

Agilent Turbo-V Vibration Dampers

Instructions



Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

Turbo-V Vibration Dampers

Extremely low vibration amplitudes at the turbopump inlet flange are required for some sensitive applications, even lower than the already low levels normally present in the turbopump. Typically scanning electron microscopes, or other analytical instruments require additional dampening of the vibration amplitude. To further reduce the residual amplitude, a vibration damper is provided. To effectively reduce net vibration levels transmitted to the system, the turbopump must be suspended from the vibration damper. Although the actual dampening effect depends on the specific configuration of the complete system, using a vibration damper, the residual vibration amplitude can be typically reduced by a factor of 40 (for CFF flanges) at the frequency of turbopump rotation. For lower frequencies the reduction factor is about 10.

Install the Turbo vibration damper using the provided bolts and copper gasket if it is a ConFlat flange (fig. 1).

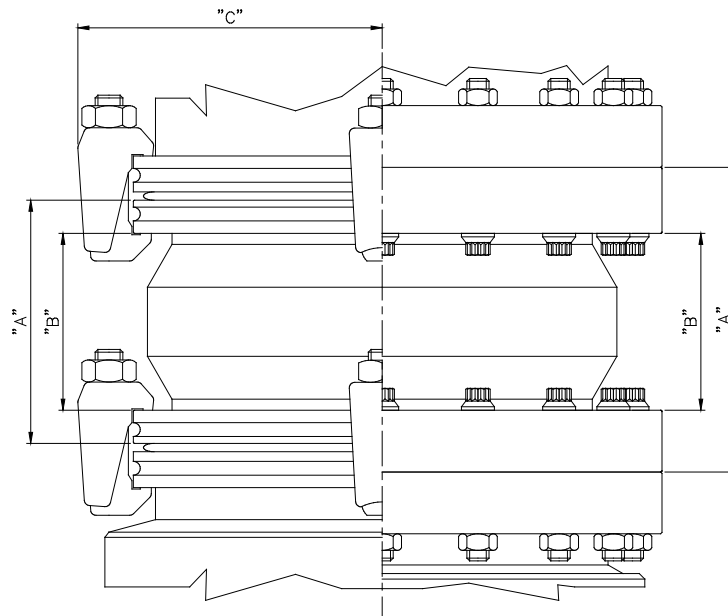


Figure 1 Layout

With an ISO flange, connect the Turbo vibration damper using the provided center ring and the clamp screws only (the claw grips are not used).

Table 1 reports the outline dimensions and the mounting requirements of the Turbo vibration damper.

Table 1 Turbo-V Vibration Dampers outline dimensions

Turbo Vibration Dampers		Conductance for Air (l/s)	Max Dimensions			System Fixing					
MODEL	INLET FLANGE		"A"	"B"	"C"			SINGLE CLAMP		SCREW	
						N°	SIZE	N°	SIZE	N°	SIZE
9699375	ISO 63	251	84.0	60.0	65.0	4	M8	6	M5		
9699344	ISO 100	608	84,0	60,0	85,0	4	M10	8	M8		
9699345	ISO 160	1830	88,0	64,0	110,0	4	M10	8	M10		
9699346	ISO 200	5630	88,0	64,0	140,0	6	M10	12	M10		
9699376	CFF 4½"	168	96.5	60.0						8	M8
9699334	CFF 6"	505	101,1	60,0						16	M8
9699335	CFF 8"	1460	110,2	64,0						20	M8
9699336	CFF 10"	4370	113,3	64,0						24	M8

The applicability of the vibration damper on Turbomolecular pumps with ISO and CFF flanges is reported in tables 2 and 3.

Table 2 Turbo-V Vibration Dampers ISO flanges

Turbo Vibration Dampers		Turbo Pump Applicability	
MODEL	INLET FLANGE	MODEL	DESCRIPTION
9699375	ISO 63	X3502-64170	TwisTorr 74 FS
		X3502-64000	TwisTorr 84 FS ISO
		G8703A	TPS-mini #021
9699344	ISO 100	X3513-64000	TwisTorr 305-IC, 485A, Air Cooling
		X3513-64004	TwisTorr 305 IC, 485A, Water Cooling
		X3513-64016	TwisTorr 305-IC, 485P, Air Cooling
		X3513-64020	TwisTorr 305-IC, 485P, Water Cooling
		X3513-64024	TwisTorr 305-IC, 232, Air Cooling
		X3513-64028	TwisTorr 305-IC, 232, Water Cooling

