

TLV TRAP STATION V1P/V2P Series

Important
This product connects to TLV QuickTrap series trap units. For the connection procedure and the installation procedure, see the instruction manual included with the trap unit, and make sure to work safely.



Safety Considerations

- Read this section carefully before use and be sure to follow the instructions.
- Inspection, maintenance, repairs, disassembly, adjustment and valve opening/closing should be carried out only by trained maintenance personnel.
- The precautions listed in this manual are designed to ensure safety and prevent equipment damage and personal injury. For situations that may occur as a result of erroneous handling, three different types of cautionary items are used to indicate the degree of urgency and the scale of potential damage and danger: DANGER, WARNING and CAUTION.
- The three types of cautionary items above are very important for safety: be sure to observe all of them as they relate to installation, use, maintenance, and repair. Furthermore, TLV accepts no responsibility for any accidents or damage occurring as a result of failure to observe these precautions.

Symbol **CAUTION**: Indicates that there is a possibility of injury or equipment/product damage

Install properly and DO NOT use this product outside the recommended operating pressure, temperature and other specification ranges.
Improper use may result in such hazards as damage to the product or malfunctions that may lead to serious accidents. Local regulations may restrict the use of this product to below the conditions quoted.

Take measures to prevent people from coming into direct contact with product outlets.

Failure to do so may result in burns or other injury from the discharge of fluids.

When disassembling or removing the product, wait until the internal pressure equals atmospheric pressure and the surface of the product has cooled to room temperature.
Disassembling or removing the product when it is hot or under pressure may lead to discharge of fluids, causing burns, other injuries or damage.

Do not use excessive force when connecting threaded pipes to the product.
Over-tightening may cause breakage leading to fluid discharge, which may cause burns or other injury.

Do not stand on or apply body weight to the handwheel.
The handwheel may break, resulting in injury or other accidents.

Do not carry the product by its handwheel.
The handwheel may turn causing the balance to shift and the product to be dropped, resulting in injury or other accidents.

Always wear eye protection and heat-resistant gloves when operating the blowdown/test valve.
Failure to do so may result in burns or other injury.

When operating the blowdown/test valve, stand to the side well clear of the outlet to avoid contact with internal fluids that will be discharged. Operate the valve slowly and surely, taking care to avoid the area from which internal fluids are discharged and any fluids deflected off piping or the ground etc.
Failure to do so may result in burns or other injury.

Do not tighten the BD2 valve or the BD2 valve seat in excess of the appropriate tightening torque.
Over-tightening may cause breakage to threaded portions, which may cause burns, other injuries or damage.

Do not excessively loosen the BD2 valve when opening the blowdown/test valve.

The valve stopper pin installed to prevent the BD2 valve from being removed may break and internal pressure may result in the BD2 valve being blown off, leading to injuries, damage and fluid discharge, causing burns.

Use only under conditions in which no freeze-up will occur.

Freezing may damage the product, leading to fluid discharge, which may cause burns or other injury.

Use only under conditions in which no water hammer will occur.

The impact of water hammer may damage the product, leading to fluid discharge, which may cause burns or other injury.

Installation & Operational Consideration

Before installing the product, blow out the piping to remove any piping scraps, dirt, oil and scale.
Failure to do so may lead to early clogging due to an initial heavy load of foreign material in the piping.

Do not remove the product from its box or protective seals until just prior to installation.

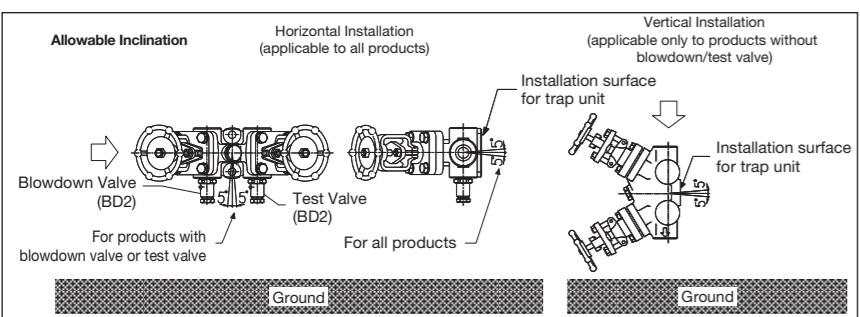
The protective covers keep damage causing foreign material out of the product.

