

## INDUSTRIAL INVINCIBLE LUMINAIRES

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# INVINCIBLE

## CERTIFICATION/APPROVALS/STANDARDS

### BSI SAFETY MARK ▲

For hostile environments ie. non-explosive, the recognised design standard for luminaires is BS 4533 suitable for use with tungsten filament, tubular fluorescent and other discharge lamps on supply voltages not exceeding 1KV. The standard covers all aspects of safety (electrical, mechanical and thermal) incorporating type tests for checking compliance of the design of a product with the requirements of the specification. The BSI Safety Standard Mark Scheme is related to the parameters of the standard and is identical in all other respects to the Kitemark scheme which incorporates performance as well as safety.

Luminaires bearing the Safety Mark have been certified by BSI as conforming to very stringent safety standards based on BS 4533 and that numerous safety tests have been performed on production samples covering general construction, thermal endurance, protection against electric shock, resistance to impact, resistance to heat, fire and tracking, provision for earthing and insulation resistance. The Safety Mark on a product indicates that every effort has been made to ensure that it is safe and gives an independent assurance to the user that luminaires have been designed, manufactured and type-tested in accordance with the relevant national standard.

### BASEEFA

The national testing and certifying authorities in the United Kingdom for products used in areas where gas-air mixtures (potentially explosive) may be present continuously or for short periods of time are BASEEFA (British Approvals Services for Electrical Equipment in Flammable Atmospheres) and SMRE (Safety in Mines Research Establishment). Luminaires are submitted for approval by type test for coal mining and explosives processing and manufacturing installations to the SMRE.

Equipment for industrial surface hazardous areas is approved by BASEEFA (part of the Health and Safety Executive). Luminaires are tested to the appropriate British Standard and on compliance BASEEFA will issue a Certificate of Assurance to the manufacturer, together with a licence to apply the certified mark. The licence is valid for three years, thereafter renewable.

The certificate will basically concern itself with the hazardous area protection concept and may not consider other aspects of the design, ie. not indicate the degree of protection against dusts and liquids (see IP code page 4) or resistance to corrosion.

In recent years the changes in the testing and certifying authorities in the United Kingdom have resulted in a range of national standards available basically for the same type of equipment or protection.

Whilst new luminaire designs are approved to the latest specifications, luminaires certified on approved previous standard will still be valid. It must be recognised that with the issue of a new standard, the older standard is not automatically superseded, cancelled or that the basic principle, of the type of protection covered in the standard, is changed. Legislation does not require that apparatus for use in hazardous areas be certified but in practice because of the responsibilities imposed by the Health and Safety at Work Act, users require the appropriate certification approval.

### CLASSIFICATION OF HAZARDOUS AREAS

British Standard BS 5345 Code of Practice Part 1 defines areas of risk as follows:

#### ZONE 0

where an explosive gas-air mixture is continuously present or present for long periods

#### ZONE 1

where an explosive gas-air mixture is likely to occur in normal operation

#### ZONE 2

where an explosive gas-air mixture is not likely to occur in normal operation and if it appears it is only present for a short period

Prior to the introduction of BS 5345 Zones were called Divisions as defined in BS. CP1003:1964.

The above Zonal Classifications deal only with risk due to flammable gases and vapours and, by implication, flammable mists.

Dust hazards are not included as they are covered in a separate BSI Standard, recently issued – BS 6467 Part 1 1985.

Electrical apparatus with protection by enclosure in presence of combustible dust.

By implication, an area that is not classified Zone 0, 1 or 2 is deemed to be non-hazardous and where standard industrial electrical equipment can be used.

### IGNITION TEMPERATURE CLASSIFICATION

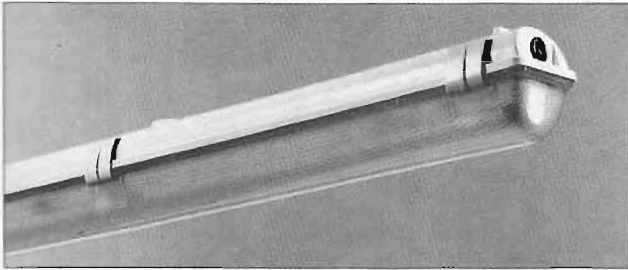
The ignition temperature is defined as the lowest temperature, determined by a standardised method, at which the most explosive mixture of the given substance and air will just ignite at a heated surface. Values vary considerably, eg. town gas/air is over 600°C, petrol/air about 250°C. Classification of temperature grades has been established internationally and the following table shows the relationship between the T class and the maximum surface temperature of the apparatus.

Temperature class	Maximum surface temperature °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

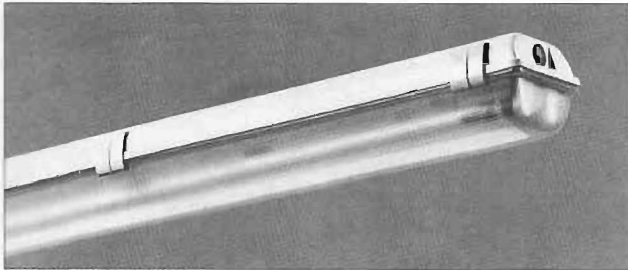
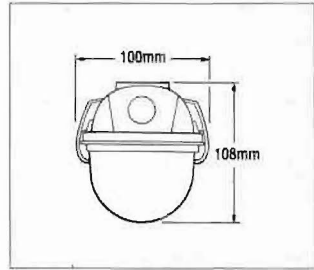
The ambient temperature is 40°C unless otherwise stated and marked on the apparatus. The user must ensure the maximum surface temperature or the T class of the luminaire **does not exceed** the ignition temperature of the gases or vapours involved.

### TYPE OF PROTECTION (NON-SPARKING)

Is defined in British Standards as a type of protection applied to electrical apparatus such that in normal operation it is not capable of igniting a surrounding explosive atmosphere and a fault capable of causing ignition is not likely to occur.

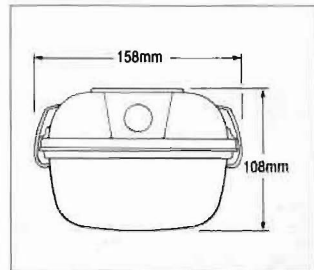


LUV SINGLE TUBE LUMINAIRE



LUV TWIN TUBE LUMINAIRE  
LUV CORROSION-RESISTANT  
LUMINAIRES IP65 ▲

A range of luminaires designed and manufactured in the UK for use in applications such as breweries, plating works, food processing areas, factories, abattoirs, chemical works or any hostile environments where a dust-tight, jetproof luminaire would be required. The luminaire consists of clear stippled acrylic diffuser clipped to a white glass reinforced polyester (GRP) canopy by self-retaining robust toggles. A high quality polyurethane gasket forms a very effective seal between the canopy and diffuser. The reflector-gear tray has retaining safety cords to facilitate easy installation and maintenance. Luminaires are certified by BSI to BS4533:102-1 and Safety marked. Classified IP65 dust-tight and jetproof.



