Sustainability 2019

TROX® TECHNIK
The art of handling air

Contents

Our future needs commitment

Dear Sir or Madam,

The principle of sustainability is an issue that is more acute nowadays than ever before. Let’s start with some good news: a sustainable approach is not only necessary from an ethical point of view, it is also worthwhile in various ways, especially for companies. Nevertheless, we have to ask ourselves, how exactly can we put this principle into action? In this sustainability report we are going to inform you as to how the foundation-owned TROX GROUP is addressing this challange.

The idea of sustainability is far from new. It is an ethical principle that has always been linked to the business world. The term ‘sustainable’ was first coined in a regulation for the German timber industry in the 17th century.

Early capitalism in the 19th century, however, was characterised by ‘liberalistic piracy’ (Ludwig Erhard) combined with disastrous collateral damage in the social and political sphere. In this context it also became clear that a free market economy without any ethical obligations would ultimately exhaust the resources that are vital to its own success. With this in mind, the model of the social market economy was ‘invented’ over the course of the 20th century.

However, the globalised economy of the past few decades of the 20th century followed an entirely different logic at large. It allowed for major global growth spurts and plenty of progress for large parts of the rapidly increasing world population, but this development came at a high price that includes the destruction of resources on an enormous scale and a massive environmental impact. The consequences of climate change that are now foreseeable, make the existentially threatening impact of negative ecological change more than clear.

This is why in the 21st century our ever-growing humankind faces inevitable challenges. A social market economy and a more balanced interaction with nature are basic prerequisites when it comes to mastering these challenges. This type of development towards an ecosocial market economy can meanwhile only be achieved, if innovative and responsible companies cooperate with the general public, the scientific community and governmental players.

For a foundation, sustainability is by definition part of its very essence. This is particularly true for the Heinz Trox Foundation, which was established by its founder for reasons related to the corporation’s sustainability. It is therefore particularly fitting for a foundation-owned company such as TROX to define and practise sustainability as part of its corporate DNA. It is also in line with the TROX corporation’s tradition, as the company has always been committed to long-term solutions, durability, innovation and socially responsible practices. It is extremely gratifying for the Heinz Trox Foundation to be able to rely on the dedication of the decision-makers within the TROX GROUP, when it comes to promoting even more sustainable development on a local and global scale.

Neukirchen-Vluyn, Germany, June 2020

Yours sincerely,

Prof. Dr. Hans Fleisch
Chairman of the Foundation Council
of the Heinz Trox Foundation

Together we can achieve even more

Dear Readers,

Being one of the world's biggest suppliers of air conditioning, ventilation and system technology components and systems means that clean air is a vital aspect of our corporate mission. Whether it be air conditioning, ventilation, filtration or fire protection and smoke extract: good air quality and safety provide for a better quality of life.

In times of progressive climate change, our high-quality and energy efficient products enable us to make an effective contribution to improving the climate situation even now. With ongoing product improvements and innovations, we help to continuously reduce power consumption, which currently accounts for around 40% of CO_2 emissions in the building sector. Our overall system-based approach is a vital aspect with regard to this sustainability development. Demand-based solutions within a perfectly networked system operate significantly more efficiently, consume fewer resources and allow for a reduction of CO_2 emissions.

In addition to this, we are dedicated to fulfilling our responsibility as a globally active corporate group, by implementing measures that go far beyond our mission to enhance 'indoor life quality'. This is why we have developed a holistic sustainability strategy that is applied globally across the entire TROX GROUP. The strategy takes mega-trends that are going to have an impact on our life into account, and it is based on the United Nations' 17 sustainability targets.

A considerate use of energy, water and materials is firmly linked to our corporate awareness at TROX, and this is reflected across all parts of the organisation. Together with our staff members, we put this commitments to a sustainable way of thinking and acting into practice around the world, and our suppliers and customers are also integrated into this strategy. Close proximity to our customers is very important to us, and this also allows for sustainable short delivery routes, thanks to our soon to be 19 production sites worldwide.

Based on our sustainability aspirations, we also seek a dialogue with the areas of business and politics as well as associations, to initiate and establish sustainable industry solutions.

This sustainability report is addressed at all those who have a particular interest in our company: our staff members, customers, suppliers and partners, who would like to find out how TROX is meeting the global challenge of climate change, and is employing sustainable business practices to make the company ready for the future.

We are very proud of what we have achieved together to date. However, our sustainability targets are even more ambitious, and we will make every effort to reach them.

Neukirchen-Vluyn, Germany, June 2020

Yours sincerely,

Udo Jung
CTO of TROX GmbH

Yours sincerely,

Thomas Mosbacher
CFO of TROX GmbH

Sustainability at TROX

The aspiration to achieve the greatest possible degree of sustainability is an integral aspect of the TROX GROUP's corporate development, and a core value of the brand alongside quality, technology and design.

The non-profit Heinz Trox Foundation that was established in 1991 is the main shareholder of the TROX GmbH, and was founded by Heinz Trox in order to firmly anchor this core value to the company's future, while also giving rise to a very sustainable shareholder structure. Heinz Trox' motto was this: 'The human being is the yardstick, and people's well-being is the goal.' This philosophy is inseparably linked to sustainable thought and action and it is therefore consistently implemented by the Foundation and the TROX GmbH as intended by the founder.

We want to contribute to a world with a liveable present and a future with a higher standard of living for everyone, in line with our guiding principle: 'The art of handling air for indoor life quality'.

This is why we provide our customers and the society with components and systems that make use of existing resources as effectively as possible, and that considerably contribute to protecting the climate across their entire value chain.

Sustainability lies at the core of our actions, it is a growth driver and, at the same time, forms part of our responsibility.

17 Sustainable Development Goals

TROX considers the goals of the United Nations (17 Sustainable Development Goals) the yardstick for its activities.

In the context of our sustainability strategy, we intensely engage with the United Nations' 17 Sustainable Development Goals. These include goals that we have always given a high level of priority:

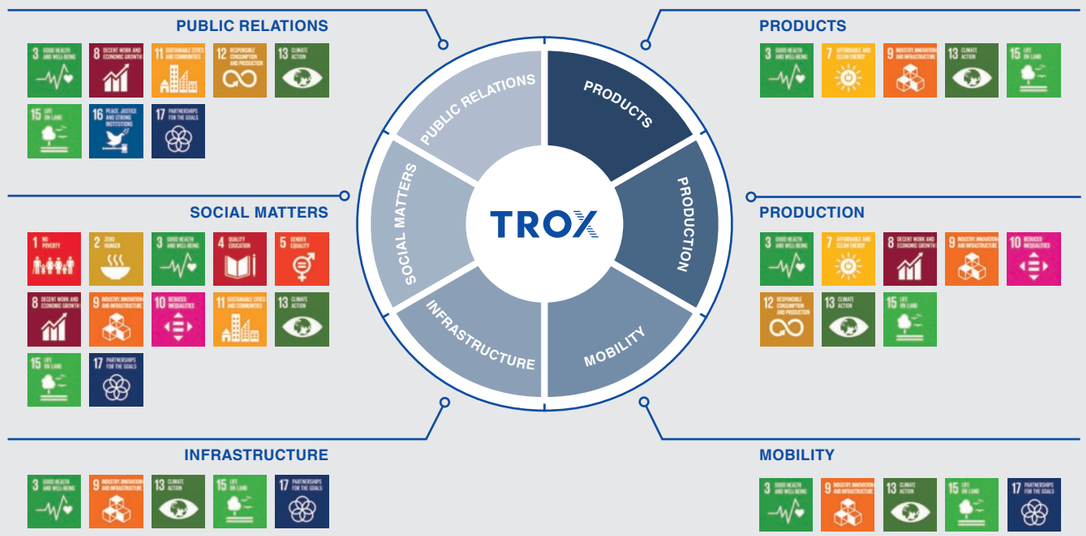
- More sustainable economic development (SDG 8)
- Technical innovation (SDG 9)
- Energy efficiency (SDG 12)
- and most importantly, human well-being (SDG 3)

TROX' six strategic fields of action.
We pursue an approach involving 360° of sustainability, which includes the defined fields of action – products, production, mobility, infrastructure, social matters and our contribution to society – in equal measure. We strive to meet the enormous demands of our goals in each of these fields of action, and to actively promote sustainable life, work and business conduct.

We think of the 17 internationally defined sustainable development targets as a commitment to our responsibility as a globally active corporation. This is why TROX' strategic fields of action are strongly oriented towards reaching these goals.

Our fields of action

The 6 strategic fields of action reflect virtually all of the 17 Sustainable Development Goals.



