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DET NORSKE VERITAS
MANAGEMENT SYSTEM
CERTIFICATE



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MANAGEMENT SYSTEM
CERTIFICATE

KOSHA18001



HYOSUNG GOODSPRINGS

PUMPS
& WATER

입형 다단 터빈 펌프

VM

Vertical Multi Stage-Turbine Pump



효성 굿스프링스(주)

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김해공장 (621-840) 경상남도 김해시 주촌면 골든루트로 158-20 TEL : 82-55-340-4407
Direct Contact C&I 영업팀 TEL : 82-2-3279-8253
A/S CENTER TEL : 82-1544-5580



HYOSUNG GOODSPRINGS INC.

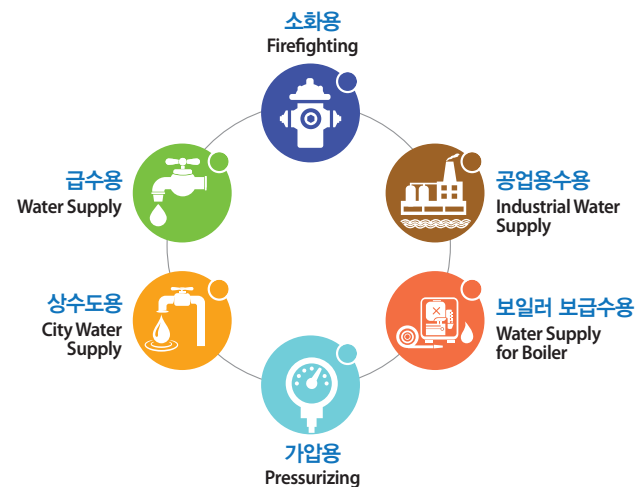
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Changwon Plant / R&D Center (641-290) 303 Gongdanro, Seongsan-gu, Changwon-si, Gyeongnam, Korea TEL : 82-55-279-7607 FAX : 82-55-281-0092
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Customer Service Center TEL : 82-1544-5580



본 카탈로그에 기재된 제품은 예고없이 단종, 사양변동이 있을 수 있으므로 구입시 반드시 확인바랍니다. (2014.01)

This brochure does not contain all information and any warranty or guarantee of any kind. Also, all information herein is subject to change without notice.

용도 Application



특징 Features

01. 입형 타입의 다단 터빈 고압 원심펌프로서 우수한 설계와 제조기술로 높은 효율 발휘
 02. 수평형 펌프보다 설치면적이 협소한 공간 내에서도 설치, 운전 가능
 03. 펌프 흡입 및 토출케이싱의 NOZZLE 방향을 바꿀 수 있으므로 배관작업 용이
 04. 전동기 취부가 끼워 맞춤 공차로 취부되므로 축심 일치가 간단해지며 설치, 유지보수 작업 용이
 05. 축추력을 상쇄시켜 고속회전에서도 안전하며, 고효율을 발휘할 수 있도록 설계
 06. 회전체의 동적해석(Rotor Dynamics) 및 구조물의 유한요소법(FEM) 해석을 통한 저진동, 저소음 구현
 07. 고객의 다양한 요구사항에 대응하는 경제적인 펌프 선택 가능
01. Vertical multistage turbine high pressure centrifugal pump for high efficiency with excellent design and manufacturing technology
 02. Compared to the horizontal pump, it can be installed in the small space for operation
 03. The direction of the nozzle in the pump suction and discharge casing can be changed for easy piping work
 04. The motor is attached according to customized tolerance for simple shaft alignment, installation and maintenance
 05. Offsetting axial thrust force for safe and high efficiency design in a high speed rotating condition
 06. Low vibration and noise based on rotor dynamics for the impeller and FEM (Finite Element Method) for the structure
 07. Economic pump selection to meet customer's various requirements

호칭 Model Designation

VM100/4F

펌프 모델명 VM Model Name	토출구경 100 Discharge Diameter [mm]	단수 [회전차수] 4 Number of Stages [Number of Impellers]	소방용 특화 F Firefighting Type
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표준 사양 Standard Specification

