Technical data sheet

Product: TR-800

Manufacturer: 3M DEUTSCHLAND GMBH

Product group: ARBEITSSCHUTZ

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3M™ VERSAFLO™ TR-800

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Technical Data Sheet

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3M™ Versaflo™ TR-800 Powered Air Turbo

Product Description

The 3M™ Versaflo™ Powered Air Turbo TR-800 is an ATEX Certified belt-mounted air purifying device that can be used in certain potentially explosive atmospheres. When combined with an approved headtop or facepiece, it forms a power-assisted system for respiratory protection against particles, nuisance odours (where applicable) and gases and vapours. A range of approved breathing tubes are available depending on which headtop or facepiece is selected.

- Approved to Zone 0 and Zone 20 requirements so may be suitable for areas where potentially explosive atmospheres are expected and permanent in normal operations (see technical specifications for more information)
- Three user selectable flow rates
- Controlled airflow delivers steady flow as battery discharges or filter loads with particulates
- Display shows battery charge status and particulate loading status during use
- No user calibration of the turbo is required
- Electronic audible and visual alarm in case of low battery and/or low air flow
- Simple, intuitive, easy to use two-button operation
- Five filter options available:
    - P
    - A1P
    - A1B1E1P
    - A2P
    - A2B2E2K1HgP
- Lithium-ion battery with LED to indicate charge status
- Two belt options:
    - Easy-clean belt
    - High durability belt

- Suitable for shower decontamination (IP54) when using filter cover and temporary submersion (IP67) when fitted with cleaning plugs

Breathing Tube Options

Table 1: Breathing Tube Selection

Headtop / facepiece	Breathing tube
3M™ Versaflo™ S-Series Hoods and Headcovers	BT-20S/L, BT-30 or BT-40
3M™ Versaflo™ M-Series Faceshields and Helmets	
3M™ Full Facepiece Respirators 6000 Series	BT-63 or BT-64
3M™ Half Facepiece Respirators 7500 Series	
3M™ Full Facepiece Respirator, FF-600 Series	BT-54
3M™ Full Facepiece Respirator, FF-300 Series	

Standards and Approvals

Respiratory

- EN 12941:1998+A2:2008: Respiratory protective devices; Powered filtering devices incorporating a helmet or hood
- EN 12942:1998+A2:2008: Respiratory protective devices incorporating full face masks, half masks, or quarter masks

ATEX

- EN 60079-0:2012: Explosive atmospheres, Equipment; General requirements
- EN 60079-11:2012: Explosive atmospheres, Equipment protection by intrinsic safety "i"

EMC

- EN 61000-6-4:2007+A1:2011: Generic standards; Emission standard for industrial environments
- EN 61000-6-2:2005: Generic standards; Emission standard for industrial environments

Ingress Protection

- IEC 60529:1989+A1:1999+A2:2013: Degrees of protection provided by enclosures (IP Code)

RoHS

- EN 50581:2012: Technical documentation for assessment of electrical/electronic products for RoHS
- The Certificate and Declaration of Conformity are available at the following website www.3m.com/Respiratory/certs

Limitations

The 3M™ Versaflo™ Powered Air Turbo TR-800 should not be used in the following conditions:

- In atmospheres containing less than 19.5% oxygen
- Confined spaces (lack of ventilation)
- When the risk is considered to be Immediately Dangerous to Life or Health (IDLH)
- Where the contaminant concentration requires a greater protection factor than that provided by the system. See headtop user instruction or relevant breathing tube user instructions for information on systems comprising facepieces. These instructions provide more information on protection factors.

Product Range

The TR-800 Powered Air Turbo is available to buy as:

- TR-802E Turbo Unit (includes TR-971 airflow indicator)
- TR-819UK/E Starter Kit includes: TR-802E Turbo Unit, TR-830 Intrinsically Safe Battery, TR-838 Battery Attachment Tool, TR-641UK/E Single Station Battery, TR-971 Airflow Indicator, TR-6310E (A2P) Filter, TR-6300FC Filter Cover, TR-6600 Prefilter (x10), TR-627 Easy Clean Belt and BT-30 Length Adjusting Breathing Tube
- TR-800E-HIK Ready-Pak includes: M-307 Helmet, TR-802E Turbo Unit , TR-830 Standard Battery, TR-838 Battery Attachment Tool, TR-641E Single Station Battery Charger Kit, TR-971 Airflow Indicator, TR-6310E (A2P) Filter, TR-6300FC Filter Cover, TR-6600 Prefilter (x 10), TR-626 High Durability Belt, BT-30 Length Adjusting Breathing Tube, BT-926 High Temperature Breathing Tube Cover and TR-653 Cleaning and Storage Kit
- TR-800E-ECK Ready-Pak includes: S-433L Hood, TR-802E Turbo Unit , TR-830 Standard Battery, TR-838 Battery Attachment Tool, TR-641E Single Station Battery Charger Kit, TR-971 Airflow Indicator, TR-6710E (P) Filter, TR-6700FC Filter Cover, TR-6600 Prefilter (x 2), TR-627 Easy Clean Belt, BT-30 Length Adjusting Breathing Tube, BT-922 Disposable Breathing Tube Cover and TR-653 Cleaning and Storage Kit
- TR-800E-PSK Ready-Pak includes: M-206 Faceshield, TR-802E Turbo Unit, TR-830 Standard Battery, TR-838 Battery Attachment Tool, TR-641E Single Station Battery Charger Kit, TR-971 Airflow Indicator, TR-6310E (A2P) Filter, TR-6300FC Filter Cover, TR-6600 Prefilter (x 10), TR-627 Easy Clean Belt, BT-30 Length Adjusting Breathing Tube, BT-922 Disposable Breathing Tube Cover and TR-653 Cleaning and Storage Kit

