

THORN

Titus

A powerful range of fluorescent luminaires designed for sport and industrial applications



Introduction

The Titus range of fluorescent luminaires has been used effectively in a wide variety of sporting and industrial applications across the world.



▲ Titus Industry

▼ Titus Sport



Building on the fundamental thinking that helped design the first Titus range, a series of key improvements and enhancements have enabled Thorn to offer significant new benefits to both the user and the installer.

Titus offers many new benefits

Higher output lamps

The range now includes the use of 80W lamps for optimum performance. With up to 24,600 initial lamp lumens per luminaire, Titus can offer a high quality alternative to conventional high and low bay fittings with high pressure discharge lamps.

Energy savings

Dimmable control gear options enable the luminaires to be easily linked to presence or daylight detectors, offering the potential for energy saving.

Longer life in industry

Some versions of Titus Industry are supplied with heavy duty electronic ballasts that are designed to operate in harsh environments. These ballasts have a life of up to 100,000 hours at high ambient temperatures and can withstand voltage peaks of up to 4kV.

Improved Safety

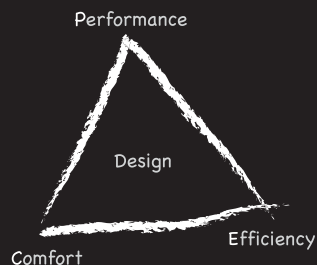
Emergency lighting is required to operate automatically when a lighting circuit loses the mains supply. Integral emergency versions of Titus are offered as standard in the range.

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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.



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. Titus delivers the right light in the right place at the right time.



Tennis hall in the French city "Thorigné Fouillard" Photograph by Pilam ©

Performance: Providing the best visual effectiveness

- From a luminaire that is less than 250mm wide, MRO reflectors offer precise light distributions (wide and asymmetric) to give good vertical illuminance.
- When compared to single point discharge fittings with high pressure discharge lamps, the linear nature of Titus provides less glare and shadowing, ensuring much improved light quality.
- Colour rendering of Ra 85+ provides excellent visibility and satisfies the requirements of the European Directive EN 12464, for the lighting of workplaces. Titus Sport also meets Sport Guidance recommendations.

Efficiency: Conserving energy and effort, reducing CO₂ emissions and waste, providing lighting that is practical and efficient to install, operate and maintain

- High output T16 lamps with high efficacies, typically in the 80 lumens per Watt bracket, combine with High Frequency control gear to ensure energy efficient lighting.
- Titus can be used in conjunction with lighting control systems. Lighting controls can react to the presence or absence of people and to the amount of daylight available, helping to optimise the overall energy efficiency of any application.
- Simple light variation can be achieved using circuit switching or dimming. By reducing the power consumption on demand, a significant amount of energy can be saved.

- The curved body profile ensures great rigidity and mechanical strength, whilst the steel stove enamel finish provides resistance to physically and chemically aggressive environments.
- Heavy duty electronic ballasts used in some Titus Industry versions deliver long reliable operation, saving maintenance costs in difficult to access areas.

Comfort: giving people satisfaction and stimulation

- High Frequency gear eliminates the risks and aggravation of stroboscopic effects. This can occur in high-speed sports, or where rotating machinery is present.
- In the event of the mains supply failing, it is reassuring to know that integrated emergency versions of Titus will provide the correct level of illumination to reduce confusion and aid safe evacuation.
- Better industrial lighting can boost workers' morale and productivity, while good lighting in the sporting arena encourages strong performances and can enhance crowd enjoyment.

Indoor Sports Applications

Indoor sports facilities are being developed or upgraded to achieve higher quality lighting.

Lighting specifications are becoming increasingly stringent, requiring more illuminance, better control flexibility and the ability to cater for multiple sports and activities. The Titus Sport range has been extended to address the needs of the different application classes shown below.



Level of competition	Lighting Class		
	I	II	III
International or national	✓		
Regional	✓	✓	
Local	✓	✓	✓
Training		✓	✓
Recreational/education			✓

Flexibility of use

Most indoor sports halls cater for a mixture of different sporting and non-sporting events. As all activities have different visual requirements, it is essential to meet the needs of all likely activities and levels of play.

