FLEXIvate Workstation

Environmental Product Declaration

ISO 14020:2000, IS0 14025:2006, ISO 14040:2006,
ISO 14044:2006, EN 15804:2019 A2

EPD registration number:	S-P-02110
Publication date:	2021-03-08
Validity date:	2026-03-07
Geographical scope:	India

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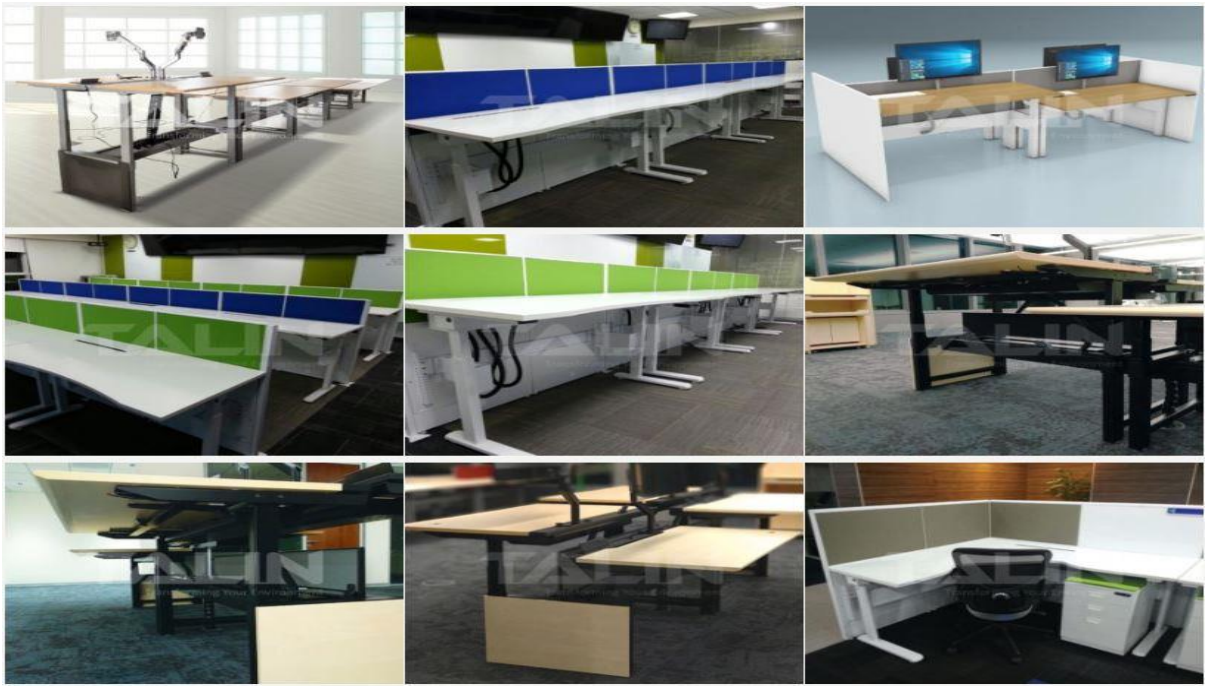
1. Introduction

Talin Modular Office Furniture Systems Pvt. Ltd is a pioneer and leader in the manufacture of modular furniture in India. Established in 1995, Talin has serviced a high-profile clientele that includes some of the biggest international brands and brings on board an unmatched reputation for innovation and excellence. Talin is led by wealth creators and fresh leaders with experience in design engineering, fabrication and have a deep sense of commitment towards customer satisfaction.

Talin is engaged in the manufacture, supply, and installation of customized modular office furniture such as ergonomic workstations, height-adjustable workstations, executive furniture, storage units, lab tables, woodworks, etc. The company has a diversified product mix to offer to its clients.

Talin workstations create perfect work environments and enhance employee engagement and productivity. The continuous effort of Talin to blend quality and visual appeal results into workstations that are elegant, versatile and durable. The flexible workstation by Talin, namely FLEXIvate, allows the user to modify the desk to the most comfortable height. It enables ergonomic working and ensures a high degree of flexibility. FLEXIvate represents the perfect office workstation which can be used as a typical seated desk and standing desk and allows the user to position the workstation at a level convenient for sitting or standing.



