ENVIRONMENTAL STATEMENT FY'20

(Data period: April 2019 - March 2020)

EMAS
VERIFIED
ENVIRONMENTAL
MANAGEMENT
ES-CAT-000034

DENSO

INDEX

1.1 Introduction

DENSO CORPORATION was established in Japan in December 1949, and is devoted mainly to the production of components for the automotive sector.

Aware of the environmental repercussions of its activities and based on its philosophy, DENSO formulated the DENSO Environmental Charter and the DENSO Environmental Action Plan in 1993 to clarify its fundamental mind-set and to define the steps toward realizing the goals of the Environmental Action Plan.

Fundamental principles

DENSO philosophy

DENSO Environmental Charter

DENSO PHILOSOPHY PRINCIPLES

- Customer satisfaction through high quality products and services
- Global growth through anticipation of change
- Environmental preservation and harmony with society
- Corporate vitality and respect for individuality

Planning and objectives

DENSO Environmental Action Plan. Ecovision 2025.

Environmental Protection Activities and Management

Management and activities based on Environmental Management Systems (ISO 14001) and Energy Management Systems (ISO 50001).

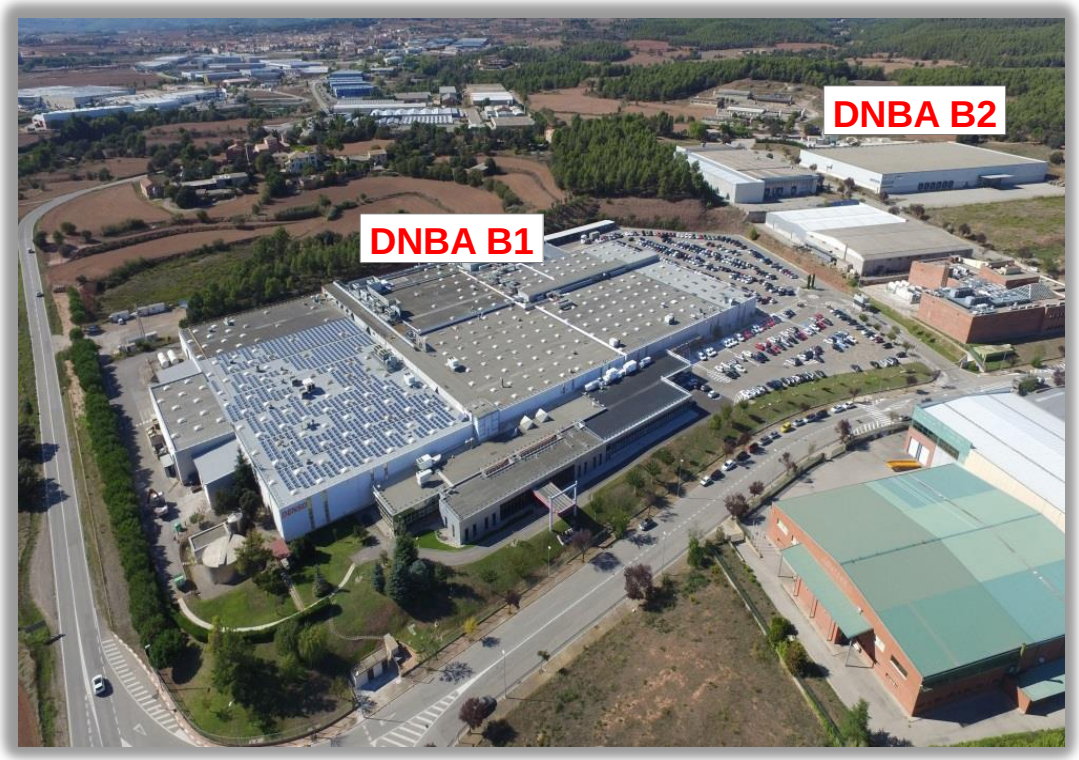
Through the "DENSO Environmental Action Plan", DENSO CORPORATION promotes the obtaining of ISO 14.001 certification for all the plants of DENSO around the world.

DENSO BARCELONA, S.A.U (DNBA) has been the group's first plant in Europe and one of the first in the world to be certified with the Energy Management System ISO 50.001:2011.

DENSO BARCELONA, S.A.U (DNBA), with the code CNAE 2931 "Manufacture of electronic and electrical equipment for motor vehicles", has certified its Environmental Management System according to ISO 14001 (since December 1998), EMAS II Regulation (CE) nº 761/2001 (since March 2000), EMAS III Regulation (CE) nº 1221/2009 (since 2009) new EMAS regulation (UE) 2017/1505 (since 2018), modification of annex IV according to Regulation (CE) nº 2018/2026 (since 2020) and ISO 50.001 (since 2016). For which purpose this Statement has been drawn up.

1.2 Company location

Denso Barcelona, S.A.U. is located in the industrial estate "Pla de Santa Anna" in the municipal district of "Sant Fruitós de Bages" in Bages country (province of Barcelona). The construction takes up a total area of 46.200 m^2 between the two buildings DNBA B1 and DNBA B2.



1.3 Activity of the company

Denso Barcelona, S.A.U forms part as a subsidiary and production plant of the DENSO CORPORATION multinational. The design work of the products made in DNBA is done along with the DENSO design centers in Europe and Japan.

The customer contacting sales work is carried out entirely through the pertinent sales offices: DENSO INTERNATIONAL EUROPE, with headquarters in the Holland, and DENSO INTERNATIONAL AMERICA INC., with headquarters in United Estates.

According to the EMAS register, the company activity is based on the manufacture of the following products for the automotive industry at the DNBA facilities on calle Sakura of the "Pla de Santa Anna" industrial estate in Sant Fruitós de Bages:

- Electronic.
- Cockpit Systems.
- AD & ADAS.

YEAR	EVENTS	PRODUCTS	CERTIFICACIONS AND AWARDS
1991	Name change: VND -> NDMB (ND 100%).	DLI.	Certificación FORD Q1.
1993-95	1st Company expansion.	ECU (E/G, A/C), Distributor / Igniter.	Q.A. Award Generalitat. TOYOTA Achievement in Quality.
1996	Name change: NDMB -> DNBA.	BODY ECU.	ROVER Supplier Excellence Gold Award.
1997-99	2nd Company expansion.	D-DLI + S-IIC.	ISO 9001, QS 9000, ISO 14001. TOYOTA Outstanding award.
2000-03	3rd Company expansion. X Anniversary.	STICK COIL, AFM, EVRV, O2 SENSOR, METER CLUSTER.	EMAS certificate. TOYOTA: Outstanding in Delivery & Cost, Recognition in Project mgt & Delivery.
2004-05	4th Company expansion.	AC, PANEL T5.	Certification ISO/TS-16949.
2006	5th Expansion area ELEC.		TOYOTA: Achievement in Supply, recognition in Quality, outstanding in Cost.
2007	6th Expansion area ELEC.		TOYOTA: Achievement in Supply, Outstanding Award Delivery.
2008	7th Expansion area WH.	POWER MANAGEMENT ECU.	TOYOTA superior in Quality.
2009			TOYOTA superior in Quality, recognition in Cost, recognition in project management.
2010		DNBA starts Meter crystals production in the new area of Molding.	EOA Certificate (Economic Operator Administrator). TOYOTA best Supplier. EMAS X years of Environmental Best Practices.
2011-12	XX Anniversary.	Finish the Coils 6T production (power units). Finish the Coil production.	OHSAS 18001 Certificate. VOLVO Quality Excellence. SUZUKI Best 1-1-1 activity.

DENSO

YEAR	EVENTS	PRODUCTS	CERTIFICACIONS AND AWARDS
2013		BPC (Blower Pulse Controller), TPMS (Tire Pressure Monitor System).	"Territori Award" Col·legi d'Enginyers Tècnics Industrials de Manresa.
2014	First phase 8th Expansion. New technical center, office expansion & new entrance.	Head Up Display. Shift by Wire.	GM Quality Excellence Award.
2015	Second phase 8th Expansion. New MNT Center & New Inspection Center Laboratory.	Visio Park. Finish O2 SENSOR production.	ISO 50001 certificate.
2016	XXV Anniversary New Cantine expansion.	Aluminum injection Trial production.	Toyota Self-Reliant Proj. Management Award, Delivery Award and Quality Award. Volvo Quality Excellence. Best Company Facilities of Europe. TOYOTA: "Achievement award" Supply. Excellent Factory.
2017	9th Company expansion. New Warehouse DNBA B2.		IATF 16949 certificate. TOYOTA: Best Quality. CIAC award to the best automative company in Catalonia. Best Company Facilities of Europe.
2018	10th Expansion area ELEC (phase 10.1).	Finish STICK COIL production.	President Award. Excellent Factory. Sant Fruitós City Hall Award "Best environmental project". TOYOTA: Best supply.
2019	10th Expansion area ELEC (phase 10.2).		Toyota Quality Silver Award

1.4 General parameters

The annual global production in DNBA in the fiscal year 2019 has been **370,5 M€.** We define annual production as the production obtained and quantified in euros.

To make this quantification in euros, we preset a sale price for each product with a gross added value (difference between the amount produced and the material costs) of **173,1 M€.**

The number of employees in fiscal year 2019 was **940.**

Aerial photograph of Denso Barcelona, S.A.U.

1.5 Products manufactured in Denso Barcelona, S.A.U

The products made by DNBA are divided in to three large automotive business groups and contribute to covering all of the business managements:

Electronic Systems (BPC, Engine ECU, Power Management, SBW, TPMS, Smart ECU, Main Body and A/C ECU) and **Cockpit Systems, AD & ADAS** (Meter, Head Up Display, A/C Panel and Visio Park).

PROCESS A:

Assembly of surface components on the top face of the printed circuit and fusion welding.

Insertion of conventional components (axial and radial).

Insertion of components of nonconventional forms.

Assembly of surface components on the lower face of the printed circuit.

Assembly of the connector, power transistors, relays, etc. and wave soldering.

Functional verification of the product.

Ant humidity coating.

Final assembly of the product (box, cover, etc.) and labeling.

Final check and inspection of the product.

Package and shipping.

PROCESS B:

Aluminium injection for the manufacture of the product exterior housing.

Assembly of surface components on the top and bottom face of the printed circuit.

Insertion of conventional components (axial and radial).

Insertion of components of nonconventional forms.

Assembly of the connector, power transistors, relays, etc. and wave soldering.

Functional verification of the product.

Ant humidity coating.

Final assembly of the product (box, cover, etc.) and labeling.

Final check and inspection of the product.

Package and shipping.

METER CLUSTER/HUD:

Plastic injection for the manufacture of the lower housing.

Printed circuit assembling (in previous process) until the welding step.

Functional verification of the product.

Ant humidity coating and cutting of the printed circuit board.

Assembling of the different parts.

Lower case screwing

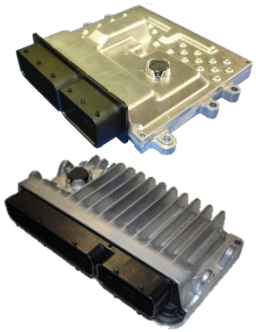
Assy calibration and powder cleaning

Front crystal assembling

Functional verification at room temperature and visual inspection.

Package and shipping.

- Electronic
- Cockpit Systems
- AD & ADAS



Engine ECU controls fuel injection and engine parameters

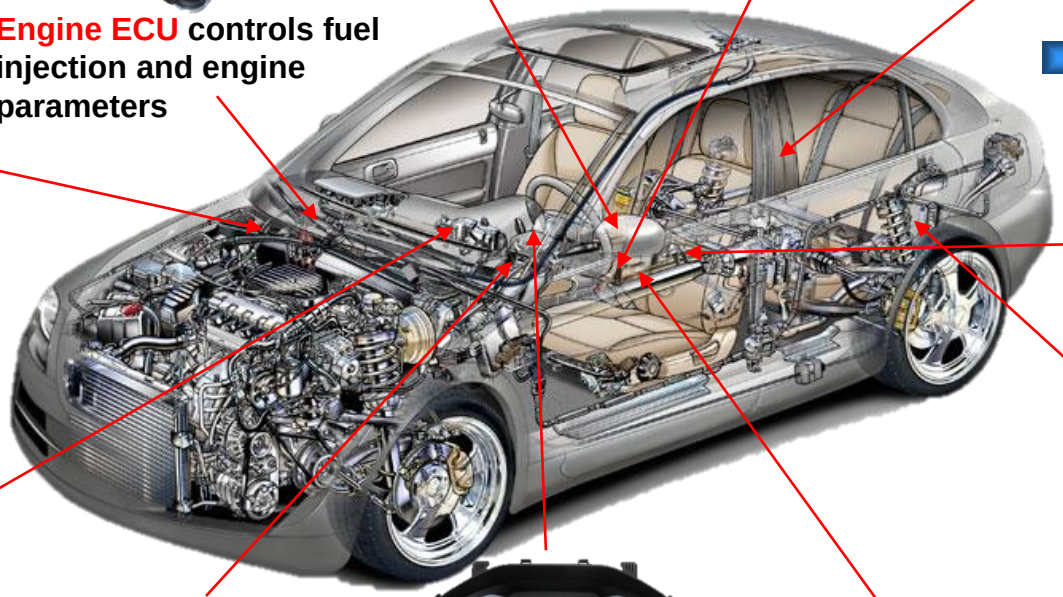
Electrical Power Management controls

SBW (Shift By Wire) Automatic Gear Shiftting Control

TPMS Tire Pressure Monitor System

Smart ECU controls the centralized lock (keyless)

BPC (Blower Pulse Controller) to control HVAC motor



Main Body controls (Alarm, keys, comm, etc)

A/C Panel to control cabin temperature

A/C ECU to control A/C Compresor.

