



Saves Your Energy

Ensto Cubo X

Extreme safety for extreme conditions

TARGET: TANKER
CHALLENGE: VIBRATION AND WEATHER RESISTANCE



IDENTIFIED CUBO X NEED:
UTMOST RELIABILITY

IDENTIFIED CUBO X SOLUTION:
X1ANP151510



Extreme safety for extreme conditions

Ensto Cubo X ATEX enclosure

Wherever there is electricity, there are connections.
Wherever there are connections, there are risks.
Whatever happens if a risk is fulfilled, is entirely up to you.



TARGET: GRAIN SILO
CHALLENGE: FLAMMABLE MICRO DUST



IDENTIFIED CUBO X NEED:
ECONOMICAL AND
NON-STATIC DRY
ENVIRONMENT

IDENTIFIED CUBO X SOLUTION:
X2FEF206915



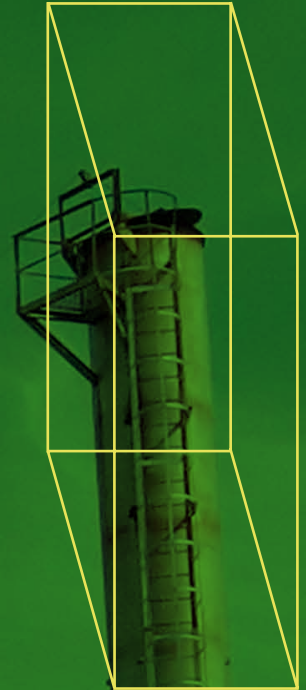
Ensto Cubo X is a new enclosure solution for the most demanding conditions. While Cubo X has been thoroughly tested to operate flawlessly in even the high-risk ATEX environment, its wide scalability ensures a perfect fit for every place and situation. It will ensure flawless operations and most of all, a safer working environment.

Ensto Cubo X seamlessly combines the features needed for optimum safety in electrical connections. Designed and manufactured by one of the world's leading industrial solutions companies, it is packed with a comprehensive understanding of the risks and opportunities present in the widest variety of usage situations.

Ensto Cubo X effectively keeps the danger outside, efficiently protecting the materials inside from dust, moisture, excessive heat and other hazards present in ATEX-type working environments. This comprehensive enclosure solution provides operational reliability and continuity to, as well as improved safety for employees.

Designed to survive the riskiest situations, Cubo X enhances operational safety and reliability wherever electrical connections and systems exist. Provided by a leading electricity expert, this enclosure reflects its maker's know-how and ability to create tailored, purposeful solutions for every need.

TARGET: NATURAL GAS REFINERY
CHALLENGE: HIGHLY EXPLOSIVE



IDENTIFIED CUBO X NEED:
SAFE WORKING
ENVIRONMENT

IDENTIFIED CUBO X SOLUTION:
X2ANF406015

In the toughest situations, only the best is good enough

Improved safety for ATEX environments

In the face of imminent danger, there is no room for compromising on safety. When it comes to safe electricity connections, Ensto Cubo X provides state-of-the-art reliability, with features and flexibility to meet even the most specific needs.

Ensto Cubo X isolates any electrical connection, thus efficiently protecting the surrounding area from the effects of potential explosions. Its outstanding performance is based on structure that provides best-in-class protection.

For maximum strength and durability, Ensto Cubo X features an extremely rugged collar structure, all hinges and lugs being welded. High-quality replaceable screw inserts are mounted in hexagonal holes, to avoid unintentional turning and braking.

The capabilities of Ensto Cubo X go beyond conventional enclosures. Providing new levels of flexibility without sacrifices in reliability, it opens up entirely new possibilities for getting just the right kind of enclosure, to the right place at the right time. Ensto Cubo X is the optimal choice for any customer application that needs top-notch protection.

The advanced structure has earned Cubo X several certificates, demonstrating its ability to perform even in the toughest ATEX environments.



