	전동기 커플링 (Motor Coupling)	GC200	SM45C	1
17	흡입 카바 (Suction Cover)	GC200	CAC406, SSC13, SSC14	1
18	체크 밸브 (Check Valve)	Rubber	-	1
19	미케니컬 씰 (Mechanical Seal)	Sic / Carbon	-	1
20	실 커버 (Seal Cover)	CAC406	SSC13, SSC14, SS400	1
21	커플링 볼트 및 너트(COUPLING BOLT&NUT)	SS400	-	1
22	드레인 카바 (Drain Cover)	GC200	CAC406, SSC13, SSC14	1
23	지지대 (Support)	SS400	-	1

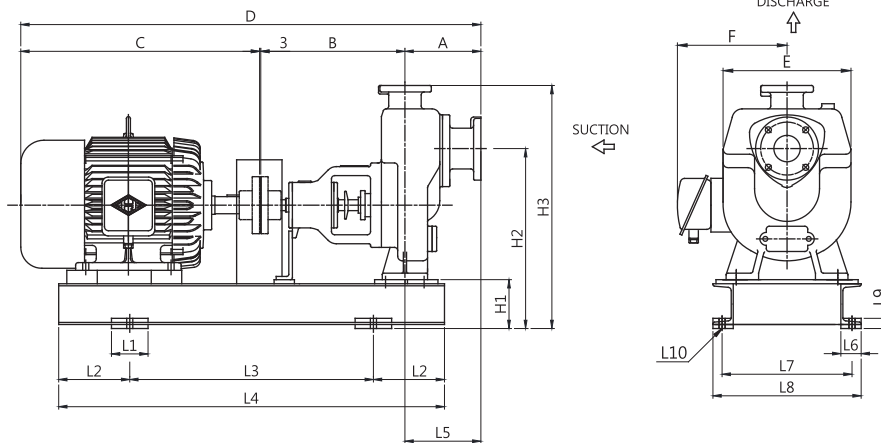
# HS (Hangook Self-priming Pump) Series

## ■ 선정도 (Selection Chart)



# HS (Hangook Self-priming Pump) Series

## 외형 치수도(Outline Dimension)



TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)								BED (mm)										Weight (kg)						
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total		
HS4032	80M	ø40	ø30	150	335	293	781	207	159	95	327	427	80	125	450	700	215	40	255	290	25	15	29	15	24	68		
	90L					355	843		174					125	450	700	215							24	28	84		
	100L					877	880		196					125	450	700	215							30	28	87		
	112M					882	885		206					125	450	700	215							39	28	96		
	132S					944	947		229					150	500	800	240							56	32	117		
	132M					982	985		229					150	500	800	240							70	32	131		
HS5040	80M	ø50	ø40	178	355	273	809	265	159	95	365	523	80	100	450	650	248	40	280	315	25	15	47	15	28	90		
	90L					868	871		174					125	450	700	248							24	28	99		
	100L					905	908		196					125	450	700	248							30	28	105		
	112M					910	913		206					125	450	700	248							39	28	114		
	132S					972	975		229					150	500	800	268							56	35	138		
	132M					1010	1013		229					150	500	800	268							70	35	152		
	160M					1116	1119		294					175	500	950	293							109	41	197		
	160L					1160	1163		294					175	600	950	293							136	41	224		
	180M					1188	1191		317					175	600	950	293							161	42	250		
HS6550B	90L	ø65	ø50	188	355	335	881	262	174	95	365	523	80	125	450	700	258	40	280	315	25	15	48	24	28	100		
	100L					915	918		196					125	450	700	258							30	28	106		
	112M					920	923		206					125	450	700	258							39	28	115		
	132S					982	985		229					150	500	800	283							56	35	139		
	132M					1020	1023		229					150	500	800	283							70	35	153		
	160M					1126	1129		294					175	600	950	308							109	41	198		
	160L					1170	1173		294					175	600	950	308							136	41	225		
	180M					1198	1201		317					175	600	950	308							161	41	250		
	180L					1258	1261		312					200	600	1000	333							182	45	275		
HS6550C	90L	ø65	ø50	188	355	335	881	313	174	95	415	570	80	125	450	700	243	40	315	350	25	15	63	24	28	115		
	100L					915	918		196					125	500	750	243							30	32	125		
	112M					920	923		206					125	500	750	243							39	32	134		
	132S					982	985		229					150	500	800	268							56	35	154		
	132M					1020	1023		229					150	500	800	268							70	35	168		
	160M					1126	1129		294					175	600	950	293							109	41	213		
	160L					1170	1173		294					175	600	950	293							136	41	240		
	180M					1198	1201		317					200	600	1000	318							161	45	269		
	180L					1258	1261		312					200	600	1000	318							182	45	290		
HS8065B	100L	ø80	ø65	230	365	375	970	276	196	95	385	570	80	125	500	750	285	40	315	350	25	15	63	30	32	125		
	112M					975	975		206					125	500	750	285							39	32	134		
HS8065C	112M	ø80	ø65	205	470	377	1055	337	206	120	470	670	100	175	550	900	295	50	365	410	28	19	93	39	38	170		
	132S					1114	1117		229						600	950								56	41	190		
	132M					1152	1155		229						125	400								1050	240	70	41	204
	160M					1258	1261		294						125	400								1050	240	109	53	255
HS8065D	160M	ø80	ø65	215	470	583	1271	384	294	120	470	670	100	125	400	1050	255	50	395	440	28	19	103	109	48	260		
	160L					1312	1315		294							150	1100							280	136	48	287	
	180M					1340	1343		317							150	1100							280	161	51	315	
	180L					1400	1403		312							125	450							1150	255	182	51	336
	200L					810	1498		364							125	450							1150	255	295	53	451

# HS (Hangook Self-priming Pump) Series

## 외형 치수도(Outline Dimension)

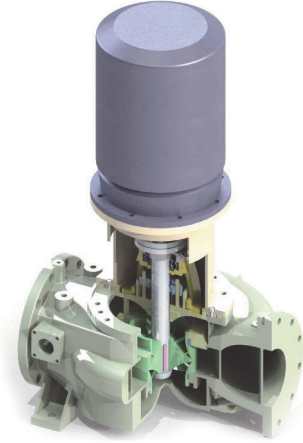
TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)										BED (mm)										Weight (kg)			
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total	
HS10080	132S	ø100	ø80	225	470	439	1137	368	229	120	495	700	100	175	600	950	310	50	395	440	28	19	96	56	42	194	
	132M					477	1175		229															70	40	206	
	160M					1278	1281		294															109	48	253	
	160L					1322	1325		294															136	48	280	
	180M					1350	1353		317															161	51	308	
	180L					1410	1413		312															182	51	329	
	200L					1505	1508		364															295	53	444	
HS125100C	160M	ø125	ø100	283	470	583	1339	353	294	120	520	720	100	125	400	1050	318	50	395	440	28	19	146	109	49	304	
	160L					1380	1383		136															49	331		
	180M					1408	1411		317															161	51	358	
	180L					1468	1471		312															182	51	379	
	200L					1563	1566		364															295	53	494	
HS150125C	160M	ø150	ø125	325	470	583	1381	400	294	570	355	790	100	125	400	1050	365	50	395	440	28	19	166	109	49	324	
	160L					1422	1425		136															49	351		
	180M					1450	1453		317															161	51	378	
	180L					1510	1513		312															182	51	399	
	200L					1605	1608		364															295	53	514	
	225S					825	1623		-															365	56	587	
	225L					150	450		1200															390			

# HLP (Hangook In-Line Pump) Series

## ■ 제품일반(General)

인라인 펌프

In-Line Pump : Centrifugal Type



### 설계 및 운전 특징

### Design and operation features

1. 용도 : 청수펌프, 발라스트펌프, 해수펌프, 냉각수펌프, 산업설비 액체순환 및 가압용
2. 사용압력 : 16 또는 25 kg/cm<sup>2</sup> 까지
3. 베어링 구조 : 볼 베어링
4. 축씰링 : 기계식 씰
5. 펌핑온도 : 최대 140℃
6. 플랜지 : KS B 1511 16K, RF/FF
7. 회전수 : 900/1200/1800/3600 RPM
8. 취급액 : 청수, 해수 외
9. 표준용량 : 2~1000 m<sup>3</sup>/hr

1. Application : Fresh water pump, Ballast pump, Sea water pump, Cooling-water pump  
Industrial pump for Circultion & pressurizing
2. Pressure : Up to 16 or 25 kg/cm<sup>2</sup>
3. Bearings Structure : Ball Bearing
4. Shaft sealing : Mechanical Sealing
5. Pumping Temperature : Maximum 140℃
6. Flanges : KS B 1511 16K, RF/FF
7. Number of revolutions : 900/1200/1800/3600 RPM
8. Handling fluid : Fresh water, Sea water etc
9. Standard Capacity : 2~1000 m<sup>3</sup>/hr

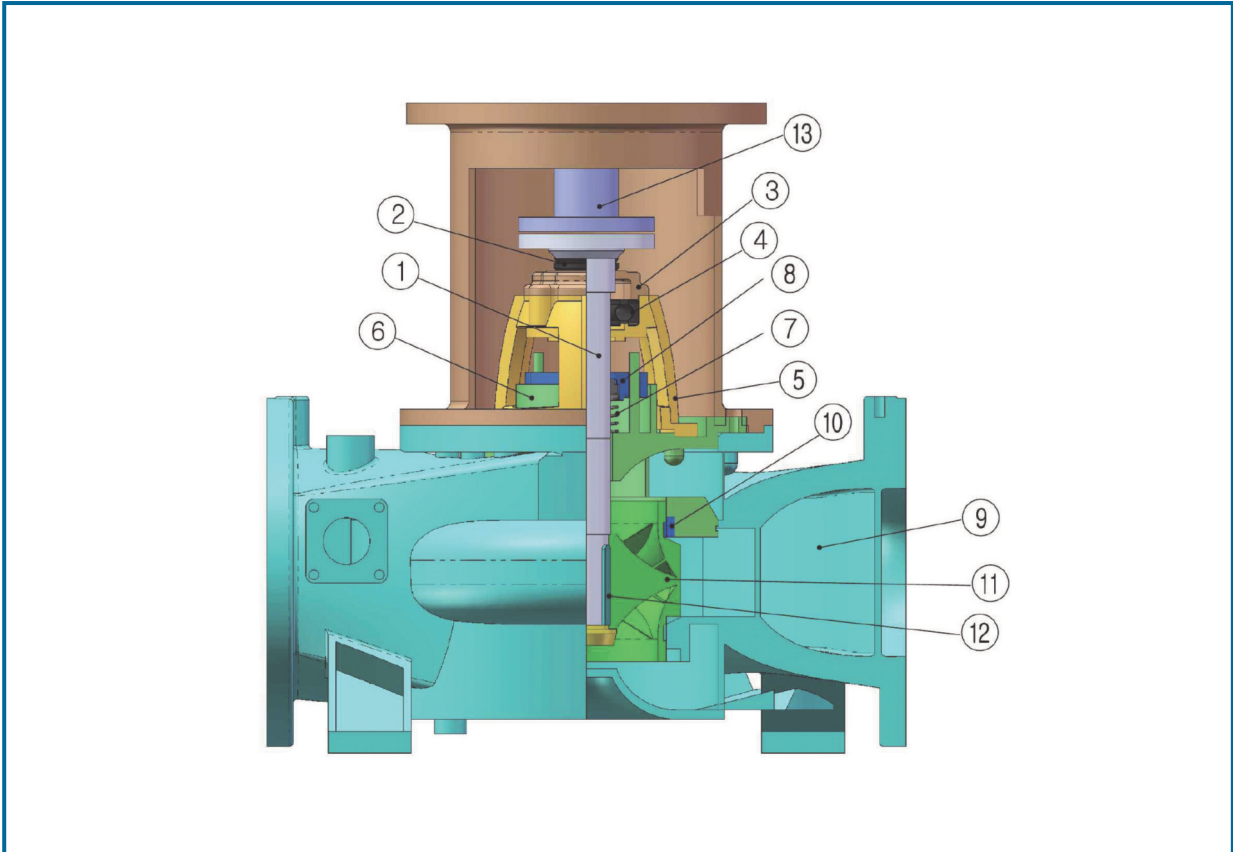
### 형식 표시 방법 Type nomenclature

## HLP40A

HLP	40	A
시리즈 Series	흡입 구경 Suction-Diameter	임펠라 외경 등급 Impeller-Diameter-Rating

# HLP (Hangook In-Line Pump) Series

## ■ 조립 단면도(Sectional Drawing)

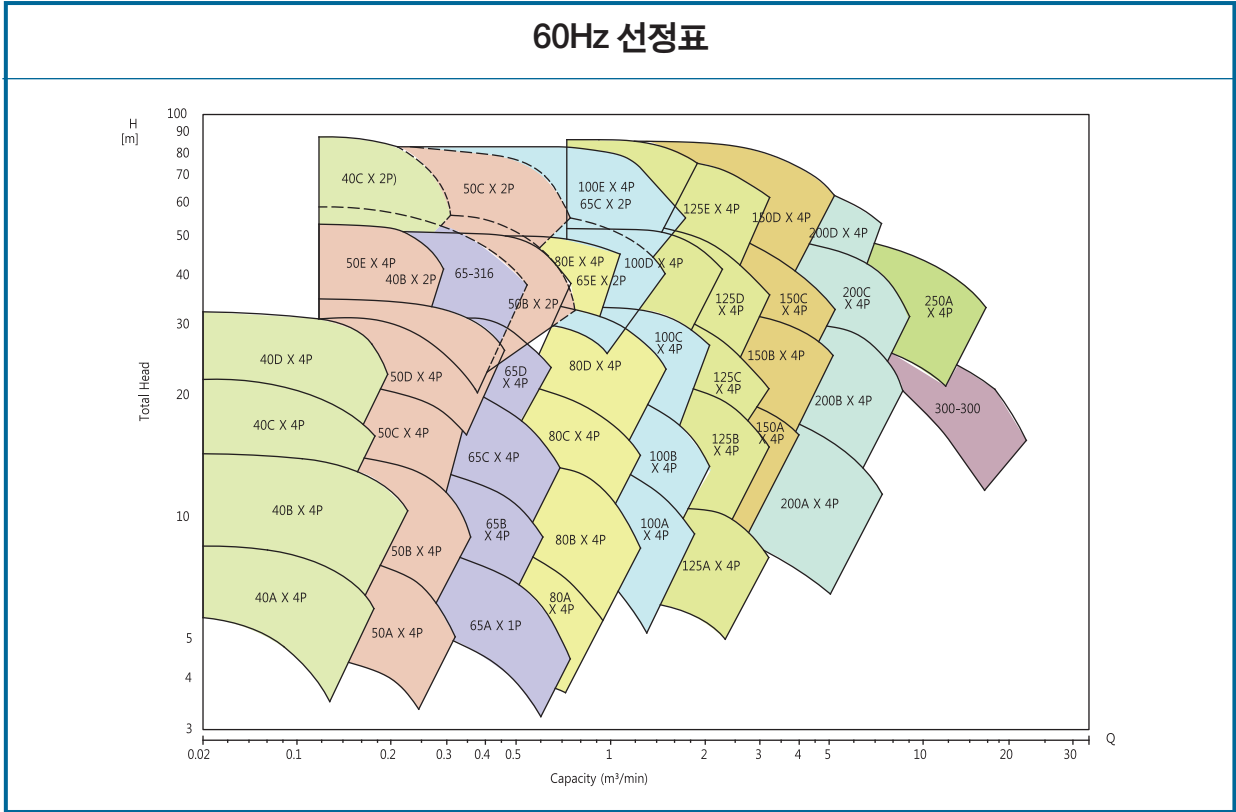


NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	샤프트 (Shaft)	STS316	STS304	1
2	루버 패킹 (Rubber Packing)	Rubber	-	1
3	베어링 카바 (Bearing Cover)	GC200	-	1
4	볼 베어링 (Ball Bearing)	Steel	-	1
5	하우징 (Bearing Housing)	GC200	-	1
6	케이싱 커버 (Casing Cover)	GC200	CAC406, SSC13, SSC14	1
7	미케니컬 씰 (Mechanical Seal)	Sic / Carbon	-	1
8	실 커버 (Seal Cover)	CAC406	SSC13, SSC14, SS400	1
9	케이싱 (Casing)	GC200	CAC406, SSC13, SSC14	1
10	케이싱 카바 부시 (Casing Cover Bush)	-	-	1
11	임펠러 (Impeller)	CAC502	CAC406, SSC13, SSC14	1
12	키 (Key)	STS316	-	1
13	전동기 커플링 (Motor Coupling)	GC200	SM45C	1

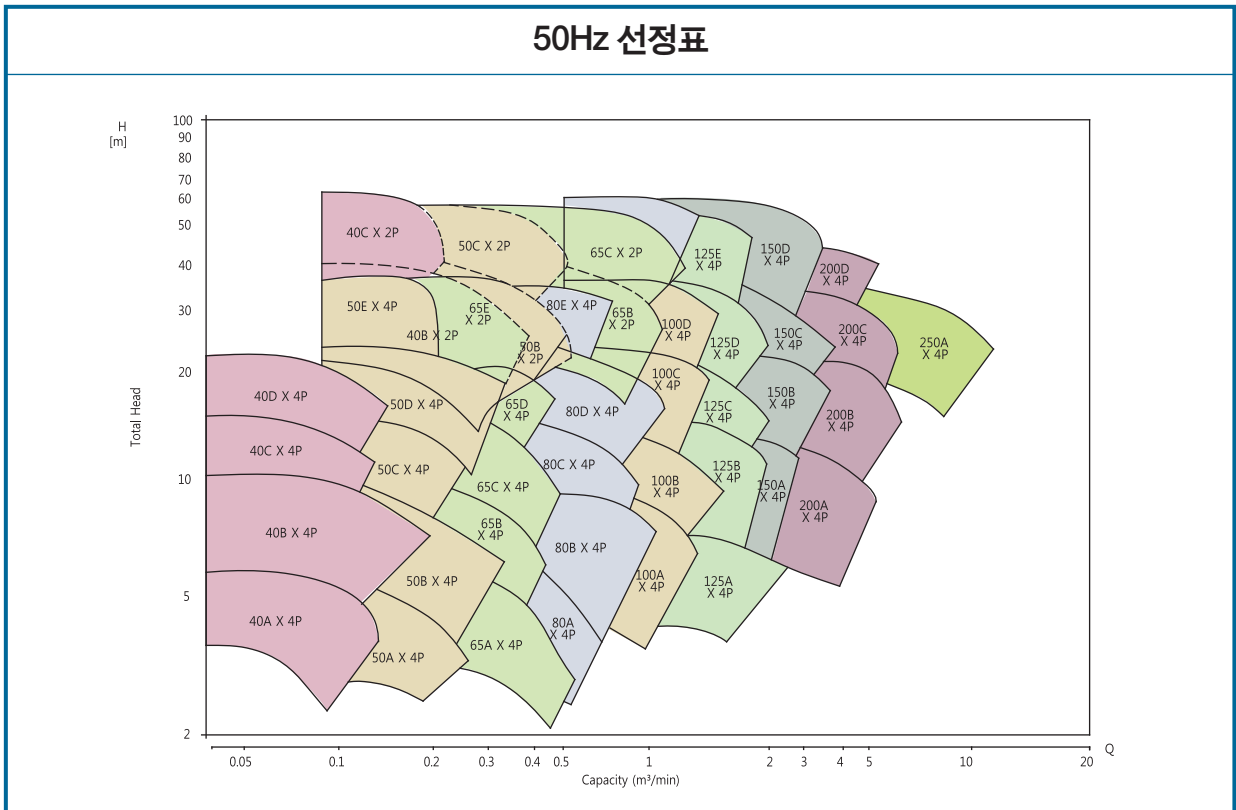
# HLP (Hangook In-Line Pump) Series

## ■ 선정도 (Selection Chart)

### 60Hz 선정표

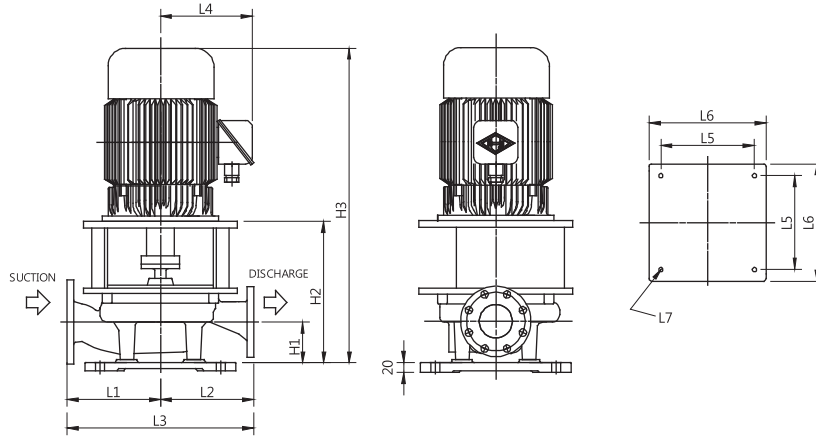


### 50Hz 선정표



# HLP (Hangook In-Line Pump) Series

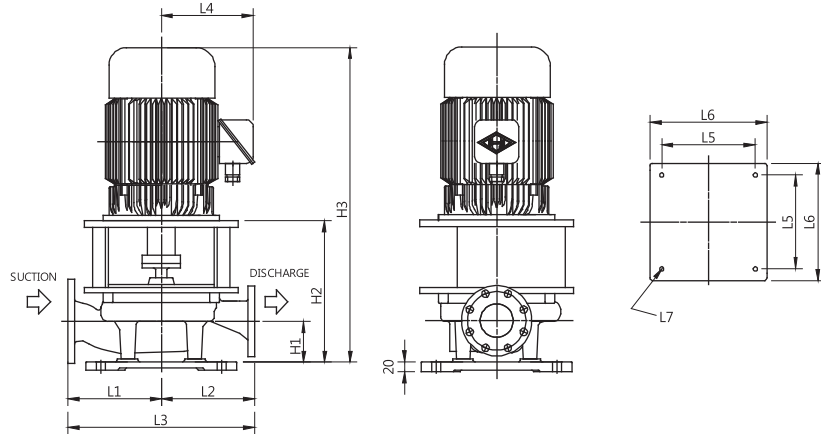
## 외형 치수도(Outline Dimension)



TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)						BED (mm)			Weight (kg)(kg)	
		SUC.	DIS.	H1	H2	H2	L1	L2	L3	L4	L5	L6		L7
HLP40A	80	ø40	ø40	85	85	470	175	175	350	158	200	250	15	37
HLP40B	80			85	85	470	195	195	390	158				42
	90L			85	85	491	195	195	390	172				50
HLP40C	80			85	85	470	195	195	390	158				44
	90L			85	85	491	195	195	390	158				53
HLP40D	100L			110	110	593	237	237	474	180				83
	112M	110	110	593	237	237	474	205	90					
HLP50A	80	ø50	ø50	95	95	480	185	185	370	158	200	250	15	38
HLP50B	90L			95	95	501	220	220	440	172				54
	90L			95	95	506	220	220	440	172				59
HLP50C	100L			95	95	583	220	220	440	180				67
	112M			105	105	593	237	237	474	205				95
HLP50D	132S			105	105	735	237	237	474	220				152
	132S	105	105	748	262	262	524	220	172					
HLP65A	80	ø65	ø65	115	115	500	220	220	440	158	200	250	15	49
	90L			115	115	521	220	220	440	172				58
HLP65B	90L			105	105	511	237	237	474	172				63
	100L			105	105	588	237	237	474	180				66
HLP65C	100L			105	105	593	237	237	474	180				73
	112M			105	105	593	237	237	474	205				85
HLP65D	112M			115	115	603	262	262	524	205	100			
	132S			115	115	745	262	262	524	220	157			
	132S			130	130	773	300	300	600	220	177			
HLP65D	132M			130	130	773	300	300	600	220	187			
	160M			130	130	880	300	300	600	272	248			
	160L			130	130	924	300	300	600	272	266			
HLP80A	90L	ø80	ø80	130	130	536	250	250	500	172	200	250	15	62
	100L			130	130	613	250	250	500	180				71
HLP80B	100L			130	130	618	262	262	524	180				76
	112M			130	130	618	262	262	524	205				83
	112M			130	130	618	262	262	524	205				91
HLP80C	132S			130	130	760	262	262	524	220				148
	132M			130	130	760	262	262	524	220	160			
	132S			135	135	775	287	287	574	220	173			
HLP80D	132M			135	135	775	287	287	574	220	185			
	160M			135	135	886	287	287	574	272	246			
	160M			150	150	901	325	325	650	272	261			
	160L			150	150	945	325	325	650	272	274			
HLP100A	112M	ø100	ø100	165	165	653	287	287	574	205	250	300	15	98
	132S			165	165	795	287	287	574	220				155
HLP100B	132S			155	155	795	287	287	574	220				165
	132M			155	155	795	287	287	574	220				177
	132M			150	150	790	312	312	624	220				187
HLP100C	160M			150	150	901	312	312	624	272				253
	160L			150	150	945	312	312	624	272	266			

# HLP (Hangook In-Line Pump) Series

## 외형 치수도(Outline Dimension)

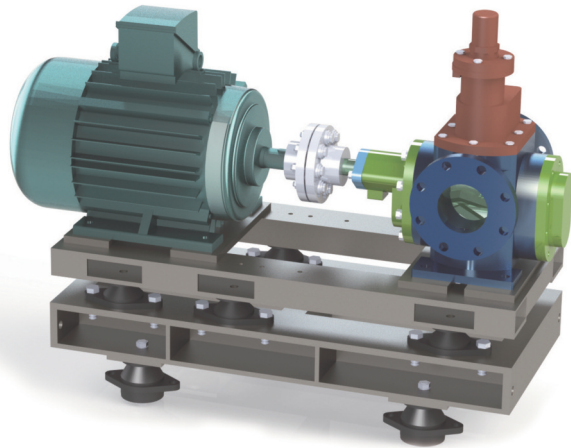


TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)							BED (mm)			Weight (kg)
		SUC.	DIS.	H1	H2	H2	L1	L2	L3	L4	L5	L6	L7	
HLP100D	160L	φ 100	φ 100	165	265	960	350	350	700	272	250	300	15	281
	180M			165	265	979	350	350	700	282	250	300		306
	180L			165	265	1017	350	350	700	282	250	300		337
HLP100E	180L	φ 100	φ 100	240	303	1131	400	400	800	282	390	450	23	402
	200L			240	333	1216	400	400	800	340				528
HLP125A	132S	φ 125	φ 125	185	220	825	326	163	489	220	250	300	15	170
	132M			185	220	825	326	163	489	220	250	300		192
HLP125B	132M	φ 125	φ 125	165	265	850	326	163	489	220	250	300	15	202
	160M			165	265	916	326	163	489	272	250	300		263
	160L			165	265	960	326	163	489	272	250	300		281
HLP125C	160L	φ 125	φ 125	165	265	960	350	350	700	272	250	300	15	296
	180M			165	265	979	350	350	700	282	250	300		321
HLP125D	180M	φ 125	φ 125	185	265	999	350	350	700	282	250	300	15	321
	180L			185	265	1037	350	350	700	282	250	300		347
HLP125E	200L	φ 125	φ 125	240	363	1246	400	400	800	445	390	450	23	544
	225S			240	363	1267	400	400	800	445				726
HLP150A	160M	φ 150	φ 150	185	265	936	375	375	750	272	250	300	23	278
	160L			185	265	980	375	375	750	272	250	300		296
HLP150B	180M	φ 150	φ 150	200	265	1014	375	375	750	282	250	300	15	331
	180L			200	265	1052	375	375	750	282	250	300		357
HLP150C	180L	φ 150	φ 150	200	378	1166	375	375	750	288	390	450	23	397
	200L			200	408	1251	375	375	750	340				523
HLP150D	225S	φ 150	φ 150	240	383	1287	400	400	800	445	390	450	23	740
	250S			240	383	1287	400	400	800	465				967
	250M			240	383	1287	400	400	800	465				1192
HLP200A	160L	φ 200	φ 200	240	400	1167	450	400	850	272	390	450	23	368
	180M			240	400	1198	450	400	850	282				386
HLP200B	180L	φ 200	φ 200	240	386	1217	450	370	820	282	390	450	23	427
	200L			240	416	1302	450	370	820	340				542
HLP200C	200L	φ 200	φ 200	240	468	1354	450	370	820	340	390	450	23	632
	225S			240	468	1375	450	370	820	445				728
	250S			240	468	1541	450	370	820	465				955
HLP200D	250S	φ 200	φ 200	240	458	1528	450	400	850	465	390	450	23	1013
	250M			240	458	1528	450	400	850	465				1237
HLP250A	250M	φ 250	φ 250	290	458	1528	550	500	1050	465	390	450	23	1530

