VACUUBRAND®

PRESSURE TRANSDUCER

VSK 3000
VSP 3000

Instructions for use

Original instructions EN

OI no.: 20901073

After sales service: Contact your local dealer or call +49 9342 808-5500

DE
Achtung: Die vorliegende Betriebsanleitung ist nicht in allen EU-Sprachen verfügbar. Der Anwender darf die beschriebenen Geräte nur dann in Betrieb nehmen, wenn er die vorliegende Anleitung versteht oder eine fachlich korrekte Übersetzung der vollständigen Anleitung vorliegen hat. Die Betriebsanleitung muss vor Inbetriebnahme der Geräte vollständig gelesen und verstanden werden, und alle geforderten Maßnahmen müssen eingehalten werden.  ”Sicherheitshinweise für Vakuumgeräte”

EN
Attention: This manual is not available in all languages of the EU. The user must not operate the device if he does not understand this manual. In this case a technically correct translation of the complete manual has to be available. The manual must be completely read and understood before operation of the device and all required measures must be applied.  ”Safety instructions for vacuum equipment”

FR
Attention: Le mode d’emploi présent n’est pas disponible dans toutes les langues d’Union Européenne. L’utilisateur ne doit mettre le dispositif en marche que s’il comprend le mode d’emploi présent ou si une traduction complète et correcte du mode d’emploi est sous ses yeux. Le dispositif ne doit pas être mis en marche avant que le mode d’emploi ait été lu et compris complètement et seulement si le mode d’emploi est observé et tous les mesures demandées sont prises.
 «Avis de sécurité pour des dispositifs à vide»

BG
Внимание: Тези инструкции не са преведени на всички езици от ЕО. Потребителят не бива да работи с уреда, ако не разбира инструкциите за ползване. В този случай е необходимо да бъде предоставен пълен технически превод на инструкциите за ползване. Преди работа с уреда е задължително потребителят да прочете изцяло инструкциите за работа.  ”Указания за безопасност за вакуумни уреди”

CN
注意：该操作手册不提供所有的语言版本。操作者在没有理解手册之前，不能操作该设备。在这种情况下，需要有一个整个操作手册技术上正确的翻译。在操作该设备前，必须完全阅读并理解该操作手册，必须实施所有需要的测量。
 真空设备的安全信息

CZ
Upozornění :Tento návod k použití není k dispozici ve všech jazycích Evropské unie. Uživatel není oprávněn požít přístroj pokud nerozumí tomuto návodu. V takovém případě je nutno zajistit technicky korektní překlad manuálu do češtiny. Návod musí být uživatelem prostudován a uživatel mu musí plně porozumět před tím než začne přístroj používat. Uživatel musí dodržet všechna příslušná a požadovaná opatření.  ”Bezpečnostní upozornění pro vakuové přístroje”.

DA
Bemærk: Denne manual foreligger ikke på alle EU sprog. Brugeren må ikke betjene apparatet hvis manualen ikke er forstået. I det tilfælde skal en teknisk korrekt oversættelse af hele manual stilles til rådighed. Manual skal være gennemlæst og forstået før apparatet betjenes og alle nødvendige forholdsregler skal tages.  »Sikkerhedsregler for vakuumudstyr«

EE
Tähelepanu! Käesolev kasutusjuhend ei ole kõigis EL keeltes saadaval. Kasutaja ei tohi seadet käsitseda, kui ta ei saa kasutusjuhendist aru. Sel juhul peab saadaval olema kogu kasutusjuhendi tehniliselt korrektne tõlge. Enne seadme kasutamist tuleb kogu juhend läbi lugeda, see peab olema arusaadav ning kõik nõutud meetmed peavad olema rakendatud.  ”Ohutusnõuded vaakumseadmetele”

ES
Atención: Este manual no está disponible en todos los idiomas de UE. El usuario no debe manejar el instrumento si no entiende este manual. En este caso se debe disponer de una traducción técnicamente correcta del manual completo. El manual debe ser leído y entendido completamente y deben aplicarse todas las medidas de seguridad antes de manejar el instrumento.  ”Notas sobre la seguridad para equipos de vacío”

FI
Huomio: Tämä käyttöohje ei ole saatavilla kaikilla EU: n kielillä. Käyttäjä ei saa käyttää laitetta, jos hän ei ymmärrä tätä ohjekirjaa. Tässä tapauksessa on saatavilla oltava teknisesti oikein tehty ja täydellinen ohjekirjan käännös. Ennen laitteen käyttöä on ohjekirja luettava ja ymmärrettävä kokonaan sekä suoritettava kaikki tarvittavat valmistelut ja muut toimenpiteet. ”Vakuumilaitteen turvallisuustiedot”

GR
Προσοχή! : Οι οδηγίες αυτές δεν είναι διαθέσιμες σε όλες τις γλώσσες της Ευρωπαϊκής Ένωσης. Ο χρήστης δεν πρέπει να θέσει σε λειτουργία την συσκευή αν δεν κατανοήσει πλήρως τις οδηγίες αυτές. Σε τέτοια περίπτωση ο χρήστης πρέπει να προμηθευτεί ακριβή μετάφραση του βιβλίου οδηγιών. Ο χρήστης πρέπει να διαβάσει και να κατανοήσει πλήρως τις οδηγίες χρήσης και να λάβει όλα τα απαραίτητα μέτρα πριν θέσει σε λειτουργία την συσκευή. ”Υποδείξεις ασφάλειας για αντλίες κενού”

HR
Pažnja:ove upute ne postoje na svim jezicima Europske Unije. Korisnik nemora raditi sa aparatom ako ne razumije ove upute.U tom slucaju tehnicki ispravni prijevod cijelih uputstava mora biti na raspolaganju. Uputstva moraju biti cijela procitana i razumljiva prije rada sa aparatom i sve zahtijevane mjere moraju biti primjenjene. ”Sigurnosne napomene za vakuumske uređaje”