Technical Properties

ATEX

Non-mining gas atmospheres (Group II)

EN 60079-11:2012 Ex ia IIB T4 Ga

ia – intrinsic safety for Equipment protection level Ga

IIB – Gas apparatus group

T4 – Max. surface temperature 135°C (-20°C ≤ Ta ≤ 55°C)

Non-mining dust atmospheres (Group III)

EN 60079-11:2012 Ex ia IIIC 135°C Da

ia – intrinsic safety for Equipment protection level Da

IIIC – Dust apparatus group

135 °C – Max surface temperature (-20°C ≤ Ta ≤ 55°C)

IMPORTANT

Ta defines the ambient temperature range within which the Temperature (T) class is defined, according to EN-60079-11:2012

System Classifications and Protection Factors

The information in the table below depends on the headtop or facepiece used. Refer to specific datasheet for headtop or facepiece for more information.

	EN 12941:1998 + A2:2008		**EN 12942:1998 + A2:2008**	
Classification	TH2	TH3	TM2	TM3
NPF	50	500	200	2000

IMPORTANT

The Nominal Protection Factor (NPF) is a number derived from the maximum percentage of total inward leakage permitted in relevant European Standards for a given class of respiratory protective device. This may not be the level of respiratory protection that can be realistically expected in the workplace by wearers. Many countries apply Assigned Protection Factors (APFs) for example UK and Germany. Employers may apply a value lower than the NPF/APF if deemed applicable. Please refer to EN 529:2005 and National workplace protection guidance for application of these numbers in the workplace. Please contact 3M for further information.

Outlet Flow Characteristics

	Flow rate	
	In combination with approved headtop	In combination with approved facepiece
MMDF*	170 l/min	115 l/min
Standard flow	185 l/min +/- 10 l/min	135 l/min +/- 10 l/min
Medium flow**	205 l/min +/- 10 l/min	150 l/min +/- 10 l/min
High flow**	225 l/min +/- 10 l/min	170 l/min +/- 10 l/min

*MMDF = Stated Manufacturer's Minimum Design Flow (MMDF)

**Systems incorporating certain filters must not be used with the Powered Air Turbos operating at medium and/or high flow. These specific systems may display a low flow alarm immediately when used. The specific systems are: FF-600 Series with TR-802E – TR-6110E/TR-6130E must not be used in high flow setting. TR-6310E/TR-6580E must not be used in medium or high flow setting. FF-300 Series with TR-802E – TR6310E /TR-6580E must not be used in high flow setting.

Battery duration (hours) - with approved headtops[1]

Standard flow	Medium flow	High flow
5.5 - 7.5	4 - 6.5.	2[2] - 5.5

[1] Estimated system duration based on testing with a new battery and a new, clean filter at 20°C. Actual system duration may be extended or shortened depending on system configuration and environment.

[2] To conserve battery power in high airflow setting, in some headtop/filter configurations, the Powered Air Turbo may automatically step down at this time to the medium airflow setting. If this occurs, a 4hr duration will be achieved. The step down feature can be over-ridden by the user by pressing the flow control button to move the airflow back to the high flow. The low battery alarm and low flow alarm will always operate as described in this user instruction. When either alarm sounds, users must immediately exit the contaminated area.

Battery duration (hours) - with approved facepieces[1]

3M™ Full Facepiece Respirators 6000 Series 3M™ Half Facepiece Respirators 7500 Series			3M™ Full Facepiece Respirator , FF-600 Series 3M™ Full Facepiece Respirator , FF-300 Series		
Standard Flow	Medium Flow	High Flow	Standard Flow	Medium Flow	High Flow
5.5 - 8	5 - 6	4 - 5	4 - 6.5	3[2] - 5	3[2] - 4.5

[1] Estimated system duration based on testing with a new battery and a new, clean filter at 20°C. Actual system duration may be extended or shortened depending on system configuration and environment.

[2] To conserve battery power in high airflow setting, in some headtop/filter configurations, the Powered Air Turbo may automatically step down at this time to the medium airflow setting. If this occurs, a 4hr duration will be achieved. The step down feature can be over-ridden by the user by pressing the flow control button to move the airflow back to the high flow. The low battery alarm and low flow alarm will always operate as described in this user instruction. When either alarm sounds, users must immediately exit the contaminated area.