Turbo Vibration Dampers		Turbo Pump Applicability	
MODEL	INLET FLANGE	MODEL	DESCRIPTION
		X3513-64008	TwisTorr 305 FS, Air Cooling
		X3513-64012	TwisTorr 305 FS, Water Cooling
		X3513-64060	TwisTorr 305-ICQ, High Throughput, Water Cooling, RS485
		X3513-64061	TwisTorr 305-ICQ, High Throughput, Air Cooling, RS485
		X3513-64066	TwisTorr 305-IC SF, Dual Flow, Air Cooling, RS485A
		X3513-64067	TwisTorr 305 SF Dual Flow, Air Cooling
		X3513-64068	TwisTorr 305 FSQ, High Flow, Air & Water Cooling
		X3500-64000	TwisTorr 304 FS, Water Cooling
		X3500-64004	TwisTorr 304 FS, Air Cooling
		X3580A	TPS-compact #011, #023
		G8701A	TPS-mobile #011, #023
9699345	ISO 160	X3513-64002	TwisTorr 305 IC, 485A Air
		X3513-64006	TwisTorr 305 IC, 485A Water
		X3513-64018	TwisTorr 305-IC, 485P Air
		X3513-64022	TwisTorr 305-IC, 485P Water
		X3513-64026	TwisTorr 305-IC, 232 Air
		X3513-64030	TwisTorr 305-IC, 232 Water
		X3513-64010	TwisTorr 305 FS Air
		X3513-64014	TwisTorr 305 FS Water
		X3513-64064	TwisTorr 305-ICQ, High Throughput, Water Cooling, RS485
		9698832	TV551 Nav. kit ISO
		9698922	TV551 Nav. pump ISO
		X3500-64002	TwisTorr 304 FS ISO Water Cooling
		X3500-64006	TwisTorr 304 FS ISO Air Cooling
		X3580A	TPS-compact #011, #025
		G8701A	TPS-mobile #012, #025
		9698840	TV1001 Nav. kit ISO
		9698933	TV1001 Nav. pump ISO

Turbo Vibration Dampers		Turbo Pump Applicability	
MODEL	INLET FLANGE	MODEL	DESCRIPTION
9699346	ISO200	9698836	TV701 Nav. kit ISO-K
		9698926	TV701 Nav. pump ISO-K
		9698843	TV701 Nav. kit ISO-F
		9698945	TV701 Nav. pump ISO-F
		9698838	TV1001 Nav. kit ISO-K
		9698844	TV1001 Nav. kit ISO-F
		9698931	TV1001 Nav. pump ISO-K
		9698946	TV1001 Nav. pump ISO-F
9699376	CFF 4 ½"	X3502-64172	TwisTorr 74 FS CFF
		X3502-64002	TwisTorr 84 FS CFF
		X3580A	TPS-compact #010, #022
		G8701A	TPS-mobile #010, #022
		G8700A	TPS-bench #010, #022
		G8703A	TPS-mini #022
9699334	CFF 6"	X3500-64001	TwisTorr 304 FS CFF Water Cooling
		X3500-64005	TwisTorr 304 FS CFF Air Cooling
		X3513-64001	TwisTorr 305-IC, 485A Air
		X3513-64005	TwisTorr 305 IC, 485A Water
		X3513-64017	TwisTorr 305-IC, 485P Air
		X3513-64021	TwisTorr 305-IC, 485P Water
		X3513-64025	TwisTorr 305-IC, 232 Air
		X3513-64029	TwisTorr 305-IC, 232 Water
		X3513-64009	TwisTorr 305 FS Air
		X3513-64013	TwisTorr 305 FS Water
		X3513-64062	TwisTorr 305-ICQ, High Throughput, Water Cooling, RS485
		X3513-64063	TwisTorr 305-ICQ, High Throughput, Air Cooling, RS485
		X3580A	TPS-compact #011, #024
		9698835	TV551 Nav. kit CFF
		9698925	TV551 Nav. pump CFF
		G8701A	TPS-mobile #011, #024 / #012, #024
		G8700A	TPS-bench #011, #024