This Environmental Product Declaration covers one of the workstation products named FLEXIvate having 2 motorized options with 2 pax configuration.

The LCA model was created using the GaBi ts Software system for life cycle engineering, developed by Sphera Solutions Inc.

2. General Information

2.1 EPD, PCR, LCA Information

Table 1: EPD Information	
Programme	The International EPD® System, www.environdec.com
Program operator	EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden.
Declaration holder	Talin Modular Office Furniture Systems Pvt Ltd Sy No 189&190, Kacharakanahalli, 15th Cross, 3rd Block, 1st Stage, HBR Layout, Kalyananagar Post, Bengaluru, Karnataka 560043, India
Product	FLEXIvate Workstation
CPC Code	UN CPC 3511
EPD registration number	S-P-02110
Publication date	2021-03-08
Validity date	2026-03-07
Geographical scope	India
Reference standards	IS0 14020:2001, ISO 14025:2006, ISO 14040/44, EN 15804:2019,

Table 2: PCR Information	
Reference PCR	**'FURNITURE, EXCEPT SEATS AND MATTRESSES' Version** 2.01, 2012:19
Date of Issue	2019-08-18 (Version 2.01)

Table 3: Verification Information	
Demonstration of verification	External, independent verification
Third party verifier	Dr Hüdai Kara, Metsims Sustainability Consulting, 4 Clear Water Place, Oxford OX2 7NL, UK Email: hudai.kara@metsims.com

Table 4: LCA Information	
Title	Environmental Product Declaration of FLEXIvate Workstation
Preparer	Dr. Rajesh Kumar Singh thinkstep Sustainability Solutions- a Sphera Company 707, Meadows, Sahar Plaza, Andheri Kurla Road, Andheri East, Mumbai - 400059, India Email: rsingh@sphera.com

2.2 Reference Period of EPD Data

The reference period for the data used within this EPD is 2019-20 (April 2019 to March 2020)

2.3 Geographical Scope of EPD Application

The geographical scope of this EPD is India.

2.4 Additional Information about EPD

This EPD provides information for FLEXIvate Workstation product having 2 motorized options with 2 pax configuration. The EPD is in accordance with ISO 14025. The Life Cycle Assessment (LCA) study carried out for developing this EPD for FLEXIvate workstation as per ISO 14040 and ISO 14044 requirements

Product Category Rules (PCR) for the assessment of the environmental performance of modular furniture (FLEXIvate Workstation) products is 'FURNITURE, EXCEPT SEATS AND MATTRESSES' 2012:19 Version 2.0.

3. Product Description and System Boundaries

3.1 Product Identification and Usage

FLEXIvate Workstation, the flexible workstation is designed to meet your workspace's various needs while enhancing your comfort and productivity. The FLEXIvate workstation allows the user to modify the desk to the most comfortable height. It enables ergonomic working and ensures a high degree of flexibility as per your needs. FLEXIvate represents the perfect office workstation that can be used as a typical seated desk or a standing desk and allows the user to position the workstation conveniently for sitting or standing.

Linak Motorised Columns enable Superior sound free performance, in-built Anti-collision mechanism with a minimum capacity of 80kg load and a maximum speed of 30mm/sec. Multi memory keypad for user-specific height to ensure ergonomic comfort. Min 650mm ht to max 1150mm ht.

Linak App Compatible with mobile technology for ease of operation using Mobile.

Cable beam is provided by mounting it on the metal under structure for seamless wire management horizontally below the tabletop. Cable beam has provision for carrying electrical and data cables in separate C-channels, up to 70 nos. Cat-6 cables can be carried in one C-channel.

The cover section is provided on the cable beam for mounting electrical and data sockets.

The table mounted Flip Top box option can also be provided for fixing electrical and data sockets on the table.

Special wire runners are provided for concealed entry of wires from floor to the cable beam. The snap-fit openable cover section is provided on the wire runners for ease of maintenance.