Head Up Display info projection in windshield

Meter Instrument Panel Inform driver

Visio Park to support parking operation

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The main customers of Denso Barcelona, S.A.U are:

Certifications:

ISO/TS 16949

ISO 50001

ISO 14001

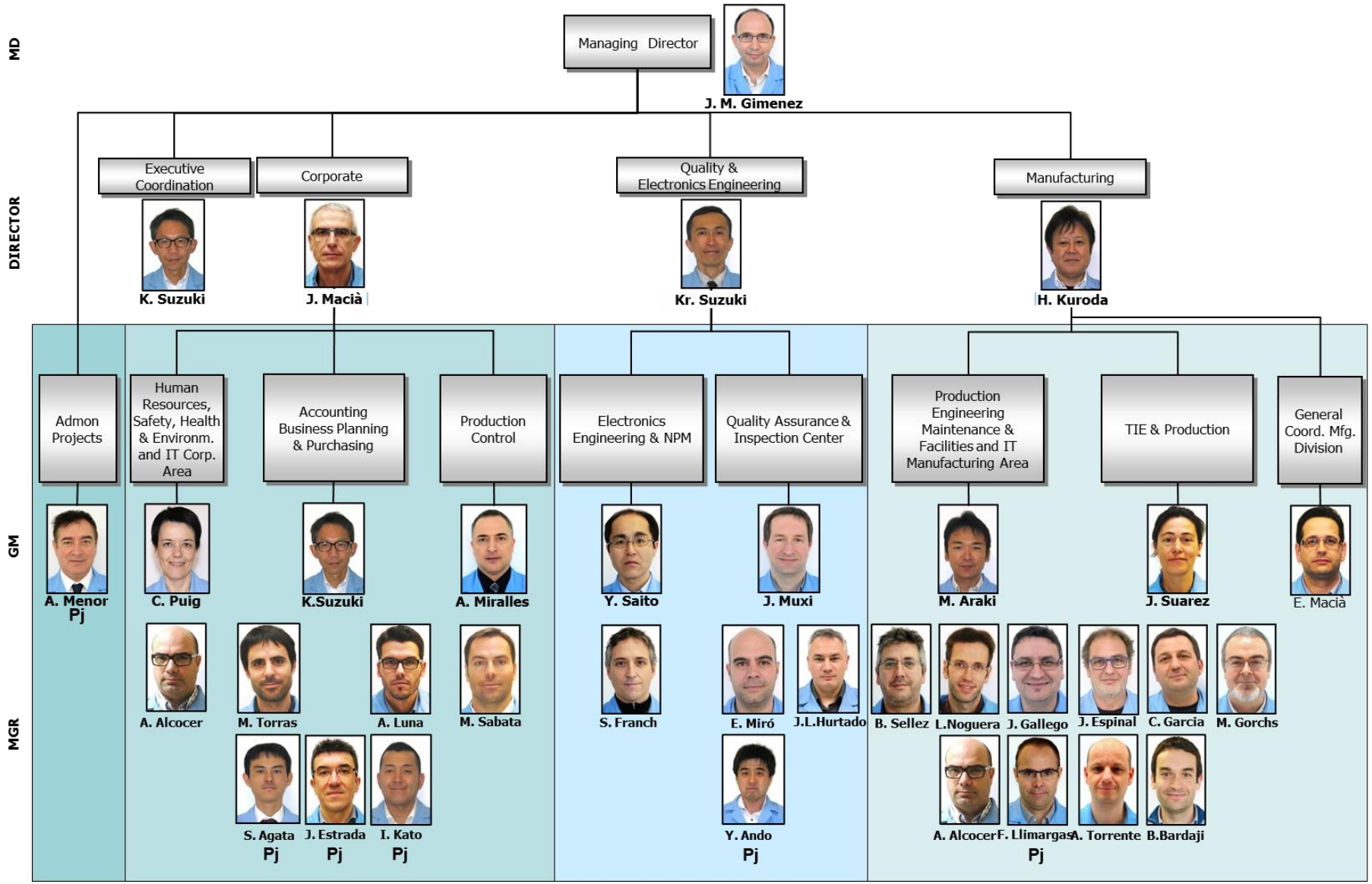
EMAS

OEA

OHSAS 18001

ESD

1.6 Flowchart



2.1 Description of the Environmental and Energy Management System

The Environmental and Energy Management System implemented by Denso Barcelona, S.A.U has been prepared by following the guidelines and complying with the requirements of the following standards:

- UNE-EN ISO 14.001. Environmental Management Systems. Specifications with guidance for use.
- Council Regulation (UE) 2017/1505, allowing voluntary participation by companies in the industrial sector in a community eco-management and audit scheme.
- UNE-EN ISO 50.001. Energy Management Systems. Specifications with guidance for use.

The foundation of the Environmental and Energy Management System of Denso Barcelona, S.A.U is the **Environmental & Energy Policy**, whose basic principles are compliance with legislation and other requirements, the prevention of pollution and continuous improvement.

The Environmental and Energy Policy has been defined by the Top Management on the basis of the DENSO philosophy principle: "Environmental preservation and harmony with the society."

Starting from the Environmental & Energy Policy and having in mind, among other things, significant environmental aspects and legal and other requirements, the annual **Environmental and Energy Targets** and the **Program** for their implementation are planned.

To achieve fulfilment of the Environmental and Energy Policy, the Management System has been documented and structured in the following way:

- Environmental Manual: It describes the responsibilities of the organization and the elements that the Management System is composed of, making reference to the procedures related with each element.
- Procedures: They describe the operations to be carried out for the fulfilment of the system requirements.
- Work Instructions. They describe in a more detailed way specific operations related with the procedures.

The Managing Director of Denso Barcelona, S.A.U, Josep Manel Giménez, as the person responsible for the company has delegated to the General Director of Environment and Safety Cristina Puig and the Sub-Director of Environment and Safety, Xavier Trias, the authority and responsibility for assuring that the requirements of the Management System are fulfilled, also creating for that purpose the Environmental and Energy Committee made up of members of the various sections of the company.

Periodic reviews of the Management System through internal audits and external ones (maintenance audits by the certification body), as well as the review by Top Management, provide for the continuous improvement of the system.

2.2 Environmental and Energy Policy Denso Barcelona, S.A.U

We will now set out the environmental policy of DENSO BARCELONA, S.A. The area of application of our policy is the manufacturing of electronic, connected & cockpit and safety components for the automotive industry. Under this policy, we engage in the conservation of local environment and also global environment, contributing with the society for a better environment.

- To develop an open relationship with the society and put information available to the public on the environmental repercussions of our activities.
- To adopt the possible measures to reduce the environmental risks of our activities, focusing on continuous improvement in the environmental conservation and energy performance.
- To identify and to evaluate the environmental repercussions of our activities, pre-evaluating the repercussions of new activities, products and processes as well as examining any significant impact of these activities on the environment.
- To carry out actions to prevent, eliminate or reduce the emission of pollutants making a responsible usage of resources and thus mitigating the Climatic Change.
- To heighten the workers' awareness and to train them in order to promote a positive attitude towards environmental preservation and rational use of energy.
- To inform the external companies working in DNBA about the need for adopting our environmental and energetic attitude and principles.

•To review the Environmental & Energy Management System periodically, keeping in mind any potential significant impacts of our activities on the environment.

•To contribute to the continuous improvement of our environmental and energetic performance with the commitment to ensure the availability of information and resources needed to achieve the objectives and targets, with a view to reduce the environmental impacts as much as possible.

•Purchase energy efficient products and services and gradually promote the renewable energy.

•To keep watch over the fulfilment of the energy and environmental legislation applicable and other requirements relating to the use and energy consumption, energy efficiency and environmental aspects of DNBA.

Note: For the manufacturing of the products, account is taken of the customers' environmental requirements through Denso Japan.

•Denso Barcelona, S.A.U undertakes to examine and to review its environmental policy periodically and to make it known to all its associates and to the public in general.

SHE SUB-DIRECTOR

X.TRIAS

SHE GENERAL DIRECTOR

C.PUIG

DNBA MANAGING DIRECTOR

J.M.GIMÉNEZ

Date :
13/06/2019 (16th review)

2.3 Analysis of the parties interested in the DNBA Environmental Management System

DENSO GROUP
(ISO 14001, ISO 50001, EMAS and Action Plan ECOVISION 2025)

COMMUNITY AND SOCIETY
(Legal compliance, absence of noise, smoke, smell)

MANAGEMENT
(Values, policy, environmental and energy targets, …)

STATE ADMINISTRATION
(Legal compliance)

WORKERS
(Well-being, comfort, awareness, …)

LOCAL ADMINISTRATION
(Legal compliance, CSR activities)

SUPPLIERS, CUSTOMERS AND END USERS
(Specific requirements, prohibition of substances, …)

DNBA ENVIRONMENTAL MANAGEMENT SYSTEM

The significant life-cycle environmental aspects are detailed below. These are evaluated using qualitative and quantitative criteria regarding applicable quality and legal requirements. To determine which aspects are significant, they are assessed according to established criteria under normal, abnormal and emergency conditions.

Direct significant aspects:

SIGNIFICANT ASPECT	PROCESS/FACILITY	IMPACT	RECOMMENDED IMPROVEMENTS/ACTIONS
Generation of contaminated absorbent materials.	Production, maintenance and warehouse processes.	Accumulation in landfills and atmospheric emissions derived from incineration.	Reduction of contaminated absorbent materials. Gradual introduction of the use of washable cloths in other production processes (expansion of this activity).
Generation of effluent contaminated by rainwater in a fire.	The whole factory.	Rainwater pollution.	All fire-fighting prevention measures are taken as per regulations.
CO generation.	F41. Thermal Oxidation Reducer (TOR).	Decrease in air quality.	In FY'20, the Thermal Oxidation Reducer (TOR) system will be replaced by an activated carbon biofilter system. This will be a non-combustion system that will not produce CO.
Noise emission day and night.	Rural house located near DNBA.	Noise production close to the legal limit.	Any new facility set up in the DNBA complex must be acoustically insulated.
Natural Resources - Electricity	General facilities - Air conditioning.	Energy consumption. Natural resource depletion and CO_2 emission.	Continue with the good management and control of energy consumption in the new extensions made.
Natural resources - Gas.	B2 installations (radiant pipes).	Gas consumption. Natural resource depletion and CO_2 emission.	Study the installation of industrial fans to break the thermal stratification, thus reducing gas consumption and improving thermal comfort.

Indirect significant aspects: None.

4.1 Principal environmental improvements FY2019

- **Energy vector**

Electricity consumption:

In order to become an efficient factory energy, since 11 years DNBA carried out various activities to reduce the electricity consumption and thus indirectly reduce the emission of CO_2 emitted into the atmosphere.

Realized activities:

1.- Holding of "Energy Saving Day". On the days of the inventory, in order to save energy on this day and to raise the awareness of the workers, an energy-saving awareness raising and monitoring campaign will be carried out.

2.- Holding of "Winter Eco Day". The temperature in the offices is dropped by 2°C to make us reflect on the economic, social and environmental cost of the use of energy for our comfort.

3.- Energy Consumption - " Just In Time".

Various activities are carried out during the year to reduce the energy change, or the energy consumption that is not useful. These activities are called ***"Just in Time activities", and should only be used when needed***.

There are several examples of these activities:

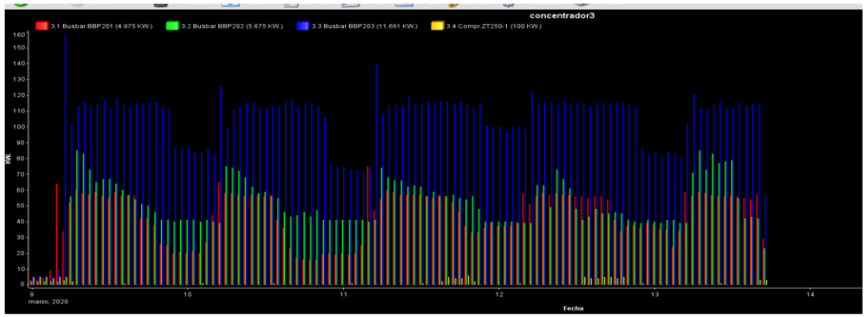
ECOVISION 2025 - Energy management -

2

SECTION: **PRODUCTION**	LINE: **TOP 24 (> 15KWh)**	PROCESS:

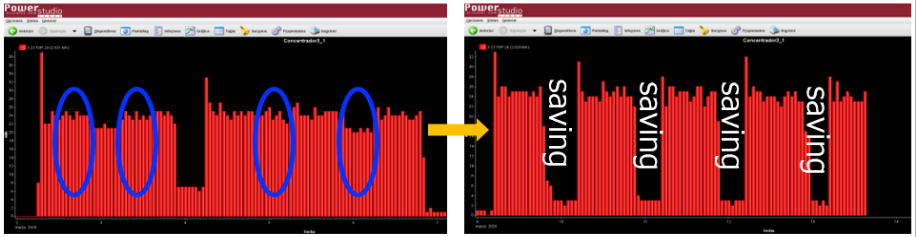
ACTIVITY: **TRIAL: ONE ENERGY METER IN EACH NEW PRODUCTION LINE WITH HIGH CONSUMPTION**

BEFORE: One meter for all TOP lines. It's **not possible** detect muda energy in the individual lines.



No data No management.

AFTER: One individual Meter in TOP 24 allow us detect the **muda energy** in the Production Lines.



