



ECO STYLE
World Chemical

VERTICAL SEALLESS PUMP

VK series

無軸封循環泵浦 **DRYFREE**



■ 製品概要 PRODUCT OUTLINE

● 名 稱 DRYFREE

● 型 式

VK型 比重1.1用

可槽內、外使用
最適用於洗滌塔等循環用泵浦

VP型 比重1.4用

高壓泵浦用，廣泛用於印刷電路板製程
及蝕刻設備

● 材 質

CFRPP (碳纖維強化聚丙烯塑膠)

GFRPP (玻璃纖維強化聚丙烯塑膠)

● 特 徵

- ① 搭載世界化工原創設計之馬達，可標準對應200~440V電壓。
- ② 本體使用高耐蝕性塑膠，耐熱耐蝕性佳，適用於多種藥液。
- ③ 採新設計之特殊葉片構造，可抑制空氣吸入。
- ④ 無軸封構造，沒有因發熱、磨損等引起之故障。少量之顆粒亦不受影響。
- ⑤ 標準配備之逆止軸封，能有效解決泵浦停機後液體逆流產生之短暫漏液現象。
- ⑥ 鋁合金馬達及塑膠底座組合，達到輕量化、底座防蝕效果。
 - ※ 0.75kW/1.5kW/2.2kW為鑄鐵馬達。
 - 減輕保養等安裝更換作業。
 - 改善鑄鐵底座腐蝕問題。
- ⑦ 標準配備之乾式軸封，能有效解決藥氣問題。

● 使用用途

- ① 蝕刻用噴洗泵浦。
- ② 廢氣洗滌塔用循環泵浦。
- ③ 反應槽、混合槽之循環輸送泵浦。
- ④ 無電解鍍液、一般電鍍液、過濾器、熱交換器之循環、攪拌用泵浦。
- ⑤ 更新藥液之抽送泵浦。

● Pump Name DRYFREE

● Pump Types

VK Type Specific Gravity 1.1

The VK type pump can be used in/out of a tank, and is best suitable for circulating pump for scrubber.

VP Type Specific Gravity 1.4

The VP type pump one for high pressure, and it is used mainly for printed circuit boards and etching machines.

● Material

CFRPP (Carbon Fiber Reinforced Polypropylene)

GFRPP (Glass Fiber Reinforced Polypropylene)

● Features

- DRYFREE has a World Chemical exclusive motor which corresponds from 200V to 400V as standard.
- The main body of DRYFREE is composed of CFRPP, which resists heat and corrosion from a wide range of chemicals.
- For minimal air entrainment, a newly-designed impeller construction is adopted.
- The sealless construction prevents DRYFREE not only from having any trouble caused by heat and/or abrasion, but also from being affected by liquid with some slurry.
- DRYFREE has a cut seal as standard equipment against temporary liquid leak caused by backflow right after the pump stops operating.
- Lightweight of the motor.
 - Adopt aluminum motor frame, resin motor base.
 - ※ Toshiba 0.75kW, Tougen 0.75kW/1.5kW/2.2kW (casting iron)
 - Ease the maintenance and replacement.
 - Prevent the corrosion of the motor base.
- Option : Dryseal for gas prevention.

● Applications

- Spray pump for etching machine
- Circulating pump for scrubber system
- Circulating transfer pump for chemical reaction and mixing tanks
- Circulating stirring pump for electroless nickel plating solution, general plating solution, filters, heat exchangers, etc.
- Transfer pump for emptying and replacing chemicals

型式說明 MODEL DESIGNATION

例 Example

YD - 40 02 VK 3 - CP - D D 5 1

口徑 (mm)	馬達輸出 功率 (kW)	型 式	馬達 區分	主要材質	軸封、O型環 材 質	馬達 頻率	比重 界限
40: 50x40	00: 0.4	VK(S.G.: 1.1)	1: IE1	CP: CFR PP	D: DAI-EL	5: 50hz	1: 1.1
50: 65x50	01: 0.75	VP(S.G.: 1.4)	3: IE3	GP: GFR PP	E: EPDM	6: 60hz	4: 1.4
65: 80x65	02: 1.5						
	03: 2.2						
	05: 3.7						
	07: 5.5						
	10: 7.5						

標準規格 STANDARD SPECIFICATION

VK

[50Hz/S.G.1.1]