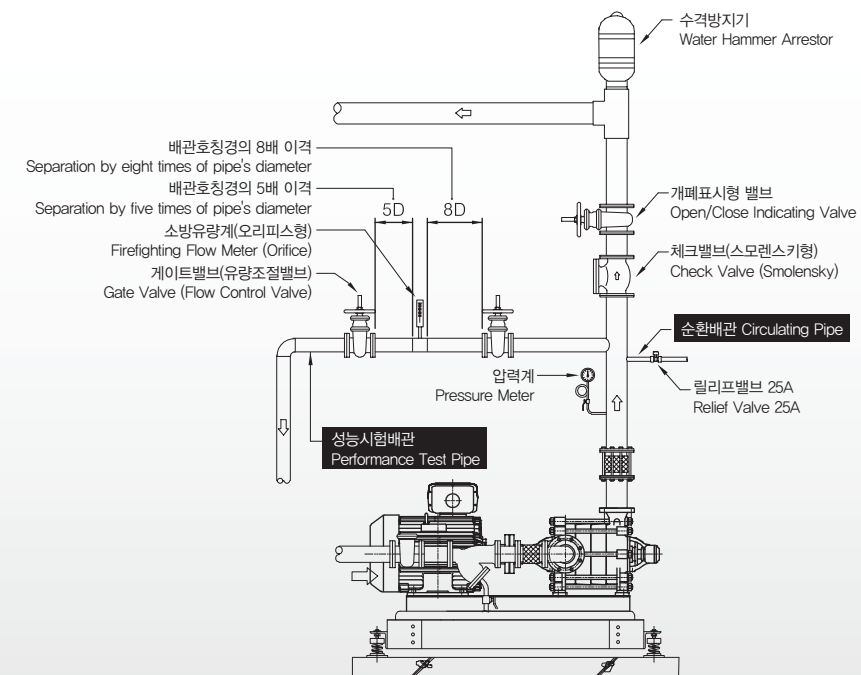
취급액	Applicable Liquid	청수 Clean Water (pH 5.8 ~ 8.6) 0 ~ 90°C
유량 / 양정	Capacity / Heads	3 ~ 500 m³/hr / 10 ~ 230 m
구경	Diameter	32 ~ 150 mm
회전방향	Rotation Direction	CW (구동기 측에서 펌프를 바라보았을 때) (From the Motor Side to the Pump)
최대허용흡입압력	Max. Allowable Suction Pressure	10 kgf/cm²
구조 Structure	케이싱 Casing	Radial 분할 및 Foot 지지 타입 Radial Split and Foot Support Type
	회전차 Impeller	클로즈형 Closed Type
	축봉타입 Shaft Seal	Mechanical Seal
	베어링 Bearing	Ball Bearing (그리스 윤활 Grease Lubrication)
플랜지 Flange	흡입 Suction	KS B 1511 10K, RF, SIDE
	토출 Discharge	KS B 1511 20K, RF, SIDE
카플링	Coupling	플랜지 카플링 Flange Coupling
재질 Material	케이싱 Casing	GC200 (Option : SSC13)
	회전차 Impeller	GC200 (Option : CAC406, SSC13)
	축 Shaft	SM45C (Option : STS304)

선택사양 Option

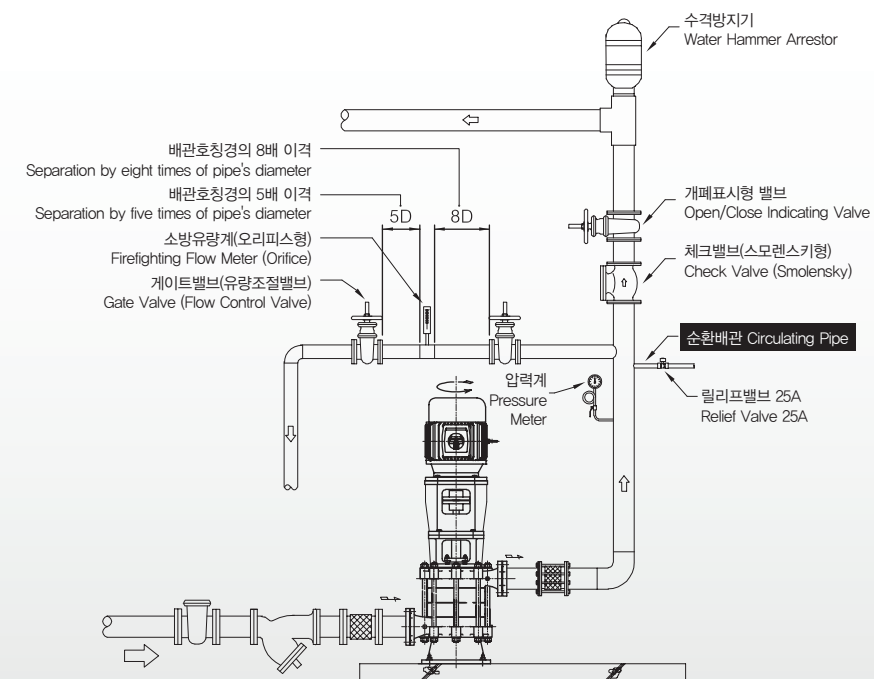
- 접액부 재질 (조립단면도 선택사항 참고)
- 전동기 형식 (요구사항)
- 축봉장치 (요구사항)
- 카플링 (요구사항)
- 각종 계기류, Drain/Vent 배관 구성
- 흡·토출 플랜지 규격 (별도 문의요망)
- 도장사항 (요구사항)
- Material of the Liquid Contacting Part (Refer to the Specifications in the Sectional Drawing)
- Motor Type (Requirement)
- Shaft Seal (Requirement)
- Coupling (Requirement)
- Instrument, Drain/Vent Piping
- Suction and Discharge Flange Specification (Contact us)
- Painting (Requirement)

