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Cable and Testing Tools

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Cable & Testing Tools

M



Hand-operated
cable strippers

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Hand-operated
crimping tools

M-3



Cable preparation
tools

M-4



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Battery-operated cable
preparation tools

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DIN rail &
Cable trunking
cutters

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Digital & Clamp
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Thermal camera &
Electrical installation
tester

M-12...13



Training kits
& Courses

M-14

Hand-operated cable strippers



30199



20100



20050



20090



30120

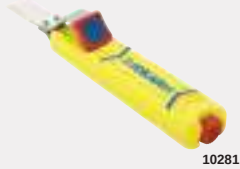
Jokari a market leader in stripping technology for all types of wires, cables and conductors. Producing professional tools for most application areas in which wires must be processed easily, quickly and safely.

- Highest standards of workmanship and material
- Durable, reliable performance guaranteed

type	tool name	description	wire size	price
Allrounder <i>for stripping of standard round and flat cables up to Ø 15 mm</i>				
For removing of the coating, longitudinal sections, stripping of solid or flexible wires for exposing of wire lengths for specific connections, and a broad working range.				
• Round cables Ø 4...15 mm, Flat cables max. 15 mm wide and flexible wire 1.5...50 mm² • Extra blade for longitudinal cut. 2 stripping notches with length stop for stripping conductors • Removable length stop, suitable for left and right hand use, can be stored in the tool handle.				
30900	Allrounder	universal stripper for round and flat cables	Ø 4 - 15 mm	383.00
PV Strip Pro <i>for stripping of solar / photovoltaic cables up to Ø 15 mm</i>				
The Jokari PV-Strip Pro is a versatile tool designed for stripping solar and photovoltaic cables from 1.5 to 16 mm ² . Ideal for professionals, it ensures fast, efficient, and reliable cable stripping in various PV installations.				
• Additional blade for making a longitudinal cut • Precise alignment of the blades to standard solar cables • Light weight because of body made of high-quality, wear-resistant polyamide,				
30199	PV Strip Pro	universal stripper for solar cables	Ø 1.5 - 16 mm	648.00
Secura 2K <i>soft grip (professional wire stripper)</i>				
Automatic wire stripper for single, multiple and fine stranded cables 0.2...6.0 mm ² with std insulation.				
• No adjustment necessary for different cross-sections • Integrated safety wire cutter for wires up to 2.5 mm² • Strip length stopper adjustable 6 to 18 mm • Ergonomic security soft grip handle (<i>non-tiring long operation</i>)				
20100	Secura 2K	soft-grip wire stripper (<i>incorporating cutter</i>)	0.2 - 6 mm ²	791.00
29100		spare blade set for above soft-grip stripper		329.00
Super 4 plus <i>wire stripper (econo version)</i>				
• Automatic wire stripper for solid and standard wires 0.2 - 6 mm² • Integrated safety cutter for wires up to max. 2.5 mm² • Strip length stopper adjustable: 6 to 15 mm • No adjustment necessary for different cross-sections				
20050	Super 4 plus	econo wire stripper (<i>incorporating wire cutter</i>)	0.2 - 6 mm ²	442.00
No. 6-16 <i>stripper for larger wire sizes 6 - 16 mm²</i>				
Suitable for solid and stranded conductors 6...16 mm ² for removing the outer sheath from PVC-Flex.				
• Automatic wire stripper suitable for wires 6 - 16 mm² (<i>no adjustments required</i>) • Special cut permits removal of outer sheath of 3 core-flex 3 x 0.75 mm and solar cables • Adjustable strip length: 15 - 18 - 20 mm				
20090	No.6-16	wire stripper for larger cross-section wires	6 - 16 mm ²	1 320.00
Universal No.12 - Cable stripper				
For quick, precise cable stripping of all common round and multicore cables Ø 8...13 mm.				
• No adjustment of cutting depth necessary • Ideal for cable stripping confined spaces such as in junction boxes • Blades with special Titanium-Nitride coating (TIN) to achieve longer life, faster cutting and less wear				
30120	Universal No.12	universal for all round cables (<i>no adjustment</i>)	Ø 8 - 13 mm	294.00
Secura No.15 - Super stripper				
• No cutting depth adjustments required • Integrated, multi-functional slide-out blade • Locking mechanism prevents unwanted opening of the tool • Absolutely straight-forward longitudinal cuts - with innovative internal cable duct • Special outlined blades for effortless stripping of wires of diameters 0.2 - 0.3 - 0.8 - 1.5 - 2.5 - 4.0 mm²				
30155	Secura No.15	same as No.12 + wire stripper 0.2...4 mm ² and blade	Ø 8 - 13 mm	638.00
Flat cable stripper				
For PVC insulated and sheathed cables e.g. Twin Flat Cable 2 x 1/1.5/2.5 mm ²				
Twin and Earth Cable 3 x 1.0 mm ² , 3 x 1.5 mm ² , 3 x 2.5 mm ²				
• Removes outer sheath and inner conductor insulation (<i>no adjustment necessary</i>) • Adjustable strip length: 15 - 18 - 20 mm				
20030	EM-Set FKZ	for flat twin and twin + earth cables	0.75...2.5 mm ²	1 210.00