Suitable for use in ambient temperatures from  $-5^{\circ}\text{C}$  to maximum shown in range table below when vertically or horizontally mounted. Cold store versions from  $-30^{\circ}\text{C}$  to  $+5^{\circ}\text{C}$

#### SUPPLY VOLTAGE

Standard luminaires 240V 50Hz. Details of luminaires for other supplies and circuits on application.

#### ADAPTOR KIT (BESA BOX MOUNTING)

Cat. no.	Description
LUVB	Besa box adaptor (set of 2)

#### TOGGLE CLIPS

Cat. no.	Description
LUVN	Toggle Clips (Noryl material) set of 8
LUVA	Toggle Clips (Acetal material) set of 24

#### IMPORTANT

Toggle clips Cat. No. LUVN – material (Noryl) Polyphenylene oxide/styrene used on standard luminaires are generally suitable for use in *inorganic environments* including acids such as hydrochloric, phosphoric; alkalis such as sodium hydroxide, ammonia; water steam and salts.

For *organic environments* such as paraffins, petrol, motor oils; chlorinated solvents such as carbon tetrachloride, trichloroethylene, ethers, alcohols, ketones; benzene and its derivatives; detergents, the LUVVA Acetal toggle clip is available.

See Data Sheet 3.LUV 1 for further details on the LUV range.

**RANGE** Packed complete with 26mm dia Pluslux 3500 Powersaver white lamps

Nominal length mm	Lamp rating	No. of lamps	Circuit electronic start	Complete luminaire Cat. no.	Diffuser Cat. no.	Maximum ambient temperature $+^{\circ}\text{C}$	Weight kg
600	18W	1	ES	LUV 118	LUV 12	45	2.05
600	18W	2	ES	LUV 218	LUV 22	25	3.2
1200	36W	1	ES	LUV 136	LUV 14	40	3.0
1200	36W	2	ES	LUV 236	LUV 24	40	4.7
1500	58W	1	ES	LUV 158	LUV 15	35	3.9
1500	58W	2	ES	LUV 258	LUV 25	30	6.4
1500	80W*	1	SSSC	LUS 180	LUV 15	5	3.9
1500	80W*	2	SSSC	LUS 280	LUV 25	5	6.4
1800	70W	1	ES	LUV 170	LUV 16	40	4.6
1800	70W	2	ES	LUV 270	LUV 26	30	7.5

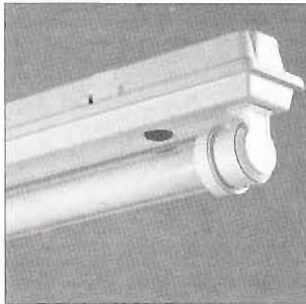
\* Suitable for cold store use from  $-30^{\circ}\text{C}$  to  $+5^{\circ}\text{C}$

ES=Electronic Start

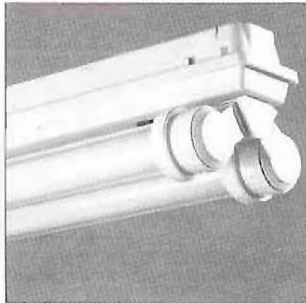
SSSC=Starter Switch Series Circuit

**Note:** The electronic starter circuit used in standard luminaires will operate 26mm or 38mm dia fluorescent lamps

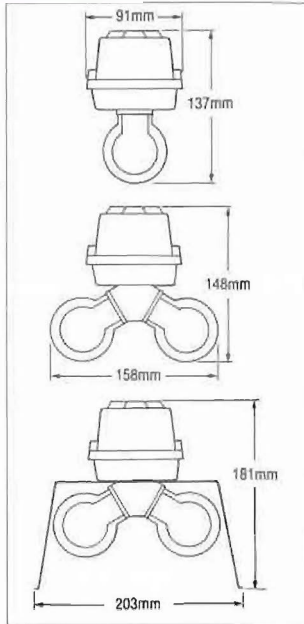
# INVINCIBLE



LZ SINGLE TUBE LUMINAIRE



LZ TWIN TUBE LUMINAIRE



## CORROSION-RESISTANT LUMINAIRES IP54

Suitable for conditions of high humidity or where corrosive elements are present. The GRP body is moulded in two halves screwed against a neoprene gasket with four nylon screws. Cable entry is at the top or end by grommeted holes. Special sealed lampholders grip either the glass of the tube (LZM types) or the outside of an LZC acrylic cylinder to resist the ingress of dust and moisture to IP54 classification. The LZC 15 and 16 cylinder give complete mechanical protection to the fluorescent tube. All internal metal parts are coated to withstand adverse conditions during maintenance. PVC trough reflectors are available as optional attachments. Luminaires comply with BS 4533 IP54 Dustproof, Splashproof and are Safety Marked. Suitable for use in ambient temperatures from  $-5^{\circ}\text{C}$  to  $+25^{\circ}\text{C}$  (1800mm versions  $+5^{\circ}\text{C}$  to  $+25^{\circ}\text{C}$ ) when horizontally or vertically mounted. Supply voltage 240V 50Hz. Details of luminaires for other supplies on application.

### RANGE

Nominal length mm	Lamp rating	Circuit	Batten c/w lampholder ring and cylinder where applicable cat. no.	Description	Cylinder or lampholder ring assembly cat. no. *	Length mm	Approx. weight inc. tubes kg
1500	1 x 65W	ES	LZMV 1065	Bare tube batten	LZM	1587	8.1
1500	2 x 65W	ES	LZMV 2065	Bare tube batten	2 x LZM	1587	10.8
1500	1 x 65W	ES	LZCV 1065	Batten and one cylinder	LZC 15	1587	9.0
1500	2 x 65W	ES	LZCV 2065	Batten and two cylinders	2 x LZC 15	1587	12.5
1800	1 x 75W	ES	LZMV 1675	Bare tube batten	LZM	1850	9.5
1800	2 x 75W	ES	LZMV 2675	Bare tube batten	2 x LZM	1850	12.5
1800	1 x 75W	ES	LZCV 1675	Batten and one cylinder	LZC 16	1850	10.5
1800	2 x 75W	ES	LZCV 2675	Batten and two cylinders	2 x LZC 16	1850	14.8

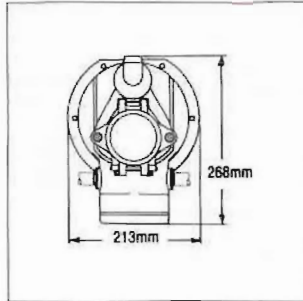
**Note:** ABS plastic trough reflectors are available for single and twin luminaires  
 1500mm = LZU 25; 1800mm = LZU 26. Sealing ring for LZC/LZD cylinder sets is Catalogue no. LZL.  
 ES = Electronic Starter Circuit.