The goal of our sustainability development

By actively promoting sustainable processes along the 17 SDGs, TROX aims to secure economic prosperity, to allow for a social balance and to preserve natural resources for future generations.

In a nutshell:
Human well-being is key. This includes economic, social and health-related aspects and goes far beyond our own lifespan.

This is what we devote our efforts to.

Climate neutral by 2040: we think of this goal we have set for ourselves as an opportunity.
Environmental and social responsibility and profitable growth must go hand in hand for TROX. Ongoing improvement will make our company more future-proof after all. For us, this goes beyond saving energy, or reducing water consumption and waste. To meet our target to become climate neutral by 2040, our company is consistently oriented towards applied sustainability and this enables us to use the business potential that is available for our journey towards a productive future.

This approach is reflected, for example, in the development of new analysis and assessment methods for sustainable TROX processes, components and systems, such as design tools for air handling units with life cycle cost calculation, air-water systems or systems that provide for a demand-based control of air conditioning and ventilation systems.

We think of 'good air' as an essential commodity to which everyone should have access at any time and any place.
This is why we are committed to creating intelligent ventilation and air conditioning systems, which not only provide maximum comfort, safety and reliability, but that actively contribute to climate protection, too. To this end, we are involved in regional and global initiatives and committees, we have defined explicit targets with regard to energy savings and increased efficiency in our TROX X-FIT programme, and have set clear signals with our sustainability strategy.

To protect our nature, to reduce climate damage that has already happened, and to lay down the tracks into a future worth living are concerns that are very close to our heart.

Mega-trends

In the context of its long-term business strategy, TROX has identified global mega-trends that are going to have an impact on people's lives in the years ahead and that we strive to address:

- Globalisation
- Digital transformation
- Urbanisation
- Scarcity of resources
- Health
- Climate change

Mega-trends represent the deep currents of change and are important aspects when it comes to TROX' business activities.
In an increasingly networked world, it is vital to develop products, systems and structures that are seamlessly interlinked. We want to use smart digitisation to influence our value chain in a climate-friendly manner. We are going to address the ongoing trend of urbanisation with increasingly energy-efficient equipment and systems to ensure climate-oriented design of the required additional housing space and where existing building stock is subsequently condensed. We are equally committed to a sustainable use of resources from product development, via production, through to recycling. The promotion of human health and well-being is of utmost importance to us in any field.

By considering mega-trends, we can safeguard our competitiveness, but it is also an opportunity for making an impact. We are ready to face climate change with all means available to us.

Management and organisation

As a driver of a successful and sustainable course, TROX relies on clear structures designed to translate overall visions into specific steps.

Even the most ambitious targets are only as good as their implementation. This is why TROX has defined clearly structured responsibility levels and arranged for comprehensive analyses.

Under the leadership of Udo Jung, CTO of TROX GmbH, a project manager has been assigned to each of the six TROX fields of action. This approach gives rise to impulses and processes that promote the CO_2 neutrality of TROX across all divisions.

In addition to this we have established a system for continuous improvement called TROXellence that systematically supports staff members to make operations more productive and humane and to therefore work together more effectively. We use two standardised methods to achieve this: the TROX Production System (TPS, see p. 27) and the TROX Administration System (TAS), both of which help to identify and promote employee potential. All measures and projects that are initiated here are listed and monitored in our TROX X-FIT + programme.

Through our analyses, we ensure that all risks and opportunities are identified and the evaluations are used as a basis for future-oriented decision-making. The specialist departments stay in contact with each other in this context to guarantee transparent and trustworthy conduct.

This is where responsibility for our sustainability management's strategic orientation is found.

Products

A significant portion of TROX' ecological footprint is determined by the products themselves.

One the one hand, people are supplied with optimised air quality and temperature by our products, and on the other hand they provide for greater safety (fire protection).

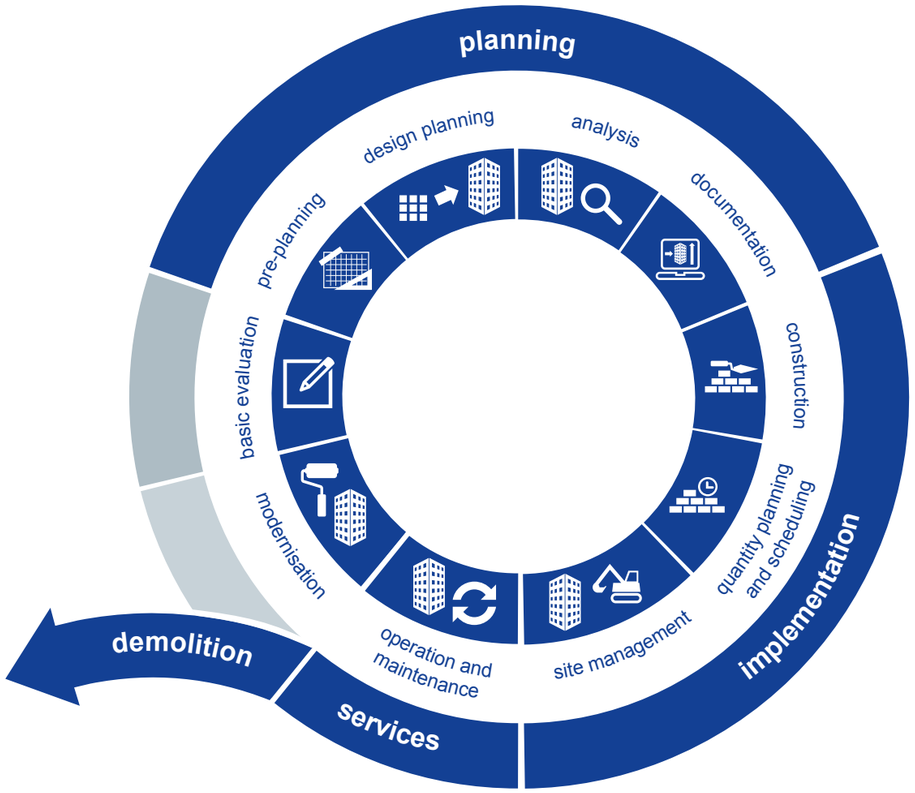
To manufacture products, we need raw materials. Almost all of our products consume electrical energy throughout their entire service life. And finally, they have to be disposed of when they are no longer used.

This is why our products' entire value chains and measures for improving their ecological footprint form a focus area of our sustainability strategy.

The important steps for our products' sustainability are already taken in the product development phase.
As early on as possible! Based on this motto we make environmental aspects a part of our product development:

- Increasing energy efficiency
- Reducing raw material consumption
- Reducing waste
- Improving recyclability

In addition to this, we take the entire life cycle of a building into account.



From the initial design phase, via sizing, through to revitalising buildings, we are taking all stages of the product's life cycle into account in our sustainability assessment. The products' efficiency is a vital aspect in this context. To enable us to financially optimise the scale of our filters and X-CUBE AHU for each individual application, TROX offers special tools, for example, for calculating energy consumption and costs across the entire life cycle. In addition to this, it is even possible to calculate the expected energy consumption for each hour in the service life of our X-CUBE air handling units.

Our online LCC energy cost calculator quickly shows our customers the boost in energy efficiency. This system allows us to calculate the precise operating costs for any location around the world, and to derive our products' good amortisation periods. TROX' high sustainability and quality standards are very tangible in this context, thanks to our particularly durable and energy-efficient products.

We use design and technology to help saving primary energy and costs.

Our energy saving filter NanoWave® illustrates how a product can become considerably more sustainable thanks to a successful blend of design and technology. NanoWave® filters can impress with patented technology featuring a large surface thanks to a wavy structure and excellent dust containment properties, combined with minor differential pressure.

In comparative measurements carried out with regular synthetic pocket filters that had been in use for one year, it was found that energy costs per cubic metre of processed air were around 58% lower, and overall costs were found to be around 51% lower, despite 50% higher acquisition costs. Our customers and the environment therefore benefit from a significant reduction of primary energy consumption.

The targeted combination of the design principle, insulation, tightness, heat recovery, energy-efficient actuator and smart control technology provide for energy saving potential in the two-digit range, also in the TROX X-CUBE series.

The air-water systems for space cooling that are developed and made by TROX are yet another example of successful sustainability development. A traditional all-air system needs a primary air flow that is three times higher, to achieve the same space cooling effect.

Saving resources is sometimes really easy.

Even a simple adjustment to specified requirements can give rise to a reduction of resource consumption. If, for example, TROX X-FANS smoke exhaust fans are used together with our X-FAN Control frequency inverter unit, then actually fewer smoke exhaust fans are needed. A simplified procedure and reduced resource consumption go hand in hand in this case.

