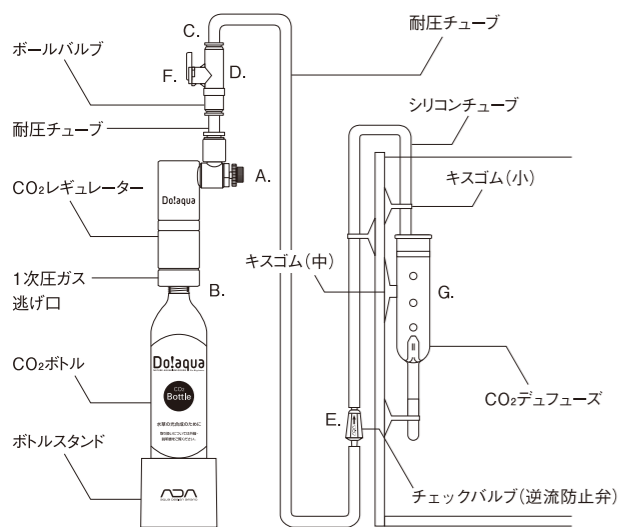


1.CO₂スターキットの特長

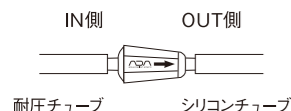
水草をきれいに繁茂させるには、水槽へのCO₂添加が欠かせません。CO₂スターキットは、ビギナー向けのCO₂添加キットです。交換用のCO₂ボトルはスリムで場所を取らないため、特に小型水槽に適しています。キットには必要な器具がすべてそろっているので、すぐにCO₂添加を始めることができます。

※CO₂ボトルはリユース品です。

2.接続図・各部名称



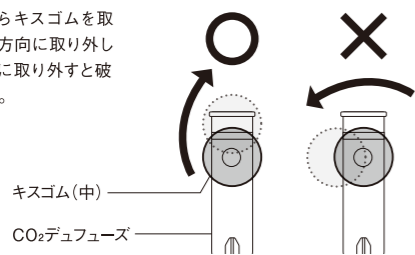
E. 逆流防止弁への接続方法



※逆流防止弁のIN側に耐圧チューブを、OUT側にシリコンチューブを接続してください。

G. キスゴム(中)の外し方

※CO₂デフューズからキスゴムを取り外す場合、必ず縦方向に取り外してください。横方向に取り外すと破損の原因になります。

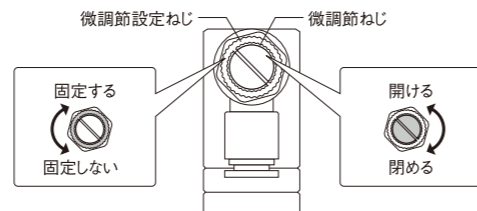


3.使用方法

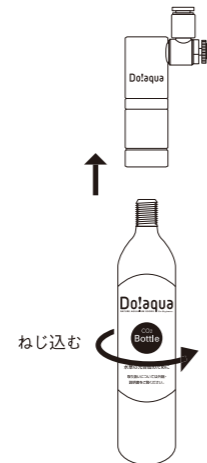
●CO₂ボトルの取り付け

①CO₂ボトルを取り付ける前に、CO₂レギュレーターの微調節ねじがしっかりと閉まっていることを確認してください。この時、CO₂レギュレーターの微調節設定ねじは固定しない状態にしてください(図A.)。②CO₂レギュレーターを上向きに(CO₂ボトル取り付け部が下にくるように)持ち、CO₂ボトルをしっかりとねじ込みます(図B.)。CO₂ボトルをねじ込む際、1次圧ガス逃げ口から少量のCO₂が出る場合がありますが、そのまま完全に止まるまでねじ込んでください。CO₂ボトルのねじ込みを途中で止めたり、逆に回すと1次圧ガス逃げ口からCO₂が吹き出して大変危険ですので絶対におやめください。③CO₂レギュレーターに取り付けた