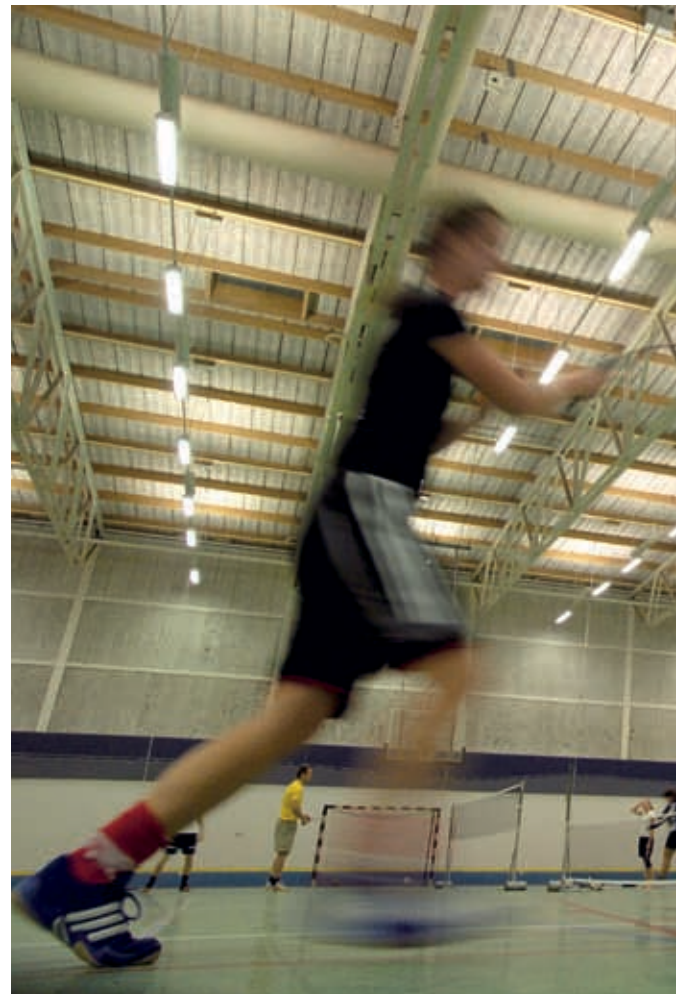
As shown in the table above, EN12193 categorises all sporting requirements by the level of competition and lighting class (I, II or III). The requirements of specific activities are listed on page 7.

- Titus Sport has been developed for use with ceiling heights of 4 metres and above.
- Schemes can be planned to cater for all three lighting class levels of competition.
- Available in 49W, 54W and 80W versions.

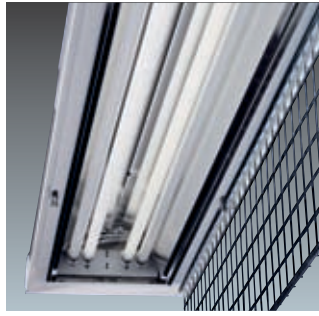
Visual environment

It is easy to think that getting the lighting right is a matter of achieving the correct light level, but lighting must also create the right visual performance. For example, the uniformity of illumination affects the perception of space and the ability to play effectively. Discomfort glare determines how uncomfortable players find the lighting. Stroboscopic effect can seriously impair the visual perception of moving objects, whilst modelling is important as poor control of shadowing can make objects appear unclear and flat. Discomfort glare, stroboscopic effect and modelling can all affect the ability of players to concentrate without distraction or fatigue.

- Titus provides high levels of visual performance through a specially designed MIRO reflector.
- Optional louvres give additional glare reduction.
- T16 (T5) lamps ensure high colour rendering.
- Electronic ballasts offer flicker-free light, eliminating potentially harmful stroboscopic effects.



Leisure Centre, Boson, Sweden



Lighting control

One lighting layout may not meet all requirements, as specific sports require different lighting configurations. (For example, tennis: practice = 300 lux; tournament = 750 lux)

It is often essential for the lighting system to allow groups of luminaires to be controlled, adjusting the level of light according to the sport. Simple lamp switching or the use of lighting controls can help achieve flexibility in illuminance and a lower energy demand. In applications with an element of daylight, further energy savings may be achieved by linking the luminaires to daylight sensors.

For spectator events, there is a growing demand to provide theatrical lighting effects that can create atmosphere and interaction between the players and the audience. Again, this calls for lighting controls:

- Titus offers a facility for separate circuit switching for different light output levels.
- Dimming control gear allows dynamic lighting effects.
- Compatibility with lighting controls offers the opportunity for precise control and significant energy savings.

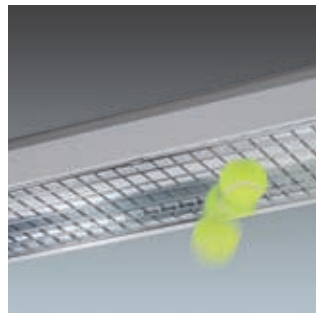
Arrangement of luminaires

For sports such as badminton and tennis, the positioning of the luminaires outside the playing area may be necessary. This helps avoid disability glare for players looking upwards, whilst delivering a good level of vertical illuminance to ensure clear visibility of any high play.