The long service life of our products is ensured thanks to their high quality.

Our X-FANS diagnosis system, for example, allows for operating times to be increased from two to five years. The system allows for condition-based maintenance: safety-related components are replaced based on their actual condition, rather than after a specified period. The diagnosis system reliably reports when maintenance is expedient or recommended. This means that system owners have to arrange for maintenance less often, resulting in lower costs at the highest level of safety, as well as a better CO_2 balance. The environment also benefits from a product's longer service life, owing to reduced consumption of production-related resources and CO_2 emissions.

Potential to reduce CO_2 emissions by optimising fan control using TROX RadioDuct in Germany

	Electrical power consumption for air conveying	CO_2 emissions
Starting situation	21,000 TWh/yr	12,726,000 t CO_2-eq/yr
After optimisation	20,580 TWh/yr	12,471,000 t CO_2-eq/yr
Reduction	**420 GWh/yr**	**255,000 t CO_2-eq/yr**

The calculation is based on the assumptions that 10% of existing systems are modernised or replaced a year, and that 20% of the systems modernised are converted to allow for demand-based control.

From product to system: this is how we improve energy efficiency, comfort and productivity while producing less CO_2.

We consider producing durable, energy-efficient and top-quality products a vital step with regard to sustainability. However, their sustainability potential is far greater when they are part of a perfectly networked system.

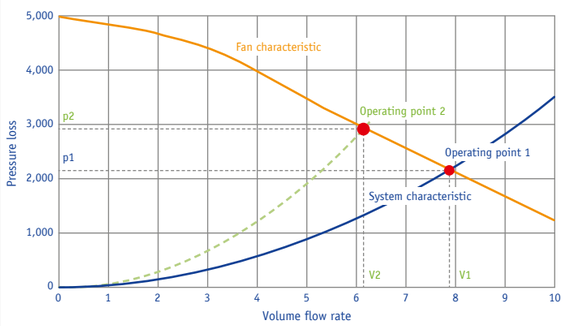
The reason for this is that networked systems allow for a much more precise adjustment to the energy demand at the time, and this is particularly important in partial load operation. Optimising fan control in the ventilation devices alone gives rise to enormous saving potential. Our innovative radio-based RadioDuct system will soon enable users to harness this potential in new as well as existing equipment that can be upgraded easily. Calculations prepared by research institutions show saving potential of around 255,000 t CO_2-eq/yr in Germany alone.

Systems such as our demand-based TROX X-AIRCONTROL room control system allow for room air to be individually controlled using permanently collected measured values. This individual indoor air management provides for an increase of energy efficiency and comfort, while improving acoustics and air quality at the same time. Studies based on cost-benefit analyses have shown that even a slight increase of the supply air rate gives rise to a significant increase of work productivity.

Our system solution X-TAIRMINAL provides for even more sustainable operations. It is a control and monitoring system that visualises all systems used (e.g. TROXNETCOM for fire and smoke protection, and X-AIRCONTROL for indoor air control) on a single surface.

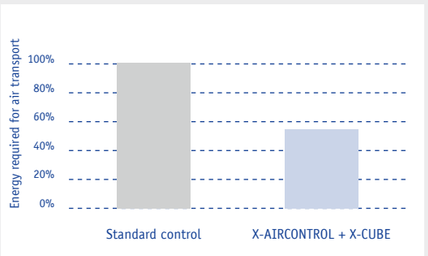
Control in the Piding Hotel according to the system characteristic

Graph of the theoretical and determined characteristic in the hotel project
Prerequisite: Information on all damper positions in the building (X-AIRCONTROL + X-CUBE)



STYLES HOTEL IN PIDING/ SOUTHERN GERMANY

Actual energy consumption in the example project



Calculated reduction of CO_2 emissions for projects with demand-based ventilation

Basic data		
Total volume flow rate of systems with demand-based ventilation per airflow direction	m^3/h	460,000
Increase of pressure of the supply air fan	Pa	900
Increase of pressure of the extract air fan	Pa	700
Average overall efficiency of the fans	%	65%
Performance and energy calculation		
Electrical output supply air fans	kW	177
Electrical output extract air fans	kW	138
Weeks in operation per year	weeks	52
Days in operation per week	days	7
Hours in operation per day	h	12
Hours in operation per year	h	4,368
Overall electrical output of the fans	kW	315
Overall annual electric energy demand of the fans	kWh/yr	1,375,920
Energy savings and CO_2 reduction		
Average energy savings from using a system with demand-based control (building automation efficiency class A according to DIN EN 15232-1:2017-12)	%	55%
Annual reduction of electrical energy consumption	kWh/yr	756,756
Electricity-based CO_2e emissions per kWh	$kgCO_2e/kWh$	0.474
CO_2e emissions avoided per year	**tCO_2e/yr**	**359**

Our demand-based control system that is used in more than 20 projects (such as the STYLES Hodel in Piding), provides for an annual reduction of 360 t of CO_2 emissions. This is evidenced by corresponding monitoring. In the STYLES hotel in Piding, for example, the system solution X-TAIRMINAL has given rise to a reduction of hydraulic work by 45%, after an operating time of only eight months. This enormous annual reduction achieved through our demand-based control system, is a clear sign of the effectiveness of interface-optimised networking of systems and energy-optimised components in the battle against climate change.

Further calculations show that primary energy consumption by air conditioning and ventilation systems is up to 55% lower in projects with demand-based ventilation than in those with uncontrolled systems.

With perfectly networked air conditioning and ventilation technology with demand-based control, TROX therefore helps to significantly reduce energy consumption and CO_2 emissions. This is an important aspect to us that makes the sustainability of our system concept tangible on a financial and environmental level, also for our customers.

▶

All TROX products meet top quality standards.

We use conclusive certification procedures, such as certification by the RLT Manufacturer's Association or EUROVENT, to make our products transparently comparable with regard to their energy efficiency. In line with the fundamental concept of our corporate philosophy and to ensure optimised product quality and a long and efficient service life, we do not settle for minimum standards, but go far beyond these for certain criteria.

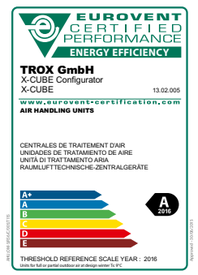
End of product life.

Our goal is to increase the reuse rate and recyclability of our products to make a vital contribution to resource conservation. The TROX SKYBEAMS that are used in the International Quarter London, for example, feature various components made of fully recyclable aluminium and steel, as well as mineral wool made of 84% recycled and renewable materials. 95 to 100% of waste is recycled here. Even the transport packaging was designed in a sustainable manner (see page 29).

TROX Certificates

Energy efficiency and sustainability are key criteria for product development at TROX.

The performance specifications have been reviewed and certified by Eurovent.



Highest energy efficiency class according to Eurovent

Certified with the energy label A+ of the Manufacturers' Association Raumlufttechnische Geräte e.V.

TROX SKYBEAM – designed with great recycling potential.

- Efficient perforated aluminium/copper band.
- Fully recyclable.

- The aluminium components contain 75% recycled material and are fully recyclable.
- All waste is fully recycled.

- 100% recyclable, thanks to a closed loop system. Steel is merely used, never spent.
- All waste is fully recycled.

- The mineral wool products contain up to 84% recycled and renewable materials and can be fully recycled at the end of their service life.
- 95% of waste is recycled.

Production

The sustainable orientation of TROX' production processes gives rise to great potential for our goal of climate neutrality.

Our sustainability targets in production and our production facilities are based on a considerate use of energy and water, waste avoidance and the creation of ideal working conditions and a sustainable supply chain. Quantities and consumption are reported across the company, and reduction measures are reviewed, planned and implemented.