횡형펌프 VS 입형펌프 설치공간 비교 Installation Space: Horizontal vs. Vertical

횡형펌프 주위배관 Piping around the Horizontal Pump

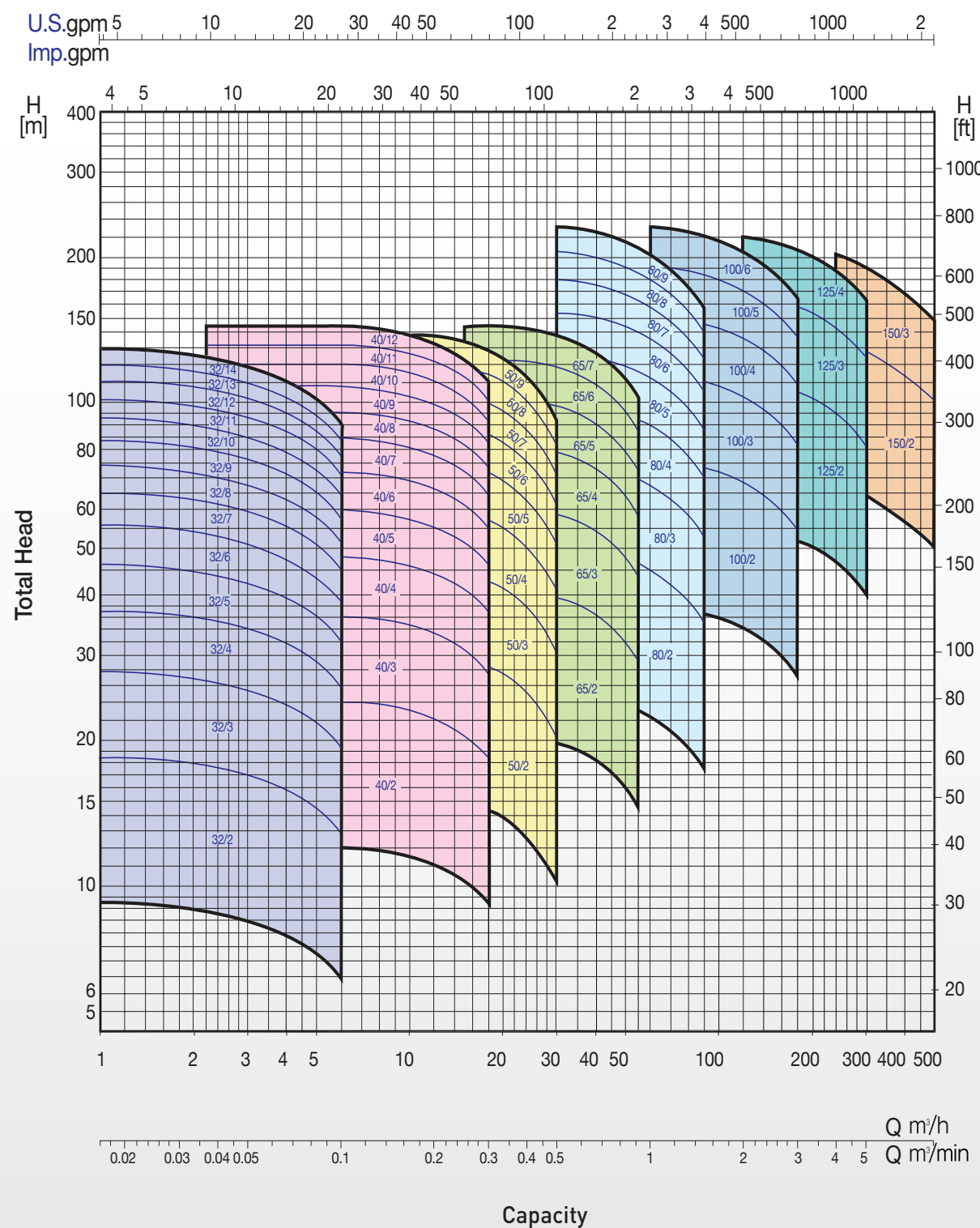


입형펌프 주위배관 Piping around the Vertical Pump