Do not use a wire-brush or other hard devices to clean the screen.

Doing so may damage or detach the meshed screen.

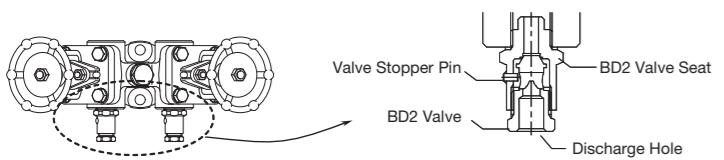
Installation

- Before installation, be sure to remove all protective seals.
- Before installing the product, blow out the piping to remove any piping scraps, dirt and oil.
- Install the product so the arrow on the body is pointing in the direction of condensate flow.
- Install on horizontal piping within the allowable inclination, as shown below. The handwheel ring(s) should be in vertical plane(s) with the BD2 blowdown valve facing downward. (BD2 not included with V1P-RL or V2P-RL).
- If a blowdown valve or test valve is not installed on the product, the product may be installed in either vertical or horizontal orientation. However, ensure the inlet is facing upwards for vertical piping. The allowable inclination for the installation surface on the trap unit is within 5° as shown below.
- Install the trap unit onto the trap station. For installation instructions see the instruction manual shipped with the trap unit.
- Connect the outlet piping.
- Open the inlet and outlet valves slowly and check to make sure that the product functions properly.



Blowdown Valve/Test Valve Operation

The BD2 Blowdown Valve, installed in place of the screen holder, uses internal pressure to blow out condensate/steam, dirt and scale to the atmosphere. The test valve is installed at the outlet of the trap. By closing the outlet valve for the trap station and opening the test valve it becomes possible to test the operation of the trap. The TLV blowdown valve BD2 is used for both the blowdown valve and the test valve. For operation refer to the BD2 operation instructions below.



NOTE: Do not leave the vicinity while the BD2 valve is in the open position.

1. The BD2 valve is in the closed position when the Trap Station is shipped from the factory. Before attempting to open the blowdown valve and the test valve, reconfirm that the BD2 valve is still in the closed position. Locate the blow outlet and, during operation, stand to the side and well clear of it, as the jet of condensate or steam could cause burns.

2. Before opening the BD2 valve, grip the BD2 valve seat with a wrench and hold firmly in place so that it will not rotate when the BD2 valve is loosened. Grip the BD2 valve with another wrench and slowly loosen. Condensate and steam will discharge from the discharge hole in a jet stream. Be careful not to loosen the BD2 valve so far that it becomes removed from the BD2 valve. (If the valve stopper pin becomes damaged, large quantities of steam will be discharged in a jet stream.)

3. Close the BD2 valve until the flow of fluid completely stops. If the flow of fluid does not stop, re-open the valve (as in step 2) to blow out any scale or dirt that may be caught in the valve. Re-tighten the valve until the flow of fluid stops completely.

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TLV ENTWÄSSERUNGSEINHEIT V1P/V2P Series

Wichtig:

Dieses Produkt ist für den Anschluss von Kondensatablitzern der TLV QuickTrap Reihe vorgesehen. Zu Anschluss und Installation, siehe Einbau- und Betriebsanleitung dort. Die Sicherheitshinweise beachten.



Sicherheitshinweise

- Bitte lesen Sie diese Kapitel vor Beginn der Arbeiten sorgfältig durch und befolgen Sie die Vorschriften.
- Einbau und Ausbau, Inspektion, Wartungs- und Reparaturarbeiten, Öffnen/Schließen von Armaturen, Einstellung von Komponenten, dürfen nur von geschultem Wartungspersonal vorgenommen werden.
- Die Sicherheitshinweise in dieser Einbau- und Betriebsanleitung dienen dazu, Unfälle, Verletzungen, Betriebsstörungen und Beschädigungen der Anlagen zu vermeiden. Für Gefahrensituationen, die durch falsches Handeln entstehen können, werden drei verschiedene Warnzeichen benutzt: GEFAHR; WARNUNG; VORSICHT.
- Den Vorsichtswert wird wichtig für Ihre Sicherheit. Sie müssen unbedingt beachtet werden, um den sicheren Gebrauch des Produktes zu gewährleisten und Einbau, Wartung und Reparatur ohne Unfälle oder Schäden durchführen zu können. TLV hofft nicht für Unfälle oder Schäden, die durch Nichtbeachtung dieser Sicherheitshinweise entstehen.