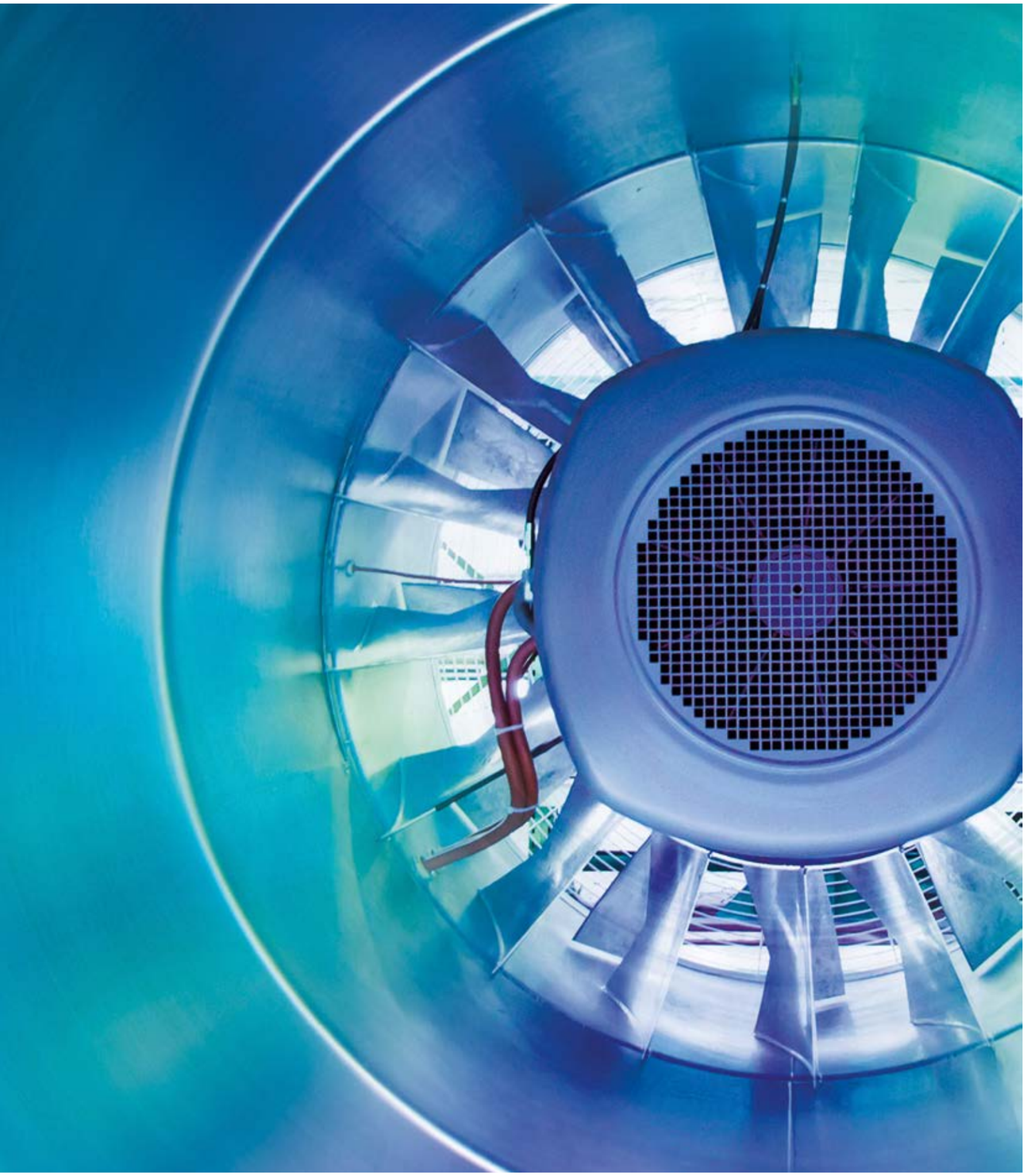
TROX uses an integrated management system to make production more sustainable in Germany.

The system covers the areas of quality, energy and environmental management, as well as work and health management. TROX meets current certification requirements in each of these areas and manages a sustainable approach for its production sites, using clearly defined action plans and internal system and process auditing.

Investments into hard and software components for precise energy data collection enables us nowadays to clearly specify the success of our production process optimisation.

In the TROX factory in Anholt we successfully reduced our staff members' exposure to dust in the area of fire dampers and control devices, by means of consequent restructuring. Production smoothing was achieved by establishing storage areas for semi-finished products. By investing into new, modern powder coating equipment, we have been able to significantly reduce set-up requirements and the amount of powder used. In addition to this, plant efficiency has been improved through optimisation of the material flow.

The introduction of more energy-efficient machine technology for the production of rectangular fire dampers, control devices and stainless steel blanks alone, gives rise to a reduction of around 260 MWh of primary energy consumption in the factory in Anholt. This corresponds to a 53 tonne reduction in CO_2 emissions per year.



The TROX production system TPS enables us to improve processes and sustainability aspects across all production sites of the TROX GROUP.

With the TROX production system TPS, we have created a set of rules that forms the basis of our optimisation activities and provides for a wide range of improvement tools that can be used depending on the respective situation. It is intended to align the structures and organisation of the soon to be 19 TROX GROUP production sites around the globe, to allow for production processes and administrative activities to be improved continuously, and to further promote sustainable development. An international TPS training session with the TPS experts takes place once a year.

In addition to this, all improvements are recorded in the context of an annual audit, and further fields of action are defined and measures are agreed upon. Regular video conferences allow for comprehensive exchange regarding the implementation and progress at the individual factories. Outstanding ideas and implementations are also documented in the TPS Best Practice Handbook.

We can be proud of the results. Machines and staff are used ever more effectively, we continue to reduce material clippings and waste further, and transport within production has been reduced to what is truly necessary.

We source our raw materials from suppliers that comply with our social and environmental standards.

Our suppliers are also taken into account in our sustainability assessment of the entire value chain of product creation. This is why we pay particular attention to ensuring that our suppliers fulfil the social, ethical and environmental standards that we are committed to. With our Code of Conduct, our suppliers around the world undertake to act in line with the TROX values of integrity and fairness. This means that human and children's rights must be respected, all kinds of discrimination must be ruled out, safe and healthy working conditions must be promoted, but also that laws with regard to environmental protection must be observed and any processes that are harmful to the environment must be minimised. The obligation also applies for any sub-contractors. TROX monitors compliance with the Code of Conduct.

Mobility and logistics

The main goals for mobility and logistics at TROX are to reduce CO_2 consumption in our goods traffic and to optimise the use of resources in packaging materials.

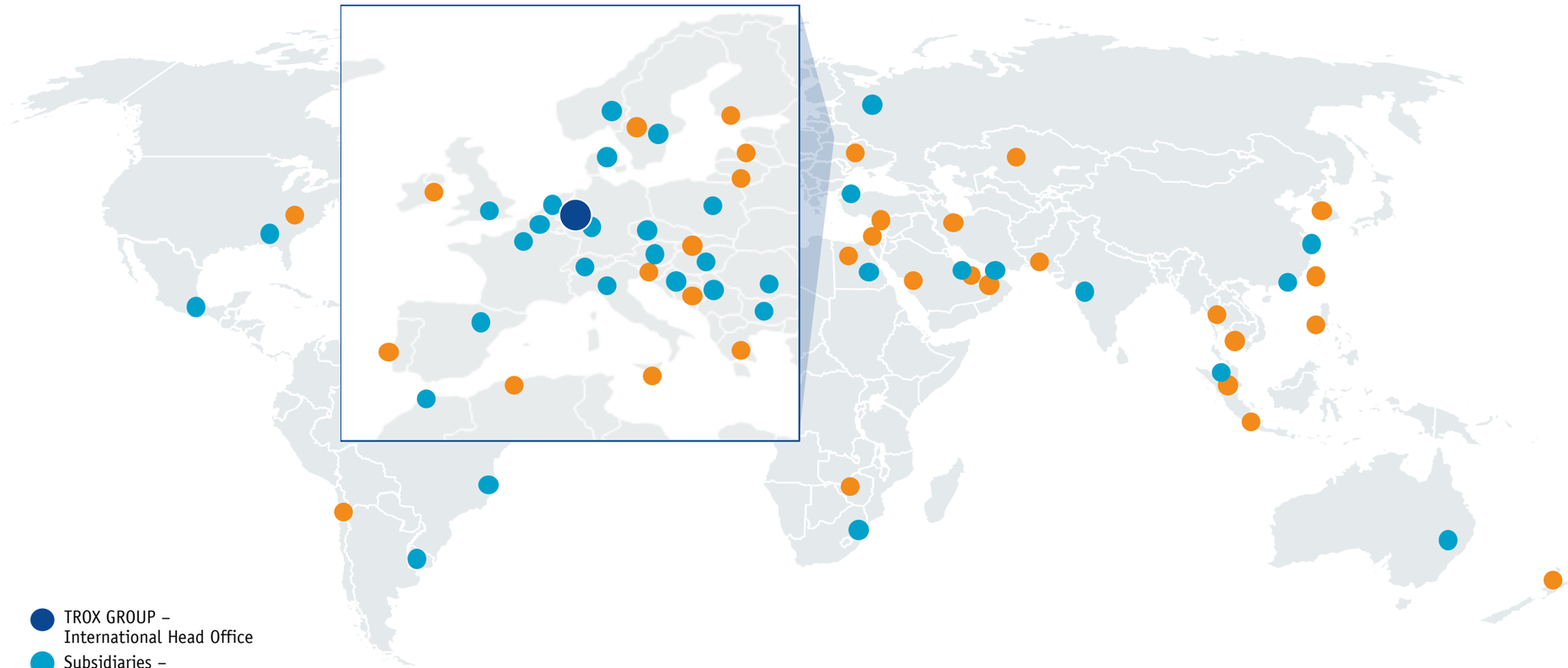
Essential measures in this regard include the bundling of transports, the selection of transport modes and optimising our packaging to improve transportability.