機種 Model	口徑 Bore (mm)		動力輸出output		揚程 Total Head (m)	流量 Capacity (L/min)	重量 Weight (kg)
	吸入 suc.	吐出Disc.	HP	kW			
YD-4001 VK1-CP-DD51	50	40	1	0.75	9	150	26
YD-4002 VK1-CP-DD51	50	40	2	1.5	10	300	27
YD-5003 VK1-CP-DD51	65	50	3	2.2	12	350	30
YD-6505 VK1-CP-DD51	80	65	5	3.7	15	550	40
YD-6507 VK1-CP-DD51	80	65	7.5	5.5	18	700	55

[60Hz/S.G.1.1]

機種 Model	口徑 Bore (mm)		動力輸出output		揚程 Total Head (m)	流量 Capacity (L/min)	重量 Weight (kg)
	吸入 suc.	吐出Disc.	HP	kW			
YD-4001 VK1-CP-DD61	50	40	1	0.75	8	120	26
YD-4002 VK1-CP-DD61	50	40	2	1.5	8	300	27
YD-4003 VK1-CP-DD61	50	40	3	2.2	12	350	29.5
YD-5005 VK1-CP-DD61	65	50	5	3.7	15	550	40
YD-6507 VK1-CP-DD61	80	65	7.5	5.5	18	800	55
YD-6510 VK1-CP-DD61	80	65	10	7.5	25	850	60

※1HP~5HP 馬達軸心尺寸相同,可比重調整 The motor shaft's dimensions from 1HP to 5HP are the same.

VP

[50Hz/S.G.1.4]

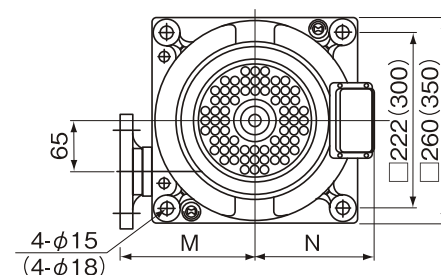
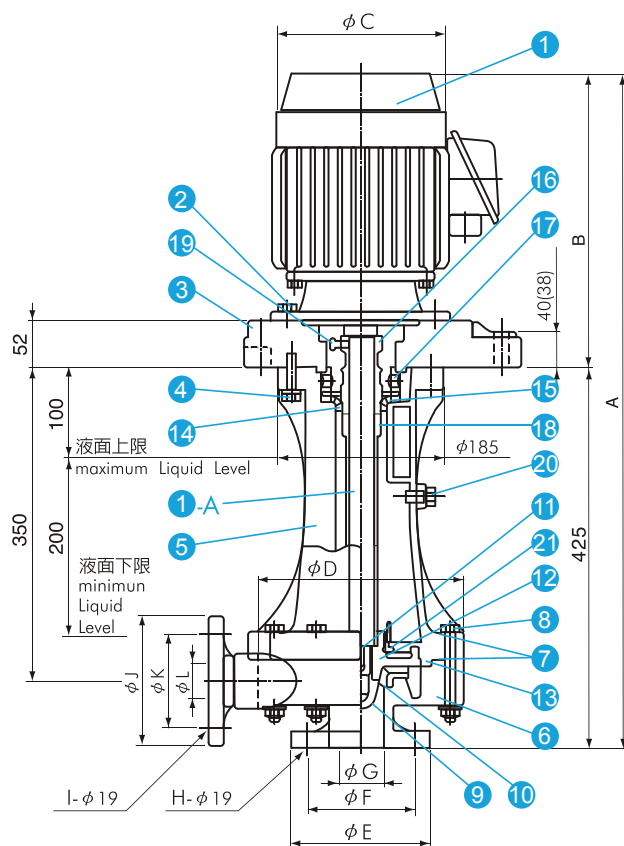
機種 Model	口徑 Bore (mm)		動力輸出output		揚程 Total Head (m)	流量 Capacity (L/min)	重量 Weight (kg)
	吸入 suc.	吐出Disc.	HP	kW			
YD-5003 VP1-CP-DD54	65	50	3	2.2	12	300	30
YD-5005 VP1-CP-DD54	65	50	5	3.7	15	430	40
YD-6507 VP1-CP-DD54	80	65	7.5	5.5	17	600	55
YD-6510 VP1-CP-DD54	80	65	10	7.5	18	750	60

[60Hz/S.G.1.4]

機種 Model	口徑 Bore (mm)		動力輸出output		揚程 Total Head (m)	流量 Capacity (L/min)	重量 Weight (kg)
	吸入 suc.	吐出Disc.	HP	kW			
YD-5003 VP1-CP-DD64	65	50	3	2.2	12	300	30
YD-5005 VP1-CP-DD64	65	50	5	3.7	15	430	40
YD-6507 VP1-CP-DD64	80	65	7.5	5.5	23	400	55
YD-6510 VP1-CP-DD64	80	65	10	7.5	20	800	60

※重量表示為鋁合金馬達塑膠底座型 ※Weight indicates the pump with aluminum motor and resin base.