- Titus can be tilted up to 50° via patented brackets and still provide optimal light direction.
- This enables the product to be mounted outside of the line of sight of any players.



Silkeborg Sports Centre, Denmark



Impact resistance

Indoor sports luminaires need to be impact resistant against balls and projectiles. These fittings should also be designed and mounted to minimise the risks of objects becoming trapped within or behind them.

- The curved body profile of Titus prevents projectiles becoming trapped behind the fitting.
- A robust lockable wire guard helps protect the lamps (IK09).
- DIN 18032.3 (ball impact proof) approved.

Indoor Sports Applications

For certain sports, careful consideration needs to be given to environmental conditions.



Sometimes there is a requirement for a luminaire to be designed for prolonged, reliable operation in indoor sporting applications where environmental conditions are severe. Warm humid atmospheres, perhaps carrying corrosive agents, or low ambient temperatures, like in swimming pools and ice rinks, include some of the more extreme conditions that may be encountered.

Titus Industry is the ideal luminaire. It is made from galvanised steel, finished in grey with a protective glass enclosure and sealed to IP65 (dust tight, jet proof).



Norresundby Swimming Pool, Aalborg Denmark



Skøjtehal Ice Rink, Aarhus Denmark

EN 12193: 2007 Light and Lighting – Sports Lighting

This table contains lighting recommendations for a variety of sports. Lighting requirements may differ according to the level of competition of a sport, and therefore requirements are shown for different lighting classes according to EN 12193: 2007 Light and Lighting – Sports Lighting.

Type of area, task or activity	Class	E _m	R _a	U _o
Aerobics (recreational)		200	20	0.50
Archery (lane/target)		200/Ev 750	60	0.5/0.8
Athletics (indoor)	Class I	500	60	0.70
	Class II	300	60	0.60
	Class III	200	20	0.50
Badminton	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Basketball (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Billiards	Class I	750	80	0.80
	Class II	500	80	0.80
	Class III	500	80	0.80
Boccia (indoor)	Class I	300	60	0.70
	Class II	200	60	0.70
	Class III	200	20	0.50
Boules (indoor)	Class I	300	60	0.70
	Class II	200	60	0.70
	Class III	200	20	0.50
10 pin/9 pin bowling	Lanes	200	60	0.50
	Pins 25m lane	Ev 1000		0.80
	Pins 50m lane	Ev 2000		0.80
Boxing	Class I	2000	80	0.80
	Class II	1000	80	0.80
	Class III	500	60	0.50
Climbing	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.50
Cricket nets	Class I	1500	60	0.80
	Class II	1000	60	0.80
	Class III	750	20	0.80
Curling (target/playing area)		300/200	0.70	0.70
Cycling (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Dancing	Class I	500	60	0.70
	Class II	300	60	0.60
	Class III	200	20	0.50
Darts	Class I	Eh 200/Ev 750	60	
	Class II	Eh 100/Ev 500	60	
	Class III	Eh 50/Ev 300	20	
Fencing	Class I	Eh 750/Ev 500	60	0.70
	Class II	Eh 500/Ev 300	60	0.70
	Class III	Eh 300/Ev 200	20	0.70
Football (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Gymnastics	Class I	500	60	0.70
	Class II	300	60	0.60
	Class III	200	20	0.50
Handball (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50

Type of area, task or activity	Class	E _m	R _a	U _o
Hockey (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Ice hockey (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Ice skating	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Judo	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Kendo/Karate	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Netball (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Petanque (indoor)	Class I	300	60	0.70
	Class II	200	60	0.70
	Class III	200	20	0.50
Racketball	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Roller skating	Class I	500	60	0.70
	Class II	300	60	0.60
	Class III	200	20	0.50
School sports	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Shooting (lane/target)		200/Ev 750	60	0.5/0.8
Snooker	Class I	750	80	0.80
	Class II	500	80	0.80
	Class III	500	80	0.80
Speed skating	Class I	500	60	0.70
	Class II	300	60	0.60
	Class III	200	20	0.50
Squash	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Swimming	Class I	500	60	0.70
	Class II	300	60	0.70
	Class III	200	20	0.50
Table tennis	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.70
Tennis (indoor)	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	300	20	0.50
Weight lifting	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50
Wrestling	Class I	750	60	0.70
	Class II	500	60	0.70
	Class III	200	20	0.50

Industrial Applications

Any employer in industry would like to see a reduction in accidents and running costs, whilst at the same time improving worker morale and productivity.

Happily, Thorn have a luminaire that can help deliver all these objectives – Titus Industry. It has been designed following careful consideration of the application issues summarised here.