Reusable transport packaging to avoid packaging waste on site.

Proper disposal of product packaging can quickly become an issue at construction sites. This is why TROX developed reusable custom transport packaging made of sturdy wood to deliver a total of 5,200 TROX SKYBEAMS to the International Quarter London. The products could easily be unpacked on site and the packaging was then folded together. The flat packaging design allowed for three times the number of empty crates per vehicle to be returned to TROX for reuse in the next SKYBEAM delivery. No additional protective packaging material was required for the SKYBEAMS themselves. The reusable packaging eased the burden of the site logistics services, allowed for resource and cost savings and helped to prevent large amounts of waste. We also made a point of using responsibly sourced wood with FSC approval that will also be used for future projects.

The transport packaging for our switch cabinets has also been designed with sustainability in mind.

The special design of the transport boxes does not only simplify loading and unloading. The boxes can also be rolled to exactly the place where they are needed. There is no need for the usual packaging materials such as film, ratchet straps or special pallets. Once they are empty, we will take them back for reuse. This enables us to use less material, avoid waste and to ensure safe transport of our switch cabinets.



- TROX GROUP – International Head Office
- Subsidiaries – Sales/Production
- Representatives

We produce in proximity to our customers.

There were 16 TROX GROUP production sites in 2019, and in 2020 this number will increase to 19. TROX pursues a strategy of decentralisation that enables us to produce and deliver our products in proximity to our customers. This allows not only for shorter delivery times, but transport routes and the related CO_2 emissions are also minimised.

We bundle transports to specific regions and realise shorter delivery times.

To this end, we are cooperating with one of our service providers to establish a finished goods warehouse for standard items, from which we can cater for our customers across Germany. This service provider is also committed to sustainability. Its buildings feature solar systems, and it draws upon a state-of-the-art fleet of Euro 6 standard transport vehicles. Over the course of the project, we have made it our mission to select sustainable packaging materials and decided not to use any packaging film. Together with our service provider, we have set ourselves the target to prevent packaging waste by reducing outer packaging to a bare minimum.

Thanks to our close proximity to our customers, we are also able to reduce CO_2 emissions associated with storage.

Our carriers' extended transport and storage network enables us to react spontaneously and to generate storage options close to our customers, rather than returning loads over long distances. Our carriers also ensure that lorries are always used to their full capacity, avoiding journeys without load and lost return loads. We therefore keep CO_2 emissions as low as possible.

We are thinking ahead.

Striving to continuously develop the area of logistics further, we have set ourselves the goal to implement further long-term measures to promote sustainability.

These include synergies between the areas of transport and storage logistics with a view to internationalisation. We have recognised the potential to significantly reduce our transport and logistics efforts by establishing a European logistics hub.

Our long-term plan is to keep a stock of finished and semi-finished products, as well as regional products at a logistics centre. Supply chains can be bundled and shipments swiftly delivered to our customers. Digital tools allow for a reduction of the manual workload. We expect this to give rise to quick response times, increased transparency for us and our customers, and ultimately far lower CO_2 emissions.

Infrastructure

Orienting our operational infrastructure towards greater sustainability strengthens TROX by making more efficient use of energy and water in our buildings.

With our sustainability measures taken to date, we have already achieved a significant reduction of CO_2 emissions and operating costs.

It was found in the internal TROX environmental assessment for TROX GmbH that CO_2 emissions had at first glance increased by around 4% over the reference period from 2015 to 2019. However, closer inspection (t/invoice amounts) showed a reduction, as sales had increased by 23%.

CO_2 emissions of TROX GmbH

TROX GmbH	2015	2016	2017	2018	2019
CO_2 emissions (t)	5,906	6,047	6,236	6,203	6,155
CO_2 emissions (t) per million euros invoiced	26.3	26.1	26.9	24.3	22.2
Change (%)					**-15.3**

CO_2 emissions of the TROX GROUP

TROX GROUP	2015	2016	2017	2018	2019
CO_2 emissions (t)	14,514	14,577	14,131	14,547	14,084
CO_2 emissions (t) per million euros invoiced	31.8	32.4	30.5	30.2	27.1
Change (%)					**-15.0**

Amounts invoiced include net proceeds from production and goods trading.

Legend:
Between 2015 and 2019, the TROX GROUP has reduced its CO_2 emissions by 15% from 31.8 to 27.1 per 1 million euros invoiced.

Systematic investment in new buildings has a sustainable effect.

Our primary energy demand for our production hall (built in 2011) in the Anholt factory and the TROX administration building in Neukirchen-Vluyn decreased by a total of 70% while CO_2 emissions were reduced by 65%, since equipping them with particularly energy-effective geothermal heating and free cooling systems. This means that we are currently saving around 370 MWh of primary energy and 81t of CO_2.

Water consumption has been reduced by 41% to 2,100 m^3 in the factory in Vluyn, thanks to a process optimisation and the acquisition of a reverse osmosis system for the paint plant.

TROX is increasingly using measures such as geothermal heating and cooling, closed water circuits, and renewable energy for new and refurbished building. Hardware and software components for measuring the environmental performance have been installed or will be soon.

In the context of the integrated management system, TROX introduced energy management in line with DIN EN ISO 50001:2011 in 2016. The system's effectiveness was confirmed by TÜV Rheinland in the same year. Immediate consequences: improved eco-awareness of our staff, identification of specific saving opportunities and the initiation of measures.

CO_2 emissions TROX GROUP, by country

CO_2 emissions (t) per million euros invoiced	2015	2016	2017	2018	2019
GmbH	**26.3**	**26.1**	**26.9**	**24.3**	**22.2**
Argentina	96.9	136.6	118.1	134.4	74.7
Brazil	17.0	16.4	19.0	17.7	20.8
China	65.4	116.7	99.6	119.2	127.3
UK	26.4	30.5	23.3	42.4	26.7
KS Filter					37.1
Malaysia	65.9	48.9	45.3	70.1	60.1
Norway	22.6	13.6	13.0	12.7	11.5
Switzerland	7.9	6.1	6.8	6.2	4.8
Spain	41.7	40.3	37.0	29.7	28.1
South Africa	147.8	171.1	16.7	19.6	17.7
X-FANS	12.8	12.4	11.8	11.1	10.9
Total	**31.8**	**32.4**	**30.5**	**30.2**	**27.1**

Amounts invoiced include net proceeds from production and goods trading.

One country in particular stands out in in our data collection: South Africa. TROX South Africa that operates with electricity as its sole energy transfer medium, was able to reduce its power consumption by an impressive 92%, from 1,143 MWh in 2015 down to 93 MWh in 2019. This exemplary contribution to the energy revolution was achieved based on comprehensive modernisation and conversion measures. Hardening ovens, air conditioning systems and air compressors were replaced with newer, more efficient models, all light sources were fitted with LED lamps and the aluminium moulding technique was switched to cold shaping. This set of measures was obviously very effective and it constitutes another step towards ever more sustainable production within the TROX GROUP.

Our factory in Norway is sustainably designed and built from the outset.

As part of our development towards CO_2 neutral production, we are building an all new 13,330 m^2 production facility in Norway in 2020. We use this as an opportunity to implement innovative digitisation processes in the sense of industry 4.0 and to achieve CO_2 neutral production from day one.

The new TROX factory in Norway uses electricity generated using 100% renewable water power. All light sources are equipped with energy-efficient LED solutions. There will also be 50 charging stations for the fleet of electric vehicles on the premises.

Examples such as these show that our commitment to climate neutrality can make a real difference, both ecologically and economically.

Thomas Mosbacher (CFO TROX GmbH) and
Peter Sønderskov (Managing Director TROX Auranor Norway)

Even the staff kitchen is covered by our recycling management.

In addition to products such as the TROX SKYBEAMS that are designed using highly recyclable materials from the outset, TROX also provides all pallets, mineral wool waste, wood, paper, cardboard and metal for recycling. We strictly comply with the Recycling and Waste Management Act and the Commercial Waste Ordinance. Furthermore, we separate waste from the kitchen and canteen and any paper, packaging and household waste produced from administration through to the staff kitchens is recycled. This is how we put the desire to preserve resources into practice across all parts of the company.

