THORN

X-Force

A range of specialist fluorescent 'proof'
luminaires for harsh environments

Introducing X-Force

The X-Force range is designed to withstand difficult and demanding environments. Sharing the same high build quality and strong IP65 compliance, X-Force products continue to perform in the most arduous wet and dusty conditions.

But not all industrial working locations are the same. Each application presents a different challenge. Maintaining good lighting levels and a safe working environment requires the right luminaire to be selected – one that can face up to these challenges and come out on top.

Contents

ImpactForce

ImpactForce takes its name from the tough polycarbonate diffuser that is able to withstand high impacts of up to IK09. ImpactForce is ideal for locations where impact to the luminaire may occur or vandal resistance is required. Typical applications include loading bays, multi storey car parks, subways, sports stadiums and warehouses.

CorrosionForce

As the name suggests, CorrosionForce is the answer when you need to light an area where the atmosphere contains trace chemicals that may contaminate a standard IP65 luminaire. Typical applications include food processing and preparation areas where special cleaning agents are used.

ColdForce

Lighting a cold store or chill room is challenging, as the low temperatures severely limit the performance of most luminaires. With a high specification Industrial Ballast and thermal over tubes, ColdForce ensures good light performance down to temperatures of -30°C. Typical applications include cold stores and chill rooms.

HeatForce

High ambient temperatures have a lasting effect on the reliability of most luminaires. HeatForce is designed to operate in temperatures up to 65°C. The tough construction and special control gear ensure consistent and reliable lighting, even when things start to heat up. Typical applications would be boiler rooms and any areas where machinery or other equipment generate high ambient temperatures.

StormForce

StormForce is a rugged luminaire with added strength. Internal steel supports and special fixing brackets, for mounting onto stanchions or flexible structures that are exposed to high winds and rain, provide extra resistance to harsh weather conditions. This type of fitting is ideal for power stations and exposed coastal areas.

Performance, Efficiency and Comfort (PEC) – for a better lit environment

The aim of Thorn Lighting is to improve quality of life by lighting people and places. Supporting this mission is our PEC programme.

Performance

Design

Comfort
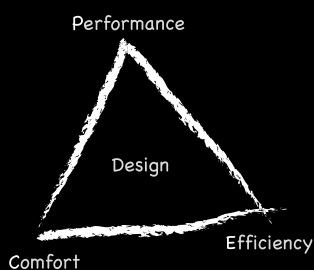
Efficiency

The PEC programme is based on the principle that Performance, Efficiency and Comfort can be measured to deliver efficient and reliable lighting that contributes to a healthy and comfortable environment. X-Force delivers the right light in the right place at the right time.

Performance: Providing the best visual effectiveness

- The X-Force range has an optical system specially optimised for fluorescent lamps. The high reflectance back plate and specially designed prismatic controller give a wide light distribution with good glare control, uniformity and modelling. The optic gives high light output ratios of up to 93%.

- Fluorescent light sources ensure very good colour rendition (Ra over 80).

Efficiency: Conserving energy and effort and reducing CO_2 emissions and waste. Providing lighting that is practical and efficient to install, operate and maintain.

- X-Force uses the latest technologies to set the pace in environmental sensitivity, such as high output and high efficiency T16 (T5) lamps. High Frequency Digital (HFD) dimmable versions are also available.

- X-Force is always fit for purpose. Within the range there is a choice of diffuser materials, depending on the particular conditions of the application. The clever design of the deep channel gasket ensures the long life of the IP65 seal.

- With a focus on easy installation and maintenance, the range comes with quick-fix brackets as standard and easy to use stainless steel gear tray clips.

Comfort: giving people satisfaction and stimulation

- High Frequency (HF) electronic ballasts prevent any flicker associated with fluorescent lighting and help to remove any discomfort in the workplace.

- Material choice and emergency versions ensure a feeling of safety.

- Effective glare-free light.

X-Force
application areas

ColdForce
Cold Store

HeatForce
Boiler Room

ImpactForce
Warehouse

StormForce
Emergency Exit
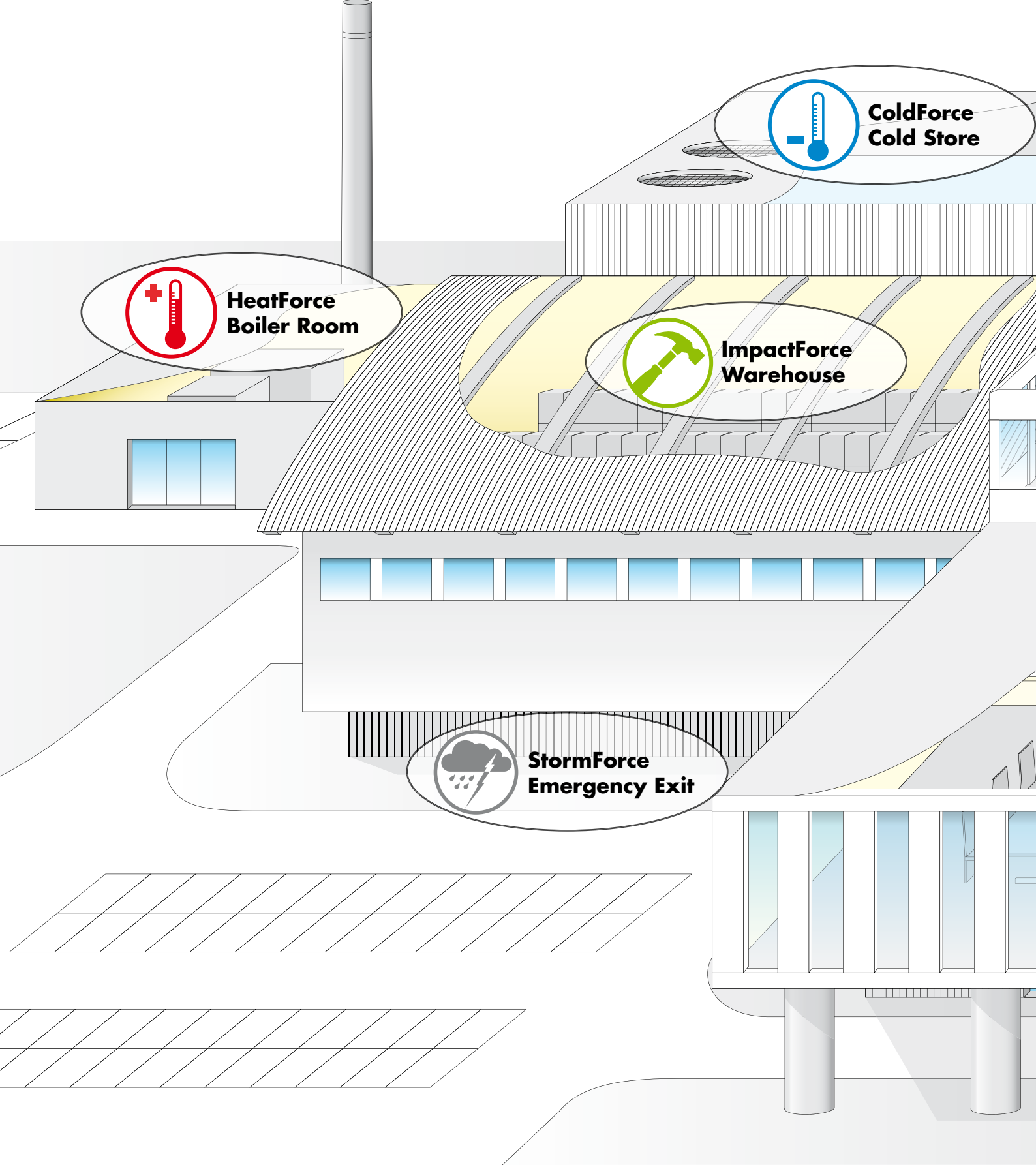
CorrosionForce
Food Preparation

ImpactForce is a vandal resistant luminaire that can withstand accidental collisions. Typical applications are loading bays, multi storey car parks, subways, sports stadiums and warehouses.

- High impact polycarbonate diffuser
- T16 (T5) and T26 (T8) options
- High Frequency Digital (HFD) dimmable and emergency options

CorrosionForce is suitable for any location where the atmosphere contains trace chemicals or where special cleaning agents are used. Typical applications include kitchens, food processing areas, dairies and agricultural buildings.

- PMMA (acrylic) diffuser
- T16 (T5) and T26 (T8) options
- High Frequency Digital (HFD) dimmable and emergency options
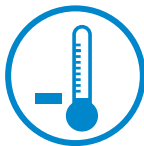
ColdForce provides an IP65 lighting solution in low temperature locations. Typical applications are cold stores and chill rooms.

- High impact polycarbonate diffuser
- -30°C low temperature operation
- Long life Industrial Ballast

HeatForce is a lighting solution for any location that may have high ambient temperatures. Typical applications are boiler rooms or industrial locations.

- High impact polycarbonate diffuser
- Up to 65°C high temperature operation
- Long life Industrial Ballast

StormForce can be used on walkways, metal gantries and flexible structures. This fitting is ideal for applications such as power stations and exposed coastal areas.

- Polycarbonate or PMMA (acrylic) diffuser options
- T16 (T5) and T26 (T8) options
- Emergency options

X-Force – designed to perform in the toughest of applications

In situations where conventional luminaires are ready to give up, the new X-Force range really comes into its own. Whether confronted with dirt, dust, moisture or chemical atmospheres, within the X-Force range there is a product that gives durable functionality and excellent lighting quality in a wide range of difficult environments.