HU
Figyelem! Ez a kezelési utasítás nem áll rendelkezésre az EU összes nyelvén. Ha a felhasználó nem érti jelen használati utasítás szövegét, nem üzemeltetheti a készüléket. Ez esetben a teljes gépkönyv fordításáról gondoskodni kell. Üzembe helyezés előtt a kezelőnek végig kell olvasnia, meg kell értenie azt, továbbá az üzemeltetéshez szükséges összes mérést el kell végeznie. ”A vákuum-készülékekkel kapcsolatos biztonsági tudnivalók”

IT
Attenzione: Questo manuale non è disponibile in tutte le lingue della Comunità Europea (CE). L‘utilizzatore non deve operare con lo strumento se non comprende questo manuale. In questo caso deve essere resa disponibile una traduzione tecnicamente corretta del manuale completo. Il manuale deve essere completamente letto e compreso prima di operare con lo strumento e devono essere applicati tutti gli accorgimenti richiesti. ”Istruzioni di sicurezza per apparecchi a vuoto”

JP
注意：この取扱説明書はすべての言語で利用可能ではありません。 もしこの取扱説明書を理解できないならば、ユーザーは装置を操作してはなりません。 この場合、技術的に正しい翻訳がなされた完全なマニュアルを用意しなければなりません。 装置を作動する前にマニュアルを完全に読み、そして理解されなくてはなりません。そして、すべての要求される対策を講じなければなりません。
真空装置を安全に取り扱うために

KR
주의 : 이 매뉴얼은 모든 언어로 번역되지는 않습니다. 만약 이 매뉴얼의 내용을 충분히 인지하지 못했다면 기기를 작동하지 마십시오. 매뉴얼의 내용을 기술적으로 정확하게 번역한 경우에 이용하십시오. 기기를 사용하기 전에 이 매뉴얼을 충분히 읽고 이해하고 모든 요구되는 사항들을 적용해야 합니다.
진공 장비에 대한 안전 정보

LT
Dėmesio: šis vadovas nėra pateikiamas visomis ES kalbomis. Naudotojui draudžiama eksploatuoti įtaisą, jeigu jis nesupranta šio vadovo. Tokiu atveju reikia turėti viso vadovo techniškai taisyklingą vertimą. Vadovą būtina visą perskaityti ir suprasti pateikiamas instrukcijas prieš pradedant eksploatuoti įtaisą, bei imtis visų reikiamų priemonių. ”Vakuuminės įrangos saugos informacija”

LV
Uzmanību: Lietotāja instrukcija nav pieejama visās ES valodās. Lietotājs nedrīkst lietot iekārtu, ja viņš nesaprot lietotāja instrukcijā rakstīto. Šādā gadījumā, ir nepieciešams nodrošināt tehniski pareizu visas lietotāja instrukcijas tulkojumu. Pirms sākt lietot iekārtu, un, lai izpildītu visas nepieciešamās prasības, iekārtas lietotāja instrukcija ir pilnībā jāizlasa un jāsaprot. ”Vakuuma iekārtu drošības noteikumi”

NL
Attentie: Deze gebruiksaanwijzing is niet in alle talen van de EU verkrijgbaar. De gebruiker moet niet met dit apparaat gaan werken als voor hem/haar de gebruiksaanwijzing niet voldoende duidelijk is. Bij gebruik van deze apparatuur is het noodzakelijk een technisch correcte vertaling van de complete gebruiksaanwijzing te hebben. Voor het in gebruik nemen van het apparaat moet de gebruiksaanwijzing volledig gelezen en duidelijk zijn en dienen alle benodigde maatregelen te zijn genomen.
”Veiligheidsvoorschriften voor vacuümapparaten”

PL
Uwaga!! Ta instrukcja nie jest dostępna we wszystkich językach Unii Europejskiej. Użytkownik nie może rozpocząć pracy z urządzeniem dopóki nie przeczytał instrukcji i nie jest pewien wszystkich informacji w niej zawartych. Instrukcja musi byc w całości przeczytana i zrozumiana przed podjęciem pracy z urządzeniem oraz należy podjąć wszystkie niezbędne kroki związane z prawidłowym uzytkowaniem.
”Wskazówki bezpieczeństwa do urządzeń próżniowych”

PT
Atenção: Este manual não está disponível em todas as línguas da UE. O usuário não deve utilizar o dispositivo, se não entender este manual. Neste caso, uma tradução tecnicamente correta do manual completo tem de estar disponível. O manual deve ser lido e entendido completamente antes da utilização do equipamento e todas as medidas necessárias devem ser aplicadas. ”Informação de Segurança para Equipamento que funciona a Vácuo”

RO
Atentie: Acest manual nu este disponibil in toate limbile EU. Utilizatorul nu trebuie sa lucreze cu aparatul daca daca nu intelege manualul. Astfel, va fi disponibile o traducere corecta si completa a manualului. Manualul trebuie citit si inteles in intregime inainte de a lucra cu aparatul si a luat toate masurile care se impun. ”Instrucțiuni de siguranță pentru aparatele de vidare”

RU
Внимание: Эта инструкция по эксплуатации не имеется на всех языках. Потребителю не дозволенно эксплуатировать данный прибор, если он не понимает эту инструкцию. В этом случае нужен технически правильный перевод полной инструкции. Прежде чем использовать этот прибор, необходимо полностью прочитать и понять эту инструкцию и принять все необходимые меры.
”Указания по технике безопасности при работе с вакуумными устройствами”

SE
Varning: Denna instruktion är inte tillgänglig på alla språk inom EU. Användaren får inte starta utrustningen om hon/han inte förstår denna instruktion. Om så är fallet måste en tekniskt korrekt instruktion göras tillgänglig. Instruktionen måste läsas och förstås helt före utrustningen tas i drift och nödvändiga åtgärder göres. ”Säkerhetsinformation för vakuumutrustning”