Social matters

'The human being is the yardstick, and people's well-being is the goal.'
We have always been devoted to this mission statement worded by Heinz Trox.

Our top priority at TROX is to protect human beings and the environment. Our activities in the TROX field of action devoted to social matters are therefore very purposeful and mindful. The measures are designed to reflect our approach to sustainability both internally and externally and to promote a more liveable future.

Our staff members are key when it comes to putting our corporate strategy into practice.
To encourage their motivation, to build upon their potential and to become ever more sustainable thanks to their dedication is therefore also about caring.

- TROX' work and health management that was introduced in 2019 focusses intensely on our staff members' needs. It provides for measures to be initiated and expanded. We are also planning to obtain certification.
- In order to provide good working conditions everywhere, potential stress areas are identified in cooperation with our staff members to allow for physical and psychological threats to be defined and addressed.
- We promote opportunities and talents not only with a solid vocational training concept, but we also support staff members who are part-time students with options ranging from paid leave for exams through to full cost coverage. In 2019, we were able to offer 70 young people a training position at TROX GmbH. We spend around 500,000 euros a year to support our staff members in the areas of training and education.
- We have established the TROX X-FIT+ programme to promote our staff members' health. Based on a corresponding works agreement, a fixed budget is available for a wide range of measures. These include 'moving breaks' in cooperation with the health insurance provider, subsidised sporting activities and flu vaccinations. A designated operational health and integration management officer has been in charge of matters regarding our staff members' health and well-being since 2018. Individual measures are initiated and coordinated for sick staff members or those with limited working abilities, to help them to regain full health and working capacity.

- As a globally active company, we are committed to fair treatment of our staff members, regardless of their gender, nationality or religious affiliation. Our ethical fairness and integrity guidelines ensure equal opportunities for our staff members, they safeguard the dignity of all human beings and provide for the prevention of discrimination and corruption.

  Against this backdrop, we are very pleased about the rapidly growing share of female staff members and managers in our technology-dominated company.

- We consider fair and good pay and ideal working conditions basic requirements for having motivated and dedicated staff members who are happy to work for TROX. At the moment, our staff members stay in the company for 12.7 years on average, which is an extremely long time. The healthy labour turnover rate of 5.1% in the entire TROX GROUP in 2019 also speaks for itself (the global average is 10.9%, according to a study by LinkedIn).

▶

Cases of corruption	2015	2016	2017	2018	2019
Number of cases in which staff members were dismissed or other disciplinary measures were taken due to corruption.	0	0	0	0	0
Number of cases in which contracts with business partners were not renewed due to violations associated with corruption	0	0	0	0	0

With the TROX ACADEMY we provide for comprehensive and increasingly digitised training, information and instruction.

Whether it be the latest trends and developments in the areas of air conditioning, ventilation, fire protection and smoke extract, ideal installation processes, service and maintenance of our products or a webinar regarding new standards or effective use of the TROX tools: the TROX ACADEMY provides our customers and staff members with decisive know-how and skills needed to be able to work happily and productively. Around the world. Our popular webinars by now account for a share of 30% and they are available in our media centre at all times.

Social performance factors at the TROX GROUP

	2018	2019
Number of staff members	3,789	4,007
Labour turnover rate (%)	7.8	5.1
Average age (years)	39.0	39.3
Average period of employment (years)	13.0	12.7
Number of permanently employed staff members	3,474	3,681
Number of part-time staff members	224	284
Number of positions filled by women	660	753
Number of women in senior positions	43	49
Number of staff members with severe disabilities*	97	95
Number of apprentices	105	116
Sickness rate (%)	4.5	5.4

*only in the German companies (TROX GmbH, TROX X-FANS, TROX HGI, Dr. Ermer)

Public relations

As a global corporation, TROX is a member of various national and international associations and organisations and transparently communicates externally regarding relevant issues.

This makes us a part of a strong network that enables us to make an impact and to contribute to translating our commitment to a liveable future into regulations, guidelines and laws.

Together we can achieve more.
TROX is actively involved in acclaimed industry organisations and associations, promoting the implementation of stipulated environmental and energy objectives, as well as quality standards that characterise future-oriented, energy-efficient and sustainable building technology. Among these are:

- **VDMA**
  Verband Deutscher Maschinen- und Anlagenbau (German Mechanical Engineering Association), the biggest European networking organisation of the mechanical engineering industry

- **VDI**
  Verein Deutscher Ingenieure (Association of German Engineers) that defines the current technology standards in the VDI guidelines

- **BTGA**
  Bundesindustrieverband Technische Gebäudeausrüstung (Federal Industry Association for Building Technology), Germany's oldest business organisation for companies in the area of building technology that lobbies for technical, social, economic and environmental development

- **EUROVENT**
  European Association of Air Handling and Refrigerating Equipment Manufacturers, a certification committee for energy efficiency

- **FGK**
  Fachverband Gebäude-Klima (Professional Association for Building Climate), the leading industry association of the air conditioning and ventilation industry that raises public awareness of air conditioning, rectifies misleading statements, etc.

- **RLT**
  Herstellerverband Raumlufttechnische Geräte (Association of Air Handling Unit Manufacturers) that provides for transparent energy efficiency certification for AHU, draws up technical recommendations and guidelines, and is involved in relevant legislation and regulation processes

- **FLT**
  Forschungsvereinigung für Luft- und Trocknungstechnik (Research Association for Air and Drying Technology) that defines research topics, selects research institutes for handling these and monitors and controls the research work

At the same time, we are also involved in relevant standardisation committees to ensure that general standards for building technology are defined and observed. These standardisation committees include:

- **DIN:** German Institute for Standardisation
- **CEN:** European Committee for Standardisation
- **ISO:** International Organisation for Standardisation

We consider active involvement in associations to be the driver of sustainable progress.

Sustainable communication stands for loyalty.

We are dedicated to open, transparent, comprehensive and factual information and communication across all communication activities. We do not wish to raise expectations we cannot meet but to provide sound and valid information. As a reliable partner in anything we say and do. We do not think of communication as a one-way street. To us it is interaction with our customers, business partners, staff members and friends, at trade fairs, via social media, ACADEMY events, etc., and it has a significant impact on the structure and development of our enterprise.

We reach our stakeholders via the channels that are important to them. More and more in digital form, but also through printed matter. With content that is relevant to them, regardless of their age, affinity towards digital media, their function or their position. We focus on the people that we are connected to for many years through mutual loyalty. This is what makes communication sustainable in our opinion.

We do not address important business matters only, but we think of ourselves as a part of the society and macro economy. In publications such as the TROX life magazine, we therefore explore social and topical issues, as well as more critical subjects such as ‘climate and change’ or ‘city, country, air’ in a way that is both scientific and entertaining.

We are committed to sustainable behaviour, also on a local scale.

We also keep our local stakeholders up to date with regular information about our company and our activities to promote sustainability.

One example of these activities is our apprentices' annual Social Day. In 2019, our apprentices helped the local NABU nature conservation centre by cutting free a collapsed fence on the grounds. NABU protects the nature of the Rower Rhine area with its plant and animal species, some of which are critically endangered. Based on volunteer commitment only, the organisation also educates groups from schools and kindergartens.

As another measure, the Heinz Trox Foundation took part in the Earth Hour 2019 from the TROX GmbH premises in Neukirchen-Vluyn. In line with the motto 'turn off the light to protect the climate', the lights were turned off also at TROX for one hour, to remind people of the fact that there is only one planet earth. From the third storey of the TROX GmbH offices, visitors were able to watch the lights go out in the surrounding area. The global risks associated with plastic were pointed out in the feature-length documentary 'Plastic Planet'. TROX thinks of the Earth Hour as a symbolic act to raise awareness of climate protection that goes far beyond the 60 minutes of darkness.

TROX is becoming climate-neutral

TROX has a goal: to achieve climate neutrality by 2040, while maintaining qualitative and quantitative growth.

To reach this target, we have defined specific fields of action for which we are continuously drawing up sustainable measures. Clearly structured responsibility levels and comprehensive analysis and reporting processes ensure that we can work in a targeted and effective manner and based on reliable data. This approach also enables us to include all relevant sustainable development goals as defined by the United Nations in our sustainability strategy.

We have achieved a lot and we constantly work towards becoming better and better. This is why our sustainability strategy has become a central component of our actions: across all levels, all departments and in cooperation with our staff members and suppliers.

TROX wants to achieve more than to save energy.