Symbol

VORSICHT: Bedeutet, dass die Möglichkeit von Verletzungen oder Schäden an Anlagen oder Produkten besteht.

Die Einbauhinweise beachten und die spezifizierten Betriebsgrenzen NICHT ÜBERSCHREITTEN.
Nichtbeachtung kann zu Betriebsstörungen oder Unfällen führen. Lokale Vorschriften können zur Unterscheidung der angegebenen Werte zwingen.

In sicherer Entfernung von Ausblasöffnungen aufhalten und andere Personen warnen, sich fernzuhalten.
Nichtbeachtung kann zu Verletzungen durch austretende Fluide führen.

Bei Schraubanschlüssen keine übermäßige Kraft anwenden, damit die Gewinde nicht beschädigt werden.
An beschädigten Gewinden austretende Fluide können zu Verbrennungen oder Verletzungen führen.

Nicht sich auf das Handrad stellen oder mit dem Körpergewicht lehnen.
Es kann brechen, was zu Verletzungen oder anderen Unfällen führt.

Das Produkt nicht am Handrad tragen.
Es könnte sich drehen, das Produkt aus der Balance bringen, sodass es herunterfällt und Verletzungen oder andere Unfälle verursacht.

Bei Gebrauch des Ausblasevents werden Schutzbrille und isolierte, hitzebeständige Handschuhe dringend empfohlen.
Nichtbeachtung kann zu Verbrennungen oder Verletzungen führen.

Bei Gebrauch des Ausblasevents immer seitlich in sicherem Abstand vom Austritt stehen, um Kontakt mit den austretenden Fluiden zu vermeiden. Das Ventil bekommt dabei Acht geben, nicht in den Austrittsbereich von Fluiden, insbesondere deren Ableitungen an Leitungen und anderen Gegenständen, zu geraten.
Nichtbeachtung kann zu Verbrennungen oder Verletzungen führen.

Das BD2-Ventil und den BD2-Ventil nicht stärker als mit den angegebenen Anzugsmomenten festziehen.
Die Gewinde können sonst Schaden nehmen, was zu Verbrennungen, anderen Verletzungen und Schäden führen kann.

Beim Öffnen des Ausblasevents das BD2-Ventil nicht übermäßig öffnen.
Der Ventilhalteschraube sollte nicht brechen und das BD2-Ventil sich durch den Innendruck schlagartig lösen, was zu Verletzungen, Schäden und Verbrennungen durch austretende Fluide führen kann.

Nur in frostfreier Umgebung einsetzen.
Einfrieren kann das Produkt beschädigen, was zu Verbrennungen oder Verletzungen durch austretende Fluide führt.

Nur an Stellen einbauen, an denen kein Wasserschlag auftreten kann.

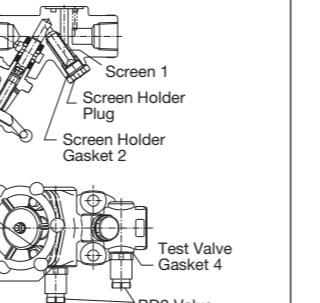
Wasserschlag kann das Produkt beschädigen und zu Verbrennungen oder Verletzungen durch austretende Fluide führen.

Hinweise zu Einbau und Betrieb

VORSICHT	Vor Einbau die Leitung durchblasen, um Öl und Verschmutzungen zu entfernen. Nichtbeachtung kann zu frühzeitiger Verstopfung wegen anfänglichen Verunreinigungen führen.
	Bis unmittelbar vor Einbau das Produkt nicht aus der Verpackung oder Schutzhülle entnehmen. Schutzhüllen halten schädliche Fremdkörper vom Produktern fern.
	Zum Reinigen des Schmutzsiels keine harten Gegenstände wie Drahtbürste o.ä. verwenden. Der Mesh-Filter könnte Schaden nehmen.