# HGP (Hangook Gear Pump) Series

## ■ 제품일반(General)

안전변 내장형 기어펌프 - 수평형  
Gear Pump with Relief Valve - Horizontal



### 설계 및 운전 특징

1. 용도 : 윤활유, 연료유, 윤활성이 있는 액체
2. 사용압력 : 16Bar까지
3. 베어링 구조 : 메탈 베어링 내장식,  
펌핑 액체로써 윤활
4. 안전변 : 내장식 추천 설정 압력은 총압력의  
132%이며 최저 5kg/cm<sup>2</sup> 최고 10kg/cm<sup>2</sup>
5. 축씰링 : 미케니컬씰
6. 펌핑온도 : 일반적으로 70℃ 이하(최고 130℃)
7. 플랜지 : KS 또는 JIS 10kg/cm<sup>2</sup>(흡토출 공통)  
플랜지는 RF/FF
8. 회전수 :  
400cst 이내는 1800rpm 까지  
500cst 이내는 1500rpm 까지  
1000cst 이내는 1200~1000 rpm까지
9. 점도 : 5~2000cst
10. 표준용량 : 0.5 ~ 30 m<sup>3</sup>/hr

### Design and operation features

1. Application : Lubrication oil, liquids with lubricating property
2. Pressure : Up to 16Bar
3. Bearings Structure : internally set metal bearing, lubricated by the  
pumping liquid
4. Relief valve : built-in type recommended setting pressure is 132%  
of total pressure Setting pressure : min 5kg/cm<sup>2</sup>,  
max 10kg/cm<sup>2</sup>
5. Shaft sealing : mechanical seal
6. Pumping Temperature : Up to 70℃ in general (max 130℃)
7. Flanges : Suction and delivery KS or JIS 10kg/cm<sup>2</sup> rating Flange  
faces are RF/FF
8. Number of revolutions :  
Less than 400cst - up to 1800rpm  
Less than 500cst - up to 1500rpm  
Less than 1000cst - up to 1200~1000rpm
9. Viscosity : 5~2000cst
10. Standard Capacity : 0.5 ~ 30 m<sup>3</sup>/hr

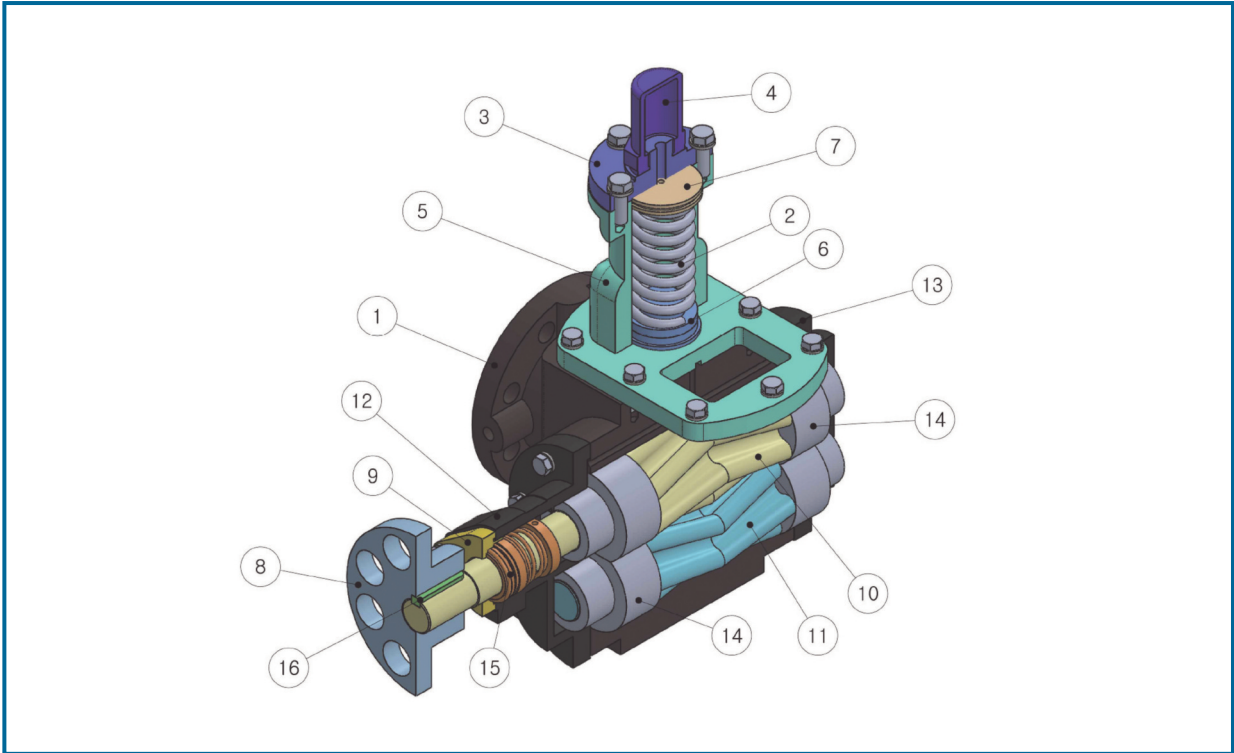
### 형식 표시 방법 Type nomenclature

#### HGP3

HGP	3
시리즈 Series	1200rpm에서의 표준용량 (m <sup>3</sup> /h) Standard capacity in m <sup>3</sup> /h at 1200rpm

# HGP (Hangook Gear Pump) Series

## 조립 단면도(Sectional Drawing)

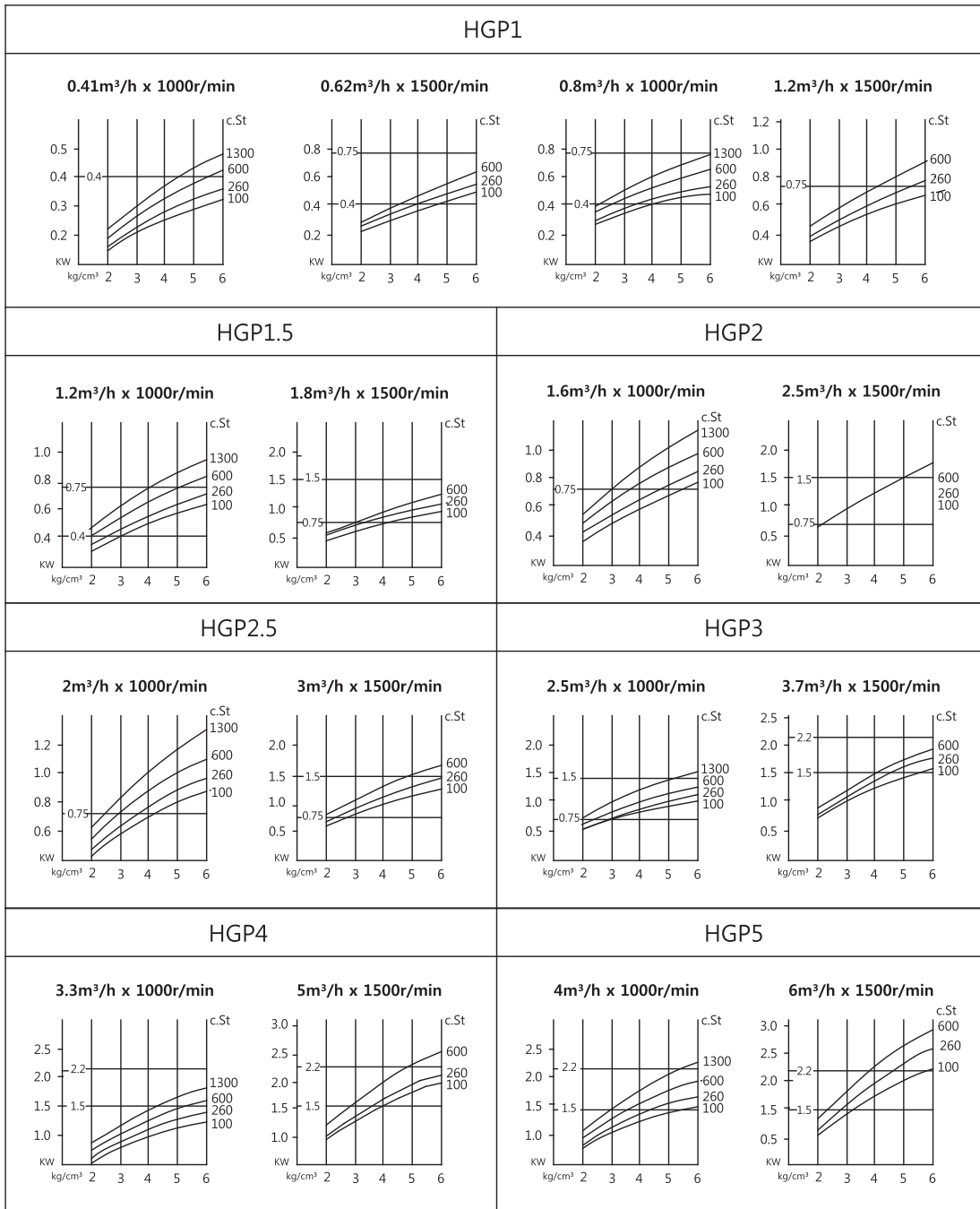


NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	케이싱 (Casing)	GC200	SC46	1
2	안전 밸브 스프링 (Safety Valve Spring)	SPS6	-	1
3	안전 밸브 카버 (Safety Valve Cover)	GC200	SC46	1
4	안전 밸브 캡 (Safety Valve Cap)	GC200	SC46	1
5	안전 밸브 박스 (Safety Valve Box)	GC200	SC46	1
6	안전 밸브 (Safety Valve)	STS316	-	1
7	스프링 캐리어 (Spring Carrier)	STS304	-	1
8	펌프 커플링 (Pump Coupling)	GC200	SM45C	1
9	실 카버 (Seal Cover)	GC200	-	1
10	샤프트 & 기어 (Shaft & Gear)	SM45C	-	1
11	샤프트 & 기어 (Shaft & Gear)	SM45C	-	1
12	사이드 카버 (Side Cover)	GC200	SC46	1
13	사이드 카버 (Side Cover)	GC200	SC46	1
14	메탈 베어링 (Metal Bearing)	LBC4	GC200 + W/M	4
15	미케니칼 씰 (Mechanical Seal)	Sic / Carbon	-	1

# HGP (Hangook Gear Pump) Series

## ■ 선정도 (Selection Chart)

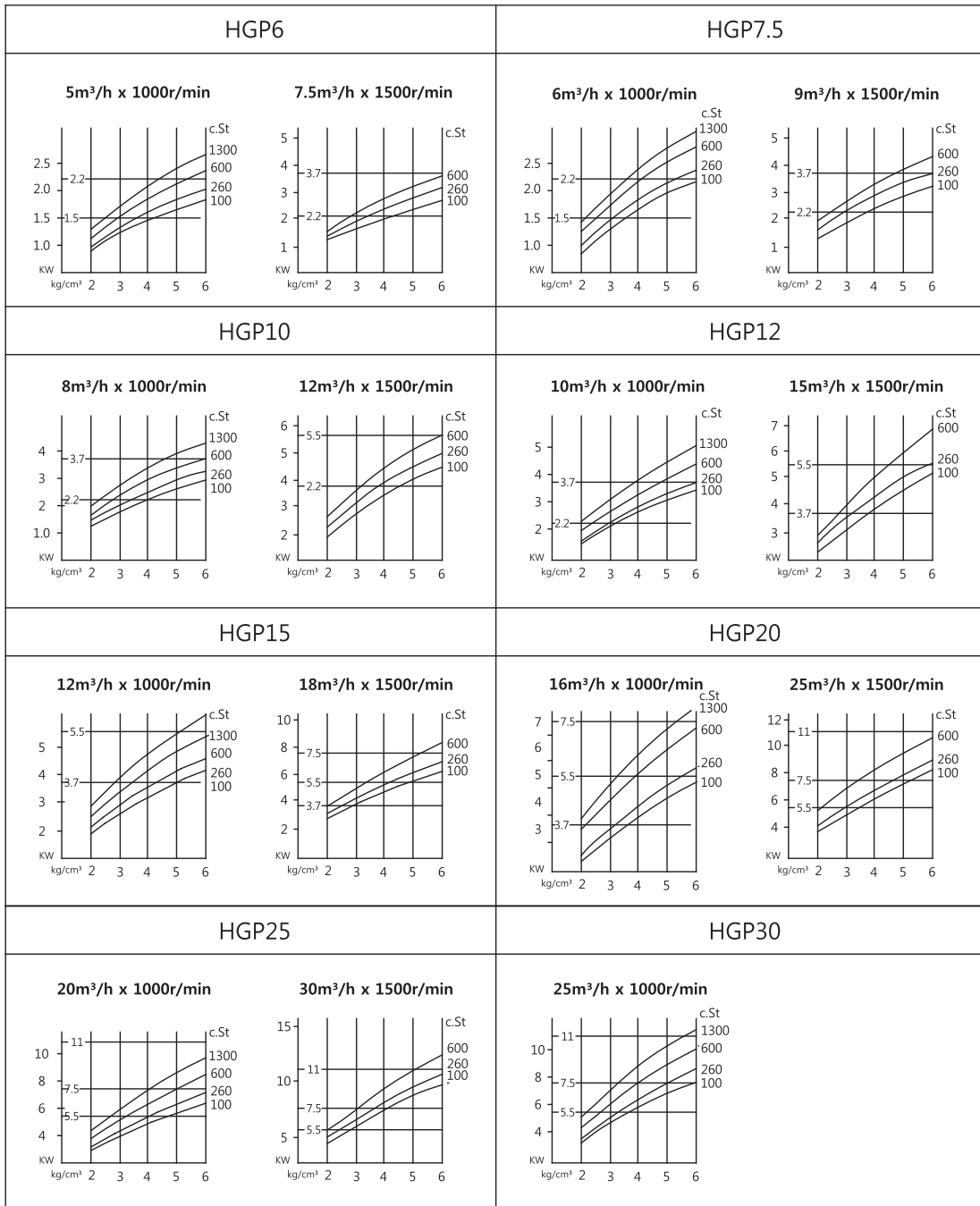
### 60Hz 선정표



# HGP (Hangook Gear Pump) Series

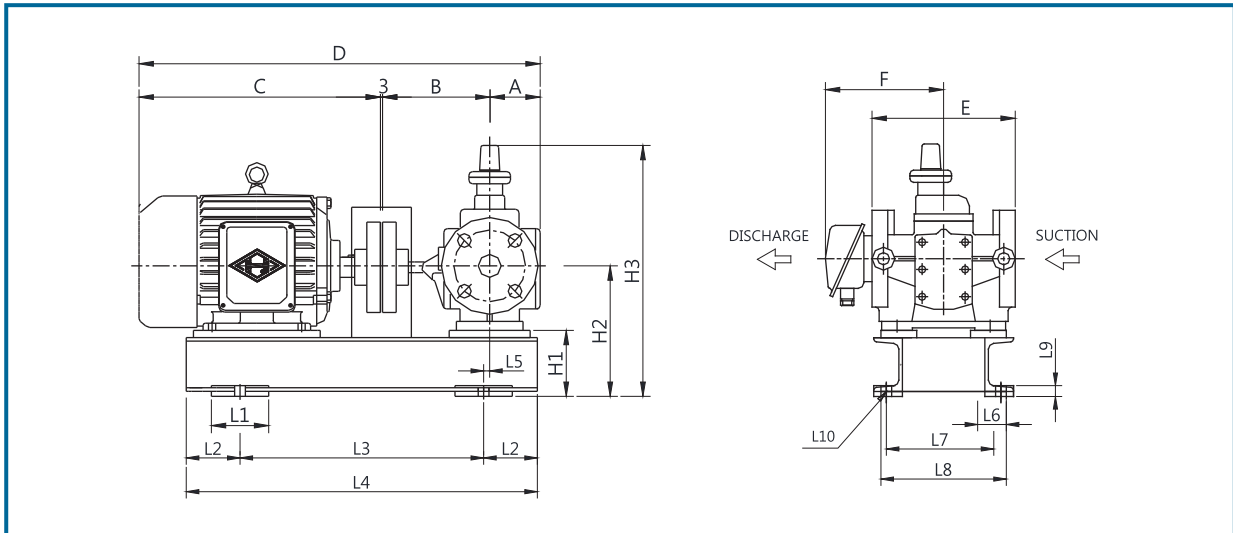
## ■ 선정도 (Selection Chart)

### 50Hz 선정표



# HGP (Hangook Gear Pump) Series

## 외형 치수도(Outline Dimension)

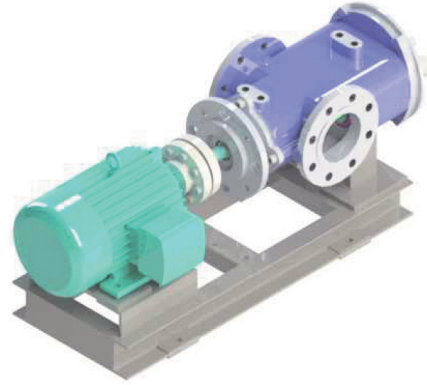


TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)										BED (mm)										Weight (kg)				
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Pump	Motor	Bed	Total		
HGP-1.5	80M	ø20	ø20	70	150	277	500	200	135	92	182	362	80	50	330	430	0	40	140	175	15	15	11	15	9	35		
	90L					337	560		150					75	330	480	20							24	46			
	100L					376	599		180					75	370	520	45							30	52			
	112M					378	601		190					100	380	580	250							285	12	39	18	69
	132M					481	704		213					100	380	580	250							285	16	70	18	104
HGP-2.5	80M	ø32	ø32	80	160	277	520	200	135	92	192	382	80	50	330	430	0	40	140	175	15	15	17	15	9	41		
	90L					337	580		150					75	330	480	20							24	52			
	100L					376	619		180					75	370	520	45							30	64			
	112M					378	621		190					100	380	580	240							275	39	16	72	
	132S					442	685		213					100	430	580	240							275	56	18	91	
HGP-4	90L	ø40	ø40	90	185	337	615	240	150	92	204	429	80	50	330	430	5	40	200	235	15	15	20	24	16	60		
	100L					376	654		180					100	380	580	30							30	68			
	112M					378	656		190					100	380	580	30							39	77			
	132S					442	720		213					125	420	620	40							56	96			
	132M					481	759		213					125	470	720	55							70	110			
	160M					588	866		261					125	470	720	55							109	156			
HGP-7.5	100L	ø50	ø50	110	230	376	719	250	180	92	204	504	80	50	330	430	30	40	200	235	15	15	35	30	18	83		
	112M					378	721		190					100	380	580	30							39	92			
	132S					442	785		213					125	430	680	55							56	115			
	132M					481	824		213					150	480	780	80							70	129			
	160M					588	931		261					150	480	780	80							109	171			
HGP-12	100L	ø65	ø65	115	250	376	744	280	180	92	224	524	80	50	330	430	45	40	240	275	15	15	45	34	24	103		
	112M					378	746		190					100	380	580	45							40	109			
	132S					442	810		213					125	480	730	66							56	129			
	132M					481	849		213					150	480	730	66							70	143			
	160M					588	956		261					150	480	780	66							109	189			
HGP-20	132M	ø80	ø80	145	300	481	929	320	213	92	252	602	80	50	330	430	20	40	255	290	15	15	65	70	34	169		
	160M					588	1036		261					175	580	70	50							109	49	223		
	160L					632	1080		282					200	580	90	50							136	250			
	180M					668	1116		282					200	580	90	50							161	270			
	180L					706	1154		288					200	580	95	50							182	291			

# PZ (Hangook Screw Pump) Series

## ■ 제품일반(General)

안전변 내장형 스크류 펌프 - 수평형  
Screw Pump with Relief Valve - Horizontal



### 설계 및 운전 특징

1. 용도 : 윤활유, 연료유, 윤활성이 있는 액체
2. 사용압력 : 16Bar까지
3. 베어링 구조 : 볼 베어링
4. 안전변 : 내장식 추천 설정 압력은 총압력의 132%이며 최저 5kg/cm<sup>2</sup> 최고 10kg/cm<sup>2</sup>
5. 축씰링 : 기계니컬씰
6. 펌핑온도 : 일반적으로 70℃ 이하(최고 130℃)
7. 플랜지 : KS 또는 JIS 10kg/cm<sup>2</sup>(흡토출 공통)  
플랜지는 RF/FF
8. 점도 : 5~2000cst
9. 표준용량 : 0.5 ~ 30 m<sup>3</sup>/hr

### Design and operation features

1. Application : Lubrication oil, liquids with lubricating property
2. Pressure : Up to 16Bar
3. Bearings Structure : Ball Bearing
4. Relief valve : built-in type recommended setting pressure is 132% of total pressure  
Setting pressure : min 5kg/cm<sup>2</sup>, max 10kg/cm<sup>2</sup>
5. Shaft sealing : mechanical seal
6. Pumping Temperature : Up to 70℃ in general (max 130℃)
7. Flanges : Suction and delivery KS or JIS 10kg/cm<sup>2</sup> rating  
Flange faces are RF/FF
8. Viscosity : 5~2000cst
9. Standard Capacity : 0.5 ~ 30 m<sup>3</sup>/hr

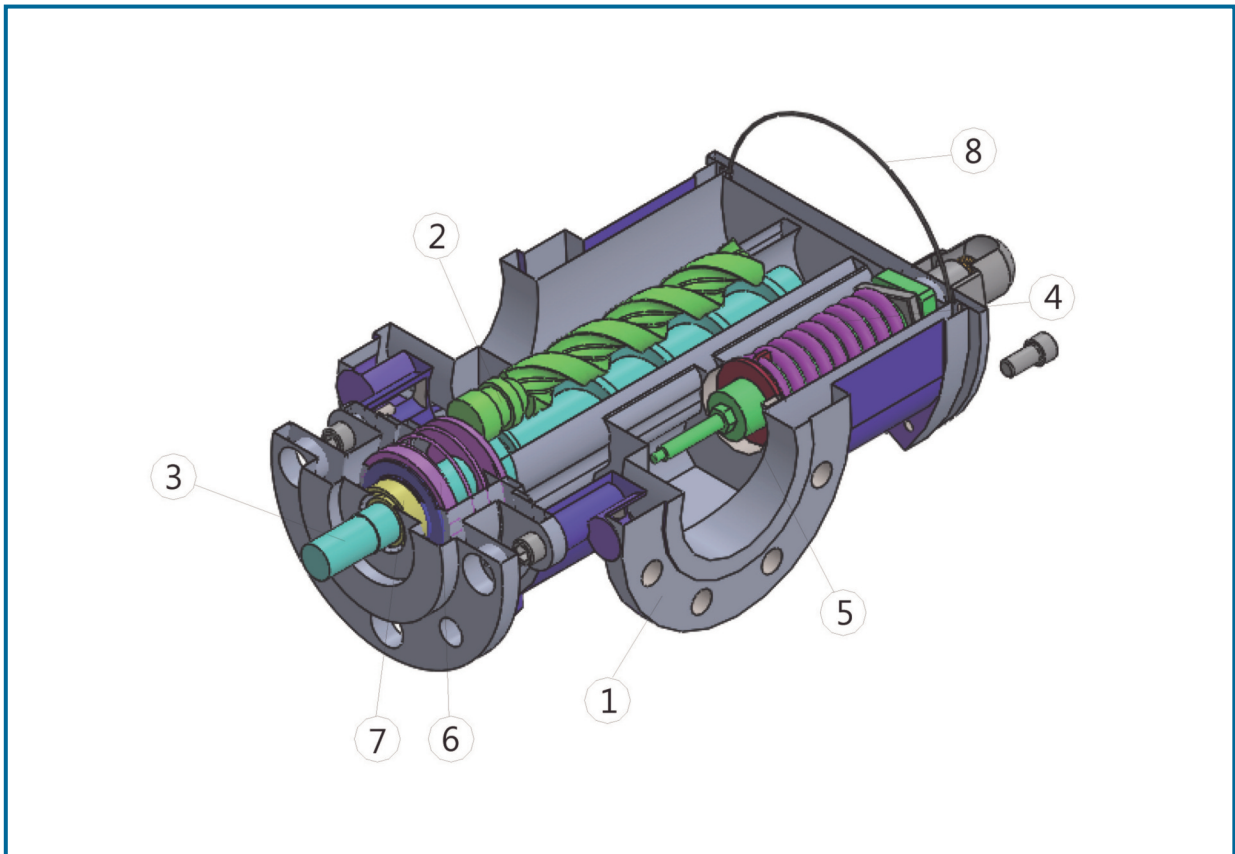
### 형식 표시 방법 Type nomenclature

#### PZ032A

PZ0	32A
시리즈 Series	스크류 크기 (Screw size)

## PZ (Hangook Screw Pump) Series

### 조립 단면도(Sectional Drawing)



NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	케이싱 (Casing)	GG25	GGG40	1
2	아이들 스피들 (Idler Spindle )	11SMnPb37	-	2
3	구동축 스피들 (Driving Spindle)	11SMnPb37	-	1
4	스프링 (Spring)	-	-	1
5	셔터 (Shutter)	-	-	1
6	미케니칼 씬 (Mechanical Seal)	Sic / Carbon	-	1
7	볼 베어링 (Ball Bearing)	Steel	-	1
8	오링 (O-ring)	Viton	-	1