SI
Pozor: Ta navodila niso na voljo v vseh jezikih EU. Uporabnik ne sme upravljati z napravo, če ne razume teh navodil. V primeru nerazumljivosti mora biti na voljo tehnično pravilen prevod. Navodila se morajo prebrati in razumeti pred uporaba naprave, opravljene pa moraja biti tudi vse potrebne meritve.
”Varnostni nasveti za vakuumske naprave”

SK
Upozornenie: Tento manuál nie je k dispozícii vo všetkých jazykoch EÚ. Užívateľ nesmie obsluhovať zariadenie, pokiaľ nerozumie tomuto manuálu. V takomto prípade musí byť k dispozícii technicky správny preklad celého manuálu. Pred obsluhou zariadenia je potrebné si prečítať celý manuál a porozumieť mu, a musia byť prijaté všetky opatrenia. ”Bezpečnostné pokyny pre vákuové zariadenia”

TR
Dikkat : Bu kullanım kitabı, tüm dillerde mevcut değildir. Kullanıcı, bu kullanım kitabını anlayamadıysa cihazı çalıştırmamalıdır. Bu durumda, komple kullanım kitabının, teknik olarak düzgün çevirisinin bulunması gerekir. Cihazın çalıştırılmasından önce kullanım kitabının komple okunması ve anlaşılması ve tüm gerekli ölçümlerin uygulanması gerekir. ”Vakumlu cihazlar için güvenlik uyarıları”

Contents

⚠ DANGER

➧ DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

☞ WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

• CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

Electronic components must not be disposed of in the domestic waste at the end of their service life. Used electronic devices contain harmful substances that can cause damage to the environment or human health. End users are legally obliged to take used electric and electronic devices to a licensed collection point.

Safety information

General information

⚠WARNING

☞ **Read and comply with this manual before installing or operating the equipment.**
☞ **Do not use the equipment if it is damaged.**

NOTICE

To operate the pressure transducer VSK 3000 a VACUUBRAND vacuum gauge DCP 3000 or a vacuum controller VACUU·SELECT, CVC 3000 or VNC 2 is required. To operate the pressure transducer VSP 3000 a VACUUBRAND vacuum gauge DCP 3000 or a vacuum controller VACUU·SELECT or CVC 3000 is required. Remove all packing material, remove the product from its packing-box, remove the protective covers and keep, inspect the equipment.
If the equipment is damaged, notify the supplier and the carrier in writing within three days; state the item number of the product together with the order number and the supplier's invoice number. Retain all packing material for inspection.

Intended use

⚠WARNING

☞ Ensure that the individual components are only connected, combined and operated according to their design and as indicated in the instructions for use. Use only **original manufacturer's spare parts and accessories**. Otherwise the safety and performance of the equipment, as well as the electromagnetic compatibility of the equipment might be reduced.

☞ The pressure transducers are designed for **ambient and gas temperatures** at the measurement connection of +10°C to +40°C at continuous operation or of up to +80°C for short periods (<5 minutes). Ensure that the maximum permitted gas temperature at the pressure transducer (see "Technical data") is not exceeded.

NOTICE

Use the equipment and all system parts for the intended use only, i.e. for measurement and control of vacuum in vessels designed for that purpose.

Connecting the pressure transducer

⚠WARNING

☞ **Avoid uncontrolled overpressure** (e. g. when connecting to a locked or blocked tube system). **Risk of bursting.**

⚠CAUTION

- **Comply with max. permitted pressure** at the pressure transducer, see section "Technical data".

- Connect hoses at the pressure transducer gas tight.
- Ensure stability of the hose connections.

- Check that supply voltage and current conform with the equipment (see rating plate).

- When working with residues, aggressive or condensable media, install a gas washing bottle if necessary.

NOTICE

Avoid high heat supply (e.g., due to hot process gases).

Position device and vacuum connection lines so that no condensate can flow towards the pressure transducer.

Allow the equipment to equilibrate to ambient temperature if you bring it from cold environment into a room prior to operation. Notice if there is water condensation on cold surfaces.

Comply with all applicable and relevant safety requirements (regulations and guidelines). **Implement the required actions and adopt suitable safety measures**.

Ambient conditions

CAUTION

- This product may only be used indoors in a non-explosive atmosphere, and in a dry environment.

NOTICE

Ensure that installation is in compliance with the degree of protection, see “Technical data“.

Operating conditions

DANGER

➡ This device is not approved for operation in potentially explosive atmospheres. **Do not operate the device in potentially explosive atmospheres.**

➡ Devices **without the ”Ex” mark on the rating plate** are **not approved** for **operation with dangerous or explosive gases or with potentially explosive or inflammable substances. Do not operate the device with dangerous or explosive gases or with potentially explosive or inflammable substances.**

➡ Devices **bearing the ”Ex” mark on their rating plates** are **approved for operation <u>with</u> potentially explosive atmospheres** according to their classification **II 3G IIC T3 X** according to ATEX, but they are **not approved for operation <u>in</u> potentially explosive atmospheres** (see section ”Ex Important information: Equipment marking (ATEX)”).

CAUTION

- Ensure that the materials of the equipment’s wetted parts are compatible with the substances in the vacuum system, see section ”Technical data”.

Safety during operation

DANGER

➡ Adopt suitable measures to prevent the release of dangerous, toxic, explosive, corrosive, noxious or polluting fluids, vapours and gases.

WARNING

☞ Prevent any part of the human body from coming in contact with the vacuum.

VSK 3000:

☞ **Attention:** At pressures above 1060 mbar the pressure transducer is saturated, the pressure measurement becomes erroneous. **Release pressure immediately. Risk of bursting!**
Maximum permitted pressure: 1.5 bar (absolute).

VSP 3000:

☞ **Attention:** Maximum pressure output: $1*10^3$ mbar. Pressure values above 1000 mbar can not be read out! **Danger of unnoticed overpressure! Risk of bursting! Maximum permitted pressure:** 1.5 bar (absolute).

Maintenance and repair

NOTICE

Clean polluted surface with a clean, slightly moistened cloth. To moisten the cloth we recommend water or mild soap.

Return the equipment to the factory for repair. Opening the housing will void any warranty.