We detect a Energy Muda in the TOP 24, and after this warning, PRO section improve the procedure.
ENERGY SAVING IMPROVEMENT

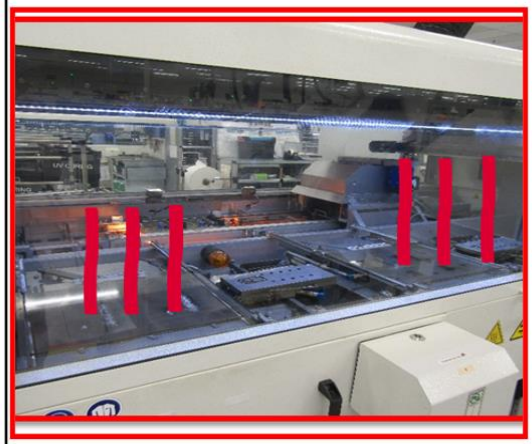
YEARLY EFFECT	INVESTMENT: 684€ MONTHLY SAVING: 3.800 KWh / 437 € / 1.170 Kg CO_2 ROI: 1,5 mesos	APPLICATION DATE: Feb'19 (trial)

3.- Energy Consumption - " Just In Time".

ECOVISION 2025 – One commodity one action

SECTION: **SOLDERING**	LINE: **SELECTIVE SOLD.**	PROCESS: **SOLDERING MACHINE**
ACTIVITY **DESCRIPTION: ENERGY REDUCTION IN SOLDERING 15 & SOLDERING 14 LINES. (Just in time activity)**		

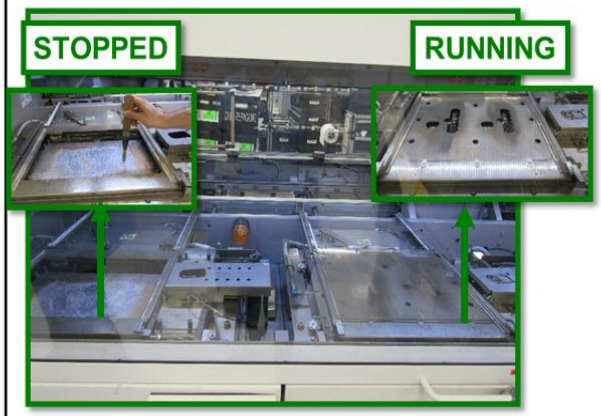
BEFORE:



One tin bath was necessary for producing two tin baths was running

MUDA ENERGY

AFTER:



When only is necessary one tin bath running, the other one is stopped.

YEARLY EFFECT	**ECONOMICAL COST SAVING: 6.416 €** **CO2 SAVING: 8.984 kG**	APPLICATION DATE:

3.- Energy Consumption - " Just In Time".

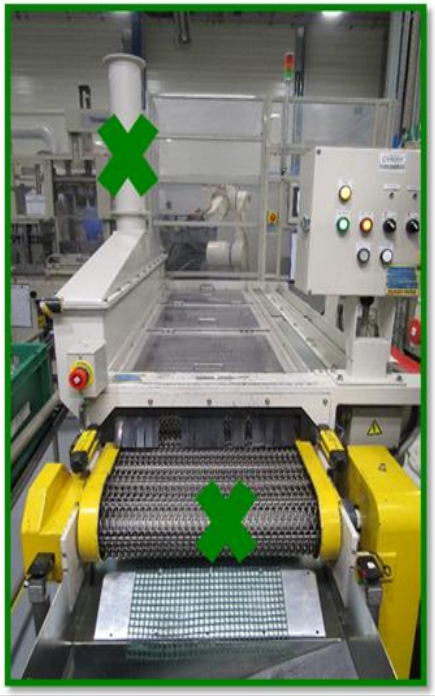
SECTION: **PARTS**	LINE: **DIE CASTING**	PROCESS: **COOLING MACHINE**
ACTIVITY **DESCRIPTION: ENERGY REDUCTION IN COOLING PROCESS (just in time activity)**		

BEFORE:

When robot stop feeding conveyor & cooling don't stop.

MUDA energy

AFTER:



Conveyor and cooling stop when robot doesn't feed.

ENERGY SAVING IMPROVEMENT

YEARLY EFFECT	**ECONOMICAL COST SAVING: 5€** **CO2 SAVING: 13 kg**	APPLICATION DATE: **Conveyor** Dec'1

3.- Energy Consumption - " Just In Time".

SECTION: SUB ASSY	LINE: 3D & TOP SMD	PROCESS: 3D & TAMURA OVENS
ACTIVITY DESCRIPTION: TURN OFF ALL MONITORS AND DISPLAYS THAT ARE NOT NECESSARY		

BEFORE: ALL SCREEN ON 24H



MUDA energy

AFTER: 43 MONITORS ARE OFF MANUALLY & 25 MONITORS ARE OFF AUTHOMTICALLY AFTER 1 MINUTE

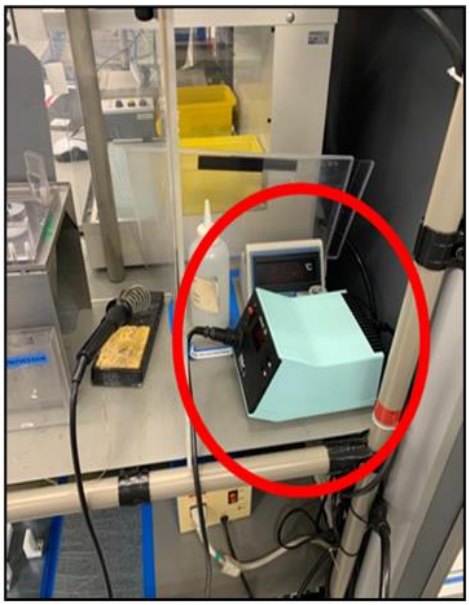



YEARLY EFFECT	ECONOMICAL SAVING: 1.300 € CO2 SAVING: 3.500 Kg	APPLICATION DATE: FY 2019

3.- Energy Consumption - " Just In Time".

SECTION: PRO-ASSY	LINE: METER	PROCESS: REPARATION
ACTIVITY DESCRIPTION: AUTOMATIC TURN OFF IN MANUAL WELDING EQUIPMENTS		

BEFORE: 7 EQUIPMENTS 24 H TURN ON, 21 H OF ENERGY MUDA



MUDA energy

AFTER: 7 EQUIPMENTS ARE OFF AUTHOMTICALLY AFTER 2 MINUTES

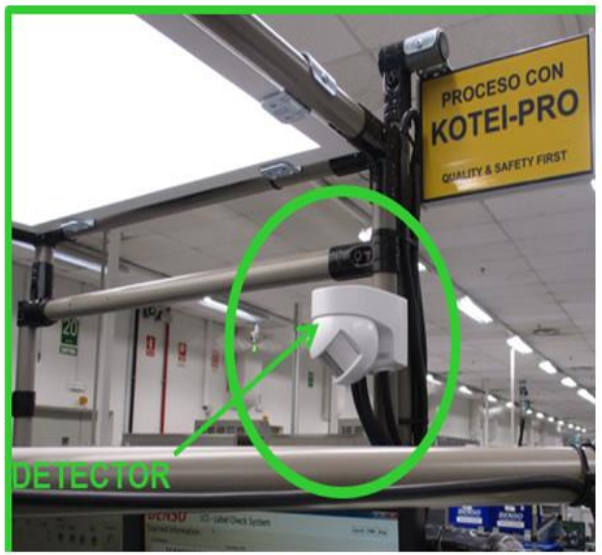
YEARLY EFFECT	ECONOMICAL SAVING : 40 € CO2 SAVING: 107 Kg	APPLICATION DATE: FY 2019

3.- Energy Consumption - " Just In Time".

SECTION: **PRO-ASSY**	LINE: **BODY ASSY**	PROCESS: **FINAL INSPECTION**
ACTIVITY DESCRIPTION: **AUTOMATIC TURN OFF IN MANUAL WELDING EQUIPMENTS**		

BEFORE: THE LIGHTS OF FINAL INSPECTION ARE 24 H ON, INCLUDED REST TIMES, STOP LINE, SHIFT CHANGE.

AFTER: THE LIGHT IS AUTOMATICALLY OFF AFTER 5 MINUTES WITHOUT THE PRESENCE OF A ASSOCIATE.



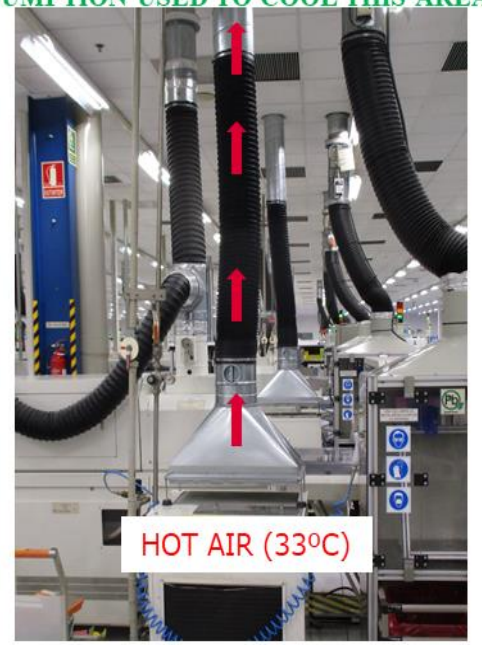
YEARLY EFFECT	**ECONOMICAL SAVING : 34 €** **CO2 SAVING: 94 kg**	APPLICATION DATE: FY 2019 PENDING 5 LINES

4.- Energy Consumption - "Residual Heat".

SECTION: **PRO-SUBASSY**	LINE: **TOP**	PROCESS: **PCB COOLING**
ACTIVITY DESCRIPTION: **AVOID THE RESIDUAL HOT AIR IN THE AIR CONDITIONED PRDUCTION AREA**		

BEFORE: 24 COOLING EQUIPMENTS PRODUCING RESIDUAL HOT AIR IN THE AIR CONDITIONED PRODUCTION AREA.

AFTER: THIS HOT AIR IS EXPULSED OUT OF AIR-CONDITIONED AREA, DECREASING THE HOT CHARGE AND SO DECREASING THE ENERGY CONSUMPTION USED TO COOL THIS AREA.



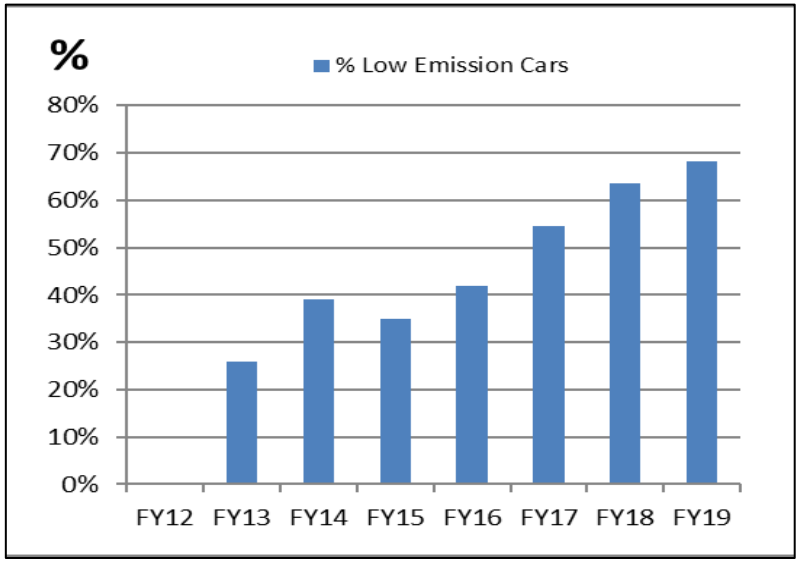
YEARLY EFFECT	**ECONOMICAL SAVING : 32.000 €** **CO2 SAVING: 90.269 Kg**	APPLICATION DATE: FY 2019 (TRIAL) FY 2020 implementation in all lines

- **Emissions Vector**

1.- Cars low-emission: In accordance with the objective created in FY2012, the creation of the **WSHE-C-ENV-006** procedure: **"Environmental criteria in car purchases"**, which requires **all new company cars to be low-emission**. More than half of company cars are already low-emission.

(Diesel <**108 g. CO_2/Km** and Petrol < **120 g. CO_2/Km**).

Low emissions cars in the DENSO BARCELONA car park.

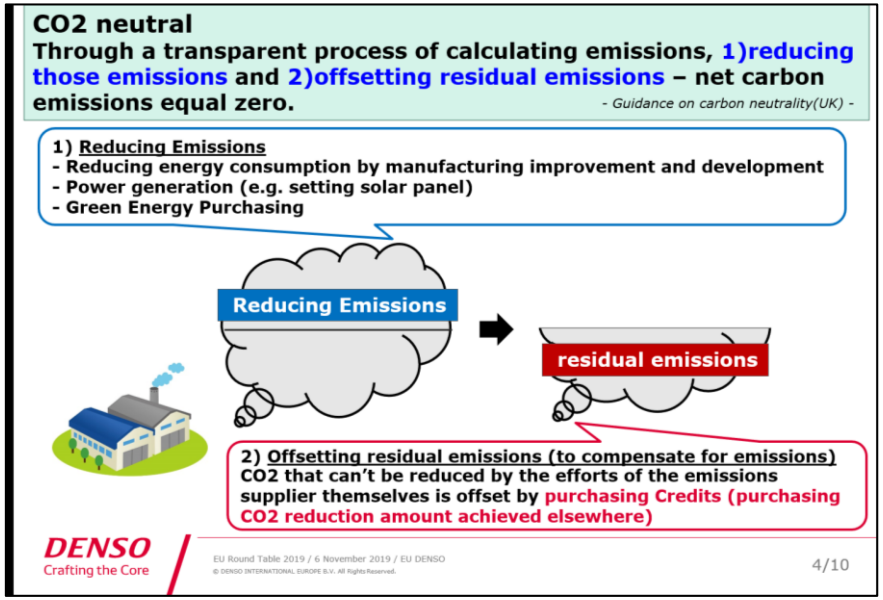


Evolution of the % of low emissions company cars.
In FY 2015 the new regulation is approved.

2.- Green energy purchase.

Incorporating **environmental** and **efficiency criteria** into the **purchasing, contracting and design protocol** is one of the most effective ways to **reduce the environmental impact** of an activity.