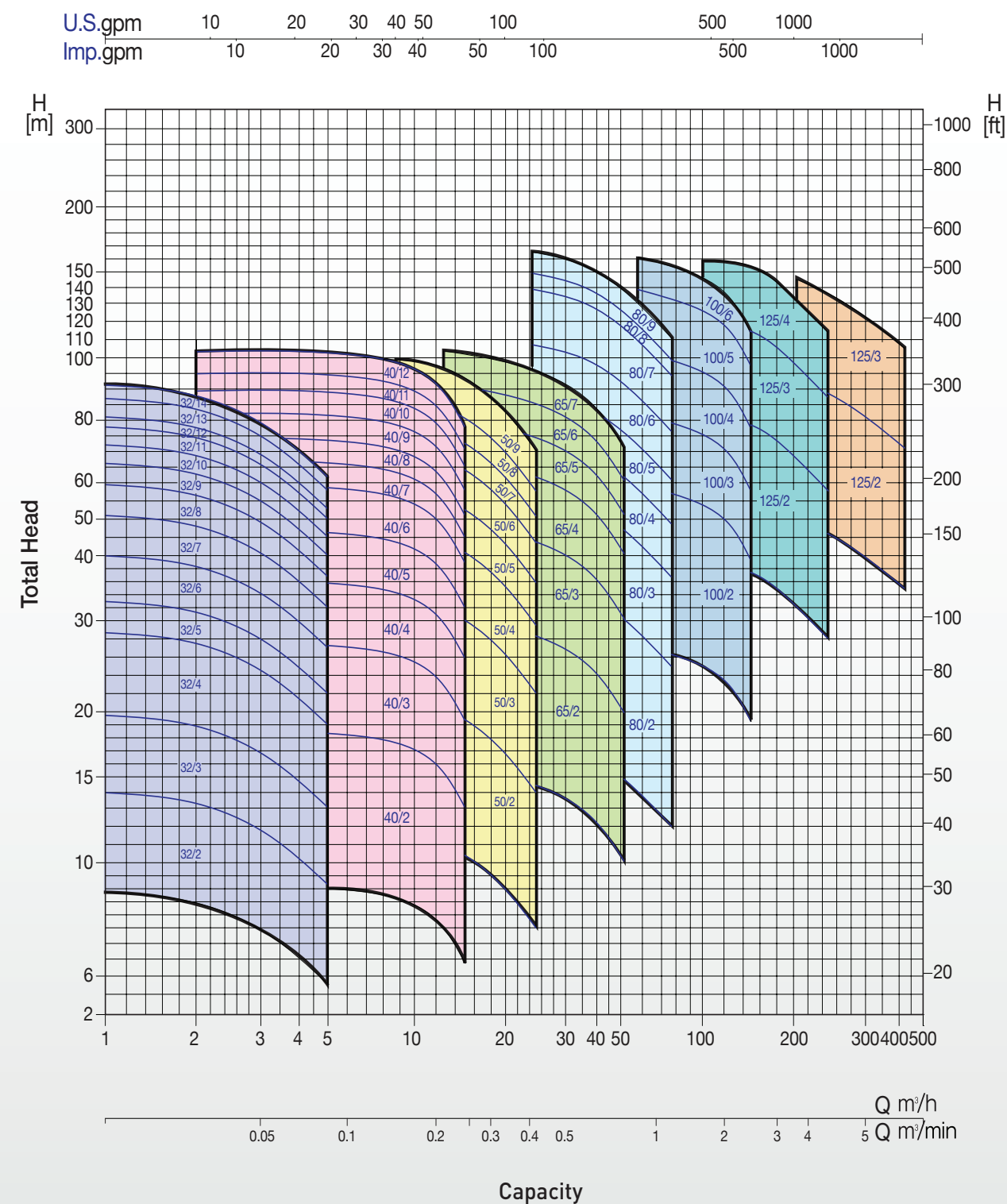


선정도 Selection Chart

60Hz (1750RPM)

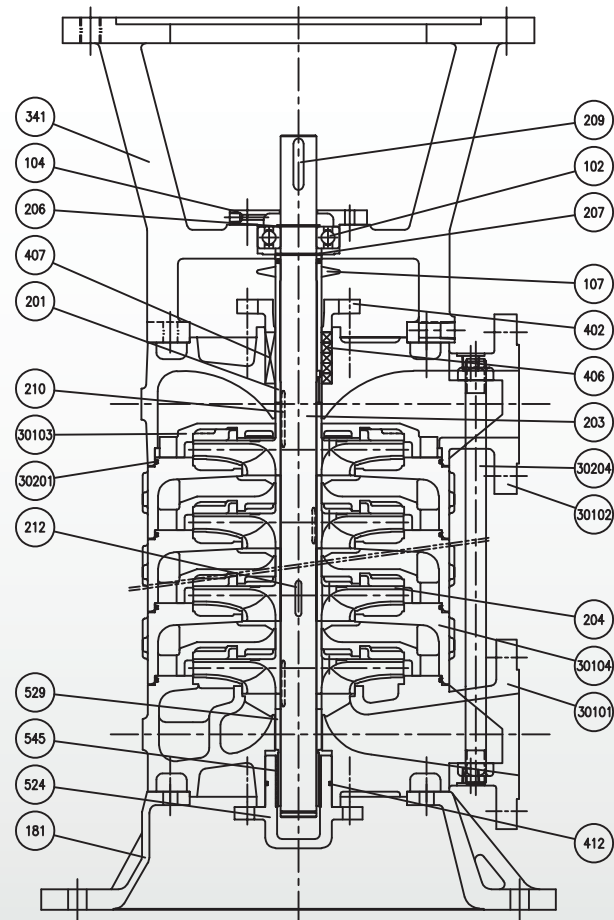


50Hz (1450RPM)



조립 단면도 Sectional Drawing

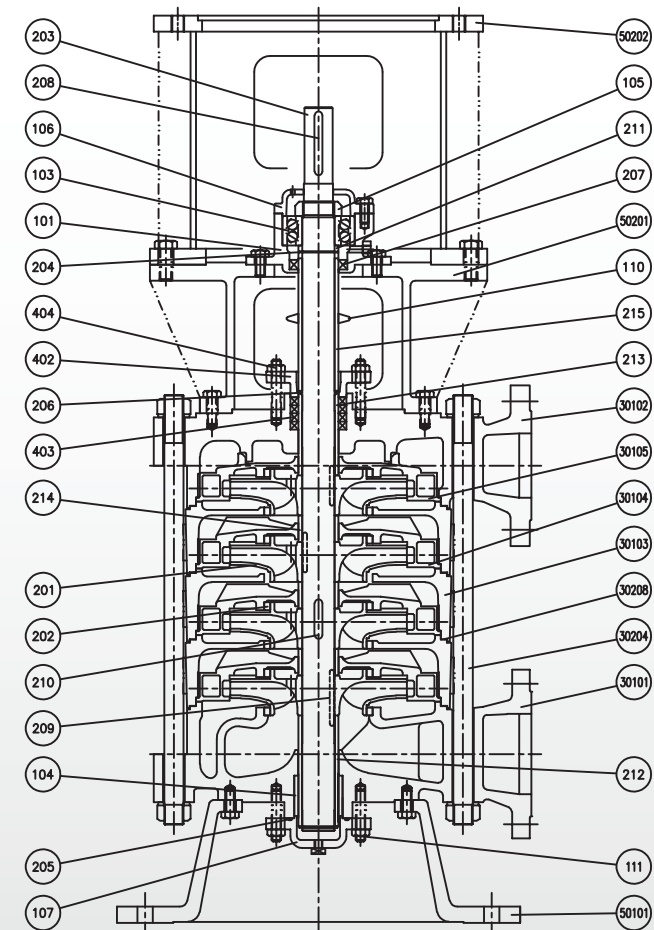
[VM 30/40/50/65]