Ensto Cubo X Certificates



1. Empty enclosures

CENELEC (ATEX) & IECEx-type certificates

DNV 11 ATEX 98909U
IECEx DNV 11.0005U

Protection types:

Ex e & Ex tD Group II,
Equipment group 2, (Gb) zone 1
Group III, (Db) Zone 21, IP66/67 or IP66

Protection type: Ex -ia

Group II, Equipment group 1,
(Ga) Zone 0, IIC
Minimum ambient temperature -55 °C
Maximum ambient temperature +160 °C
Max. ambient temperature (painted) +85 °C
Maximum ambient temperature (AISI with window) +100 °C

2. Complete junction enclosures

CENELEC (ATEX) & IECEx-type certificates

DNV 11 ATEX 98913X
IECEx DNV 11.0006X

Temperature classes (Gas)

T4: 130 °C
T5: 95 °C
T6: 80 °C

Max power dissipation method

Ambient temperatures

-55 to +40 °C
-55 to +55 °C
-55 to +65 °C

Download our product certificates from www.ensto.com/atex

Redefining tailored protection

Variations for every need and situation

Ensto Cubo X sets you up with genuinely tailored opportunities and the perfect fit for every situation. Thoroughly tested to meet the strictest ATEX standards, Ensto Cubo X is the comprehensive solution for tailored, top-notch protection in any high risk environment.

Based on individual enclosure needs, the customer can first choose a platform from four alternatives; a plain enclosure solution can be complemented with inserts, support frames, mounting plates and similar additional features.

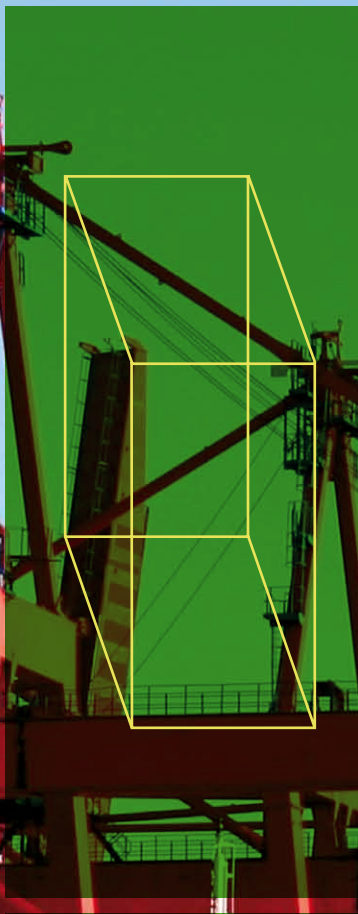
This is followed by a choice of material (AISI 304, AISI 316 or mild steel) and surface treatment (natural, brushed or painted). The customer can also select either plain sides or ones with flange openings.

The size variations are flexible as well; as both height and width can vary from 150 mm all the way to 1,200 mm, with the depth ranging between 90 and 400 mm, you can be certain that an optimized size and shape can be found for every purpose and situation.

The Ensto Cubo X solution is comprehensive and widely configurable. Reliable in use and convenient to install, its overall quality provides cost-efficiency – and most of all, increased safety every day.



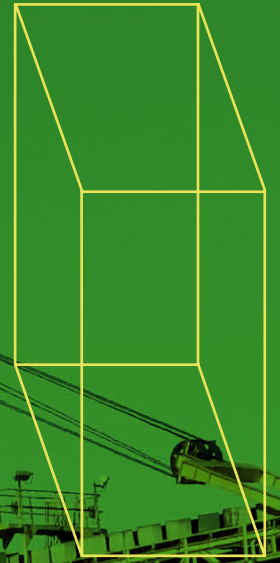
TARGET: CARGO DOCK
CHALLENGE: DEMANDING CONDITIONS



IDENTIFIED CUBOX NEED:
SUDDEN AND DRASTIC
CHANGES IN OUTSIDE
TEMPERATURE

IDENTIFIED CUBOX SOLUTION:
X3ANP306018

TARGET: COAL PRODUCTION
CHALLENGE: HIGHLY FLAMMABLE



IDENTIFIED CUBO X NEED:
UNINTERRUPTED
OPERATIONS

IDENTIFIED CUBO X SOLUTION:
X2ANF406015



Ensto Cubo X is the ideal solution for protecting your operations from accidents that may happen everywhere electrical connections exist. Thus, it is able to rise to any challenge, even in the most demanding lines of business. LNG and bio gas, marine, oil and bio fuel, timber, pulp and paper as well as HVAC are examples of industries that, due to the gases, fumes and combustible dust present in the working environment, are exposed to damage if an explosion occurs.