Above ZAR prices do not include VAT. E&OE

Hand-operated cable strippers



10281



10350



70000



30161



62000

Specialised wire strippers

- Highest standards of workmanship and material - durable, reliable performance guaranteed
- Blades with special Titanium-Nitride coating (TIN) to achieve longer life, faster cutting and less wear

type	tool name	description	wire Ø	price
Cable knives <i>cable knife contains spare blade (inside handle)</i>				
• For stripping outer sheath from all standard round cables • Automatic swivel blade (<i>screw adjustable for cutting depth</i>)				
10160	Secura No.16	cable knife (<i>adjustable blade depth</i>)	4 - 16 mm	277.00
10280	Secura No.28H	cable knife with additional hooked blade	8 - 28 mm	306.00
10281	Secura No.28G	cable knife with additional straight blade	8 - 28 mm	306.00
19000	—	spare blade for above cable knives	(3 pc set)	270.00
Cable knife system 4-70 <i>with newly developed hook blade protection mechanism</i>				
• Bracket change system permits stripping of cables from Ø 4...70 mm diameter with just one tool • Perfect ergonomic design ensures easy, comfortable handling				
70000	System 4-70	knife with protected hook blade with bracket No. 28	8 - 28 mm	906.00
79016	Bracket No. 16	bracket for system 4 - 70 for cables with diameter	4 - 16 mm	258.00
79035	Bracket No. 35	bracket for system 4 - 70 for cables with diameter	27 - 35 mm	292.00
79050	Bracket No. 50	bracket for system 4 - 70 for cables with diameter	35 - 50 mm	292.00
79070	Bracket No. 70	bracket for system 4 - 70 for cables with diameter	50 - 70 mm	292.00
19000	—	spare blade for above cable knives	(3 pc set)	270.00
Coax cable strippers <i>for coaxial cables</i>				
Secura Coaxi No.1, strips coaxial cables in two easy and quick motions, stripping the outer sheathing and inner dielectric coat precisely without any damage to the wires or essential shielding.				
• Quick, easy stripping of coaxial cable types - TV antenna cables, RG58/59, PVC-Flex 3 x 0.75 mm² • No adjustment necessary, without damaging the inner metal shield				
30600	Coaxi No. 1	Coax/RG59/59, CAT and PVC cables 3 x 0.75 mm ²	Ø 4.8 - 7.5 mm	320.00
PC-Strip <i>for PVC-insulated data communications and control cables</i>				
Special sheathing and insulation stripping tool for PVC-insulated data communications and control cables.				
• No adjustment of cutting depth necessary (<i>wire stripping range 0.2 - 4.0 mm²</i>)				
30160	PC-Strip	data/network/printer/control cables 0.2...4 mm ²	Ø 5 - 15 mm	709.00
PC-CAT <i>for CAT5, CAT6, CAT7, Twisted-Pair-Cable</i>				
For PVC-insulated data communications and control cables Cat5, Cat6, Cat7, twisted-pair, network and thinly insulated cables. Also for stripping individual wires (0.2...0.8 mm ²)				
• No adjustment of cutting depth necessary (<i>wire stripping range: 0.2...0.8 mm²</i>) • Integrated, multi-functional slide-out blade				
30161	PC-CAT	CAT5 / 6 / 7 cable or twisted pair 0.2...4 mm ²	Ø 4.5 - 10 mm	565.00
Quadro Plus <i>4 functions in one - cutting - twisting - stripping - crimping</i>				
Ergonomic, automatic wire stripper and crimping pliers for wires from 0.5...2.5 mm ² wire stopper for perfect length, for quick precise stripping and crimping on insulated sleeves.				
• Self adjusting blades cause no damage to conductors • Integrated twisting device prevents splaying of wire strands • Trapezium crimping to VDE 0609 • Cartridge accepts insulated ferrules (<i>in strips</i>) 0.5...2.5 mm² • Incorporated side cutter for wires up to 2.5 mm²				
62000	Quadro	insulated carrying case with 2 spare cartridges	0.5 - 2.5 mm ²	4 570.00
60100	—	spare quick-change cartridges for Quadro tool	—	193.00