In order to comply with law (occupational, health and safety regulations, safety at work law and regulations for environmental protection) products returned to the manufacturer can be **repaired /** DAkkS **calibrated** only when those regulations are complied with.
Returned products will not be repaired or calibrated until the completed health and safety clearance form has been received.

Important information: Equipment marking (ATEX)

Only valid for products with ATEX marking. If the ATEX marking is shown on the rating plate of the respective product, VACUUBRAND GMBH + CO KG assures, that the device complies with the provisions of the directive 2014/34/EU. The applied harmonized standards are indicated in the EC Declaration of Conformity of the Machinery (see instructions for use).

VACUUBRAND equipment bearing the ATEX mark (see rating plate)

The classification according to ATEX is only valid for the inner part (wetted part, pumped gas or vapor) of the equipment. The equipment is not suitable for use in external, potentially explosive atmospheres (environment).

The overall category of the equipment depends on the connected components. If the connected components do not comply with the classification of the VACUUBRAND equipment, the specified category of the VACUUBRAND equipment is no longer valid.

Vacuum pumps and vacuum gauges in category 3 are intended for connection to equipment in which during normal operation explosive atmospheres caused by gases, vapors or mists normally don't occur; or, if they do occur, are likely to do so only infrequently and for a short period only.
Equipment in this category ensures the requisite level of protection during normal operation.
The use of gas ballast or the operation of venting valves is only permitted if thereby explosive atmospheres normally don't occur in the interior of the equipment or, if they do occur, are likely to do so only infrequently and for a short period.

The pumps are marked with "X" (according to DIN EN ISO 80079-36:2016), i.e., restrictions of the operation conditions:

- The equipment is designated for a low degree of mechanical stress and has to be installed in a way so that it cannot be damaged from outside.
  Pumping units have to be installed so that they are protected against shocks from the outside and against glass splinters in the event of breakage (implosion).
- The equipment is designated for an ambient and gas inlet temperature during operation of +10 to +40°C. Never exceed these ambient and gas inlet temperatures. If pumping / measuring gases which are not potentially explosive, extended gas inlet temperatures are permissible. See instructions for use, section "Gas inlet temperatures" or "Technical data".

After any intervention at the equipment (e.g., repair / maintenance) the ultimate vacuum of the pump has to be checked. Only if the pump achieves its specified ultimate vacuum is the pump's leak rate low enough to ensure that no explosive atmospheres will occur in the interior of the equipment.
After any intervention at the vacuum sensor, the leak rate of the equipment has to be checked.

Attention: This manual is not available in all languages of the EU. The user must not operate the device if he does not understand this manual. In this case a technically correct translation of the complete manual has to be available. The manual must be completely read and understood before operation of the device. All specified measures must be applied, or else must be replaced by equivalent measures at the user's own risk.

Technical data

Type	VSK 3000	VSP 3000
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)	II 3/- G Ex h IIC T3 Gc X Internal Atm. only Tech.File: VAC-EX02	-
Measuring principle	ceramic diaphragm (alumina), capacitive, absolute pressure, gas type independent	thermal conductivity according to Pirani, dependent on gas type
Measuring range (absolute)	1060 mbar - 0.1 mbar (795 Torr - 0.1 Torr)	$1*10^{3}$ mbar - $1*10^{-3}$ mbar ($7.5*10^{2}$ Torr - $1*10^{-3}$ Torr)
Resolution	0.1 mbar	10% of displayed decade
Measurement uncertainty (absolute) after careful adjustment and at constant temperature	<±1 mbar (0.75 Torr) / ±1 digit	$1*10^{1}$ mbar - $1*10^{-2}$ mbar ($1*10^{1}$ Torr - $1*10^{-2}$ Torr): ±15% of displayed value
Maximum permissible pressure at pressure transducer	1.5 bar (1125 Torr) absolute	
Maximum permissible temperature of gaseous media at measurement connection*	continuous operation: 40°C, for short periods (< 5 minutes): up to 80°C	
Temperature coefficient	<±0.07 mbar/K (0.05 Torr/K)	-
Ambient temperature range (operation)	10°C to +40°C	
Ambient temperature range (storage)	-10°C to +60°C	
Permitted relative atmospheric moisture during operation (no condensation)	30% to 85%	
Range of supply voltage (via VACUU•BUS)	6-30 VDC / 5 mA	18-30 VDC / 65mA
Degree of protection IEC 60529	IP 54	
Degree of protection UL 50E	type 5	
Pollution degree	2	
Communication	VACUU•BUS	
Weight with small flange with hose nozzle with tubing connection	 185 g 180 g 178 g	 180 g 185 g -
Housing dimensions diameter length with vacuum connection	 60 mm 60 mm (small flange) 95 mm (hose nozzle) 63 mm (tubing connection)	 60 mm 58 mm 97 mm -
Vacuum connection	small flange DN 16 or hose nozzle 6/10 mm or connection for PTFE tubing DN 8/10 mm	small flange DN 16 and screw-in hose nozzle 6/10 mm
Internal volume of measurement chamber	with small flange: 4.1 cm^3 with hose nozzle: 4.4 cm^3 with tubing connection: 3.5 cm^3	2.9 cm^3 with hose nozzle: 2.5 cm^3
Cable length	approximately 2.0 m	

* if using potentially explosive atmospheres (only VSK 3000): 50 °F to 104 °F (+10°C to +40°C)

We reserve the right for technical modification without prior notice!

Wetted parts

Components	Wetted materials
VSK 3000	
Sensor	aluminium oxide ceramics
Sensor housing, measurement chamber	PPS, glass fibre
Seal at sensor	chemically resistant fluoroelastomer
Hose nozzle	PP
Clamping ring	PA
Small flange	stainless steel or PP
VSP 3000	
Sensor	aluminium oxide ceramics
Sensor housing, measurement chamber, small flange	PBT, glass fibre / PUR
Hose nozzle / O-ring	PPS, glass fibre / FPM

We reserve the right for technical modification without prior notice!