Ensto is one of the world's most comprehensive providers of electrical solutions, including enclosures for various purposes. Our strong partner relations are based on trust, respect and common values, while we take pride in being one of the industry's leading companies.



Ideal solution for every need

Ensto's comprehensive enclosure expertise – at your service

Ensto Cubo X provides tailored enclosure solutions for both current and upcoming projects. Certified to meet the demanding ATEX environment requirements, the product is suitable for Ex i, Ex e and Ex tD protection types.

A code key has been created to help customers define and make the optimal choice for their specific needs and situations. However, solutions that go beyond code key limits are possible, based on a customer-specific project number.

Based on the customer's installation zone or equipment group, degree of protection as well as specific product information, code key and requested options, Ensto can brand the junction box with an ATEX label. After contacting a notifying body, the customer can carry out the confirmation assessment and obtain ATEX certifications, by utilizing Ensto's test results and documents. Based on Ensto's

mounting instructions, the terminals can then be installed.

Empty ATEX enclosures can also be sold as a component – the customer can create a system of its own using ATEX-proofed components and carry out the required tests with a notified body.

Ensto is also able to provide comprehensive enclosure systems to OEMs. Complete ATEX-proofed junction boxes are available, based on our certificates. In line with customer needs, the maximum dissipated method can be used to calculate the optimum number of elements for a scaled enclosure.



Things we need to know for complete terminal solutions:

- Installation zone or equipment group
- Protection type
- Temperature class
- Service temperature
- Degree of protection
- Product information, code key and desired options
- Sizing and how flexible it is
- Required terminal manufacturer
- Number of terminals

Should another kind of Ex solution better suit your needs, Ensto's experts can assist you in finding the optimal cost-efficiency.



Type 1

Type 2

Type 3

Type 4

Code:	X / 1, 2, 3, 4 / S, A, F / N, B, E / P, F / W / H / D
Model:	X
Type 1:	1,
Type 2:	2,
Type 3:	3,
Type 4:	4
Material AISI 304:	S,
Material AISI 316:	A,
Materials FEDCO1:	F
Surface treatment, Natural:	N,
Surface treatment, Brushed:	B,
Surface treatment, Painted:	E
With plain sides:	P,
With 155x75 flange hole / flange:	F
Width:	W
Height:	H
Depth:	D

Type 1

The cover is fastened with screws and connected with a ground strap

Type 2

Tight hinges and cover screws on the opposite side

Type 3*

Tight hinges and one or several locks

Type 4

The cover is fastened with screws as in Type 1. The cover is secured with hinges that enable its free movement.

*The Type 3 quarter turn latch certificate is still pending, please contact your local sales person for more details.



Can be replaced with an M10 brass internal/outer insert.



Since the Lexan window is scalable, just the right size is always available.



The enclosure can be protected from misuse by furnishing it with Ensto's locking system.



The fastening lugs can be attached in a horizontal or vertical position, or be replaced with threaded inserts. Standard grounding is placed onto one lug.

Stockable items

To meet the needs of distributors and wholesalers we have chosen to stock some sizes. The materials used in stockable items are stainless steel AISI 316 and polyester painted mild steel, in line with the norm for this market.