Einbau

- Vor dem Einbau die Transport-Schutzkappen entfernen.
- Bei Einbau die Leitung durchblasen, um Öl und Verschmutzungen zu entfernen.
- Die Entwässerungseinheit so einbauen, dass der Pfeil auf dem Gehäuse in Durchflussrichtung zeigt.
- Die Entwässerungseinheit in waagerechter Leitung einzubauen, dass die nachfolgend gezeigten Schräglagertoleranzen nicht überschritten werden. Die Wandränder müssen jeweils in einer senkrechten Ebene, und das BD2 Ausblaseventil abwärts gerichtet sein, (BD2 in V1P-RW und V2P-RB nicht enthalten).
- Falls kein Ausblaseventil und kein Prüfventil auf der Entwässerungseinheit installiert sind, kann das Produkt sowohl in waagrechte als auch in senkrechte Leitungen eingebaut werden. Bei senkretem Einbau darunter achten, dass der Einlass oben ist. Die Schräglagertoleranz der KA-Anschlussfläche beträgt auch bei senkretem Einbau 5° (siehe Abb. unten).
- Den Kondensatablitzersatz an die Entwässerungseinheit installieren. Details siehe Einbuanleitung Kondensatablitzersatz.
- Die Ausblasleitung anschließen.
- Das Einlassventil öffnen und prüfen, ob die Anlage ordnungsgemäß arbeitet.



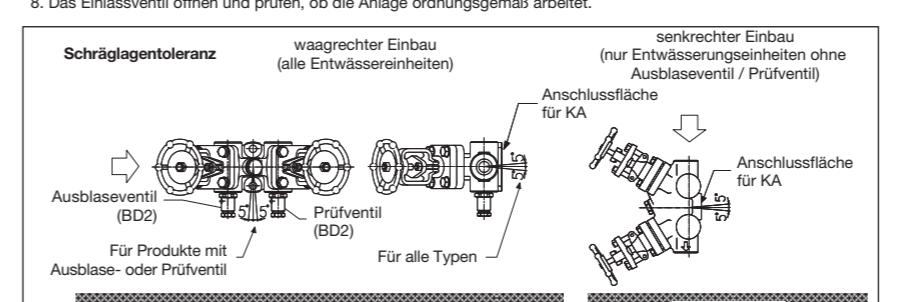
Availability of Spare Parts
Aside from parts 1 – 4 shown in the figures above, replacement parts are not normally supplied. Consult TLV if other parts are needed. Furthermore, the material for the gasket varies depending on the body material of the product. Include the body material of your product when ordering a replacement gasket.

Part Name **Torque** **Distance Across Flats**

Part Name	Torque	Distance Across Flats
Screen Holder Plug	60 (44)	22 (7/8)
Nut (for Valve Bonnet)	5 (4)	13 (1/2)
Blowdown Valve/Test Valve	60 (44)	22 (7/8)
BD2 Valve	30 (22)	17 (21/32) (1 N·m = 10 kg·cm)

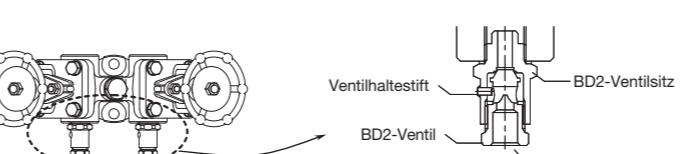
NOTE: - Coat all threaded portions with anti-seize. If drawings or other special documentation were supplied for the product, any torque given there takes precedence over values shown here.

- Avoid the use of excessive tightening torques, as threaded parts may become damaged.



Betrieb des Ausblasevents/Prüfvents

Das Ausblaseventil BD2 benutzt den Innendruck zum Ausblasen von Kondensat/Dampf und Verunreinigungen aus dem Gehäuse in die Atmosphäre. Das Prüfventil ist an der Auslaßseite des KA installiert. Durch schließen des Ausblasevents und Öffnen des Prüfvents kann das Funktionieren des KA überprüft werden. Das TLV Ausblaseventil Typ BD2 wird sowohl als Ausblaseventil als auch als Prüfventil verwendet. Die folgende Betriebsanleitung gilt für beide Verwendungen von BD2.



HINWEIS: Den Arbeitsplatz nicht verlassen, solange das Ventil in offener Stellung steht.