Denso Barcelona SAU wants to be a **CO_2 Neutral** company, therefore from **FY2020** it will buy only **energy produced from renewable sources** (solar, wind, hydroelectric, etc.).

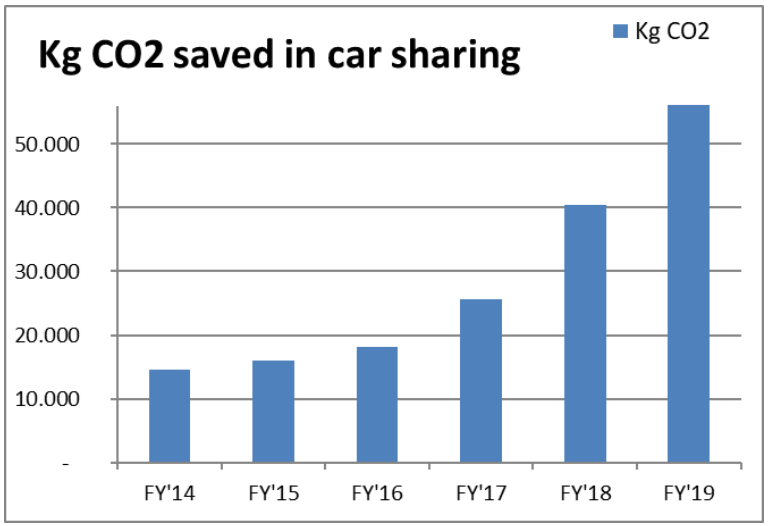


3.- "Car Sharing" promotion activities.

After several promotional campaigns (environmental improvement, reduction in the chance of accidents, financial improvement for staff and easier parking), **the workers now leave 13,000 cars a year in the garage at DNBA**.

57.281Kg*
CO_2 SAVED

12.728
CARS SHARED



** The emission coefficient is set by DNBA and is equivalent to **150mgCO_2/Km** on an average trip of **30Km**.*

4.- Environmental requirements in transport contracts.

Efficiency requirements are added for the **truck fleets** contracted by **Denso Barcelona SAU**. This new requirement **reduces emissions** in the short term and **decreases transport costs** in the medium term.

TRANSPORT	B1-B2	Classification: Euro 6
		GNC or GLP or Hydrogen or Electric
	CELOPLAS	Classification: Euro 6
		GNC or GLP or Hydrogen or Electric
	MILK RUN	Classification: Euro 6
		GNC or GLP or Hydrogen or Electric
	GLOBAL URGENT TRANSPORT	ISO 14001 certificate

- **Waste Vector**

1.- Use of returnable boxes: Within the Recycling Pyramid, reuse comes before recycling, so along this line, DNBA reduces the cardboard and plastic packaging generated. In 2019, a cross-cutting activity was carried out between different sections to reduce cardboard waste derived from single-use packaging.

8- APLICAR CONTRAMEDI-DAS

9- COMPROBAR LA EFICÁCIA DE LAS CONTRAMEDI-DAS

1 — Antes → Después: CKD SMALL REELS PACKAGING

CARDBOARD BOXES	BIG GAP (AIR)	PLASTIC BOXES	SPACE OPTIMIZATION
			
	1 reel / box 128 reels/pl		32 reels / box 512 reels/pl

Cardboard boxes weight = 23,9Kg/pl
Cardboardl boxes volume = 1m³ (aprox.)/pl

Cardboard boxes weight = 0Kg/pl
Plastic boxes volume = 0,25m³ (aprox.)
Same qty. of reels/pallet in only 25% of space

	FY 2019 FORECAST	FY 2019 IMPROVEMENTS SIMULATION
SMALL REELS (UNITS)	46961	
TOTAL CKD PALLETS	367	92
TOTAL CARDBOARD (Tn)	9	0
TOTAL CKD PALLET REDUCTION (PL)	-275	
SEA CONTAINER REDUCTION (UNITS)	-4	
IMPORT SEA TRANSPORT COST	11.723,61 €	2.938,89 €
RETURN SEA TRANSPORT COST	0,00 €	600,00 €
TOTAL SEA TRANSPORT COST REDUCTION	-8.184,72 €	
HANDLING REDUCTION IN B2 W/H (HOURS)	-339	
HANDLING REDUCTION IN B2 W/H (€)	-7.119,00 €	
TOTAL LOG.COST SAVING (TRANSP+MH)	-15.304 €	

2 — Antes → Después: CKD BIG REELS PACKAGING

CARDBOARD BOXES	BIG GAP (AIR)	PLASTIC BOXES	SPACE OPTIMIZATION
			
	1 reel / box 32 reels/pl		8 reels / box 128 reels/pl

Cardboard boxes weight = 17,02Kg/pl
Cardboard boxes volume = 1m³ (aprox.)

Cardboard boxes weight = 0Kg/pl
Plastic boxes volume = 0,25m³ (aprox.)
Same qty. of reels/pallet in only 25% of space

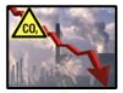
	FY 2019 FORECAST	FY 2019 IMPROVEMENTS SIMULATION
BIG REELS (UNITS)	51911	
TOTAL CKD PALLETS	1622	405
TOTAL CARDBOARD (Tn)	28	0
TOTAL CKD PALLET REDUCTION (PL)	-1217	
SEA CONTAINER REDUCTION (UNITS)	-17	
IMPORT SEA TRANSPORT COST	51.820,38 €	12.937,50 €
RETURN SEA TRANSPORT COST	0,00 €	2.100 €
TOTAL SEA TRANSPORT COST REDUCTION	-36.782,88 €	
HANDLING REDUCTION IN B2 W/H (HOURS)	-374	
HANDLING REDUCTION IN B2 W/H (€)	-7.854,00 €	
TOTAL LOG.COST SAVING (TRANSP+MH)	-44.637 €	

5 WINS ACHIEVEMENTS:


Transport reduction

WH Space


Man-hour reduction



CO_2 reduction


≈ 600 Trees saved

2.- Minimisation of hazardous waste: Changes in the way the cleaning is renewed in order to reduce the waste generated and the resulting costs:

SECTION: **SUB ASSY**	LINE: **TPM**	PROCESS: **WASHING**

ACTIVITY DESCRIPTION: **WASTES REDUCTION IN WASHING PROCESS**

BEFORE: A LOT OF WASTES IN TPM

BEFORE

Once per month washing machine is emptied due to cleaning material contamination.

Visually all material seems contaminated

WASTE :300 liters /month

(Water + Atron+ flux)

Waste management cost 620€/TN

After 1 day due to density of materials the flux contamination separates from the clean part.

Waste Density 20 °C: *< 0,90 g/cm³ (ESTIMATE)*

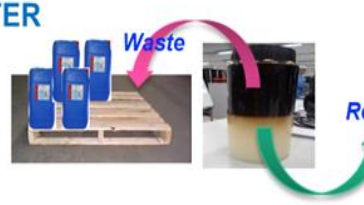
Atron Density 20 °C: *0,92 g/cm³*

Water Density 20 °C: *0,999 g/cm³*

This portion can be Re-Used

AFTER: 30 % OF DANGEROUS WASTES IN THE WASHING PROCESS

AFTER



Transfer clean material part.

WASTE : Only 100 liters/month

(Water + Atron + flux)

YEARLY EFFECT	**2,4 Tn** OF WASTES, **2,4 M3** of WATER AND **1.488 €** every year.	APPLICATION DATE: Jan'2020

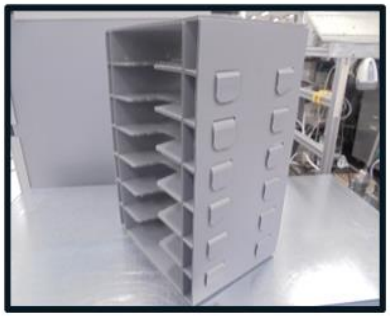
3.- Interior design improvement: Once again a good design can help us reduce waste and manufacturing costs.

SECTION: **PRO-ASSY**	LINE: **ENGINE**	PROCESS: **EG 4, 8, 10 i 13**
ACTIVITY DESCRIPTION: **AUTOMATIC TURN OFF IN MANUAL WELDING EQUIPMENTS**		

BEFORE: PACKAGING MATERIAL FOR SILICON STORAGE BOX CHANGED 2 TIMES / YEAR BECAUSE OFF THE TOP SIDE IS DAMAGED

High cost and wastes generation

AFTER: CREATE A SIMETRIC PACKAGING IT'S POSSIBLE TWIST AND REUSE THE MATERIAL.



Less cost and less wastes generation

YEARLY EFFECT	**ECONOMICAL SAVING : 1.500 €** **WASTES SAVING: 70 Kg** **ROI = 0,4 YEARS**	APPLICATION DATE: FY 2019

- **Sustainable Society**

1.- Environmental requirements for cleaning products. Environmental criteria in cleaning product purchases can really create positive trends in the market and reduce the negative environmental impact of the manufacture of such items.

CATEGORIA	PRODUCTE / SERVEI	SPECS	IMAGE	MANDATORY	RECOMENDATION
CLEANING PRODUCTS	TISSUE PAPER	ECOLABEL or BLUE ANGEL CERTIFICATIONS		X	
	PAPER TOWEL	ECOLABEL or BLUE ANGEL CERTIFICATIONS		X	
	INDUSTRIAL PAPER	ECOLABEL or BLUE ANGEL CERTIFICATIONS		X	
	FLOOR CLEANERS, GLASS CLEANERS, WC CLEANERS, DEGREASE PRODUCTS.	ECOLABEL or AISE, Charter for sustainable cleaning.		X	
		Any Chemical product in DNBA, not homologated by DNBA (Chemical DB)		X	
	PLASTIC BAG	100 % of recycled plastic and 100% recyclable		X	

4.2 Environmental targets FY2019

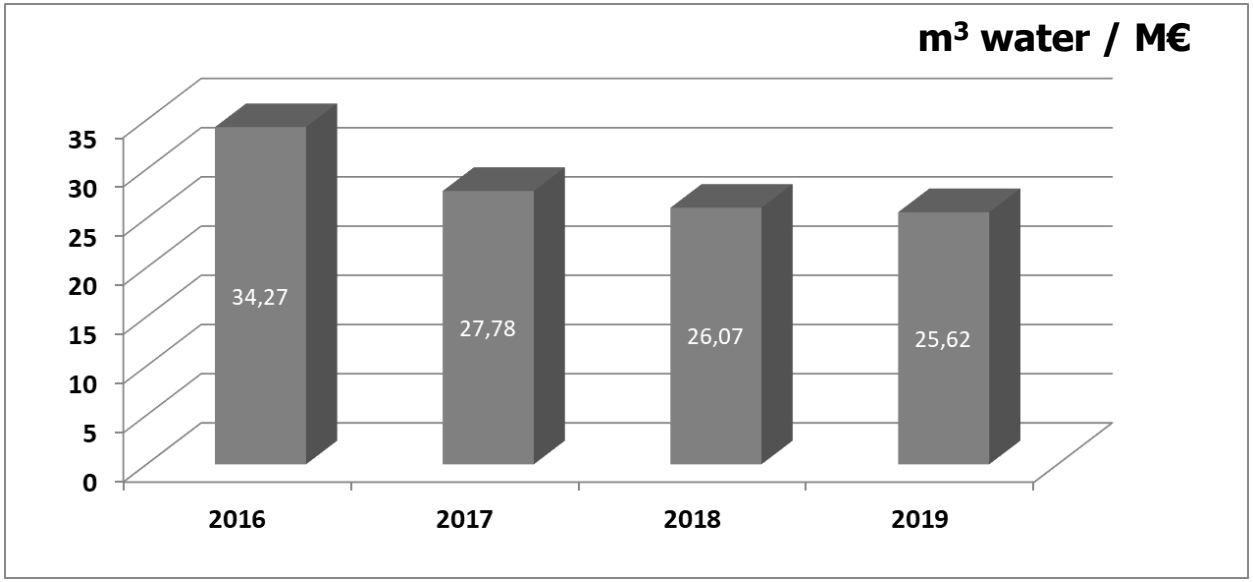
ENVIRONMENTAL ASPECT	TARGETS	FULFILMENT
CO_2 emissions.	Reduce the CO_2 index of FY'18 by 5% (Kg CO_2/M€).	NA. Index reduction by 4.9%. The target fall-short is only one tenth.
	Reduce the CO2 index of FY'18 (LOG) by 1% (Kg CO_2/M€).	OK. The index was reduced by 6.5% due to the use of more efficient transportation of the components supplied to DNBA.
	100% of new company vehicles are low-emission.	OK. It has been possible to ensure that 100% of new company vehicles are low-emission.
	Increase "green parking" users by 10% from FY'18.	OK. A 13.8% increase in "green parking" users was achieved by raising awareness and promoting its use.
Biodiversity.	Carry out a voluntary environmental action to improve biodiversity.	NA. Project cancellation due to other economic priorities.
Waste.	Reduce Total Waste by 3% vs FY'18 (T/M€).	NA. This was reduced by 2.01% due to the increase in the cardboard packaging of the reels and other components.
	Reduce Waste with Management Cost by 1.25% vs FY'18 (T/M€).	OK. This was reduced by 2.54% thanks to a good waste segregation system.