尺寸圖、零件圖 DIMENSIONAL DRAWING, PART DRAWING



()内為搭載 5.5kW, 7.5kW 以上馬達時之尺寸

The dimensions in parentheses () are for a pump equipped with the motor of 5.5kW, 7.5kW or more

零件表 PART LIST

品號No.	品名	PARTNAME	材質 MATERIAL	數量 QTY
①	馬達	Motor		1
①-A	軸心	Shaft	SUS304	1
②	六角螺絲	Hexagon head bolts	SUS304・Titanium	4
③	底座	Base	GFRPP	1
④	六角螺絲	Hexagon head bolts	SUS304・Titanium	8
⑤	本體	Connecting pipe	CFRPP	1
⑥	前蓋	Casing	CFRPP	1
⑦	○型環	O-ring	EPDM・FPM	2
⑧	六角螺絲・螺帽	Hexagon head bolts, nuts	SUS304・Titanium	8
⑨	葉輪螺帽	Impeller nuts	CFRPP	1
⑩	○型環	O-ring	EPDM・FPM	1
⑪	鍵	Shaft Key	SUS316	1
⑫	葉輪	Impeller	CFRPP/03604B	1
⑬	中隔板	Back plate	CFRPP	1
⑭	乾式軸封	Dry seal	FPM	1
⑮	○型環	O-ring	EPDM	1
⑯	軸封固定套	Dry seal holder	CFRPP/SUS	1
⑰	軸封座	Seal case	CFRPP/Ceramics	1
⑱	○型環	O-ring	EPDM・FPM	2
⑲	六角螺絲	Hexagon head bolts	SUS	1
⑳	六角螺絲	Hexagon head bolts	PVC	1
㉑	逆止軸封	Cut seal	FPM	1

尺寸表 DIMENSION TABLE

VK

【50Hz/S.G.1.1】

機種 Model	□ 徑 Bore (mm)		動力輸出 output(kw)	A	B	φC	φD	φE	φF	φG	H	I	φJ	φK	φL	M	N
	吸入 suc.	吐出 Disc.															
YD-4001 VK1-CP-DD51	50	40	0.75	754	329	176.5	230	155	120	50	4	4	145	105	40	170	152
YD-4002 VK1-CP-DD51	50	40	1.5	798.5	373.5	196.5	230	155	120	50	4	4	145	105	40	170	153
YD-5003 VK1-CP-DD51	65	50	2.2	798.5	373.5	196.5	260	175	140	65	4	4	155	120	50	200	153
YD-6505 VK1-CP-DD51	80	65	3.7	848	423	230	260	190	150	76	8	4	175	140	65	200	164
YD-6507 VK1-CP-DD51	80	65	5.5	868	443	238	260	190	150	80	8	4	175	140	65	200	240

【60Hz/S.G.1.1】

機種 Model	□ 徑 Bore (mm)		動力輸出 output(kw)	A	B	φC	φD	φE	φF	φG	H	I	φJ	φK	φL	M	N
	吸入 suc.	吐出 Disc.															
YD-4001 VK1-CP-DD61	50	40	0.75	754	329	176.5	230	155	120	50	4	4	145	105	40	170	152
YD-4002 VK1-CP-DD61	50	40	1.5	798.5	373.5	196.5	230	155	120	50	4	4	145	105	40	170	153
YD-4003 VK1-CP-DD61	50	40	2.2	798.5	373.5	196.5	230	155	120	50	4	4	145	105	40	170	153
YD-5005 VK1-CP-DD61	65	50	3.7	848	423	238	260	175	140	65	4	4	155	120	50	200	164
YD-6507 VK1-CP-DD61	80	65	5.5	868	443	238	260	190	150	80	8	4	175	140	65	200	240
YD-6510 VK1-CP-DD61	80	65	7.5	898	473	238	260	190	150	80	8	4	175	140	65	200	240