# PZ (Hangook Screw Pump) Series

## ■ 선정도 (Selection Chart)

1450 rpm - 50Hz

	cst	2			15			46			100			220			460		
		1450			1450			1450			1450			1450			1450		
		lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr
PZ032A (PZ032#3A) 22,15 cm <sup>3</sup> /rev	0	32.1	0.1	1.53	32.1	0.1	1.63	32.1	0.2	1.76	32.1	0.3	1.91	32.1	0.4	2.15	32.1	0.5	2.50
	2	24.5	0.2		27.5	0.2		29.3	0.3		30.2	0.4		30.8	0.5		31.2	0.6	
	4	21.3	0.3		25.6	0.3		28.1	0.4		29.4	0.6		30.3	0.6		30.9	0.7	
	6	18.9	0.4		24.1	0.4		27.2	0.5		28.8	0.6		29.9	0.7		30.6	0.8	
	8	16.9	0.5		22.9	0.6		26.5	0.6		28.3	0.7		29.5	0.8		30.3	0.9	
	10	15.0	0.7		21.8	0.7		25.8	0.7		27.8	0.8		29.2	0.9		30.1	1.0	
	12	-	-		-	-		25.2	0.8		27.4	0.9		28.9	1.0		29.9	1.2	
14	-	-	-	-	24.6	1.0	27.0	1.0	28.7	1.1	29.8	1.3							
16	-	-	-	-	24.1	1.1	26.7	1.1	28.5	1.2	29.6	1.4							
PZ032B (PZ032#3B) 29,53 cm <sup>3</sup> /rev	0	42.8	0.1	1.64	42.8	0.2	1.76	42.8	0.3	1.91	42.8	0.3	2.07	42.8	0.5	2.34	42.8	0.6	2.72
	2	32.6	0.3		36.7	0.3		39.1	0.4		40.3	0.5		41.1	0.6		41.6	0.8	
	4	28.4	0.4		34.1	0.5		37.5	0.5		39.2	0.6		40.4	0.8		41.1	0.9	
	6	25.2	0.6		32.2	0.6		36.3	0.7		38.4	0.8		39.8	0.9		40.8	1.1	
	8	22.5	0.7		30.5	0.7		35.3	0.8		37.7	0.9		39.4	1.1		40.4	1.2	
	10	20.1	0.9		29.1	0.9		34.4	1.0		37.1	1.1		39.0	1.2		40.2	1.4	
	12	-	-		-	-		33.6	1.1		36.6	1.2		38.6	1.4		39.9	1.5	
14	-	-	-	-	32.8	1.3	36.1	1.4	38.3	1.5	39.7	1.7							
16	-	-	-	-	32.2	1.4	35.6	1.5	37.9	1.7	39.5	1.8							
PZ040A (PZ040#3A) 40,38 cm <sup>3</sup> /rev	0	58.6	0.2	1.58	58.6	0.2	1.70	58.6	0.3	1.83	58.6	0.4	1.99	58.6	0.6	2.24	58.6	0.8	2.61
	2	48.6	0.4		52.5	0.4		54.9	0.5		56.0	0.6		56.9	0.8		57.4	1.0	
	4	44.5	0.6		50.0	0.6		53.3	0.7		55.0	0.8		56.2	1.0		56.9	1.2	
	6	41.3	0.8		48.1	0.8		52.2	0.9		54.2	1.0		55.6	1.2		56.5	1.4	
	8	38.6	1.0		46.5	1.0		51.2	1.1		53.5	1.2		55.2	1.4		56.2	1.6	
	10	36.3	1.2		45.1	1.2		50.3	1.3		53.0	1.4		54.8	1.6		55.9	1.8	
	12	-	-		-	-		49.5	1.5		52.4	1.6		54.4	1.8		55.7	2.0	
14	-	-	-	-	48.8	1.7	51.9	1.8	54.1	2.0	55.5	2.2							
16	-	-	-	-	48.1	1.9	51.5	2.0	53.8	2.2	55.2	2.4							
PZ040B (PZ040#3B) 49,03 cm <sup>3</sup> /rev	0	71.1	0.2	1.68	71.1	0.2	1.80	71.1	0.4	1.94	71.1	0.5	2.11	71.1	0.7	2.38	71.1	0.9	2.78
	2	59.0	0.5		63.8	0.5		66.6	0.6		68.1	0.7		69.0	0.9		69.7	1.2	
	4	54.0	0.7		60.8	0.7		64.8	0.9		66.8	1.0		68.2	1.2		69.1	1.4	
	6	50.2	0.9		58.4	1.0		63.3	1.1		65.8	1.2		67.5	1.4		68.6	1.7	
	8	46.9	1.2		56.5	1.2		62.1	1.3		65.0	1.5		67.0	1.7		68.3	1.9	
	10	44.1	1.4		54.8	1.4		61.1	1.6		64.3	1.7		66.5	1.9		67.9	2.2	
	12	-	-		-	-		60.1	1.8		63.6	2.0		66.1	2.2		67.6	2.4	
14	-	-	-	-	59.2	2.1	63.1	2.2	65.7	2.4	67.3	2.7							
16	-	-	-	-	58.4	2.3	62.5	2.5	65.3	2.7	67.1	2.9							
PZ040C (PZ040#3C) 57,69 cm <sup>3</sup> /rev	0	83.6	0.3	1.78	83.6	0.3	1.91	83.6	0.4	2.06	83.6	0.6	2.25	83.6	0.8	2.54	83.6	1.1	2.97
	2	69.4	0.5		75.0	0.6		78.4	0.7		80.1	0.9		81.2	1.1		82.0	1.4	
	4	63.5	0.8		71.5	0.8		76.2	1.0		78.6	1.2		80.2	1.4		81.3	1.7	
	6	59.0	1.1		68.8	1.1		74.5	1.3		77.4	1.5		79.5	1.7		80.8	2.0	
	8	55.2	1.4		66.5	1.4		73.1	1.6		76.5	1.7		79.8	2.0		80.3	2.3	
	10	51.8	1.7		64.4	1.7		71.8	1.9		75.6	2.0		79.3	2.3		79.9	2.6	
	12	-	-		-	-		70.7	2.1		74.9	2.3		77.7	2.6		79.6	2.9	
14	-	-	-	-	69.7	2.4	74.2	2.6	77.3	2.8	79.2	3.2							
16	-	-	-	-	68.7	2.7	73.5	2.9	76.8	3.1	78.9	3.4							
PZ045A (PZ045#3A) 69,40 cm <sup>3</sup> /rev	0	100.6	0.3	1.74	100.6	0.3	1.87	100.6	0.5	2.02	100.6	0.7	2.20	100.6	0.9	2.49	100.6	1.2	2.91
	2	86.2	0.6		91.9	0.7		95.3	0.8		97.0	1.0		98.1	1.3		98.9	1.6	
	4	80.3	1.0		88.3	1.0		93.1	1.2		95.5	1.4		97.1	1.6		98.2	1.9	
	6	75.7	1.3		86.6	1.3		91.4	1.5		94.3	1.7		96.4	2.0		97.7	2.3	
	8	71.9	1.6		83.2	1.7		89.9	1.9		93.4	2.1		95.7	2.3		97.2	2.6	
	10	68.5	2.0		81.2	2.0		88.7	2.2		92.5	2.4		95.1	2.7		96.8	3.0	
	12	65.5	2.3		79.4	2.4		87.6	2.5		91.7	2.7		94.6	3.0		96.5	3.4	
14	-	-	-	-	86.5	2.9	91.0	3.1	94.1	3.4	96.1	3.7							
16	-	-	-	-	85.5	3.2	90.4	3.4	93.7	3.7	95.8	4.1							
PZ045B (PZ045#3B) 82,14 cm <sup>3</sup> /rev	0	119.1	0.3	1.87	119.1	0.4	2.00	119.1	0.6	2.17	119.1	0.8	2.37	119.1	1.1	2.68	119.1	1.5	3.15
	2	102.1	0.7		108.8	0.8		112.8	1.0		114.8	1.2		116.2	1.5		117.1	1.9	
	4	95.1	1.1		104.6	1.2		110.2	1.4		113.1	1.6		115.0	1.9		116.3	2.3	
	6	89.7	1.5		101.3	1.6		108.2	1.8		111.7	2.0		114.1	2.3		115.6	2.7	
	8	85.1	1.9		98.6	2.0		106.5	2.2		110.6	2.4		113.3	2.7		115.1	3.1	
	10	81.1	2.4		96.2	2.4		105.0	2.6		109.6	2.8		112.7	3.2		114.6	3.6	
	12	77.5	2.8		94.0	2.8		103.7	3.0		108.6	3.2		112.0	3.6		114.2	4.0	
14	-	-	-	-	102.4	3.4	107.8	3.7	111.5	4.0	113.8	4.4							
16	-	-	-	-	101.3	3.8	107.0	4.1	111.0	4.4	113.5	4.8							
PZ055A (PZ055#3A) 98,16 cm <sup>3</sup> /rev	0	142.3	0.4	1.71	142.3	0.4	1.83	142.3	0.6	1.98	142.3	0.9	2.16	142.3	1.2	2.44	142.3	1.6	2.84
	2	127.3	0.8		133.3	0.9		138.8	1.1		138.6	1.3		139.8	1.7		140.6	2.1	
	4	121.1	1.3		129.5	1.4		134.5	1.6		137.0	1.8		138.7	2.2		139.8	2.6	
	6	116.3	1.8		126.6	1.8		132.7	2.1		135.8	2.3		137.9	2.7		139.3	3.1	
	8	112.3	2.3		124.2	2.3		131.2	2.6		134.8	2.8		137.2	3.2		138.8	3.6	
	10	108.8	2.8		122.0	2.8		129.9	3.1		133.9	3.3		136.6	3.6		138.4	4.1	
	12	105.6	3.3		120.1	3.3		128.7	3.5		133.1	3.8		136.1	4.1		138.0	4.6	
14	102.6	3.7	118.3	3.8	127.6	4.0	132.3	4.3	135.6	4.6	137.7	5.1							
16	99.9	4.2	116.7	4.3	126.6	4.5	131.6	4.8	135.1	5.1	137.3	5.6							
PZ055B (PZ055#3B) 117,24 cm <sup>3</sup> /rev	0	170.0	0.4	1.83	170.0	0.5	1.96	170.0	0.8	2.13	170.0	1.0	2.32	170.0	1.4	2.63	170.0	1.9	3.07
	2	152.1	1.0		159.2	1.1		163.4	1.3		165.5	1.6		167.0	2.0		167.9	2.5	
	4	144.6	1.6		154.7	1.6		160.6	1.9		163.6	2.2		165.7	2.6		167.0	3.1	
	6	138.9	2.2		151.2	2.2		158.5	2.5		162.2	2.8		164.7	3.2		166.4	3.7	
	8	134.1	2.7		148.3	2.8		156.7	3.1		161.0	3.4		163.9	3.8		165.8	4.3	
	10	129.9	3.3		145.8	3.4		155.1	3.6		159.9	3.9		163.2	4.4		165.3	4.9	
	12	126.1	3.9		143.5	3.9		153.7	4.2		159.0	4.5		162.6	4.9		164.9	5.5	
14	122.6	4.5	141.3	4.5	152.4	4.8	158.1	5.1	162.0	5.5	164.4	6.1							
16	119.3	5.0	139.4	5.1	151.2	5.4	157.2	5.7	161.4	6.1	164.1	6.7							

# PZ (Hangook Screw Pump) Series

## ■ 선정도 (Selection Chart)

1450 rpm - 50Hz

	cst rpm bar	2			15			46			100			220			460		
		1450			1450			1450			1450			1450			1450		
		lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr
PZ055C (PZ055#3C) 139.06 cm <sup>3</sup> /rev	0	201.6	0.5		201.6	0.6		201.6	0.9		201.6	1.2		201.6	1.7		201.6	2.2	
	2	180.4	1.2		188.8	1.3		193.7	1.6		196.3	1.9		198.0	2.4		199.1	2.9	
	4	171.6	1.9	1.98	183.5	1.9	2.13	190.5	2.3	2.32	194.1	2.6	2.53	196.5	3.1	2.87	198.1	3.7	3.38
	6	164.8	2.6		179.4	2.6		188.0	3.0		192.4	3.3		195.4	3.8		197.3	4.4	
	8	159.1	3.2		175.9	3.3		185.9	3.6		190.9	4.0		194.4	4.5		196.6	5.1	
	10	154.1	3.9		172.9	4.0		184.0	4.3		189.7	4.7		193.6	5.2		196.1	5.8	
	12	149.5	4.6		170.1	4.7		182.3	5.0		188.5	5.4		192.8	5.9		195.5	6.5	
PZ060A (PZ060#3A) 165.49 cm <sup>3</sup> /rev	0	240.0	0.6		240.0	0.7		240.0	1.0		240.0	1.4		240.0	1.9		240.0	2.6	
	2	217.7	1.4		226.5	1.5		231.7	1.8		234.4	2.2		236.2	2.7		237.4	3.4	
	4	208.5	2.2	1.98	211.0	2.3	2.13	228.3	2.7	2.32	232.1	3.0	2.53	234.6	3.6	2.87	236.3	4.2	3.38
	6	201.5	3.0		216.7	3.1		225.7	3.5		230.3	3.9		233.4	4.4		235.4	5.1	
	8	195.5	3.8		213.1	3.9		223.5	4.3		228.8	4.7		232.4	5.2		234.7	5.9	
	10	190.3	4.6		209.9	4.7		221.5	5.1		227.5	5.5		231.5	6.1		234.1	6.8	
	12	185.5	5.5		207.1	5.5		219.8	5.9		226.3	6.3		230.7	6.9		233.6	7.6	
PZ060B (PZ060#3B) 194.69 cm <sup>3</sup> /rev	0	282.3	0.7		282.3	0.8		282.3	1.2		282.3	1.6		282.3	2.2		282.3	3.0	
	2	256.2	1.7		266.5	1.7		272.6	2.2		275.7	2.6		277.9	3.2		279.2	4.0	
	4	245.3	2.6	2.18	260.0	2.7	2.35	268.6	3.1	2.55	273.0	3.6	2.79	276.0	4.2	3.18	278.0	5.0	3.76
	6	237.0	3.6		254.9	3.6		265.5	4.1		270.9	4.5		274.6	5.2		277.0	6.0	
	8	230.0	4.5		250.7	4.6		262.9	5.0		269.2	5.5		273.4	6.2		276.2	7.0	
	10	223.9	5.5		247.0	5.5		260.6	6.0		267.6	6.5		272.4	7.1		275.5	8.0	
	12	218.3	6.4		243.6	6.5		258.6	7.0		266.2	7.5		271.4	8.1		274.8	9.0	
PZ072A (PZ072#3A) 233.63 cm <sup>3</sup> /rev	0	338.8	0.8		338.8	0.8		338.8	1.3		338.8	1.8		338.8	2.5		338.8	3.3	
	2	314.9	1.9		324.3	2.0		329.9	2.5		332.8	3.0		334.7	3.7		336.0	4.5	
	4	305.0	3.1	1.96	318.4	3.1	2.11	326.3	3.6	2.29	330.3	4.1	2.50	333.0	4.8	2.84	334.8	5.7	3.34
	6	297.4	4.2		313.8	4.3		323.4	4.8		328.4	5.3		331.8	6.0		333.9	6.9	
	8	291.0	5.4		309.9	5.4		321.1	5.9		326.8	6.5		330.7	7.2		333.2	8.1	
	10	285.4	6.5		306.5	6.6		319.0	7.1		325.3	7.6		329.7	8.4		332.5	9.3	
	12	280.3	7.6		303.4	7.7		317.1	8.3		324.1	8.8		328.9	9.6		331.9	10.5	
PZ072B (PZ072#3B) 280.36 cm <sup>3</sup> /rev	0	406.5	0.9		406.5	1.0		406.5	1.6		406.5	2.2		406.5	3.0		406.5	4.0	
	2	377.9	2.3		389.2	2.4		395.9	3.0		399.3	3.6		401.7	4.4		403.2	5.4	
	4	366.0	3.7	2.18	382.0	3.8	2.35	391.5	4.4	2.55	396.3	5.0	2.79	399.7	5.8	3.18	401.8	6.9	3.76
	6	356.9	5.1		376.6	5.1		388.1	5.8		394.0	6.4		398.1	7.2		400.7	8.3	
	8	349.3	6.4		371.9	6.5		385.3	7.1		392.1	7.8		396.8	8.6		399.8	9.7	
	10	342.5	7.8		367.8	7.9		382.8	8.5		390.4	9.2		395.7	10.0		399.0	11.2	
	12	336.4	9.2		364.1	9.3		380.5	9.9		388.9	10.6		394.6	11.5		398.3	12.6	
PZ072C (PZ072#3C) 336.43 cm <sup>3</sup> /rev	0	487.8	1.1		487.8	1.2		487.8	1.9		487.8	2.6		487.8	3.6		487.8	4.8	
	2	453.5	2.8		467.1	2.9		475.1	3.6		479.2	4.3		482.0	5.3		483.8	6.5	
	4	439.2	4.4	2.48	458.5	4.5	2.67	469.8	5.2	2.92	475.6	6.0	3.21	479.6	7.0	3.67	482.1	8.2	4.37
	6	428.3	6.1		451.9	6.2		465.8	6.9		472.9	7.6		477.7	8.7		480.8	10.0	
	8	419.1	7.7		446.3	7.8		462.3	8.6		470.5	9.3		476.2	10.4		479.8	11.7	
	10	411.0	9.4		441.4	9.5		459.3	10.2		468.5	11.0		474.8	12.1		478.8	13.4	
	12	403.7	11.0		437.0	11.1		456.6	11.9		466.7	12.7		473.6	13.8		478.0	15.1	
PZ072D (PZ072#3D) 364.46 cm <sup>3</sup> /rev	0	528.5	1.2		528.5	1.3		528.5	2.1		528.5	2.8		528.5	3.9		528.5	5.2	
	2	491.3	3.0		506.0	3.1		514.7	3.9		519.1	4.6		522.2	5.7		524.1	7.1	
	4	475.8	4.8	2.65	496.7	4.9	2.86	509.0	5.7	3.13	515.2	6.5	3.44	519.5	7.6	3.95	522.3	8.9	4.73
	6	464.0	6.6		489.5	6.7		504.6	7.5		512.3	8.3		517.5	9.4		520.9	10.8	
	8	454.0	8.4		483.5	8.5		500.9	9.3		509.8	10.1		515.8	11.2		519.7	12.7	
	10	445.2	10.1		478.2	10.3		497.6	11.1		507.5	11.9		514.4	13.1		518.7	14.5	
	12	437.3	11.9		473.4	12.0		494.7	12.9		505.5	13.7		513.0	14.9		517.8	16.4	
PZ083A (PZ083#3A) 434.66 cm <sup>3</sup> /rev	0	630.3	1.3		630.3	1.4		630.3	2.1		630.3	2.8		630.3	3.7		630.3	4.8	
	2	572.7	3.4		585.5	3.5		608.9	4.2		615.8	4.9		620.5	5.8		623.5	6.9	
	4	548.8	5.5	2.42	581.0	5.6	2.62	600.1	6.3	2.85	609.8	7.0	3.13	616.4	7.9	3.58	620.7	9.0	4.26
	6	530.5	7.6		570.0	7.7		593.3	8.4		605.2	9.1		613.3	10.0		618.6	11.1	
	8	515.1	9.7		560.7	9.8		587.6	10.5		601.3	11.2		610.7	12.1		616.8	13.2	
	10	501.5	11.8		552.5	11.9		582.5	12.6		597.9	13.3		608.4	14.2		615.2	15.3	
	12	489.2	13.9		545.0	14.0		578.0	14.7		594.8	15.4		606.3	16.3		613.7	17.4	
PZ083B (PZ083#3B) 527.80 cm <sup>3</sup> /rev	0	765.3	1.6		765.3	1.7		765.3	2.6		765.3	3.4		765.3	4.5		765.3	5.8	
	2	695.4	4.1		723.1	4.3		739.4	5.1		747.7	5.9		753.5	7.0		757.1	8.4	
	4	666.4	6.7	2.86	705.6	6.8	3.10	728.6	7.7	3.39	740.4	8.5	3.74	748.5	9.6	4.31	753.7	10.9	5.19
	6	644.2	9.2		692.1	9.4		720.4	10.2		734.9	11.0		744.8	12.1		751.1	13.5	
	8	625.5	11.8		680.8	11.9		713.5	12.8		730.1	13.6		741.6	14.7		748.9	16.0	
	10	609.0	14.3		670.8	14.5		707.3	15.3		726.0	16.1		738.8	17.2		747.0	18.6	
	12	594.0	16.9		661.8	17.0		701.8	17.9		722.2	18.7		736.3	19.8		745.2	21.1	
14	580.3	19.4		653.5	19.6		696.7	20.4		718.8	21.2		733.9	22.3		743.6	23.7		
16	567.5	22.0		645.8	22.1		692.0	23.0		715.6	23.8		731.8	24.9		742.1	26.2		

# PZ (Hangook Screw Pump) Series

## ■ 선정도 (Selection Chart)

1750 rpm - 60Hz

	cst	2			15			46			100			220			460		
		rpm	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr		
PZ032A (PZ032#3A) 22.15 <sub>cst</sub> /rev	0	38.8	0.1	1.60	38.8	0.2	1.71	38.8	0.3	1.85	38.8	0.3	2.01	32.1	0.4	2.26	38.8	0.6	2.63
	2	31.1	0.3		34.2	0.3		35.9	0.4		36.8	0.5		30.8	0.5		37.9	0.8	
	4	28.0	0.4		32.2	0.4		34.8	0.5		36.0	0.6		30.3	0.6		37.5	0.9	
	6	25.5	0.5		30.8	0.6		33.9	0.6		35.4	0.7		29.9	0.7		37.2	1.0	
	8	23.5	0.7		29.5	0.7		33.1	0.8		34.9	0.9		29.5	0.8		37.0	1.2	
	10	21.7	0.8		28.4	0.8		32.4	0.9		34.5	1.0		29.2	0.9		36.8	1.3	
	12	-	-		-	-		31.8	1.0		34.1	1.1		28.9	1.0		36.6	1.5	
14	-	-	-	-	31.3	1.2	33.7	1.3	28.7	1.1	36.4	1.6							
16	-	-	-	-	30.8	1.3	33.3	1.4	28.5	1.2	36.2	1.7							
PZ032B (PZ032#3B) 29.53 <sub>cst</sub> /rev	0	51.7	0.2	1.75	51.7	0.2	1.88	51.7	0.3	2.04	51.7	0.5	2.22	42.8	0.5	2.50	51.7	0.8	2.93
	2	41.5	0.4		45.5	0.4		47.9	0.5		49.1	0.6		41.1	0.6		50.5	1.0	
	4	37.3	0.5		43.0	0.6		46.3	0.7		48.1	0.8		40.4	0.8		50.0	1.2	
	6	34.1	0.7		41.0	0.7		45.1	0.9		47.3	1.0		39.8	0.9		49.6	1.4	
	8	31.3	0.9		39.4	0.9		44.1	1.0		46.6	1.2		39.4	1.1		49.3	1.6	
	10	28.9	1.1		37.9	1.1		43.2	1.2		46.0	1.3		39.0	1.2		49.0	1.8	
	12	-	-		-	-		42.4	1.4		45.4	1.5		38.6	1.4		48.8	1.9	
14	-	-	-	-	41.7	1.6	44.9	1.7	38.3	1.5	48.5	2.1							
16	-	-	-	-	41.0	1.7	44.4	1.9	37.9	1.7	48.3	2.3							
PZ040A (PZ040#3A) 40.38 <sub>cst</sub> /rev	0	70.7	0.2	1.67	70.7	0.3	1.79	70.7	0.4	1.94	70.7	0.5	2.11	58.6	0.6	2.38	70.7	1.0	2.77
	2	60.7	0.5		64.6	0.5		67.0	0.6		68.2	0.8		56.9	0.8		69.5	1.3	
	4	56.6	0.7		62.2	0.7		65.4	0.9		67.1	1.0		56.2	1.0		69.0	1.5	
	6	53.4	1.0		60.2	1.0		64.3	1.1		66.3	1.3		55.6	1.2		68.6	1.8	
	8	50.7	1.2		58.6	1.2		63.3	1.4		65.7	1.5		55.2	1.4		68.3	2.0	
	10	48.4	1.4		57.2	1.5		62.4	1.6		65.1	1.8		54.8	1.6		68.1	2.3	
	12	-	-		-	-		61.6	1.9		64.5	2.0		54.4	1.8		67.8	2.5	
14	-	-	-	-	60.9	2.1	64.0	2.3	54.1	2.0	67.6	2.8							
16	-	-	-	-	60.2	2.3	63.6	2.5	53.8	2.2	67.4	3.0							
PZ040B (PZ040#3B) 49.03 <sub>cst</sub> /rev	0	85.8	0.3	1.79	85.8	0.3	1.93	85.8	0.5	2.09	85.8	0.7	2.27	71.1	0.7	2.57	85.8	1.2	3.01
	2	73.7	0.6		78.5	0.6		81.3	0.8		82.8	1.0		69.0	0.9		84.4	1.5	
	4	68.7	0.9		75.5	0.9		79.5	1.1		81.5	1.3		68.2	1.2		83.8	1.8	
	6	64.9	1.2		73.2	1.2		78.0	1.4		80.5	1.6		67.5	1.4		83.4	2.1	
	8	61.6	1.4		71.2	1.5		76.8	1.7		79.7	1.9		67.0	1.7		83.0	2.4	
	10	58.8	1.7		69.5	1.8		75.8	2.0		79.0	2.1		66.5	1.9		82.6	2.7	
	12	-	-		-	-		74.8	2.2		78.4	2.4		66.1	2.2		82.3	3.1	
14	-	-	-	-	73.9	2.5	77.8	2.7	65.7	2.4	82.1	3.4							
16	-	-	-	-	73.1	2.8	77.2	3.0	65.3	2.7	81.8	3.7							
PZ040C (PZ040#3C) 57.69 <sub>cst</sub> /rev	0	101.0	0.3	1.93	101.0	0.4	2.07	101.0	0.6	2.25	101.0	0.8	2.46	83.6	0.8	2.78	101.0	1.4	3.27
	2	86.7	0.7		92.4	0.7		95.7	0.9		97.4	1.1		81.2	1.1		99.3	1.8	
	4	80.8	1.0		88.8	1.1		93.5	1.3		95.9	1.5		80.2	1.4		98.6	2.2	
	6	76.3	1.4		86.1	1.4		91.8	1.6		94.8	1.8		79.5	1.7		98.1	2.5	
	8	72.5	1.7		83.8	1.7		90.4	2.0		93.8	2.2		78.8	2.0		97.6	2.9	
	10	69.1	2.0		81.7	2.1		89.2	2.3		93.0	2.5		78.3	2.3		97.2	3.2	
	12	-	-		-	-		88.0	2.6		92.2	2.9		77.7	2.6		96.9	3.6	
14	-	-	-	-	87.0	3.0	91.5	3.2	77.3	2.8	96.5	3.9							
16	-	-	-	-	86.0	3.3	90.8	3.6	76.8	3.1	96.2	4.3							
PZ045A (PZ045#3A) 69.40 <sub>cst</sub> /rev	0	121.4	0.4	1.88	121.4	0.4	2.02	121.4	0.6	2.19	121.4	0.9	2.39	100.6	0.9	2.71	121.4	1.6	3.18
	2	107.0	0.8		112.7	0.8		116.1	1.1		117.8	1.3		98.1	1.3		119.7	2.1	
	4	101.1	1.2		109.1	1.2		113.9	1.5		116.3	1.7		97.1	1.6		119.0	2.5	
	6	96.5	1.6		106.4	1.6		112.2	1.9		115.1	2.1		96.4	2.0		118.5	2.9	
	8	92.7	2.0		104.1	2.1		110.7	2.3		114.2	2.6		95.7	2.3		118.0	3.4	
	10	89.3	2.4		102.0	2.5		109.5	2.7		113.3	3.0		95.1	2.7		117.6	3.8	
	12	86.3	2.8		100.2	2.9		108.4	3.1		112.5	3.4		94.6	3.0		117.3	4.2	
14	-	-	-	-	107.3	3.6	111.8	3.8	94.1	3.4	116.9	4.6							
16	-	-	-	-	106.3	4.0	111.2	4.2	93.7	3.7	116.6	5.1							
PZ045B (PZ045#3B) 82.14 <sub>cst</sub> /rev	0	143.7	0.4	2.05	143.7	0.5	2.21	143.7	0.8	2.40	143.7	1.0	2.62	119.1	1.1	2.98	143.7	1.9	3.51
	2	126.8	0.9		133.5	1.0		137.4	1.3		139.5	1.5		116.2	1.5		141.7	2.4	
	4	119.7	1.4		129.2	1.5		134.8	1.8		137.7	2.0		115.0	1.9		140.9	3.0	
	6	114.3	1.9		126.0	2.0		132.8	2.2		136.3	2.5		114.1	2.3		140.3	3.5	
	8	109.8	2.4		123.2	2.4		131.1	2.7		135.2	3.0		113.3	2.7		139.8	4.0	
	10	105.8	2.9		120.8	2.9		129.7	3.2		134.2	3.5		112.7	3.2		139.3	4.5	
	12	102.2	3.4		118.6	3.4		128.3	3.7		133.3	4.0		112.0	3.6		138.9	5.0	
14	-	-	-	-	127.1	4.2	132.4	4.5	111.5	4.0	138.5	5.5							
16	-	-	-	-	125.9	4.7	131.7	5.0	111.0	4.4	138.1	6.0							
PZ055A (PZ055#3A) 98.16 <sub>cst</sub> /rev	0	171.8	0.5	1.84	171.8	0.5	1.97	171.8	0.8	2.14	171.8	1.1	2.33	142.3	1.2	2.64	171.8	2.1	3.09
	2	156.8	1.1		162.7	1.1		166.2	1.4		168.0	1.7		139.8	1.7		170.0	2.7	
	4	150.5	1.6		158.9	1.7		163.9	2.0		166.4	2.3		138.7	2.2		169.3	3.3	
	6	145.8	2.2		156.1	2.3		162.1	2.6		165.2	2.9		137.9	2.7		168.7	3.9	
	8	141.7	2.8		153.6	2.9		160.6	3.2		164.2	3.5		137.2	3.2		168.3	4.5	
	10	138.2	3.4		151.5	3.4		159.3	3.8		163.3	4.1		136.6	3.6		167.8	5.1	
	12	135.0	4.0		149.6	4.0		158.1	4.4		162.5	4.7		136.1	4.1		167.5	5.7	
14	132.1	4.6	147.8	4.6	157.0	4.9	161.8	5.3	135.6	4.6	167.1	6.4							
16	129.3	5.1	146.1	5.2	156.0	5.5	161.1	5.9	135.1	5.1	166.8	7.0							
PZ055B (PZ055#3B) 117.24 <sub>cst</sub> /rev	0	205.2	0.6	2.00	205.2	0.6	2.15	205.2	1.0	2.34	205.2	1.4	2.55	170.0	1.4	2.90	205.2	2.5	3.41
	2	187.2	1.3		194.3	1.3		198.5	1.7		200.7	2.1		167.0	2.0		203.1	3.2	
	4	179.8	2.0		189.9	2.0		195.8	2.4		198.8	2.8		165.7	2.6		202.2	4.0	
	6	174.1	2.7		186.4	2.7		193.7	3.1		197.4	3.5		164.7	3.2		201.5	4.7	
	8	169.3	3.4		183.5	3.4		191.9	3.8		196.2	4.2		163.9	3.8		201.0	5.4	
	10	165.1	4.1		180.9	4.1		190.3	4.5		195.1	4.9		163.2	4.4		200.5	6.1	
	12	161.2	4.7		178.6	4.8		188.9	5.2		194.1	5.6		162.6	4.9		200.0	6.9	
14	157.7	5.4	176.5	5.5	187.6	5.9	193.2	6.3	162.0	5.5	199.6	7.6							
16	154.5	6.1	174.5	6.2	186.4	6.6	192.4	7.0	161.4	6.1	199.2	8.3							