A. 微調節ねじ・微調節設定ねじの操作方法

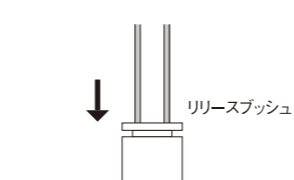


B. CO₂ボトルの取り付け方



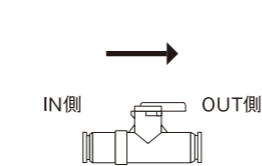
※CO₂レギュレーターの下から、CO₂ボトルを矢印の方向に回してねじ込みます。

C. 耐圧チューブの接続方法



※耐圧チューブは止まるところまでしっかりと差し込みます。取り外す際には、リリースブッシュを押し込みながら引き抜いてください。

D. ボールバルブの方向性



CO₂ボトルをスタンドに立て、CO₂が正常に出ることを確認します。微調節ねじを指でゆっくりと開き、耐圧チューブ取り付け部からCO₂が出ることを確認してから、再び微調節ねじを閉めます(図A.)。※故障の原因となりますので、CO₂レギュレーターは絶対に横や下向きに持たないでください。また、1次圧ガス逃げ口を手でふさがないように注意してください。※万一、CO₂が吹き出した場合、CO₂ボトルが非常に低温になるので素手で触らないようにしてください※CO₂ボトルを取り付けたCO₂レギュレーターを横に倒して使用すると故障の原因となりますので、絶対におやめください。

●CO₂ボトル交換の際のご注意

○CO₂ボトルを交換する際には、レギュレーターのパッキンが汚れていないかご確認ください。パッキンが汚れている場合は、乾いた布などできれいに拭き取ってください。パッキンが汚れていると、CO₂ボトルと完全に密着せず、CO₂がもれる原因になります。○CO₂ボトルの取り付け部にも、汚れやゴミの付着、変形がないことをお確かめください。

●CO₂添加器具の接続

①CO₂レギュレーターの耐圧チューブ取り付け部に、5cmほどの長さにカットした耐圧チューブ(硬いチューブ)を止まる位置までしっかりと差し込みます(図C.)。②CO₂レギュレーターに取り付けた耐圧チューブに、ボールバルブのIN側を接続します。ボールバルブには方向性があるので注意してください(図D.)。③ボールバルブのOUT側に残りの耐圧チューブを接続します。耐圧チューブはCO₂レギュレーターの設置場所に合わせて、少し余裕を持った長さにカットします。④耐圧チューブにキスゴム(小)を通し、先端に逆流防止弁のIN側を接続します。逆流防止弁には方向性(矢印で表示)があるので注意してください(図E.)。⑤シリコンチューブ(軟らかいチューブ)にキスゴム(小)を通し、逆流防止弁のOUT側に接続します。シリコンチューブは水槽に合わせて、少し余裕を持った長さにカットします。⑥シリコンチューブにキスゴム(小)を通し、CO₂デフューズに接続します。CO₂デフューズにはあらかじめ付属のスポイトで水を入れ、キスゴム(中)を取り付けておきます。CO₂デフューズは水深の中間くらいの場所に設置してください。シリコンチューブは折れ曲がらないようにキスゴム(小)で水槽に固定します。※CO₂デフューズにシリコンチューブを接続する際や取り外す際には、必ず接続部の近くを持って行ってください。接続部がシリコンチューブに入りにくい場合、接続部を水でぬらすと入りやすくなります。※CO₂デフューズの設置や取り外しの際には、必ずキスゴムを持ってください。本体を持つと破損の原因になります。