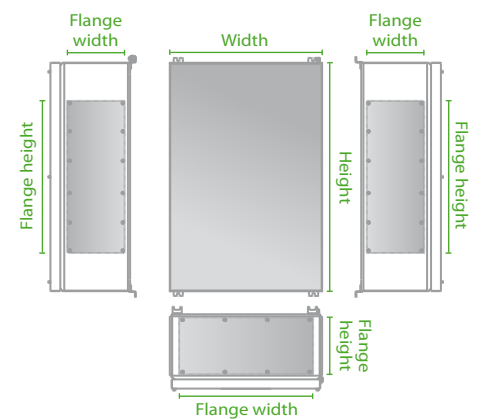
Ensto Cubo X with plain sides

PRODUCT CODE	DESCRIPTION	DIMENSIONS (MM)		
		WIDTH	HEIGHT	DEPTH
Plain sides, AISI 316				
X1ANP151509		150	150	90
X1ANP152010		150	200	100
X1ANP202010		200	200	100
X1ANP203012		200	300	120
X1ANP204015		200	400	150
X1ANP303015		300	300	150
X1ANP403015		400	300	150
X1ANP404020		400	400	200
X1ANP604020		600	400	200
X1ANP805020		800	500	200
Plain sides, polyester painted mild steel				
X1FEP151509		150	150	90
X1FEP152010		150	200	100
X1FEP202010		200	200	100
X1FEP203012		200	300	120
X1FEP204015		200	400	150
X1FEP303015		300	300	150
X1FEP403015		400	300	150
X1FEP404020		400	400	200
X1FEP604020		600	400	200
X1FEP805020		800	500	200



Ensto Cubo X with flange openings

PRODUCT CODE	DESCRIPTION	DIMENSIONS (MM)		
		WIDTH	HEIGHT	DEPTH
Flange openings on the bottom, AISI 316				
X2ANP403015G1	Flange opening size 250 x 113 mm	400	300	150
X2ANP404020G1	Flange opening size 350 x 150 mm	400	400	200
X2ANP604020G1	Flange opening size 350 x 150 mm	600	400	200
X2ANP805020G1	Flange opening size 450 x 150 mm	800	500	200
Flange openings on the bottom, polyester painted mild steel				
X2FEP403015G1	Flange opening size 250 x 113 mm	400	300	150
X2FEP404020G1	Flange opening size 350 x 150 mm	400	400	200
X2FEP604020G1	Flange opening size 350 x 150 mm	600	400	200
X2FEP805020G1	Flange opening size 450 x 150 mm	800	500	200
Flange openings on the bottom and both sides, AISI 316				
X2ANP403015G2	Bottom flange 250 x 113 mm, sides 300 x 113 mm	400	300	150
X2ANP404020G2	Bottom flange 350 x 150 mm, sides 300 x 150 mm	400	400	200
X2ANP604020G2	Bottom flange 350 x 150 mm, sides 400 x 150 mm	600	400	200
X2ANP805020G2	Bottom flange 450 x 150 mm, sides 400 x 150 mm	800	500	200
Flange openings on the bottom and both sides, polyester painted mild steel				
X2FEP403015G2	Bottom flange 250 x 113 mm, sides 300 x 113 mm	400	300	150
X2FEP404020G2	Bottom flange 350 x 150 mm, sides 300 x 150 mm	400	400	200
X2FEP604020G2	Bottom flange 350 x 150 mm, sides 400 x 150 mm	600	400	200
X2FEP805020G2	Bottom flange 450 x 150 mm, sides 400 x 150 mm	800	500	200



The flange openings are either only on the base of the enclosure, or on both sides and the base.

Cable glands

As part of our customer projects, we can offer competitive, high-quality components for furnished enclosures.

Ex d/e cable glands, INOX 316L

ENSTO PRODUCT CODE	SIZE	CABLE CLAMPING [mm]	MANUFACTURER'S PRODUCT NUMBER	CERTIFICATE NUMBER	TEMPERATURE CLASSES
INOX 316L Ex d/e glands, non-armored					
KTA4.12	M12	3.0 - 12.0	MTM KU01MX	IMQ 08 ATEX 021X	-60°C... +180°C
KTA4.16	M16	3.0 - 12.0	MTM KU01MX	IMQ 08 ATEX 021X	-60°C... +180°C
KTA4.20	M20	10.0 - 16.0	MTM KU1MX	IMQ 08 ATEX 021X	-60°C... +180°C
KTA4.25	M25	10.0 - 18.0	MTM KU2MX	IMQ 08 ATEX 021X	-60°C... +180°C
KTA4.32	M32	14.0 - 24.0	MTM KU3MX	IMQ 08 ATEX 021X	-60°C... +180°C
INOX 316L Ex d/e glands, armored					
KTA3.12	M12	9.0 - 18.0 / 4.0 - 12.0	RST KA01MX	IMQ 08 ATEX 025	-60°C... +180°C
KTA3.16	M16	9.0 - 18.0 / 4.0 - 12.0	RST KA01MX	IMQ 08 ATEX 025	-60°C... +180°C
KTA3.20	M20	9.0 - 18.0 / 4.0 - 12.0	RST KA1MX	IMQ 08 ATEX 025	-60°C... +180°C
KTA3.25	M25	14.0 - 26.0 / 9.0 - 20.0	RST KA2MX	IMQ 08 ATEX 025	-60°C... +180°C
KTA3.32	M32	20.0 - 33.0 / 15.0 - 26.0	RST KA3MX	IMQ 08 ATEX 025	-60°C... +180°C