Energy saving

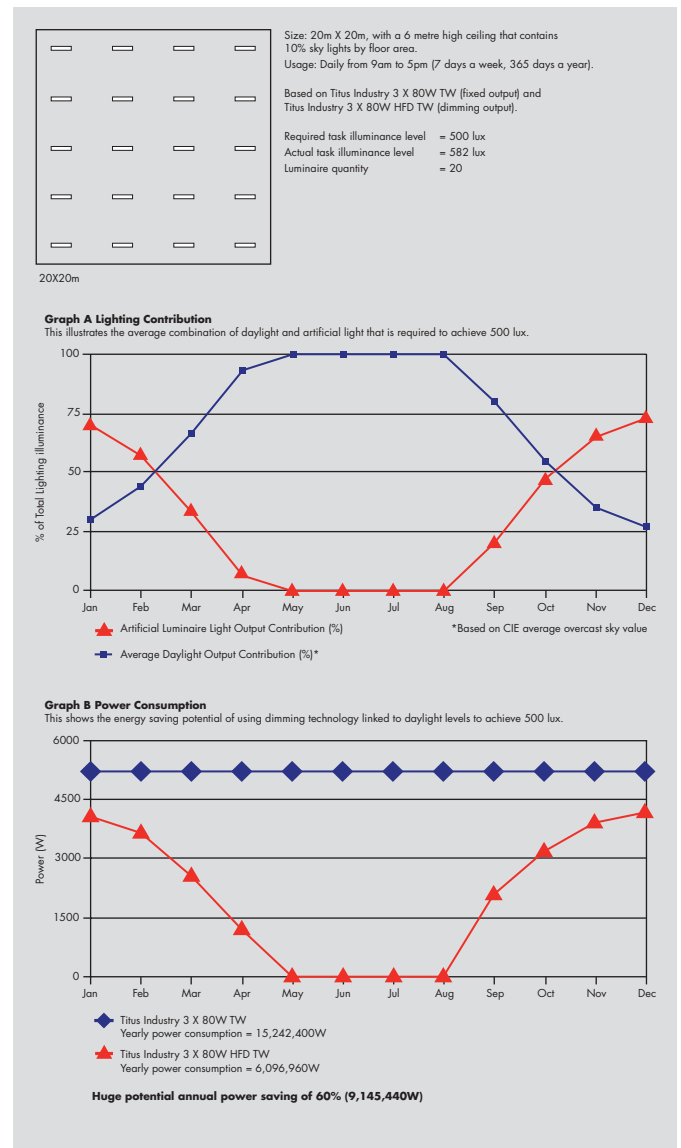
Substantial savings can be made by controlling the hours of use. The lighting may be left on unnecessarily in part of the building that is not always occupied, like in a racking area that is not continuously used. In addition, giving flexibility and control to the occupants may help increase their efficiency and effectiveness.

Simple use of daylight detectors allows natural daylight to be maximised. This means that luminaires are only switched on when required, resulting in further energy savings.

- Titus Industry offers dimming, allowing simple variations in illuminance
- Compatibility with Thorn's lighting controls portfolio, including daylight and presence sensors. For more information on the Thorn Indoor Lighting Controls portfolio, please contact your Thorn representative, or visit our website: www.thornlighting.co.uk

A typical industrial area scheme

This example scheme shows the potential energy saving benefits that can be achieved when linking luminaires to daylight control systems.





Concrete Factory, Betongfabrik, Ulricehamn



Aiding vision

Although we must never forget the importance of energy saving, a lighting system chosen on the basis of this factor alone will not necessarily provide the correct lit environment. If the installation does not aid vision, then it cannot be claimed to be truly energy efficient.

Illuminance on the task is the main criteria, as the level of lighting can seriously affect levels of productivity and motivation, as well as creating a safer working environment for employees.

Depending on the activity, factors such as colour rendering, glare and illuminance levels should also be taken into account when choosing the correct luminaire and lamp combination.

Industrial areas generally contain different height equipment, such as press machines, racking and cranes. In this environment, as in any lighting scheme, it is essential to achieve good modelling, contrast and control of shadowing. Where rotatory machinery is used, the stroboscopic effect should be eliminated to reduce the risk of accidents.

- Titus Industry's high performance MIRO reflectors give precise light distribution.
- Available in 49W, 54W and 80W versions.
- Optional louvre attachments allows greater glare control.
- Electronic ballasts offer flicker-free light and help to eliminate stroboscopic effects.



Maintenance

Many industrial environments have impurities in the power supply, due to electrical equipment or couplers connecting and disconnecting huge loads, giving power spikes and voltage fluctuations.

Over time this can directly reduce the gear and lamp life of any luminaire. If a fitting has not been designed for prolonged operation in such a demanding environment, it will fail prematurely.