- We want to provide good air for everybody at any time and place.
- We want to make a significant contribution to ensuring a good life for future generations.
- We want to provide our customers with innovative, energy-efficient products and systems that help to considerably reduce the current share of around 40% of CO_2 emissions accounted for by the construction industry.
- Based on an ever more efficient recycling economy, we want to lead the entire TROX GROUP into a productive future.
- We are also dedicated to raising awareness of the value of life and the necessity to value human beings more than profits.

TROX defines standards.

Our world is unique. We want to help to protect this uniqueness through our effective sustainability management. Through our commitment to achieve our target to be climate neutral by 2040. By focussing on human beings. And by already building the products and systems that are going to set future standards.

2040

Sustainable projects by TROX

The core sustainability target in the operation phase is to reduce power consumption and the related CO_2 emissions. TROX has always been pioneering in this regard.

Leuphana University Lüneburg

Important planning criteria for the new main building of Leuphana University Lüneburg that was completed in 2017 included a particularly sustainable design and a frugal use of electricity for lighting, ventilation and cooling.

Specialist consultants and HVAC contractors selected TROX ventilation and air conditioning components as they ideally complement each other: from the central air handling unit, via VAV terminal units, and air terminal devices, through to fire safety equipment such as smoke exhaust fans and fire dampers.

With central AHU and a smart control system, TROX provides for demand-based air supply and therefore for ideal learning and teaching conditions at particularly low power consumption.

Frankfurt Trade Fair Hall 12

Aesthetics and functionality, frugality and sustainability were reinvented for Trade Fair Hall 12 in Frankfurt. Innovative ventilation and air conditioning equipment by TROX provides for high energy saving standards combined with excellent comfort and safety. The digitally networked TROX fire and smoke protection systems are perfectly interlinked.

Yet another TROX air-water system was installed, following the positive experience with Trade Fair Hall 11 with regard to its comfortable atmosphere and energy efficiency. An all-air system requires three times the primary air volume flow to achieve the same cooling effect, so CO_2 emissions are also reduced as a result.

On the roof of Hall 12: TROX X-FANS smoke exhaust fans of Type BVD, fitted with the intelligent fan diagnosis system. It allows to determine the current condition with regard to wear and output, for an optimisation of the fan performance and for energy adjustments. This condition-based diagnosis helps to reduce energy consumption and the related CO_2 emissions, and to increase replacement periods and maintenance intervals.

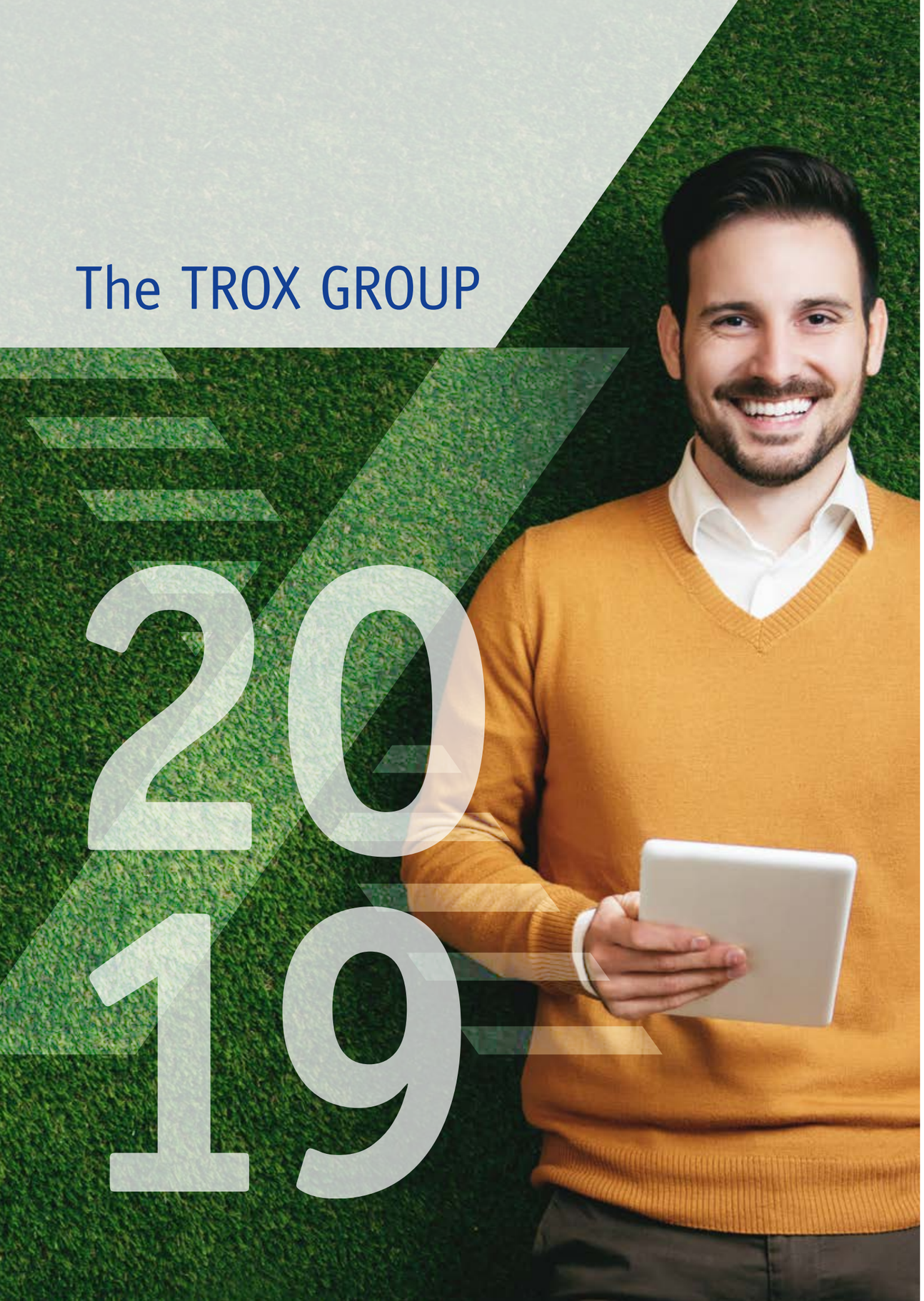
International Quarter London

The International Quarter London represents the future of working. 25,000 new and incomparable workplaces are being created here, alongside retail space, restaurants, cafes and apartments. ‘Feeling comfortable at the workplace’ is the central theme that permeates the architecture, design and technology.

Striving to receive the sustainability award based on BREEAM standards, the property developer has very high demands with regard to the efficiency and sustainability of the technologies and materials used.

In cooperation with the architects, the TROX engineers developed a custom air conditioning solution for the office buildings, featuring an entirely innovative design: the SKYBEAM is a passive chilled beam with globally unparalleled flexibility and high energy efficiency that allows for pleasantly low operating costs.

In the two office buildings of the International Quarter London that have already been completed, a total of 5,200 SKYBEAMS were installed, giving rise to a comfortable working climate.



The TROX GROUP at a Glance – Key Figures

TROX GROUP sales in million €

533 2019 | 498 2018

Production sites worldwide

16 2019 | 14 2018

CO_2 emissions of the TROX GROUP in t/invoiced € mill.

27.1 2019 | 30.2 2018

Our Vision

In a digitised world we are developing as the independent TROX GROUP to become one of the world's largest component suppliers and a system partner in the area of air conditioning, ventilation and safety related technology!

Our mission

TROX® TECHNIK
The art of handling air
for indoor life quality

Striving to provide 'indoor life quality' for human beings, TROX arranges for fresh indoor air, focussing on well-being, safety and efficiency.

Subsidiaries of the TROX GROUP in countries

32 in **29** countries 2019

28 in 25 countries 2018

CO_2 emissions of the TROX GROUP in t

14.084 2019

14,547 2018

Social performance indicators at the TROX GROUP

Staff members at the end of the year

4,007 2019 | 3,789 2018

Labour turnover rate (%)

5.1% 2019 | 7.8 % 2018

Average period of employment (years)

12.7 2019 | 13.0 2018

Permanently employed staff members

3,681 2019 | 3,474 2018

Part-time staff members

284 2019 | 224 2018

Average age (years)

39.3 2019 | 39.0 2018

Positions filled by women

753 2019 | 660 2018

Women in senior positions

49 2019 | 43 2018

Apprentices

116 2019 | 105 2018

Glossary Sustainability

A

WASTE
The term waste in the sense of the Recycling Act covers all substances or items that their owner would like to, has to or does dispose of. The Recycling Act distinguishes between waste for recovery and waste for removal. Waste for recovery is any waste that is utilised, waste that is not utilised is considered waste for removal.

STAKEHOLDERS
Internal and external groups of people that are directly or indirectly affected by all business activities, either now or in the future (e.g. shareholders, suppliers, customers).