# PZ (Hangook Screw Pump) Series

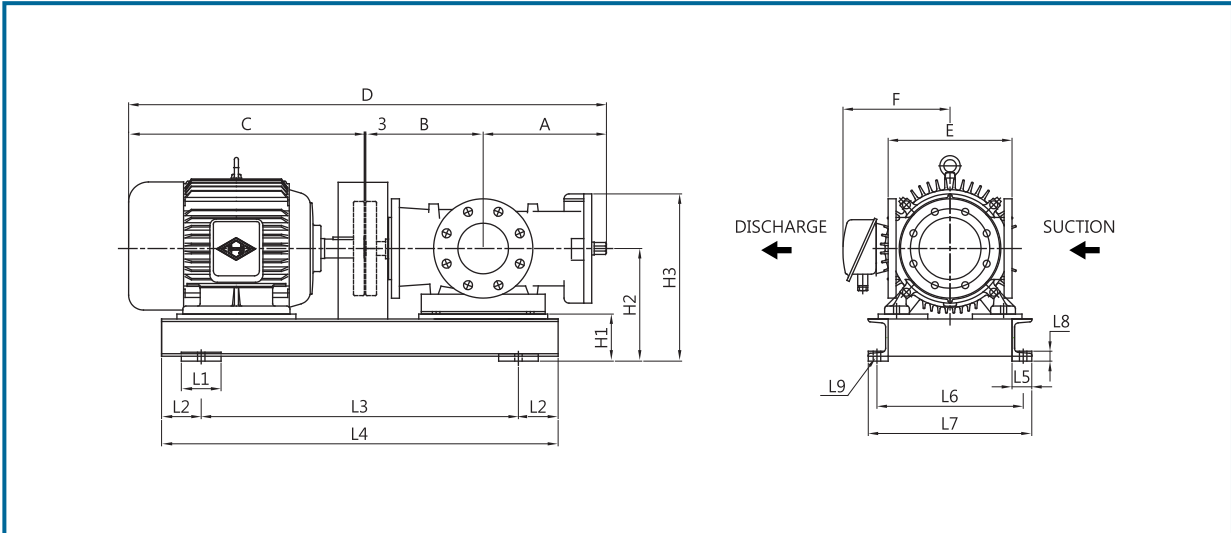
## ■ 선정도 (Selection Chart)

1750 rpm - 60Hz

Model	rpm	2		15			46			100			220			460			
		1150		1150			1150			1150			1150			1150			
		lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr	lpm	KW	NPSHr
PZ055C (PZ055#3C) 139,06㎝/rev	0	243.3	0.7	243.3	0.8	243.3	1.2	243.3	1.6	243.3	2.2	243.3	3.0	243.3	3.0	243.3	3.0	243.3	3.0
	2	222.1	1.5	230.5	1.6	235.5	2.0	238.0	2.4	239.7	3.1	239.7	3.1	240.9	3.8	240.9	3.8	240.9	3.8
	4	213.3	2.3	225.2	2.4	232.2	2.8	235.8	3.3	237.1	4.8	237.1	4.8	239.0	5.6	239.0	5.6	239.0	5.6
	6	206.5	3.2	221.1	3.2	229.7	3.7	234.1	4.1	236.1	5.6	236.1	5.6	238.4	6.4	238.4	6.4	238.4	6.4
	8	200.8	4.0	217.6	4.1	227.6	4.5	232.6	5.0	234.4	5.8	235.3	6.5	237.8	7.3	237.8	7.3	237.8	7.3
	10	195.8	4.8	214.6	4.9	225.7	5.3	230.2	6.6	232.2	7.5	233.8	8.1	236.7	9.0	236.7	9.0	236.7	9.0
	12	191.2	5.6	211.9	5.7	224.0	6.2	229.2	7.5	231.4	8.3	233.1	9.0	236.3	9.9	236.3	9.9	236.3	9.9
PZ060A (PZ060#3A) 165,49㎝/rev	0	289.6	0.8	289.6	0.9	289.6	1.3	289.6	1.8	289.6	2.5	289.6	3.4	289.6	3.4	289.6	3.4	289.6	3.4
	2	267.4	1.8	276.2	1.8	281.4	2.3	284.0	2.8	285.8	3.5	285.8	3.5	287.0	4.4	287.0	4.4	287.0	4.4
	4	258.2	2.7	270.6	2.8	278.0	3.3	281.7	3.8	283.3	4.5	283.3	4.5	285.9	5.4	285.9	5.4	285.9	5.4
	6	251.1	3.7	266.4	3.8	275.3	4.3	279.9	4.8	283.1	5.6	283.1	5.6	286.1	6.5	286.1	6.5	286.1	6.5
	8	245.2	4.7	262.8	4.8	273.1	5.3	278.4	5.8	282.1	6.6	282.1	6.6	284.4	7.5	284.4	7.5	284.4	7.5
	10	239.9	5.7	259.6	5.8	271.2	6.3	277.1	6.8	281.2	7.6	281.2	7.6	283.8	8.5	283.8	8.5	283.8	8.5
	12	235.2	6.7	256.7	6.7	269.4	7.3	275.9	7.8	280.4	8.6	280.4	8.6	283.2	9.5	283.2	9.5	283.2	9.5
PZ060B (PZ060#3B) 194,69㎝/rev	0	340.7	0.9	340.7	1.0	340.7	1.6	340.7	2.2	340.7	3.0	340.7	4.0	340.7	4.0	340.7	4.0	340.7	4.0
	2	314.6	2.1	324.9	2.2	331.0	2.8	334.1	3.3	336.3	4.2	336.3	4.2	337.6	5.2	337.6	5.2	337.6	5.2
	4	303.7	3.2	318.4	3.3	327.0	3.9	331.4	4.5	334.4	5.3	334.4	5.3	336.4	6.4	336.4	6.4	336.4	6.4
	6	296.4	4.4	313.4	4.5	323.9	5.1	329.3	5.7	333.0	6.5	333.0	6.5	335.4	7.6	335.4	7.6	335.4	7.6
	8	288.4	5.5	309.1	5.6	321.3	6.2	327.6	6.9	331.8	7.7	331.8	7.7	334.6	8.8	334.6	8.8	334.6	8.8
	10	282.3	6.7	305.4	6.8	319.0	7.4	326.0	8.0	330.8	8.9	330.8	8.9	333.9	10.0	333.9	10.0	333.9	10.0
	12	276.7	7.8	302.0	7.9	317.0	8.6	324.6	9.2	329.9	10.1	329.9	10.1	333.2	11.2	333.2	11.2	333.2	11.2
PZ072A (PZ072#3A) 233,63㎝/rev	0	408.9	1.0	408.9	1.1	408.9	1.8	408.9	2.4	408.9	3.3	408.9	4.4	408.9	4.4	408.9	4.4	408.9	4.4
	2	385.0	2.4	394.4	2.5	400.0	3.2	402.9	3.8	404.8	4.7	404.8	4.7	406.1	5.9	406.1	5.9	406.1	5.9
	4	375.1	3.8	388.5	3.9	396.3	4.6	400.4	5.2	403.1	6.2	403.1	6.2	404.9	7.3	404.9	7.3	404.9	7.3
	6	367.5	5.2	383.9	5.3	393.5	6.0	398.5	6.6	401.8	7.6	401.8	7.6	404.0	8.8	404.0	8.8	404.0	8.8
	8	361.1	6.6	380.0	6.7	391.2	7.4	396.9	8.0	400.8	9.0	400.8	9.0	403.3	10.2	403.3	10.2	403.3	10.2
	10	355.5	7.9	376.6	8.0	389.1	8.7	395.4	9.5	399.8	10.4	399.8	10.4	402.6	11.7	402.6	11.7	402.6	11.7
	12	350.4	9.3	373.5	9.4	387.2	10.1	394.2	10.9	398.9	11.9	398.9	11.9	402.0	13.1	402.0	13.1	402.0	13.1
PZ072B (PZ072#3B) 280,36㎝/rev	0	490.6	1.2	490.6	1.4	490.6	2.1	490.6	2.9	490.6	4.0	490.6	5.3	490.6	5.3	490.6	5.3	490.6	5.3
	2	462.0	2.9	473.3	3.0	480.0	3.8	483.4	4.6	485.8	5.7	485.8	5.7	487.3	7.1	487.3	7.1	487.3	7.1
	4	450.1	4.6	466.2	4.7	475.5	5.5	480.4	6.3	483.8	7.4	483.8	7.4	485.9	8.8	485.9	8.8	485.9	8.8
	6	441.0	6.2	460.7	6.3	472.2	7.1	478.2	8.0	482.2	9.1	482.2	9.1	484.8	10.5	484.8	10.5	484.8	10.5
	8	433.4	7.9	456.0	8.0	469.4	8.8	476.2	9.7	480.9	10.8	480.9	10.8	483.9	12.3	483.9	12.3	483.9	12.3
	10	426.6	9.5	451.9	9.7	466.9	10.5	474.5	11.3	479.8	12.5	479.8	12.5	483.1	14.0	483.1	14.0	483.1	14.0
	12	420.5	11.2	448.2	11.3	464.6	12.2	473.0	13.0	478.7	14.2	478.7	14.2	482.4	15.7	482.4	15.7	482.4	15.7
PZ072C (PZ072#3C) 336,43㎝/rev	0	588.7	1.5	588.7	1.6	588.7	2.5	588.7	3.5	588.7	4.7	588.7	6.4	588.7	6.4	588.7	6.4	588.7	6.4
	2	554.4	3.5	568.0	3.6	576.0	4.6	580.1	5.5	582.9	6.8	582.9	6.8	584.7	8.5	584.7	8.5	584.7	8.5
	4	540.2	5.5	559.4	5.6	570.7	6.6	576.5	7.5	580.5	8.9	580.5	8.9	583.1	10.5	583.1	10.5	583.1	10.5
	6	529.2	7.5	552.8	7.6	566.7	8.6	573.8	9.6	578.7	10.9	578.7	10.9	581.8	12.6	581.8	12.6	581.8	12.6
	8	520.0	9.4	547.2	9.6	563.3	10.6	571.5	11.6	577.1	13.0	577.1	13.0	580.7	14.7	580.7	14.7	580.7	14.7
	10	511.9	11.4	542.3	11.6	560.3	12.6	569.4	13.6	575.7	15.0	575.7	15.0	579.7	16.8	579.7	16.8	579.7	16.8
	12	504.6	13.4	537.9	13.6	557.5	14.6	567.6	15.6	574.5	17.1	574.5	17.1	578.9	18.9	578.9	18.9	578.9	18.9
PZ072D (PZ072#3D) 364,46㎝/rev	0	637.8	1.6	637.8	1.8	637.8	2.8	637.8	3.8	637.8	5.1	637.8	6.9	637.8	6.9	637.8	6.9	637.8	6.9
	2	600.6	3.8	615.3	3.9	624.0	4.9	628.4	6.0	631.5	7.4	631.5	7.4	633.4	9.2	633.4	9.2	633.4	9.2
	4	585.2	5.9	606.0	6.1	618.3	7.1	624.6	8.2	628.9	9.6	628.9	9.6	631.6	11.4	631.6	11.4	631.6	11.4
	6	573.3	8.1	598.9	8.2	613.9	9.3	621.6	10.3	626.9	11.8	626.9	11.8	630.3	13.7	630.3	13.7	630.3	13.7
	8	563.4	10.2	592.8	10.4	610.2	11.5	619.1	12.5	625.2	14.0	625.2	14.0	629.1	15.9	629.1	15.9	629.1	15.9
	10	554.6	12.4	587.5	12.6	607.0	13.6	616.9	14.7	623.7	16.3	623.7	16.3	628.1	18.2	628.1	18.2	628.1	18.2
	12	546.6	14.5	582.7	14.7	604.0	15.8	614.9	16.9	622.4	18.5	622.4	18.5	627.1	20.5	627.1	20.5	627.1	20.5
PZ083A (PZ083#3A) 434,66㎝/rev	0	760.7	1.8	760.7	1.9	760.7	2.8	760.7	3.7	760.7	5.0	760.7	6.5	760.7	6.5	760.7	6.5	760.7	6.5
	2	703.1	4.3	725.9	4.4	739.3	5.4	746.2	6.3	750.9	7.5	750.9	7.5	753.9	9.0	753.9	9.0	753.9	9.0
	4	679.2	6.8	711.4	7.0	730.5	7.9	740.2	8.8	746.8	10.0	746.8	10.0	751.1	11.5	751.1	11.5	751.1	11.5
	6	660.9	9.4	700.4	9.5	723.7	10.4	735.6	11.4	743.7	12.6	743.7	12.6	749.0	14.1	749.0	14.1	749.0	14.1
	8	645.5	11.9	691.1	12.0	717.9	13.0	731.7	13.9	741.1	15.1	741.1	15.1	747.1	16.6	747.1	16.6	747.1	16.6
	10	631.9	14.4	682.8	14.6	712.9	15.5	728.3	16.4	738.8	17.6	738.8	17.6	745.6	19.1	745.6	19.1	745.6	19.1
	12	619.6	17.0	675.4	17.1	708.4	18.1	725.2	19.0	736.7	20.2	736.7	20.2	744.1	21.7	744.1	21.7	744.1	21.7
PZ083B (PZ083#3B) 527,80㎝/rev	0	923.6	2.1	923.6	2.3	923.6	3.4	923.6	4.5	923.6	6.0	923.6	7.8	923.6	7.8	923.6	7.8	923.6	7.8
	2	853.7	5.2	881.4	5.4	897.7	6.5	906.1	7.6	911.8	9.1	911.8	9.1	915.4	10.9	915.4	10.9	915.4	10.9
	4	824.8	8.3	863.9	8.5	887.0	9.6	898.8	10.7										

# PZ (Hangook Screw Pump) Series

## 외형 치수도(Outline Dimension)



TYPE	MOTOR FRAME NO.	BORE		Pump & Motor (mm)									BED (mm)									Weight (kg/kg)			
		SUC.	DIS.	A	B	C	D	E	F	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	L9	Pump	Motor	Bed	Total
PZ032A PZ032B	71M	DN32 PN16	106	182	240	531	150	145	95	165	220	80	75	300	450	40	185	220	18	15	23	9	12	44	
	80M				227	518		135		175	230			300	450							15	12	50	
	90L				337	628		150		185	240			400	550							24	14	61	
	100L				376	667		180		195	250			420	570							30	15	68	
PZ040A PZ040B PZ040C PZ045A	80M	DN50 PN16	194	159	227	583	220	135	95	175	330	80	75	350	500	40	185	220	18	15	50	15	13	78	
	90L				337	693		150		185	340		400	600	24							19	93		
	100L				376	732		180		195	350		420	620	30							20	100		
	132M				481	837		213		227	382		500	700	70							22	142		
PZ055A PZ055B PZ055C	90L	DN80 PN16	249	237	337	826	250	150	95	195	305	80	100	480	680	40	245	280	18	15	70	24	22	116	
	100L				376	865		180		227	337			500	700							30	22	122	
	132M				481	970		213		255	365			600	800							70	25	165	
	160M				588	1077		261		270	370			700	900							109	28	207	
PZ060A PZ060B	100L	DN80 PN16	249	237	376	865	250	180	95	195	305	80	100	500	700	40	245	280	18	15	70	30	22	122	
	132M				481	970		213		227	337			600	800							70	25	165	
	160M				588	1077		261		255	365			700	900							109	28	207	
PZ072A PZ072B PZ072C PZ072D	100L	DN100 PN16	291	270	376	940	270	180	95	210	-	80	100	640	840	40	245	280	18	15	90	30	28	148	
	132M				481	1045		213		242	-			720	920							70	31	191	
	160M				588	1152		261		270	-			800	1000							109	33	232	
PZ083A PZ083B	160M	DN150 PN16	335	415	588	1341	420	261	120	280	-	100	150	900	1200	50	295	330	18	15	110	109	43	262	
	160L				632	1385		261		-	940			1240	136							46	292		

# HFP (Hangook Fire Pump) Series

## ■ 제품일반(General)

비상 소화 펌프  
Emergency Fire Pump

MODEL : HFP60



### 설계 및 운전 특징

1. 용도 : 이동식 비상 소화 펌프
2. 펌프 형식 : 고압 1단 터빈 펌프
3. 유량 : 60 GPM (13.8 m<sup>3</sup>/hr)
4. 압력 : 100PSI (7kg/cm<sup>2</sup>)
5. 흡입구 : 65mm (65A)
6. 토출구 : MIL 1 1/2" (40A)
7. 최대 진공 능력 : 50cmHg 이상
8. 엔진형식 : 2사이클 공랭식 가솔린 엔진
9. 출력 : 11kw
10. 중량 : 41kg

### Design and operation features

1. Application : Portable Emergency Fire pump
2. Type : High pressure 1-stage turbine pump
3. Capacity : 60 GPM (13.8 m<sup>3</sup>/hr)
4. Pressure : 100PSI (7kg/cm<sup>2</sup>)
5. Suction : 65mm (65A)
6. Discharge : MIL 1 1/2" (40A)
7. Maximum vacuum capability : 50cmHg ↑
8. Engine Type : 2 Cycles air-cooled gasoline
9. Power : 11kw
10. Weight : 41kg

### 형식 표시 방법 Type nomenclature

#### HFP60

<b>HFP</b>	<b>60</b>
시리즈 Series	유량 Capacity (GPM)

# HFP (Hangook Fire Pump) Series

## ■ 제품일반(General)

비상 소화 펌프  
Emergency Fire Pump

MODEL : HFP250



### 설계 및 운전 특징

1. 용도 : 이동식 비상 소화 펌프
2. 펌프 형식 : 고압 1단 터빈 펌프
3. 유량 : 250 GPM (57 m<sup>3</sup>/hr)
4. 압력 : 100PSI (7kg/cm<sup>2</sup>)
5. 흡입구 : 80mm (80A)
6. 토출구 : MIL 2 1/2" (65A)
7. 최대 진공 능력 : 50cmHg 이상
8. 엔진형식 : 2사이클 공랭식 가솔린 엔진
9. 출력 : 31kw
10. 중량 : 90kg

### Design and operation features

1. Application : Portable Emergency Fire pump
2. Type : High pressure 1-stage turbine pump
3. Capacity : 250 GPM (57 m<sup>3</sup>/hr)
4. Pressure : 100PSI (7kg/cm<sup>2</sup>)
5. Suction : 80mm (80A)
6. Discharge : MIL 2 1/2" (65A)
7. Maximum vacuum capability : 50cmHg ↑
8. Engine Type : 2 Cycles air-cooled gasoline
9. Power : 31kw
10. Weight : 90kg

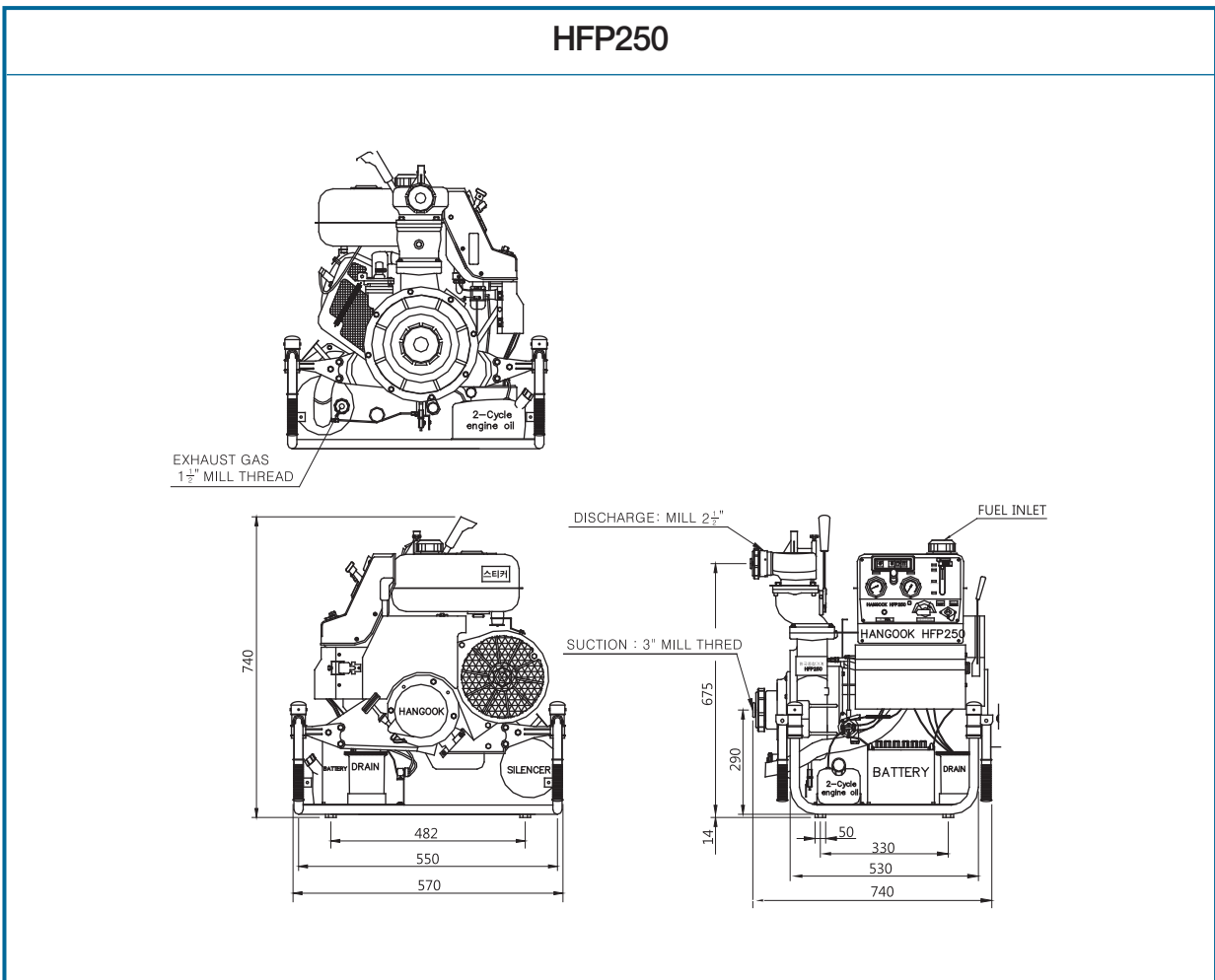
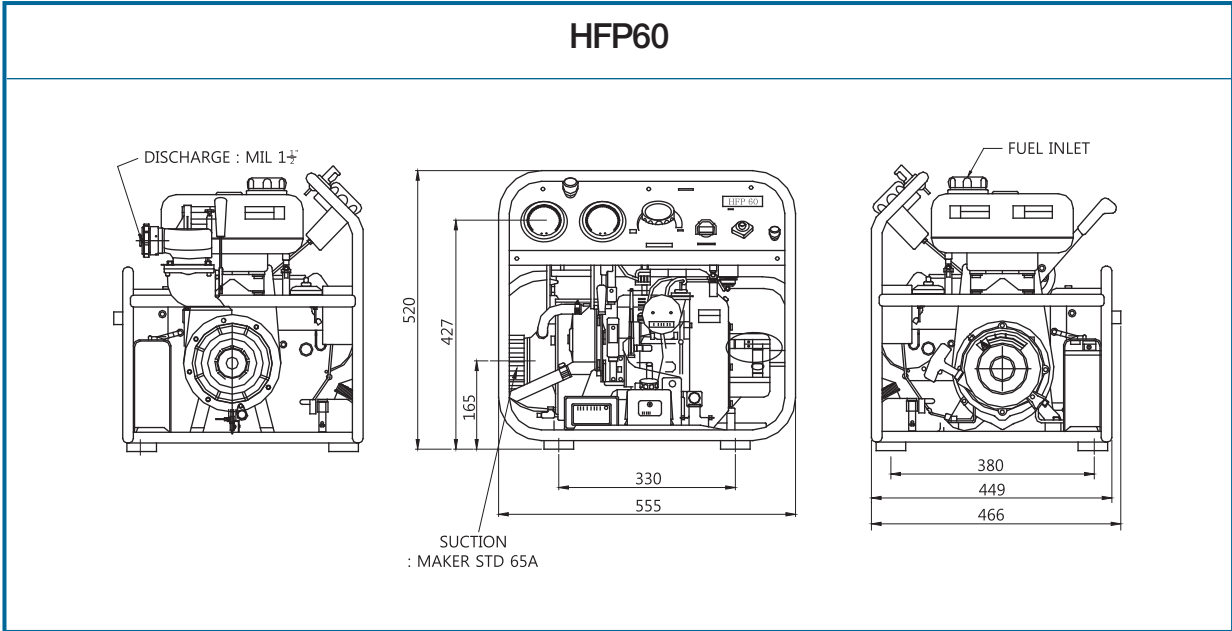
### 형식 표시 방법 Type nomenclature

#### HFP250

HFP	250
시리즈 Series	유량 Capacity (GPM)

# HFP (Hangook Fire Pump) Series

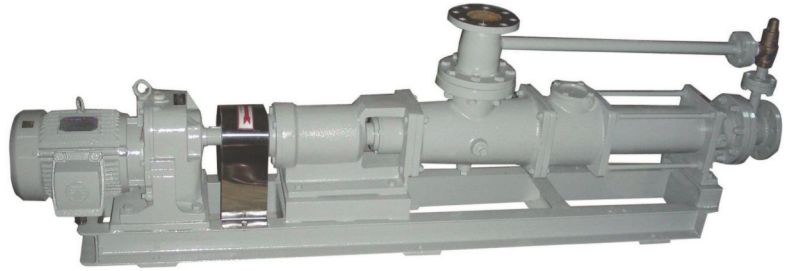
## 외형 치수도(Outline Dimension)



# HM (Hangook Mono Pump) Series

## ■ 제품일반(General)

모노 펌프 - 수평형  
Mono Pump - Horizontal



### 설계 및 운전 특징

1. 용도 : 슬러지
2. 사용압력 : 16Bar 까지
3. 베어링 구조 : 볼 베어링
4. 축씰링 : 기계씰
5. 펌핑온도 : 일반적으로 70℃ 이하(최고 130℃)
6. 플랜지 : KS B 1511 10K, RF/FF

### Design and operation features

1. Application : Sludge
2. Pressure : Up to 16Bar
3. Bearings Structure : Ball Bearing
4. Shaft sealing : mechanical seal
5. Pumping Temperature : Up to 70℃ in general (max 130℃)
6. Flanges : KS B 1511 10, RF/FF