●CO₂添加量の調節

①ボールバルブを開いた状態にします(図F.)。②CO₂レギュレーターの微調節ねじをゆっくりと開き、CO₂デフューズのカウンターで気泡の数を確認しながら、適切な添加量に調節します。CO₂添加量を固定する場合は、微調節ねじが動かないように注意しながら、微調節設定ねじを固定する方向に止まるまで回します(図A.)。③CO₂添加を止める場合(照明消灯時)は、ボールバルブを閉じます。CO₂添加を再開する場合(照明点灯時)は、ボールバルブを開きます。※CO₂添加量の適量は水槽サイズ、水草の種類や量、光合成の状態によって異なります。一般に、60cm水槽でNAランプツイン36Wを2灯またはNAランプ20Wを4灯使用した場合、水槽セット初期にはCO₂デフューズのカウンターで1秒に1滴から添加を始め、水草の生長や光合成の状態に合わせて少しずつ添加量を増やしていきます。水草の葉から光合成による気泡の放出が観察できれば、CO₂添加量はほぼ適正です。※CO₂添加量が多すぎる場合、エビ類の足の動きが緩慢になったり、魚が鼻上げ行動を起こします。その場合は、早急に換水やエアレーションなどの対策を行ってください。

●CO₂デフューズのメンテナンス

○フィルターに藻類などが付着して気泡が大きくなったり、気泡の出方が悪くなった場合には、ガラス器具専用洗浄液スーパージ(別売)を用いて洗浄してください。構造上、CO₂デフューズなどガラス製CO₂拡散器のフィルターは交換できません。○クリーンボトル(別売)などの容器に水道水とスーパージを入れ、キスゴムとシリコンチューブを外したCO₂デフューズを漬けておきます。汚れ方にもよりますが、30分から数時間で汚れは落ちます(スーパージ使用説明書を参照のこと)。○汚れが落ちたら、水道の流水でCO₂デフューズをよくすすぎます。圧力室の中にたまった洗浄液は、付属のスポイトで水道水を注入して洗い流してください。洗浄液は生体にとって有害ですので、水槽に入れないようにしてください。○手などに付着した洗浄液は、水道の流水でよく洗い流してください。※CO₂デフューズからキスゴムを取り外す場合、必ず縦方向に取り外してください。横方向に取り外すと破損の原因になります(図G.)。

4.使用上の注意

○交換用のCO₂ボンベは、必ずCO₂ボトルをご使用ください。これ以外のCO₂ボンベには対応していません。弊社トロボカルフォレストやCO₂アダプターにも対応していません。○このキットに含まれるCO₂レギュレーターは固定減圧式(0.2~0.3MPa)です。NAコントロールタイマーやELバルブ(電磁弁)も接続できます。

Do!aqua

CO₂スターキット使用説明書
NATURE AQUARIUM GOODS For Beginners.



A CO₂ supply is indispensable for growing the aquatic plants in a healthy condition. CO₂ Starter Kit is a basic CO₂ supply set designed for the planted aquarium beginners. A proper CO₂ supply activates the photosynthesis of the plants and promotes the plant growth.



aqua design amano

手の届かない所で使用および保管してください。

(CO₂レギュレーター・CO₂ボトル)

●CO₂ポンベは必ず指定のADA純正品 (CO₂ボトル) をご使用ください。また、アダプターの使用や改造により指定以外のポンベを接続することは大変危険ですので絶対に
おやめください。●ぬれた手でCO₂ポンベの取り付けは行わないでください。また、CO₂
レギュレーターやCO₂ポンベは水でぬらさないようにしてください。●ご使用前に、
CO₂ポンベとCO₂レギュレーターの取り付け部に変形やゴミなどの付着、その他の異常
がないことを必ず確認してください。●この製品に接続するCO₂添加器具は、ADA純正
品をご使用ください。●必ず付属の逆流防止弁または別売のカポーションルビー (ガラ
ス製逆流防止弁) を取り付けでご使用ください。水がチューブを逆流すると、CO₂レギ
ュレーターや電磁弁などが故障する原因になります。●使用中にCO₂ポンベの表面に白
い霜が付着した場合は非常に低温になっていますので、素手で触らずに布などを巻いて
取り扱ってください。●CO₂ポンベをCO₂レギュレーターから取り外す前に、必ずCO₂を
完全に使い切ったことを確認してください。●CO₂ポンベは開封済み (穴が開いている
状態) であることを確認してから、自治体の分別にしたがって金属ゴミ (危険物) とし
て処分してください。●使用前、使用中、使用後に関わらず、CO₂ポンベは絶対に火
の中に入れてください。ポンベが破裂する危険性があります。また、直射日光が
あたる場所など、高温 (40℃以上) になる場所での保管やご使用はおやめください。