4.3 Environmental targets FY2020 (April 2020 - March 2021)

ENVIRONMENTAL ASPECT	TARGETS	PLANNED ACTIONS
CO_2 emissions.	Reduce the CO_2 index of FY'19 by 5% (Kg CO2/M€).	> Energy efficiency in the ESC. > Use of a more efficient air compressor. > Lower gas consumption in polluted gas filtering.
	Reduce the CO_2 index of FY'18 (LOG) by 1% (Kg CO2/M€).	> Use of more efficient transportation for the components supplied to DNBA.
	100% of new company vehicles are low-emission.	> Control and promote the purchase of these kinds of vehicles.
	Maintenance of the same "green parking" users as in FY'19.	> Raise awareness and promote the use of "green parking".
Biodiversity.	Carry out a voluntary environmental action to improve biodiversity.	> Apply second phase of the project to reduce vending waste generated in DNBA.
Waste.	Not increase Total Waste by more than 3% vs FY'19 (T/M€).	> Apply improvements to reduce packaging waste (KB-BOX boxes).
	Reduce Waste with Management Cost by 1.25% vs FY'19 (T/M€).	> Apply second improvement phase of the project to reduce vending waste generated in DNBA (smaller use of plastic cups, zero waste in the canteen, etc.).
Energy	Implement activated carbon Biofilter system.	> Replacement of the Thermal Oxidation Reducer (TOR) system with the activated carbon biofilter.

5.1 Water

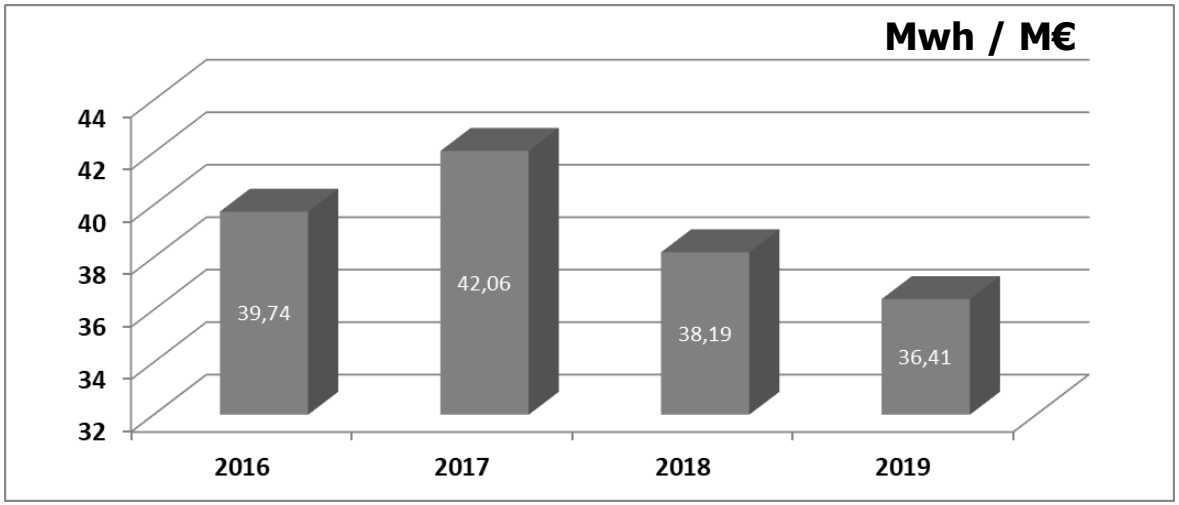
The production processes are dry, so most water is consumed in bathrooms. Highlight Humidification is the activity that requires the largest water supply in the electronics room. Water is also used for cooling towers, cooling circuits, heating and the watering of green areas. Monthly consumption checks are made. A total water consumption of **9.491 m3** was considered in FY2019.
The index used to assess the evolution of water consumption efficiency is the ratio between cubic metres consumed and annual production in millions of €.



The water consumption index remains constant in the financial year 2019, due to the efficient control carried out.

5.2 Electrical Energy

The main form of energy used in the production process is electricity. Electricity is controlled continuously by meters connected to a digital control system.
The total electricity consumption in FY2019 was **14.262 MWh**, of which DNBA generated **0.77 MWh** with solar energy and **13.488 MWh** was brought in from outside. If we divide this amount by Total Production (million €) we get an index of **36.41 MWh/M€**.

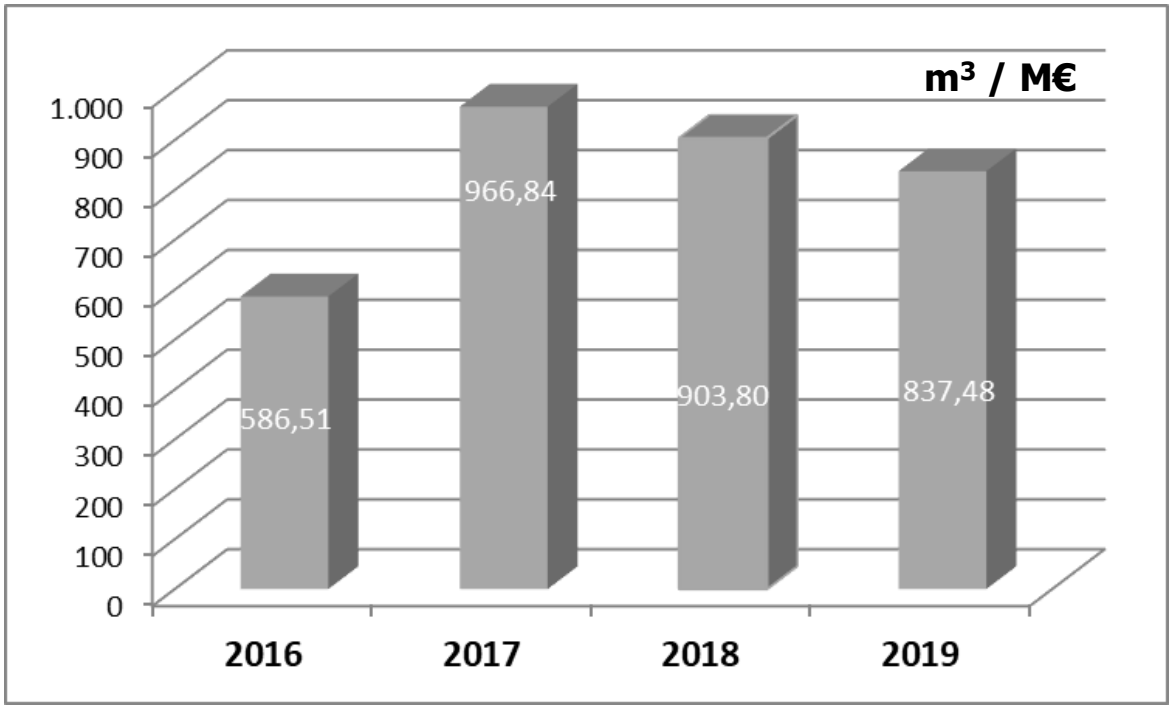


In 2019 we can see a reduction in the energy consumption index as compared with 2018. Despite the last extension of ELEC, this reduction is consolidated due to the use of solar energy, the installation of LED technology lighting throughout the production plant and better management/control of energy consumption.

5.3 Natural Gas

Natural Gas is used as fuel in the heating boilers, in the radiating heating system, in the Thermal Oxidation Reducer (TOR) of the polluted gases and in some production furnaces. A monthly consumption check is made.

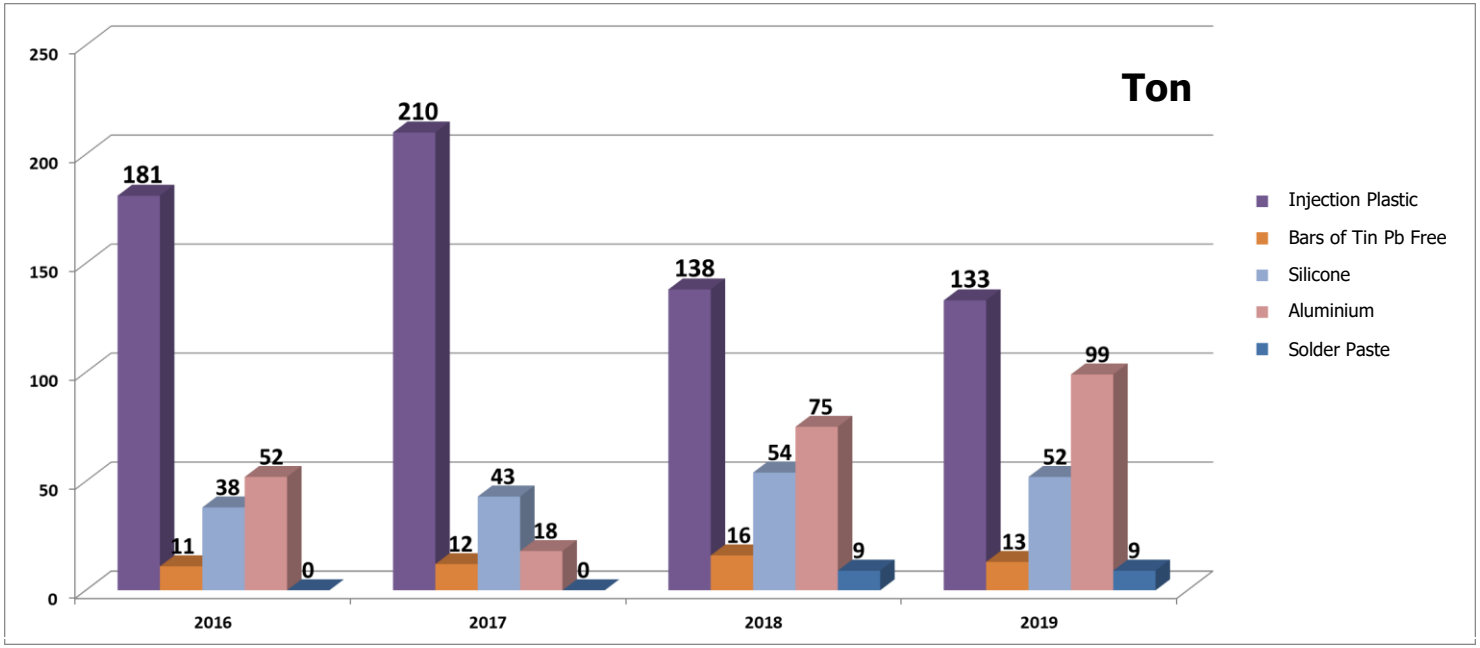
The total Natural Gas consumption in FY2019 was **310,267 m³**. If we divide this by Total Production (million €) we get an index of **837.48 m³/M€**.



In 2019 we see a lower gas consumption, mainly due to good energy management and a milder winter than the previous year.

5.4 Raw Materials

The main raw materials used to manufacture the products in DNBA are the following:



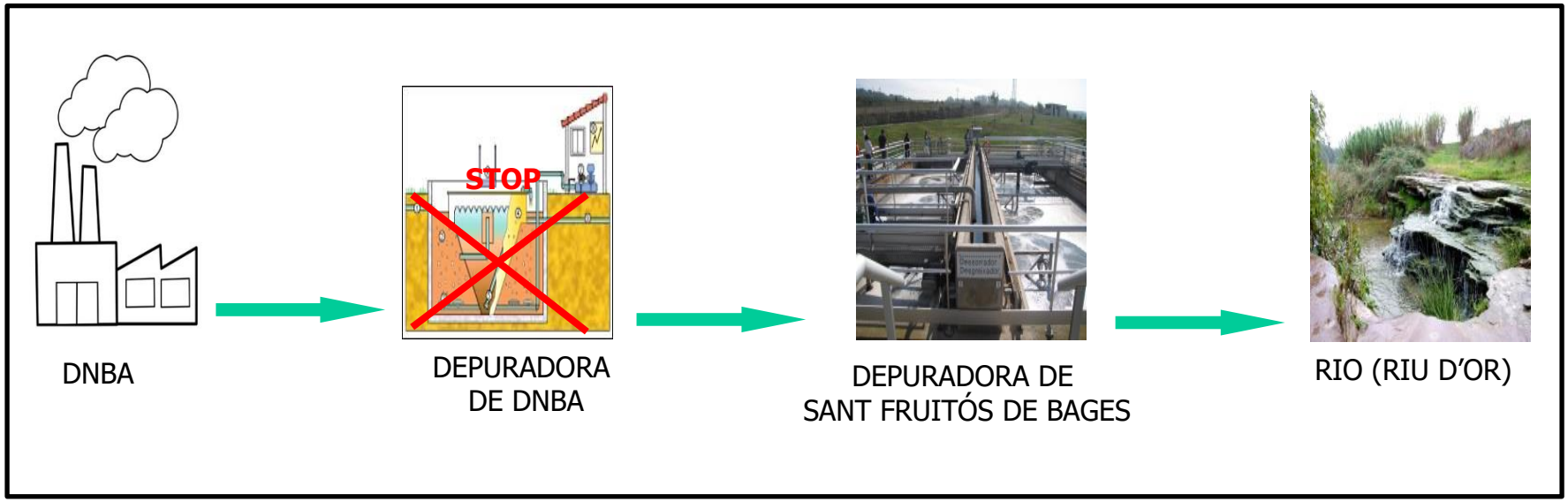
Same trend in plastic consumption in injected parts in DNBA used in making the odometers: thanks to the efficient management of our resources (reduction of scrap) and by producing more parts of a lower weight (change of mix), we consume less plastic making more parts than previous years.

In FY2019, we see an increase in aluminium consumption. This is because the mass production of new products in the Die Casting production process (molten aluminium injection process) has begun.

5.5 Wastewater

On 1 January 2014, the DENSO purifier was annulled, and the waste waters were sent directly into the wastewater drain of the estate to be transferred to the purifiers of the *Mancomunitat de Municipis pel Sanejament* in Sant Fruitós de Bages.

DNBA currently holds Disposal Permit no. Nº ABO REN 2018/075. If there are no changes in the disposal, this permit will be valid until 24 January 2024.