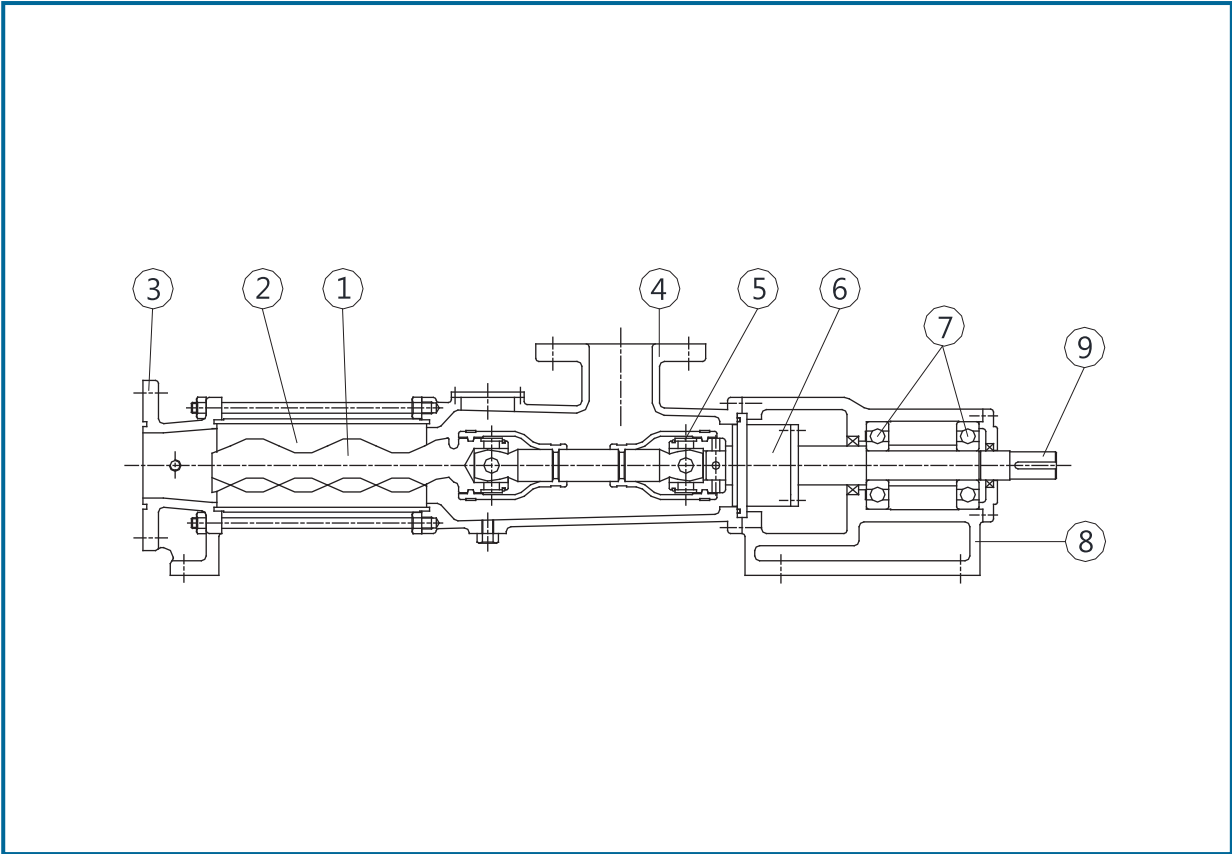
### 형식 표시 방법 Type nomenclature

#### HM80

HM	80
시리즈 Series	로터 사이즈 Rotor Size

# HM (Hangook Mono Pump) Series

## ■ 조립 단면도(Sectional Drawing)



NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	로터 (Rotor)	STS304	STS316, SNCM21, SM45C	1
2	스테이터 (Stator)	NBR	EPDM, NBR	1
3	토출측 플랜지 (Discharge Flange)	GC200	STS316, SCS13	1
4	토출측 플랜지 (Discharge Flange)	GC200	STS316, SCS13	1
5	유니버설 조인트 (Universal Joint)	STS304	STS316, SNCM21	1
6	스터핑 박스 (Stuffing Box)	GC200	STS304, STS316	1
7	볼 베어링 (Ball Bearing)	Steel	-	2
8	하우징 (Housing)	GC200	SCS13	1
9	샤프트 (Shaft)	STS304	STS316, SM45C	1

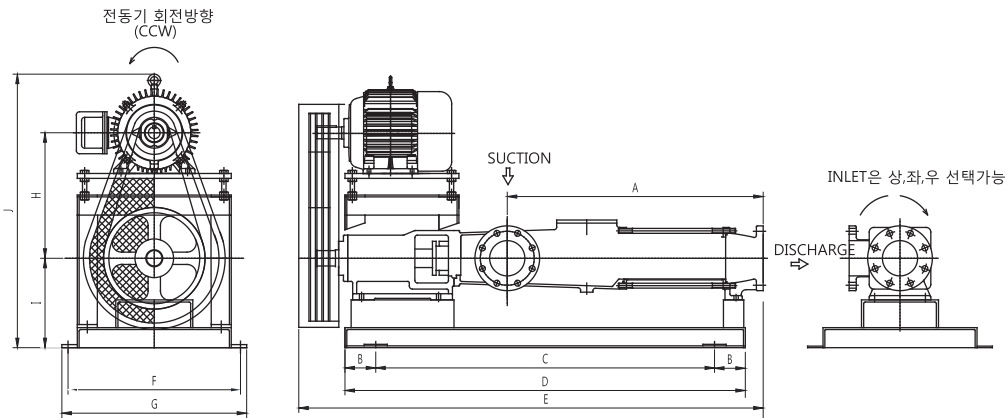
# HM (Hangook Mono Pump) Series

## ■ 선정도 (Selection Chart)

모델	K(상수)	모노펌프 회전수 N:(rpm/min) 유량(m3/hr)=K x N														
	(m <sup>3</sup> /rev)	50	100	115	150	175	190	200	250	290	300	350	400	450	500	600
HM15	0,00086	0,043	0,086	0,099	0,13	0,151	0,164	0,173	0,216	0,251	0,259	0,302	0,346	0,389	0,432	0,518
HM20	0,00192	0,096	0,192	0,221	0,288	0,336	0,365	0,384	0,48	0,557	0,576	0,672	0,768	0,864	0,96	1,152
HM30	0,00594	0,297	0,594	0,683	0,891	1,04	1,129	1,188	1,485	1,723	1,782	2,079	2,376	2,673	2,97	3,564
HM30S	0,00968	0,484	0,968	1,113	1,452	1,693	1,839	1,935	2,419	2,806	2,903	3,387	3,871	4,355	4,838	5,806
HM40	0,01536	0,77	1,54	1,77	2,3	2,69	2,92	3,07	3,84	4,45	4,61	5,38	6,14	6,91	7,68	9,22
HM50	0,0288	1,44	2,88	3,31	4,32	5,04	5,47	5,76	7,2	8,35	8,64	10,08	11,52	12,96	14,4	17,28
HM60	0,05219	2,61	5,22	6	7,83	9,13	9,92	10,44	13,05	15,13	15,66	18,26	20,87	23,48	26,09	31,31
HM60S	0,06797	3,4	6,8	7,82	10,2	11,89	12,91	13,59	16,99	19,71	20,39	23,79	27,19	30,59	33,98	40,78
HM74	0,08352	4,2	8,4	9,6	12,5	14,6	15,9	16,7	20,9	24,2	25,1	29,2	33,4	37,6	41,8	50,1
HM80	0,12288	6,1	12,3	14,1	18,4	21,5	23,3	24,6	30,7	35,6	36,9	43	49,2	55,3	61,4	73,7
HM80S	0,18432	9,2	18,4	21,2	27,6	32,3	35	36,9	46,1	53,5	55,3	64,5	73,7	82,9	92,2	110,6
HM100	0,228	11,4	22,8	26,2	34,2	39,9	43,3	45,6	57	66,1	68,4	79,8	91,2	102,6	114	136,8
HM100S	0,288	14,4	28,8	33,1	43,2	50,4	54,7	57,6	72	83,5	86,4	100,8	115,2	129,6	144	172,8
HM120	0,39931	20	39,9	45,9	59,9	69,9	75,9	79,9	99,8	115,8	119,8	139,8	159,7	179,7	199,7	239,6

# HM (Hangook Mono Pump) Series

## 외형 치수도(Outline Dimension)



양정에 따라 2단 사용가능, 외형치수는 변경 될수 있음

Can be used in two stages according to head, external dimensions can be changed

TYPE	POWER	BORE		Pump & Motor & BED (mm)										Weight (kg)
		SUC.	DIS.	A	B	C	D	E	F	G	H	I	J	
HM15	0,75KW	φ 40	φ 40	318	60	430	550	670	370	410	369	180	715	
HM20	0,75KW	φ 40	φ 40	340	60	430	550	692	370	410	369	180	715	
HM30	2,2KW	φ 50	φ 50	534	70	670	810	946	460	500	447	200	825	
HM30S	2,2KW	φ 50	φ 50	559	70	670	810	971	460	500	447	200	825	
HM40	3,7KW	φ 65	φ 65	532	70	720	860	1009	460	500	458	213	893	
HM50	3,7KW	φ 80	φ 80	666	100	830	1030	1211	480	520	498	243	963	
HM60	5,5KW	φ 100	φ 100	831	100	1080	1280	1479	560	600	523	250	1020	
HM60S	5,5KW	φ 100	φ 100	831	100	1080	1280	1479	560	600	523	250	1020	
HM74	7,5KW	φ 125	φ 125	992	200	1180	1580	1753	495	550	633	270	1150	
HM80	11KW	φ 125	φ 125	1084	200	1270	1670	1845	495	550	667	270	1190	
HM80S	11KW	φ 125	φ 125	1227	200	1420	1820	1988	495	550	667	270	1190	
HM100	15KW	φ 150	φ 150	1229	200	1490	1890	2092	495	550	650	305	1255	
HM100S	19KW	φ 150	φ 150	1287	200	1550	1950	2150	495	550	650	305	1255	
HM120	22KW	φ 200	φ 200	1905	200	2350	2750	2910	590	650	728	375	1405	

# HHC (Hangook Hot-water Calorifier) Series

## ■ 제품일반(General)

온수 가열기 - 수직형  
Hot water Calorifier - Vertical



### 설계 및 운전 특징

1. 용도 : 온수 가열기
2. 사용압력 : 10 Bar 까지
3. 재질 : SS400, STS304, STS316
4. 플랜지 : KS B 1511 5K, 10K, RF/FF

### Design and operation features

1. Application : Hot water
2. Pressure : Up to 10Bar
3. Material : SS400, STS304, STS316
4. Flanges : KS B 1511 5K, 10K, RF/F

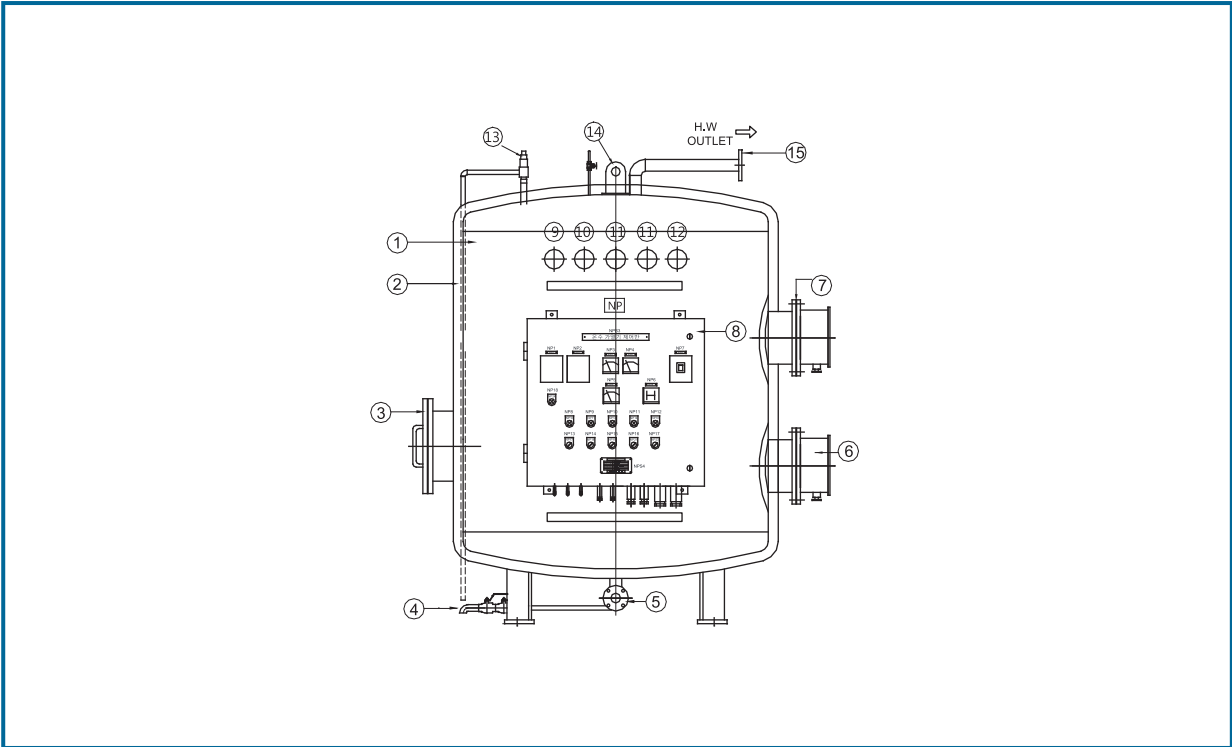
### 형식 표시 방법 Type nomenclature

## HHC100

HHC	100
시리즈 Series	용량 (L) Capacity (L)

# HHC (Hangook Hot-water Calorifier) Series

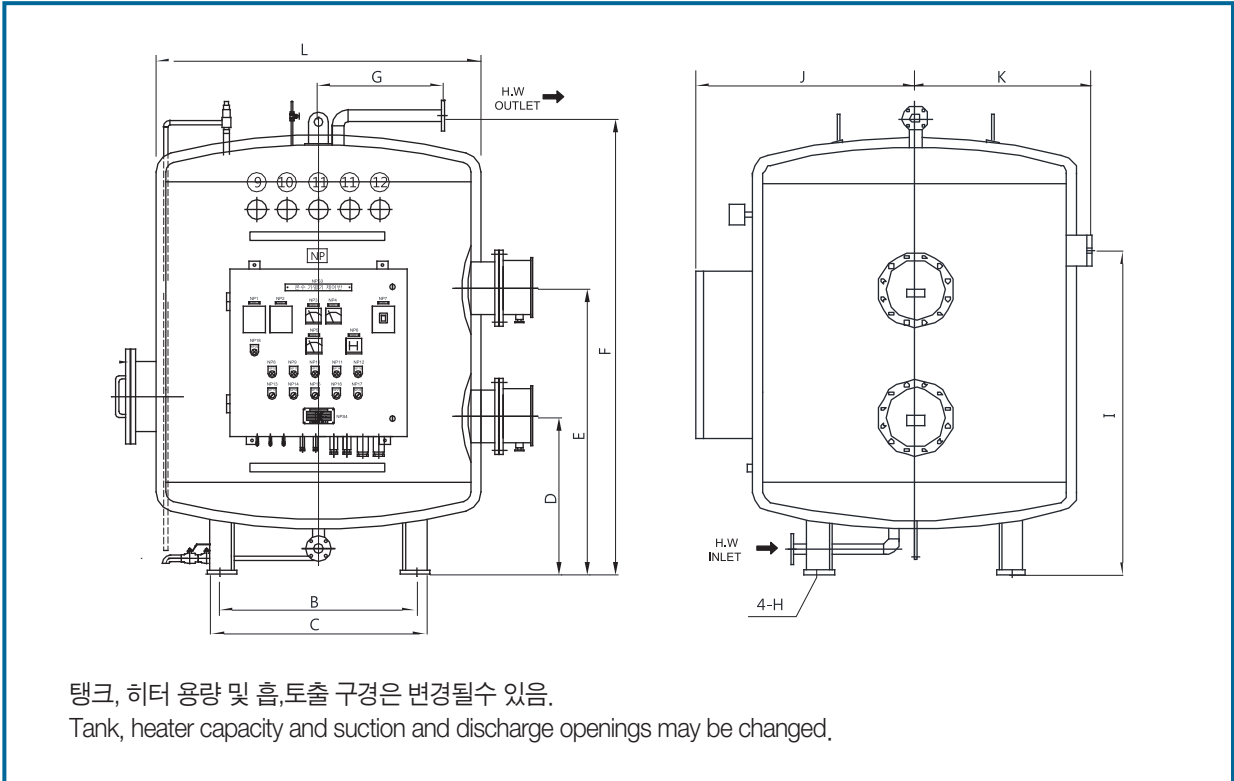
## ■ 조립 단면도(Sectional Drawing)



NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	몸체 (Tank Body)	STS304	SS400, STS316	1
2	보온재 (Insulation)	Glass Wool	-	1
3	맨홀 (Manhole)	STS304	SS400, STS316	1
4	드레인 밸브 (Drain Valve)	BC	STS304	1
5	흡입 플랜지 (Suction Flange)	STS304	SS400, STS316	1
6	히터 (Heater)	-	-	1
7	가스켓 (Gasket)	Non-Asbestos		
8	제어반 (Control Panel)	SS400	STS304, STS316	1
9	압력계 (Pressure Gauge)	Brass	STS304	1
10	온도계 (Thermometer)	Brass	STS304	1
11	열전대 (Thermo Couple)	Brass	STS304	2
12	온도 스위치 (Over temp, switch)	-	-	1
13	안전밸브 (Safety Valve)	BC	STS304	1
14	러그 (Lug)	STS304	SS400, STS316	2
15	토출 플랜지 (Discharge Flange)	STS304	SS400, STS316	1

# HHC (Hangook Hot-water Calorifier) Series

## 외형 치수도(Outline Dimension)



TYPE	POWER	BORE		Dimension (mm)													Weight (kg)
		SUC.	DIS.	A	B	C	D	E	F	G	H	I	J	K	L		
HHC100	12KW	40A	40A	100	250	350	600	-	1400	250	18	900	545	300	506	300	
HHC200	20KW	32A	32A	100	330	430	650	-	1450	300	22	900	700	400	700	350	
HHC300	24KW	32A	32A	100	400	500	700	-	1450	380	22	900	700	400	750	380	
HHC350	30KW	40A	40A	100	430	535	700	-	1450	400	26	900	750	500	800	400	
HHC500	30KW	40A	40A	100	500	600	700	-	1500	480	26	950	780	530	960	500	
HHC700	35KW	40A	40A	100	500	600	700	-	1850	500	26	1100	800	600	950	600	
HHC1200	40KW	65A	65A	100	600	705	800	-	2150	550	26	1550	850	650	1100	650	
HHC1300	45KW	65A	65A	100	600	705	800	-	2200	550	26	1600	850	650	1100	700	
HHC1500	50KW	65A	65A	100	700	800	800	-	2300	650	27	1600	950	750	1300	850	
HHC2000	30KW X 2	65A	65A	100	700	830	950	1300	2300	680	27	1650	1050	770	1350	950	
HHC3200	55KW X 2	65A	65A	130	1000	1130	800	1450	2325	820	27	1650	1125	900	1650	1450	

# HHU (Hangook Hydro-pneumatic Unit) Series

## ■ 제품일반(General)

청수 압력 탱크 - 수직형  
Fresh water pressure tank - Vertical



### 설계 및 운전 특징

1. 용도 : 청수 압력 탱크
2. 사용압력 : 10 Bar 까지
3. 재질 : SS400, STS304, STS316
4. 플랜지 : KS B 1511 5K, 10K, RF/FF

### Design and operation features

1. Application : Fresh water pressure tank
2. Pressure : Up to 10Bar
3. Material : SS400, STS304, STS316
4. Flanges : KS B 1511 5K, 10K, RF/FF

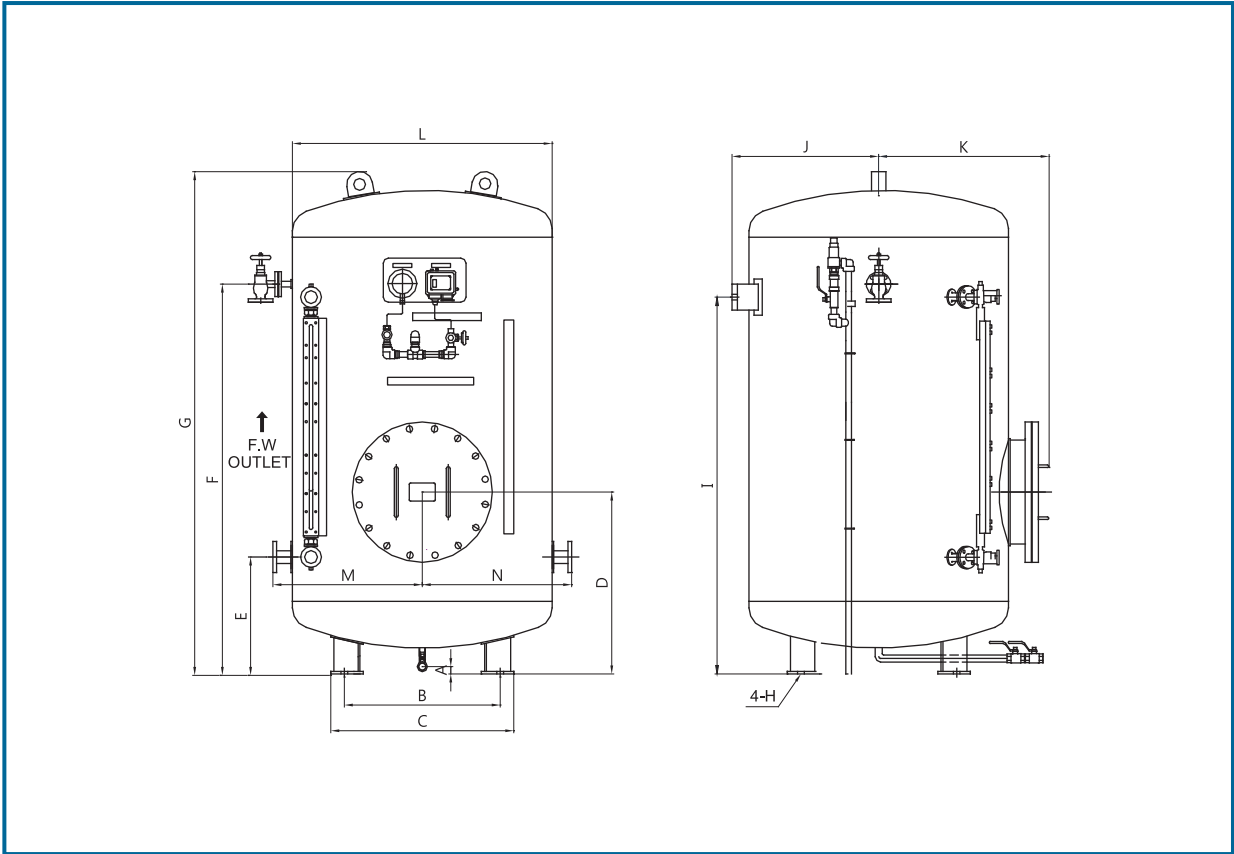
### 형식 표시 방법 Type nomenclature

#### HHU100

HHU	100
시리즈 Series	용량 (L) Capacity (L)

# HHU (Hangook Hydro-pneumatic Unit) Series

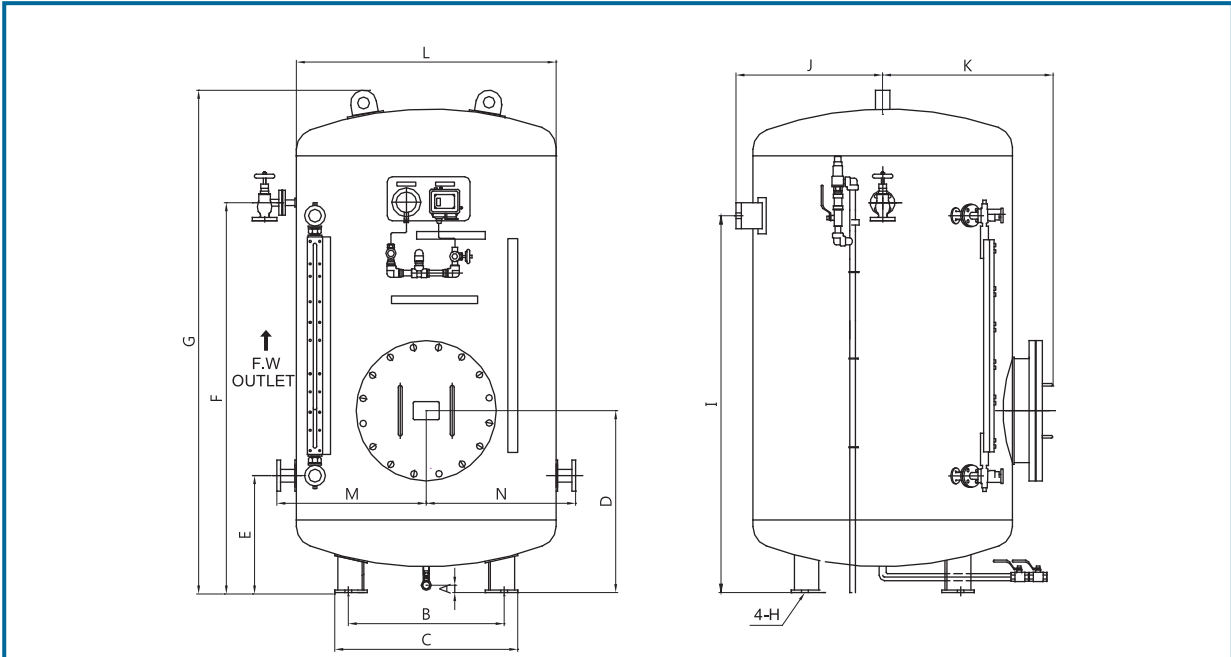
## ■ 조립 단면도(Sectional Drawing)



NO.	부품명 Part Name	표준 재질 Standard Material	선택 사양 Other Options	수량 Q'ty
1	몸체 (Tank Body)	STS304	SS400, STS316	1
2	압력계 (Pressure Gauge)	Brass	STS304	1
3	압력 스위치 (Pressure Switch)	-	-	1
4	안전밸브 (Safety Valve)	BC	STS304	1
5	공기공급밸브 (Air Charge Valve)	BC	-	1
6	레벨 게이지 (Level Gauge)	BC / STS	-	1
7	드레인 밸브 (Drain Valve)	BC	-	2
8	흡입 플랜지 (Suction Flange)	STS304	SS400, STS316	1
9	토출 플랜지 (Discharge Flange)	STS304	SS400, STS316	1
10	맨홀 (Manhole)	STS304	SS400, STS316	1

# HHU (Hangook Hydro-pneumatic Unit) Series

## 외형 치수도(Outline Dimension)



탱크, 히터 용량 및 흡, 토출 구경은 변경될수 있음.

Tank, heater capacity and suction and discharge openings may be changed.