VP

【50Hz/S.G.1.4】

機種 Model	□ 徑 Bore (mm)		動力輸出 output(kw)	A	B	φC	φD	φE	φF	φG	H	I	φJ	φK	φL	M	N
	吸入 suc.	吐出 Disc.															
YD-5003 VP1-CP-DD54	65	50	2.2	798.5	373.5	196.5	260	175	140	65	4	4	155	120	50	200	153
YD-5005 VP1-CP-DD54	65	50	3.7	848	423	238	260	175	140	65	4	4	155	120	50	200	164
YD-6507 VP1-CP-DD54	80	65	5.5	868	443	238	260	190	150	80	8	4	175	140	65	200	240
YD-6510 VP1-CP-DD54	80	65	7.5	898	473	238	260	190	150	80	8	4	175	140	65	200	240

【60Hz/S.G.1.4】

機種 Model	□ 徑 Bore (mm)		動力輸出 output(kw)	A	B	φC	φD	φE	φF	φG	H	I	φJ	φK	φL	M	N
	吸入 suc.	吐出 Disc.															
YD-5003 VP1-CP-DD64	65	50	2.2	798.5	373.5	196.5	260	175	140	65	4	4	155	120	50	200	153
YD-5005 VP1-CP-DD64	65	50	3.7	848	423	238	260	175	140	65	4	4	155	120	50	200	164
YD-6507 VP1-CP-DD64	80	65	5.5	868	443	238	260	190	150	80	8	4	175	140	65	200	240
YD-6510 VP1-CP-DD64	80	65	7.5	898	473	238	260	190	150	80	8	4	175	140	65	200	240

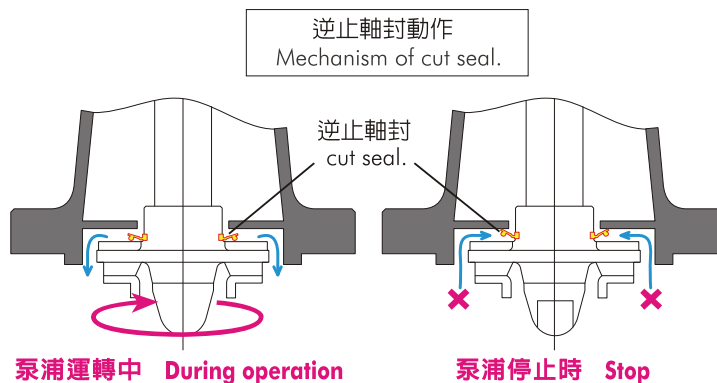
※ 尺寸及零件變更時不另行通知。

逆止軸封優點 Merit of Cut Seal

可防止泵浦停機後逆流水所產生之短暫液漏現象。 Prevents the temporal leaking by siphon breaking water.

運轉中由於泵浦軸心回轉產生之離心力作用，逆止軸封展開與隔板呈非接觸狀態。因副葉片的作用，可防止液體侵入本體內。

During operation, the tip of cut seal opens by centrifugal force, and rotates without contact. prevents liquid into connecting pipe by function of back seal blade of the impeller.