Table 3 Turbo-V Vibration Dampers CFF flanges

Turbo Vibration Dampers		Turbo Pump Applicability	
MODEL	INLET FLANGE	MODEL	DESCRIPTION
9699335	CFF 8"	X3513-64003	TwisTorr 305 IC, 485A Air
		X3513-64007	TwisTorr 305 IC, 485A Water
		X3513-64019	TwisTorr 305-IC, 485P Air
		X3513-64023	TwisTorr 305-IC, 485P Water
		X3513-64027	TwisTorr 305-IC, 232 Air
		X3513-64031	TwisTorr 305-IC, 232 Water
		X3513-64011	TwisTorr 305 FS Air
		X3513-64015	TwisTorr 305 FS Water
		X3513-64065	TwisTorr 305-ICQ, High Throughput, Water Cooling, RS485
		9698833	TV551 Nav. kit CFF
		9698923	TV551 Nav. pump CFF
		X3500-64003	TwisTorr 304 FS CFF Water Cooling
		X3500-64007	TwisTorr 304 FS CFF Air Cooling
		X3580A	TPS-compact #011, #026 / #012, #026
		G8701A	TPS-mobile #011, #026 / #012, #026
		G8700A	TPS-bench #011, #026
9699336	CFF 10"	9698837	TV701 Nav. kit CFF
		9698927	TV701 Nav. pump CFF
		9698839	TV1001 Nav. kit CFF
		9698932	TV1001 Nav. pump CFF



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Dear Customer,

Thank you for purchasing an Agilent vacuum product. At Agilent Vacuum Products Division we make every effort to ensure that you will be satisfied with the product and/or service you have purchased.

As part of our Continuous Improvement effort, we ask that you report to us any problem you may have had with the purchase or operation of our products. On the back side you find a Corrective Action request form that you may fill out in the first part and return to us.

This form is intended to supplement normal lines of communications and to resolve problems that existing systems are not addressing in an adequate or timely manner.

Upon receipt of your Corrective Action Request we will determine the Root Cause of the problem and take the necessary actions to eliminate it. You will be contacted by one of our employees who will review the problem with you and update you, with the second part of the same form, on our actions.

Your business is very important to us. Please, take the time and let us know how we can improve.

Sincerely,

Giampaolo LEVI

*Vice President and General Manager
Agilent Vacuum Products Division*

Note: Fax or mail the Customer Request for Action (see backside page) to Agilent Vacuum Products Division (Torino) – Quality Assurance or to your nearest Agilent representative for onward transmission to the same address.

CUSTOMER REQUEST FOR CORRECTIVE / PREVENTIVE / IMPROVEMENT ACTION

TO: AGILENT VACUUM PRODUCTS DIVISION TORINO – QUALITY ASSURANCE FAX

N°: XXXX-011-9979350

ADDRESS: AGILENT TECHNOLOGIES ITALIA S.p.A. – Vacuum Products Division –

Via F.Ili Varian, 54 – 10040 Leini (TO) – Italy

E-MAIL: vpd-qualityassurance_pdl-ext@agilent.com

NAME	COMPANY	FUNCTION
ADDRESS:		
TEL. N° : FAX N° :		
E-MAIL:		
PROBLEM / SUGGESTION :		
REFERENCE INFORMATION (model n°, serial n°, ordering information, time to failure after installation, etc.):		
DATE		
CORRECTIVE ACTION PLAN / ACTUATION (by AGILENT VPD)		LOG N°

XXX = Code for dialing Italy from your country (es. 01139 from USA; 00139 from Japan, etc.)



Agilent Technologies



Vacuum Products Division Instructions for returning products

Dear Customer,

Please follow these instructions whenever one of our products needs to be returned.

Complete the attached **Request for Return** form and send it to Agilent Technologies (see below), taking particular care to include the completed **Health and Safety** declaration Section. No work can be started on your unit until we receive a completed copy of this form.

After evaluating the information, Agilent Technologies will provide you with a **Return Authorization (RA)** number via email or fax, as requested. Note: Depending on the type of return, a Purchase Order may be required at the time the **Request for Return** is submitted. We will quote any necessary services (evaluation, repair, special cleaning, eg).

Product preparation

- Remove all accessories from the core product (e.g. inlet screens, vent valves).
- Prior to shipment and if applicable for your product, drain any oils or other liquids, purge or flush all gasses, and wipe off any excess residue.
- If ordering an Advance Exchange product, please use the packaging from the Advance Exchange to return the defective product.
- Seal the product in a plastic bag, and package product carefully to avoid damage in transit. You are responsible for loss or damage in transit.
- Include a copy of the Health and Safety Declaration in the shipping documentation on the outside of the shipping box of your returning product.
- Clearly label package with RA number. Using the shipping label provided will ensure the proper address and RA number are on the package. Packages shipped to Agilent without a RA clearly written on the outside cannot be accepted and will be returned.
- Return only products for which the RA was issued.