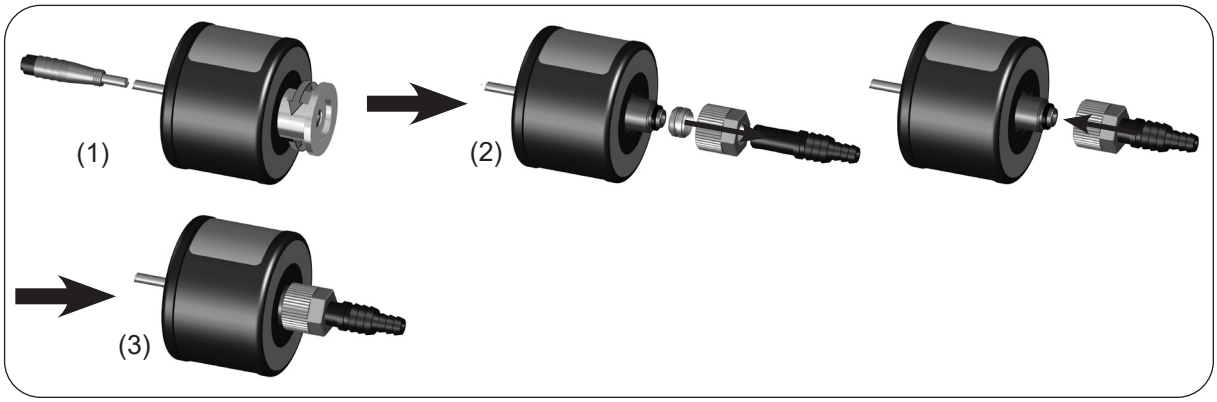
Pressure transducer VSK 3000

Operation principle of the VSK 3000

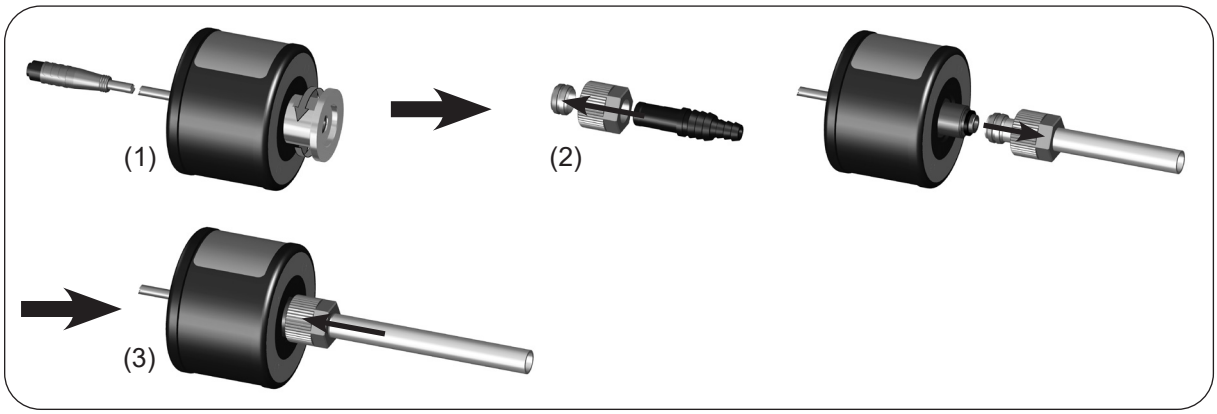
The VSK 3000 is equipped with a capacitive pressure transducer with ceramic diaphragm to measure the actual pressure **independent of the gas type** and depending on the vacuum, i. e. **absolute**.

Changing the vacuum connector

Installing the hose nozzle:
Unscrew the flange (using a 17 mm open-end wrench, if necessary) to expose the compression fitting (1). Slip the compression nut, and then the ferrule, onto the smooth end of the supplied hose nozzle (2). Slide the smooth end of the hose nozzle onto the compression fitting on the VSK 3000 gauge head, and tighten the compression nut firmly finger-tight (3).



Installing the PTFE-tubing connection (PTFE-tubing ID: 8mm, OD: 10mm):
Unscrew the flange (using a 17 mm open-end wrench, if necessary) to expose the compression fitting (1). Slip the compression nut, and then the ferrule, onto the PTFE-tubing (2). Slide the PTFE-tubing onto the compression fitting on the VSK 3000 gauge head, and tighten the compression nut firmly finger-tight (3).



Prior to operation

- ➡ Connect gauge head by means of the VACUU•BUS line to a controller VACUU·SELECT, CVC 3000 or VNC 2 or to a vacuum gauge DCP 3000.
- ➡ Connect the gauge head to the vacuum chamber by means of the small flange connection or a hose connection. Avoid contamination (oil/oil mist) of the gauge head when generating the vacuum with an oil-sealed vacuum pump.
- ☞ Do not mount the gauge head directly at the oil-sealed pump but close to the vacuum process. The diameter of the vacuum lines should be as large as possible.

- ☞ Inside a vacuum system where evaporation occurs (e.g., rotary evaporator) the vacuum is not uniform (e.g., a condenser acts as pump or the vacuum in the pipeline is lower than in the system). Therefore choose carefully the position where to connect the gauge head.
- ☞ Condensate and deposits at the gauge head falsify the measurement result.
- ☞ If residues occur or when working with aggressive or condensable substances, install a gas washing bottle in front of the pressure gauge head.
- ☞ **Mount the gauge head in such a position that condensate can not flow into it.**

- ☞ If necessary, clean the gauge head.

VACUU•BUS

Readout of the pressure transducer via VACUU•BUS line by the controller VACUU·SELECT, CVC 3000 or VNC 2 or by the vacuum gauge DCP 3000 using VACUU•BUS protocol, see instructions for use of vacuum controllers VACUU·SELECT, CVC 3000 or VNC 2 or of vacuum gauge DCP 3000. Maximum cable length inside buildings: 30 m. Extension cable VACUU•BUS 2 m: order-no. 20612552.