KTA3.16

Ex d/e cable glands, brass

ENSTO PRODUCT CODE	SIZE	CABLE CLAMPING [mm]	MANUFACTURER'S PRODUCT NUMBER	CERTIFICATE NUMBER	TEMPERATURE CLASSES
Brass Ex d/e glands, non-armored					
KTA1.12	M12	3.0 - 12.0	MTM KU01MB	IMQ 08 ATEX 021X	-60°C... +180°C
KTA1.16	M16	3.0 - 12.0	MTM KU01MB	IMQ 08 ATEX 021X	-60°C... +180°C
KTA1.20	M20	10.0 - 16.0	MTM KU1MB	IMQ 08 ATEX 021X	-60°C... +180°C
KTA1.25	M25	10.0 - 18.0	MTM KU2MB	IMQ 08 ATEX 021X	-60°C... +180°C
KTA1.32	M32	14.0 - 24.0	MTM KU3MB	IMQ 08 ATEX 021X	-60°C... +180°C
Brass Ex d/e glands, armored					
KTA2.12	M12	9.0 - 18.0 / 4.0 - 12.0	RST KA01MB	IMQ 08 ATEX 025	-60°C... +180°C
KTA2.16	M16	9.0 - 18.0 / 4.0 - 12.0	RST KA01MB	IMQ 08 ATEX 025	-60°C... +180°C
KTA2.20	M20	9.0 - 18.0 / 4.0 - 12.0	RST KA1MB	IMQ 08 ATEX 025	-60°C... +180°C
KTA2.25	M25	14.0 - 26.0 / 9.0 - 20.0	RST KA2MB	IMQ 08 ATEX 025	-60°C... +180°C
KTA2.32	M32	20.0 - 33.0 / 15.0 - 26.0	RST KA3MB	IMQ 08 ATEX 025	-60°C... +180°C



KTA1.20

Ex i cable glands, polyamide

ENSTO PRODUCT CODE	SIZE	CABLE CLAMPING [mm]	MANUFACTURER'S PRODUCT NUMBER	CERTIFICATE NUMBER	TEMPERATURE CLASSES
Polyamide (blue) Ex i glands					
KTA24.12	M12	3.0 - 6.5	MTM BM-X5	IMQ 08 ATEX 012X	-40°C... +95°C
KTA24.16	M16	6.0 - 12.0	MTM BM-X1	IMQ 08 ATEX 012X	-40°C... +95°C
KTA24.20	M20	10.0 - 14.0	MTM BM-X2	IMQ 08 ATEX 012X	-40°C... +95°C
KTA24.25	M25	13.0 - 18.0	MTM BM-X5	IMQ 08 ATEX 012X	-40°C... +95°C
KTA24.32	M32	18.0 - 25.0	MTM BM-X7	IMQ 08 ATEX 012X	-40°C... +95°C
Polyamide (black) Ex e glands					
KTA25.12	M12	3.0 - 6.5	MTM BM-X5	IMQ 08 ATEX 012X	-40°C... +95°C
KTA25.16	M16	6.0 - 12.0	MTM BM-X1	IMQ 08 ATEX 012X	-40°C... +95°C
KTA25.20	M20	10.0 - 14.0	MTM BM-X2	IMQ 08 ATEX 012X	-40°C... +95°C
KTA25.25	M25	13.0 - 18.0	MTM BM-X5	IMQ 08 ATEX 012X	-40°C... +95°C
KTA25.32	M32	18.0 - 25.0	MTM BM-X7	IMQ 08 ATEX 012X	-40°C... +95°C