- Das BD2 Ausblaseventil wird in geschlossenem Zustand geliefert, trotzdem sicherstellen, dass es zu ist, bevor das Einlassventil geöffnet wird. Bei betrieb des BD2 seitlich in sicherem Abstand vom Austritt stehen um Verbrennungen durch unter Druck austretendes Kondensat oder Dampf zu verhindern.
- Zum Öffnen des Ausblasevents BD2 zunächst BD2-Ventilsitz mit einem Schraubenschlüssel so festhalten, dass er sich nicht dreht, wenn das BD2-Ventil geöffnet wird. Nun das BD2-Ventil langsam öffnen. Dadurch können Kondensat und Dampf strahlformig aus der Austrittsöffnung entweichen. Das Ventil nicht von der Entwässerungseinheit abschrauben. (Falls der Ventilhaltestift beschädigt wird, können große Mengen Dampf in einem Strahl austreten.)
- Das Ausblaseventil schließen und vergewissern, dass kein Fluid austritt. Falls Fluid austritt, ist es ein Zeichen, dass Schmutz und Ablagerungen am Ventilsitz das vollständige Schließen verhindern. Wieder öffnen, ausblasen und schließen.

Specifications

Typ	V1P-RL/V1P-RB/V1P-RW/V1P-RV/ V1P-LB/V1P-LW/V1P-LV	V2P-RL/V2P-RB/V2P-LB
ENTWÄSSERUNGSEINHEIT		
Name		
Einlassventil/Auslassventil	Nur Einlassventil	Einlass- und Auslassvent

FRANÇAIS

TLV. POSTE DE PURGE MODÈLE V1P/V2P**Important**

Ce produit se connecte à la série de purgeurs TLV QuickTrap.
Concernant la procédure de connexion, veuillez consulter les instructions du manuel du purgeur en question pour une utilisation sans danger.

**Règles de sécurité**

- Lire attentivement cette notice avant l'utilisation et suivre les instructions.
- Tout installation, inspection, entretien, réparation, démontage, ajustement et ouverture/fermeture de vanne doit être fait uniquement par une personne formée à l'entretien.
- La liste des précautions à prendre est établie afin d'assurer votre sécurité et de prévenir des dégâts matériels et/ou des blessures sérieuses. Dans certaines situations causées par une mauvaise manipulation, trois indicateurs sont utilisés afin d'indiquer le degré d'urgence, l'échelle du dommage potentiel et le danger : DANGER, AVERTISSEMENT et ATENTION.
- Ces 3 indicateurs sont importants pour votre sécurité; observez les précautions de sécurité énumérées dans ce manuel pour l'installation, l'utilisation, l'entretien et la réparation du produit. TLV ne prend aucune responsabilité en cas d'accident ou de dommage survenant à la suite d'un non-respect de ces précautions.

Symbolle

ATTENTION : Indique un risque de blessure ou de dégât matériel au produit et/ou aux installations.

Installer le produit correctement et NE PAS l'utiliser en dehors de la pression et de la température maximale de fonctionnement, ni en contact avec d'autres plages spécifiques. Une telle utilisation peut entraîner des dommages au produit ou des dysfonctionnements, ce qui peut provoquer des brûlures ou autres blessures. Il se peut que des règlements locaux limitent l'utilisation du produit en-deçà des spécifications indiquées.

Prendre les mesures appropriées afin d'éviter que des personnes n'entrent en contact direct avec les ouvertures du produit. Le non-respect de cette règle peut provoquer des brûlures ou autres blessures sérieuses dues à l'écoulement des fluides.

En cas de démontage ou de manipulation du produit, attendre que la pression interne soit égale à la pression atmosphérique et que la surface du produit soit complètement refroidie. Le non-respect de cette règle peut provoquer des brûlures ou autres dommages dus à l'économie des réfrigérants.

Ne pas utiliser de force excessive lors de la connexion du produit à la tuyauterie. Le non-respect de cette règle peut provoquer la rupture du produit, entraîner l'écoulement des fluides, et causer des brûlures ou blessures sérieuses.

Ne pas se tenir debout sur le volant à main, ni faire peser un poids corporel dessus. Le volant pourrait casser et entraîner des blessures ou accidents.

Ne pas porter le produit en le tenant par le volant à main. Le volant pourrait tourner, perturber l'équilibre et faire tomber le produit, ce qui pourrait entraîner des blessures.

Toujours se protéger les yeux et porter des gants isolés résistant à la chaleur pour manipuler le robinet de purge. Le non-respect de cette règle peut provoquer des brûlures ou autres blessures.