TYPE	BORE		Dimension (mm)													Weight (kg)
	SUC.	DIS.	A	B	C	D	F	G	H	I	J	K	L	M	N	
HHU100	40A	40A	70	250	350	500	950	1270	18	850	250	340	406	260	260	200
HHU200	32A	32A	70	330	430	500	950	1230	22	900	340	450	600	350	350	300
HHU300	32A	32A	70	400	500	550	950	1340	22	900	380	450	650	400	400	330
HHU350	40A	40A	70	430	535	500	950	1210	26	900	430	540	700	420	420	350
HHU500	40A	40A	100	500	600	600	950	1230	26	900	500	600	864	500	50	400
HHU700	40A	40A	70	500	600	600	1300	1600	26	950	480	580	850	500	500	500
HHU1200	65A	65A	70	600	705	700	1500	1750	26	1450	565	655	1000	570	570	550
HHU1300	65A	65A	70	600	700	700	1500	1960	26	1550	565	655	1000	570	570	600
HHU1500	65A	65A	70	700	800	700	1650	2050	27	1550	650	790	1200	670	670	750
HHU2000	65A	65A	70	700	830	850	1680	2070	27	1550	690	790	1250	700	700	850
HHU3200	65A	65A	70	1000	1130	850	1800	2300	27	1550	900	1030	1550	850	850	1300

## Filters Series

### 연료유 예비 여과기(F.O PRE FILTER)

Model : HPF16

- 형식 (Type) : 복동식 (Duplex type)
- 유량 (Capacity) :  $22.3\text{m}^3 / \text{h} \sim 600\text{m}^3 / \text{h}$
- 압력 (Pressure) :  $10\text{kg} / \text{cm}^2$
- 고형물 제거 능력 (Solids removal capacity) :  $50\ \mu\text{m} \downarrow$



### 항공유 여과기/분리기 (JP-5 FILTER/ SEPARATOR) 연료유 미세 여과기 / 분리기 (F.O FINE FILTER / SEPARATOR)

Model : HFS16(J) / HFS16

- 유량 (Capacity) :  $17.5\text{m}^3 / \text{h} \sim 600\text{m}^3 / \text{h}$
- 압력 (Pressure) :  $10\ \text{kg} / \text{cm}^2$
- 고형물 제거 능력 (Solids removal capacity) :  $5\ \mu\text{m}$
- 수분 제거 능력 (Moisture removal capacity)  
Inlet : 1000 ppm  
Outlet : 5 ppm  $\downarrow$



### 항공유 수분 감지기 (JP-5 WATER MONITOR)

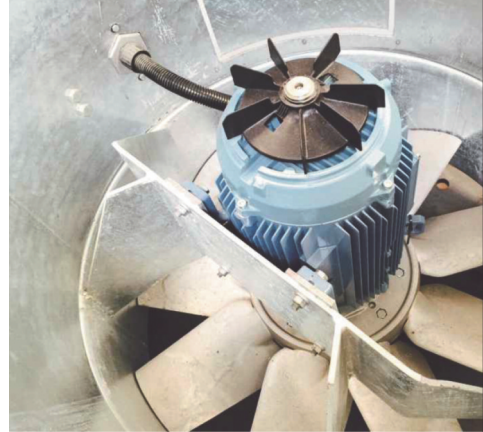
Model : HFGM5220

- 유량 (Capacity) :  $1\ \text{m}^3 / \text{h} \sim 50\ \text{m}^3 / \text{h}$
- 압력 (Pressure) :  $10\ \text{kg} / \text{cm}^2$
- 고형물 제거 능력 (Solids removal capacity) :  $1\ \mu\text{m} \downarrow$
- 수분 제거 능력 (Moisture removal capacity) : 5 ppm  $\downarrow$



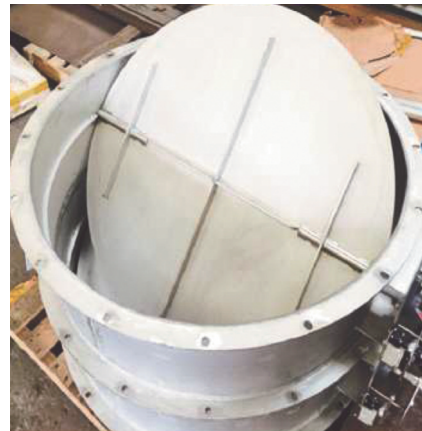
### 개스터빈 냉각 공급팬 (G/T COOLING DOWN FAN)

- 용량 (Capacity) :  $10\text{m}^3 / \text{s}$  (12kg/s 이상 at 15℃)
- 정압 (Static pressure) : 100mmAq
- 팬 브레이드 (Fan Blade) : LM6
- 팬 케이싱 (Fan Casing) : STS304



### 개스터빈 냉각공기 차단 플랩 (GT COOLING AIR SHUT-OFF FLAP)

- 작동방식 (Actuating Type) : Compressed Air 4kg /  $\text{cm}^2$
- 구동 실린더 (Actuating Cylinder) :  $\varnothing 50$  (O.D)
- 구동 실린더 행정 (Actuating Cylinder Stroke) : 200mm
- 솔레노이드 밸브 (Solenoid Valve) : DC24V



### 개스터빈 흡기 소음기 (G/T INTAKE SILENCER)

- 형식 (Type) : SPLITTER, VERTICAL, ABSORPTION
- 에어 용량 (Air Volume) : 64 kg/sec
- 저항 (Resistance) : 249 Pa



# IRSS Series

## ■ 제품일반(General)

적외선 감소 장치  
InfraRed Signature Suppression



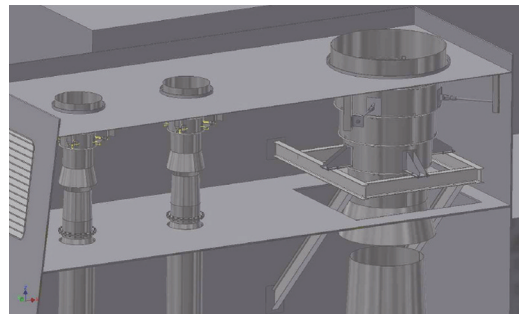
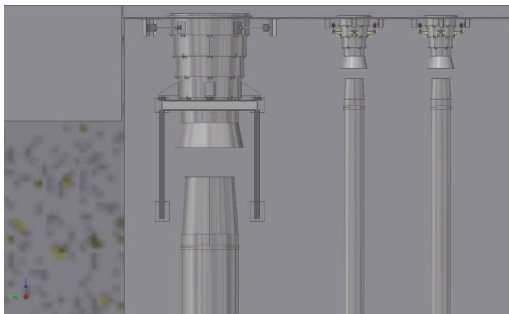
(주)한국종합기계 · 금속  
Hanguok Machinery Co.,Ltd.

### 설계 및 운전 특징

### Design and operation features

- |  |  |
|--|--|
| 1. 목적 : 선박엔진의 폐기부에 설치되어 적외선을 저감시키는 역할    | 1. Application : in order to reduce infrared.  |
| 2. 원리 : 엔진에서 발생하는 고온의 배기가스를 외부의 공기와 혼합시킴 | 2. Principle: The gas with high temperature gas from the engine is mixed with the outside air. |
| 3. 위치 : 폐기가스 출구부에 고정                     | 3. Location : fix to external of exhaust gas.  |
| 4. 크기 : 고객맞춤제작                           | 4. Size : Up to requirements   |
| 5. 성능 : 크기, 외기조건, 폐기량 온도에 따라 다름          | 5. performance : Up to size, temperature   |
| 6. CFD(전산유체역학) 제공                        | 6. CFD service   |

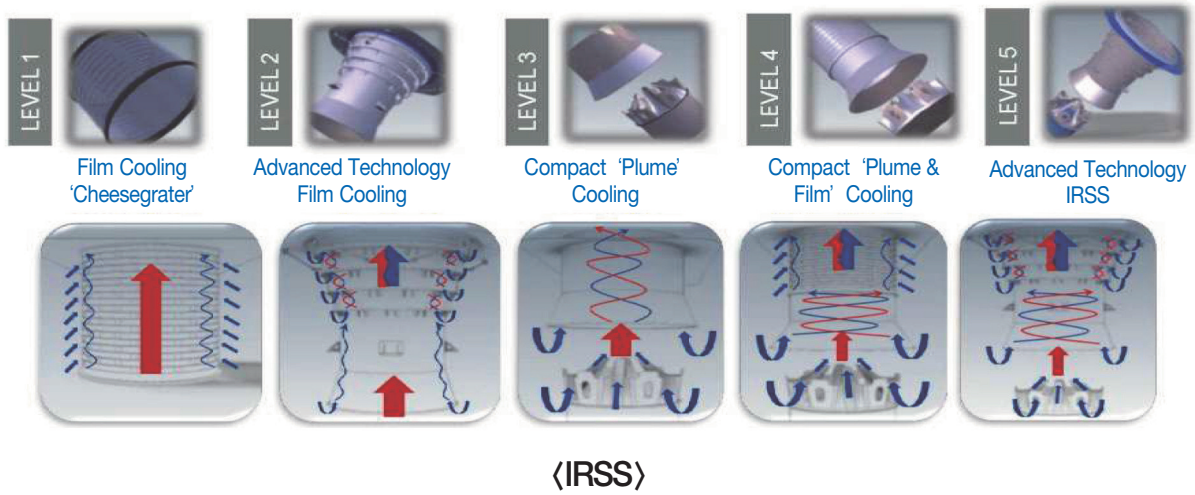
## ■ IRSS (IRSS Installation)



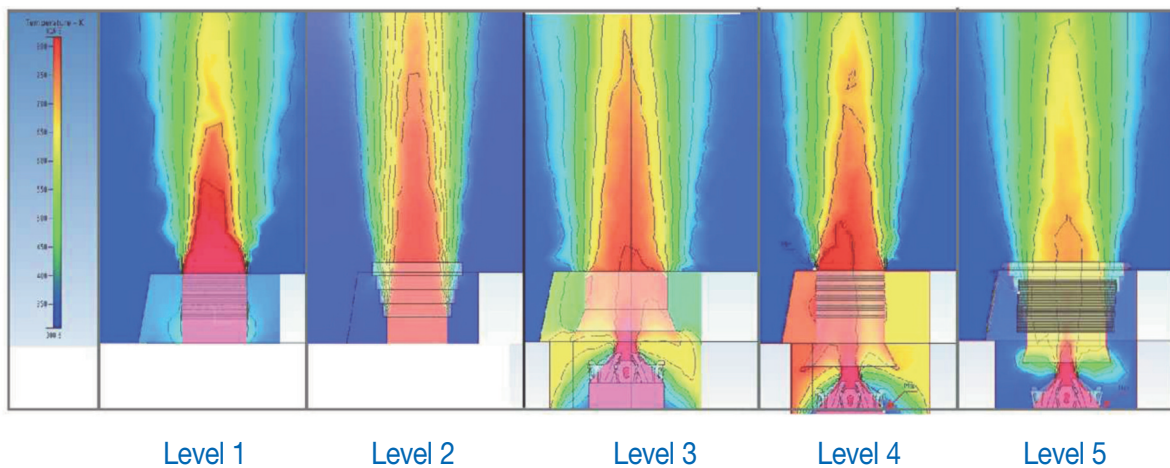
■ 단계별 IRSS(Level Performance)

적외선 감소 장치  
InfraRed Signature Suppression

Background - Darchem' s IRSS Family



Level Performance Comparison

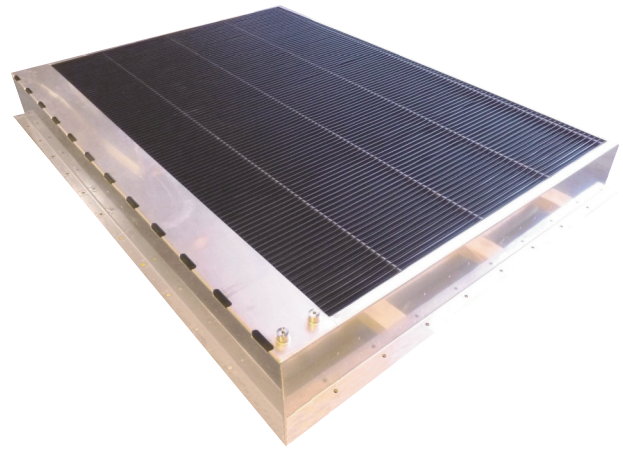


## 흡기 수분제거기 (DEMISTER)

### ■ 제품일반(General)

연안, 해안, 해양크루즈, 해양함정에서 사용되는 수분 제거기.

Water separator used in coastal, coastal, marine cruise, and maritime traps.



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Hangeok Machinery Co.,Ltd.



Veotec  
Air Quality Solutions

### 설계 및 운전 특징

#### 1. 특징

- 6m/s 속도에 공기역학적으로 설계
- 작은 크기와 가벼운 무게
- 견고한 구조
- 미세한 물방울 제거
- 작업구간 내에서의 탁월한 벌크워터 제거
- 낮은 압력 손실
- 적은 유지비용

#### 2. 위치

벌크헤드에 설치, 삽입

### Design and operation features

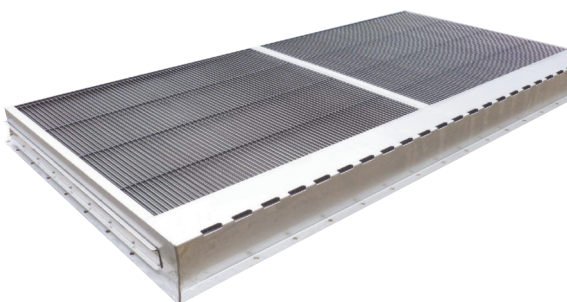
#### 1. Product feature

- Aerodynamically optimised at 6m/s face velocity
- compact size and light unit weights
- Robust Construction
- Removes almost all water droplets
- Excellent bulk water removal through its operating range
- low pressure loss
- Low maintenance

#### 2. location

- Mounting, inserting through bulkhead

## Two Stage/Multiple Stage Moisture Eliminator



# 흡기 수분제거기 (DEMISTER)



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## Data Sheet-SE1GT-20SS-Modular Single Stage Spray Eliminator

### Description

The Veotec SE1GT air intake separator is modular design intended to enable large area intakes such as those in gas turbine filter houses to be fitted in the most cost effective manner. The SE1GT is suitable for use within the most extreme and demanding environments such as those found in offshore, coastal and marine applications.

### Features & Benefits

- \* Exceptional rain, spray and fog removal
- \* High efficiency
- \* Low pressure losses
- \* Low maintenance
- \* Multiple or singular modules available
- \* Sized to suit application
- \* Designed for large turbine applications

### Construction

#### Materials & Methods of Construction - Casing

Material : Stainless Steel 316L / DIN 1,4404  
Stainless Steel 304L / DIN 1,4307

Finish : Natural

Construction : Frame & drain trough manufactured from folded sheet metal.

Joining or Adjacent edges shall be fillet or butt welded in accordance with Veotec' Welding Procedure Specifications (WPS).

Drain trough shall be welded into position with 3 x 100mm stitch welds.

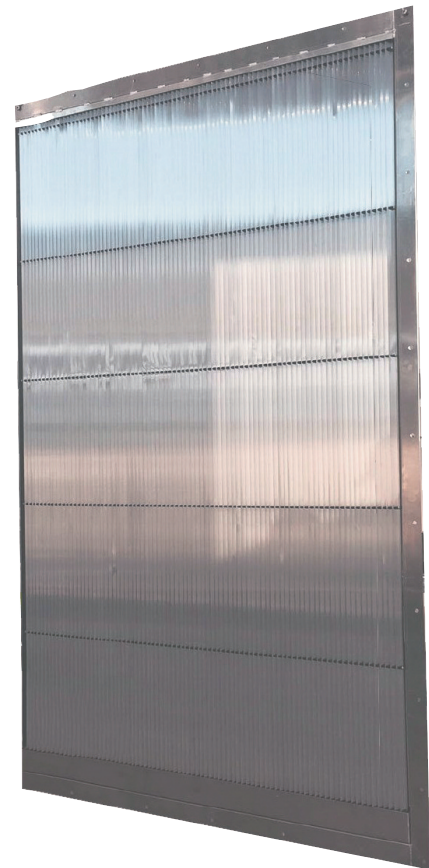
Casing thickness shall depend upon the overall size and application of the separator and shall be stated on the General Arrangement Drawing unless otherwise specified.

#### Materials & Methods of Construction - SE Profile Vane

Material : Stainless Steel 316L / DIN 1,4404 or Stainless Steel 304L / DIN 1,4307

Finish : Natural (Brushed 180 grit prior to forming)

Construction : 0,6mm Thick roll formed from coil



# 흡기 수분제거기 (DEMISTER)



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## Data Sheet-SE1GT-20SS-Modular Single Stage Spray Eliminator

### Materials & Methods of Construction - Other

Vane Spacers : Polyamide (Plastic) injection Moulded

Internal Foam : Polyether Open Cell Foam

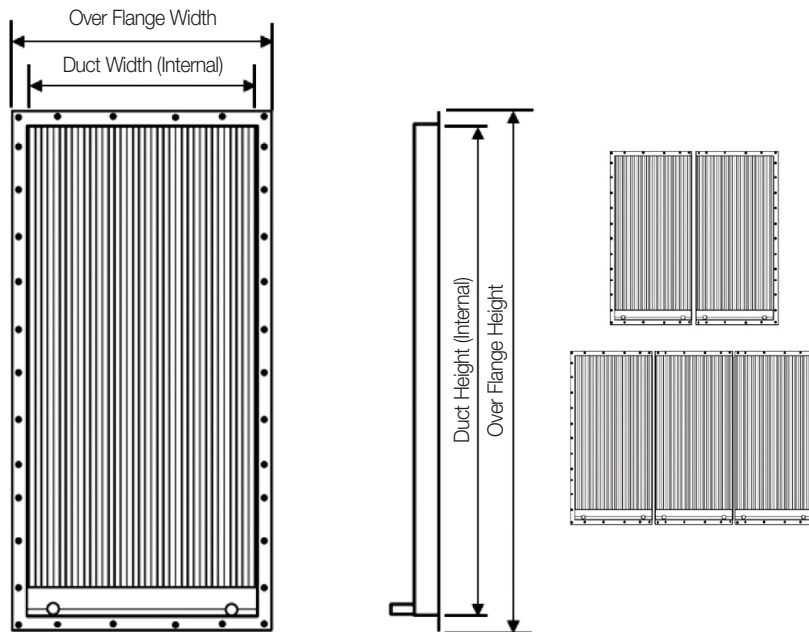
Sealing : Sikaflex EBT +

### Installation

Typical installation arrangements include;

- \* Front Flange (Through Bulkhead) Mounting
- \* Rear Flange (On Bulkhead) Mounting

Flange dimensions and drilling patterns may be manufactured to customer specifications.



\* \* Maximum width of Individual section = 2000mm

Maximum height of individual section section = 3000mm

Dimensions outside of those stated above shall be considered but shall be subject to technical review.  
SE1GT Spray Eliminators are also available in Marine Grade Aluminium and/or with RPVC vane bonk,  
Efficiency may vary with vane material.

# 흡기 수분제거기 (DEMISTER)



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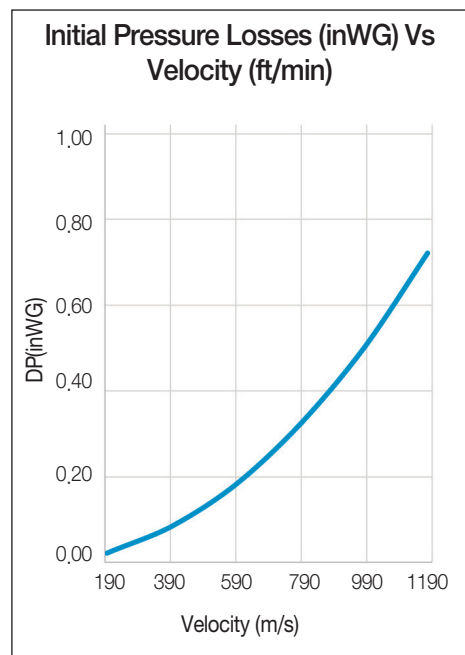
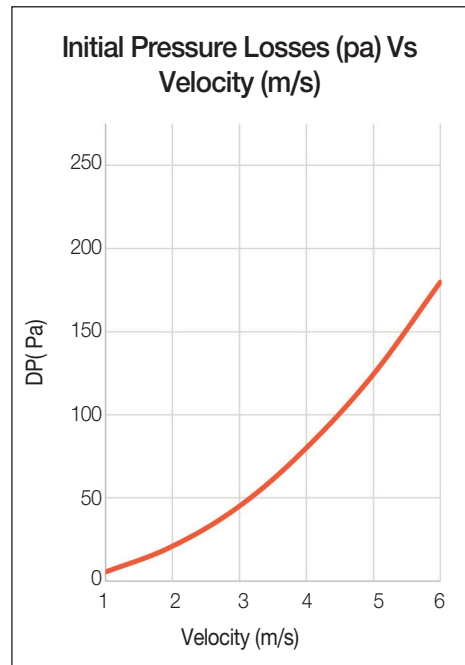
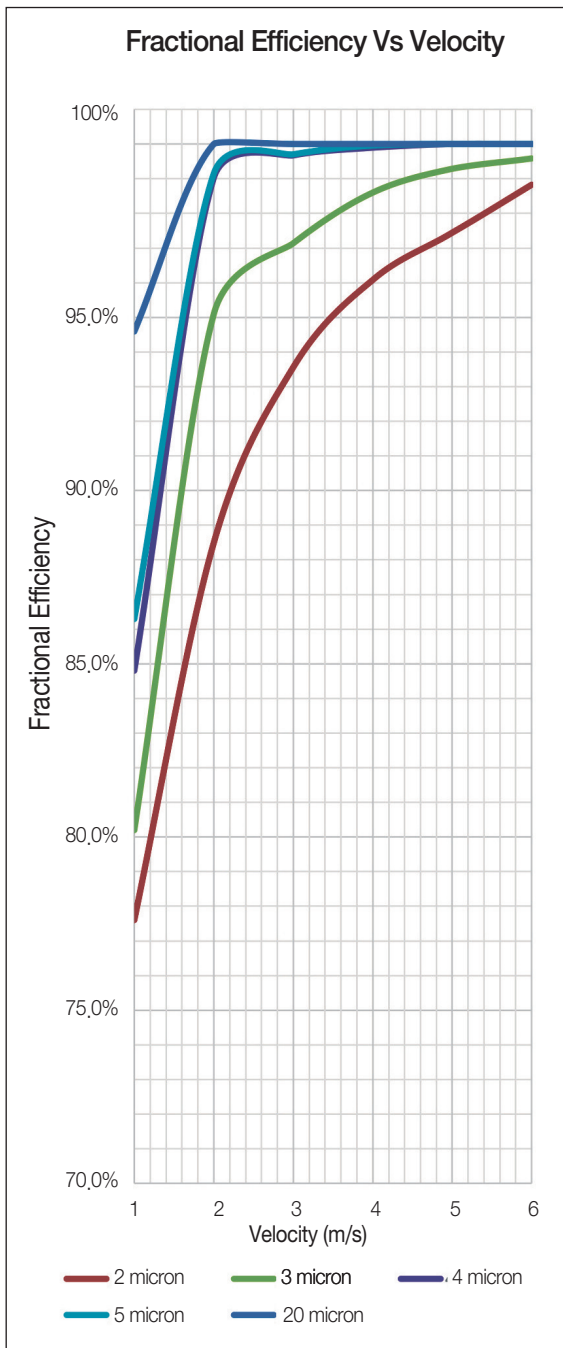


Veotec  
Air Quality Solutions

## Data Sheet-SE1GT-20SS-Modular Single Stage Spray Eliminator

### Performance & Efficiency

Veotec's performance and efficiency data has been independent verified by an independent testing laboratory and is proven to meet the highest of industry standards.



# 흡기 수분제거기 (DEMISTER)



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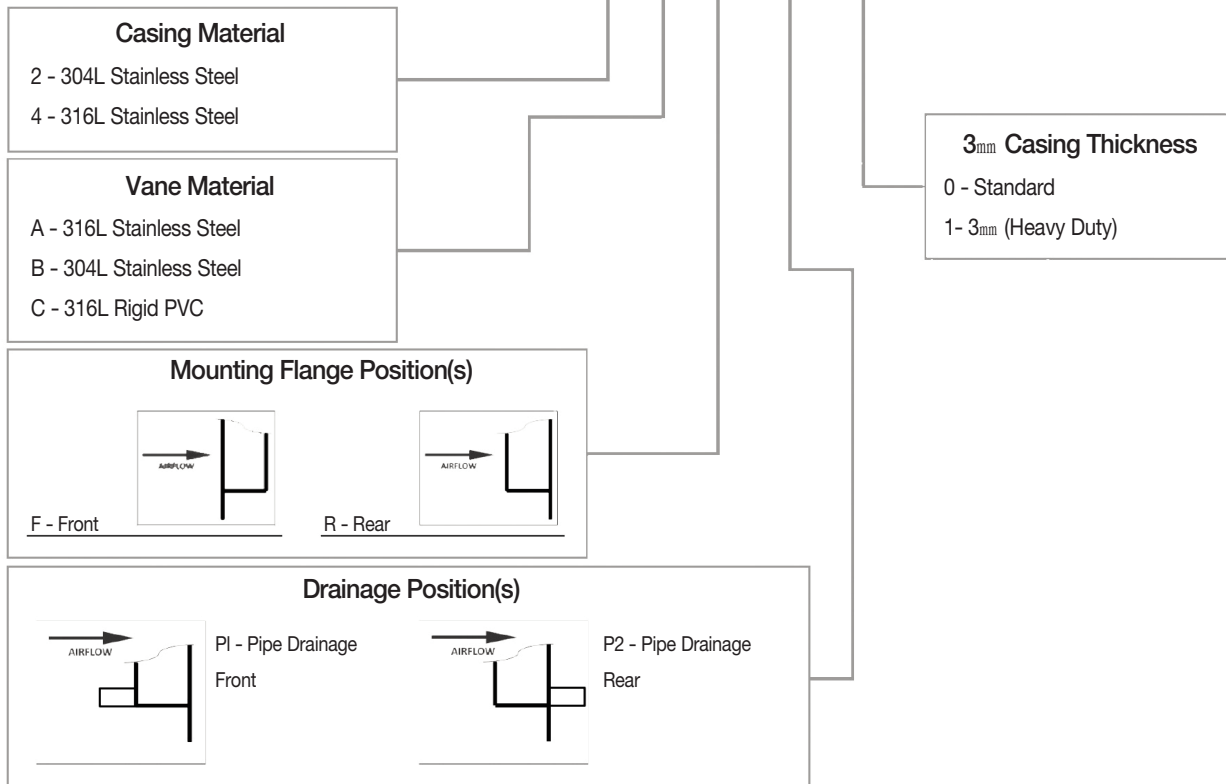


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Air Quality Solutions

## Data Sheet-SE1GT-20SS-Modular Single Stage Spray Eliminator

### Product Code Generation

**SE1GT-20SS-?-?-?-??-?**



**Note :** SE1GT Spray Eliminators may also be installed with drain pipe headers. This is recommended when multiple units are installed vertically to prevent ingress of run off water directly into lower level filtration.

## 흡기 수분제거기 (DEMISTER)

### ■ 제품일반(General)

극한환경에서의 자원 추출을 위한 수분제거기  
Moisture eliminator for resource extraction in  
extreme environments



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Hangook Machinery Co.,Ltd.



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Air Quality Solutions

### 설계 및 운전 특징

### Design and operation features

#### 1. 특징

- 공기흡기 시스템에 생성된 눈과 얼음을 막기 위해 사용
- 각각 조정할 수 있는 자동온도조절장치를 공급하거나 중앙컨트롤 형식을 사용할 수 있음.
- 눈, 얼음, 서리, 부유물, 안개, 수분 비를 효과적으로 제거
- 장소 및 비용 절감

#### 2. 위치

- 벌크헤드에 설치, 삽입

#### 1. Product feature

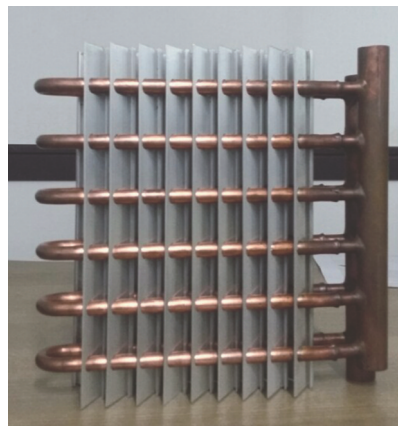
- Anti icing
- Have thermostatically controlled units or central control
- Removes snow, ice, sea spary, mist, bulk water, slat
- Saving space and cost

#### 2. Location

- Mounting, inserting through bulkhead

## SETH(Fluid system)

- 기존에 부착되었던 열선 대신 유체를 이용
- Using coil instead of existing trace heating
- 냉각기능을 이용하여 가스터빈의 엔진 효율성 향상
- Using cooling system to enhance gas turbine engine efficiency



## 흡기 수분제거기 (DEMISTER)



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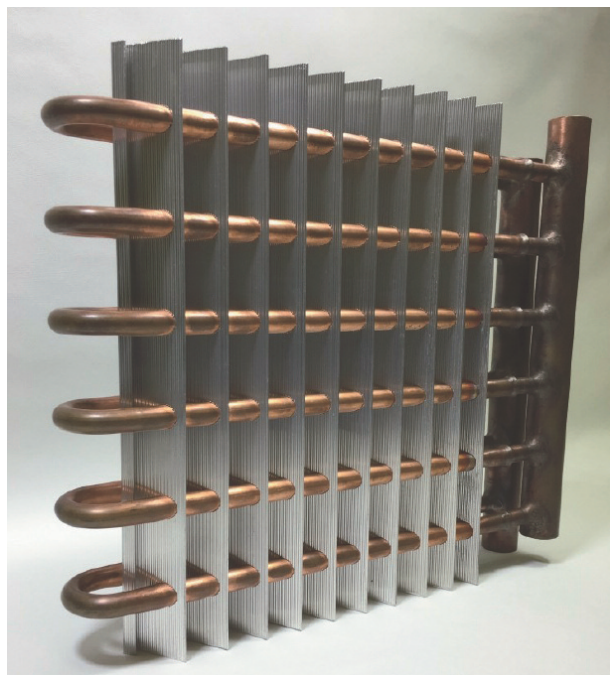
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Air Quality Solutions

### Data Sheet-SETH-Fluid Heated Spray Eliminator with Tube Technology

#### Description

SEFH fluid heated air intake louvres combine the superior water removal efficiency of Veotec SE1 vane separators with heat exchanger technology to deice the inlet and heat or chill the air stream. The anti-icing properties effectively removes snow, ice, hoarfrost, drift, fog, mist, and rain from the air stream.