KTA24.16 and KTA25.25

Ex d/e blinds and Ex e breathers

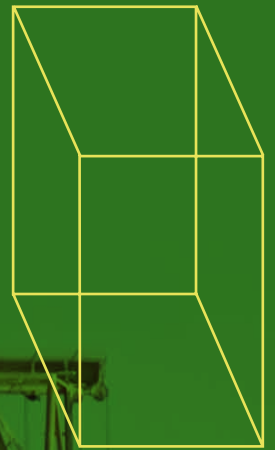
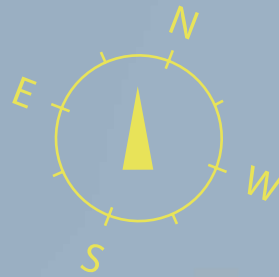
ENSTO PRODUCT CODE	SIZE	CABLE CLAMPING [mm]	MANUFACTURER'S PRODUCT NUMBER	CERTIFICATE NUMBER	TEMPERATURE CLASSES
Polyamide (black) Ex e blinds					
PTKA4.12	M12	M12x1.5 / ø12.1	MTM TP-X5	IMQ 08 ATEX 012X	-40°C... +95°C
PTKA4.16	M16	M16x1.5 / ø16.1	MTM TP-X1	IMQ 08 ATEX 012X	-40°C... +95°C
PTKA4.20	M20	M20x1.5 / ø20.1	MTM TP-X2	IMQ 08 ATEX 012X	-40°C... +95°C
PTKA4.25	M25	M25x1.5 / ø25.1	MTM TP-X3	IMQ 08 ATEX 012X	-40°C... +95°C
PTKA4.32	M32	M32x1.5 / ø32.1	MTM TP-X4	IMQ 08 ATEX 012X	-40°C... +95°C
INOX 316L Ex e blinds					
PTKA17.12	M12	M12x1.5 / ø12.1	TS02MX	IMQ 10 ATEX 016U	-60°C... +180°C
PTKA17.16	M16	M16x1.5 / ø16.1	TS01MX	IMQ 10 ATEX 016U	-60°C... +180°C
PTKA17.20	M20	M20x1.5 / ø20.1	TS1MX	IMQ 10 ATEX 016U	-60°C... +180°C
PTKA17.25	M25	M25x1.5 / ø25.1	TS2MX	IMQ 10 ATEX 016U	-60°C... +180°C
PTKA17.32	M32	M32x1.5 / ø32.1	TS3MX	IMQ 10 ATEX 016U	-60°C... +180°C
AISI 304 Ex e breathers, IP66					
BSSA10S		M12x1.5 / ø12.1		IBExU 10 ATEX 1169U	-40°C... +100°C



PTKA17.12



BSSA10S



LEGAL NOTICE

The information in this brochure is to the best of Ensto's knowledge and belief correct and reliable. We reserve the right to make changes in the specifications, materials and production methods without further notice. Be aware of that you have to evaluate independently the suitability of each product for the intended application. Ensto does not give any assurance of any particular quality or performance. Our responsibilities for the products are set forth in the "Orgalime S 2000 General Conditions for the Supply of Mechanical, Electrical and Electronic Products". The products shall be installed only by a competent person having nationally required knowledge. Ensto is not responsible for its distributors or for any misuse, incorrect installation or ignored national safety or other national provisions. Copyright Ensto Oy 2011, Ensto™

Ensto

Ensto is a family business and international cleantech company specializing in the development, manufacture and marketing of electrical systems and supplies for the distribution of electrical power as well as electrical applications. We are committed to lasting sustainable development and our goal is to be the world's leading company in green energy efficiency and distribution. Our products, manufactured in seven different countries, are environmentally friendly, energy efficient and leave a minimum carbon footprint.