Desk panels 8mm thick laminated glass, 18/25mm thick soft/magnetic fabric panels, a combination of grid marker and fabric panels, table tops 25mm thick in PLPB/MDF, Under structure/legs made of CRCA Steel with various types of design options and can be integrated with normal 75MM/60MM/50MM Partitions.

The 2 configuration choices are Tabulated below in Table 1.

Table 1 FLEXIvate Workstation Configuration

FLEXIvate Workstation Configuration	Partition Material	Adjustable Height	Dimension (1 seating)
Model 1	Fabric Panel	650mm - 1250mm	1200mm W X 750mm D X 650mm H
Model 2	Fabric Panel	650mm - 1250mm	1500mm W X 750mm D X 650mm H

A breakdown of materials for FLEXIvate Workstation - Model 1 is tabulated below in Table 2

Table 2 Material by % mass for FLEXIvate Workstation (Model 1)

Material	Weight(kg)	% distribution
Steel	92.32	52.23
Aluminium	0.40	0.23
polyester	0.60	0.34
PVC	1.09	0.62
Wood	80.35	45.45
Electronics	2.00	1.13
Total	176.76	100.00

4. LCA

4.1 Information Sources and Data Quality

Talin Modular Office Furniture Systems Pvt. Ltd. provided primary data with very high data quality for FLEXIvate workstation product. The quality of the LCI data for modelling the life cycle stages, assessed according to ISO 14044 (2006) is judged by its precision (measured, calculated or estimated), completeness (e.g. are there unreported emissions), consistency (degree of uniformity of the methodology applied on an LCA serving as a data source) and representativeness (geographical, time period, technology). To achieve this, industry data collected directly from the producers were used wherever possible. All upstream LCA data from the GaBi 9 Professional database from Sphera Solutions Inc.

4.2 Methodological Details

4.2.1 Declared unit

The declared unit is 1 piece of FLEXIvate workstation with 2 pax configuration, i.e. the number of seats is 2.

4.2.2 Selection of application of LCIA categories

A list of relevant impact categories and category indicators is defined and associated with the inventory data. The methods that have been selected for the evaluation of environmental impacts are mentioned in Table 3. These indicators are scientifically and technically valid.

The environmental impact per declared unit for the following environmental impact categories were reported in the EPD according to PCR 'FURNITURE, EXCEPT SEATS AND MATTRESSES' 2012:19 Version 2.01 and divided into core, upstream (and downstream, if included) module.

Table 3 Environmental impacts indicators

Impact Indicator	LCIA Method	Unit
Global Warming Potential (GWP-total)	IPCC 2013	kg CO_2 equivalent
Global Warming Potential (GWP-fossil)	IPCC 2013	kg CO_2 equivalent
Global Warming Potential (GWP-biogenic)	IPCC 2013	kg CO_2 equivalent
Global Warming Potential land use and land use change (GWP-luluc)	IPCC 2013	kg CO_2 equivalent
Acidification Potential	CML	mol SO_2 equivalent
Eutrophication Potential (EP-freshwater)	CML	kg PO_4^{3-} equivalent
Photochemical Ozone Creation Potential	CML	kg ethene equivalent
Abiotic depletion potential – Elements	CML	kg Sb equivalent
Abiotic depletion potential – Fossil fuels	CML	MJ, net calorific value
Water scarcity potential	AWARE 2016	m^3 world equivalent deprived

Table 4 Resources use parameters

Parameter	Unit
Primary energy resources – Renewable	MJ, net calorific value
Primary energy resources – Non-Renewable	MJ, net calorific value
Secondary Material	kg
Renewable secondary fuels	MJ, net calorific value
Non-renewable secondary fuels	MJ, net calorific value
Net use of fresh water	m^3

The consumption of resources declared per functional unit is reported in the EPD. Input parameters, describing resource use are shown in Table 4.