Stainless steel tamper resistant toggles

The stainless steel toggles are supplied as standard. The toggle easily fits into the canopy. Once fitted, the toggles remain secure.

The diffuser is clamped into position with a simple click of the toggles. A screwdriver is required to remove the diffuser, deterring any unwanted interference with the luminaire.

Quick-fix brackets

The X-Force range is supplied with quick-fix brackets as standard. The brackets fit onto the ceiling and then the canopy can be snapped into place.

Crucially, the quick-fix brackets can be used without having to perforate the top of the canopy, ensuring the luminaire maintains the strong IP65 rating.

Easy to clean

The X-Force range meets the recommendations of the International Food Standards (IFS) and British Retail Consortium (BRC).

The sleek design has a minimum 15° slope that makes it easy to clean and difficult for dust or moisture to accumulate.

Stainless steel gear clips

The stainless steel gear tray retaining clips sit within the canopy. These are cleverly designed to allow the gear tray to be easily clipped in and locked into position.

When essential maintenance is required, the gear tray can be released and will then hang from the clips, saving time and effort.

Materials and construction

The key materials employed in the manufacture of X-Force luminaires are:

• Glass Reinforced Plastic (GRP)
The main advantages of GRP are chemical resistance and strength. It has a high strength-to-weight ratio and outstanding flexible strength. It is ideal where luminaire bodies are exposed to harsh environments as it provides resistance to UV light, extreme temperatures, salt air and a wide variety of chemicals.

• Polycarbonate (PC)
Transparency, excellent toughness and a good dimensional stability make polycarbonate (PC) one of the most widely used thermoplastics for lighting diffusers. Constraints include modest resistance to UV radiation.

• Polymethylmethacrylate (PMMA)
Better known as acrylic, this material is used for diffusers due to high light transmittance and good UV resistance. Limitations of acrylic are low impact strength and poor flame resistance.

Comparison table	PMMA	PC	GRP
UV Resistance	Good	Fair	Good
Impact Resistance	0.2Nm	10Nm	0.35Nm
Resistance to ageing	Excellent	Good	Excellent
Silicone free	Yes	Yes	Yes
Halogen free	Yes	Yes	Yes
Glow wire test	650°C	850°C	850°C
Heat resistance of plastics	95°	125°	160°
UV Transmittance	91%	89%	N/A

X-Force for emergency

European safety standards specify that emergency lighting is required in all public places to enable a safe exit if the mains power supply fails. Emergency lighting has to provide sufficient light to reduce confusion and aid safe evacuation.

Thorn's X-Force range offers a number of emergency lighting options that are integrated into the luminaire, ensuring a safe and totally compliant lighting scheme. This approach improves the appearance of the location and helps reduce installation cost and complexity.

X-Force emergency fittings guarantee emergency operation for three hours, allowing full continuity of emergency lighting after an evacuation. To meet legal requirements for the inspection, test and maintenance of emergency lighting, SelfTest emergency versions include a diagnostic microprocessor that will automatically perform both function and duration tests.

Quick and easy to install, without additional cabling, SelfTest fittings monitor and automatically test the emergency functionality at specified intervals, displaying the status of each unit using a bi-colour LED. Any problems with the circuit, battery or lamp are detected and indicated early, removing the need for labour intensive manual testing.

Key Features in emergency lighting

- Compliant with EN60598 2.22.

- Faster than average recharge time of 10-15 hours for SelfTest and addressable versions allow earlier reinstatement of the emergency system after full battery discharge.

- Three hour operation provides continuity of emergency systems after testing or evacuation of the site.

- Bi-colour LED provides clear status indication (red for faults, green for healthy)

- Boost starting gives higher lumen output during the critical switchover phase, ensuring greater visibility of potential hazards.

- Automatic commissioning, without the need for programming, saves time and money.

- Addressable versions are available on request. These enable a responsible individual to centrally monitor and record the status of emergency luminaires using Thorn's Explorer technology. Please contact your Thorn representative for further details, or visit our website: www.thornlighting.co.uk

X-Force for dimming and energy saving

The X-Force range offers energy saving with the option of dimmable luminaires or Switchlite detectors.

In combination with Thorn's Indoor Lighting Control range, X-Force installations will provide light at the right place, the right time and with the right light level, to increase efficiency and comfort.

SensaLite is a selection of stand-alone products that are ideal for the use with the X-Force range.

- SwitchLite detectors will link together fixed output High Frequency versions of X-Force, only providing light when it is needed. For indoor or outdoor applications, where a high IP rating is required, the SwitchLite IP64 sensor (available in white or black) is the ideal choice. In corridor or warehouse applications there are a number of options, including the wall mounted SwitchLite Long Range sensor, with a 12 metre detection range. The recessed wall mounted SwitchLite sensor comes with a 30 metre detection range, helping to save energy when the location is not occupied.

- RotaryDim enables users to manually control DSI dimmable (HFD) versions of X-Force. This product is used like a standard domestic rotary dimmer, but provides the benefits of digital dimming.

- Installing SensaDigital allows dimmable versions of X-Force to be both daylight and presence linked. The surface mounted multi-sensor head controls a group of X-Force luminaires, incorporating up to 8 DSI (HFD) ballasts. Using the infra-red Sensa programming tool, the parameters of the multi-sensor can be easily configured. Light level, time delay to switch Off, start-up level, fading and operation mode (absence or presence) can be set.

If you require more information on the Thorn Indoor Lighting Controls portfolio, please contact your Thorn representative, or visit our website: www.thornlighting.co.uk

Presence-link indoors and outdoors with SwitchLite MWA SLD IP64 (white 96233650, black 96233649)
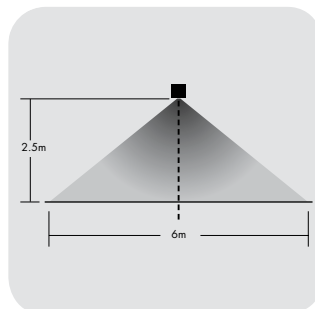

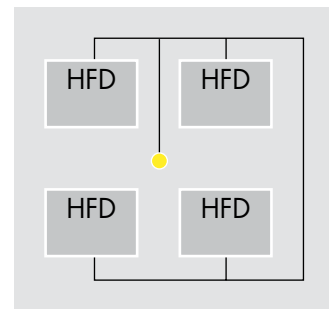*Presence-link indoors with SwitchLite SLD Long Range IP64 (96012710)*

Manual dimming and brightening with RotaryDim RDMR (96218669)

Presence-link and maintained illuminance level with SensaDigital multi-sensor (96013491)

SensaDigital multi-sensor detection pattern

SensaDigital multi-sensor connected to luminaire group (max. 8 ballasts in total)

X-Force luminaires – tested to the highest standards

In harsh and difficult environments, it is important to know that when the X-Force luminaire is selected to do a job, it will perform to the highest standards.

We expect an IP65 luminaire to resist the effects of dust and moisture, but there are often additional features required, such as resistance to…

- Impact
- Chemical corrosion
- High temperatures
- Low temperatures
- Strong winds and rain
- Fire

The Thorn X-Force range includes luminaires that are designed to satisfy these requirements and continue to provide high standards of performance and efficiency.

When a professional IP65 proof range is designed, it is essential that it will perform to the highest standard expected from a Thorn luminaire. To this end, the X-Force range is subjected to a number of industry recognised tests and procedures that guarantee the quality of the product.

Resistance to dust and moisture
The X-Force range is IP65 as standard. The IP rating is a widely recognised Ingress Protection classification that defines the degree of protection provided by an enclosure using a two digit number. The first number identifies resistance to the ingress of solids and the second digit details resistance to the ingress of liquids.

First Digit	Degree of protection	Second Digit	Degree of protection
5	Protection against dust (dustproof)	5	Protection against water jets
6	Dust-tight (no dust entry)	6	Protection against prolonged exposure to extreme water jets

Reliability in service
X-Force luminaires are subjected to a wide range of tests in accordance with national and international standards, such as EN 60598. Our testing capabilities actually extend beyond the standard requirements, covering areas such as Electromagnetic Compatibility (EMC) and Electromagnetic Fields (EMF). These standards ensure that the luminaires are fully safe as regards their electrical, thermal and mechanical properties.

However, deterioration in performance or appearance could occur during service. This may be the result of attack from the environment or the lamp within the luminaire itself. Additional tests are therefore applied to ensure these factors are controlled. Changes in technology mean that accelerated testing can now be successfully incorporated in to Thorn product design. These include life tests, UV degradation, chemical resistance, spectrum analysis, corrosion and salt spray tests.

Mechanical tests

Tests subject components to torques and forces that may occur in practice. A spring-operated impact hammer is used to test the mechanical strength of components and a vibration rig to replicate exterior windage.

IP tests

For an IP65 classification (dust-tight and jetproof), luminaires must resist ingress of dust with a particle size down to 1 micron and resist ingress of water from a hose or jet pressure of 30KN/m². Luminaires are switched on during testing and allowed to reach their normal operating temperature, as it needs to be established whether water or dust is drawn in when the pressure drops.

Electrical tests

A basic safety requirement is that no live parts should be accidentally touched. This is checked using a standard test finger. Luminaires must satisfy requirements such as minimum creepage distances across the surface of insulating materials, and minimum clearance distances between live parts and earth or touchable metal parts. Luminaires also have to pass high-voltage flash tests and insulation resistance tests in humid conditions.