Snow bounces off and through most cold louvres, hoods, and drift eliminators until it finally builds up on the filters or on the eliminator. Veotec SEFH fluid heated louvres melt snow and prevent icing. Snow flakes instantly melt into water droplets where we effectively drain the coalesced droplets away. SEFH fluid heated louvers are optimally spaced for first stage water removal for inlets and filtration systems so there is no need for pre-filtration like normal coils. In many cases these louvres can be bolted in place of hoods. If required, the louvres can be sized to fit inside of most hoods. Inlets already using coils can benefit from an added boost in performance.



#### Features & Benefits

- \* Efficient water droplet / mist / drift removal
- \* Superior anti-icing
- \* Outstanding thermal performance
- \* Cooling for improved performance
- \* Excellent bulk water removal
- \* Low airflow resistance
- \* Compact size and light weight
- \* Durable corrosion resistant materials
- \* Robust construction ensures long term reliability with low maintenance
- \* Available in custom sizes to suit customer needs
- \* Many water drainage options are available

# 흡기 수분제거기 (DEMISTER)



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## Data Sheet-SETH-Fluid Heated Spray Eliminator with Tube Technology

### Construction

#### Materials & Methods of Construction - Casing

Material : Stainless Steel 316L / DIN 1,4404  
Stainless Steel 304L / DIN 1,4307  
Aluminium 5251 or equivalent

Finish : Natural

Construction : Flanges manufactured from 2 x casing thickness spot welded together on a regular and even spacing. Joining or adjacent edges shall be fillet or butt welded in accordance with Veotec' 's Welding Procedure Specifications (WPS).  
Casing thickness shall depend upon the overall size and application of the separator and shall be stated on the General Arrangement Drawing unless otherwise specified. (3mm casing thickness also available).

#### Materials & Methods of Construction - SE Profile Vane

Material :	Stainless Steel 316L / DIN 1,4404	Aluminium 6063 T6
Finish :	Natural (Brushed 180 grit prior to forming)	Natural
Construction :	0,6 <sub>mm</sub> thick roll formed from coil	1,5 <sub>mm</sub> thick extrusion

#### Materials & Methods of Construction - Other

Coil piping : Hydraulically expanded copper tube with copper header  
Internal Foam : Polyether Open Cell Foam  
Name Plate : Stainless Steel 316L or Traffolyte  
Internal Sealing : Sikaflex 5221

### Installation

Typical installation arrangements include;

- \* Front Flange (through Bulkhead) Mounting
- \* Rear Flange (on Bulkhead) Mounting
- \* Double Flange (in Duct) Mounting

Flange dimensions and drilling patterns may be manufactured to customer specifications or to industry standards such as EN ISO 15138.

\* \* Maximum width of individual section = 2000<sub>mm</sub> Maximum height of individual section = 3000<sub>mm</sub>

Dimensions outside of those stated above shall be considered but shall be subject to technical review.  
Dimensions outside of those stated above shall be considered but shall be subject to technical review.  
Efficiency may vary with vane material.

# 흡기 수분제거기 (DEMISTER)



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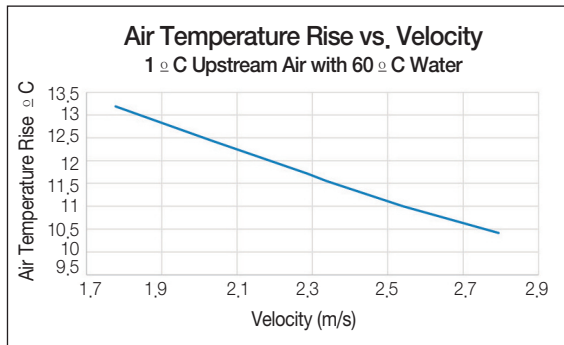
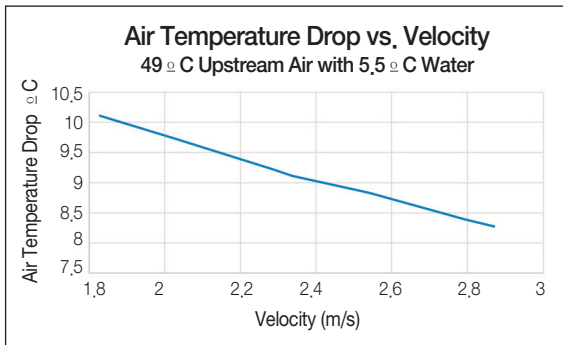


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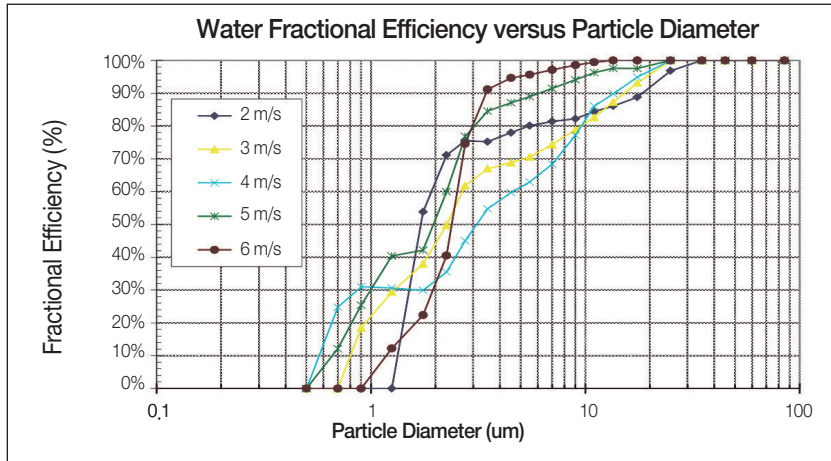
## Data Sheet-SETH-Fluid Heated Spray Eliminator with Tube Technology

### SEFH TECHNICAL DATA

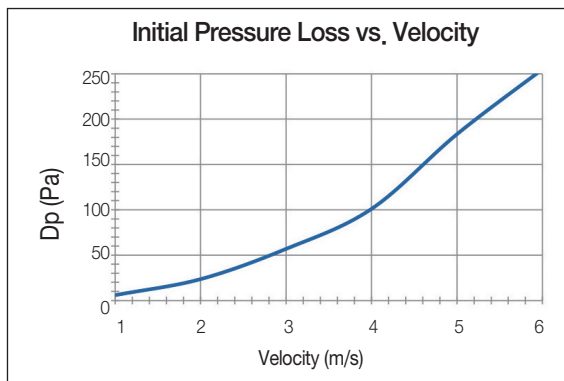
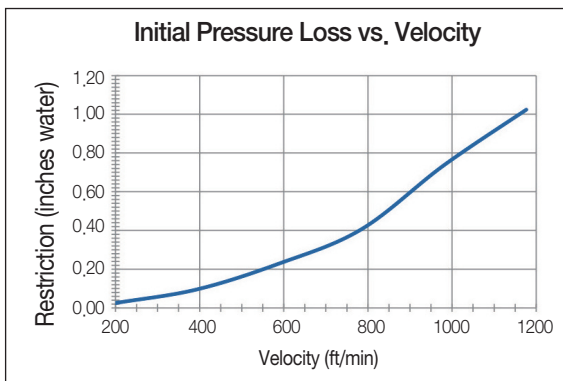
Air Temp Change in C v flow Rate in m/s (Independent Test Data)



Efficient Water Droplet Removal (Independent Test Data)



Low Pressure Loss (Independent Test Data)



# 흡기 수분제거기 (DEMISTER)



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Air Quality Solutions

## Data Sheet-SE1TH-17SS-Single Stage Heated Spray Eliminator

### Description

The Veotec SE1TH range of products are designed to give the performance of the Veotec 'SE' vane with added protection against ice and snow and freezing fog.



### Features & Benefits

- \* Removes rain / sea spray from the air
- \* High efficiency
- \* Low pressure losses
- \* Low maintenance
- \* Custom drainage available
- \* Works effectively up to 5.0 m/s
- \* Safe or hazardous area rated
- \* Sized to suit application

### Construction

#### Materials & Methods of Construction - Casing

Material : Stainless Steel 316L / DIN 1,4404  
Stainless Steel 304L / DIN 1,4307

Finish : Natural

Construction : Flanges manufactured from 2 x casing thickness spot welded together on a regular and even spacing. Joining or adjacent edges shall be fillet or butt welded in accordance with Veotec' 's Welding Procedure Specifications (WPS).

Casing thickness shall depend upon the overall size and application of the separator and shall be stated on the General Arrangement Drawing unless otherwise specified.

(3mm casing thickness also available).

#### Materials & Methods of Construction - SE Profile Vane

Material : Stainless Steel 316L / DIN 1,4404 or Stainless Steel 304L / DIN 1,4307

Finish : Natural (Brushed 180 grit prior to forming)

Construction : 0,6mm thick roll formed from coil

# 흡기 수분제거기 (DEMISTER)



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Hangoon Machinery Co.,Ltd.



Veotec  
Air Quality Solutions

## Data Sheet-SE1TH-17SS-Single Stage Heated Spray Eliminator

### Materials & Methods of Construction - Other

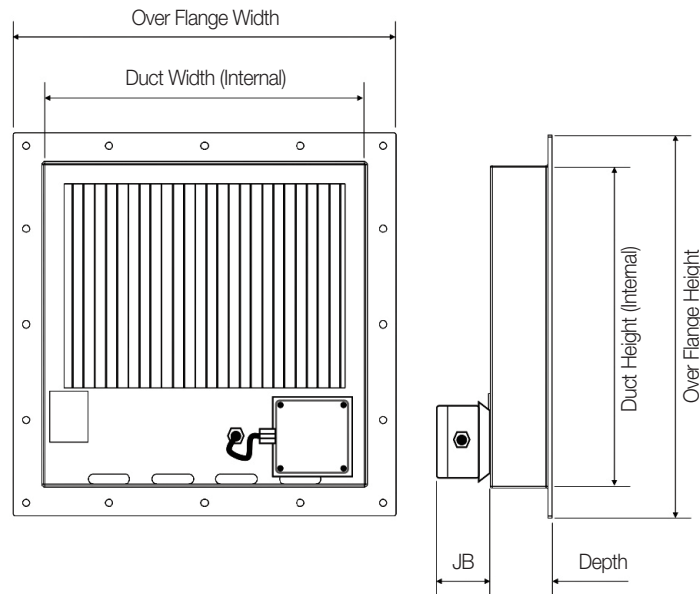
Vane Spacers : Polyamide (Plastic) injection Moulded  
Internal Foam : Polyether Open Cell Foam  
Name Plate : Stainless Steel 316L or Traffolyte  
Internal Sealing : Sikaflex 5221

### Installation

Typical installation arrangements include;

- \* Front Flange (through Bulkhead) Mounting
- \* Rear Flange (on Bulkhead) Mounting
- \* Double Flange (in Duct) Mounting

Flange dimensions and drilling patterns may be manufactured to customer specifications or to industry standards such as EN ISO 15138.



\* \* Maximum width of Individual section = 2000mm

Maximum height of individual section = 3000mm

Dimensions outside of those stated above shall be considered but shall be subject to technical review.

Efficiency may vary with vane material.

**(주)한국종합금속**  
**Hangook Metal Co.,Ltd.**



## ■ 제품일반(General)

### Valve

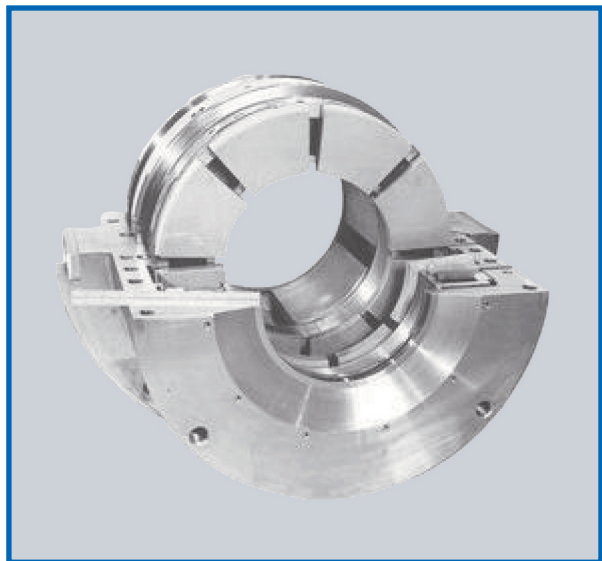
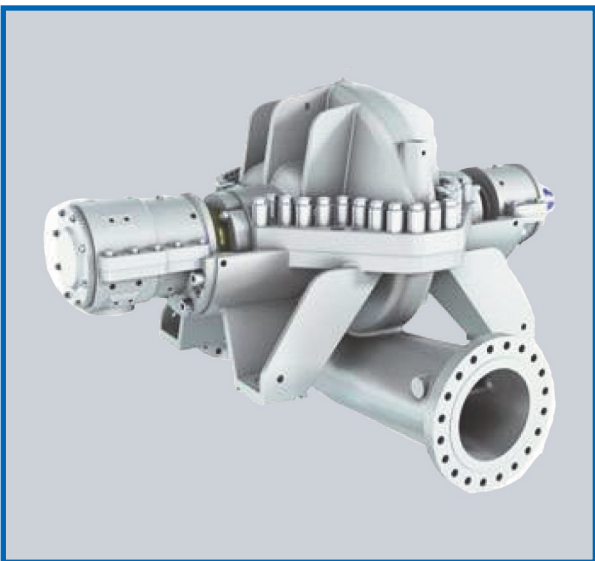
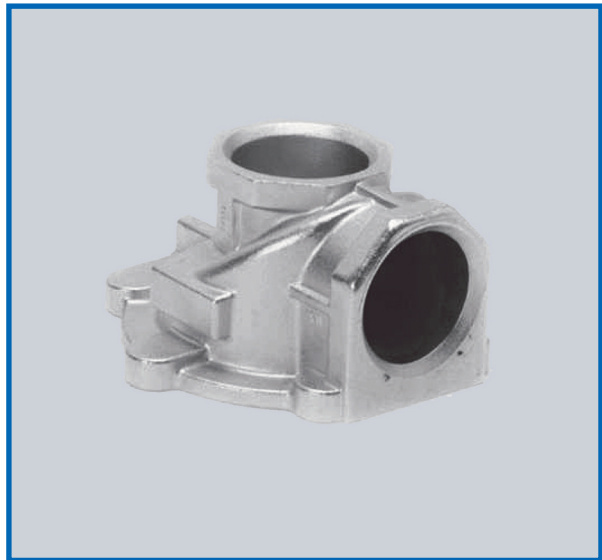
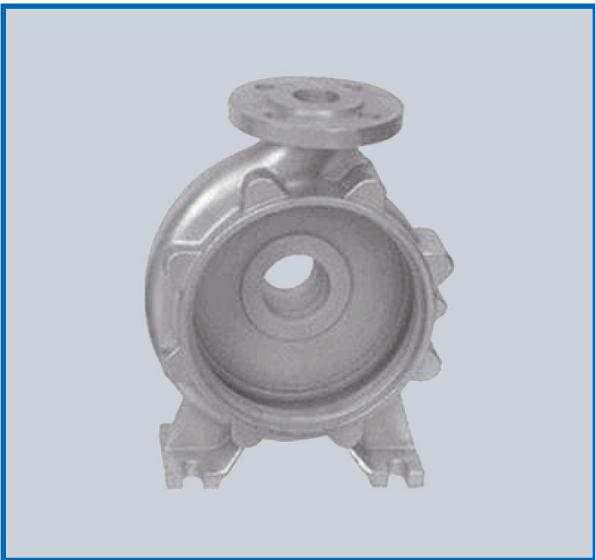
- Gate Valve
- Globe Valve
- Angle Valve
- Check Valve
- Ball Valve
- Butterfly Valve
- etc



■ 제품일반(General)

Pump

- Pump casing
- Bearing housing
- Pump cover



## ■ 제품일반(General)

### Heavy Equipment

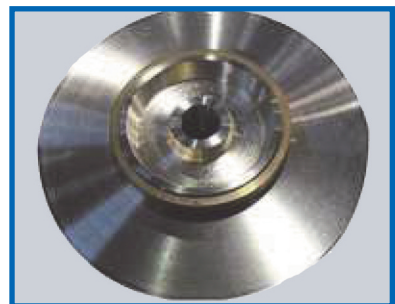
- Tooth
- Adapter
- Plate
- etc



## ■ 제품일반(General)

### Impeller

- Close Type
- Open Type
- Balance Type
- Voltex Type



# Bell mouth/I&V STRUT

## ■ 제품일반(General)

### Bell mouth I & V STRUT

#### Bell mouth

Material : SCW410

Dimension : 1,740 × 1334 × 850

Weight : 1,950

#### I & V STRUT

Material : SCW410

Dimension : 1,740 × 1334 × 850

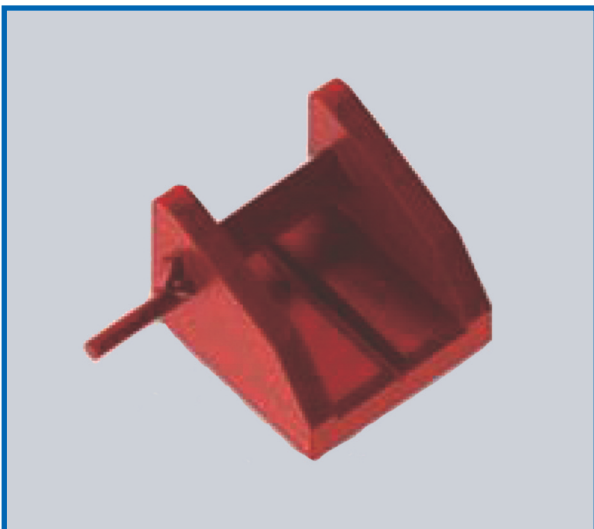
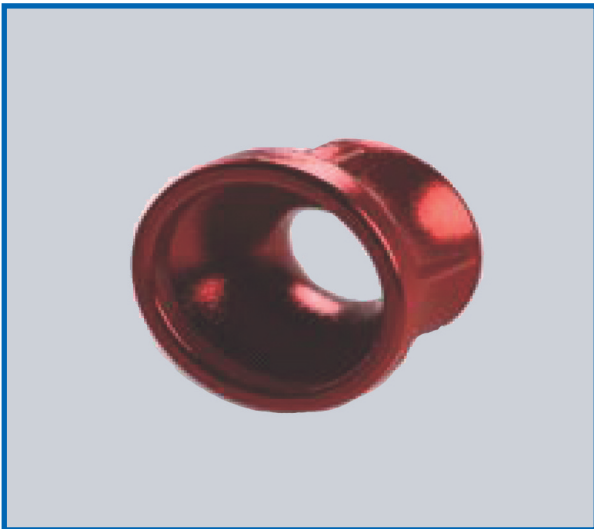
Weight : 1,950



## ■ 제품일반(General)

### Fittings

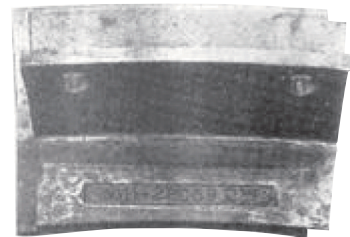
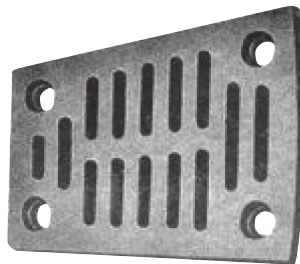
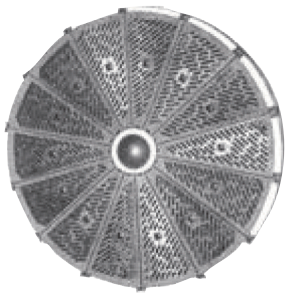
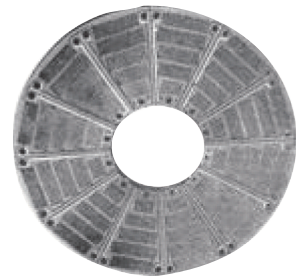
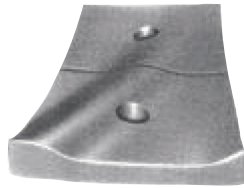
- Anchor and chain
- blast furnace
- Cement mill & Raw mill
- Chain Stopper
- Crusher
- Dredger & Sand pumps
- etc



## ■ 제품일반(General)

### Cement Plant

- Mill liner
- Screen plate
- Slot Liner
- Inner Segmen





**(주)한국마스터도어**  
Hangook Mater Door Co.,Ltd.

윈도우는 강화 안전유리(TOUGHENED SAFETY GLASS)를 사용해야 하며 일반적으로 투명유리를 사용 하지만 그 용도에 따라서 TINTED GLASS, ELECTRIC HEATED GLASS, FIRE RESISTANT GLASS, FROSTED GLASS, ARGON GAS가 충전된 PAIR GLASS 등이 사용된다.

The window should use toughened safety glass. In general, we use clear glass, Depending on usage, tinted glass, electric heated galss, fire resistant glass, frosted glass, pair glass made of argon gas are used.

## 1. TINTED GLASS

반투명 유리로서 조타실에 사용되며 직사광선을 막기 위한 SUN SCREEN 역할을 한다.

It is Semi-transparent glass which is used in the wheelhouse, ilt blocks direct sunlight, as a sun screen.

## 2. ELECTRIC HEATED GLASS

추운 지방을 항해하는 선박의 조타실에 설치하며 GLASS에 응결된 눈 얼음 서리 등을 제거하기 위한 목적으로 사용 한다. It is installed in the wheelhouse of a ship navigating cold regions. It is used for the purpose of removing frost, snow frost which is condensed on glass.

## 3. FROSTED GLASS

불투명 유리로서 WEATHER에 접한 공용 화장실 및 샤워 실에 설치된다.

It is Non-transparent glass, it is installed in public toilets and shower rooms facing the WEATHER.

## 4. PAIR GLASS

ARGON GAS가 충전된 이중 유리로서 주로 ENGINE CONTROL ROOM에 설치되며, 기관실(ENGINE ROOM)로 부터 전달되는 소음을 감소시키기 위하여 사용된다. It is a double glass filled with argon gas and mainly installed in the control room. It is used to reduce the noise transmitted from the engine room.

**STANDARD** - ISO, BSMA & JIS

**MATERIAL** - Al-alloy, Brass, Steel

**METHOD OF FITTING** - Welded and Bolted

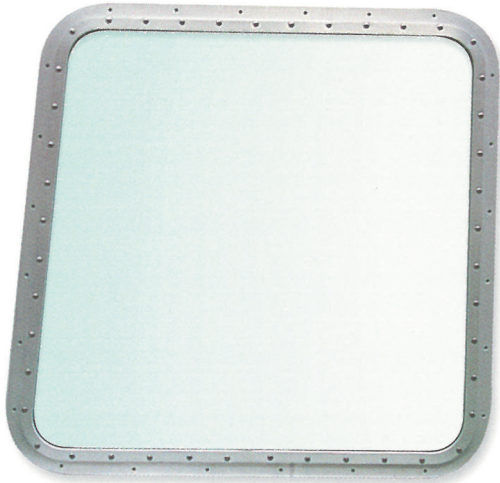
**GLAZING A** - Monolithic Toughened Glass(8, 10, 12, 15, 19mm), Sun Reflecting Glass, Double Glass For Noise, Laminated Glass, etc.

**GLAZING B** - Monolithic Toughened Glass(8, 10, 12, 15, 19mm), Sun Reflecting Glass, Double Glass For Noise & Heat Reducing, Heated Glass, Double Glass, Laminated Glass, etc.

**ACCESSORIES** - Insect screen, Sun screen, Roller blind, Stay Hook, Hanger, etc.

Type	Opening				Non opening			
Method of fitting	Bolted		Welded		Bolted		Welded	
Main frame	Brass	Al- alloy	Mild-Steel		Brass	Al- alloy	Mild-Steel	Mild-Steel
Glass frame			Brass	Al- alloy	-	-	-	-
Retaining frame			Brass	Al- alloy	Brass	Al- alloy	Brass	Al- alloy
Glazing	REFERENCE - GLAZING A				REFERENCE - GLAZING B			
Remark	Inward (R/L side, Up side) Outward (Up side)				Rectangular, Trapezoid			

## ■ Bolted Type Non Opening Window



### A. MAIN FRAME

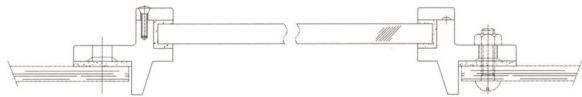
Material : Al-alloy, Brass

### B. RETAINING FRAME

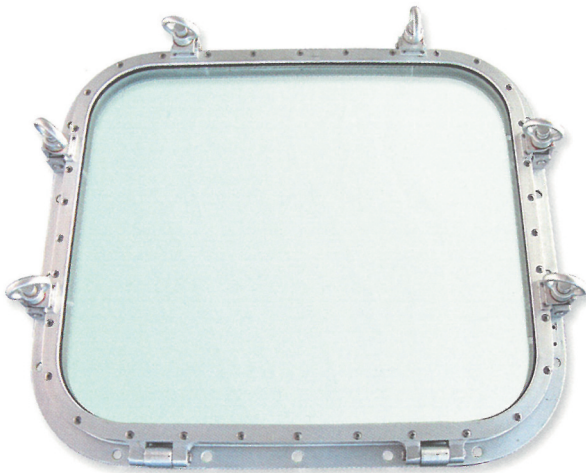
Material : Al-alloy, Brass, Stainless steel

### Non Opening Window Size

NO.	Width	Height	Available Radius
1	350	500	50R, 65R, 70R, 100R
2	450	600	
3	500	800	
4	ORDER CUSTOMER		



## ■ Bolted Type Opening Window



### A. MAIN FRAME

Material : Al-alloy, Brass

### B. GLASS FRAME

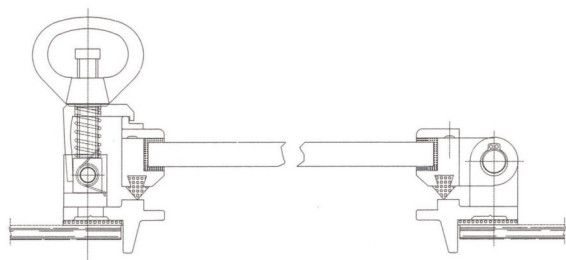
Material : Al-alloy, Brass

### C. RETAINING FRAME

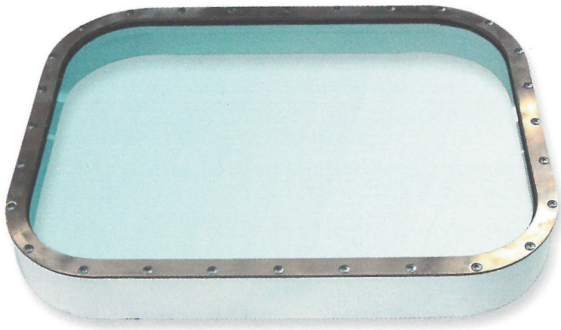
Material : Al-alloy, Brass

### Opening Window Size

NO.	Width	Height	Direction
1	350	500	Right Open Left Open Upward Open
2	450	600	
3	500	800	
4	ORDER CUSTOMER		



## ■ Welded Type Non Opening Window



### A. MAIN FRAME

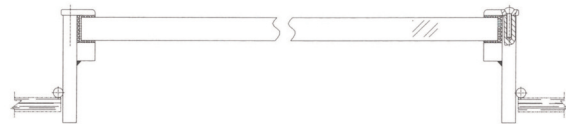
Material : Steel, Stainless steel

### B. RETAINING FRAME

Material : Al-alloy, Brass, Stainless steel

### Non Opening Window Size

NO.	Width	Height	Available Radius
1	350	500	70R, 100R
2	450	600	
3	500	800	
4	ORDER CUSTOMER		



## ■ Welded Type Opening Window



### A. MAIN FRAME

Material : Steel, Stainless steel

### B. GLASS FRAME

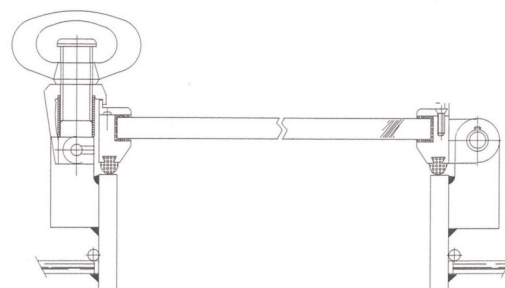
Material : Al-alloy, Brass

### C. RETAINING FRAME

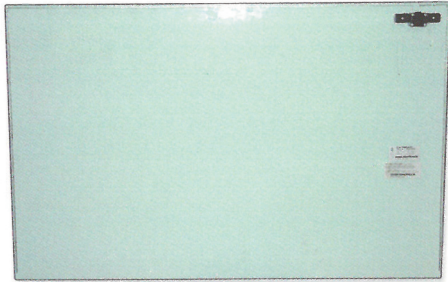
Material : Al-alloy, Brass

### Opening Window Size

NO.	Width	Height	Direction
1	350	500	Right Open Left Open Upward Open
2	450	600	
3	500	800	
4	ORDER CUSTOMER		



## ■ Electric Heated Window



▲ Before castellation



B. GLASS FRAME

### A. MAIN FRAME

Material : Al-alloy, Brass, Steel

### B. ELECTRIC HEATED GLASS

Combination : 6(8+12+19)<sub>mm</sub> + 1.52.PVB + 6<sub>mm</sub>

Power source : AC 220V, 1ph, 60Hz, 8.5w/d<sub>m<sup>2</sup></sub>

Power source : AC 440V, 1ph, 60Hz, 35w/d<sub>m<sup>2</sup></sub>

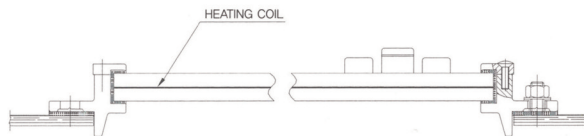
### C. GLASS KEEP

Material : Al-alloy, Brass, Stainless steel

### D. CONNECTION BOX TYPE

N-Type : Temperature is controlled by user. (max. +42°C)

B-Type : Heating is auto-controlled by bimetal.