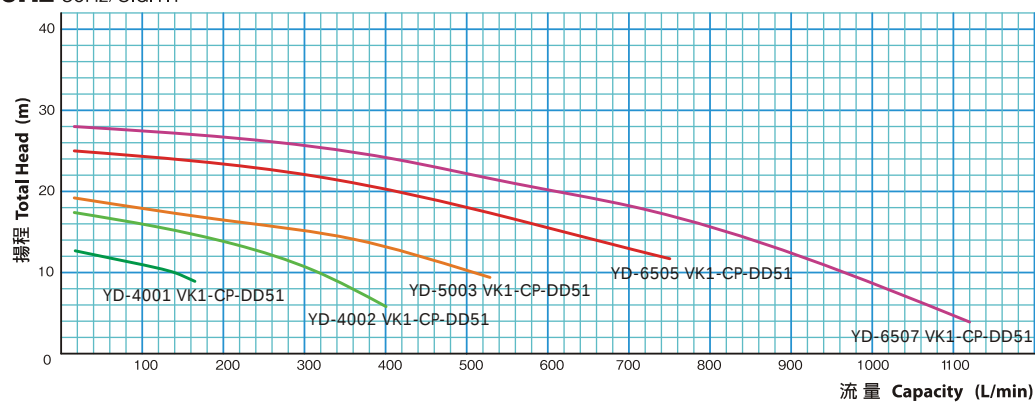


泵浦停機後，副葉輪作用失效。逆止軸封在泵浦停止同時，向隔板側閉合，產生密封效果，可防止逆流水侵入本體內。

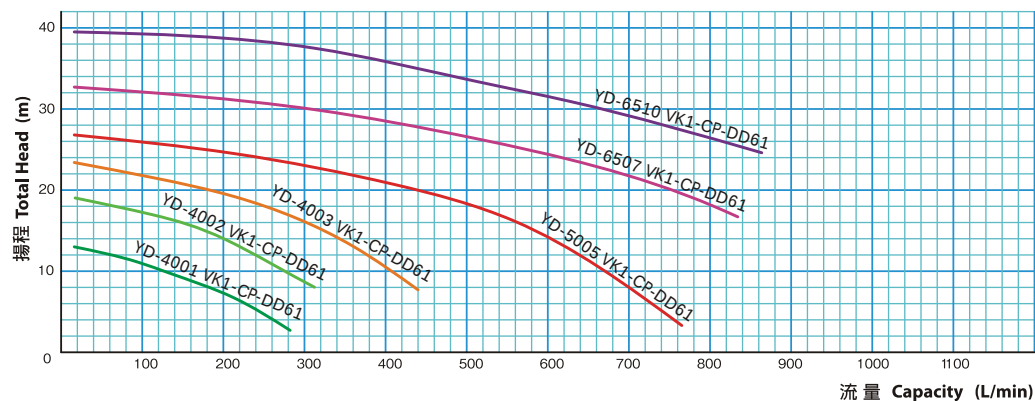
When the pump has stopped, function of back seal blade also disappears and siphon breaking will occurs. The cut seal mechanism prevents liquid into connecting pipe by closing seal blade inside of back plate.

