



沉水式魯氏鼓風機

【操作維護手冊】

Minimal Vibration and Low Noise
Submersible Roots Blower
Operation and Maintenance Manual

春鼎機械工業股份有限公司
TRUNDEAN MACHINERY CO., LTD.

一、安裝前的注意事項：

1. 首先請檢查銘牌上沉水式鼓風機型式、出口口徑、額定輸出之頻率、相數、電壓、電流、壓力、風量等，是否和你所需求規格相符合。
2. 請確認在運輸途中產品是否損傷。尤其必須注意螺絲及螺帽等有無鬆動之情況發生。
3. 關於附件方面，請確認種類、件數有無錯誤。
4. 請注意沉水式鼓風機必須依標示方向、正確運轉。
5. 當你使用沉水式鼓風機時，需要適當容量的電源。因為若是使用了小容量的電源，便有可能會發生無法啟動的情形，所以請您千萬注意電源容量。

二、安裝時注意事項：

1. 請確認您使用電源的頻率及電壓是否和銘牌記載之規格相符合。
2. 沉水式鼓風機使用之額定電壓，變動之容許值必須在 $\pm 10\%$ 以內。
3. 請不要將電纜線任意延長使用。因為延長電纜線可能會發生容許值以上之電壓下降，所以，請務必注意。（請不要將電纜線連接浸入水中，以免漏電危險）。
4. 移動沉水式鼓風機時，千萬不可以拉電纜線，以免電纜線破裂，絕緣下降造成漏電。
5. 請確實的使用接地線。
6. 為防止觸電發生，規定必須加裝防止觸電之漏電段路器。為保護沉水式鼓風機，延長使用壽命，建議加裝無熔絲開關。
7. 請勿讓沉水式鼓風機埋在污泥、沙堆中，儘可能置於水質乾淨之場所，且經常流動的狀態（水質的範圍是PH6.5-9.0，水溫30度以下）。
8. 出風口配管請使用與沉水式鼓風機相同之口徑。若是使用比沉水式鼓風機口徑小的配管，則會因配管不當造成損失壓力增大，風量減少、電流增加，請務必要注意。
9. 在水中配管連結部分，請勿讓水滲透進入鼓風機之情況發生。

三、運轉時注意事項：

1. 首先打開電源開關。
2. 要確認入口消音器的吸入口有無空氣吸入，若逆轉時要即刻中止運轉，改變成正確運轉方向。
3. 吐出口的壓力及馬達電流值請在使用範圍內，若有超過之狀況，請查原因再予運轉。
4. 注意沉水式鼓風機有無異常的震動及噪音產生。
5. 鼓風機若長久放置未使用，容易產生葉輪生卡死之情形，故請每週予以運轉30分鐘，若置於潮溼之地點，請每日實施之。

1 Matters that should be aware of before installation:

- ❖ Please check if the specifications (including the type of roots blower, outlet diameter, nominal output frequency, number of phases, voltage rating, current rating, pressure, wind output) appear on the tag match your specifications.
- ❖ Please check if the product had any damages during transport or shipping (especially if there is any loosening of the screws, bolts and nuts).
- ❖ Regarding the accessories, please check if the types and numbers of them have been correctly provided.
- ❖ Please notice that the submersible blower will have to operate in the direction illustrated.
- ❖ Please note sufficient power must be supplied for the submersible blower, otherwise the blower may not start. Make sure the power supply is sufficient.

2 Matters that should be aware of during installation:

- ❖ Please make sure the frequency and voltage of the power source that you will use match those appear on the tag.
- ❖ Voltage provided will have to be within $\pm 10\%$ of the nominal voltage.
- ❖ Please do not extend power cable for no reason. Doing so may cause a voltage drop that exceeds the permissible range. (Do not submerge the cable connection, to prevent electrical leakage.)
- ❖ When moving the submersible blower, do not pull on the power cable, to prevent damaging the insulation and causing electrical leakage.
- ❖ Use grounding cable properly.
- ❖ An earth leakage circuit breaker should be installed to prevent electric shock. It is also recommended to install a non-fuse-breaker to ensure longer service life of the submersible blower.
- ❖ The submersible blower shall be located in flowing, clean water and kept away from mud or sand. (Water quality range: PH6.5~9.0; water temperature: below 30°C)
- ❖ The pipe connected to the blower discharge should have the same diameter as that of the outlet. If such pipe has a diameter smaller than that of the outlet, the air pressure will increase and the capacity will decrease in the pipe as well as the power consumption will increase.
- ❖ Piping and fittings connected underwater shall be properly protected to prevent water leakage into the blower.

3 Matters that should be aware of during operation:

- ❖ First, turn on the power switch.
- ❖ Check if air is sucked into the air inlet. If air enters the inlet in a direction opposing the correct direction, the roots blower must be turned off immediately and correction must be made.
- ❖ The air pressure at the outlet and the current consumption of the motor should be maintained within the allowed ranges. If either exceeds the corresponding range, please find out the reason(s) before turning the roots blower back on again.
- ❖ Please check if there are any abnormal vibrations and noises coming out from the vertical type roots blower.
- ❖ Rusting, corrosion and jamming may occur to the rotor blade of the blower if the roots blower is unused for a long time. In such case, the roots blower should be turned on for 30 minutes per week; the roots blower should be turned on for 30 minutes each day if the roots blower is placed in a surrounding with high humidity.