\***Note:** Lampholder assemblies suitable for T12 lamps only.

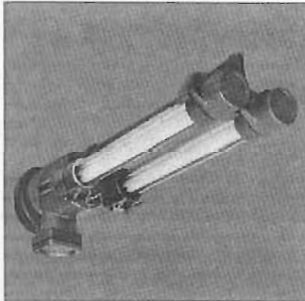




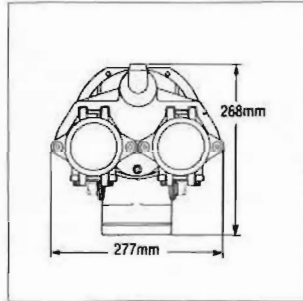
SINGLE TUBE FP FLAME PROOF



SINGLE TUBE FP FLAME PROOF



TWIN TUBE FP FLAME PROOF



TWIN TUBE FP FLAME PROOF

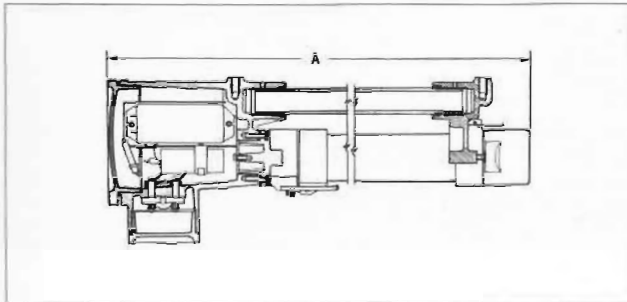
**FP FLAMEPROOF RANGE IP65 ZONE 1**  
MoP Certificate no. 6055, for groups IIA, IIB.

Temperature range Z at ambient temperature (50°C) specified on luminaire. Cast aluminium end boxes are rigidly supported by a steel connecting tube. Main casting incorporates switchless control gear on a removable tray, and underslung mains cable entry to facilitate installation. The remote end casting is removable for relamping. All visible joints are gasketed and external screws are of stainless steel socket headed type.

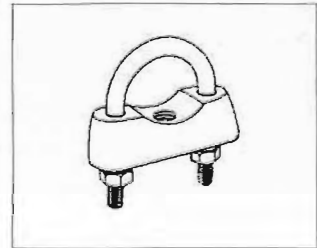
Maintenance or relamping is from either one end or below and the glass tube assembly or gear tray can be removed without disturbing the incoming mains supply. 2 x 20 mm entries are standard but alternative entries can be supplied to special order. Reflectors with or without wire guards are available.

Luminaires comply fully with BS 229, BS 889 and are dust-tight and jetproof (IP65).

**SUPPLY VOLTAGE**  
240V 50Hz. Details of luminaires for other supplies on application.



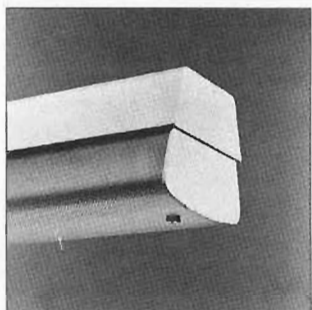
**FP4600** Adjustable suspension bracket for fitting and/or reflector.



**RANGE** (Packed complete with white tubes)

Nominal Length mm	Rating	Circuit	Luminaire cat. no.	Dimension A length mm	Width mm	Weight inc. tubes kg	Fixing centres mm
600	2 x 20W	QS	FP 2020	971	278	22.7	690
1200	1 x 40W	RS	FP 1040	1581	212	23.9	1300
1200	2 x 40W	RS	FP 2040	1581	278	28.8	1300
1500	1 x 65W	RS	FP 1065	1882	212	26.3	1601
1500	1 x 65W	RS	FP 2065	1882	278	32.1	1601
1800	1 x 85W	RS	FP 1685	2147	212	29.0	1866
1800	2 x 85W	RS	FP 2685	2147	278	35.4	1860

With reflector, width of all sizes becomes 303mm. With reflector and wire guard, width of all sizes becomes 328mm.



FF FOOD FACTORY LUMINAIRE



### FF FOOD FACTORY LUMINAIRE IP23

The heavy gauge sheet steel housing has spot welded ends and a white plastic finish, clear patterned high impact resistant acrylic enclosure with acrylic ends. Smooth exterior minimises the collection of moisture or dirt. The closure is held by three captive screws and seats on to a fixed neoprene gasket. Lampholders and control gear are mounted on a reflector gear tray below. The gear tray which has self retaining safety chains is removable as a complete unit by loosening three screws.

Luminaire complies with BS 4533:102.1 IP23 rainproof and is safety marked.

### SUPPLY VOLTAGE

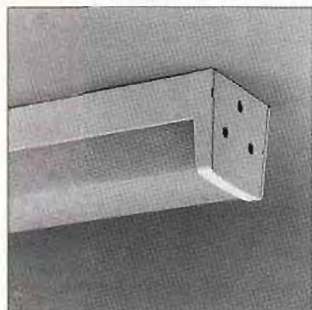
240V 50Hz.

Details of luminaire(s) for other supplies on application.

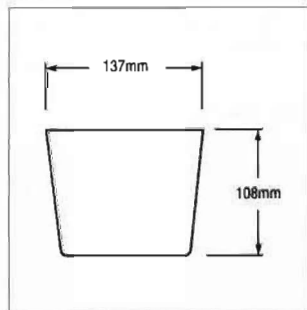
### RANGE

Nominal length mm	Rating	No. of tubes	Circuit	Luminaire cat. no.	Enclosure cat. no.	Length mm	Weight inc. tubes kg	Fixing centres mm
1500	65W	Two	ES	FFDV 265	FFD 25	1613	15.3	610

ES=Electronic starter circuit



FV IMPACT RESISTANT LUMINAIRE



FIXING CENTRES ARE 707 OR 500MM WITH CENTRAL BESA BOX FIXING

### FV IMPACT RESISTANT LUMINAIRE IP40

An impact resistant luminaire designed for use in areas of public access and similar locations where resistance to mechanical damage is required. The luminaire comprises an extruded aluminium alloy body with die cast end plates, an extruded polycarbonate diffuser which slides into the body and a removable gear tray. One end plate can be removed by undoing three screws with a special key and sliding the diffuser out. The gear and lampholders are fixed to a tray which is removable and the mains supply is connected by means of a plug and socket. The gear tray, by releasing a retaining screw can be slid out and left hanging on two studs, or completely removed simply by turning and lifting out of the luminaire body.