Despite the non-legal obligation to perform self-control analyses, in April 2019 DNBA carried out analyses that reflect the good quality of the discharged waste water, with results well below the legal limits:

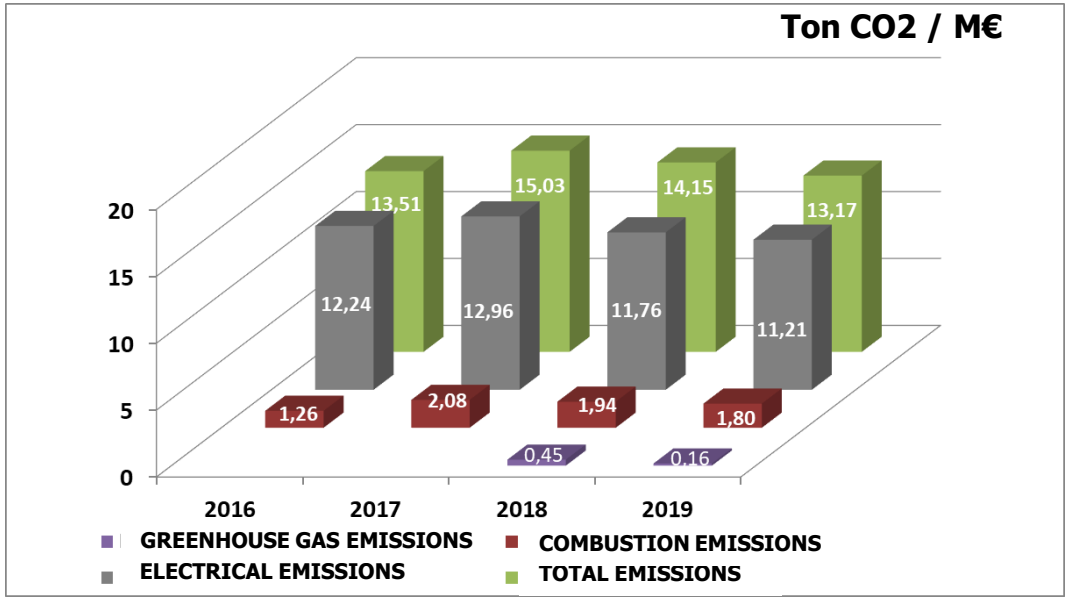
DETERMINATION	RESULT	REGULATION LIMITS
pH	8,7 upH ± 0,4 upH	6 upH - 10 upH
Soluble salts	765 µS/cm ± 12 µS/cm	6.000 µS/cm
Chlorides	63,8 mg/l Cl	2.500 mg/l Cl
Suspended materials	103 mg/l ± 15%	750 mg/l
DQO not decanted	248 mg/l O2 ± 15%	1.500 mg/l O2
DQO not decanted 2h	173 mg/l O2 ± 15%	1.500 mg/l O2
Inhibiting materials 15'	<4 ut ± 50%	25 ut
Total phosphorus	9,4 mg/l P ± 14%	50 mg/l P
Kjeldahl nitrogen	48,8 mg/l N ± 11%	90 mg/l N

5.6 Atmospheric emissions

5.6.1 Green house emissions effect (CO2 equivalent)

Below are the CO2 data in equivalent emissions (due to consumption of electricity and gas), according production.

The conversion factors used by DNBA to transform into Kg CO_2 equivalent from Kwh is **0,308.***
The conversion factors to transform Kg CO_2 equivalent from m^3 of Natural Gas is **2,15*.**



** The conversion factor taken from the Office of Climate Change of the Government of Catalonia in 2016 is 0,308 Kg/Kwh and that used for Natural Gas is 2,15.*

From fiscal year 2018, greenhouse gas emissions (equivalent CO_2) from refrigerant gases (leaks in equipment and installations) are also taken into account.

5.6.2 Air emissions

The atmospheric emissions are mainly due to the varnishing operations in the electronic product production (COV's) and the radiating pipes heating boilers and burners (CO, NO_x).

DNBA is currently waiting for the last emissions check to be made due to the procedures with the Administration for the substantial change in the new environmental licence. While waiting for the procedures with the Administration to be resolved, in 2019 DNBA measured the atmospheric emissions as a self-control to ensure regulatory compliance.

The mass flow of NO_x emitted in the last analysis in 2019 was 0,2368 Kg/h, total 1.255,9 Kg/year.

The mass flow of COV's emitted in the last analysis in 2019 was 0,190 Kg/h, total 1.007,8 Kg/year.

The mass flow of Particles emitted in the last analysis in 2019 was 0,0184 Kg/h, 97,6 Kg/year.

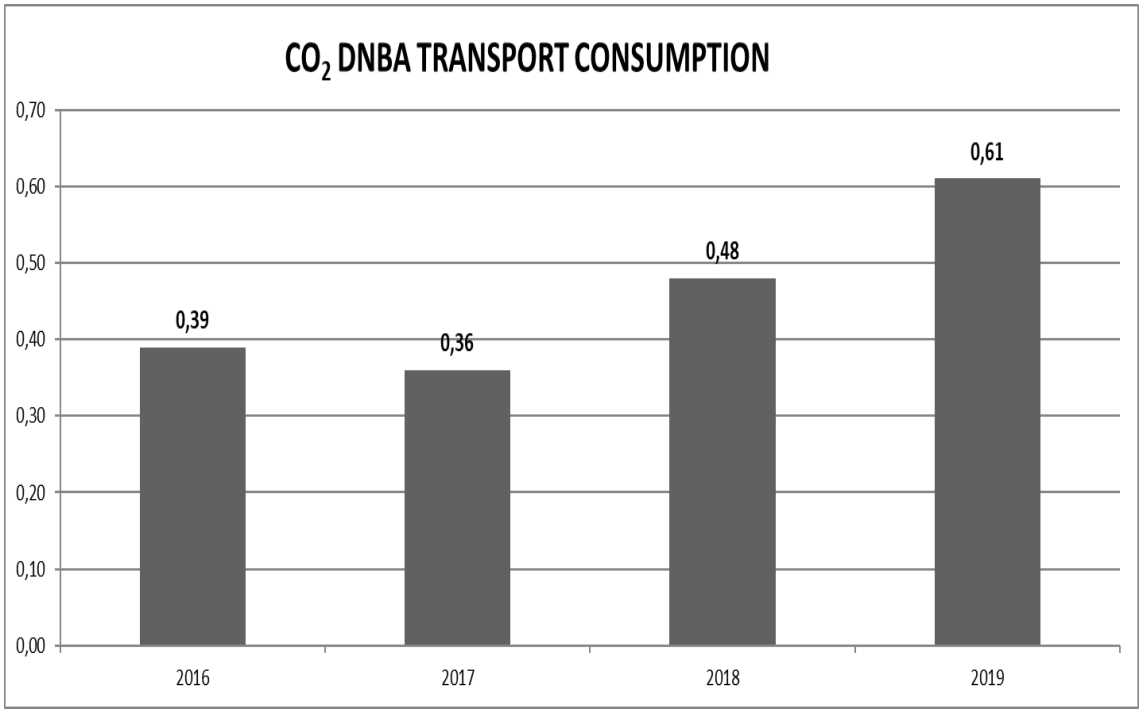
The boilers and radiating pipes are checked periodically to ensure that the burner is working properly, giving efficient combustion and therefore reducing atmospheric pollution.

Burner of one of the radiating pipes

DNBA Boiler Room

5.6.3 Transport air emissions.

Every quarter, DNBA checks the CO_2 emissions produced by DNBA transport. Basically suppliers in Catalonia.



In 2019 we can see an increase in pollutant emissions (CO_2 and NO_x). This is due to the incorporation of a new supplier from Portugal. This increases the distance of the transportation route and directly affects the index.

*The emissions factor is set by the DNBA group and is equivalent to **2,58Kg CO2/l*** (calculation using internal methodology).*

5.7 Noise

Controls noise levels are carried out periodically by DNBA. From the environmental point of view, only the external noise will be taken into account in this statement.

Measurements are taken every 4 years (*). They are also made if there is any change that might affect noise emissions.

The applicable limit in all the points, Are those that correspond to the map of acoustic Sant Fruitós de Bages. In this case the DNBA activity is affected by two areas:

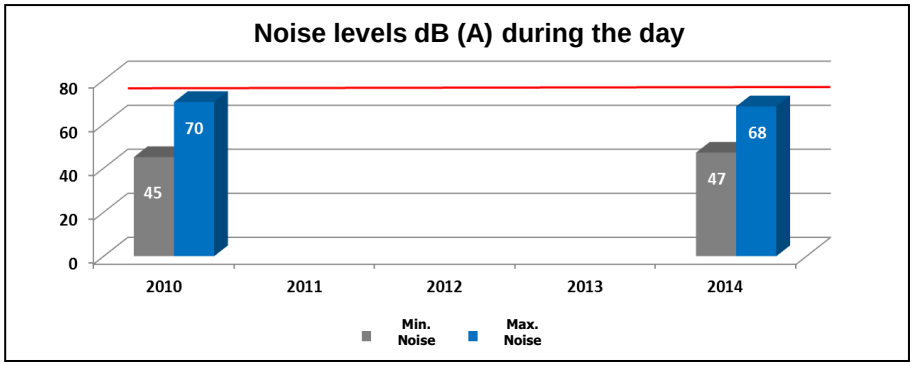
1. **Industrial Area** (C2): low acoustic Sensitivity (**75 dB** from 7h to 23h and **65 dB** from 23h to 7h).

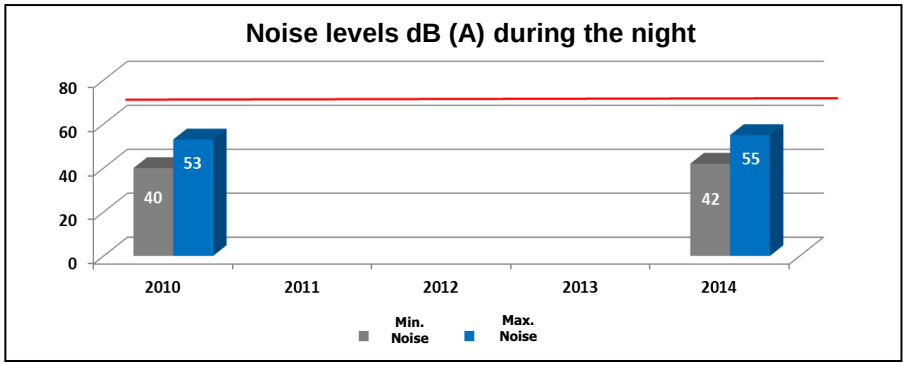
2. **Isolated cabin** (A3) (Casagemes): high acoustic sensitivity (**55 dB** from 7h to 23h and **45 dB** from 23h to 7h).

(*) DNBA is currently waiting for the last sound emissions check to be made due to the procedures with the Administration for the substantial change in the new environmental licence.

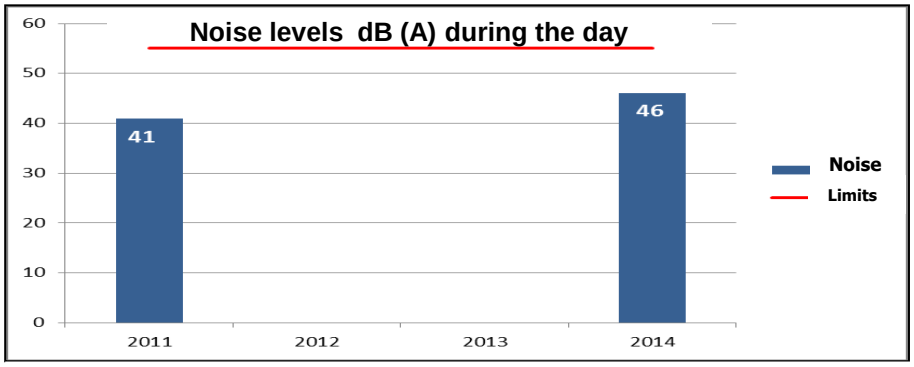
In both cases DNBA complies with these legal limits.

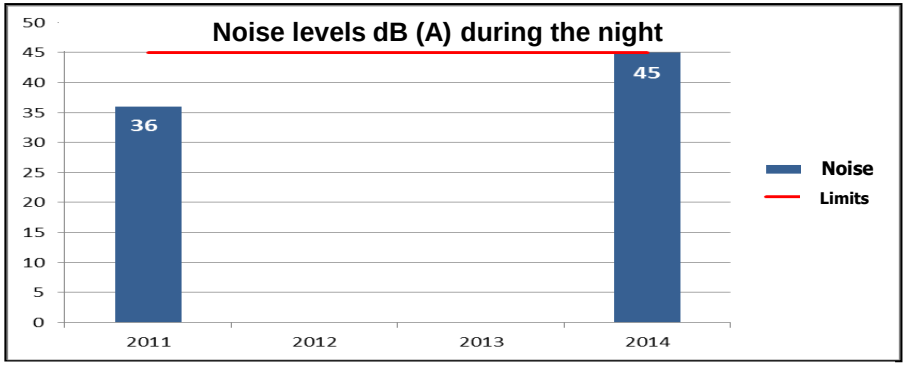
Industrial area (C2):





Isolated cabin (A3):





We can see the compliance with the legal limits of the acoustic map of Sant Fruitós de Bages. We see that the noise received in the isolated cabins is very close to the limits, which might be due to modifications in the rooftop installations of other neighboring warehouses. Even so, all the new facilities that have been built in the sector of the DENSO roof nearest the cabin are soundproofed.

Throughout FY2017, DNBA made a study to check the fulfilment of the Municipal Ordinance regarding the limits of interior and exterior acoustic inmission established in Acoustic Pollution Protection Law 16/2002 and its appendices, modified by Decree 176/2009.

According to these regulations, the maximum emission noise level authorised for alarms extending must be 85dB(A). The study precisely determined the noise levels of the exterior intrusion alarm (which may be triggered at times when the company is closed), as well as the exterior emergency alarm in both DNBA and DNBA B2.