Frequent access to fittings can be difficult and costly, so measures that ease access should be considered, along with technology that extends maintenance intervals and innovative ideas that aid easy cleaning.

- Some versions of Titus Industry incorporate a robust heavy duty electronic ballasts, with long service life up to 100,000 hours for extended maintenance cycles. These are also designed to withstand voltage peaks of up to 4kV.
- The tilting facility (up to 50°) of the luminaire and asymmetric light distributions allow flexible mounting positions around the task area for easy maintenance access.
- Glass cover remains linked to the luminaire when the fitting is open.

Industrial Applications



Harsh environments

Many industrial spaces have extreme environmental conditions. Mechanical stress is often also present, so luminaires should be designed and chosen to ensure they are fit for purpose in a particular application.

- Titus Industry is sealed to IP65 (dust tight and jet proof).
- A toughened glass panel is clamped to a single-pour rubber gasket by long toggles. These help ensure consistent gasket pressure and reliability.
- Impact resistance to IK08 makes Titus Industry suitable for challenging applications.
- Robust fabricated steel body ensures mechanical strength.



Concrete Factory, Betongfabrik, Ulricehamn

Advantages of the Titus Range versus High Pressure Discharge Luminaires

When compared against traditional single point source discharge solutions, such as high bays, low bays or floodlights, the Titus range can offer a series of significant benefits:

- Good modelling and reduced shadowing can be easily achieved using a linear light solution over a single point source.
- Excellent colour temperatures and rendering characteristics (Ra 85 and above) for improved visibility and compliance to EN 12464.
- Opportunity to incorporate lighting controls to the scheme. Dimming versions offer the opportunity for flexible illuminance levels and notable energy savings.
- Integral emergency versions save time and money when compared to installing separate task and emergency lighting.
- Stepless tilting and asymmetric light distributions provide directional light. This offers flexibility in luminaire positioning in any scheme where access for maintenance might be difficult and costly.
- The lamp and control gear combination offers great lumen maintenance depreciation (>90% at 16,000hrs), maximising luminaire maintenance interval periods.
- High Frequency Dimmable (DSI) electronic gear enables lamps to be instantly dimmed and switched off and on when linked to lighting controls, providing an energy efficient solution.



Titus Sport

A dedicated sports hall luminaire combining rigid mechanical construction and superb lighting performance.



Titus Sport has been developed for use in all sports, athletics and recreational halls.

- Unique curved housing prevents projectiles from remaining on top of the fitting
- Supplied and delivered with protective lockable wire guard
- Separate circuit switching on 3 and 4 lamp versions (1+2 or 2+2)
- Patented mounting brackets allow stepless tilting up to 50° without rotational torque
- Easy installation and maintenance with patented built-in junction box
- Dimming versions are compatible with the Thorn lighting controls portfolio
- Optional louvres for additional glare control (twin lamps only)
- DIN 18032.3 (ball impact proof) approved

Lamps

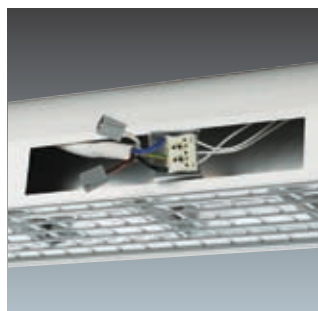
☞ 49W-80W T16 (T5) (FDH) linear fluorescent. Cap: G5

Materials/Finish

Body: white powder painted galvanised steel.
Wire guard: galvanised steel. Reflector: high quality Miro aluminium.
Halogenfree internal wiring.

Installation/Mounting

Surface mounted or mounted on catenary pipe or catenary wire. Mounting brackets included that allow tilting up to 50°, even when wire suspended. The centre of gravity is positioned directly below the fastening point. For catenary suspension, either wire fastenings or pipe clamps should be ordered. The wire guard and optional louvres are hinged for ease of maintenance.



Side access 'hatch' for electrical connection

Electrical connection

Two versions of Titus Sport are available:

1. Central wiring box version with patented built-in junction box (minimising installation time). This has a side access hatch to allow electrical termination without opening the fitting. Two 3 x 2 x 2.5mm² terminal blocks allow wiring through end-caps or top of fitting. Grommets supplied, accepting 10 to 14mm cable.
2. Through-wiring version has 5 x 2 x 2.5mm² terminal blocks at each end.



Optional top cable entry

Standards

Designed and manufactured to comply with EN 60598 Emergency EN 60598 2.22 Tested and approved to DIN18032-3 (36 handball shots at impact speed exceeding 16.5m/s)
☐ IP23 (IP21 when tilted up to 50°)
Ta: 30° (80W Ta 25°)
IK09 ▽ CE

Specification

To specify state: Sports hall luminaire for 49W, 54W or 80W T16 (T5) lamps, for surface or suspended mounting with brackets included that allow tilting up to 50° without rotational torque. To comply with DIN 18032.3. As Thorn Titus Sport.