Thermal tests

A standard draught-free room is usually used for temperature measurement. The components inside the luminaire are fitted with many thermocouples and the fitting is operated under specific conditions until the temperatures indicated by these thermocouples are stable.

Environmental tests

Luminaires are subjected to long-term environmental testing and installed outdoors so the full effect of weathering can be seen. UV degradation tests (discharge rig) and salt spray test chambers are employed for accelerated corrosion testing. The latter consists of a controlled temperature environment in which corrosive mist, usually based on sodium chloride, is produced. Chemical and stress-crazing tests are conducted with samples immersed in or suspended above various chemicals.

X-Force – easy to install


1.

2.

3.

4.

5.

6.

7.

8.

1. Unpack the luminaire. Open and remove the bag of installation accessories from the canopy.

2. Fit the toggles to the canopy. Once fitted, the toggles are designed so that they do not come adrift from the canopy, which is beneficial during installation or maintenance.

3. Fit the quick-fix brackets onto the ceiling.

4. Snap the canopy into the quick-fix brackets. It will easily click into place.

5. Prepare the luminaire for the electrical connection. For easy installation, hinge the gear tray on the gear tray clips, insert cables through the sealing grommet and attach to the plug-in terminal block.

6. Align the gear tray with the stainless steel gear clips.

7. Snap the gear tray into place.

8. Align the diffuser into the canopy and complete the installation by snapping the toggles into place.

9. Test the luminaire.
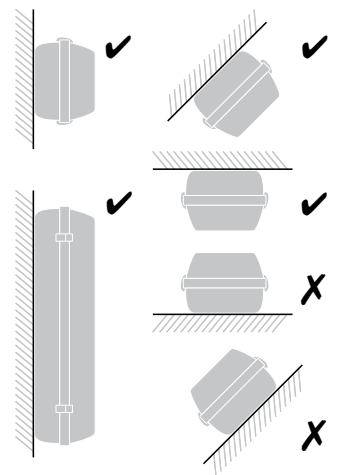
Luminaire mounting positions

Chemical resistance table

When selecting an X-Force fitting for an application, you will need to consider how external chemical substances may affect the luminaire. This may be a corrosive element in the atmosphere or cleaning agents used in the location. No materials can withstand the effects of every chemical and it would be difficult to display the entire list. However, the table below is a selection of the most common chemicals that are used in applications where X-Force is likely to be installed. The information contained in the table is valid under the following conditions:

• The chemical substance listed in the table is an element and not part of a chemical compound.
• The ambient temperature is 22°C.

Chemical Type	Chemicals Specific	ImpactForce	CorrosionForce	ColdForce	HeatForce	StormForce	StormForce
		GRP body	GRP body	GRP body	GRP body	GRP body	GRP body
		PC diffuser	PMMA diffuser	PC diffuser	PC diffuser	PC diffuser	PMMA diffuser
		Stainless toggle	Stainless toggle	Stainless toggle	Stainless toggle	Stainless toggle	Stainless toggle
Acids	acetic <30%	✔	-	✔	✔	✔	-
	nitric <10%	✔	✔	✔	✔	✔	✔
	sulphuric <20%	✔	✔	✔	✔	✔	✔
	hydrochloric <10%	✔	✔	✔	✔	✔	✔
	chromic <20%	✔	✔	✔	✔	✔	✔
	phosphoric <40%	✔	✔	✔	✔	✔	✔
Salts	marine salts	✔	✔	✔	✔	✔	✔
	copper sulphate	✔	✔	✔	✔	✔	✔
	sodium chloride	✔	✔	✔	✔	✔	✔
Organics (aliphatics)	ethanol <30%	✔	✔	✔	✔	✔	✔
	propanol <30%	✔	✔	✔	✔	✔	✔
	methane	✔	✔	✔	✔	✔	✔
	propane	✔	✔	✔	✔	✔	✔
	formaldehyde/formalin	✔	✔	✔	✔	✔	✔
	formic acid <5%	✔	✔	✔	✔	✔	✔
	stearic acid soap	✔	✔	✔	✔	✔	✔
	urea	✔	✔	✔	✔	✔	✔
	ethylene glycol (antifreeze)	✔	✔	✔	✔	✔	✔
Organics (aromatics)	glucose sugar	✔	✔	✔	✔	✔	✔
	glycerol/glycerine	✔	✔	✔	✔	✔	✔
Foodstuffs, cooking products, drinks, beverages	milk	✔	✔	✔	✔	✔	✔
	fruit juices	✔	✔	✔	✔	✔	✔
	vegetable oils (cold)	✔	✔	✔	✔	✔	✔
	vegetable oils (hot)	-	✔	-	-	-	✔
	meats, beef, lamb, pork, game, poultry	✔	✔	✔	✔	✔	✔
	fish	✔	✔	✔	✔	✔	✔
	pork fat	-	✔	-	-	-	✔
	cooking fats (cold)	✔	✔	✔	✔	✔	✔
	cooking fats (hot)	-	✔	-	-	-	✔
	alcoholic beverages beer	✔	✔	✔	✔	✔	✔
	carbonated beverages, lemonade	✔	✔	✔	✔	✔	✔
	wines & spirits	✔	✔	✔	✔	✔	✔
	water <60°C	✔	✔	✔	✔	✔	✔
	vinegar	✔	✔	✔	✔	✔	✔
Gases	ozone	✔	✔	✔	✔	✔	✔
	sulphur dioxide industrial pollutant	✔	✔	✔	✔	✔	✔
Building materials, paints	emulsion paints water based	✔	✔	✔	✔	✔	✔
	oil based paint	-	✔	-	-	-	✔
	white spirit/turps substitute	✔	✔	✔	✔	✔	✔
	cement	✔	✔	✔	✔	✔	✔
Oils, fats fuels	mineral oils	✔	✔	✔	✔	✔	✔
	animal fats (cold) but not pork	-	✔	-	-	-	✔
	silicone oil	✔	✔	✔	✔	✔	✔
	diesel	✔	✔	✔	✔	✔	✔
	kerosene/paraffin oil	-	✔	-	-	-	✔
	petroleum spirit/petroleum ether	✔	✔	✔	✔	✔	✔
Disinfectants, cleaning agents	hydrogen peroxide <40%	✔	✔	✔	✔	✔	✔
	sodium hypochlorite <10%	✔	✔	✔	✔	✔	✔
	soaps	✔	✔	✔	✔	✔	✔
	wetting agents/biocides (dilute)	✔	✔	✔	✔	✔	✔

This information is provided to give guidance about luminaire selection, assuming prolonged exposure to potentially aggressive chemicals or atmospheres. Occasional exposure to low concentrations of potential aggressors is unlikely to be harmful to any of these luminaires. The risk of damage to the luminaires is dependent on the concentration of the aggressor, the duration and frequency of exposure and environmental conditions. If there is any doubt about the suitability of a luminaire for a particular application, please consult your local Thorn representative.

X-Force in action

It is the choice of lighting that determines whether an area is safe – or potentially dangerous. Wherever water, dust and electrical lighting are combined, and especially in the presence of corrosive vapours or extreme temperatures, dependable lighting is essential.

And that is why Thorn's X-Force range has a lot to live up to. Specific products cater for hot, cold, stormy, corrosive and impact related conditions, enabling individual design and performance requirements to be met. Chosen for safety and dependability, X-Force luminaires provide highly effective and efficient lighting in the most hostile of environments.

Many areas can be considered as hostile, from an open walkway in a coastal power plant to a large and complex brewery. Here we have selected frequently occurring applications and explored the particular lighting issues relating to them. These illustrations show a flagship installation of X-Force luminaires at a large food distributor in the UK, where chilled and frozen food products are stored and distributed from a modern warehouse.

The varied range of X-Force luminaires has enabled the customer to exceed the requirements of each specific application area whilst maintaining clear uniformity of design throughout the distribution centre.

Warehousing
The leading image shows ImpactForce luminaires mounted in a racking area. The main issues here surround the dangers from moving vehicles, such as forklift trucks, that can collide with fittings and cause potentially disruptive vibration. The high impact polycarbonate diffuser of ImpactForce will resist a direct impact of up to IK09 and still continue to operate. ImpactForce offers a wide range of variants, including emergency, High Frequency Digital dimming and T16 (T5) lamp options.

Cleaning areas
Lighting in the food industry needs to ensure strong task illumination and help maintain uncompromising standards of hygiene. The food and drink industry covers a vast range of working areas, some of which are dusty, damp, corrosive and laden with oil and fat vapours. In the case of this food distributor, specialised cleaning agents have to be used, which could damage or inhibit the performance of the luminaires.

CorrosionForce overcomes these Issues and meets tough regulations set by the British Retail Consortium (BRC) and the International Food Standards (IFS). These guidelines state that luminaires positioned near the product must be housed in a secure enclosure, where no component parts can fall into the product. The fittings need to be easily cleaned, maintained and re-lamped.

Crucially, the products must be constructed using materials with a finish that will withstand frequent cleaning with inorganic chemical agents and possible hosing down.

X-Force exceeds all these requirements. It is IP65 rated and supplied with stainless steel toggles, quick-fix brackets and a chemical resistant PMMA diffuser (see page 15). Dimmable versions are also available.