(CO₂ディフューズ)

●この製品はガラス製のため、落として衝撃を加えたり、不用意に力を加えると破
損するおそれがあります。水槽にセットする際や取り外す際、キスゴムやシリコン
チューブの着脱の際は、特にご注意ください。●製品が破損した場合は、ケガをし
ないように注意して取り扱い、危険物として処分してください。●破損の原因とな
りますので、洗浄の際に熱湯を使用しないでください。

screw with your fingers and make sure that CO₂ is released from the pressure
resistance tube attaching portion, and then tighten the fine adjustment screw again.
※Never allow the CO₂ regulator to face sideways or downwards while holding it in
order to avoid a malfunction. Be careful not to block the purge hole with your hand.
※If the CO₂ blows out, do not touch the CO₂ BOTTLE with your bare hand as it
becomes very cold. ※Never use the CO₂ regulator with CO₂ BOTTLE attached lying
on its side. This may cause the regulator to malfunction.

●Precautions for replacing CO₂ Bottle

○When replacing the CO₂ Bottle, make sure there is no foreign particle or dirt
attached on the internal seal of regulator. Such particles and dirt may become a
cause of CO₂ leakage, as CO₂ bottle cannot be attached to the regulator completely.
Wipe and remove the foreign particle or dirt with a dry clean cloth. ○Please also
confirm there are no dirt, dust, and deformation on the CO₂ Bottle fitting part.

●Connecting the CO₂ supply accessory parts

①Firmly insert the pressure resistance tube (hard tube) which has been cut into a 5cm
portion into the pressure resistance tube attaching portion on the CO₂ regulator until it
stops (Fig.C). ②Connect the "IN" side of the BALL VALVE to the pressure resistance
tube attached to the CO₂ regulator. Be careful of the orientation (indicated by an arrow)
of the BALL VALVE (Fig.D). ③Connect the remaining pressure resistance tube to the
"OUT" side of the BALL VALVE. Cut the pressure resistance tube to a length appropriate
for the mounting location of the CO₂ regulator allowing some margin. ④Attach the
suction cup (small) to the pressure resistance tube and connect the "IN" side of the
check valve to the tip of the pressure resistance tube. Be careful of the orientation
(indicated by an arrow) of the check valve (Fig.E). ⑤Attach the suction cup (small) to
the silicone tube (soft tube) and then connect the tube to the "OUT" side of the check
valve. Cut the silicone tube to a length appropriate for the aquarium size allowing
some margin. ⑥Attach the suction cup (small) to the silicone tube and then connect
the tube to the CO₂ DIFFUSE. Put some water into the CO₂ DIFFUSE with the dropper
provided, and attach the suction cup (medium) to the diffuser before connecting the
silicone tube. Install the CO₂ DIFFUSE at around the halfway point of the water level.
Fix the silicon tube to the aquarium with the suction cup (small) so that it will not
bend.※During connection/removal of the silicon tube to/from the CO₂ DIFFUSE, be
sure to hold the CO₂ DIFFUSE with your hand at the location near the connection part.
If the connection part does not go into the silicone tube smoothly, wet the connection
part with water for easy connection. ※Be sure to hold the suction cup when installing
or removing the CO₂ DIFFUSE. The CO₂ DIFFUSE may be damaged if you hold the
CO₂ DIFFUSE main unit to install or remove it.