➢ The emergency alarm systems in DNBA and DNBA B2 at no time exceed the legal limit of 85dB(A):

	Measurement result	Legal limit
DNBA	Not going outside	85 dB(A)
DNBA B2	Between 75.6 and 81.2 dB(A)	

➢ The intrusion alarms in DNBA any DNBA B2 do not exceed the legal limit of 85dB(A) either:

	Measurement result	Legal limit
DNBA	Between 79.8 and 83.5 dB(A)	85 dB(A)
DNBA B2	Between 81.6 and 84.6 dB(A)	

5.8 Wastes

During FY 2019, in the process of production and auxiliary activities will produce about **1.353,94 Tons** of waste. DENSO BARCELONA, S.A.U has the Wastes Productor code P 10335-1. The most representative forms are:

WASTE	CODE	TREAT.	2016		2017		2018		2019	
			tn	tn/M€	tn	tn/M€	tn	tn/M€	tn	tn/M€
Banal waste (CSR)	200199	T12	18,26	0,06	22,56	0,07	26,66	0,08	21,98	0,06
Paper and cardboard	200101	V11	286,26	0,97	310,48	1,01	396,65	1,12	388,93	1,05
Wood	150103/200138	V15	118,39	0,40	136,10	0,44	182,12	0,52	179,37	0,48
Slag Sn/Pb	100401/160303	V41	0,40	0,00	0,35	0,00	0,30	0,00	0,37	0,00
Slag Sn/Ag	100809/160304	V41	3,57	0,01	4,55	0,02	5,34	0,02	5,85	0,02
Waste metal	200140/120103/160214/160216/120113	V41	85,05	0,29	105,77	0,34	206,20	0,58	151,25	0,41
Solvents and other organic substances	140603	V21	6,69	0,02	2,94	0,01	3,99	0,01	3,11	0,01
Empty drums	150110/160304	V51	10,15	0,03	10,30	0,00	9,56	0,03	8,60	0,02
Residual oil	130205	V22	0,40	0,001	0,36	0,00	0,45	0,00	0,00	0,00
Plastic	150103/200139	V12	232,92	0,79	287,56	0,97	367,60	1,04	466,12	1,26
Light containers	150105	V12	7,84	0,03	7,16	0,02	5,87	0,02	5,30	0,01
Contaminated absorbents	150202	T21	17,06	0,06	17,65	0,06	22,91	0,06	17,54	0,05
Aqueous liquids containing dangerous substances	161001	T31	3,73	0,01	4,29	0,01	5,17	0,01	5,24	0,01
Drill waste	120109	T31	4,06	13,02	7,18	12,92	9,22	8,86	9,32	7,59
Silicona	80111	V21							5,82	0,02

In the table above we see an increase in **plastic** associated with non-returnable packaging. In designing and producing more complex products, more components are required and consequently more packaging waste is generated.

We see a decrease in **Metal Waste** from the previous year, when the Stick Coil production line was dismantled.

Contaminated absorbent materials have also decreased as from this year **silicone** is managed as separate waste due to its characteristics and is no longer included.

Of all the waste generated, **96% is reused** and only **4% is treated**. This considerably reduces the environmental impact of DNBA's activity.

5.9 Light pollution

Light pollution in the exterior facilities in DNBA (parking lot and building facade) are under the light pollution prevention laws. During the fiscal year 2010, and as a prevention, DNBA carried out a report regarding the fulfillment of the RD 1890/2008 Law. It lead to the conclusion that obey the regulations regarding the features of the facilities, the kind of lights which are used and the energy efficiency.

5.10 Other factors related to the environmental performance

5.10.1 Emergency Plan

DNBA has an Emergency Plan and associated instructions that enable us to identify, respond to and prevent environmental accidents and larger-scale emergencies such as fires. Periodically, drills are carried out to check their effectiveness.

5.10.2 Communications and complaints

In order to maintain open relations with society, DNBA has a system to receive and respond to any complaint or request for information related to the environmental aspects of the company.

5.11 BASIC ENVIRONMENTAL BEHAVIOUR INDICATORS according to the total annual production (expressed as gross added value*)

During the fiscal year 2019 the gross **Added Value** (difference between the amount produced and the material costs) has been **173,1 M€**.

BASIC INDICATOR	UNITS	FY 2016	FY 2017	FY 2018	FY 2019
Water.	m^3/M€.	70	64	63	53
Energy Efficiency.	MWh produced with renewables/Mwh consumed.	0,03	0,0292	0,0349	0,0576
	MWh/M€ Natural Gas.	17,26	32,05	31,29	25,72
Total Greenhouse Effect Gas Emissions.	Tn/M€.	27,70	34,72	33,07	27,85
Efficiency in the consumption of materials.	Tn/M€.	2,5	2,6	2,1	1,9
Total Waste.	Tn/M€.	5,6	6,9	8,5	7,8
Hazardous Waste.	Tn/M€.	0,4	0,4	0,4	0,3
Non-Hazardous Waste.	Tn/M€.	5,2	6,5	8,1	7,5
Waste intended for Re-use.	Tn/M€.	5,3	6,5	8,1	7,5
Waste intended for Treatment.	Tn/M€.	0,3	0,4	0,4	0,3
Total Emissions (NO_x)	Kg/M€.	6,6	7,1	6,5	7,3
Total Emissions (COV)	Kg/M€.	2,9	3,1	2,9	5,8
Total Emissions (PST)	Kg/M€.	4,0	4,3	4,0	5,6
Biodiversity	m^2/M€.	216	346	316	267

**** Gross added value:** Amount Produced – Costs of material*

6.1 Participation

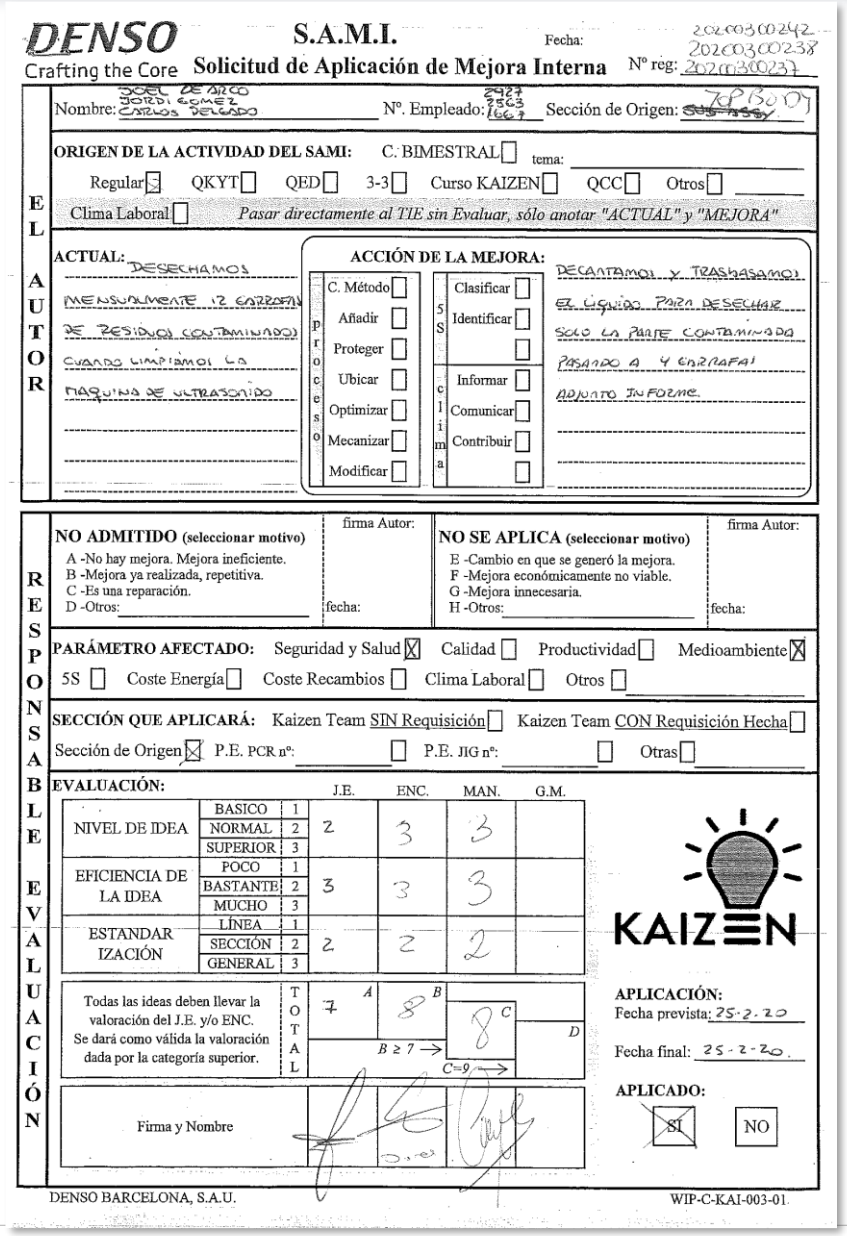
There are several tools to promotion the staff participation in development of environmental initiatives realized in DNBA. Below are some examples of communication channels used:

1. Internal improvement request application (SAMI)

SAMI system is based on the consideration that the operators know best what are the problems associated with their work. Therefore intended to promote the participation of all people in the company to exploit the improvement opportunities that these proposed. One of the affected parameters is the environment (improvements in reducing energy, raw materials used, recycling, etc.).

In FY2019, a total of **26 environmental SAMIS and 17 energy efficiency SAMIS** were performed. We give an example of a SAMI carried out below:

SAMI for the **reduction of waste generated in cleaning the ultrasound machine** (by decanting).



DENSO
Crafting the Core

S.A.M.I.
Solicitud de Aplicación de Mejora Interna

Fecha:
Nº reg: 202003002242 / 202003002238 / 202003002237

EL AUTOR

Nombre: JOEL DE ARCO / JORDI GOMEZ / CARLOS DELGADO
Nº. Empleado: 2927 / 2563 / 1667
Sección de Origen: ~~SMT~~ ~~ASSY~~ TAPADO

ORIGEN DE LA ACTIVIDAD DEL SAMI: C. BIMESTRAL ☐ tema:
Regular ☒ QKYT ☐ QED ☐ 3-3 ☐ Curso KAIZEN ☐ QCC ☐ Otros ☐
Clima Laboral ☐ *Pasar directamente al TIE sin Evaluar, sólo anotar "ACTUAL" y "MEJORA"*

ACTUAL:
DESECHAMOS MENSUALMENTE 12 GARRAFAS DE RESIDUO CONTAMINADO CUANDO LIMPIAMOS LA MAQUINA DE ULTRASONIDO

ACCIÓN DE LA MEJORA:
proceso: C. Método ☐, Añadir ☐, Proteger ☐, Ubicar ☐, Optimizar ☐, Mecanizar ☐, Modificar ☐
5S: Clasificar ☐, Identificar ☐
clima: Informar ☐, Comunicar ☐, Contribuir ☐
DECANTAMOS Y TRASVASAMOS EL LIQUIDO PARA DESECHAR SOLO LA PARTE CONTAMINADA PASANDO A 4 GARRAFAS ADJUNTO INFORME.

RESPONSABLE EVALUACIÓN

NO ADMITIDO (seleccionar motivo) — firma Autor: — fecha:
A -No hay mejora. Mejora ineficiente.
B -Mejora ya realizada, repetitiva.
C -Es una reparación.
D -Otros:

NO SE APLICA (seleccionar motivo) — firma Autor: — fecha:
E -Cambio en que se generó la mejora.
F -Mejora económicamente no viable.
G -Mejora innecesaria.
H -Otros:

PARÁMETRO AFECTADO: Seguridad y Salud ☒ Calidad ☐ Productividad ☐ Medioambiente ☒
5S ☐ Coste Energía ☐ Coste Recambios ☐ Clima Laboral ☐ Otros ☐

SECCIÓN QUE APLICARÁ: Kaizen Team SIN Requisición ☐ Kaizen Team CON Requisición Hecha ☐
Sección de Origen ☒ P.E. PCR nº: ☐ P.E. JIG nº: ☐ Otras ☐

EVALUACIÓN:

			J.E.	ENC.	MAN.	G.M.
NIVEL DE IDEA	BASICO	1				
	NORMAL	2	2	3	3	
	SUPERIOR	3				
EFICIENCIA DE LA IDEA	POCO	1				
	BASTANTE	2	3	3	3	
	MUCHO	3				
ESTANDAR IZACIÓN	LÍNEA	1				
	SECCIÓN	2	2	2	2	
	GENERAL	3				
Todas las ideas deben llevar la valoración del J.E. y/o ENC. Se dará como válida la valoración dada por la categoría superior.	TOTAL		A: 7	B: 8	C: 8	D

B ≥ 7 → C=9

Firma y Nombre

KAIZEN

APLICACIÓN:
Fecha prevista: 25-2-20
Fecha final: 25-2-20

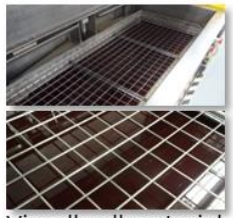
APLICADO: SI ☒ NO ☐

DENSO BARCELONA, S.A.U. WIP-C-KAI-003-01

Reduction of waste generated in cleaning the ultrasound machine:

BEFORE

Once per month washing machine is emptied due to cleaning material contamination.



Visually all material seems contaminated

WASTE :300 liters /month
(Water + Atron+ flux)

Waste management cost 620€/TN

After 1 day due to density of materials the flux contamination separates from the clean part.

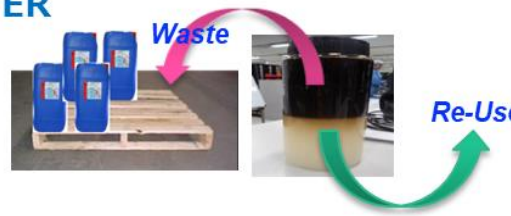
Waste Density 20 °C: *< 0,90 g/cm³ (ESTIMATE)*

Atron Density 20 °C: *0,92 g/cm³*

Water Density 20 °C: *0,999 g/cm³*

This portion can be Re-Used

AFTER



Transfer clean material part.