Cold store
The final image shows ColdForce luminaires installed in the frozen food section of the distribution centre. Special attention must be given to cold stores to ensure the lamp and luminaires chosen are capable of optimum performance at very low temperatures. The most common problems in this kind of application are starting and icing up. Although fluorescent lamps are sensitive to temperature, the ColdForce luminaire range is specifically designed for cold stores. Fully tested lamp sleeves and special control gear enable luminaires to maintain good light output and strong reliability at temperatures down to -30°C.

Location					
Abattoirs	-	✔	-	-	*
Agricultural buildings	-	✔	-	-	-
Beer and wine cellars	✔	✔	-	-	-
Boiler rooms	-	-	-	✔	-
Breweries	-	✔	-	-	-
Canopy roofs	✔	-	-	-	*
Canteen kitchens	-	✔	-	-	-
Car park	✔	-	-	-	*
Car wash	-	✔	-	-	-
Changing rooms	✔	-	-	-	-
Cheese dairies	-	✔	-	-	-
Chill stores	-	*	✔	-	-
Cold rooms	-	-	✔	-	-
Exposed coastal locations	-	-	-	-	✔
Factories	✔	✔	✔	✔	✔
Food process areas	-	✔	-	-	-
Heavy plant rooms (high temperature)	-	-	-	✔	-
Industrial warehouses	✔	-	-	-	-
Kitchens	-	✔	-	-	-
Lavatories	✔	-	-	-	-
Loading bays	✔	-	-	-	-
Machinery rooms (high temperature)	-	-	-	✔	-
Multi storey car park	✔	-	-	-	-
Outdoor processing plants	-	-	-	-	✔
Paper processing	-	✔	-	-	-
Pedestrian subways	✔	-	-	-	-
Piers	-	-	-	-	✔
Plant rooms	-	-	-	✔	-
Power stations	-	-	-	-	✔
Process areas	-	✔	-	-	-
Railway platforms	✔	-	-	-	*
Seafront areas	-	-	-	-	✔
Sport stadiums	✔	-	-	-	-
Storage sites	✔	-	-	-	-
Subways	✔	-	-	-	-
Textile processing plants	-	✔	-	-	-
Transport terminals	✔	-	-	-	-
Underground car parks	✔	-	-	-	-
Utility rooms	-	-	-	✔	-
Wine Cellars	-	✔	-	-	-

* Depends on application. Please contact your Thorn representative

ImpactForce has been fitted in the storage and racking areas because of its robust construction and resistance to impact and vibrations.

Luminaires used in the cleaning bays have to serve a dual function of hygiene and resistance to cleaning agents. CorrosionForce overcomes the problem by maintaining optimum performance in atmospheres where inorganic chemicals are present.

In the frozen food sector the produce has to be stored at temperatures well below freezing. The logical answer here is ColdForce, which will perform at temperatures as low as -30°C.

ImpactForce

A high performance impact resistant, IP65 proof fluorescent range.

ImpactForce is a rugged luminaire that is suitable for a wide range of applications that are indoors or in semi-outdoor areas. In industrial locations there are dangers from moving vehicles and machinery, which can cause accidental impact damage to the luminaire. The diffuser has been designed to withstand impacts of up to IK09 and continue to operate. Other suitable locations are car parks and pedestrian subways, where the tough construction and vandal resistant toggles deter any unwanted interference.

ImpactForce has a wide range of variants, including T16 (T5) and T26 (T8) lamp options, plus emergency and High Frequency Digital dimmable options.

Lamps
18-70W T26 (T8) (FD) linear fluorescent. Cap: G13
28-80W T16 (T5) (FDH) linear fluorescent, Cap: G5

Materials/Finish
Canopy: glass-fibre reinforced polyester.
Diffuser: polycarbonate with linear prisms.
Gasket: expanded polyurethane.
Toggles: stainless steel.
Gear tray: steel, white enamelled finish.

Installation/Mounting
Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel quick-fix brackets supplied with each luminaire. Stainless steel toggles are captive in the canopy to prevent loss during maintenance and the steel gear tray is retained by finger-operated spring latches. Accessory kits for BESA box mounting, conduit mounting, chain suspension and catenary suspension are all available. Through wire kits can be specified for use with non-emergency versions (see accessories listing).

Standards
Designed and manufactured to comply with EN 60598 Emergency EN60598 2.22.
Class I Electrical
IK09 (diffuser)
IK03 (canopy)
850°C fire retardant (glow wire test)
IP65
CE

Specification
To specify state:
High performance, IP65, dust and moisture proof impact resistant luminaire with GRP canopy, polycarbonate diffuser and stainless steel toggles, 18-70W T26 (T8) linear fluorescent lamps or 28-80W T16 (T5) linear fluorescent lamps, digital dimming and emergency options, with High Frequency gear.
As Thorn ImpactForce.
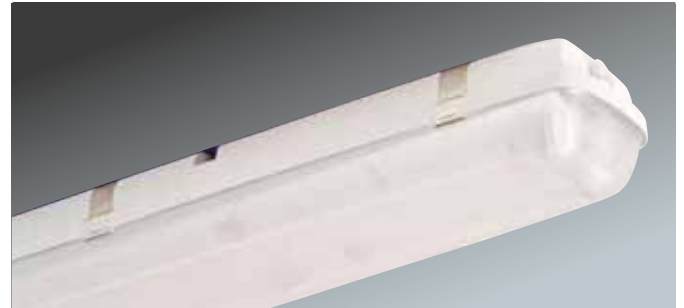
Key Features

- GRP canopy
- High impact polycarbonate diffuser
- Choice of T26 (T8) or T16 (T5) lamps
- High Frequency control gear
- Integral 3 hour SelfTest maintained emergency versions
- High Frequency Digital dimmable (DSI) options
- Horizontal or vertical applications
- Vandal resistant
- Stainless steel toggles
- Through wire options
- Quick-fix brackets supplied
- LSOH cable as standard

Applications

- Industrial warehouses
- Subways
- Storage sites
- Lavatories
- Changing rooms
- Garages
- Underground carparks
- Railway platforms
- Loading bays
- Factories
- Sport stadiums
- Work areas
- Multi storey carparks
- Stadia

ImpactForce	Diffuser PC	Canopy GRP
UV Resistance	Fair	Good
Impact Resistance	10Nm	0.35Nm
Resistance to ageing	Good	Excellent
Silicone free	Yes	Yes
Halogen free: Luminaire Internal Wiring	Yes Yes	Yes n/a
Food grade certification (15° angle)	Yes	Yes
Glow wire test	850°C	850°C
Heat resistance of luminaire plastics	125°C	160°C
UV Transmittance	89%	n/a

CorrosionForce

A high performance, corrosion resistant IP65 proof range. Made from materials selected to withstand aggressive atmospheres laden with salts, acids and mineral oils.

CorrosionForce is constructed from materials that make it suitable for locations that are exposed to liquids or atmospheres that contain potentially corrosive chemicals. Typical areas include food processing areas or milk dairies, but also areas where specialised cleaning agents are used.

Please check page 15 of this brochure for guidance or contact your local Thorn representative if there is any doubt about the suitability of a luminaire when specifying CorrosionForce.

Integral emergency and High Frequency Digital dimmable options are available in the range.

Lamps
18-70W T26 (T8) (FD) linear fluorescent. Cap: G13
28-80W T16 (T5) (FDH) linear fluorescent, Cap: G5

Materials/Finish
Canopy: glass-fibre reinforced polyester.
Diffuser: PMMA (acrylic) with linear prisms.
Gasket: expanded polyurethane.
Toggles: stainless steel.
Gear tray: steel, white enamelled finish.

Installation/Mounting
Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel quick-fix brackets supplied with each luminaire. Stainless steel toggles are captive in the canopy to prevent loss during maintenance and the steel gear tray is retained by finger operated spring latches. Accessory kits for BESA box mounting, conduit mounting, chain suspension and catenary suspension are all available. Through wire kits can be specified for use with non-emergency versions (see accessories listing).

Standards
Designed and manufactured to comply with EN 60598 Emergency EN60598 2.22.
Class I Electrical
IK02 (diffuser)
IK03 (canopy)
650°C fire retardant (glow wire test)
IP65
CE

Specification
To specify state:
High performance, IP65, dust and moisture proof corrosion resistant luminaire with GRP canopy, PMMA diffuser and stainless steel toggles, 18-70W T26 (T8) linear fluorescent lamps or 28-80W T16 (T5) linear fluorescent lamps, digital dimming and emergency options with High Frequency gear. As Thorn CorrosionForce.
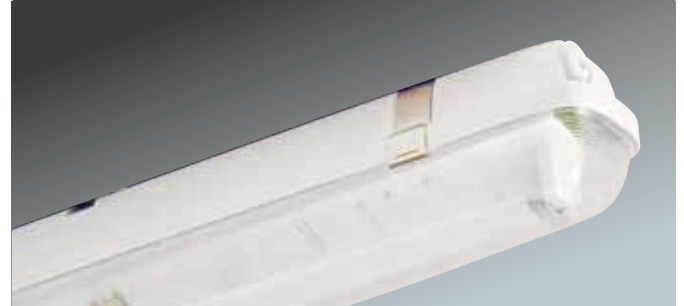
Key Features
- GRP canopy
- Corrosion resistant PMMA diffuser
- Choice of T26 (T8) or T16 (T5) lamps
- High Frequency control gear
- Integral 3 hour SelfTest maintained emergency versions
- High Frequency Digital dimmable (DSI) options
- Good chemical resistance
- Horizontal or vertical applications
- Stainless steel toggles
- Through wire options
- Quick-fix brackets supplied
- LSOH cable as standard

Applications
- Abattoirs
- Agricultural buildings
- Factories
- Garages
- Kitchens
- Plant rooms
- Process areas
- Transport terminals
- Wine Cellars
- Paper processing
- Textile processing plants
- Cheese dairies

CorrosionForce	Diffuser PMMA	Canopy GRP
UV Resistance	Good	Good
Impact Resistance	0.2Nm	0.35Nm
Resistance to ageing	Excellent	Excellent
Silicone free	Yes	Yes
Halogen free: Luminaire Internal Wiring	Yes Yes	Yes n/a
Food grade certification (15° angle)	Yes	Yes
Glow wire test	650°C	850°C
Heat resistance of luminaire plastics	95°C	160°C
UV Transmittance	91%	n/a
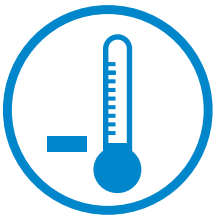
ColdForce

A high protection IP65 proof fluorescent range for use in low temperature environments.