Shipping

- Ship to the location specified on the printable label, which will be sent, along with the RA number, as soon as we have received all of the required information. Customer is responsible for freight charges on returning product.
- Return shipments must comply with all applicable Shipping Regulations (IATA, DOT, ADR, etc.) and carrier requirements.

RETURN THE COMPLETED REQUEST FOR RETURN FORM TO YOUR NEAREST LOCATION:

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Fax: 00 39 011 9979 330

Fax Free: 00 800 345 345 00

Toll Free: 00 800 234 234 00

vpt-customer care@agilent.com

NORTH AMERICA:

Fax: 1 781 860 9252

Toll Free: 800 882 7426

vpl-ra@agilent.com

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<http://www.agilent.com>



TERMS AND CONDITIONS


Please read the terms and conditions below as they apply to all returns and are in addition to the Agilent Technologies Vacuum Product Division – Products and Services Terms of Sale.

- Unless otherwise pre-negotiated, customer is responsible for the freight charges for the returning product. Return shipments must comply with all applicable **Shipping Regulations** (IATA, DOT, etc.) and carrier requirements.
- Agilent Technologies is not responsible for returning customer provided packaging or containers.
- Customers receiving an Advance Exchange product agree to return the defective, rebuildable part to Agilent Technologies **within 15 business days**. Failure to do so, or returning a non-rebuildable part (crashed), will result in an invoice for the non-returned/non-rebuildable part.
- Returns for credit toward the purchase of new or refurbished Products are subject to prior Agilent approval and may incur a restocking fee. Please reference the original purchase order number.
- Units returned for evaluation will be evaluated, and a quote for repair will be issued. If you choose to have the unit repaired, the cost of the evaluation will be deducted from the final repair pricing. A Purchase Order for the final repair price should be issued within 3 weeks of quotation date. Units without a Purchase Order for repair will be returned to the customer, and the evaluation fee will be invoiced.
- Products returned that have not been drained from oil will be disposed.
- A Special Cleaning fee will apply to all exposed products
- If requesting a calibration service, units must be functionally capable of being calibrated.

**Vacuum Products Division
Request for Return Form**

Customer information		
Company :		Contact Name:
Address:		Tel: Fax:
		Email:

Equipment			
Product description	Agilent PartNo	Agilent Serial No	Original Purchasing Reference
Failure description		Type of process (for which the equipment was used)	

Type of return
<input type="checkbox"/> Non Billable <input type="checkbox"/> Billable  New PO # (hard copy must be submitted with this form): _____
<input type="checkbox"/> Exchange <input type="checkbox"/> Repair <input type="checkbox"/> Upgrade <input type="checkbox"/> Consignment/Demo <input type="checkbox"/> Calibration <input type="checkbox"/> Evaluation <input type="checkbox"/> Return for Credit

Health and safety		Substances (please refer to MSDS forms)			
The product has been exposed to the following substances: (by selecting 'YES' you MUST complete the table to the right)		* Agilent will not accept delivery of any product that is exposed to radioactive, biological, explosive substances or dioxins, PCB's without written evidence of decontamination.			
		Trade name	Chemical name	Chemical Symbol	CAS Number
Toxic	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Harmful	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Corrosive	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Reactive	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Flammable	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Explosive (*)	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Radioactive (*)	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Biological (*)	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Oxidizing	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Sensitizer	<input type="checkbox"/> YES <input type="checkbox"/> NO				
Other dangerous substances	<input type="checkbox"/> YES <input type="checkbox"/> NO				

Goods preparation	
If you have replied YES to one of the above questions. Has the product been purged?	<input type="checkbox"/> YES <input type="checkbox"/> NO
If yes, which cleaning agent/method:	
Has the product been drained from oil?	<input type="checkbox"/> YES <input type="checkbox"/> NOT APPLICABLE
I confirm to place this declaration on the outside of the shipping box. <input type="checkbox"/>	

I declare that the above information is true and complete to the best of my knowledge and belief. I understand and agree to the terms and conditions on page 2 of this document.	
Name:	Authorized Signature:
Position:	
Date:	
NOTE: If a product is received at Agilent which is contaminated with a toxic or hazardous material that was not disclosed, the customer will be held responsible for all costs incurred to ensure the safe handling of the product, and is liable for any harm or injury to Agilent employees as well as to any third party occurring as a result of exposure to toxic or hazardous materials present in the product.	

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In This Book

The manual describes the following:

- Instructions for Turbo-V Vibration Dampers

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