The luminaire is supplied complete with two 3ft 30W 1in diameter white fluorescent tubes.

### RANGE

Cat. no.	Lamp	Circuit	Length mm	Weight kg
FV 2030	2 x 3ft 30W	SS	937	5.5

### APPROVALS

Luminaire complies with BS 4533:102.1 and is safety marked.

### CLASSIFICATION FOR PROTECTION IP40

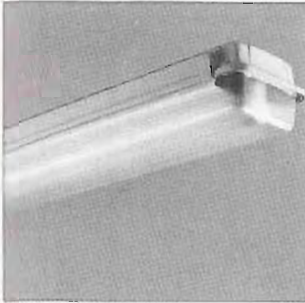
Maximum ambient temperature +30°C.

### SUPPLY VOLTAGE

240V 50Hz-details of luminaire for other supplies on application.

### IMPORTANT

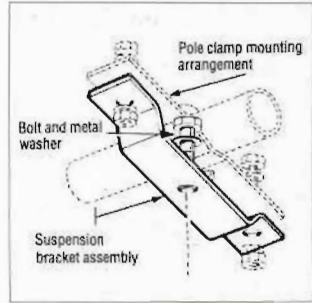
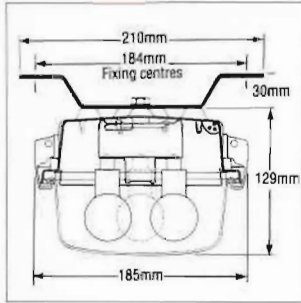
It is essential to use a special key Catalogue number OB/FV supplied separate to luminaire (for security reasons) before installing or servicing a luminaire.



FNDV TYPE 'N' LUMINAIRE

**FNDV TYPE 'N' CORROSION RESISTANT LUMINAIRES IP65 ZONE 2**

A range of fluorescent luminaires designed for use in Zone 2 hazardous areas. Constructed of a corrosion resistant glass reinforced plastic (GRP) canopy attached to a high impact resistant acrylic diffuser by toggles which are self retaining to the canopy. A high quality neoprene gasket is positioned between the canopy and diffuser to form a very effective seal. Standard luminaires are supplied complete with 38mm white tubes, two seagull shaped galvanised suspension brackets, cable cleats for retaining through wiring and earthing leads for continuous through earthing and for earthing the suspension brackets.



An auxiliary galvanised steel fixing strap (Catalogue number FND 4621) for mounting to a 50mm pole or pipe is available as an optional extra. Luminaires are supplied as standard with a sealing plug at one end and an open end to accept M20 gland or conduit.

**STANDARD COMPLIANCE**

The FNDV range complies with BS 4533 2.1 Unrestricted Breathing BASEEFA Approved Certificate No. 81346. 240/250V 50Hz Supply.

Alternative versions (IP54 classification) BASEEFA Certificate No. Ex 72727/B for 220V 50Hz supply with SRS Control gear are available to order.

FNDV Range BASEEFA Certificate No. Ex 81345/X. Restricted Breathing with vivatronic circuit also available to order IP65 Classification.

Rated Class 1 (earthed metalwork) against electric shock, the luminaire must be adequately earthed. Rating IP 65 dust tight, jetproof against the ingress of dust and moisture.

**STANDARD RANGE** (Unrestricted breathing) Packed with T12 white lamps.

Nominal length mm	No. of tubes	Lamp rating	Circuit	Complete luminaire cat. no.	Length mm	Weight kg	Fixing centres mm	Diffuser cat. no.
600	2	20W	ES	FNDV 2020	684	4.4	190 x 184	LUD/FND 22
1200	1	40W	ES	FNDV 1040	1300	5.6	600 x 184	LUD/FND 24
1200	2	40W	ES	FNDV 2040	1300	7.0	600 x 184	LUD/FND 24
1500	1	65W	ES	FNDV 1065	1595	6.9	600 x 184	LUD/FND 25
1500	2	65W	ES	FNDV 2065	1595	9.8	600 x 184	LUD/FND 25

Note: 184mm refers to the centres on the fixing bracket.

Optional Extra: FND 4621 - Clamp for 50mm O/D pole or pipe.

**OPERATING CONDITIONS** Suitable for continuous operation in ambient temps and surface temp classification (T Class) as follows:

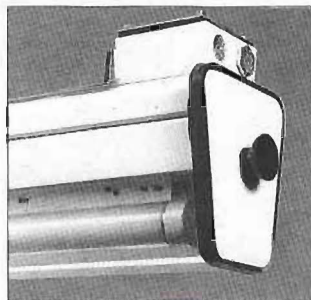
Luminaire Cat. no	Mounting position	Ambient temperature °C			T Class ‡		
		FNDR* 220V	240V	FNDV 250V	FNDR* 220V	240V	FNDV 250V
FNDV 2020	Ceiling	35	30	25	6	4	3
	Wall - Vertical	35	30	-	6	4	-
	Wall - Horizontal	35	30	25	6	4	3
FNDV 1040	Ceiling	50	30	30	6	4	4
	Wall - Vertical	-	-	-	-	-	-
	Wall - Horizontal	50	30	30	6	4	4
FNDV 2040	Ceiling	45	30	25	6	4	3
	Wall - Vertical	-	-	-	-	-	-
	Wall - Horizontal	45	30	25	6	4	3
FNDV 1065	Ceiling	40	30	30	5	4	4
	Wall - Vertical	-	-	-	-	-	-
	Wall - Horizontal	40	30	30	5	4	4
FNDV 2065	Ceiling	25	30	20	5	3	3
	Wall - Vertical	-	-	-	-	-	-
	Wall - Horizontal	25	30	-	5	3	-

\* Incorporates SRS control gear (20W version GS) and has IP54 classification.

‡ Maximum external surface temperature °C.