Table 5 Other Environmental Indicators

Parameter	Unit
Human toxicity, cancer (recommended and interim)	cases
Human toxicity, non-canc. (recommended and interim)	cases
Fresh water ecotoxicity (recommended and interim)	PAF.m3.day
Land Use	species. yr

Table 6 Waste Categories

Waste categories	Unit
Hazardous waste disposed	kg
Non-hazardous waste disposed	kg
Radioactive waste disposed/stored	kg

Table 7 Indicators describing output flows

Parameter	Unit
Components for reuse	kg
Material for recycling	kg
Materials for energy recovery	kg
Exported energy, electricity	MJ
Exported energy, thermal	MJ

4.3 Cut-off Criteria

Life Cycle Inventory data for a minimum of 99 % of total inflows to the core module shall be included. Inflows not included in the LCA shall be documented in the EPD. Input and output data have been collected through detailed questionnaires which have been developed and refined. In practice, this means that, at least, all material flows going into the production processes (inputs) higher than 1% of the total mass flow (t) or higher than 1% of the total primary energy input (MJ) are part of the system and modelled in order to calculate elementary flows. Inputs with less than 1% of mass flow and less than 1% of the total primary energy input are also considered as all these were environmentally relevant.

4.4 Allocation

No allocation has been done. As no co-products are produced, the flow of materials and energy and the associated release of substances and energy into the environment is related exclusively to the FLEXIvate model produced. Any allocation performed in the background processes is according to the PCR.

4.5 System Boundaries

The system boundary for FLEXIvate Workstation represents a Cradle-to-Grave, which covers production Phase, packaging phase and End of life phase. The production phase includes the raw material extraction, production of the raw materials, auxiliary material production, upstream

transportation, manufacturing process of the final product and its packaging. End of life phase includes waste processing for reuse, recovery or recycling and disposal.

4.5.1 Geographic System Boundaries

The geographical coverage of this declaration covers the production of all the 2 models of FLEXIvate Workstation in India. Wherever possible, the country-specific (India) boundaries have been adapted, and other datasets were chosen from the EU if no India datasets were available.

4.5.2 Temporal System Boundaries

The data collection is related to one year of operation, and the year of the data is indicated in the questionnaire for each data point. The majority of data was derived for the year 2019-20 (April 2019 to March 2020) and is believed to be representative of the production of product 'FLEXIvate Workstation' in India during this time frame.

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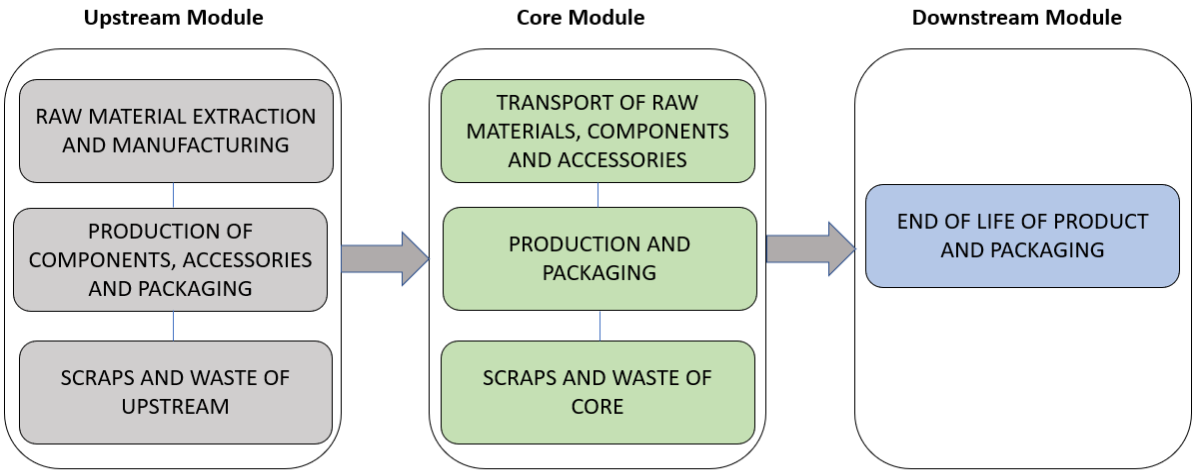

Figure 1 Details of system boundary included in the study

4.5.3 Technology coverage

The exact technological configuration was used for the various process's operation of its plant for efficient performance in production and minimizing environmental impacts. It was assumed that secondary data from databases that were used for this assessment, were temporally and technologically comparable to that of primary data and within the temporal coverage already addressed.