ColdForce has been developed for use in low temperature applications. There are problems associated with standard fluorescent lamps when lighting low temperature locations such as chill rooms and cold stores. The low temperatures can affect the starting circuit and light output. ColdForce overcomes these problems by incorporating an Industrial Ballast. This allows ColdForce luminaries to operate at temperatures as low as -30°C, making this fitting ideal for cold food storage areas. Additionally, to ensure good performance and to minimise maintenance costs in ColdForce installations, standard fluorescent lamps are fitted into thermal over tubes.
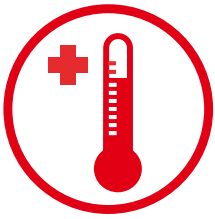
Key Features

- GRP canopy
- High impact polycarbonate diffuser
- Low temperature Industrial Ballast
- Low temperature over tubes
- Does not require special fluorescent lamps
- Low maintenance costs
- Horizontal or vertical applications
- Stainless steel toggles
- Quick-fix brackets supplied
- LSOH cable as standard

Applications

- Chill rooms
- Process areas
- Wine Cellars
- Cheese dairies
- Cold stores

Lamps

36-58W T26 (T8) (FD) linear fluorescent. Cap: G13

Materials/Finish

Canopy: glass-fibre reinforced polyester.
Diffuser: polycarbonate with linear prisms.
Gasket: expanded polyurethane.
Toggles: stainless steel.
Gear tray: steel, white enamelled finish.

Installation/Mounting

Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel quick-fix brackets supplied with each luminaire. Stainless steel toggles are captive in the canopy to prevent loss during maintenance and the steel gear tray is retained by finger operated spring latches. BESA box and conduit mounting, chain suspension, catenary suspension kits and through wire kits are all available (see accessories listing)

Standards

Designed and manufactured to comply with EN 60598
⊕ Class I Electrical
IK09 (diffuser)
IK03 (canopy)
850°C fire retardant (glow wire test)
◈ ▲ ⚠ IP65
▽ CE

Specification

To specify state:
High performance, IP65, dust and moisture proof impact resistant luminaire with GRP canopy, polycarbonate diffuser and stainless steel toggles, 36-58W T26 (T8) linear fluorescent lamps, Industrial Ballast for reliable operation down to -30°C, thermal over tubes fitted to standard lamps for low maintenance. As Thorn ColdForce.

ColdForce	Diffuser PC	Canopy GRP
UV Resistance	Fair	Good
Impact Resistance	10Nm	0.35Nm
Resistance to ageing	Good	Excellent
Silicone free	Yes	Yes
Halogen free: Luminaire Internal Wiring	Yes Yes	Yes n/a
Food grade certification (15° angle)	Yes	Yes
Glow wire test	850°C	850°C
Heat resistance of luminaire plastics	125°C	160°C
UV Transmittance	89%	n/a

HeatForce

High performance IP65 proof luminaire that will continue to perform in high ambient temperature locations.

HeatForce is suitable for tough industrial applications where ambient temperatures can rise up to 65°C. Extreme temperatures have an immediate and lasting effect on the performance and reliability of standard proof luminaires. HeatForce has been designed to operate safely in such demanding conditions, being fitted with a high performance Industrial Ballast that will give over 50,000 hours operation. All HeatForce fittings comprise of a single lamp in a twin body.

Key Features

- GRP canopy
- High impact polycarbonate diffuser
- High temperature Industrial Ballast
- Operation up to 65°
- Horizontal or vertical applications
- Stainless steel toggles
- Quick-fix brackets supplied
- 65°C maximum temperature for 36W. 55°C maximum temperature for 58W.
- LSOH cable as standard

Applications

- Boiler rooms
- Utility rooms
- Machinery rooms
- Heavy plant rooms

Lamps

36-58W T26 (T8) (FD) linear fluorescent. Cap: G13

Materials/Finish

Canopy: glass-fibre reinforced polyester.
Diffuser: polycarbonate with linear prisms.
Gasket: expanded polyurethane.
Toggles: stainless steel.
Gear tray: steel, white enamelled finish.

Installation/Mounting

Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel quick-fix brackets supplied with each luminaire. Stainless steel toggles are captive in the canopy to prevent loss during maintenance and the steel gear tray is retained by finger operated spring latches. BESA box and conduit mounting, chain suspension, catenary suspension kits and through wire kits are all available (see accessories listing)

Standards

Designed and manufactured to comply with EN 60598
⊕ Class I Electrical
IK09 (diffuser)
IK03 (canopy)
850°C fire retardant (glow wire test)
IP65
CE

Specification

To specify state:
High performance, IP65, dust and moisture proof impact resistant luminaire with GRP canopy, polycarbonate diffuser and stainless steel toggles, 36-58W T26 (T8) linear fluorescent lamps, Industrial Ballast for reliable operation up to 65°C, 50,000 hours at maximum temperature.
As Thorn HeatForce.

HeatForce	Diffuser PC	Canopy GRP
UV Resistance	Fair	Good
Impact Resistance	10Nm	0.35Nm
Resistance to ageing	Good	Excellent
Silicone free	Yes	Yes
Halogen free: Luminaire Internal Wiring	Yes Yes	Yes n/a
Food grade certification (15° angle)	Yes	Yes
Glow wire test	850°C	850°C
Heat resistance of luminaire plastics	125°C	160°C
UV Transmittance	89%	n/a

StormForce

A specialist range of IP65 proof luminaires suitable for exterior environments that are subject to rain and strong winds.

StormForce has been developed for applications that require IP65 proof luminaires to perform in environments exposed to rain and strong winds. Luminaires mounted on poles, metal gantries or flexible structures may distort under high winds and cause the housing to twist and deform the IP65 seal. StormForce is specifically designed for tough outdoor applications such as power stations, process plants and coastal locations.

Key Features

- Reinforced GRP Canopy
- Choice of PMMA or PC diffuser
- Internal steel channel
- High Frequency control gear
- Stainless steel toggles
- Robust enclosure and long life seal
- Factory fitted gull wing brackets
- Emergency versions available
- High Frequency Digital dimmable (DSI) options
- LSOH cable as standard

Applications

- Outdoor processing plants
- Seafront areas
- Piers
- Transport areas
- Outdoor processing plants
- Power stations
- Exposed coastal locations

Lamps

36-70W T26 (T8) (FD) linear fluorescent. Cap: G13
35-49W T16 (T5) (FDH) linear fluorescent, Cap: G5

Materials/Finish

Canopy: glass-fibre reinforced polyester.
Diffuser: Choice of PMMA (acrylic) or polycarbonate with linear prisms.
Gasket: expanded polyurethane.
Toggles: stainless steel.
Gear tray: steel, white enamelled finish.

Installation/Mounting

Cable entry positions at the back and each end of the fitting. Supplied with IP65 grommet. Stainless steel toggles are captive in the canopy to prevent loss during maintenance and the steel gear tray is retained by finger operated spring latches. Accessory kits for BESA box mounting, conduit mounting, chain suspension and catenary suspension are all available. Through wire kits can be specified for use with non-emergency versions (see accessories listing).

Standards

Designed and manufactured to comply with EN 60598 Emergency EN60598 2.22.
Class I Electrical
IK09 (PC diffuser)
IK02 (PMMA diffuser)
IK03 (canopy)
850°C fire retardant (PC only) (glow wire test)
IP65
CE

Specification

To specify state:
High performance, IP65, dust and moisture proof impact resistant luminaire with a reinforced GRP canopy suitable for exposed exterior locations, polycarbonate diffuser or acrylic diffuser, stainless steel toggles, internal steel channel, gull wing brackets, 36-70W T26 (T8) linear fluorescent lamps or 35-49W T16 (T5) linear fluorescent lamps with High Frequency gear.
As Thorn StormForce.