With the devices VACUU·SELECT, CVC 3000 and DCP 3000 it is possible to adjust and to configure the pressure transducer VSK 3000. A configuration of the VSK 3000 e.g., to a different VACUU•BUS address, is required if more than one pressure transducer are connected to a VACUU·SELECT, CVC 3000 or DCP 3000.

Additional instructions for use regarding the configuration of pressure transducers or other VACUU•BUS components are available upon request.

Pressure transducer VSP 3000

Operation principle VSP 3000

The pressure transducer VSP 3000 relies on the fact that the thermal conductivity of the residual gas in the vacuum chamber is a measure for the gas pressure. The thermal conductivity of gases is proportional to the pressure within a certain range and is related to the molecular mass.
The thermal conductivity of gases and vapours varies with their molecular mass. Therefore the pressure measurement is dependent on the gas type. The pressure transducer has been adjusted for air at the factory.

- ☞ Pressure of gases with similar mass, such as O_2 or CO, can be read off directly within the uncertainty of the measurement.
- ☞ With gases of lower or higher mass (H_2, He, Ar, CO_2) it is recommended to readjust the VSP 3000 using the gas to be measured.

General information on handling

The pressure transducer VSP 3000 which has been developed particularly for use in chemical laboratories is a pressure sensor working in the fine vacuum range.
Allow the VSP 3000 a period of approx. 20 minutes to warm up and to meet its specifications. Even in case of the controller or vacuum gauge being switched off, the VSP 3000 stays ready for operation. To de-energize the pressure transducer, unplug either its VACUU•BUS line or the power supply of the controller or vacuum gauge.

NOTICE The interior of the pressure transducer is highly sensitive! Do not insert fingers or tools into the measuring chamber.

Prior to operation

- ➡ Connect gauge head by means of the VACUU•BUS line to a controller VACUU·SELECT, CVC 3000 or to a vacuum gauge DCP 3000.
- ➡ Connect the gauge head to the vacuum chamber by means of the small flange connection or a hose connection. Avoid contamination (oil/oil mist) of the gauge head when generating the vacuum with an oil-sealed vacuum pump.
- ☞ Do not mount the gauge head directly at the oil-sealed pump but close to the vacuum process. The diameter of the vacuum lines should be as large as possible.

- ☞ Inside a vacuum system where evaporation occurs (e.g., rotary evaporator) the vacuum is not uniform (e.g., a condenser acts as pump or the vacuum in the pipeline is lower than in the system). Therefore choose carefully the position where to connect the gauge head.
- ☞ Condensate and deposits at the gauge head falsify the measurement result.
- ☞ If residues occur or when working with aggressive or condensable substances, install a gas washing bottle in front of the pressure gauge head.
- ☞ **Mount the gauge head in such a position that condensate can not flow into it.**
- ☞ If necessary, clean the pressure transducer.

Recommended orientation: Vertically with vacuum connection pointing downwards. If mounting the VSP 3000 in any other orientation, a readjustment is recommended.

VACUU•BUS

Readout of the pressure transducer via VACUU•BUS line by he controller VACUU·SELECT, CVC 3000 or by the vacuum gauge DCP 3000 using VACUU•BUS protocol, see instructions for use of vacuum controllers VACUU·SELECT, CVC 3000 of vacuum gauge DCP 3000. Maximum cable length inside buildings: 30 m. Extension cable VACUU•BUS 2 m: order-no. 20612552.

With the devices VACUU·SELECT, CVC 3000 and DCP 3000 it is possible to adjust and to configure the pressure transducer VSP 3000. A configuration of the VSP 3000 e.g., to a different VACUU•BUS address, is required if more than one pressure transducer are connected to a VACUU·SELECT, CVC 3000 or DCP 3000.

Additional instructions for use regarding the configuration of pressure transducers or other VACUU•BUS components are available upon request.

During operation

Over the whole measuring range the pressure reading is indicated in exponential notation.

Cleaning the pressure transducer

NOTICE

Attention: Never use a spiky or sharp-edged tool to clean the pressure transducer.

VSK 3000: Never touch the ceramic diaphragm at the back of the measuring chamber with hard objects!
VSP 3000: The interior of the pressure transducer is highly sensitive! Do not insert fingers or tools into the measuring chamber.

Clean a contaminated pressure transducer as follows:
- ➡ Fill the measuring chamber with a solvent (e.g., benzene) and allow sufficient cleaning time. Observe all regulations concerning usage and disposal of solvents!
- ➡ Drain the solvent and dispose of in accordance with regulations, repeat cleaning if necessary.
- ➡ Rinse the measuring chamber several times with alcohol in order to remove all solvent residues.
- ➡ Allow the pressure transducer to dry.
- ➡ Readjust the pressure transducer if necessary.

Adjustment of the pressure transducer

For adjusting the pressure transducer, either a vacuum controller VACUU·SELECT, CVC 3000 or a vacuum gauge DCP 3000 is required,
Depending on operation conditions, accuracy requirements and the type of application, an inspection and a readjustment may be necessary. It may also be required to readjust the pressure transducer after it has been cleaned, see the manual of the vacuum controller VACUU·SELECT, CVC 3000 or of the vacuum gauge DCP 3000 for instructions on adjustment. Download the latest version at www.vacuubrand.com.

Calibration in the factory

Control of measuring equipment

The **VACUUBRAND DAkkS calibration laboratory** is accredited by the Deutsche Akkreditierungsstelle GmbH (national accreditation body of the Federal Republic of Germany) for the measurable variable **pressure in the pressure range from 7.5*10^{-4} Torr to 975 Torr (10^{-3} mbar to 1300 mbar**) in accordance with the general criteria for the operation of testing laboratories defined in the DIN EN ISO/IEC 17025:2000 series of standards (accreditation number D-K-15154-01). The DAkkS is signatory to the multilateral agreements of the European cooperation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.