부품번호 Part No.	부품명 Part Name	표준재질 Material	선택사양 Option	부품번호 Part No.	부품명 Part Name	표준재질 Material	선택사양 Option
102	Ball Bearing	Steel	—	30102	Discharge Casing	GC200	SSC13
104	Bearing Cover	GC200	—	30103	Diffuser	GC200	SSC13
107	Thrower	Rubber	—	30104	Stage Casing	GC200	SSC13
181	Foot	GC200	—	30201	O-Ring	Rubber	—
201	Shaft Sleeve	SM45C	STS304	30204	Tie Bolt	SM25C	—
203	Shaft	SM45C	STS304	341	Motor Stool	GC200	—
204	Impeller	GC200	CAC406,SSC13	402	Packing Gland	GC200	—
206	Stop Ring	SS400	—	406	Packing	P.T.F.E	Requirement
207	Spacer Ring	SM45C	—	407	M/Seal	—	—
209	Key	SM55C	—	412	O-Ring	Rubber	—
210	Key	SM55C	STS304	524	Bearing Cover-E	GC200	—
212	Key	SM55C	STS304	529	Shaft Sleeve	SM45C	STS304
30101	Suction Casing	GC200	SSC13	545	Line Bearing	ACM	—

※ P.T.F.E : Carbonized fibers impregnated with Teflon

[VM 80/100/125/150]