Lorsque le robinet de purge/test fonctionne, se tenir bien à l'écart de l'efficacité afin d'éviter tout contact avec les fluides internes qui sont expulsés. Manipuler le robinet lentement et avec sûreté, en prenant soin d'éviter la zone où les fluides internes sont évacués et d'autres fluides dérivés des conduites ou du sol etc.

Resserrer la soupape BD2 ou le siège de soupape BD2 avec le couple de serrage adéquat. Un serrage excessif pourrait casser les portions filetées et provoquer des brûlures ou autres blessures.

Ne pas utiliser de force excessive en ouvrant le robinet de purge/robinet de test. La goupille d'arrêt de siège de soupape pourrait casser et la pression interne causerait une expulsion du robinet BD2, ce qui entraînerait des blessures, et le fluide échappé provoquerait des brûlures.

N'utiliser que dans des conditions où le gel ne se produit pas. Le gel peut endommager le produit et provoquer l'écoulement des fluides, et causer des brûlures ou autres blessures sérieuses.

Utiliser le produit dans des conditions où il n'y a aucun coup de bâton. L'impact d'un coup de bâton peut endommager le produit, et provoquer l'écoulement des fluides, ainsi que des brûlures ou des blessures graves.

Installation et remarques sur le fonctionnement

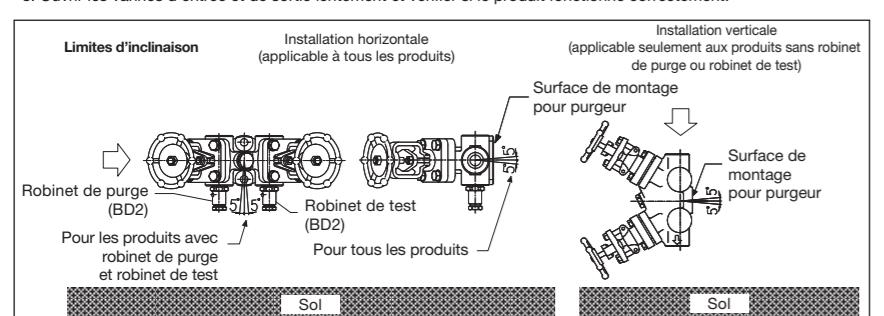
ATTENTION : Avant l'installation, souffler la tuyauterie d'entrée afin d'en retirer l'huile, les saletés et les écaillles. Le non-respect de cette précaution peut provoquer un encrassement prémature du à la présence initiale de corps étrangers dans les tuyaux.

Retirer le produit de la boîte et ses couvertures protectrices juste avant l'installation, de même pour les boulons et étiquettes. Les couvertures protectrices préviennent des dégâts occasionnés par des corps étrangers.

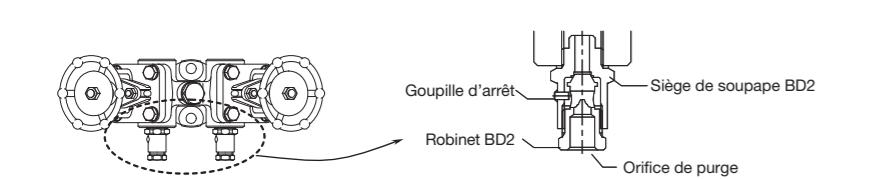
Ne pas utiliser de brosse métallique pour nettoyer la crêpine. Cela pourrait abimer ou détacher la grille de protection.

Installation

- Ne pas oublier d'ôter toutes les étiquettes protectrices avant l'installation.
- Avant l'installation, souffler la tuyauterie d'entrée afin d'en retirer l'huile, les saletés et les écaillles.
- Installer le produit de façon à ce que la flèche sur le corps pointe dans la direction du flux de condensat.
- Installer sur une tuyauterie à l'horizontale dans la limite des inclinaisons indiquées ci-dessous. Le volant doit être dans un plan vertical, avec le robinet de purge BD2 orienté vers le bas. (BD2 n'est pas fourni avec le V1P-RL ou V2P-RL).
- Si un robinet de purge ou un robinet de test n'est pas installé sur le produit, une installation verticale est admisible. Dans ce cas s'assurer que l'entrée est orientée vers le haut. La limite d'inclinaison pour la surface de montage du purgeur est jusqu'à 5°.
- Installer le purgeur dans la station de purge. Pour les instructions d'installation, voir le manuel d'utilisation du purgeur.
- Raccorder la conduite de sortie.
- Ouvrir les vannes d'entrée et de sortie lentement et vérifier si le produit fonctionne correctement.