StormForce	Diffuser PMMA	Diffuser PC	Canopy GRP
UV Resistance	Good	Fair	Good
Impact Resistance	0.2Nm	10Nm	0.35Nm
Resistance to ageing	Excellent	Good	Excellent
Silicone free	Yes	Yes	Yes
Halogen free: Luminaire Internal Wiring	Yes Yes	Yes Yes	Yes n/a
Food grade certification (15° angle)	Yes	Yes	Yes
Glow wire test	650°C	850°C	850°C
Heat resistance of luminaire plastics	95°C	125°C	160°C
UV Transmittance	91%	89%	n/a

Ordering Guides

⟁ ImpactForce Lamps must be ordered separately

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
T16 High Frequency versions				
IMPACTF2 1X28W T16 HF L000	FDH	G5	1.9	96234392
IMPACTF2 1X35W T16 HF L000	FDH	G5	2.3	96234404
IMPACTF2 1X49W T16 HF L000	FDH	G5	2.3	96234416
IMPACTF2 1X54W T16 HF L000	FDH	G5	1.9	96234428
IMPACTF2 1X80W T16 HF L000	FDH	G5	2.3	96234432
IMPACTF2 2X28W T16 HF L000	FDH	G5	2.6	96234436
IMPACTF2 2X35W T16 HF L000	FDH	G5	3.2	96234448
IMPACTF2 2X49W T16 HF L000	FDH	G5	3.2	96234460
T16 High Frequency Through Wire versions				
IMPACTF2 1x28W T16 HF TW L000	FDH	G5	2.0	96234878
IMPACTF2 1x35W T16 HF TW L000	FDH	G5	2.4	96234879
IMPACTF2 1x49W T16 HF TW L000	FDH	G5	2.4	96234880
IMPACTF2 1x80W T16 HF TW L000	FDH	G5	2.4	96234881
IMPACTF2 2x28W T16 HF TW L000	FDH	G5	2.7	96234882
IMPACTF2 2x35W T16 HF TW L000	FDH	G5	3.3	96234883
IMPACTF2 2x49W T16 HF TW L000	FDH	G5	3.3	96234884
T16 High Frequency Digital Dimmable versions				
IMPACTF2 1X28W T16 HFD L000	FDH	G5	2.3	96234394
IMPACTF2 1X35W T16 HFD L000	FDH	G5	2.7	96234406
IMPACTF2 1X49W T16 HFD L000	FDH	G5	2.7	96234418
IMPACTF2 1X54W T16 HFD L000	FDH	G5	2.1	96234430
IMPACTF2 1X80W T16 HFD L000	FDH	G5	2.8	96234434
IMPACTF2 2X28W T16 HFD L000	FDH	G5	3.0	96234438
IMPACTF2 2X35W T16 HFD L000	FDH	G5	3.6	96234450
IMPACTF2 2X49W T16 HFD L000	FDH	G5	4.6	96234462
T16 High Frequency Digital Dimmable Though Wire versions				
IMPACTF2 1x28W T16 HFD TW L000	FDH	G5	2.4	96234885
IMPACTF2 1x35W T16 HFD TW L000	FDH	G5	2.8	96234886
IMPACTF2 1x49W T16 HFD TW L000	FDH	G5	2.8	96234887
IMPACTF2 1x80W T16 HFD TW L000	FDH	G5	2.9	96234888
IMPACTF2 2x28W T16 HFD TW L000	FDH	G5	3.1	96234889
IMPACTF2 2x35W T16 HFD TW L000	FDH	G5	3.7	96234890
IMPACTF2 2x49W T16 HFD TW L000	FDH	G5	4.7	96234891
T16 High Frequency Emergency SelfTest versions				
IMPACTF2 1X28W T16 HF E3T L000	FDH	G5	2.3	96234400
IMPACTF2 1X35W T16 HF E3T L000	FDH	G5	2.7	96234412
IMPACTF2 1X49W T16 HF E3T L000	FDH	G5	2.7	96234424
IMPACTF2 2X28W T16 HF E3T L000	FDH	G5	2.6	96234444
IMPACTF2 2X35W T16 HF E3T L000	FDH	G5	3.6	96234456
IMPACTF2 2X49W T16 HF E3T L000	FDH	G5	4.6	96234468
T16 High Frequency Digital Dimmable Emergency SelfTest versions				
IMPACTF2 1X28W T16 HFD E3T L000	FDH	G5	2.7	96234402
IMPACTF2 1X35W T16 HFD E3T L000	FDH	G5	3.1	96234414
IMPACTF2 1X49W T16 HFD E3T L000	FDH	G5	3.1	96234426
IMPACTF2 2X28W T16 HFD E3T L000	FDH	G5	3.4	96234446
IMPACTF2 2X35W T16 HFD E3T L000	FDH	G5	4.0	96234458
IMPACTF2 2X49W T16 HFD E3T L000	FDH	G5	4.0	96234470
T16 High Frequency Emergency Addressable versions				
IMPACTF2 1X28W T16 HF E3X L000	FDH	G5	2.3	96234947
IMPACTF2 1X35W T16 HF E3X L000	FDH	G5	2.7	96234948
IMPACTF2 1X49W T16 HF E3X L000	FDH	G5	2.7	96234949
IMPACTF2 2X28W T16 HF E3X L000	FDH	G5	2.6	96234950
IMPACTF2 2X35W T16 HF E3X L000	FDH	G5	3.6	96234951
IMPACTF2 2X49W T16 HF E3X L000	FDH	G5	4.6	96234952

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
T26 High Frequency versions				
IMPACTF2 1X18W T26 HF L000	FD	G13	0.9	96234892
IMPACTF2 1X36W T26 HF L000	FD	G13	1.9	96234306
IMPACTF2 1X58W T26 HF L000	FD	G13	2.5	96234336
IMPACTF2 1X70W T26 HF L000	FD	G13	3.3	96234350
IMPACTF2 2X18W T26 HF L000	FD	G13	1.6	96234893
IMPACTF2 2X36W T26 HF L000	FD	G13	2.6	96234358
IMPACTF2 2X58W T26 HF L000	FD	G13	3.2	96234372
IMPACTF2 2X70W T26 HF L000	FD	G13	4.6	96234386
T26 High Frequency Digital Dimmable versions				
IMPACTF2 1X18W T26 HFD L000	FD	G13	1.5	96234894
IMPACTF2 1X36W T26 HFD L000	FD	G13	2.3	96234308
IMPACTF2 1X58W T26 HFD L000	FD	G13	2.8	96234338
IMPACTF2 2X18W T26 HFD L000	FD	G13	2.1	96234895
IMPACTF2 2X36W T26 HFD L000	FD	G13	2.8	96234360
IMPACTF2 2X58W T26 HFD L000	FD	G13	3.5	96234374
T26 High Frequency Though wire versions				
IMPACTF2 1X36W T26 HF TW L000	FD	G13	2.0	96234896
IMPACTF2 1X58W T26 HF TW L000	FD	G13	2.6	96234897
IMPACTF2 1X70W T26 HF TW L000	FD	G13	3.4	96234898
IMPACTF2 2X36W T26 HF TW L000	FD	G13	2.7	96234899
IMPACTF2 2X58W T26 HF TW L000	FD	G13	3.3	96234900
IMPACTF2 2X70W T26 HF TW L000	FD	G13	4.7	96234901
T26 High Frequency Digital Dimmable Through Wire versions				
IMPACTF2 1x36W T26 HFD TW L000	FD	G13	2.4	96234902
IMPACTF2 1x58W T26 HFD TW L000	FD	G13	2.9	96234903
IMPACTF2 2x36W T26 HFD TW L000	FD	G13	2.9	96234904
IMPACTF2 2x58W T26 HFD TW L000	FD	G13	3.6	96234905
T26 High Frequency Emergency SelfTest versions				
IMPACTF2 1X36W T26 HF E3T L000	FD	G13	2.3	96234330
IMPACTF2 1X58W T26 HF E3T L000	FD	G13	2.8	96234344
IMPACTF2 1X70W T26 HF E3T L000	FD	G13	3.6	96234354
IMPACTF2 2X36W T26 HF E3T L000	FD	G13	2.8	96234366
IMPACTF2 2X58W T26 HF E3T L000	FD	G13	3.8	96234380
IMPACTF2 2X70W T26 HF E3T L000	FD	G13	5.2	96234390
T26 High Frequency Digital Dimmable Emergency SelfTest versions				
IMPACTF2 1X36W T26 HFD E3T L000	FD	G13	2.7	96234332
IMPACTF2 1X58W T26 HFD E3T L000	FD	G13	3.3	96234346
IMPACTF2 2X36W T26 HFD E3T L000	FD	G13	3.4	96234368
IMPACTF2 2X58W T26 HFD E3T L000	FD	G13	4.0	96234382
T26 High Frequency Emergency Addressable versions				
IMPACTF2 1X36W T26 HF E3X L000	FD	G13	2.3	96234959
IMPACTF2 1X58W T26 HF E3X L000	FD	G13	2.8	96234960
IMPACTF2 1X70W T26 HF E3X L000	FD	G13	3.6	96234961
IMPACTF2 2X36W T26 HF E3X L000	FD	G13	2.8	96234962
IMPACTF2 2X58W T26 HF E3X L000	FD	G13	3.8	96234963
IMPACTF2 2X70W T26 HF E3X L000	FD	G13	5.2	96234964

HF - High Frequency, HFD - High Frequency Dimmable,
E3T - 3 hour emergency SelfTest, E3X - 3 hour emergency addressable
TW - Through wire, L000 - Lamps not included