Rely on calibration in the VACUUBRAND calibration laboratory:
- To meet the requirements of the DIN ISO 9000ff and 10012 series of standards regarding the calibration of inspection, measuring and test equipment at specified intervals.
- To document that the vacuum gauges calibrated are traceable to national standards of the PTB (Physikalisch-Technische Bundesanstalt; German national institute for science and technology and the highest technical authority of the Federal Republic of Germany for the field of metrology and certain sectors of safety engineering).

DAkkS calibration pressure transducer VSK 3000 / VSP 3000..... **20900215**

Repair - Maintenance - Return - Calibration

IMPORTANT

Every employer (user) is held responsible for the health and safety of his employees. This also applies to service personnel performing repair, maintenance, return or calibration.
The **health and safety clearance form** informs the contractor about any possible contamination of the device and forms the basis for the risk assessment.
In case of devices which have been in contact with biological substances of risk level 2 contact the VACUUBRAND service absolutely before dispatching the device. These devices have to be completely disassembled and decontaminated by the user prior to shipment. Do not return devices which have been in contact biological substances of risk level 3 or 4. These devices cannot be checked, maintained or repaired. Also decontaminated devices must not returned to VACUUBRAND due to a residual risk.
The same conditions apply to on-site work.

No repair, maintenance, return or calibration is possible unless the correctly completed health and safety clearance form is returned. Devices sent are rejected if applicable. Send a completed copy of the **health and safety clearance form** to us in advance. The declaration must arrive before the equipment. Enclose a second completed copy with the product.

Remove all components from the device that are no original VACUUBRAND components. VACUUBRAND will not be responsible for lost or damaged components that are no original components.
Drain the device completely of fluids and residues. Decontaminate the device.
Close all openings airtight especially if using substances hazardous to health.
To expedite repair and to reduce costs, please enclose a detailed description of the problem and the product's operating conditions with every product returned.
If you do not wish a repair on the basis of our **quotation**, the device may be returned to you disassembled and at your expense.
In many cases, the components must be cleaned in the factory prior to repair.
For cleaning we use an environmentally friendly water based process. Unfortunately the combined attack of elevated temperature, cleaning agent, ultrasonic treatment and mechanical stress (from pressurised water) may result in damage to the paint. Please mark in the health and safety clearance form if you wish a repaint at your expense just in case such a damage should occur. We will also replace parts for cosmetic reasons at your request and at your expense.

Before returning the device
Pack the device properly, if necessary, please order original packaging materials at your costs.
Mark the package completely
Enclose the completed health and safety clearance form.
Notify the carrier of any possible contamination if required.

Scrapping and waste disposal
Dispose of the equipment and any components removed from it safely in accordance with all local and national safety and environmental requirements. Particular care must be taken with components and waste oil which have been contaminated with dangerous substances from your processes. Do not incinerate fluoroelastomer seals and O-rings. You may authorize us to dispose of the equipment **at your expense.** Otherwise we return the device at your expense.

EG-Konformitätserklärung
EC Declaration of Conformity
Déclaration CE de conformité

CE

Hersteller / Manufacturer / Fabricant:

VACUUBRAND GMBH + CO KG · Alfred-Zippe-Str. 4 · 97877 Wertheim · Germany

Hiermit erklärt der Hersteller, dass das Gerät konform ist mit den Bestimmungen der Richtlinien:
Hereby the manufacturer declares that the device is in conformity with the directives:
Par la présente, le fabricant déclare, que le dispositif est conforme aux directives:

- 2014/35/EU
- 2014/34/EU (nur / only / seulement VSK 3000)
- 2011/65/EU, 2015/863

Vakuumsensor / Pressure transducer / Capteur de pression:
Typ / Type / Type: **VSK 3000, VSP 3000**

Artikelnummer / Order number / Numéro d'article: 20640530, 22618418, 20636163, 20636305

Seriennummer / Serial number / Numéro de série: Siehe Typenschild / See rating plate / Voir plaque signalétique

Angewandte harmonisierte Normen / Harmonized standards applied / Normes harmonisées utilisées:
DIN EN ISO 12100:2011, DIN EN 61010-1:2020, IEC 61010-1:2010 + COR:2011 + A1:2016, modifiziert / modified / modifié + A1:2016/COR1:2019
nur / only / seulement VSK 3000: DIN EN 1127-1:2019, DIN EN ISO 80079-36:2016
DIN EN IEC 63000:2019

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen / Person authorised to compile the technical file / Personne autorisée à constituer le dossier technique:
Dr. Constantin Schöler · VACUUBRAND GMBH + CO KG · Germany

Ort, Datum / place, date / lieu, date: Wertheim, 05.12.2022

(Dr. Constantin Schöler)
Geschäftsführer / Managing Director / Gérant

ppa.
(Jens Kaibel)
Technischer Leiter / Technical Director / Directeur technique

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E-Mail: info@vacuubrand.com
Web: www.vacuubrand.com

VACUUBRAND®

Declaration of Conformity

Manufacturer:

VACUUBRAND GMBH + CO KG · Alfred-Zippe-Str. 4 · 97877 Wertheim · Germany

Hereby the manufacturer declares that the device is in conformity with the directives:

- Electrical Equipment (Safety) Regulations 2016 (S.I. 2016 No. 1101, as amended by S.I. 2019 No. 696)
- The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 (S.I. 2016 No. 1107, as amended by S.I. 2019 No. 696) (only VSK 3000)
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (S.I. 2012 No. 3032)

Pressure transducer:
Type: **VSK 3000, VSP 3000**

Order number: 20640530, 22618418, 20636163, 20636305

Serial number: See rating plate

Designated standards applied:
EN ISO 12100:2010, EN 61010-1:2010+A1:2019, EN 61010-1:2010/A1:2019/AC:2019-04
only VSK 3000: EN 1127-1:2019, EN ISO 80079-36:2016
EN IEC 63000:2018

Person authorised to compile the technical file:
Dr. Constantin Schöler · VACUUBRAND GMBH + CO KG · Germany