**Fonctionnement du robinet de purge/test**

Le robinet de purge BD2 utilise la pression interne pour expulser le condensat ou la vapeur (ainsi que l'écailler des poussières ou celles contenues) vers l'atmosphère. Le robinet de test est installé à la sortie du purgeur. En fermant le robinet de sortie du poste de purge et en ouvrant le robinet de test, il est possible de vérifier l'activité du purgeur. Le robinet de purge BD2 est utilisable à la fois comme robinet de purge et de test. Pour son utilisation, suivre les instructions ici-bas.



- NOTE : Ne pas s'éloigner lorsque le robinet BD2 est en position ouverte.
- Le robinet de purge BD2 est livré en position fermée. Vérifier qu'il est bien fermé avant de l'utiliser. Localiser l'orifice de purge et se tenir à l'écart pour éviter d'entrer en contact avec les fluides brûlants.
 - Restez sur le site durant tout le temps où le robinet BD2 est en position ouverte. Avant d'ouvrir le robinet BD2, bloquer la goupille d'arrêt de la partie de purge pour éviter la rotation quand le robinet BD2 est déverrouillé. Bloquer le robinet BD2 avec une autre clé, et desserrer lentement. Le Condensat va s'évacuer par l'orifice de purge sous forme de jet. Faire attention à ne pas trop desserrer le robinet BD2 jusqu'à provoquer son déclenchement. (Si la goupille d'arrêt est abimée, une grande quantité de vapeur sera expulsée sous forme de jet).
 - Fermer le robinet BD2 jusqu'à l'arrêt complet de l'écoulement du fluide. Si le flux ne s'arrête pas, rouvrir le robinet (voir étape 2) pour expulser des saletés ou résidus qui seraient entrés dans le robinet. Resserrer le robinet jusqu'à ce que l'écoulement s'arrête complètement.

Spécifications

Modèle	V1P-RL/V1P-RB/V1P-RW/V1P-RV/ V1P-LB/V1P-LW/V1P-LV	V2P-RL/V2P-RB/V2P-LB
POSTE DE PURGE		
Nom	Seulement sortie	Entrée/sortie
Matériau du corps	ASTM A105 ou ASTM A182 F304	
Dimension	1/2", 3/4" / DN15, 20	
Pression admissible max. PMA/ Température admissible max. TMA*	50 bar/425 °C	
Press. max. de fonctionnement PMA/ Temp. max. de fonctionnement TMA**	50 bar/425 °C	
Fluides applicables	Vapeur, condensat	
Produits TLV connectables (modèles de purgeur)	Purgeurs de vapeur à flotteur fermé libre S3, S5, SSH, S3-K, S5-K P46UC P32	Purgeurs de vapeur à disque Purgeurs de vapeur thermostatiques L5, L21, L32, L5-C, L21-C, L32-C X1

NOTE : Certains modèles ne sont pas disponibles dans toutes les régions.

D'autres purgeurs sont utilisables. Contacter TLV pour des modèles QuickTrap non listés.

* Pression maximale admissible (PMA) et température maximale admissible (TMA) sont les CONDITIONS (1 bar = 1,197 kg/cm²)

** Seullement pour poste de purge. Pas LES CONDITIONS DE FONCTIONNEMENT.

ENGLISH

TLV EXPRESS LIMITED WARRANTY

Subject to the limitations set forth below, TLV CO., LTD., a Japanese corporation ("TLV"), warrants that products which are sold by TLV International Inc. ("TII") or by one of the societies of its group, to the United States of America, (hereinafter the "Products") are designed and manufactured by TLV, conform to the specifications published by TLV for the corresponding part numbers (the "Specifications") and are free from defective workmanship and materials. The party from whom the Products were purchased shall be known hereinafter as the "Seller". With regard to products or components manufactured by unrelated third parties (the "Components"), TLV provides no warranty other than the warranty from the third party manufacturer(s), if any.