4.6 Software and database

The LCA model was created using the GaBi 9 Software system for life cycle engineering, developed by Sphera Solutions Inc. The GaBi database provides the life cycle inventory data for several of the raw and process materials obtained from the upstream system. Detailed database documentation for GaBi datasets can be accessed at http://www.gabi-software.com/international/support/gabi/gabi-database-2020-lci-documentation.

4.7 Comparability

According to the standards, EPDs do not compare the environmental performance of products in the sector. Any comparison of the declared environmental performance of products lies outside the scope of these standards and is suggested to be feasible only if all compared declarations follow equal standard provisions.

4.8 Results:

The tables below show the life cycle environmental impacts for 1 piece of workstation with 2 pax (seating) configuration.

4.8.1 FLEXIvate Workstation Model 1: The tables below show the LCIs, LCIAs Resource use, Waste categories for FLEXIvate Workstation Model 1 configuration.

Figure 2 FLEXIvate model 1

Table 8 LCIA and LCI Result for FLEXIvate Workstation Model 1

Environmental Impacts	Unit	Upstream	Core	Downstream
Global Warming Potential (GWP-total)	kg CO_2 eq.	433	7.79	-134
Global Warming Potential (GWP-fossil)	kg CO_2 eq.	550	7.78	-138
Global Warming Potential (GWP-biogenic)	kg CO_2 eq.	-117	-2.43E-03	4.03
Global Warming Potential land use and land use change (GWP-luluc)	kg CO_2 eq.	0.44	1.59E-02	-8.64E-03
Acidification Potential	kg SO_2 eq.	2.77	0.09	-0.33
Eutrophication Potential (EP-freshwater)	kg PO_4^{3-} eq.	0.20	4.11E-03	-1.90E-02
Photochemical Ozone Creation Potential	kg C_2H_4 eq.	0.24	4.13E-03	-6.35E-02
Abiotic depletion potential – Elements	kg Sb eq.	2.65E-02	4.61E-07	-2.22E-03
Abiotic depletion potential – Fossil fuels	MJ	7131.74	78.64	-1273.58
Water scarcity potential	m^3	51.90	0.85	-10.90

Table 9 LCIA and LCI Result for FLEXIvate Workstation Model 1

Resource Use		Unit	Upstream	Core	Downstream
Primary energy resources – Renewable	Used as energy career	MJ	2157.71	12.93	84.53
	Used as materials	MJ	0	0	0
	Total	MJ	2157.71	12.93	84.53
Primary energy resources – Non-renewable	Used as energy career	MJ	7455.94	81.07	-1228.56
	Used as materials	MJ	0	0	0
	Total	MJ	7455.94	81.07	-1228.56

Secondary Material	kg	0	0	0
Renewable secondary fuels	MJ	0	0	0
Non-renewable secondary fuels	MJ	0	0	0
Net use of fresh water	m^3	1.92	0.03	-0.26

Table 10 LCIA and LCI Result for FLEXIvate Workstation Model 1

Waste categories	Unit	Upstream	Core	Downstream
Hazardous waste disposed	kg	1.47E-04	5.79E-08	-1.51E-04
Non-hazardous waste disposed	kg	24.67	2.94E-02	110.70
Radioactive waste disposed/stored	kg	0.14	9.26E-04	-1.98E-04
Parameter	**Unit**	**Upstream**	**Core**	**Downstream**
Components for reuse	kg	0	0	0
Material for recycling	kg	0	0	78.86
Materials for energy recovery	kg	0	0	0
Exported energy, electricity	MJ	0	0	0
Exported energy, thermal	MJ	0	0	0
Other Indicators	**Unit**	**Upstream**	**Core**	**Downstream**
Human toxicity, cancer (recommended and interim)	cases	2.46E-06	1.19E-08	1.47E-06
Human toxicity, non-canc. (recommended and interim)	cases	5.62E-05	6.59E-07	1.41E-04
Fresh water ecotoxicity (recommended and interim)	PAF.m3.day	72576.80	4350.49	-4634.72
Land Use	species. yr	2.12E-07	1.44E-09	-2.99E-08

4.8.2 FLEXIvate Workstation Model 2: The tables below show the LCIs, LCIAs Resource use, Waste categories for FLEXIvate Workstation Model 2 configuration.