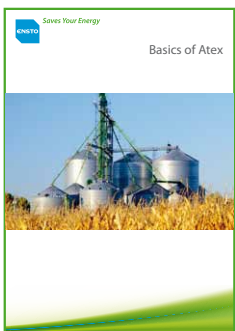
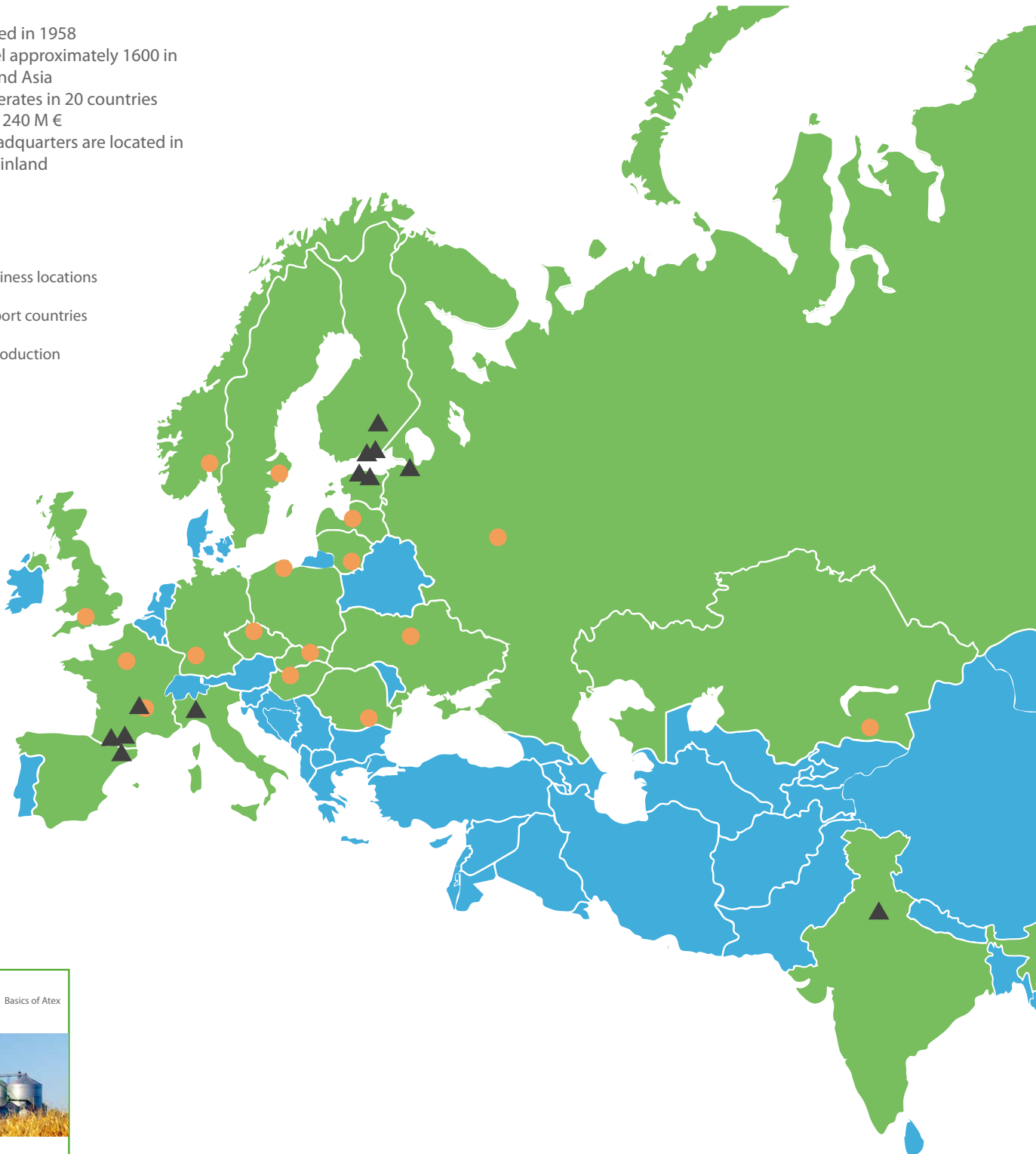
Cleantech

Cleantech means all those products, services, processes and technologies which prevent or reduce the impacts of actions harmful to the environment. Cleantech stands for better quality, efficiency and profitability. Ensto and other Finnish cleantech companies are already at the top of the world in several key cleantech sectors.

Facts

- Established in 1958
- Personnel approximately 1600 in Europe and Asia
- Ensto operates in 20 countries
- Turnover 240 M €
- Ensto headquarters are located in Porvoo, Finland

- Ensto business locations
- Other export countries
- ▲ Sales & production
- Sales



Download or order the "Basics of Atex" leaflet from www.ensto.com/atex



Saves Your Energy

Ensto Finland Oy
Ensio Miettisen Katu 2, P.O. Box 77
FIN-06101 Porvoo, Finland
enclosure.solutions@ensto.com
www.ensto.com