●Adjusting CO₂ supply volume

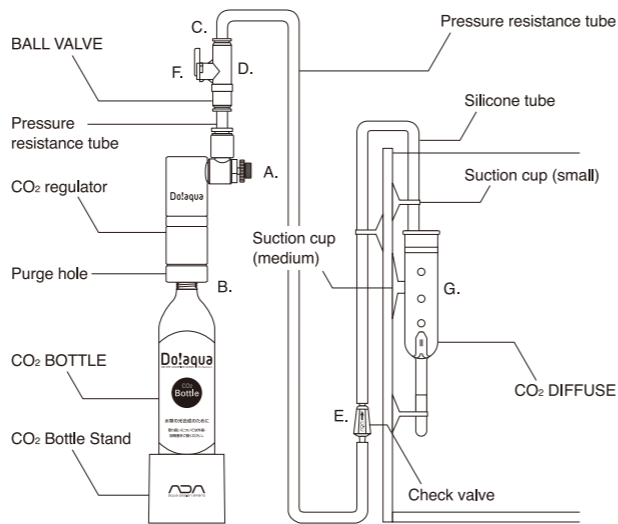
①Open the BALL VALVE (Fig.F). ②Slowly loosen the fine adjustment screw of the
CO₂ regulator. Adjust the CO₂ injection volume to an appropriate level by counting
bubbles with the CO₂ BUBBLE COUNTER on the CO₂ DIFFUSE. To fix the CO₂
supply volume, turn the fine adjustment setting screw in the fixing direction until it

English

1. Features of CO₂ STARTER KIT

CO₂ supply into the aquarium is crucial for the flourishing growth of aquatic plants.
The CO₂ STARTER KIT is a CO₂ supply kit for beginners. With its slim, space-saving
CO₂ Bottle cartridge, it is particularly suitable for small-sized aquariums. You can
start CO₂ supply right away with this starter kit in which all the necessary accessories
are provided. *CO₂ Bottle is reuse product.

2. Connection Diagram / Parts Identification



stops, while taking care not to allow the fine adjustment screw to turn (Fig.A). ③To
stop CO₂ supply (when switching off the light), close the BALL VALVE. To resume
CO₂ supply (when switching on the light), open the BALL VALVE again. ※The appropriate
CO₂ supply volume varies with the type and amount of aquatic plants and
condition of photosynthesis. When two units of NA-LAMP TWIN 36W or four units of
NA-LAMP 20W are used for a 60cm aquarium, the CO₂ supply volume should
usually be 1 bubble per second (to be counted with the CO₂ BUBBLE COUNTER on
the CO₂ Diffuser) during the initial set-up period. It should then be increased gradu-
ally according to the aquatic plant growth and condition of photosynthesis. The CO₂
supply volume is considered adequate if bubbles caused by photosynthesis are
observed on the aquatic plant leaves. ※Shrimps slow down their leg movement or
fish gasp at the surface of the water if the CO₂ supply volume is excessive. In this
event, immediately take some measure such as water change and aeration.

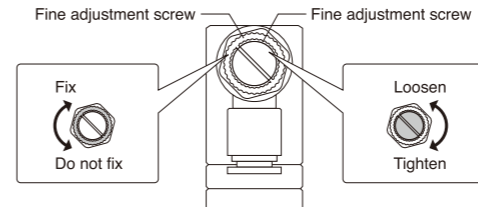
●Maintenance of CO₂ DIFFUSE

○If the bubble size becomes larger or bubbles are not diffused properly due to algae
sticking to the filter, clean the CO₂ DIFFUSE with SUPERGE (optional), a glass equip-
ment cleaner. The filter of the glass CO₂ DIFFUSE may not be replaced due to its
structure. ○Remove the suction cups and silicon tube from the CO₂ DIFFUSE. Fill the
CLEAN BOTTLE (optional) or other container with tap water and SUPERGE and soak
the CO₂ DIFFUSE in the solution. Dirt will usually be removed within 30 minutes to an
hour, although it may take longer depending on the contamination level (See the
SUPERGE User's Guide). ○Once the dirt is removed, rinse the CO₂ DIFFUSE well
under running tap water. The residual cleaning solution inside the pressure chamber
should be removed by flushing with tap water using the dropper provided. Avoid contact
of the cleaning solution with the aquarium water as it is harmful to living organisms. ○If
the cleaning solution comes into contact with your hand or skin, rinse well under the
running tap water. ※Be sure to remove the suction cups in a vertical direction. Remov-
ing them in a horizontal direction may cause damage to the suction cups (Fig.G).