# INVINCIBLE

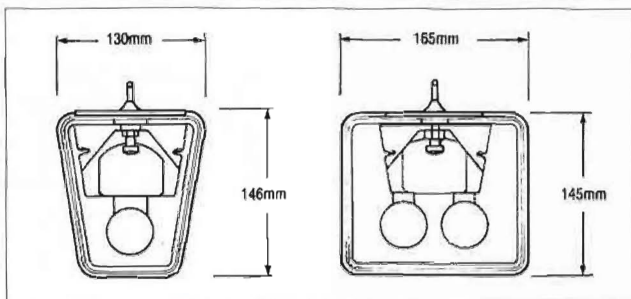


GLENDALE CORROSION-RESISTANT LUMINAIRE

## GLENDALE CORROSION-RESISTANT LUMINAIRES IP55 ZONE 2

The thick acrylic enclosure has aluminium gasketed end plates of which one can be removed to withdraw the gear channel for relamping. All internal parts are rustproofed and stove enamelled white.

Standard luminaires have two eyebolts for suspension and a nylon cable gland suitable for 0-0200-0-275 o.d. cables.



Luminaires with SB in their Catalogue numbers have fixing studs and Zone 2 conduit boxes with two 20mm entries, one being removable. Luminaires can be mounted horizontally or vertically, in ambient temperatures up to 35°C (65W suitable only up to 25°C when mounted vertically). Made to BS 4533-2.1 (IP55) dust-proof, jetproof, BASEEFA certificate no. 72064.

**SUPPLY VOLTAGE**  
240V 50Hz Details of luminaires for other supplies on application.

### RANGE

Nominal length mm	Rating	Circuit	Complete luminaire(s) cat. no. †	Suspension*	Replacement Enclosures	Length mm	Weight kg	Fixing centres mm
600	1 x 20W	QS	FGSB 20	stud/box	FGSB 12	686	6.35	457
600	2 x 20W	QS	FGSB 220	stud/box	FGSB 22	686	7.25	457
600	1 x 20W	QS	FGEA 220	eye/gland	FGEA 22	686	7.25	457
1500	1 x 65W	RS	FGSB 65	stud/box	FGSB 15	1595	12.7	610
1500	2 x 65W	RS	FGSB 265	stud/box	FGSB 25	1595	17.25	610
1500	1 x 65W	RS	FGEA 65	eye/gland	FGEA 15	1595	12.7	610
1500	2 x 65W	RS	FGEA 265	eye/gland	FGEA 25	1595	17.25	610

\*Suspension and mains entry

† Nomenclature

A=cable gland entry;

B=Zone 2 box 2 x 20mm ET;

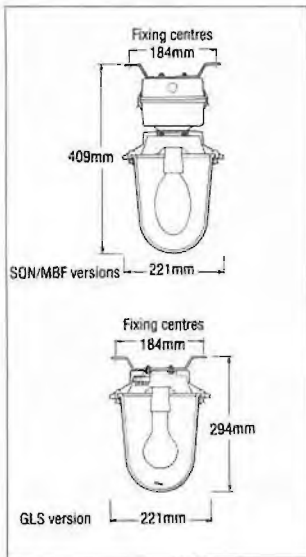
E=eye bolt mounting;

S=stud mounting.

For full mounting details see pole mounting systems.

**Note:** 4ft 40W Single and Twin versions available to order.





**DNW WELLGLASS TYPE N IP65**

A dust-tight and jetproof luminaire suitable for use in hostile and hazardous environments. Designed for use in Zone 2 hazardous areas or any hostile environment where a dust-tight, jetproof, wellglass luminaire would be required. The luminaire complete with fully pre-wired control gear, including PFC capacitor and lamp. Less gear version is available and packed less lamp. The body is made of corrosion resistant white glass reinforced polyester (GRP) with mounting bracket and is fixed to a toughened glass bowl with self-retaining stainless steel toggle clips.

Installation and maintenance is simplified as the top part of the GRP body can be installed before the heavier section housing the control gear and the lamp housing is retained by a stainless steel wire. Mains cable entry is by two M20 clearance holes (one each side of the body housing) one of which is sealed with a removable blanking plug and neoprene washer. Mains termination suitable for looping twin 2.5mm<sup>2</sup> cables. Earthing facility provided with the luminaire for earthing conduit and/or pyro cable via a cable gland. Alternative versions with Besa box lid for top suspension/cable entry available special order (Catalogue number prefix DNW becomes DNWT). For pole mounting a separate pole clamp bracket (Catalogue number FND4621) is available as an optional extra. Mounting arrangements available for walkways, etc. See page 109.

**STANDARD COMPLIANCE**

The DNW range complies with BS 4533:2-1 Type N. Restricted breathing. BASEEFA Approved, Certificate No. 82127 220/240/250V 50Hz, 250V 60Hz.

Rated Class 1 (earthed metalwork) against electric shock, the luminaire must be adequately earthed. Rated IP65 dust-tight, jetproof against the ingress of dust and moisture. Wire guard available.

See Data Sheet 3:DNW.1 for further details of the DNW range.

**RANGE**

Luminaire Cat. no.	Lamp rating & type	Cable entry †	Weight inc. lamp kg approx.
DNW 70	70W SON	Twin M20 side entry	5.5
DNWT 70	70W SON	Single M20 top entry	5.5
DNW 80	80W MBF	Twin M20 side entry	5.4
DNWT 80	80W MBF	Single M20 top entry	5.4
DNW 125	125W MBF	Twin M20 side entry	5.4
DNWT 125	125W MBF	Single M20 top entry	5.4
DNW 200*	150/200W GLS	Twin M20 side entry	2.9
DNWT 200*	150/200W GLS	Single M20 top entry	2.9

† Side entry versions have two holes 180mm apart one open and the other for looping in is sealed with a removable blanking plug.

DNWT versions available to special order are supplied complete with BESA box domed lid to accommodate 20mm conduit top entry.

\* Supplied less lamp and gear.

**RANGE — OPERATING CONDITIONS**

Suitable for mounting on wall, ceiling or pole in the following ambient temps on 50Hz supply.

Cat. no.	Lamp rating & type	220/240V		250V	
		Ta	T	Ta	T
DNW 70	70W SON	40°C	5	30°C	5
DNW 80	80W MBF	35°C	4	25°C	4
DNW 125	125W MBF	35°C	4	25°C	4
DNW 200	150/200W GLS	30°C	5	—	—
DNWW	Wire guard				

**Note:** The above also applies to DNWT versions

Ta — Maximum ambient temperature — degrees C.

T — External surface temperature classification — degrees C.

See page 109 for details of handrail mountings, etc.