Exceptions to Warranty

This warranty does not cover defects or failures caused by:

- improper shipping, installation, use, handling, etc., by persons other than TLV, TII or TLV group company personnel, or service representatives authorized by TLV; or
- any damage, loss, or damage to the product due to acts of God;
- improper disassembly and reassembly, or inadequate inspection and maintenance by persons other than TLV or TLV group company personnel, or service representatives authorized by TLV; or
- disasters or forces of nature or Acts of God; or
- abuse, abnormal use, accidents or any other cause beyond the control of TLV, TII or TLV group companies; or
- improper storage, maintenance or repair; or
- operation of the Products not in accordance with instructions issued with the Products or with accepted industry practices; or
- use for a purpose or in a manner for which the Products were not intended; or
- use of the Products in a manner inconsistent with the Specifications; or
- use of the Products with Hazardous Fluids (fluids other than steam, air, water, nitrogen, carbon dioxide and inert gases (helium, neon, argon, krypton, xenon and radon)); or
- failure to follow the instructions contained in the TLV Instruction Manual for the Product.

Duration of Warranty

This warranty is effective for a period of one (1) year after delivery of Products to the first end user. Notwithstanding the foregoing, asserting a claim under this warranty must be brought within three (3) years after the date of delivery to the initial buyer, provided that such claim is made to the seller or distributor who supplied the product to the initial buyer. ANY IMPLIED WARRANTIES NOT NEGATED HEREBY WHICH MAY ARISE BY OPERATION OF LAW, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY EXPRESS WARRANTIES NOT NEGATED HEREBY, ARE GIVEN SOLELY TO THE INITIAL BUYER AND ARE LIMITED IN DURATION TO ONE (1) YEAR FROM THE DATE OF SHIPMENT BY THE SELLER.

Exclusive Remedy

THE EXCLUSIVE REMEDY UNDER THIS WARRANTY, UNDER ANY EXPRESS WARRANTY OR UNDER ANY IMPLIED WARRANTIES NOT NEGATED HEREBY (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE), IS **REPLACEMENT**; PROVIDED: (a) THE CLAIMED DEFECT IS REPORTED TO THE SELLER IN WRITING WITHIN THE WARRANTY PERIOD, INCLUDING A DETAILED WRITTEN DESCRIPTION OF THE DEFECTIVE PRODUCT AND THE REASONS FOR THE CLAIM; (b) THE DEFECTIVE PRODUCT IS RETURNED TO THE SELLER, FREIGHT AND TRANSPORTATION COSTS PREPAID, UNDER A RETURN MATERIAL AUTHORIZATION AND TRACKING NUMBER ISSUED BY THE SELLER, ALL LABOR COSTS, SHIPPING COSTS, AND TRANSPORTATION COSTS ASSOCIATED WITH THE RETURN OR REPLACEMENT OF THE CLAIMED DEFECTIVE PRODUCT ARE SOLELY THE RESPONSIBILITY OF BUYER OR THE FIRST END USER; THE SELLER RESERVES THE RIGHT TO INSPECT ON THE FIRST END USER'S SITE A PRODUCT THAT HAS BEEN CLAIMED TO BE DEFECTIVE, AND TO REQUEST REPAIRS OR REPLACEMENT OF THE DEFECTIVE PRODUCT, OR TO REQUEST THAT THE PURCHASER RETURN THE DEFECTIVE PRODUCT TO THE MANUFACTURER FOR REPAIR OR REPLACEMENT; (c) THE SELLER WILL PAY FOR THE EXPENSES OF THE PURCHASE AND INSPECTION, REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT, PROVIDED THAT THE PURCHASER AGREES TO PAY THE COST OF THE PURCHASE OF THE DEFECTIVE PRODUCT, OR THE PURCHASE OF AN EQUIVALENT PRODUCT, IF THE PURCHASER IS UNABLE TO PAY THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT; (d) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (e) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (f) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (g) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (h) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (i) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (j) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (k) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (l) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (m) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (n) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (o) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (p) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (q) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (r) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (s) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (t) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (u) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (v) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (w) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (x) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (y) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (z) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (aa) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (bb) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (cc) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (dd) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (ee) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (ff) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (gg) THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF THE DEFECTIVE PRODUCT, INCLUDING THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT, AND THE PURCHASER IS RESPONSIBLE FOR ALL EXPENSES INCURRED IN THE PURCHASE OF AN EQUIVALENT PRODUCT; (hh) THE PURCHASER IS RESPONS