4. Precautions for Use

○Be sure to use a CO₂ BOTTLE as a spare CO₂ cartridge. No other types of CO₂
cartridge, including ADA TROPICAL FOREST and ADA CO₂ ADAPTER, are
compatible with the CO₂ STARTER KIT. ○The CO₂ regulator included in this kit is
the type that works at a fixed low pressure (0.2-0.3MPa). It can be connected with
the NA-CONTROL TIMER and EL-VALVE (solenoid valve). ○The silicone tube may
not be connected to the CO₂ regulator or BALL VALVE. Be sure to use a pressure
resistance tube for the connection. To remove the connected pressure resistance
tube, pull it out while pushing in the release bush. ○The pressure resistance tube
may not be connected to any glass CO₂ diffuser. Be sure to use a silicone tube for
the connection. ○Avoid screwing in the CO₂ BOTTLE while excessive force is being
applied to the speed controller (a plastic part in light gray color) of the CO₂ regulator.
This may cause damage to the speed controller. ○The diffusing surface (a white
filter) of the CO₂ DIFFUSE may be damaged if scrubbed with a brush. To clean the

A. How to operate fine adjustment screw & fine adjustment setting screw

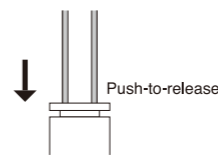


B. How to attach the CO₂ BOTTLE



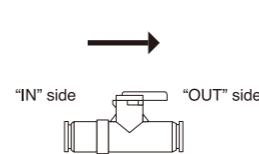
※Screw in the CO₂ BOTTLE in the
direction of the arrow from under the
CO₂ regulator.

C. How to connect the pressure
resistance tube.



※Firmly insert the pressure resistance
tube until it stops. To remove it, pull it
out while pushing in the Push-to-
release.

D. Orientation of BALL VALVE



CO₂ DIFFUSE, be sure to soak it in the solution of SUPERGE (optional), a glass
equipment cleaner. ○The Check valve is a consumable part that needs to be
replaced with a new one approximately once a year. The Check valve is included in
the CLEAR PARTS SET and GRAY PARTS SET (optional). A damaged Check valve
may cause unstable CO₂ supply volume or damage to the CO₂ regulator due to a
reverse flow of water. Be sure to monitor the water reverse flow periodically. ○No
packing replacement is required for the CO₂ regulator included in this kit. The
packing is not detachable. Do NOT forcibly remove it with a needle or tweezers. This
can cause damage to the packing and could result in CO₂ leakage. ○Never supply
CO₂ while the lighting is switched off. This may cause living organisms such as fish
and shrimps to suffer from a lack of oxygen, or death of microorganisms within the
filter, which could result in a deterioration of water quality. ○Be sure to use your
fingers to control the fine adjustment screw and fine adjustment setting screw. The
use of any tool such as pliers may cause excessive force and damage the screws.
Too frequent tightening/loosening the fine adjustment screw may wear out the screw
and could result in failed fine regulation. Use the BALL VALVE for daily switching
on/off of CO₂ injection. ○Never submerge the CO₂ regulator in the water. It may
malfunction if water goes inside. To check for a CO₂ leak, apply soap water (bubbles
of soap water will be formed if there is a CO₂ leak).

5. Contents of the Set

- CO₂ regulator •CO₂ BOTTLE (35g) x 2 pcs •CO₂ Bottle stand •BALL VALVE
- CO₂ DIFFUSE •Check valve •Pressure resistance tube (clear, 1m) •Silicone tube (1m)
- Suction cup (medium) x 2 pcs •Suction cup (small) x 4 pcs •Dropper

6. Safety Precautions

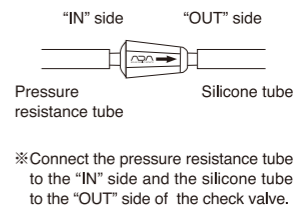
※Please read carefully

○This product is designed for growing and maintaining aquatic plants and tropical
fish in an aquarium. Please do NOT use this product for improper purpose. ○Read
this instruction manual carefully and follow its direction for using this product. ○ADA
shall not be responsible for any disease and death of fishes, and condition of plants.
○KEEP OUT OF REACH OF CHILDREN