Wire guard hinges for maintenance

Ordering Guide

T16 (T5) lamps to be ordered separately.

Description	Ilcos Code	Socket	Wt (kg)	SAP Code
High Frequency				
TITUS SPORT 2X49W	FDH	G5	7.80	96008788
TITUS SPORT 2X54W	FDH	G5	6.80	96008789
TITUS SPORT 3X49W	FDH	G5	8.10	96008790
TITUS SPORT 3X54W	FDH	G5	7.10	96008791
TITUS SPORT 3X80W	FDH	G5	8.10	96205433
TITUS SPORT 4X49W	FDH	G5	8.20	96008792
TITUS SPORT 4X54W	FDH	G5	7.20	96008793
TITUS SPORT 4X80W**	FDH	G5	9.10	96205439**
High Frequency Dimmable				
TITUS SPORT 3X49W HFD	FDH	G5	8.10	96205423
TITUS SPORT 3X80W HFD	FDH	G5	8.20	96205435
TITUS SPORT 4X49W HFD	FDH	G5	9.20	96205425
TITUS SPORT 4X54W HFD	FDH	G5	7.10	96205431
TITUS SPORT 4X80W HFD	FDH	G5	9.20	96205441
High Frequency Emergency SelfTest Addressable				
TITUS SPORT 2X49W E3TX	FDH	G5	9.50	96206065
TITUS SPORT 3X49W E3TX	FDH	G5	10.00	96206066
TITUS SPORT 3X80W E3TX	FDH	G5	9.80	96206067
TITUS SPORT 4X49W E3TX	FDH	G5	10.00	96206068
TITUS SPORT 4X54W E3TX	FDH	G5	8.00	96206069
TITUS SPORT 4X80W E3TX	FDH	G5	10.00	96206070
High Frequency Through Wire				
TITUS SPORT 2X49W TW	FDH	G5	7.90	96008794
TITUS SPORT 2X54W TW	FDH	G5	6.90	96008796
TITUS SPORT 3X49W TW	FDH	G5	8.20	96008797
TITUS SPORT 3X54W TW	FDH	G5	7.20	96008799
TITUS SPORT 3X80W TW	FDH	G5	8.20	96205434
TITUS SPORT 4X49W TW	FDH	G5	8.30	96010201
TITUS SPORT 4X54W TW	FDH	G5	7.30	96010203
TITUS SPORT 4X80W TW**	FDH	G5	9.20	96205440**
High Frequency Dimmable Through Wire				
TITUS SPORT 3X49W HFD TW	FDH	G5	8.10	96205424
TITUS SPORT 3X80W HFD TW	FDH	G5	8.40	96205436
TITUS SPORT 4X49W HFD TW	FDH	G5	9.40	96205426
TITUS SPORT 4X54W HFD TW	FDH	G5	7.20	96205432
TITUS SPORT 4X80W HFD TW	FDH	G5	9.40	96205442
Attachments*				
TITUS LOUVRE 54W PSB			0.85	96010222
TITUS LOUVRE 49W PSB			0.94	96010223
TITUS LOUVRE 54W DSB			0.85	96010224
TITUS LOUVRE B 49W DSB			0.94	96010225
TITUS LOUVRE B 54W DSB 30 DEGREES			0.85	96010226
TITUS LOUVRE B 49W DSB 30 DEGREES			0.94	96010227
Accessories				
PIPE CLAMPS FASTENINGS – PAIR			0.40	96010221
WIRE SUSPENSION FASTENINGS – PAIR			0.07	96010220

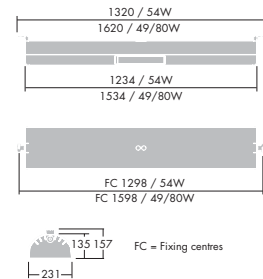
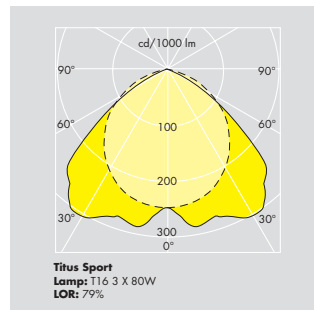
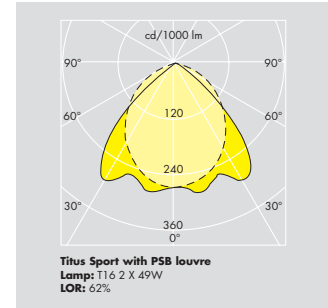
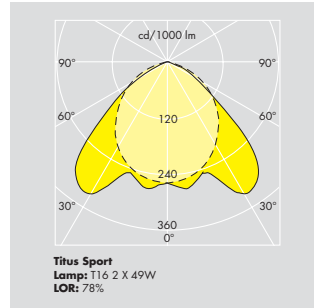
TW - Through wiring, E3TX - 3 hour emergency SelfTest or Addressable Test, PSB - Flat satin cross vanes, DSB - Parabolic cross vanes all satin finish, HFD - High Frequency Digital Dimmable (DSI)
*Only suitable for two lamp versions