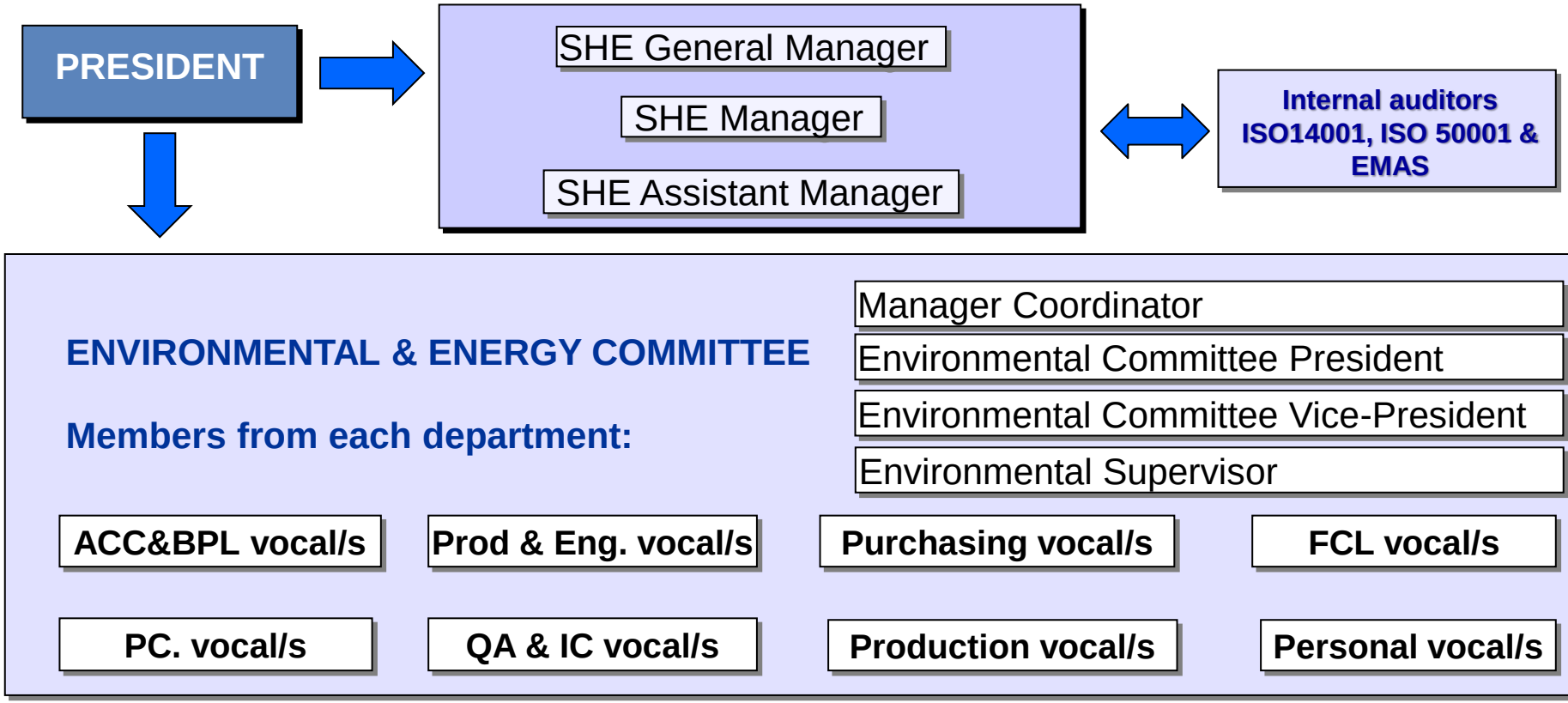
WASTE : Only 100 liters/month
(Water + Atron + flux)

2.4 T reduction in waste generated, use of **2.4 m³** of water and savings of **1,488 €** every year.

DENSO

2. Environmental and Energy Committee

The Environmental and Energy Committee is composed by:



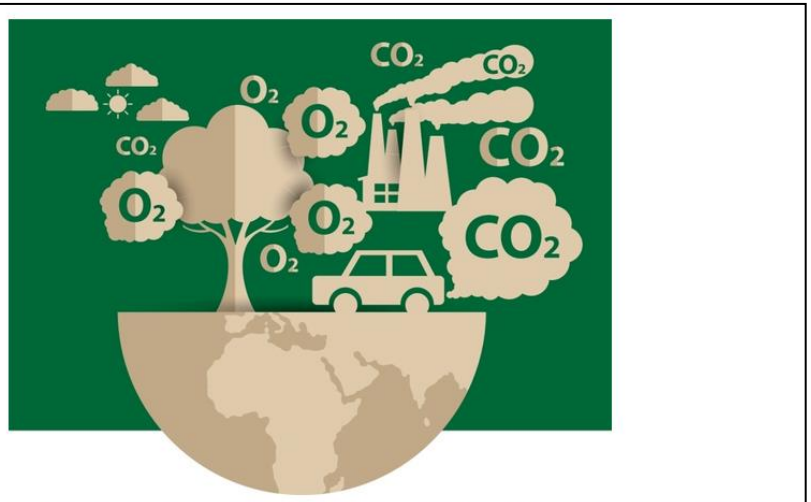
Meets every three months and aims to:

1. To inform and argue about the environmental and energy activities.
2. To decide the environmental and energy targets of DNBA.
3. To revise the environmental and energy index.

6.2 Communication and Education

Different communications and education actions were made in FY 2019 to raise the awareness of our workers with regards to the environment (activities to reduce water and energy consumption, to inform on the segregation of waste, to inform on the environmental audits and their results, etc.).

These communications were made through the **Últimas Noticias** (written articles), **Weekly President Message**, **Monthly Bulletin** or **videos** played in the rest area. We give a few examples below:



Denso Barcelona, S.A.U obey all Environmental Legal Requirements. Every day is realized a control in order to detect the New Environmental Rules and modifications. Every year the Legal Compliment is evaluated.

LEGAL REQUIREMENT	RULES
Atmospheric emissions	Orden de 18 de octubre de 1976 de Prevención y corrección de la Contaminación Atmosférica.
	Ley 34/2007 de la Calidad del aire y protección de la Atmósfera.
	RD 117/2003 sobre la limitación de emisiones de COV's.
	Reglamento (UE) nº 517/2014 Sobre los gases fluorados de efecto invernadero.
	RD 100/2011 por el que se actualiza el catálogo de actividades potencialmente contaminadoras de la atmósfera y se establecen las disposiciones básicas para su aplicación.
	Decreto 139/2018 sobre los regímenes de intervención ambiental atmosférica de los establecimientos donde se desarrollen actividades potencialmente contaminadoras de la atmósfera.
Water	RD 1/2001 por el cual se aprueba el texto refundido de la ley de aguas.
	Ordenanza de Vertido de Aguas residuales de la Mancomunitat de Municipis del Bages pel sanejament.
	RD 3/2003 por el que se aprueba el texto refundido de la legislación de aguas en Cataluña.
Wastes	Decreto 93/99 de Procedimiento de Gestión de Residuos.
	Ley 22/2011 de Residuos y suelos contaminados.
	Decreto Ley 1/2009 por el cual se aprueba el texto refundido de la ley reguladora de residuos.
	RD 180/2015 Regulación del traslado de residuos en el interior del Territorio del Estado.
Dangerous products	RD 379/2001 sobre Reglamentación de almacenamiento de productos químicos peligrosos.
	RD 105/2010 que modifica el RD 379/2001.
	RD 551/2006 por el que se regula el transporte ADR.
	Reglamento CE 1272/2008 sobre Clasificación, etiquetado y envasado de sustancias y mezclas.
	Directiva 2000/53 sobre los vehículos al final de su vida útil (End Live Vehicle).
	Reglamento CE 1907/2006 relativo al registro, evaluación, autorización y reestricción de las sustancias y preparados químicos.
Noise and vibration	Mapa Acústico de Sant Fruitós de Bages.
	Ley 16/2002 de protección contra la contaminación acústica.
	Decreto 176/2009 por el que se aprueba el Reglamento de la Ley 16/2002, de protección contra la contaminación acústica, y se adaptan sus anexos.
	Ordenanza Reguladora de Ruido y Vibraciones de Sant Fruitós de Bages.
Light pollution	Real Decreto 1890/2008 sobre Eficiencia Energética en instalaciones de alumbrado exterior y sus instrucciones técnicas complementarias.
	Decreto 190/2015, de desarrollo de la Ley 6/2001, de ordenación ambiental del alumbrado para la protección del medio nocturno
	Ley 6/2001 de ordenación ambiental del alumbrado para la protección del medio nocturno.
Environmental License	Ley de Intervención Integral de la Administración Ambiental (IIAA).
	Ley 20/2009 de Prevención i control ambiental de las actividades.
Energy Efficiency	Ley de Intervención Integral de la Administración Ambiental (IIAA).
	Ley 20/2009 de Prevención i control ambiental de las actividades.
	RD 56/2016 por el que se transpone la Directiva 2012/27/UE del Parlamento Europeo y del Consejo, relativa a la eficiencia energética, en lo referente a auditorías energéticas, acreditación de proveedores de servicios y auditores energéticos y promoción de la eficiencia del suministro de energía.

The present Statement has been prepared according to the EMAS Regulation (UE) 2017/1505. The years correspond to the period from April to March (fiscal year). This document is for public access and the Environmental Committee is responsible for updating and modifying it.

The next Environmental Statement will be issued during second half of the year 2021, the data related to the period April 2020 - March 2021 will be included. The verified version of this document is the English one. It had a one-year validity from the verification date. This statement hasn't got any value if this isn't validated by an accredited entity.

Name and accreditation number: Josep Plà, Lloyd's Register Quality Assurance, ES-V-0015.

PREPARED BY:	REVISED BY: SHE ASSISTNAT MANAGER	REVISED BY: SHE GENERAL MANAGER	REVISED BY: CORPORATE DIRECTOR	APPROVED BY: DNBA MANAGING
M.CULELL y M.COLS	X.TRIAS	C.PUIG	J.MACIÀ	J.M.GIMÉNEZ

This statement, as well as other available information related to the activities of the DENSO group at:
DENSO EUROPE: https://www.denso.com/es/es/about-us/company-information/dnba/
EMAS: http://www.emas.cat/

Lloyd's Register LRQA

CERTIFICADO DE APROBACIÓN

Certificamos que el Sistema de Gestión Medioambiental de:

DENSO BARCELONA, S.A.
C/ Sakura, nº 1
08272 Sant Fruitós del Bages, Barcelona
España

ha sido aprobado por Lloyd's Register Quality Assurance, de acuerdo con la siguiente Norma del Sistema de Gestión Medioambiental:

ISO 14001:2015

El Sistema de Gestión Medioambiental es aplicable a:

Fabricación de productos electrónicos, de encendido y componentes de control del motor para la industria de automoción.

Aprobación
Certificado No: SGI 3772284

Aprobación Original: 02 de Diciembre 1998
Certificado en Vigor: 03 de Enero 2018
Caducidad del Certificado: 31 de Diciembre 2019

Emitido por: LRQA España, S.L.U.
Por y en nombre de: Lloyd's Register Quality Assurance Limited

UKAS MANAGEMENT SYSTEMS 001

C/ Princesa, 29 - 1º - 28008 Madrid, España
Por y en nombre de: 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

EMAS

CERTIFICAT DE REGISTRE

El Departament de Territori i Sostenibilitat certifica que el centre de l'organització

DENSO BARCELONA SA

Ubicat a C/Sakura, 1 de Sant Fruitós de Bages

ha estat registrat amb el número:

ES-CAT-000034

D'acord amb la Resolució de 13 de febrer de 2017 de la **directora general de Qualitat Ambiental i Canvi Climàtic** i el que preveuen els articles 13 i 14 del Reglament 1221/2009, del Parlament Europeu i del Consell, de 25 de novembre de 2009, relatiu a la participació voluntària d'organitzacions en un sistema comunitari de gestió i auditoria ambiental (EMAS). Els requisits del sistema de gestió ambiental EMAS són els establerts en la secció 4 de la norma EN ISO 14001:2004

El conseller de Territori i Sostenibilitat

Data d'inscripció: 27/03/2000
Data de 6a renovació: 13/02/2017
Validesa del certificat: 14/11/2019

Josep Rull i Andreu

Barcelona, 13 de febrer de 2017

Generalitat de Catalunya
Departament de Territori i Sostenibilitat

Lloyd's Register

Certificat d´Aprovació

Certifiquem que el Sistema de Gestió de:

Denso Barcelona, S.A.

Sakura, 1. Pol. Ind. Plà de Santa Ana, 08272 Sant Fruitós de Bages, Barcelona, Spain

ha estat aprovat per Lloyd's Register Quality Assurance, d'acord amb la Norma del Sistema de Gestió següent:

ISO 50001:2011

Gilles Bessiere - Area Technical Manager
Emès per: Lloyd's Register Quality Assurance España, S.L.U.
Per i en nom de: Lloyd's Register Quality Assurance Limited

Certificat en Vigència: 11 Març 2019
Caducitat del Certificat: 05 Agost 2021
Número d'identificació del certificat: 10178070

Aprovació Original:
ISO 50001 – 29 Febrer 2016

Número(s) d'aprovació: ISO 50001 – 0038608

El Sistema de Gestió és aplicable a:
Fabricació de productes electronics, d'encesa i components de control del motor per la industria de l'automoció.

UKAS MANAGEMENT SYSTEMS 001

DENSO

Global supplier of automotive technology, systems and components.