Place, date: Wertheim, 05.12.2022

(Dr. Constantin Schöler)
Managing Director

ppa.
(Jens Kaibel)
Technical Director

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Certificate

TÜVRheinland®

Certificate no. CU 72228817 01

License Holder:
VACUUBRAND GMBH + CO KG
Alfred-Zippe-Str. 4
97877 Wertheim
Deutschland

Manufacturing Plant:
VACUUBRAND GMBH + CO KG
Alfred-Zippe-Str. 4
97877 Wertheim
Deutschland

Test report no.: USA- 31880183 003 **Client Reference:** Dr. A. Wollschläger

Tested to: UL 61010-1:2012 R7.19
CAN/CSA-C22.2 NO. 61010-1-12 + GI1 + GI2 (R2017) + A1

Certified Product: Measurement and control device for vacuum **License Fee - Units**

Model Designation	: (1) VACUU VIEW; (2) VACUU VIEW extended; (3) VACUU SELECT; (4) VACUU SELECT complete; (5) VACUU SELECT Sensor; (6) VSP 3000; (7) CVC 3000; (8) VSK 3000; (9) VSK PV; (10) DCP 3000	7
Rated Voltage:	DC 24V; class III (all devices)	
Rated Power	: (1+2) 1.3W; (3) 5.0W; (4) 13W; (5) 1.2W; (6) 1.6W; (7+10) 3.4W; (8+9) 0.12W	
Degree of Protection	: (7+10) IP20/Type 1 (UL50E) (3+4) IP40/Type 1 (UL50E) (5) IP41/Type 2 (UL50E) (1+2+6+8+9) IP54/Type 5 (UL50E)	

7

Appendix: 1, 1-13

Licensed Test mark:

TÜVRheinland
C US

Date of Issue (day/mo/yr)
09/02/2023

TUV Rheinland of North America, Inc., 12 Commerce Road, Newtown, CT 06470, Tel (203) 426-0888 Fax (203) 426-4009

VACUUBRAND®

DECLARATION OF CONFORMITY – China RoHS 2

VACUUBRAND GMBH + CO KG has made reasonable efforts to ensure that hazardous materials and substances may not be used in its products.
In order to determine the concentration of hazardous substances in all homogeneous materials of the subassemblies, a “Product Conformity Assessment” (PCA) procedure was performed. As defined in GB/T 26572 the “Maximum Concentration Value” limits (MCV) apply to these restricted substances:

- Lead (Pb): 0.1%
- Mercury (Hg): 0.1%
- Cadmium (Cd): 0.01%
- Hexavalent chromium (Cr(+VI)): 0.1%
- Polybrominated biphenlys (PBB): 0.1%
- Polybrominated diphenyl ether (PBDE): 0.1%

Environmentally Friendly Use Period (EFUP)

EFUP defines the period in years during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions. During normal use by the user such electrical and electronic products will not result in serious environmental pollution, cause serious bodily injury or damage to the user’s assets.
The Environmentally Friendly Use Period for VACUUBRAND products is 40 years.

MATERIAL CONTENT DECLARATION FOR VACUUBRAND PRODUCTS						
	有毒有害物质或元素 Hazardous substances					
部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
Part name	Pb	Hg	Cd	Cr(+VI)	PBB	PBDE
包装 Packaging	O	O	O	O	O	O
塑料外壳 / 组件 Plastic housing / parts	O	O	O	O	O	O
真空油 Vacuum oil	O	O	O	O	O	O
电池 Battery	O	O	O	O	O	O
玻璃 Glass	X	O	O	O	O	O
电子电气组件 Electrical and electronic parts	X	O	O	O	O	O
控制器 / 测量设备 Controller / measuring device	X	O	O	O	O	O
金属外壳 / 组件 Metal housing / parts	X	O	O	O	O	O
电机 Motor	X	O	O	O	O	O
配件 Accessories	X	O	O	O	O	O
此表格是按照SJ/T 11364-2014中规定所制定的。 This table is created according to SJ/T 11364-2014.						

VACUUBRAND®

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。 O: Indicates that the above mentioned hazardous substance contained in all homogeneous materials of the part is below the required limit as defined in GB/T 26572. X: 表示该有毒有害物质至少在该部件某一均质材料中的含量超出GB/T 26572规定的限量要求。 X: Indicates that the above mentioned hazardous substance contained in at least one of the homogeneous materials of this part is above the required limit as defined in GB/T 26572.
电池、玻璃器皿和配件可能不属于所附设备所包含的内容，它们可能有各自单独的EFUP标记和/或可能正在维护其部件EFUP标记的更新。 Batteries, glassware and accessories might not be content of the enclosed device and may have its own EFUP-marking and/or might be maintaining parts with changing EFUP-marking.

除上表所示信息外，还需声明的是，这些部件并非是有意用铅（Pb）、 汞 （Hg）、铬（Cd）、六价铬 （Cr(+VI)）、多溴联苯（PBB）或多溴二苯醚（PBDE）来制造的。
Apart from the disclosures in the above table, the subassemblies are not intentionally manufactured or formulated with lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr+VI), polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE).

Products manufactured by VACUUBRAND may enter into further devices (e.g., rotary evaporator) or can be used together with other appliances (e.g., usage as booster pumps).
With these products and appliances in particular, please note the EFUP labeled on these products.
VACUUBRAND will not take responsibility for the EFUP of those products and appliances.

Place, date: Wertheim, 06 September 2022

(Dr. Constantin Schöler)
Managing Director

ppa.
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Technical Director

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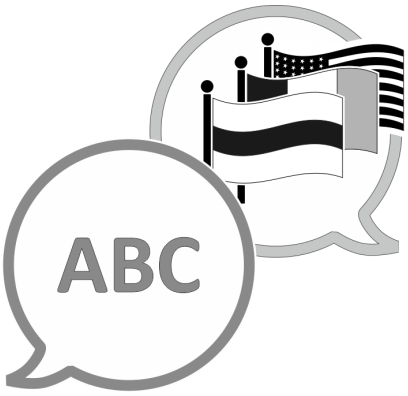

VACUUBRAND > Support > Manuals

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