ANTHROPOCENE
The name of the era in which human beings became one of the most important influencing factors of biological, geological and atmospheric processes on earth (the past about 30,000 years, accounting for about 3 seconds of the history of the earth).

UTILISATION
Actual share of all available capacities that is being used

B

BIODIVERSITY
This term refers to three areas: diversity of ecosystems, diversity of species, and genetic diversity within species

BUND
Bund für Umwelt und Naturschutz Deutschland e. V. (German Federation for Environment and Nature Conservation)

LIGNITE
8 billion tonnes are extracted worldwide every year, mostly through surface mining. Around 90% are used by power stations to produce electricity. Coal-fired power stations cater for about 40% of the global electricity demand.

C

CO_2
Toxic, odourless and flammable gas. 37 billion tonnes of CO_2 are released to the atmosphere every year. 28% thereof are accounted for by China, 15% by the US, 10% by Europe, 6% by Latin America, 5% by Russia, 4% by Africa, and 32% by the rest of the world. There is now more CO_2 in the air than over the past 3 million years. An example of CO_2 avoidance: the driver of a diesel passenger car cycles to work instead of driving (about 8,000 km/year). Around 1,200 kg of CO_2 are not produced as a result.

CORPORATE SOCIAL RESPONSIBILITY
Social responsibility assumed by companies that goes beyond legal requirements.

D

DIESEL EMISSIONS
Emissions resulting from the combustion of diesel fuels, e.g. NOx, HC, SO_2, CO and NMHC. Fine dust is also considered a diesel emission.

DIESEL SOOT
See diesel emissions

DIVERSITY
Conscious and appreciative attitude towards the diverse individuals that form a society.

DIN EN ISO 14001
European environmental management standard

DIN EN ISO 9001
European quality management standard

E

EARTH HOUR
Electricity is turned off in buildings for 1 hour

EMISSION
Discharge of a substance or radiation by a source, e.g. CO_2 or noise emission

EMISSIONS TRADING
Trading with certificates permitting emissions

FINAL ENERGY CONSUMPTION
Energy use calculated from the point it is received by the consumer (e.g. diesel from the fuel pump, electricity from its user)

ENERGY
Ability to perform work (in the physical sense), specified in joule or watts

EARTH OVERSHOOT DAY
The day on which all natural resources have been used that the earth can regenerate within one year

RENEWABLE ENERGIES
Energy sources that are renewable and in principle unlimited, such as wind or sunlight

F

FAIRTRADE LABEL
Label to identify goods that stem fully or in part from 'fair trading' that is defined based on set criteria

CFC
Chlorofluorocarbons that are used as propellant gases, refrigerants or solvents. These had a disastrous effect on the ozone layer and were banned in 1989. The ozone layer has regenerated since.

MEAT CONSUMPTION
Global meat consumption has increased sixfold since 1950. Annual meat consumption per capita: North America 120 kg, South America 76 kg, Europe 90 kg, China 50 kg, Africa 14 kg.

FRIDAYS FOR FUTURE
Global social initiative by students, striving to implement comprehensive climate protection measures as quickly as possible

FINE DUST
Microscopic particles, e.g. PM10 with a size of less than 10 µm (PM10) or PM2.5 under 2.5 µm

G

GEOENGINEERING
The endeavour to fix what has been destroyed on earth in the past through various measures.

H

HALF-LIFE PERIOD
The period in which half of the atoms of a substance decay.

I

ISO 14001
International environmental management standard

ISO 26000
Guidelines regarding the social responsibility of organisations

K

NUCLEAR POWER STATION
444 reactors were in operation in 2019. 146 in Europe, 97 in the US, 46 in China, 37 in Japan, 36 in Russia, 82 in the rest of the world.

CLIMATE NEUTRALITY
The creation of a product or a service does not give rise to an increase of harmful gases in the atmosphere.

CLIMATE ADJUSTMENT
Measures for dealing with global warming

CARBON MONOXIDE (CO)
Toxic, flammable and odourless gas. It is produced through incomplete combustion of energy transfer media that contain coal.

K

CARBON DIOXIDE (CO_2)
A chemical compound of carbon and oxygen. Greenhouse gas, atoxic, colour and odourless gas. It is produced in particular through combustion of energy transfer media that contain coal.

RECYCLING ECONOMY
A regenerative system in which resource consumption, waste production, emissions and energy waste are minimised by slowing down, reducing or closing energy and material cycles.

KYOTO PROTOCOL
International treaty for the reduction of greenhouse gas. Named after the place where it was signed: Kyoto in Japan (1997). German goal: To achieve a reduction of CO_2 emissions by 21%, down to the 1990 level by 2012.

L

LCC (LIFE CYCLE COST)
The costs related to a product from its idea through to withdrawal from the market

SUPPLY CHAIN
Overall multi-level process of upstream and downstream connections between companies, from a customer's order through to delivery of and payment for the product or service

LINEAR ECONOMY
Also referred to as throw-away economy. A major share of raw materials goes to landfill or is burned after the respective period of use.

AIR POLLUTANTS
Emissions to the air that can have a harmful effect on the environment. The origin of an air pollutant can be natural or caused by human beings, e.g. NOx or CO.

M

METHANE (CH_4)
Greenhouse gas, colour and odourless hydrocarbon, main component of natural gas

MINERAL OIL TAX
Excise duty on mineral oils and natural gas

N

SUSTAINABILITY
Guiding principle for balancing environmental, social and economic objectives to allow for future-oriented development in line with intergenerational justice

SUSTAINABILITY COUNCIL
The federal government's advisory council for sustainable development

SUSTAINABILITY STRATEGY
Practical guidelines to facilitate sustainable actions of policy-makers and the society. The goal is to achieve development that is balanced with regard to the environment, the economy and social matters.

LOCAL TRANSPORT
Journeys of less than 50 km or with a travel time of under 1 hour. In this context: public transport with regional trains, etc.

O

OECD
Organisation for Economic Co-operation and Development

ECOLOGICAL FOOTPRINT
Sustainability indicator to measure demand on the ecosystem and the natural resources of the earth

ECOTAX
Tax levied on environmental consumption (mostly energy taxes), in Germany taxation of mineral oil and electricity

OZONE LAYER
Atmospheric layer that shields the earth from UV radiation

P

PARTICLES
Small particles such as dust, see also diesel emissions

PRIMARY ENERGY
Energy contained directly in energy sources (e.g. fuel value of coal). Primary energy carriers include coal, lignite, mineral oil, natural gas, water, wind, nuclear fuels and solar radiation.

PRODUCT LIFE CYCLE
The life span of a product from development, via use, through to (a possible) recovery

PROCESS
A set of activities that interact within a system

R

RECYCLING
Material recovery

RECYCLED PAPER
Paper made from waste paper

REGENERATIVE CAPACITY
Ability to regain environmental balance after external interferences

REGENERATIVE ENERGIES
See renewable energies

RESOURCE
Supply of utilities needed, for example, for commercial production

RESOURCE EFFICIENCY
The relationship between the usefulness and the required use of resources

SOOT PARTICLES
Main component of fine dust. Released when organic substances such as wood or diesel fuel are burned.

S

SULPHUR DIOXIDE (SO_2)
Colourless, pungent-smelling, water-soluble gas that is harmful to people and the environment

STAKEHOLDERS
(see stakeholders)

STANDARD
A relatively uniform, widely recognised and considered course of action. A standard is often the result of a standardisation procedure. It is not decisive, whether a standard is based on a procedure specified by a public or other formal body, or on general recognition.

NITROGEN OXIDES (NOx)
Collective term for gaseous oxides of nitrogen

T

GREENHOUSE EFFECT
The effect that greenhouse gases in an atmosphere have on the surface temperature of a planet. As long-wave radiation cannot pass through CO_2, heat produced is reflected to the earth, causing the greenhouse effect. Greenhouse gases are produced, for example, through intensive livestock farming. The planet is home to around 1.5 billion cattle that release methane to the environment. One cow produces the same amount of greenhouse gas as a passenger car travelling a distance of around 18,000 km per year.

U

UNITED NATIONS GLOBAL COMPACT
Global initiative for responsible corporate management

W

VALUE CHAIN
Also referred to as value-added chain. Depiction of production as a sequence of value adding activities during which resources are used.

WWF
World Wide Fund for Nature, a nature conservation organisation

Z

ZERO WASTE
A philosophy dedicated to sustainability, striving to ideally produce no waste and to avoid a wasteful use of resources

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TROX® TECHNIK
The art of handling air

2019

TROX® TECHNIK

The art of handling air