⚡ CorrosionForce Lamps must be ordered separately

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
T16 High Frequency versions				
CORRF2 1X28W T16 HF L000	FDH	G5	1.9	96234544
CORRF2 1X35W T16 HF L000	FDH	G5	2.3	96234556
CORRF2 1X49W T16 HF L000	FDH	G5	2.3	96234568
CORRF2 1X54W T16 HF L000	FDH	G5	1.9	96234580
CORRF2 1X80W T16 HF L000	FDH	G5	2.3	96234584
CORRF2 2X28W T16 HF L000	FDH	G5	2.6	96234588
CORRF2 2X35W T16 HF L000	FDH	G5	3.2	96234600
CORRF2 2X49W T16 HF L000	FDH	G5	3.2	96234612
T16 High Frequency Through Wire versions				
CORRF2 1X28W T16 HF TW L000	FDH	G5	2.0	96234914
CORRF2 1X35W T16 HF TW L000	FDH	G5	2.4	96234915
CORRF2 1X49W T16 HF TW L000	FDH	G5	2.4	96234916
CORRF2 1X80W T16 HF TW L000	FDH	G5	2.4	96234917
CORRF2 2X28W T16 HF TW L000	FDH	G5	2.7	96234918
CORRF2 2X35W T16 HF TW L000	FDH	G5	3.3	96234919
CORRF2 2X49W T16 HF TW L000	FDH	G5	3.3	96234920
T16 High Frequency Digital Dimmable versions				
CORRF2 1X28W T16 HFD L000	FDH	G5	2.3	96234546
CORRF2 1X35W T16 HFD L000	FDH	G5	2.7	96234558
CORRF2 1X49W T16 HFD L000	FDH	G5	2.7	96234570
CORRF2 1X54W T16 HFD L000	FDH	G5	2.1	96234582
CORRF2 1X80W T16 HFD L000	FDH	G5	2.8	96234586
CORRF2 2X28W T16 HFD L000	FDH	G5	3.0	96234590
CORRF2 2X35W T16 HFD L000	FDH	G5	3.6	96234602
CORRF2 2X49W T16 HFD L000	FDH	G5	4.6	96234614
T16 High Frequency Digital Dimmable Though Wire versions				
CORRF2 1X28W T16 HFD TW L000	FDH	G5	2.4	96234921
CORRF2 1X35W T16 HFD TW L000	FDH	G5	2.8	96234922
CORRF2 1X49W T16 HFD TW L000	FDH	G5	2.8	96234923
CORRF2 1X80W T16 HFD TW L000	FDH	G5	2.9	96234924
CORRF2 2X28W T16 HFD TW L000	FDH	G5	3.1	96234925
CORRF2 2X35W T16 HFD TW L000	FDH	G5	3.7	96234926
CORRF2 2X49W T16 HFD TW L000	FDH	G5	4.7	96234927
T16 High Frequency Emergency SelfTest versions				
CORRF2 1X28W T16 HF E3T L000	FDH	G5	2.3	96234552
CORRF2 1X35W T16 HF E3T L000	FDH	G5	2.7	96234564
CORRF2 1X49W T16 HF E3T L000	FDH	G5	2.7	96234576
CORRF2 2X28W T16 HF E3T L000	FDH	G5	2.6	96234596
CORRF2 2X35W T16 HF E3T L000	FDH	G5	3.6	96234608
CORRF2 2X49W T16 HF E3T L000	FDH	G5	4.6	96234620
T16 High Frequency Digital Dimmable Emergency SelfTest versions				
CORRF2 1X28W T16 HFD E3T L000	FDH	G5	2.7	96234554
CORRF2 1X35W T16 HFD E3T L000	FDH	G5	3.1	96234566
CORRF2 1X49W T16 HFD E3T L000	FDH	G5	3.1	96234578
CORRF2 2X28W T16 HFD E3T L000	FDH	G5	3.4	96234598
CORRF2 2X35W T16 HFD E3T L000	FDH	G5	4.0	96234610
CORRF2 2X49W T16 HFD E3T L000	FDH	G5	4.0	96234622
T16 High Frequency Emergency Addressable versions				
CORRF2 1X28W T16 HF E3X L000	FDH	G5	2.3	96234968
CORRF2 1X35W T16 HF E3X L000	FDH	G5	2.7	96234969
CORRF2 1X49W T16 HF E3X L000	FDH	G5	2.7	96234970
CORRF2 2X28W T16 HF E3X L000	FDH	G5	2.6	96234971
CORRF2 2X35W T16 HF E3X L000	FDH	G5	3.6	96234972
CORRF2 2X49W T16 HF E3X L000	FDH	G5	4.6	96234973

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
T26 High Frequency versions				
CORRF2 1X18W T26 HF L000	FD	G13	0.9	96234928
CORRF2 1X36W T26 HF L000	FD	G13	1.9	96234474
CORRF2 1X58W T26 HF L000	FD	G13	2.5	96234488
CORRF2 1X70W T26 HF L000	FD	G13	3.3	96234502
CORRF2 2X18W T26 HF L000	FD	G13	1.6	96234929
CORRF2 2X36W T26 HF L000	FD	G13	2.6	96234510
CORRF2 2X58W T26 HF L000	FD	G13	3.2	96234524
CORRF2 2X70W T26 HF L000	FD	G13	4.6	96234538
T26 High Frequency Digital Dimmable versions				
CORRF2 1X18W T26 HFD L000	FD	G13	1.5	96234930
CORRF2 1X36W T26 HFD L000	FD	G13	2.3	96234476
CORRF2 1X58W T26 HFD L000	FD	G13	2.8	96234490
CORRF2 2X18W T26 HFD L000	FD	G13	2.1	96234931
CORRF2 2X36W T26 HFD L000	FD	G13	2.8	96234512
CORRF2 2X58W T26 HFD L000	FD	G13	3.5	96234526
T26 High Frequency Though wire versions				
CORRF2 1X36W T26 HF TW L000	FD	G13	2.0	96234932
CORRF2 1X58W T26 HF TW L000	FD	G13	2.6	96234933
CORRF2 1X70W T26 HF TW L000	FD	G13	2.4	96234934
CORRF2 2X36W T26 HF TW L000	FD	G13	2.7	96234935
CORRF2 2X58W T26 HF TW L000	FD	G13	3.3	96234936
CORRF2 2X70W T26 HF TW L000	FD	G13	3.3	96234937
T26 High Frequency Digital Dimmable Through Wire versions				
CORRF2 1X36W T26 HFD TW L000	FD	G13	2.4	96234938
CORRF2 1X58W T26 HFD TW L000	FD	G13	2.9	96234939
CORRF2 2X36W T26 HFD TW L000	FD	G13	2.9	96234940
CORRF2 2X58W T26 HFD TW L000	FD	G13	3.6	96234941
T26 High Frequency Emergency SelfTest versions				
CORRF2 1X36W T26 HF E3T L000	FD	G13	2.3	96234482
CORRF2 1X58W T26 HF E3T L000	FD	G13	2.8	96234496
CORRF2 1X70W T26 HF E3T L000	FD	G13	3.6	96234506
CORRF2 2X36W T26 HF E3T L000	FD	G13	2.8	96234518
CORRF2 2X58W T26 HF E3T L000	FD	G13	3.8	96234532
CORRF2 2X70W T26 HF E3T L000	FD	G13	5.2	96234542
T26 High Frequency Digital Dimmable Emergency SelfTest versions				
CORRF2 1X36W T26 HFD E3T L000	FD	G13	2.7	96234484
CORRF2 1X58W T26 HFD E3T L000	FD	G13	3.3	96234498
CORRF2 2X36W T26 HFD E3T L000	FD	G13	3.4	96234520
CORRF2 2X58W T26 HFD E3T L000	FD	G13	4.0	96234534
T26 High Frequency Emergency Addressable versions				
CORRF2 1X36W T26 HF E3X L000	FD	G13	2.3	96234974
CORRF2 1X58W T26 HF E3X L000	FD	G13	2.8	96234975
CORRF2 1X70W T26 HF E3X L000	FD	G13	3.6	96234976
CORRF2 2X36W T26 HF E3X L000	FD	G13	2.8	96234977
CORRF2 2X58W T26 HF E3X L000	FD	G13	3.8	96234978
CORRF2 2X70W T26 HF E3X L000	FD	G13	5.2	96234979

HF - High Frequency, HFD - High Frequency Dimmable, E3T - 3 hour emergency SelfTest, E3X - 3 hour emergency addressable, TW - Through wire, L000 - Lamps not included

Ordering Guides
Accessories

ColdForce Lamps must be ordered separately

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
T26 High Frequency versions				
COLDF2 1X36W T26/38 HF TT L000	FD	G13	1.88	96234623
COLDF2 1X58W T26/38 HF TT L000	FD	G13	2.45	96234624
COLDF2 2X36W T26/38 HF TT L000	FD	G13	2.62	96234625
COLDF2 2X58W T26/38 HF TT L000	FD	G13	3.17	96234626

HeatForce Lamps must be ordered separately

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
T26 High Frequency versions				
HEATF2 1X36W T26 HF HT L000*	FD	G13	1.88	96234627
HEATF2 1X58W T26 HF HT L000*	FD	G13	2.45	96234628

HF - High Frequency, E3 - 3 hour emergency,
L000 - Lamps not included

* HeatForce fittings comprise of a single lamp in a twin body

StormForce Lamps must be ordered separately

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
PMMA (Acrylic) Diffuser				
T16 High Frequency versions				
STORMF2 AC 2X35W T16 HF L000	FDH	G5	5.0	96234965
STORMF2 AC 2X49W T16 HF L000	FDH	G5	5.0	96234966
T26 High Frequency versions				
STORMF2 AC 2X36W T26 HF L000	FDH	G13	4.2	96234981
STORMF2 AC 2X58W T26 HF L000	FDH	G13	5.6	96234982
STORMF2 AC 2X70W T26 HF L000	FDH	G13	7.0	96234967
PC Diffuser				
T16 High Frequency versions				
STORMF2 PC 2X35W T16 HF L000	FDH	G5	5.0	96234983
STORMF2 PC 2X49W T16 HF L000	FDH	G5	5.0	96234984
T26 High Frequency versions				
STORMF2 PC 2X36W T26 HF L000	FDH	G13	4.2	96234944
STORMF2 PC 2X58W T26 HF L000	FDH	G13	5.6	96234945
STORMF2 PC 2X70W T26 HF L000	FDH	G13	7.0	96234985
T26 High Frequency Basic Emergency versions				
STORMF2 PC 2X36W T26 HF E3 L000	FD	G13	5.2	96235726
STORMF2 PC 2X58W T26 HF E3 L000	FD	G13	6.5	96235727