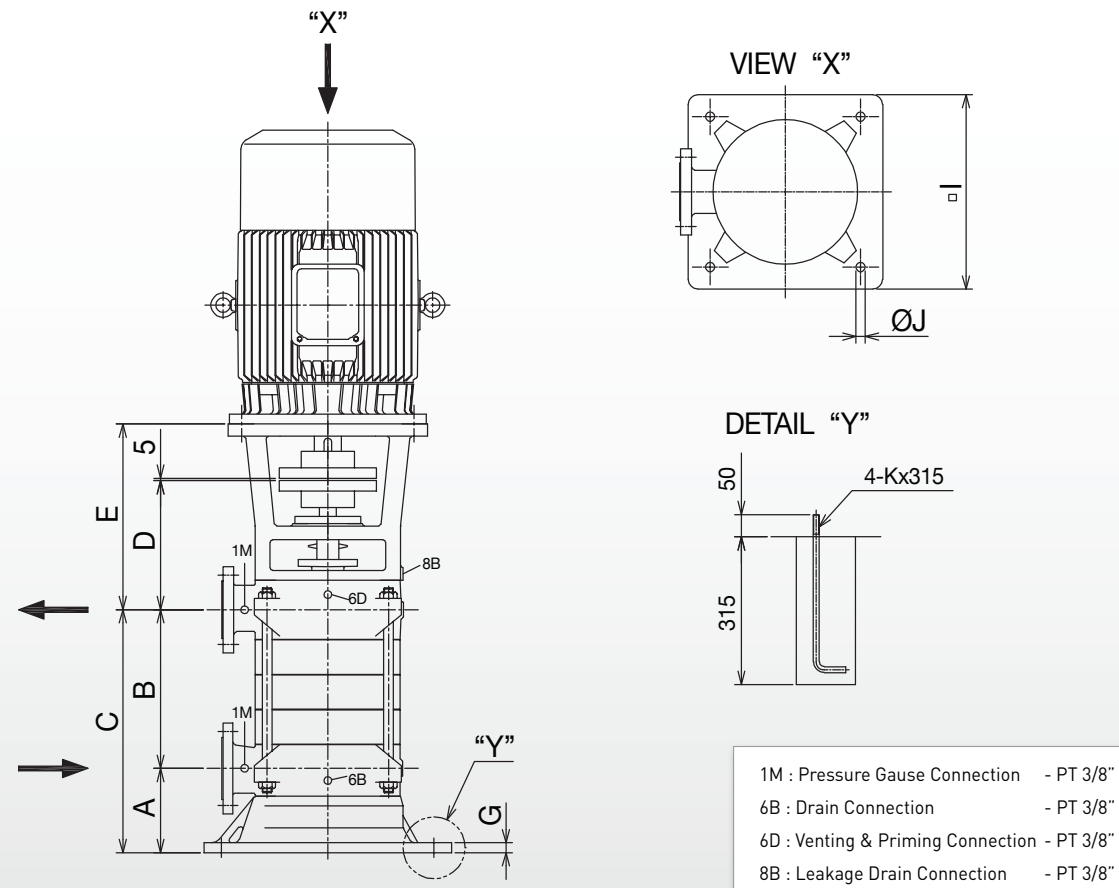


부품번호 Part No.	부품명 Part Name	표준재질 Standard Material	선택사양 Option	부품번호 Part No.	부품명 Part Name	표준재질 Standard Material	선택사양 Option
101	Bearing Housing	GC200	—	211	Spacer Ring	SM45C	—
103	Ball Bearing	Steel	—	212	Shaft Sleeve	SM45C	STS304
104	Line Bearing	ACM	—	213	Shaft Sleeve	SM45C	STS304
105	Shaft Nut	SM45C	—	214	Stage Sleeve	SM45C	STS304
106	Bearing Cover	GC200	—	215	Spacer Sleeve	SM45C	STS304
107	Bearing Cover-E	GC200	—	30101	Suction Casing	GC200	SSC13
110	Thrower	Rubber	—	30102	Discharge Casing	GC200	SSC13
201	Impeller	GC200	CAC406,SSC13	30103	Stage Casing	GC200	SSC13
202	Casing Wear Ring	GC200	—	30104	Diffuser	GC200	SSC13
203	Shaft	SM45C	STS304	30105	Diffuser-L	GC200	SSC13
204	Stop Ring	SS400	—	30204	Tie Bolt	SM25C	—
205	O-Ring	Rubber	—	30208	Gasket	Oil Paper	—
206	O-Ring	Rubber	—	402	Packing Gland	GC200	—
207	Oil Seal	NBR	—	403	Packing	P.T.F.E	Requirement
208	Key	SM55C	—	50101	Foot	GC200	—
209	Key	SM55C	STS304	50201	B/G Housing Stool	GC200	—
210	Key	SM55C	STS304	50202	Motor Stool	SS400	—

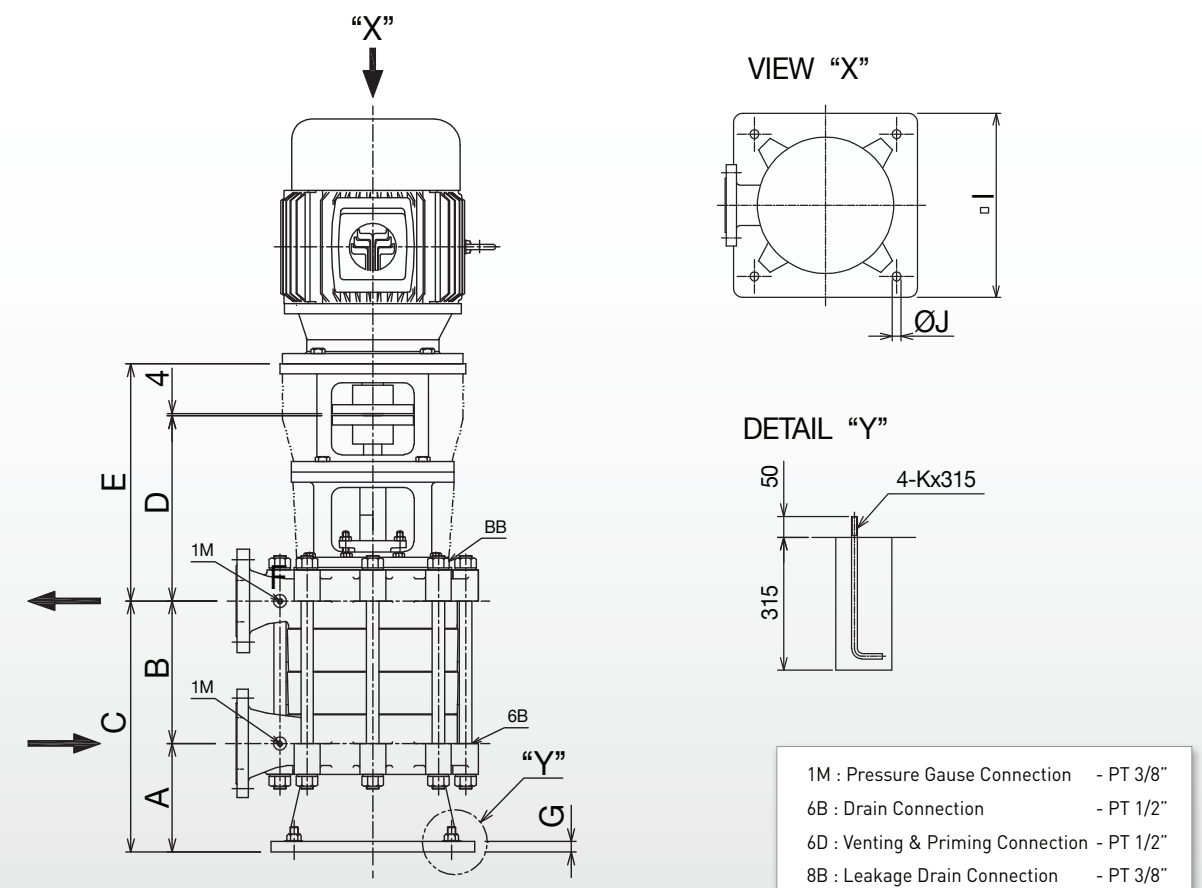
※ P.T.F.E : Carbonized fibers impregnated with Teflon