## Test

A-60 Class fire resistant windows

A-60 Class fire resistant side-scuttle

A-0 Class fire resistant windows

※ Standard complied with IMO Resolution A754(18) for A60 Window & Side scuttle as well as the Hose stream test.

※ Type approval certification for A-60 Class fire resistant window obtained from :

- Det Norske Veritas (DNV)
- Korea Register of shipping (KR)
- America Bureau Shipping (ABS)
- Resistro Italiano Navale (RINA)

ITEM	Max clear size	Fire Glass	Remark
A60-Class window	1750mm W × 1200mm H	Contraffame N2	
A60-Side Scuttle	400mm DIA	Contraffame N2	With steel Deadlight



# SIDE SCUTTLE



▲Welded Opening Side Scuttle



▲Welded Non Opening Side Scuttle



▲Bolted Opening Side Scuttle



▲Bolted Non Opening Side Scuttle

## Standard Size

Class	Type			Thickness of glass(mm) (toughened)					
	Standard	Glass holder	DeadLight	200	250	300	350	400	450
A	ISO	Non-opening and opening	Hinged-up	10	12	15	15	19	19
	JIS	Non-opening		12	15	15	-	-	-
		opening		-	15	15	-	-	-
B	ISO	Glass holder	Hinged-up	8	8	10	12	12	15
	JIS	Non-opening and opening		10	12	12	-	-	-
	JIS	Non-opening		10	12	12	15	15	-
opening									
C	ISO	Non-opening and opening	-	6	6	8	8	10	10
	JIS	Non-opening	Hinged-up	10	10	10	12	12	-
opening		10		10	10	12	12	*	
D	JIS	opening	-	10	10	10	10	10	-
E	JIS	opening	-	8	8	8	10	10	-

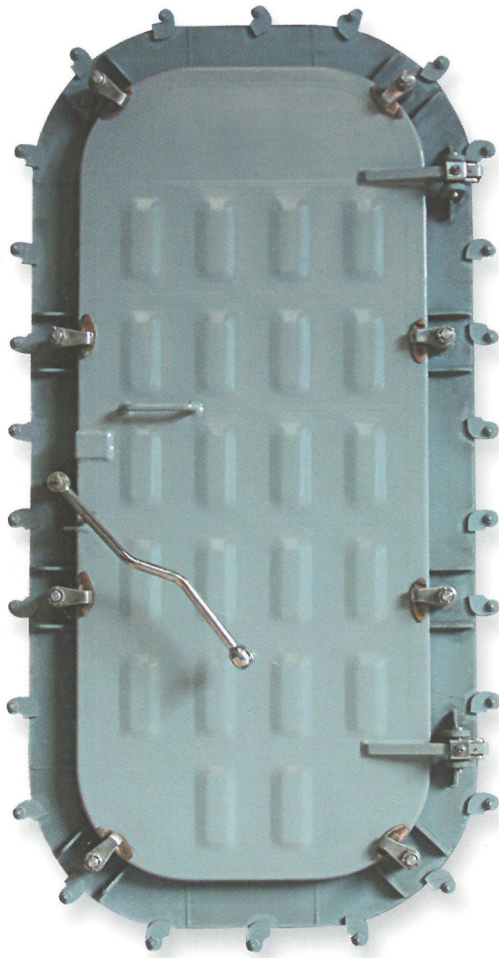
## Material Standard

Class	Main frame		Glass frame		Deadlight		Swing bolt & pin	
	ISO BSMA	JIS	ISO BSMA	JIS	ISO BSMA	JIS	ISO BSMA	JIS
A	Brass Steel*	Bronze	Brass	Bronze	Cast Iron	Bronze Cast steel	Brass	Brass
B	Brass Al-alloy Steel		Brass Al-alloy		Cast Iron Al-alloy	Cast Iron	Brass Stainless	
C		Bronze Al-alloy		Bronze Al-alloy	-	Cast Iron	Brass Stainless	Brass Al-alloy
D								
E	-							

※ Steel main hares 1or welding types only

## ■ Navy Style Doors Quick Acting Lever Operated

Water Tight, Gas Tight, Fume Tight



### A. Cover Plate

Material : Steel Aluminium

Plate thickness : Steel 2.3~3mm, Aluminium 5~6mm

### B. Door Frame

Material : Steel, Aluminium

Type : Door frame : 43x121X6mm

### C. Corner

Square corner

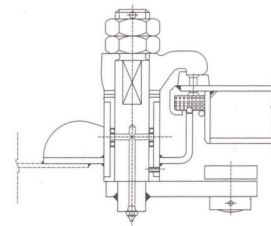
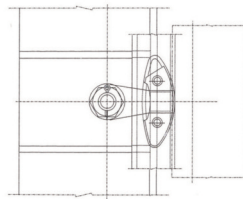
Radius corner (Clear opening : R203mm)

### D. Packing

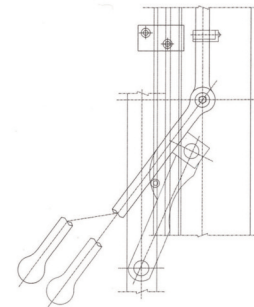
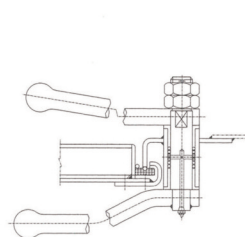
EPDM 12T × 32B

### Clear Opening Size

NO.	Width	Height	Type
1	600	1600	8, 10 Dog type
2	800	1600	
3	700	1600	
4	ORDER CUSTOMER		



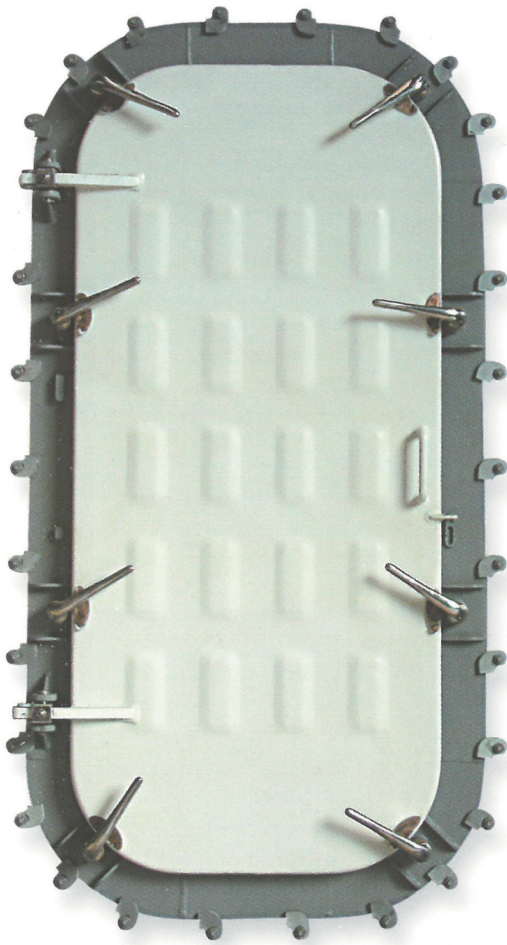
▲ Dog Part Ass'y



▲ Operating Handle Ass'y

## ■ Navy Style Doors Individual Dog Raised

Water Tight, Gas Tight, Fume Tight



### A. Cover Plate

Material : Steel, Aluminium

Plate thickness : Steel 2.3~3mm, Aluminium 5~6mm

### B. Door Frame

Material : Steel, Aluminium

Type : Door frame: 43 × 121 × 6mm

### C. Corner

Square corner

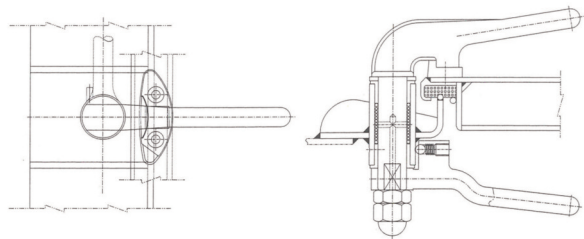
Radius corner (Clear opening ' , R203mm)

### D. Packing

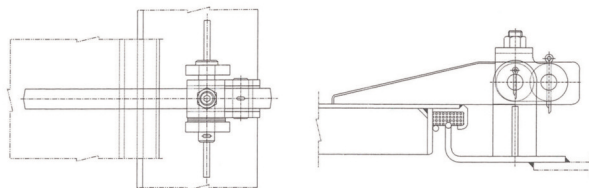
EPDM 12T × 32B

### Clear Opening Size

NO.	Width	Height	Type
1	600	1600	2, 4, 6, 8, 10 Dog type
2	660	1600	
3	700	1600	
4	ORDER CUSTOMER		



▲ Dog Part Ass'y



▲ Hinge Part Ass'y

## Commercial Style Doors Individual Dog Raised

Water Tight, Weather Tight, Non Tight



### A. Cover Plate

Material : Steel, Aluminium

Plate thickness : Steel 6~8mm , Aluminium 5~6mm

### B. Frame

Material : Steel, Aluminium

Type : Angle bar : Steel -  $38 \times 90 \times 7\text{mm}$

$38 \times 75 \times 6\text{mm}$

$38 \times 75 \times 9\text{mm}$

Aluminium -  $38 \times 80 \times 6\text{mm}$

### C. Corner

Square corner

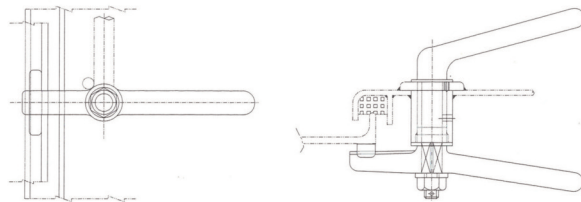
Radius corner (Clear opening : R 100mm)

### D. Packing

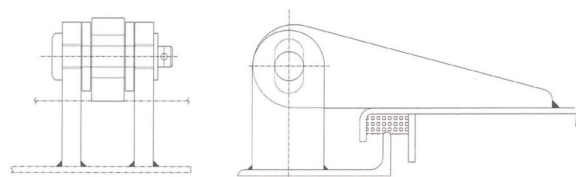
NEOPRENE 15T  $\times$  35B

### Clear Opening Size

NO.	Width	Height	Type
1	600	1600	2, 4, 6, 8, 10 Dog type
2	660	1600	
3	700	1600	
4	ORDER CUSTOMER		



▲ Dog Part Ass'y



▲ Hinge Part Ass'y

■ Commercial Style Doors Quick Acting Lever Operated

Water Tight, Weather Tight, Non Tight



▲ Outside



▲ Inside

A. Cover Plate

Material : Steel, Aluminium

Plate thickness : Steel 6mm , Aluminium 5~6mm

B. Frame

Material : Steel, Aluminium

Type : Angle bar : Steel - 50 × 75 × 6mm

50 × 100 × 7mm

50 × 75 × 9mm

Aluminium - 50 × 80 × 6mm

C. Corner

Square corner

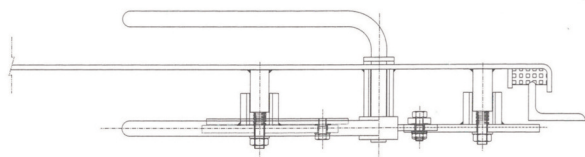
Radius corner (Clear opening : R 100mm)

D. Packing

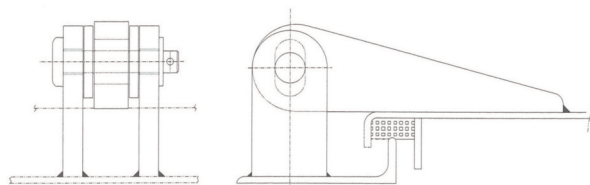
NEOPRENE 20T × 40B

Clear Opening Size

NO.	Width	Height	Type
1	600	1600	2, 4, 6, 8, 10 Dog type
2	660	1600	
3	700	1600	
4	ORDER CUSTOMER		



▲ Dog Part Ass'y



▲ Hinge Part Ass'y

## Commercial Style Doors Center Wheel Operated Water Tight, Weather Tight



▲ Outside



▲ Inside

### A. Cover Plate

Material : Steel, Aluminium

Plate thickness : Steel 8mm , Aluminium 8mm

### B. Frame

Material : Steel

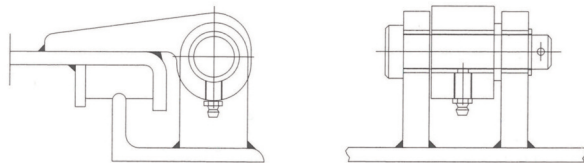
Type : Angle bar : Steel - 40×90×10mm

### C. Packing

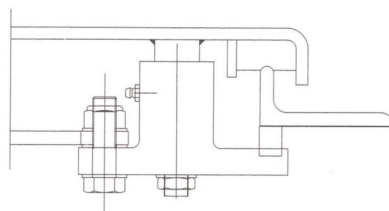
NEOPRENE 20T×40B

### Clear Opening Size

NO.	Width	Height	Type	
1	700	1600	Single	Wheel
2	800	1600		
3	1200	1600	Double	
4	1200	2400		
5	ORDER CUSTOMER			

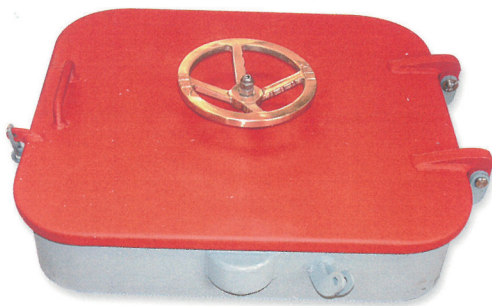


▲ Hinge Part Ass'y

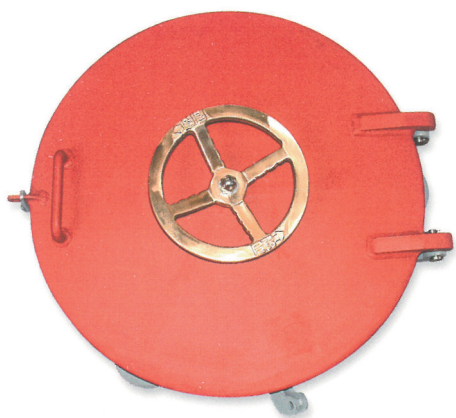


▲ Dog Part Ass'y

## ■ Navy Style Hatch Quick Acting Wheel Operated Water Tight, Gas Tight, Weather Tight



■ Square Hatch Q/A Wheel



■ Round Hatch Q/A Wheel

### A. Hatch Plate

Material : Steel, Aluminium

Plate thickness : Steel 5~6mm, Aluminium 6mm

### B. Coaming

Material : Steel 6, 9mm, Aluminium 6mm

### C. Corner

Square corner

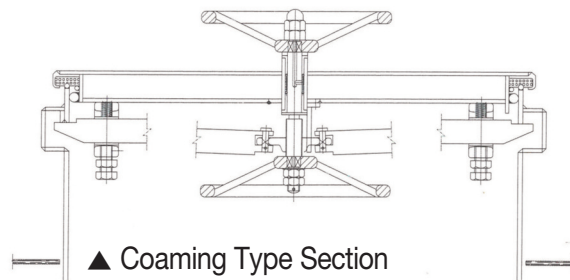
Radius corner (Clear opening : R 90mm)

### D. Packing

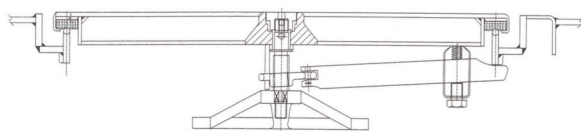
NEOPRENE 15T × 35B

### Clear Opening Size

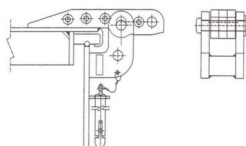
NO.	Width	Height	Type
1	600	600	Wheel Type
2	800	800	
3	600 $\phi$ , 534 $\phi$		
4	ORDER CUSTOMER		



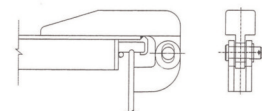
▲ Coaming Type Section



▲ Flush Type Section



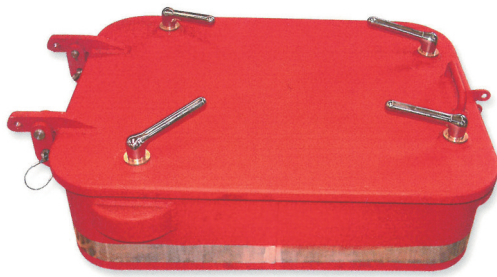
▲ Hinge Part Ass'y



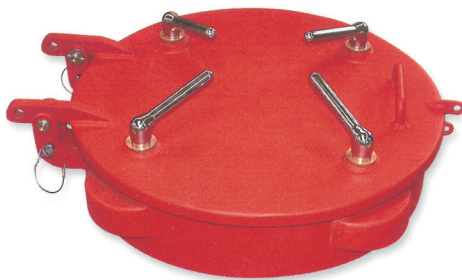
▲ Hinge Part Ass'y

# HATCH

## ■ Navy Style Hatch Individual Dog Raised Water Tight, Gas Tight, Weather Tight



■ Square Hatch



■ Round Hatch

### A. Hatch Plate

Material : Steel, Aluminium

Plate thickness : Steel 5~6mm, Aluminium 5mm

### B. Coaming

Material : Steel 6, 9mm, Aluminium 6mm

### C. Corner

Square corner

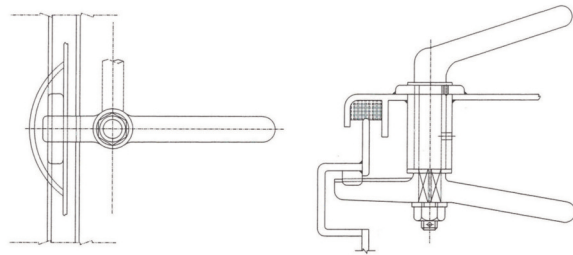
Radius corner (Clear opening : R 150mm)

### D. Packing

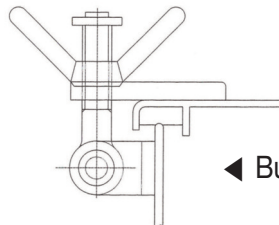
EPDM 13T×32B, 15T×35B

### Clear Opening Size

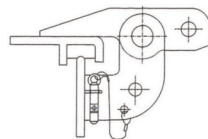
NO.	Width	Height	Type
1	600	600	2, 4, 6, 8, 10 Dog type
2	800	800	
3	600 $\phi$ , 534 $\phi$		Butterfly Type
4	ORDER CUSTOMER		



▲ Dog Type Ass'y



◀ Butterfly Type Ass'y



◀ Hinge Part Ass'y



## ■ Commercial Style Hatch Individual Dog Raised

Water Tight, Weather Tight, Non Tight



■ Butterfly Type Square Hatch



■ Dog Type Square Hatch

### A. Hatch Plate

Material : Steel, Aluminium

Plate thickness : Steel 5, 6mm , Aluminium 5mm

### B. Coaming

Material : Steel 6, 9mm, Aluminium 6mm

Type : Angle bar : 38 × 75 × 6mm Plate

### C. Corner

Square corner

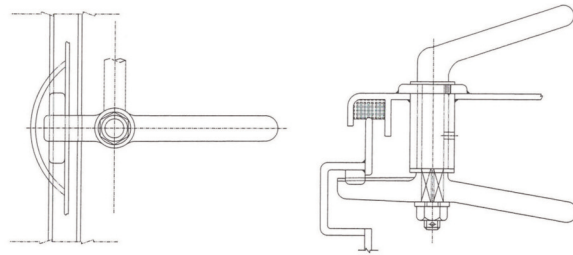
Radius corner (Clear opening : R 203mm)

### D. Packing

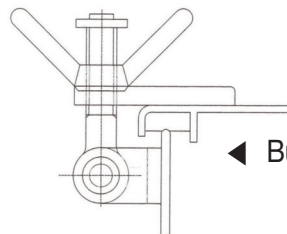
NEOPRENE 15T × 35B

### Clear Opening Size

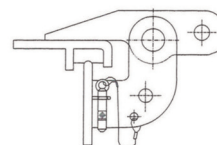
NO.	Width	Height	Type
1	600	600	2, 4, 6, 8, 10 Dog type Butterfly Type
2	800	800	
3	600 $\phi$ , 534 $\phi$		Butterfly Type
4	ORDER CUSTOMER		



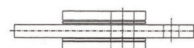
▲ Dog Type Ass'y



◀ Butterfly Type Ass'y

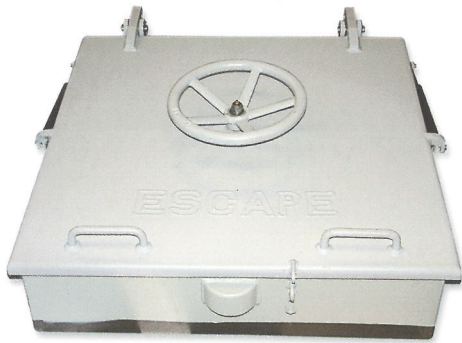


◀ Hinge Part Ass'y



# HATCH

## Commercial Style Hatch Quick Acting Wheel Operated



■ Coaming Type

### A. Hatch Plate

Material : Steel, Aluminium

Plate thickness : Steel 6~11mm, Aluminium 5~6mm

### B. Coaming

Material : Steel 6~12mm

### C. Packing

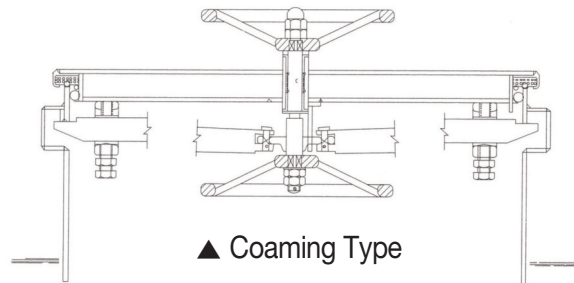
NEOPRENE 15T × 35B

### Clear Opening Size

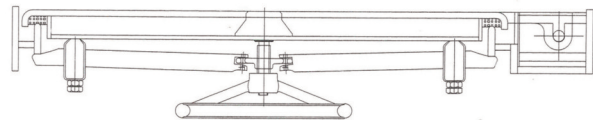
NO.	Width	Height	Type
1	600	600	Wheel Type
2	600 ∅		
3	ORDER CUSTOMER		



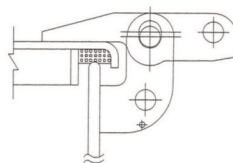
■ Flush Type



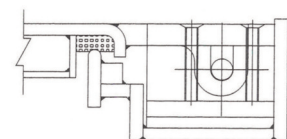
▲ Coaming Type



▲ Flush Type



▲ Hinge Part Ass'y  
(Coaming Type)



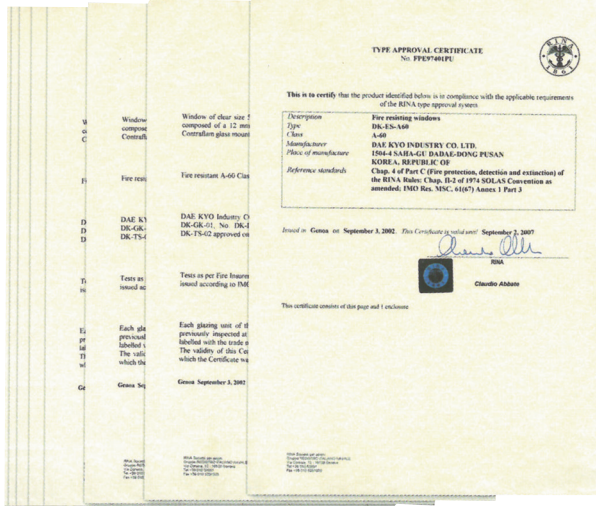
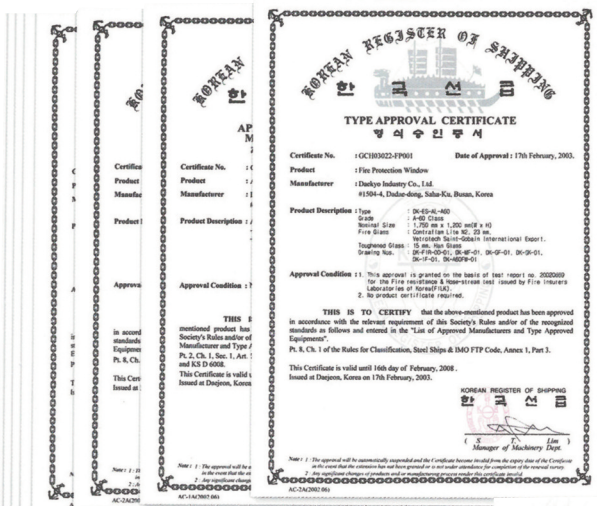
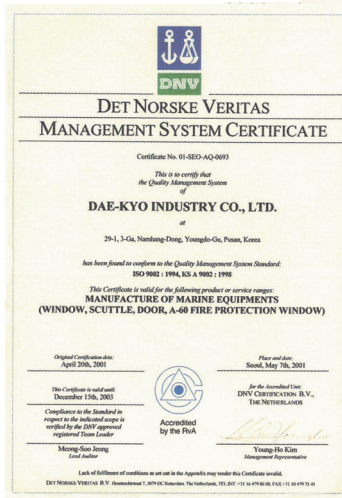
▲ Hinge Part Ass'y  
(Flush Type)

# 인증서 (Certification)



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DNV Certificate B.V., THE NETHERLANDS





**(주)한국종합기계 · 금속**  
**Hangoon Machinery Co., Ltd.**

(우) 49461  
 부산광역시 사하구 두송로 215 (구평동)  
 215, Dusong-ro, Saha-gu, Busan, Republic of Korea 49461  
 Tel 051 - 416 - 7583 ~ 4/418 - 6617 ~ 8 Fax 051 - 416 - 7517/418 - 6620  
<http://www.hangoon101.com>