四、保養、檢查：

沉水式鼓風機應注意平常運轉狀況，特別是電流值、壓力值的變化要特別注意。

■ 日常的檢查：

- ❖ 壓力值的變動是否太大。
(壓力計凡而用在減壓時才開，其他時間要把他關閉起來)。
- ❖ 沉水式鼓風機應全部浸在水中，且水是經常流動的，周圍之水溫應是32°C以下才可。
- ❖ 檢查電流是否正常。
- ❖ 檢查鼓風機有沒有發生異樣聲音。

■ 定期檢查項目：

檢查時間 Duration	項目 Port to be Checked	檢查方法 Checking method	檢查現象 What to be checked	處置 How to Handle
每3個月 for every three months	絕緣抵抗 Insulation resistance	500V測定 500 V testing	絕緣底下 (1MΩ 以上必要) Insulation limit (required to be above 1MΩ)	交換檢查 Change back-check
每6個月 for every six months	逆止閥 One-way valve	閥正常動作嗎？ Port to be checked	無動作 The valve can not operate normally	保養 To be maintained
每1年 for every year	安全閥 Safety Valve	能釋壓正常嗎？ Port to be checked	約7%以上壓力不會吹動 The safety valve does not operate when pressure exceeds the nominal pressure valve by 7%	要拆開保養 The safety valve should be opened up before maintenance may be carried out on it
	吊上用鍊條 and the chain used for hoisting up	檢查目視腐蝕情形 visual inspection for rust and corrosion	腐蝕 Corrade	保養 To be maintained
每2年 for every two year	齒輪機油 Lubricant of the gear box	把油控全部取下 Remove all oil plugs		換新 Renewal
	塗裝 Decorate	外觀目視 Eye apparel	油漆脫落 check for damage or worn paint	再塗裝 Decorate
	油封 Oil seal	拆開 Disassemble	已經磨損 Abrade	換新 Renewal
	O型環 O type ring	拆開 Disassemble	已經變形 Deformation	換新 Renewal
	防震墊 Vibration Isolator	拆開 Disassemble	已經變形 Deformation	換新 Renewal

★嚴苛的使用條件 (啓動停止回數多的等) 或是腐蝕性較強的液體中被使用的時候要以短期內檢查好。

■ 齒輪油的更換方法：

- ❖ 洩油孔的栓塞要拿掉，排出全部舊機油。
- ❖ 舊油排完後，再從上方注入新油，油由下方溢出少許後，再把下方油栓上，注入新油。

【注意】 栓塞用墊片如果損壞時，需要換新品才行。

4 Pay special attention to any change of the voltage, pressure, or insulation resistance of the submersible blower since the external appearance of the blower is not visible to check its operation.

❖ Daily check:

- *Whether the air pressure varies by a large value
- *The submersible blower shall be completely submerged in the flowing water, with the water temperature maintained under 32°C.
- *Check if the current consumption is normal
- *Check if any abnormal noises coming out from the roots blower

❖ Periodic checks:

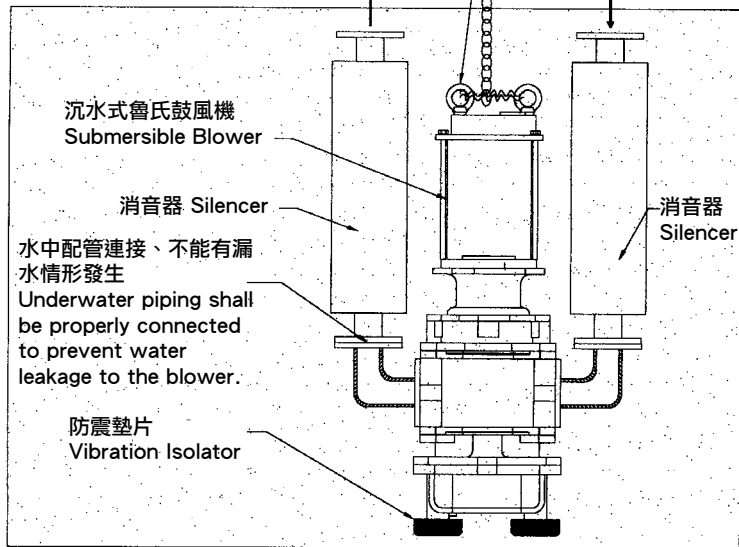
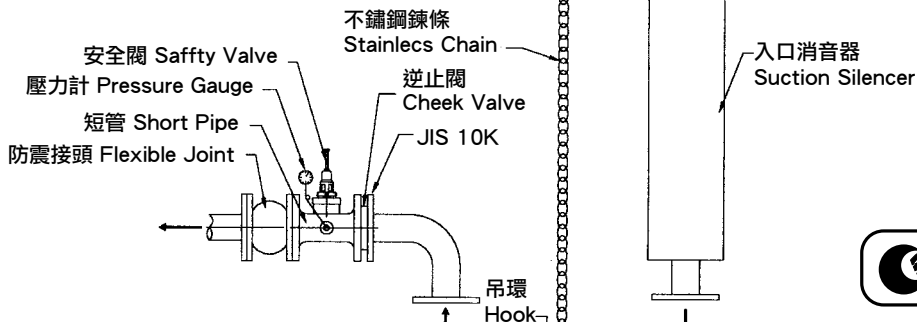
The submersible blower shall be completely submerged in the flowing water, with the water temperature maintained under 32°C.

❖ How to change the lubricant of the gear box:

Remove the plug and drain out all the old, existing lubricant. After all the old lubricant is drained out, add a little new lubricant -- after new lubricant starts to flow out from the hole on the bottom side, place the plug back on and add the new lubricant into it.

Notice: If the washer of the plug is damaged, it must be replaced.

【安裝組合參考圖】
Installation Diagram



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