외형도 & 외형 치수표 Outline Drawing & Dimension

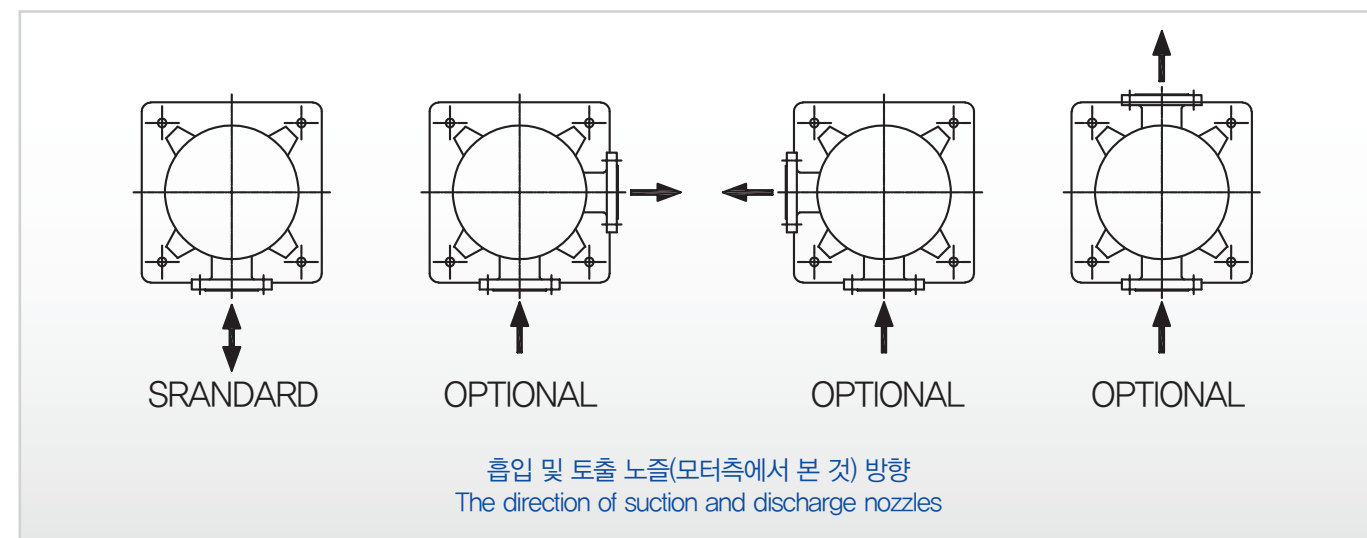
[VM 32 ~ 65]



[VM 80 ~ 150]

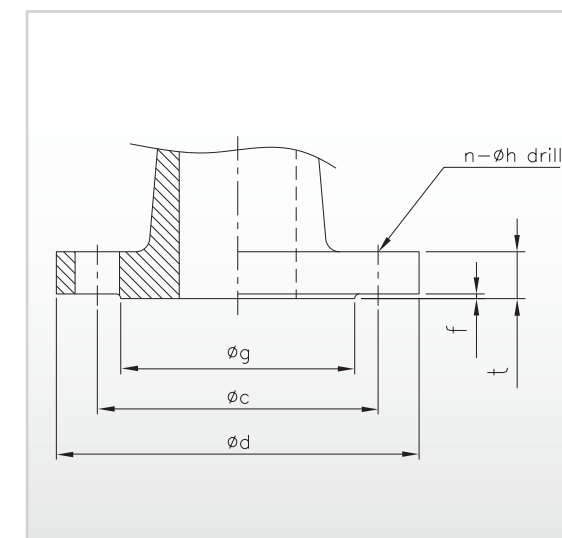


노즐 방향 Nozzle Direction



※ 주의 1. 각 구경의 2단은 흡입, 토출방향을 주의 할 것. (상기 STANDARD로 사용 불가)
※ Note 1. The second stage of each diameter would notice the direction of suction and discharge. (STANDARD Type is not applicable)

플랜지 규격 Flange Standard



Unit : mm

Bore Dia.	KS B 1511 10K								KS B 1511 20K							
	d	c	g	f	t	n	h		d	c	g	f	t	n	h	
32	135	100	76	2	20	4	19		135	100	76	2	20	4	19	
40	140	105	81	2	20	4	19		140	105	81	2	22	4	19	
50	155	120	96	2	20	4	19		155	120	96	2	22	8	19	
65	175	140	116	2	22	4	19		175	140	116	2	24	8	19	
80	185	150	126	2	22	8	19		200	160	132	2	26	8	23	
100	210	175	151	2	24	8	19		225	185	160	2	28	8	23	
125	250	210	182	2	24	8	23		270	225	195	2	30	8	25	
150	280	240	212	2	26	8	23		305	260	230	2	32	12	25	

 외형 치수표 Outline Dimension

Model No.	Bore Dia		Dimension [mm]									Total WGT. [kgs]
	Suc.	Dis.	A	B	C	D	E	G	I	J	K	
VM 32/2	40	32	155	114	269	238	293	15	275	14	M12	82
VM 32/3			155	157	312	238	293	15	275	14	M12	87
VM 32/4			155	200	355	238	293	15	275	14	M12	92
VM 32/5			155	243	398	238	303	15	275	14	M12	116
VM 32/6			155	286	441	238	303	15	275	14	M12	121
VM 32/7			155	329	484	238	303	15	275	14	M12	128
VM 32/8			155	372	527	238	303	15	275	14	M12	133
VM 32/9			155	415	570	238	303	15	275	14	M12	138
VM 32/10			155	458	613	238	303	15	275	14	M12	143
VM 32/11			155	501	656	238	303	15	275	14	M12	148
VM 32/12			155	544	699	238	323	15	275	14	M12	183
VM 32/13			155	587	742	238	323	15	275	14	M12	188
VM 32/14			155	630	785	238	323	15	275	14	M12	193
VM 40/2			50	40	160	133	293	231	286	15	305	14
VM 40/3	160	188			348	231	296	15	305	14	M12	136
VM 40/4	160	243			403	231	296	15	305	14	M12	146
VM 40/5	160	298			458	231	316	15	305	14	M12	185
VM 40/6	160	353			513	231	316	15	305	14	M12	194
VM 40/7	160	408			568	231	316	15	305	14	M12	210
VM 40/8	160	463			623	231	316	15	305	14	M12	219
VM 40/9	160	518			678	231	346	15	305	14	M12	291
VM 40/10	160	573			733	231	346	15	305	14	M12	300
VM 40/11	50	40	160	628	788	231	346	15	305	14	M12	309
VM 40/12			160	683	843	231	346	15	305	14	M12	318
VM 50/2	65	50	166	151	317	243	308	20	335	19	M16	153
VM 50/3			166	213	379	243	328	20	335	19	M16	196
VM 50/4			166	275	441	243	328	20	335	19	M16	216
VM 50/5			166	337	503	243	358	20	335	19	M16	291
VM 50/6			166	399	565	243	358	20	335	19	M16	304
VM 50/7			166	461	627	243	358	20	335	19	M16	317
VM 50/8			166	523	689	243	358	20	335	19	M16	338
VM 50/9			166	585	751	243	358	20	335	19	M16	351
VM 65/2	80	65	171	180	351	263	378	20	395	19	M16	273
VM 65/3			171	251	422	263	378	20	395	19	M16	300
VM 65/4			171	322	493	263	378	20	395	19	M16	319
VM 65/5			171	393	564	263	378	20	395	19	M16	361
VM 65/6			171	464	635	263	378	20	395	19	M16	389
VM 65/7			171	535	706	263	378	20	395	19	M16	490