Figure 3 FLEXIvate Model 2

Table 11 LCIA and LCI Result for FLEXIvate Workstation Model 2

Environmental Impacts	Unit	Upstream	Core	Downstream
Global Warming Potential (GWP-total)	kg CO_2 eq.	424	7.79	-133
Global Warming Potential (GWP-fossil)	kg CO_2 eq.	570	7.78	-138
Global Warming Potential (GWP-biogenic)	kg CO_2 eq.	-146	-2.43E-03	4.9

Global Warming Potential land use and land use change (GWP-luluc)	kg CO_2 eq.	0.47	1.59E-02	-8.48E-03
Acidification Potential	kg SO_2 eq.	2.87	0.09	-0.33
Eutrophication Potential (EP-freshwater)	kg PO_4^{3-} eq.	0.22	4.11E-03	-1.87E-02
Photochemical Ozone Creation Potential	kg C_2H_4 eq.	0.26	4.13E-03	-6.32E-02
Abiotic depletion potential – Elements	kg Sb eq.	0.03	4.61E-07	-2.22E-03
Abiotic depletion potential – Fossil fuels	MJ	7505.51	78.64	-1269.47
Water scarcity potential	m^3	53.70	0.85	-10.90

Table 12 LCIA and LCI Result for FLEXIvate Workstation Model 2

Resource Use		Unit	Upstream	Core	Downstream
Primary energy resources – Renewable	Used as energy career	MJ	2562.47	12.93	85.01
	Used as materials	MJ	0	0	0
	Total	MJ	2562.47	12.93	85.01
Primary energy resources – Non-renewable	Used as energy career	MJ	7455.94	81.07	-1228.56
	Used as materials	MJ	0	0	0
	Total	MJ	7844.20	81.07	-1224.34
Secondary Material		kg	0	0	0
Renewable secondary fuels		MJ	0	0	0
Non-renewable secondary fuels		MJ	0	0	0
Net use of fresh water		m^3	2.02	0.03	-0.26

Table 13 LCIA and LCI Result for FLEXIvate Workstation Model 2

Waste categories	Unit	Upstream	Core	Downstream
Hazardous waste disposed	kg	1.52E-04	5.79E-08	-1.51E-04
Non-hazardous waste disposed	kg	27.81	0.03	130.79
Radioactive waste disposed/stored	kg	1.43E-01	9.26E-04	-1.57E-04
Parameter	**Unit**	**Upstream**	**Core**	**Downstream**
Components for reuse	kg	0	0	0
Material for recycling	kg	0	0	78.86
Materials for energy recovery	kg	0	0	0
Exported energy, electricity	MJ	0	0	0
Exported energy, thermal	MJ	0	0	0
Other Indicators	Unit	Upstream	Core	Downstream

Human toxicity, cancer (recommended and interim)	cases	2.91E-06	1.19E-08	1.48E-06
Human toxicity, non-canc. (recommended and interim)	cases	6.02E-05	6.59E-07	1.41E-04
Fresh water ecotoxicity (recommended and interim)	PAF.m3.day	75600	4350	-4590
Land Use	species.yr	2.16E-07	1.44E-09	-2.99E-08

4.9 Interpretation

The interpretation of the average results for 1 piece of a workstation with 2 pax configuration for FLEXIvate Workstation-Model 1 is given in Table 14.