**Amalgam Lamp Usage

Thorn recommend the use of amalgam lamps in certain Titus Sport 4x80W versions (96205439 & 96205440) for applications that require high light output over a broad temperature range.

The internal temperature of 3x80W versions of Titus Sport means that amalgam lamps do not offer notable benefits in these fittings.

Please note: Thorn do not recommend the use of amalgam lamps in applications where very fast start-up, dimming or emergency lighting is required.



E3TX emergency versions offer SelfTest and Addressable Test functionality in a single fitting. E3TX luminaires operate as SelfTest when standalone. A diagnostic processor automatically performs the mandatory function and duration tests, using a bi-colour LED indicator to show the results.

These emergency fittings become addressable when connected to Thorn's Explorer Project or Explorer Vision system. This links every luminaire to an intelligent local controller that automatically conducts all the necessary tests and stores the full results in one central location. For further information, please refer to the Thorn Explorer brochure.

Titus Industry

A range designed to meet the higher demands of industrial applications in terms of both protection and mechanical construction



Titus Industry is built to withstand aggressive environments and has a high level of corrosion protection as standard, enabling effective use in harsh atmospheres where conventional plastic luminaires may fail.

- Four long toggles (570mm in length) maintain gasket pressure to ensure a consistent gasket seal and strong IP65 performance
- Patented mounting bracket allows stepless tilting up to 50° without rotational torque
- Versions with an asymmetric light distribution available
- Optional louvres available for additional glare control (twin lamp only)
- Dimmable versions available
- Heavy duty ballast versions for reliable long life solutions

Lamps

⇒ 49-80W T16 (T5) (FDH) linear fluorescent. Cap: G5

Materials/Finish

Body: matt grey powder painted galvanised steel.
Reflector: high quality MIRO aluminium.
Protective glass: 4mm toughened glass with EPDM gasket.
Halogen-free internal wiring.

Installation/Mounting

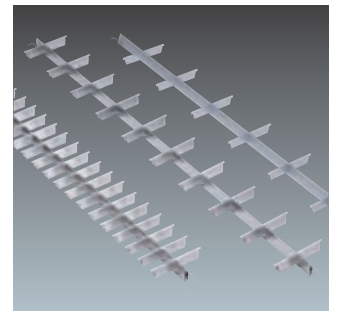
Surface mounted or mounted on catenary wire. Mounting brackets included that allow tilting up to 50° without rotational torque. The centre of gravity is positioned directly below the fastening point. For catenary suspension, fastening accessories should be ordered. Electrical connection: through-wiring version with 5 x 2 x 2.5mm² terminal blocks at each end. Grommets supplied, accepting 10 to 14mm cable.

Standards

Designed and manufactured to comply with EN 60598 Emergency EN 60598 2.22
⚡⚠️ IP65
Ta: 30° (80W Ta 25°)
IK08
▽▽ CE

Specification

To specify state: Dedicated IP65 industrial luminaire for T16 (T5) linear fluorescent lamps, for surface or suspended mounting with brackets that allow tilting up to 50° degrees without rotational torque. As Thorn Titus Industry.



Optional louvres for versions with two lamps



EPDM gasket gives IP65 seal



Long toggles to maintain gasket pressure

Ordering Guide

T16 (T5) lamps to be ordered separately.

Description	Ilcos Code	Socket	Wt (kg)	SAP Code
High Frequency Through Wire				
TITUS INDUSTRY 1X49W TW	FDH	G5	11.60	96010204
TITUS INDUSTRY 1X54W TW	FDH	G5	10.40	96010205
TITUS INDUSTRY 2X49W TW	FDH	G5	11.90	96010208
TITUS INDUSTRY 2X54W TW	FDH	G5	10.70	96010209
TITUS INDUSTRY 3X49W TW	FDH	G5	12.20	96010212
TITUS INDUSTRY 3X54W TW	FDH	G5	10.80	96010213
TITUS INDUSTRY 3X80W TW**	FDH	G5	12.20	96205454**
TITUS INDUSTRY 4X49W TW	FDH	G5	12.30	96010214
TITUS INDUSTRY 4X54W TW	FDH	G5	10.90	96010215