Battery Charge Time

Less than 3.5 hours

IP Rating

I P 54 (5 =dust protected, 4 = sprayed water from all directions) when using filter cover

IP67 when fitted with cleaning plugs (6 = dust tight, 7 = temporary submersion to a depth of 1m)

Storage Conditions

-30°C to 49°C < 90%RH

Refer to filter user instructions for filter storage conditions.

Operating Temperature

-5°C to +55°C

IMPORTANT

This is the operating temperature range for the 3M™ Versaflo™ Powered Air Turbo TR-802E when used as part of an approved respiratory protective system.

Shelf Life

3M™ Versaflo™ Powered Air Turbo TR-800 and Filters = 5 years

Battery = 6 months (if unused beyond this period, batteries may not provide approximately 750 charge/discharge cycle equivalents during the first year of use while maintaining 80% of their original capacity)

IMPORTANT

The shelf life as defined above remains an indicative and maximum data, subject to many external and non controllable factors. It may never be interpreted as a warranty

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Materials

Table 2: TR-800 Powered Air Turbo Materials

Component	Material
Turbo body	Polycarbonate / Polydimethylsiloxane blend
Filter cover	Polyamide
Battery casing	Polycarbonate / Polydimethylsiloxane blend

Weight: (including battery but excluding belt and filters) Turbo = 1360g

Spare Parts and Accessories

Part number	Description
TR-6710E	Particulate filter
TR-6110E	A1P – organic gases and vapours (bp > 65°C) and particulates
TR-6130E	
TR-6310E	A2P – organic gases and vapours (bp > 65°C) and particulates
TR-6580E	A2B2E2K1HgP – organic gases and vapours (bp > 65°C), inorganic, acid gases, ammonia, mercury vapour and particulates
TR-6100FC	Filter cover for TR-6100 Series Filters
TR-6300FC	Filter cover for TR-6300 Series Filters
TR-6500FC	Filter cover for TR-6500 Series Filters
TR-6700FC	Filter cover for TR-6700 Series Filters
TR-6800FC	Filter cover for TR-6800 Series Filters
TR-6600	Pre-filter
TR-662	Spark arrestor
TR-830	Intrinsically safe battery (includes TR-838 battery attachment tool)
TR-838	Battery attachment tool
TR-641E/UK	Single station battery charger kit (Europe/UK)
TR-644E/UK	4-station battery charger kit (Europe/UK)
TR-640	Batter charger cradle
TR-626	High durability belt
TR-627	Easy clean belt

Part number	Description
TR-627X	Easy clean belt extender
TR-653	Cleaning and storage kit (for TR-600 and TR-800 Powered Air Turbo)
TR-654	Replacement seals (for TR-653 cleaning and storage kit)
TR-971	Airflow indicator (for checking TR-600/ TR-800 Powered Air Turbo when used with headtops)
TR-973	Airflow indicator (for checking TR-600/ TR-800 when used with facepieces)
TR-927	Easy clean backpack
BPK-HD	Heavy duty backpack
BT-20 S/L*	Lightweight breathing tube small/medium or medium/long)
BT-30*	Self-adjusting breathing tube
BT-40*	Heavy duty breathing tube
BT-63*	Length-adjusting tight fitting breathing tube
BT-64*	Heavy duty tight fitting breathing tube
BT-54*	Heavy duty tight fitting breathing tube
BT-922	Disposable breathing tube cover (for BT-20S/L, BT-30, BT-40 and BT-54)
BT-926	High durability, flames resistant breathing tube cover (for BT-20S/L, BT-30, BT-40 and BT-54)
BT-953	Cleaning and storage kit (for BT-63 and BT-64)
BT-957	Storage plugs (for all BT-Series breathing tubes)

*See breathing tube options table

Important Notice

The use of the 3M product described within this document assumes that the user has previous experience of this type of product and that it will be used by a competent professional. Before any use of this product it is recommended to complete some trials to validate the performance of the product within its expected application.

All information and specification details contained within this document are inherent to this specific 3M product and would not be applied to other products or environment. Any action or usage of this product made in violation of this document is at the risk of the user.

Compliance to the information and specification relative to the 3M product contained within this document does not exempt the user from compliance with additional guidelines (safety rules, procedures). Compliance to operational requirements especially in respect to the environment and usage of tools with this product must be observed. The 3M group (which cannot verify or control those elements) would not be held responsible for the consequences of any violation of these rules which remain external to its decision and control.

Warranty conditions for 3M products are determined with the sales contract documents and with the mandatory and applicable clause, excluding any other warranty or compensation.

Respiratory Protection is only effective if it is correctly selected, fitted and worn throughout the time when the wearer is exposed to respiratory contaminants. 3M offers advice on the selection of products, and training in the correct fitting and usage.

For more information on 3M products and services please contact 3M.

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