# INVINCIBLE SONPAK OTN



OTN 250-4

## APPLICATIONS

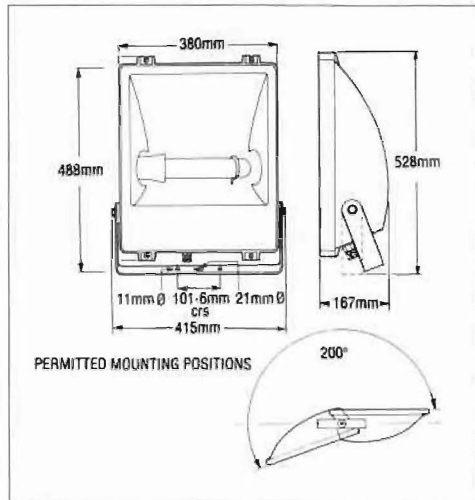
Designed for use in a Zone 2 hazardous area or for any application where a corrosion resistant, dust-tight, jetproof luminaire is required. Ideal for coastal and offshore environments, petrochemical installations, oil/gas platforms, solvent usage and storage areas, laundries, pharmaceutical plants, plating and printing works and similar hostile and hazardous applications.

**DESCRIPTION:** lightweight GRP construction to simplify installation, stainless steel stirrup, toughened glass in GRP frame swings open for easy access to gear and lamp compartment.

## RANGE – 240V 50Hz

(details of luminaires for other voltages available on application)

Cat. no.	Description	Weight kg	Projected area
OTN 150-4	SONPAK Type N c/w 150W SON-T	11	0.175m <sup>2</sup>
OTN 250-4	SONPAK Type N c/w 250W SON-T	12.75	0.175m <sup>2</sup>



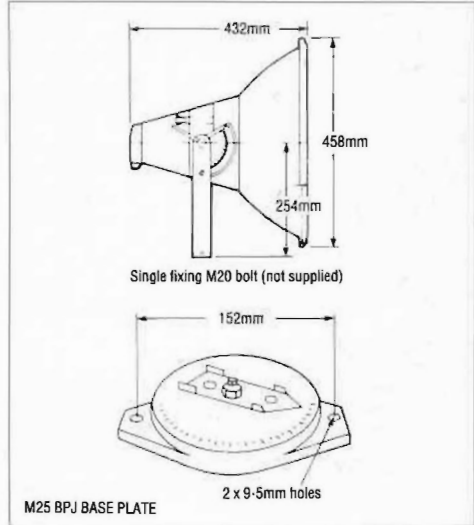
**MOUNTING:** direct wall mounting. On 5 metre QCO column with QFBOT adaptor. See *Column* section for details of 8, 10 and 12m column and stirrup mounting brackets. Also fixed to any suitable support using M20 bolt (not supplied) through centre hole of stirrup.

## CLASSIFICATION FOR PROTECTION IP65

Against electric shock - class 1 earthed metalwork.  
Against ingress of moisture and dust - IP65 dust-tight jetproof  
Complies with BS 4533 Pt 2 section 2.1 1976  
Type of protection Ex N restricted breathing  
BASEEFA certificate No. Ex 85108  
Max. ambient temp 40 - 55°C depending on mounting angle  
Surface temp classification 3 or 4 depending on mounting angle.



MN25 JUNIOR FLOODLIGHT PROJECTOR ZONE 2



## MN25 JUNIOR FLOODLIGHT PROJECTOR ZONE 2

### APPLICATIONS

For Zone 2 hazardous areas.

### DESCRIPTION

REFLECTOR: super purity spun aluminium, polished and anodised. Secured internally to LM6-M aluminium alloy ring casting with stirrup fixing. Heat resisting toughened front glass sealed in to reflector by gasket and stainless steel visor band. Gasketed and fastened to body casting by stainless steel studs and wing nuts.

AUXILIARY REFLECTOR: polished aluminium.

LAMPHOLDER HOUSING: Pressure die-cast aluminium; lampholder position adjustable for focusing. End cap is detached for access to terminal block. Gland for 7-11mm O/D cable. Lampholder is a porcelain enclosed break type.

MOUNTING: a) Galvanised steel stirrup with 21mm central fixing hole. Plastic coated locking bolts/handles. Quadrant for aiming marked 0°-180° b) Base plate (M25 BPJ) bolts direct to stirrup.

### LAMPS

GLS 300/500W, MBF/U 250/400W, MBI and MBIF 250/400W, SON 250/400W

For control gear and circuit details see *Control gear and accessories* section. Gear box for Zone 2 application – to special order only.

### CLASSIFICATION FOR PROTECTION

Against electric shock: Class 1 – earthed metalwork. Against ingress of moisture or dust: IP65, dust-tight and jetproof.

### APPROVALS

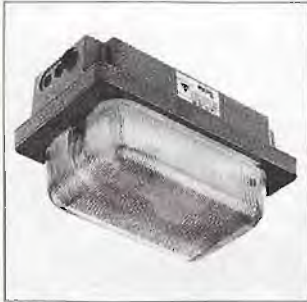
Luminaire complies with BS4533 Part 2 Sec 2-1 1976. Type N. BASEEFA certificate No. Ex 76053/B.

Restricted Breathing.

Surface temperature Classification: T4 for all lamps up to 400W. T3 for 500 GLS lamps. Can be mounted in any position and is suitable for use in ambient temperatures up to 40°C.

### RANGE

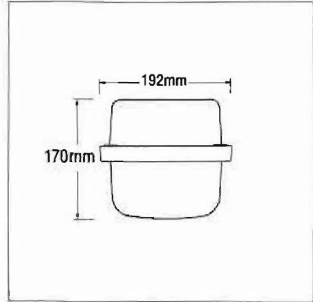
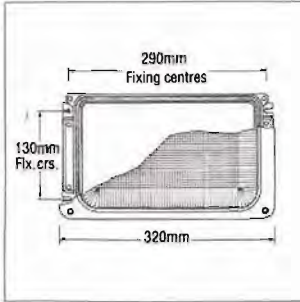
Cat. no.	Description	Weight kg	Projected areas m <sup>2</sup>
MN25S	Specular reflector projector floodlight	9.97	0.16
MN25D	Diffuse reflector projector floodlight	9.07	0.16
M25 BPJ	Base plate (optional extra)	0.36	—
M25/TG 5275	Replacement glass for MN25S & MN25D	2.0	—



DB 80

DB Version   
DN Version 

**BULKHEAD LUMINAIRES IP65**  
Dust-tight jetproof bulkhead design suitable for use in hostile and hazardous environments.  
Pressure die-cast aluminium alloy LM6 body and frame, primed and stove enamelled light hammer grey. The frame assembly which contains a borosilicate glass diffuser bowl is hinged to the body casting and secured against a silicon gasket by four captive stainless steel Allen screws (M5 x 15mm). Body is tapped top and bottom 20mm conduit. Zone 2 versions 2 x 20mm tapped holes adjacent at one end, one hole with removable plug.