Accessories Ordering Guide

Description		SAP Code
FORCE2 28/36 TW KIT*	THROUGH WIRE KIT 28/36W	96503163
FORCE2 35/49/58 TW KIT*	THROUGH WIRE KIT 35/49/58W	96503164
FORCE2 70 TW KIT*	THROUGH WIRE KIT 70W	96503165
FORCE2 FIX KIT	QUICK FIT BRACKET (PAIR)	96503166
FORCE2 FIX/CH KIT	CHAIN SUSPENSION KITS (5 PAIRS)	96503167
FORCE2 28/36 RS CLIP KIT	STAINLESS STEEL TOGGLES	96503157
FORCE2 35/49/58 RS CLIP KIT	STAINLESS STEEL TOGGLES	96503158
FORCE2 70 RS CLIP KIT	STAINLESS STEEL TOGGLES	96503159
FORCE2 28/36 PC CLIP KIT	POLYCARBONATE TOGGLES	96503160
FORCE2 35/49/58 PC CLIP KIT	POLYCARBONATE TOGGLES	96503161

Description		SAP Code
FORCE2 70 PC CLIP KIT	POLYCARBONATE TOGGLES	96503162
FORCE2 MCA KIT	CATENARY SUSPENSION KIT	96233817
FORCE2 MRS KIT	CONDUIT KIT	96503169
FORCE2 BESA KIT	BESA BOX KIT	96503168
XFORCE2 R 1X28/36/54	REFLECTOR FOR SINGLE 28/36/54W	96235134
XFORCE2 R 1X35/49/58/80	REFLECTOR FOR SINGLE 35/49/58/80W	96235135
XFORCE2 R 2X28/36	REFLECTOR FOR TWIN 28/36W	96235136
XFORCE2 R 2X35/49/58	REFLECTOR FOR TWIN 35/49/58W	96235137

*Only suitable for use with non-emergency versions

Stainless steel toggles
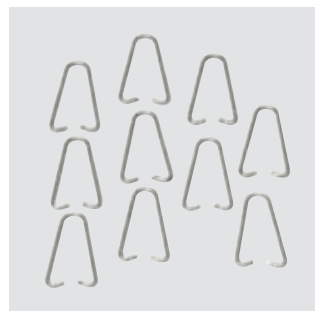
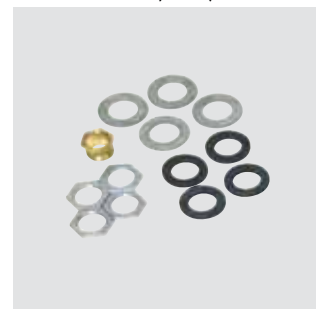Chain fixing kit (Fix/Ch kit)

Quick fix bracket (Fix kit)

BESA kit
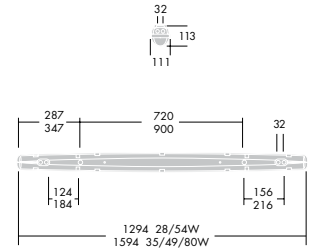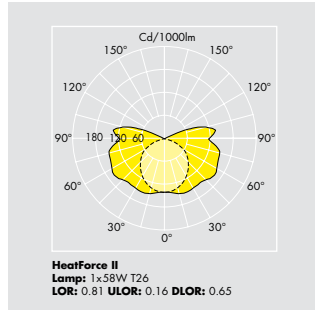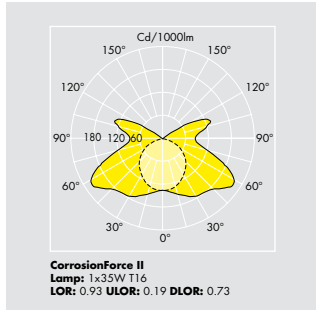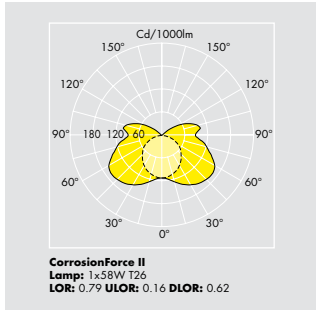

Through wire kit

Polycarbonate toggles (PC Clip kit)

MRS kit

Reflector

Photometrics
Dimensions

CorrosionForce II
Lamp: 1x58W T26
LOR: 0.79 **ULOR:** 0.16 **DLOR:** 0.62

CorrosionForce II
Lamp: 1x35W T16
LOR: 0.93 **ULOR:** 0.19 **DLOR:** 0.73

HeatForce II
Lamp: 1x58W T26
LOR: 0.81 **ULOR:** 0.16 **DLOR:** 0.65

CorrosionForce II
Lamp: 2x58W T26
LOR: 0.67 **ULOR:** 0.11 **DLOR:** 0.56

ImpactForce II
Lamp: 1x35W T16
LOR: 0.91 **ULOR:** 0.19 **DLOR:** 0.72

CorrosionForce II
Lamp: 2x35W T16
LOR: 0.81 **ULOR:** 0.14 **DLOR:** 0.68

ImpactForce II
Lamp: 1x58W T26
LOR: 0.75 **ULOR:** 0.16 **DLOR:** 0.59

HeatForce II
Lamp: 1x36W T26
LOR: 0.81 **ULOR:** 0.16 **DLOR:** 0.65

ImpactForce II
Lamp: 2x35W T16
LOR: 0.77 **ULOR:** 0.13 **DLOR:** 0.64

ImpactForce II
Lamp: 2x58W T26
LOR: 0.63 **ULOR:** 0.10 **DLOR:** 0.52

ColdForce II
Lamp: 1x58W T26
LOR: 0.66 **ULOR:** 0.15 **DLOR:** 0.51

ColdForce II
Lamp: 2x58W T26
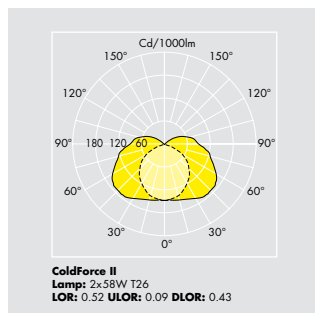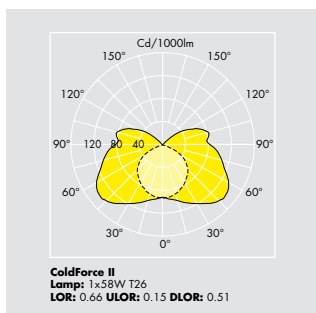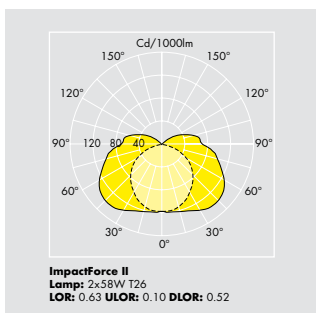**LOR:** 0.52 **ULOR:** 0.09 **DLOR:** 0.43

Single T16 (T5) version

Twin T16 (T5) version
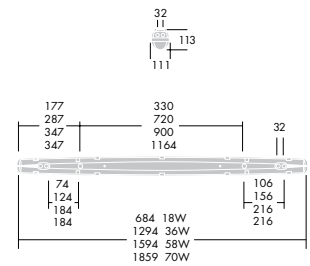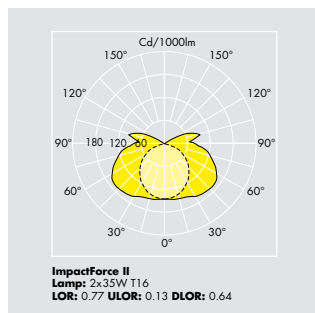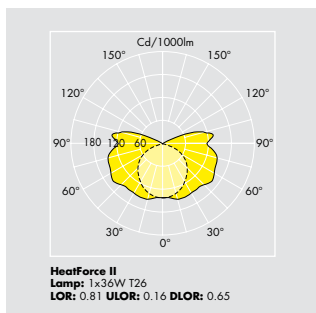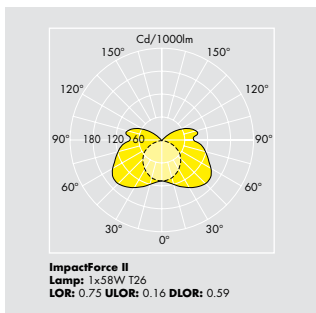
Single T26 (T8) version
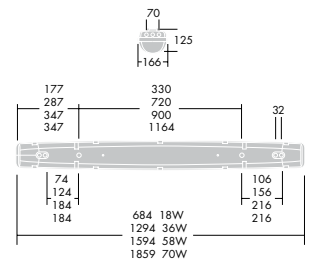
Twin T26 (T8) version

THORN

Lighting people and places

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