※ VM150의 치수는 별도 문의 바람.
 ※ For dimension of VM150, contact us.

Model No.	Bore Dia		Dimension [mm]									Total WGT. [kgs]		
	Suc.	Dis.	A	B	C	D	E	G	I	J	K			
VM 80/2	100	80	210	193	403	446	530	22	430	19	M16	265		
			210	193	403	446	560	22	430	19	M16	316		
			210	193	403	446	560	22	430	19	M16	324		
VM 80/3			210	276	486	446	560	22	430	19	M16	343		
			210	276	486	446	560	22	430	19	M16	351		
			210	276	486	446	560	22	430	19	M16	366		
VM 80/4			210	276	486	446	560	22	430	19	M16	387		
			210	359	569	446	560	22	430	19	M16	393		
			210	359	569	446	590	22	430	19	M16	414		
VM 80/5			210	442	652	446	560	22	430	19	M16	420		
			210	442	652	446	560	22	430	19	M16	441		
			210	442	652	446	590	22	430	19	M16	541		
VM 80/6			210	525	735	446	560	22	430	19	M16	447		
			210	525	735	446	560	22	430	19	M16	468		
			210	525	735	446	590	22	430	19	M16	568		
			210	525	735	446	590	22	430	19	M16	631		
			210	525	735	446	590	22	430	19	M16	776		
			210	525	735	446	590	22	430	19	M16	836		
VM 80/7			210	609	819	446	560	22	430	19	M16	474		
			210	609	819	446	560	22	430	19	M16	495		
			210	609	819	446	590	22	430	19	M16	595		
			210	609	819	446	590	22	430	19	M16	658		
			210	609	819	446	590	22	430	19	M16	803		
			210	609	819	446	590	22	430	19	M16	863		
VM 80/8			210	691	901	446	590	22	430	19	M16	622		
			210	691	901	446	590	22	430	19	M16	685		
			210	691	901	446	590	22	430	19	M16	830		
VM 80/9			210	691	901	446	590	22	430	19	M16	890		
			210	774	984	446	590	22	430	19	M16	649		
			210	774	984	446	590	22	430	19	M16	712		
			210	774	984	446	590	22	430	19	M16	857		
VM 100/2			125	100	210	774	984	446	590	22	430	19	M16	917
					250	235	485	485	599	22	460	23	M20	423
					250	235	485	485	599	22	460	23	M20	444
VM 100/3			125	100	250	235	485	485	629	22	460	23	M20	544
					250	335	585	485	629	22	460	23	M20	587
					250	335	585	485	629	22	460	23	M20	650
VM 100/4			125	100	250	335	585	485	629	22	460	23	M20	795
					250	335	585	485	629	22	460	23	M20	855
					250	435	685	485	629	22	460	23	M20	693
VM 100/5			125	100	250	435	685	485	629	22	460	23	M20	838
					250	435	685	485	629	22	460	23	M20	898
					250	535	785	485	629	22	460	23	M20	881
VM 100/6			125	100	250	535	785	485	629	22	460	23	M20	941
					250	535	785	485	659	22	460	23	M20	1081
					250	635	885	485	629	22	460	23	M20	924
					250	635	885	485	629	22	460	23	M20	984
					250	635	885	485	659	22	460	23	M20	1124
VM 125/2			150	125	250	635	885	485	659	22	460	23	M20	1234
					250	635	885	485	659	22	460	23	M20	1384
					285	280	565	550	694	26	490	23	M20	920
					285	280	565	550	694	26	490	23	M20	980
					285	280	565	550	724	26	490	23	M20	1120
					285	395	680	550	694	26	490	23	M20	990
					285	395	680	550	694	26	490	23	M20	1050
					285	395	680	550	724	26	490	23	M20	1190
					285	395	680	550	724	26	490	23	M20	1300
					285	395	680	550	724	26	490	23	M20	1450
VM 125/4			150	125	285	510	795	550	724	26	490	23	M20	1260
					285	510	795	550	724	26	490	23	M20	1370
					285	510	795	550	724	26	490	23	M20	1520

※ VM150의 치수는 별도 문의 바람.
 ※ For dimension of VM150, contact us.