性能曲線 PERFORMANCE CURVES

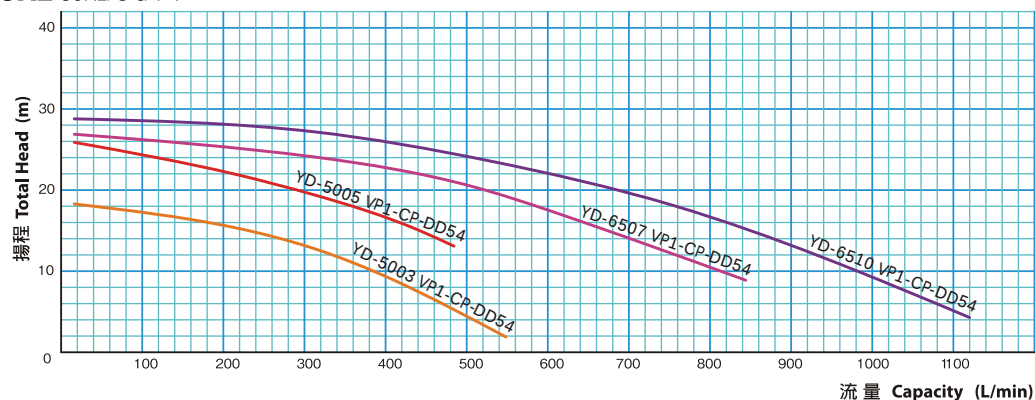
VK-50Hz 50Hz/S.G.1.1



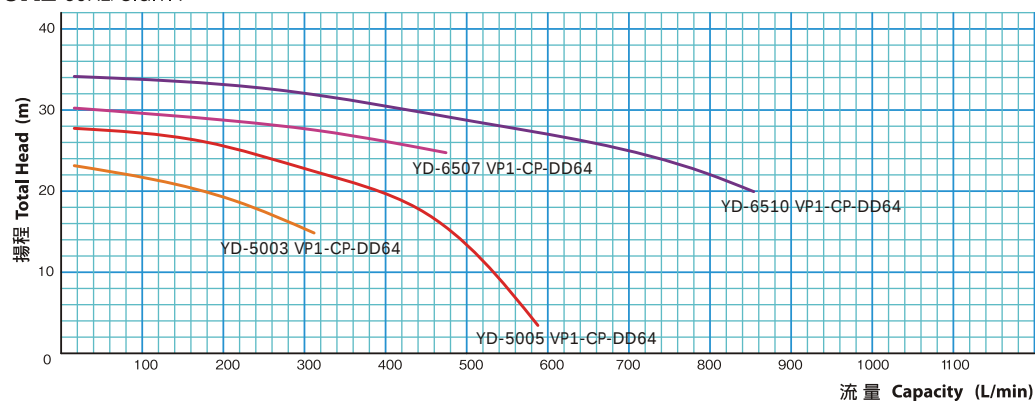
VK-60Hz 60Hz/S.G.1.1



VP-50Hz 50Hz/S.G.1.4



VP-60Hz 60Hz/S.G.1.4



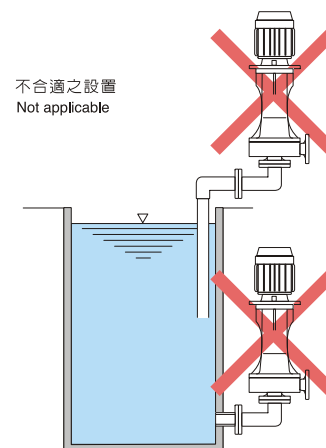
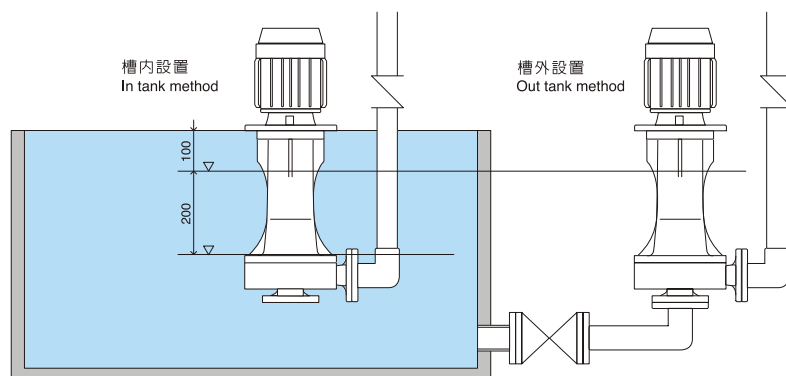
※本性能測試依據JISB8301,8302標準,液體比重(密度)1.0

※This performance test is based on JIS B 8301, 8302. The specific gravity of test liquid is 1.0

■ 安裝注意事項

PRECAUTIONS of INSTALLATION

(1) VK/VP 為無軸封泵浦,當液面上升至泵浦馬達法蘭面附近時,泵浦上方會產生漏液現象,因此,安裝泵浦時請參考下列設置例



(2) 當前蓋及吸入配管內滯留空氣時,泵浦將無法揚水。為不積存空氣應避免凸起配管以防止空氣閉鎖(空轉)原因發生。

(2) The presence of air in the casing and the suction pipe may prevent priming of the pump. Air can get easily trapped in the up-and-down piping, and such trapped air causes an air lock (dry running). In case of the air lock, release any trapped air either from the air-release bolt on the connecting pipe or from the pipe on the discharge side of the pump.

(3) 輸送顆粒混液時,應安裝過濾網。

(3) It is recommended to place a strainer at the end of suction pipe when handling slurry liquid.

(4) 槽內設置時,視藥液而定,前蓋應使用PPS材質等螺絲。

(4) When the pump is installed as in tank method, use PPS material bolts for casing.

(5) 嚴禁泵浦法蘭面過度鎖緊

- a. 配管及泵浦法蘭面應平行,並避免螺絲過度鎖緊。
- b. 配管側使用撓性連接管或SUS製活動法蘭、內墊圈時,應避免螺絲過緊,造成泵浦法蘭變形。

(5) Prohibitions of over-tigening of pump flange.

- a. Place each flange surface of pipe and pump in parallel, and do not over-tighten by bolts.
- b. Avoid deformation of pump flange by over-tightening when using a flexible joint, a loose flange made of metal or an inner packing on the piping line.

(6) 嚴禁配管荷重

- a. 以支架完全支撐配管重量。
- b. 高溫度(40°C以上)時,應考慮配管熱膨脹,在不增加泵浦荷重下,設置撓曲部或伸縮接頭。
- c. 儘可能避免金屬配管,而以塑膠配管施工。

(6) Prohibitions of piping load to pump.

- a. Piping load should be supported completely by supporting equipments.
- b. In case of high temperature liquid over 40°C, place flexible joints and bendings in pipe line to avoid piping load to pump by pipe's expansion.
- c. Use resin pipe. Avoid metal pipe as possible.

※在金屬配管較多之濃硫酸及氫氧化鈉,應特別注意上記(5)(6)項。

※Especially for(5)(6)notice that concentrated Sulfic acid and Sodium hydroxide are most likely to be handled by metal piping.



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