Fixing is achieved by four M6 bolts, washers and nuts supplied with the luminaire. Zone 2 versions are supplied complete with fixing straps slotted for M6 bolts. Heavy duty galvanised wire guard also available (Catalogue number DBW). Complies with BS4533:2-1 IP65 Dust-tight Jetproof, Restricted Breathing. (Type N versions T4 classification). DN Versions Section 2-1 BASEEFA Approved Certificate No.81139. DB Versions Section 2-2 BSI Safety Marked. Mountings available for fixing to handrails, walkways, etc. See page 109

**SUPPLY VOLTAGES:** 240/250V 50Hz. (Details of luminaires for other supply voltages on application).  
Luminaires can be supplied with polycarbonate diffuser bowls to order. For more onerous environments such as offshore installations an alternative PTFE finish can be supplied to order.

**RANGE** Supplied complete with lamp & control gear.

Luminaire Cat. no.	Lamp rating and type	Cable entries	Approx. weight inc. lamps kg
DB 70	70W SON Elliptical	Single hole at each end of luminaire	5-98
DB 80	80W MBF Elliptical	Single hole at each end of luminaire	5-98
DB 50	50W MBF Elliptical	Single hole at each end of luminaire	5-98
DB 160*	150/200W GLS or 160W MBTF	Single hole at each end of luminaire	4-3

To order luminaires with polycarbonate bowl add letter M to standard catalogue no. eg. DBM 70  
50W MBF & 70W SON no restriction on mounting, 80W MBF restricted to ceiling mounting only.  
Maximum ambient temperature is 25°C when polycarbonate bowl is used.  
Polycarbonate bowl not suitable for GLS & MBTF lamps.

**BASEEFA APPROVED RANGE** Supplied complete with lamp and control gear.

Luminaire Cat. no.	Lamp rating and type	Cable entries	Approx. weight inc. lamps kg
DN 70	70W SON elliptical	Twin adjacent at one end of fitting	5-98
DN 80	80W MBF elliptical	Twin adjacent at one end of fitting	5-98
DN 50	50W MBF elliptical	Twin adjacent at one end of fitting	5-98
DN 200*	150/200W GLS or 160W MBTF	Twin adjacent at one end of fitting	4-3

\* Supplied less lamp and control gear.

DB 50 & DN 50 versions are available to special order only.

**OPTIONAL EXTRAS AND SPARES FOR BOTH DN & DB LUMINAIRES**

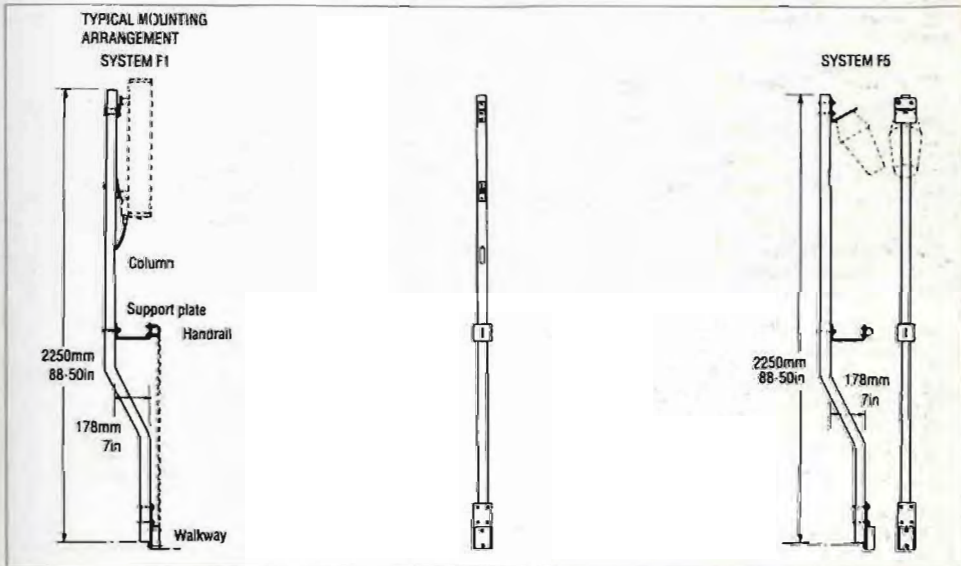
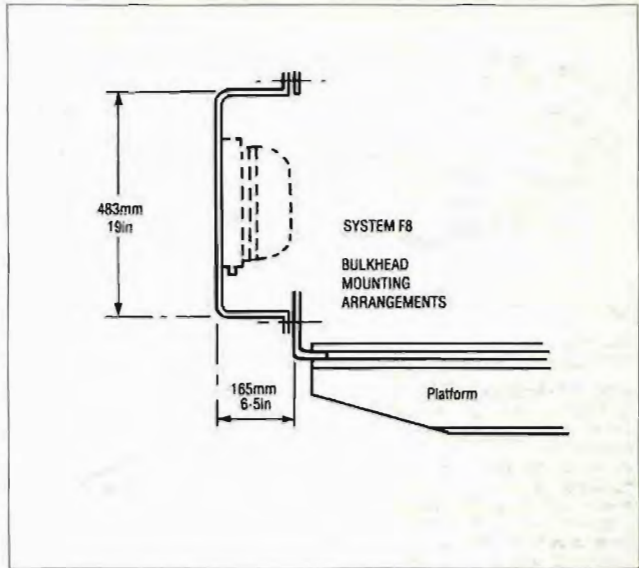
Cat. no.	Description
DBW	Wire guard
DBG	Spare glass
DBM	Polycarbonate bowl

**POLYCARBONATE BOWLS:** to order luminaires with polycarbonate bowl add letter M to Catalogue no. e.g. DBM 70. When polycarbonate bowl is used, maximum ambient temperature 25°C, 80W MBF versions restricted ceiling mounting. Not suitable for GLS or MBTF



