

# 3M™ Versaflo™ Powered Air Turbo TR-600

## Technical datasheet

### Description

The 3M™ Versaflo™ Powered Air Turbo TR-600 is a belt-mounted air purifying device. It can be combined with an approved headtop or facepiece to form 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.

- ▶ 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, visual and vibratory alarm in case of low battery and/or low air flow
- ▶ Six filter options available:
  - ▶ P
  - ▶ P plus nuisance level\* organic vapours and acid gas which also offers protection against Hydrogen Fluoride up to 10 x Occupational Exposure Limit
  - ▶ A1P
  - ▶ A1B1E1P
  - ▶ A2P
  - ▶ A2B2E2K1Hg
- ▶ Lightweight 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

Headtop/facepiece	Breathing tube
3M™ Versaflo™ S-Series Hoods and Headcovers	
3M™ Versaflo™ M-Series Faceshields and Helmets	BT-20S/L, BT-30* or BT-40
3M™ Speedglas™ 9100FX Air, 9100Air and 9100MP Welding Headtops	
3M™ Full Facepiece Respirators 6000 Series	
3M™ Full Facepiece Respirators 7907S Series	BT-63 or BT-64
3M™ Half Facepiece Respirators 7500 Series	
3M™ Vision™ Full Facepiece Respirator FM4	BT-54
3M™ Promask™ Full Facepiece Respirator FM3	

\*Note: BT-30 is not approved for use with 3M™ Versaflo™ Helmets M-400 Series and 3M™ Versaflo™ Powered Air Turbo TR-600

### Standards and approvals

The TR-600 Powered Air Turbo has been tested and approved to the following standards:

- ▶ EN 12941:1998+A2:2008 with approved headtops
- ▶ EN 12942:1998+A2:2008 with approved facepieces

The TR-600 also meets the following requirements:

- ▶ Dust protection and protection against spraying water from all directions to EN60529 IP 54
- ▶ Dust tight and temporary submersion to 1m to EN 60529 IP 67 when fitted with cleaning and storage plugs

The Certificate and Declaration of Conformity are available at the following website [www.3M.com/Respiratory/certs](http://www.3M.com/Respiratory/certs) and [www.3M.com/Welding/certs](http://www.3M.com/Welding/certs)

Note: This product also complies with the European EMC Directive 2014/30/EU.



## Applications

The TR-600 Powered Air Turbo, when used as part of an approved system with appropriate filters, provides protection against:

- ▶ Particles e.g. fine dusts, mists and metal fume
- ▶ Nuisance odour\* levels (below the Occupational Exposure Limits) of organic vapours
- ▶ Nuisance odour\* levels (below the Occupational Exposure Limits) of acid gases and up to 10 x Occupational Exposure Limits of Hydrogen Fluoride
- ▶ Organic gases and vapours (with boiling point > 65°C)
- ▶ Inorganic gases
- ▶ Acid gases
- ▶ Ammonia
- ▶ Mercury vapour

\*Nuisance level refers to concentrations below the Occupational Exposure Limits

The TR-600, when used with an appropriate 3M headtop and filters, can be used in various applications including:

- ▶ Agriculture
- ▶ Chemical industry
- ▶ Construction and building renovation
- ▶ Demolition
- ▶ Food and beverage
- ▶ Medical and healthcare
- ▶ Metalworking
- ▶ Pharmaceutical manufacturing
- ▶ Pulp and paper processing
- ▶ Smelting and foundries
- ▶ Surface preparation, paint spraying and coating
- ▶ Woodworking

## Limitations

The TR-600 Powered Air Turbo should not be used in the following conditions:

- ▶ Asbestos removal
- ▶ In atmospheres containing less than 19.5% oxygen
- ▶ Confined spaces (lack of ventilation)
- ▶ When the risk is considered to be Immediately Dangerous for Life or Health (IDLH)
- ▶ Where the contaminant concentration is above the Occupational Exposure Limit defined for the headtop or facepiece used (see headtop user instruction or relevant breathing tube user instructions for information on systems comprising facepieces)

## Materials

Component	Material
Turbo body	Polycarbonate/acrylonitrile butadiene styrene blend
Filter cover	Polyamide
Battery casing	Polycarbonate/acrylonitrile butadiene styrene blend
Easy clean belt	Ethylene vinyl acetate foam, polyamide webbing
High durability belt	Ethylene vinyl acetate foam, leather belt

## Product range

The TR-600 Powered Air Turbo is available to buy as:

- ▶ TR-602E Turbo Unit (includes TR-971 Airflow Indicator and TR-662 Spark Arrestor x 2)
- ▶ TR-619UK/E Starter Kit includes the TR-602E Turbo Unit, TR-632 High Capacity Battery, TR-641UK/E Single Station Battery Charger Kit, TR-971 Airflow Indicator, TR-6310E (A2P) Filter, TR-6300FC Filter Cover, TR-6600 Prefilter (x 10), TR-662 Spark Arrestor, TR-627 Easy Clean Belt and BT-30 Length Adjusting Breathing Tube
- ▶ TR-600E-HIK Ready-Pak includes the M-307 Helmet, TR-602E Turbo Unit, TR-632 High Capacity Battery, TR-641E Single Station Battery Charger Kit, TR-971 Airflow Indicator, TR-6310E (A2P) Filter, TR-6300FC Filter Cover, TR-6600 Prefilter (x 2), TR-662 Spark Arrestor (x 2), TR-626 High Durability Belt, BT-30 Length Adjusting Breathing Tube BT-926 Flame Resistant Breathing Tube Cover and TR-653 Cleaning and Storage Kit
- ▶ TR-600E-HKL Ready-Pak includes the S-133L Headcover, TR-602E Turbo Unit, TR-632 High Capacity Battery, TR-641E Single Station Battery Charger Kit, TR-971 Airflow Indicator, TR-6710E (P) Filter, TR-6700FC Filter Cover, TR-6600 Prefilter (x2), 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-600E-ECK Ready-Pak includes the S-433L Hood, TR-602E Turbo Unit, TR-632 High Capacity Battery, 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



## 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

Note: 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.

## Storage conditions

-30°C to +50°C < 90%RH

## Operating temperature

-10°C to +55°C

## Battery duration (hours) – with approved headtops

	Standard flow		Medium flow		High flow	
	All filters	P filter	All filters	P filter	All filters	P filter
TR-630 battery	6–12	10–12	5.5–11.5	9.5–11.5	4.5–9.5	8.5–9.5
TR-632 battery	9.5–19	15–19	8.5–15	14.5–15	7–14.5	13.5–14.5

## Battery duration (hours) – with approved facepieces

	3M™ Full Facepiece Respirators 6000 Series 3M™ Full Facepiece Respirators 7907S Series 3M™ Half Facepiece Respirators 7500 Series			3M™ Vision™ Full Facepiece Respirator FM4 3M™ Promask™ Full Facepiece Respirator FM3		
	Standard Flow	Medium Flow	High Flow	Standard Flow	Medium Flow	High Flow
TR-630 battery	9–12	7–11	6–9	6–9	4–7	4–5.5
TR-632 battery	12–18	11–16	8–14	10–13	6.5–11	6–8.5

Note: Battery durations are with new battery and clean filter at 20°C

## Shelf life\*

5 years from date of manufacture

\* 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.

## Outlet flow characteristics

	Flow rate	
	In combination with approved headtop	In combination with approved facepiece
MMDF <sup>1</sup>	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 <sup>2</sup>	225 l/min +/- 10 l/min	170 l/min +/- 10 l/min

Note: <sup>1</sup> MMDF = Stated Manufacturer's Minimum Design Flow (MMDF)  
<sup>2</sup> Systems incorporating certain filters must not be used with the Powered Air Turbos operating at high flow. These specific systems may display a low flow alarm immediately when used. The specific systems are:  
 FM4 with TR-602E – TR-6310E/TR-6580E must not be used in high flow setting.

## Battery charge time

Standard battery	Less than 3.5 hours
High capacity battery	Less than 4.5 hours

## Spare parts and accessories

Part number	Description
TR-630	Standard battery
TR-632	High capacity battery
TR-640	Battery charger cradle
TR-641E/UK	Single station battery charger kit (Europe/UK)
TR-644E/UK	4-station battery charger kit (Europe/UK)
TR-626	High durability belt
TR-627	Easy clean belt
TR-627X	Easy clean belt extender
TR-6710E	Particulate filter
TR-6820E	Particulate filter plus nuisance level organic gases and vapours below TLV (Occupational Exposure Limit), nuisance level acid gases below OEL and Hydrogen Fluoride gas up to 10 x OEL
TR-6110E	A1P – organic gases and vapours (bp > 65°C) and particulates
TR-6130E	A1B1E1P – organic gases and vapours (bp > 65°C), inorganic, acid gases and particulates
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

Part number	Description
TR-662	Spark arrestor
TR-651	Filter latch assembly
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)
BPK-01	Backpack
TR-655	Backpack adaptor
TR-329	Braces
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.

## Personal Safety Division

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