High Frequency Dimmable Through Wire				
TITUS INDUSTRY 3X80W HFD TW	FDH	G5	12.40	96205456
TITUS INDUSTRY 4X49W HFD TW	FDH	G5	13.50	96205450
TITUS INDUSTRY 4X54W HFD TW	FDH	G5	10.90	96205453

High Frequency Through Wire Emergency SelfTest Addressable				
TITUS INDUSTRY 2X49W TW E3TX	FDH	G5	12.50	96206061
TITUS INDUSTRY 3X49W TW E3TXR	FDH	G5	10.00	96206063
TITUS INDUSTRY 4X49W TW E3TXR	FDH	G5	10.10	96206064

High Frequency Through Wire Asymmetric				
TITUS INDUSTRY 1X49W TW AS	FDH	G5	11.60	96010206
TITUS INDUSTRY 1X54W TW AS	FDH	G5	10.40	96010207
TITUS INDUSTRY 2X49W TW AS	FDH	G5	11.90	96010210
TITUS INDUSTRY 2X54W TW AS	FDH	G5	10.70	96010211

Industry High Frequency Ballast Through Wire				
TITUS INDUSTRY 3X80W IHF TW**	FDH	G5	12.40	96205455**
TITUS INDUSTRY 4X49W IHF TW	FDH	G5	13.50	96205449
TITUS INDUSTRY 4X54W IHF TW	FDH	G5	10.90	96205452
TITUS INDUSTRY 4X80W IHF TW**	FDH	G5	13.50	96205458**

Attachments*				
TITUS LOUVRE 49W PSB			0.94	96010223
TITUS LOUVRE 54W PSB			0.85	96010222
TITUS LOUVRE B 49W DSB			0.94	96010225
TITUS LOUVRE 54W DSB			0.85	96010224
TITUS LOUVRE B 49W DSB 30 DEGREES			0.94	96010227
TITUS LOUVRE B 54W DSB 30 DEGREES			0.85	96010226

Accessories				
WIRE SUSPENSION CLIP KIT TYPE 2			0.07	96010220

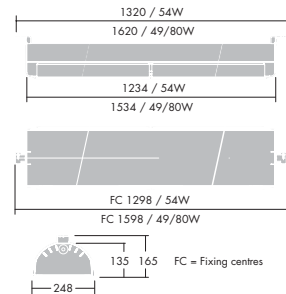
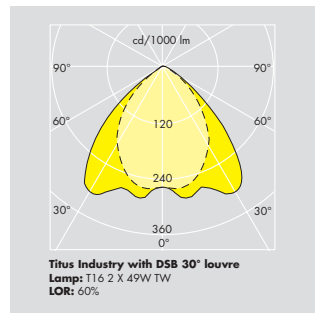
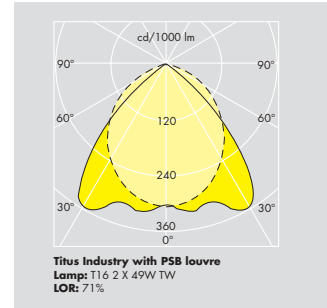
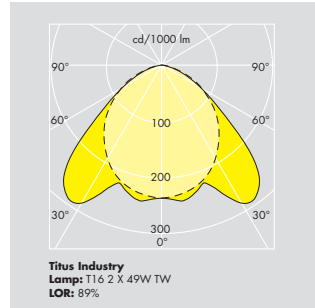
TW - Through wiring, HFD - High Frequency Digital Dimmable (DSI), AS - Asymmetric, R - Remote external box, E3TX - 3 hour emergency Selftest or Addressable Test, IHF - Industry heavy duty High Frequency ballast, PSB - Flat satin cross vanes, DSB - Parabolic vanes all satin finish

*Only suitable for two lamp versions

**Amalgam Lamp Usage

Thorn recommend the use of amalgam lamps in certain Titus Industry 3x80W versions (96205454, 96205455 & 96205458) for applications that require high light output over a broad temperature range.

Please note: Thorn do not recommend the use of amalgam lamps in applications where very fast start-up, dimming or emergency lighting is required (especially dangerous work areas).



E3TX emergency versions offer SelfTest and Addressable Test functionality in a single fitting. E3TX luminaires operate as SelfTest when standalone. A diagnostic processor automatically performs the mandatory function and duration tests, using a bi-colour LED indicator to show the results.

These emergency fittings become addressable when connected to Thorn's Explorer Project or Explorer Vision system. This links every luminaire to an intelligent local controller that automatically conducts all the necessary tests and stores the full results in one central location. For further information, please refer to the Thorn Explorer brochure.

THORN

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