# POLE MOUNTING SYSTEMS

A RANGE OF MOUNTING SYSTEMS FOR LUMINAIRES ON INDUSTRIAL WALKWAYS



# INVINCIBLE RANGE CONTROL GEAR AND COMPONENTS

## RANGE

Luminaire Cat. no.	Choke/ Ballast	Capacitor	Lampholder	Starter/Ignitor	Mains terminal block	Fuse holder	Circuit dia. †
LUV 118	GCS 18/20	GC 2428/S	GB 1660	G 69577.4	GT 1367	—	19
LUV 218	2 x GCS 18/20	GC 2419/S	GB 1660	2 x G 69577.4	GT 1367	—	2 x 19
LUV 136	GCS 36/40	GC 2417/S	GB 1660	G 69577.4	GT 1367	—	19
LUV 236	2 x GCS 36/40	GC 2419	GB 1660	2 x G 69577.4	GT 1367	—	2 x 19
LUV 158	GCS 58/65	GC 2435/S	GB 1660	G 69577.4	GT 1367	—	19
LUV 258	2 x GCS 58/65	GC 2274/S	GB 1660	2 x G 69577.4	GT 1367	—	2 x 19
LUV 170	2 x GCSH 70/75	GC 2435/S	GB 1660	G 69577.4	GT 1367	—	20
LUV 270	4 x GCSH 70/75	GC 2441/S	GB 1660	2 x G 69577.4	GT 1367	—	2 x 20
LUS 180	G 53333.2	GC 2167	GB 1660	155/800	GT 1367	—	2
LUS 280	2 x G 53333.2	2 x GC 2167	GB 1660	2 x 155/800	GT 1367	—	2 x 2
LZMV 165	GCS 58/65	GC 2420	GB 1656/X	G 69577.4	GT 1367	—	19
LZMV 265	2 x GBU 65/75	GC 2274	GB 1656/X	2 x G 69577.4	GT 1367	—	2 x 19
LZMV 175	GBU 65/75	GC 2435	GB 1656/X	G 69577.4	GT 1367	—	19
LZMV 275	2 x GBU 65/75	GC 2441	GB 1656/X	2 x G 69577.4	GT 1367	—	2 x 19
FP 2020 ‡	GCU 36/40	GC 2417	GB 1573	QGS 220 (QS unit)	—	—	22
FP 1040 ‡	GBU 40	GC 2435	GB 1573	—	—	GT 1310X	24
FP 2040 ‡	2 x GBU 40	2 x GC 2435	GB 1573	—	—	GT 1310X	2 x 24
FP 1065 ‡	GBI 65	GC 2419	GB 1573	—	—	GT 1310X	24
FP 2065 ‡	2 x GBI 65	2 x GC 2419	GB 1573	—	—	GT 1310X	2 x 24
FP 1685 ‡	GBI 685	GC 2419	GB 1573	—	—	GT 1310X	24
FP 2685 ‡	2 x GBI 685	2 x GC 2419	GB 1573	—	—	GT 1310X	2 x 24
FFDV 265	2 x GCS 58/65	2 x GC 2274	GB 1548/B	2 x G 69577.4	GA 5079	—	2 x 19
FGSB 20 ‡	GCU 18/20	GC 2417	GB 1548/B	G 47045 (QS unit)	GT 1363/3	GT 1310X	—
FGSB 220 ‡	GCU 36/40	GC 2417	GB 1548/B	G 47046 (QS unit)	GT 1363/3	GT 1310X	22
FGEA 220 ‡	GCU 36/40	GC 2417	GB 1548/B	G 47046 (QS unit)	GT 1363/3	GT 1310X	22
FGSB 65 ‡	G 69349.4	GC 2419	GB 1549/B	—	GT 1363/3	GT 1310X	24
FGSB 265 ‡	2 x G 69349.4	2 x GC 2419	GB 1548/B	—	GT 1363/3	GT 1310X	2 x 24
FGEA 65 ‡	G 69349.4	GC 2419	GB 1548/B	—	GT 1363/3	GT 1310X	24
FGEA 265 ‡	2 x G 69349.4	2 x GC 2419	GB 1548/B	—	GT 1363/3	GT 1310X	2 x 24
FV 2030	2 x GCS 30	GC 2419	GB 1555	2 x 155/500	GT 1363/3	GT 1387/3	2 x 1
FNDV 2020 ‡	2 x G 69557.4	GC 2417/P	GB 1580/A4	2 x 65 UFES 69539/4	GT 1385	—	2 x 19
FNDV 1040 ‡	G 69545.4	GC 2417/P	GB 1580/A4	65 UFES 69539/4	GT 1385	—	19
FNDV 2040 ‡	2 x G 69545.4	GC 2419/P	GB 1580/A4	2 x 65 UFES 69539/4	GT 1385	—	2 x 19
FNDV 1065 ‡	G 69546.4	GC 2435/P	GB 1580/A4	75 UFES 69541/4	GT 1385	—	19
FNDV 2065 ‡	2 x G 69546.4	GC 2274/P	GB 1580/A4	2 x 75 UFES 69541/4	GT 1385	—	2 x 19
DNW 70 ‡	G 53373.T	GC 2383/BO	GL 1217	G 53361.4	GT 1396/3	—	A
DNW 80 ‡	G 53394.4	GC 2383/BO	GL 1217	—	GT 1396/3	—	F
DNW 125 ‡	G 53395.H	GC 2383/BO	GL 1217	—	GT 1396/3	—	F
DNW 200 ‡	—	—	GL 1217	—	GT 1396/3	—	—
DN 50 ‡	G 53327.4	GC 2383/BO	GL 1217	—	GT 1385	—	F
DN 70 ‡	G 53373.T	GC 2383/BO	GL 1217	G 53361.4	GT 1385	—	A
DN 80 ‡	G 53333.4	GC 2383/BO	GL 1217	—	GT 1385	—	F
DN 200 ‡	—	—	GL 1217	—	GT 1385	—	—
DB 50	G 53327.4	GC 2383/BO	GL 1194	—	GT 1364/2	—	F
DB 70	G 53320.T	GC 2383/BO	GL 1194	G 53353.4	GT 1396/2	—	A
DB 80	G 53333.4	GC 2383/BO	GL 1194	—	GT 1364/2	—	F
DB 160	—	—	GL 1194	—	GT 1396/2	—	—
OTN 150	G 53417.4	GC 2331	GL 1196	G 53250	GT 1396/4	—	H
OTN 250	G 53416.4	GC 2386	GL 1196	G 53250	GT 1396/4	—	H

‡ Important: The component catalogue numbers shown must be used for replacements in order to comply with BASEEFA requirements. It is essential that no other component is used.

† See Fluorescent tube control gear and accessories and Discharge control gear sections for circuit diagrams.