Table 14. Interpretation of most significant contributors to life cycle parameters

Parameter	Most significant contributor
Global Warming Potential (GWP)	The GWP is 306.79 kg CO_2 eq. (GWP fossil is 419 kg CO_2 eq., GWP biogenic is -113 kg CO_2 eq. and GWP land use change is 0.45 kg CO_2 eq.) with major contribution from Upstream (433.00 kg CO_2 eq.), Core (7.79 kg CO_2 eq.), and Downstream (-134.00 kg CO_2 eq.). Considering Upstream impacts as 100%, manufacturing contributes the highest (~99.03%, majorly from powder coating of metal components and control box with control switch).
Acidification Potential	The Acidification Potential is 2.52 kg SO_2 eq. with a major contribution from Upstream (2.77 kg SO_2 eq.), Core (0.09 kg SO_2 eq.), Downstream (-0.33 kg SO_2 eq.). Considering Upstream impacts as 100%, manufacturing contributes the highest (98.82%, majorly from powder coated parts and control box with control switch).
Eutrophication freshwater	The Eutrophication freshwater is 0.19 kg PO_4^{3-} eq. with major contribution from Upstream (0.20 kg PO_4^{3-} eq.), Core (4.11E-03 kg PO_4^{3-} eq.), Downstream (-1.90E-02 kg PO_4^{3-} eq.). Considering Upstream impacts as 100%, manufacturing contributes the highest (91.65%, majorly from powder coated parts and control box with control switch).
Photochemical Ozone Creation Potential (POCP)	The POCP is 0.18 kg C_2H_4 eq. with major contribution from Upstream (0.24 kg C_2H_4 eq.), Core (4.13E-03 kg C_2H_4 eq.), Downstream (-6.35E-02 kg C_2H_4 eq.). Considering Upstream impacts as 100%, manufacturing contributes the highest (~98.50%, majorly from powder coated parts and control box with control switch).
Abiotic depletion potential – Elements	The is Abiotic depletion potential – Elements is 2.42E-02 kg Sb eq. with major contribution from Upstream (2.65E-02 kg Sb eq.), Core (4.61E-07 kg Sb eq.), Downstream (-2.22E-03 kg Sb eq.). Considering Upstream impacts as 100%, manufacturing contributes the highest (~99.99%, majorly from control box with control switch).
Abiotic depletion potential – Fossil fuels	The Abiotic depletion potential – Fossil fuels is 5936.81 MJ with major contribution from Upstream (7131.74 MJ), Core (78.64 MJ), Downstream (--1273.58 MJ). Considering Upstream impacts as 100%, manufacturing contributes the highest (~98.56%, majorly from powder coated parts and control box with control switch).

Water Scarcity:	The Water Scarcity is 41.85 m^3 eq. with major contribution from Upstream (51.90 m^3), Core (0.85 m^3), Downstream (-10.90 m^3). Considering Upstream impacts as 100%, manufacturing contributes the highest (~98.62%, majorly from powder coated parts and control box with control switch).

Concluding, the study provides a fair understanding of environmental impacts during the various life cycle stages of the product. It also identifies the hotspots in the value chain where improvement activities can be prioritised, and accordingly, an investment can be planned. The scope covers the ecological information to be divided into raw material production, transportation and manufacturing along with its packaging.

4 Other Environmental Information

The constituent materials used within our products are responsibly sourced and we apply the principles of Sustainable Development and Environmental Stewardship as a standard business practice in our operations. Protecting the environment by preserving non-renewable natural resources, increasing energy efficiency, reducing the environmental emissions, limiting the impact of materials transportation to and from our operations is part of our way in doing business.

Products do not contain any substances that can be included in "Candidate List of Substances of Very High Concern for Authorization" and raw materials used are not part of the EU REACH regulation.

5 References

- GaBi 9_2020: Dokumentation der GaBi-Datensätze der Datenbank zur Ganzheitlichen Bilanzierung. LBP, Universität Stuttgart und PE International, 2012
- GaBi 9_2020: Software und Datenbank zur Ganzheitlichen Bilanzierung. LBP, Universität Stuttgart und PE International, 2012
- ISO 14020:2000 Environmental labels and declarations - General principles
- ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO 14040:2006 Environmental management- Life cycle assessment - Principles and framework
- ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
- PCR 2012:19, Product Category Rules (PCR) for 'FURNITURE, EXCEPT SEATS AND MATTRESSES' Version 2.01