(CO₂ Regulator and CO₂ BOTTLE)

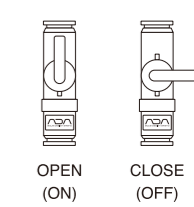
○Be sure to use the specified genuine ADA product (CO₂ BOTTLE) as a CO₂
cartridge. Never attempt to connect any cartridge other than the specified type by
using an adapter or modifying the regulator. It is very dangerous. ○Do NOT install
the CO₂ cartridge with wet hands. Do NOT wet the CO₂ regulator or CO₂ cartridge
with water. ○Make sure that there is no deformation, dust or dirt build-up or other
abnormal symptoms on the CO₂ cartridge and CO₂ regulator mounting location
before using this product. ○Use genuine ADA products for CO₂ supply accessories
to be connected to this product. ○Be sure to install the Check valve or optional
CABOCHON RUBY (glass check valve) provided before use. Reverse flow of water

E. How to connect to the check valve



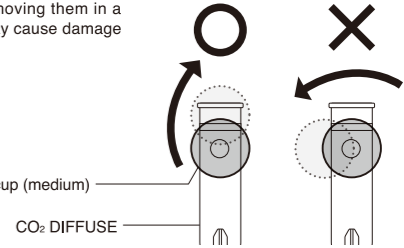
※Connect the pressure resistance tube to
the "IN" side and the silicone tube
to the "OUT" side of the check valve.

F. Opening/Closing the BALL VALVE



G. How to remove the suction cup (medium)

※Be sure to remove the suction cups in a
vertical direction. Removing them in a
horizontal direction may cause damage
to the suction cups.



3. How to Use

●Attaching the CO₂ BOTTLE

①Make sure that the fine adjustment screw of the CO₂ regulator is securely
tightened before attaching the CO₂ BOTTLE. At this time, the fine adjustment setting
screw should not be firmly tightened (Fig.A). ②Hold the CO₂ regulator upward (with
the CO₂ Bottle attaching portion facing downward), and screw in the CO₂ BOTTLE
firmly (Fig.B). CO₂ BOTTLE should be screwed in until it stops completely even if a
small amount of CO₂ is released from the purge hole. Never stop the screw-in
process of the CO₂ BOTTLE midway or screw it in the wrong direction as this may
pose the risk of CO₂ blowing out from the purge hole, which is very dangerous. ③
Place the CO₂ BOTTLE that has been attached to the CO₂ regulator on the stand
and make sure that the CO₂ is diffused properly. Slowly loosen the fine adjustment

within the tube could result in malfunction of CO₂ regulator or solenoid valve. ○The
CO₂ cartridge has become very cold when white frost is formed on its surface. In this
event, avoid touching the cartridge with your bare hands, and wrap it with a cloth,
etc. before handling it. ○Make sure that the CO₂ inside the cartridge is completely
empty before removing the CO₂ cartridge from the CO₂ regulator. ○Make sure that
the CO₂ cartridge is open (a hole is opened) before disposal. Dispose the CO₂
cartridge as a metal waste (hazardous material) according to the waste separation
policy issued by the municipal authority. ○Never put the CO₂ cartridge in the fire,
whether it is before, during or after use. There is a risk of explosion. Avoid using or
keeping the CO₂ cartridge in a place subjected to high temperatures (40℃ and
above) such as a place exposed to direct sunlight.

(CO₂ Diffuse)

○This product is made of glass. It may be damaged if it is dropped and subjected to
strong impact or excessive force is applied to it. Be extra careful during
installation/removal of the CO₂ DIFFUSE to/from the aquarium and attaching/removal
of the suction cup or silicone tube. ○Handle the damaged product with care to avoid
personal injury. Dispose of the damaged product as a hazardous material. ○Do NOT
wash the CO₂ DIFFUSE with hot water to avoid damage.