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to explore the Jokari range



Hand-operated crimping tools

Manual crimping tools for wire ferrules (bootlace terminals)

Proteus 10S - Professional self-adjusting crimping tool providing a square crimp cross section suitable for wire ferrules 0.14...10 mm². Ergonomically shaped handles with selected surface textures for comfortable, frequent use.

- Professional self-adjusting crimping tool providing a square crimp profile on wire ferrules
- Full cycle ratchet mechanism ensuring consistent, reliable crimp (*release on completion of crimping operation*)
- Ergonomic handles, light weight, low handle force and optimum opening for comfortable crimping
- Release lever to clear miscrimps and obstructions (*releases jaws before completion of crimp*)
- Non-slip rubber grip pad for applying pressure against a surface

type	for terminals	conductor (mm ²)	cable entry	description	price
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Pressmaster - Professional self-adjusting crimping tool

- High precision die geometry for a clearly defined square crimp shape of the ferrule
- Automatic self-adjustment to required wire size

4300-4661	ferrules	0.14...10	side	professional self-adjusting crimping tool	2 310.00
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Mobile frame system - with interchangeable dies for various terminals

Lightweight, compact ratchet crimp tool designed for most types of mechanical, electrical and electronic connectors. Easily interchangeable crimp dies are kept together with a special pin to simplify handling.

- Reliable crimping performance consistent and accurate with a parallel action stroke.
- Easy-access release for fast, simple exchange of crimp dies (*no special tools required*)

4300-3149	die dependant		side	MCT frame only for interchangeable dies	601.00
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Interchangeable die sets for above tool frame

- A wide range of crimp dies to cover all applications in just one tool frame.
- Dies are kept in pairs and delivered in a modular reusable box.

4300-3129	insulated	0.5 to 2.4	side	red/blue insulated terminal crimping die set	430.00
4300-3128	insulated	4 to 6	side	yellow insulated terminal crimping die set	368.00
4300-3137	uninsulated	0.75 to 2.5	side	cable lug crimping die set	368.00
4300-3139	uninsulated	4 to 10	side	cable lug crimping die set	368.00
4300-3127	end sleeves	0.25 to 10	side	wire end sleeve crimping die set	368.00
4300-3153	end sleeves	16 to 25	side	wire end sleeve crimping die set	368.00
4300-3154	end sleeves	35 to 50	side	wire end sleeve crimping die set	368.00
4300-3146	open barrel	0.5 to 6	side	open barrel connector crimping die set	601.00
4300-3136	coaxial	RG58/59/62/71	side	coaxial connector crimping die set	429.00

Z&F - Crimping tools (for insulated and uninsulated ferrules)

Crimpfit 2.4	end sleeves	0.5 to 2.4		economic crimping tool (<i>front and side entry</i>)	899.00
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Crimping tool with ratchet closing control

Crimpfit F6L	end sleeves	0.5 to 6	side	crimping tool for wire end ferrules (<i>5 profiles</i>)	1 440.00
Crimpfit F16L	end sleeves	6 to 16	side	crimping tool for wire end ferrules (<i>3 profiles</i>)	1 440.00
Crimpfit F25L	end sleeves	6 to 25	side	crimping tool for wire end ferrules (<i>4 profiles</i>)	1 530.00

Crimpfit IT6L (for pre-insulated cable lugs)

- Crimping tool for PVC, PC and DPA insulated lugs, with ratchet closing control
- Crimping profiles for different wire cross-sections (*red/blue/yellow*)

Crimpfit IT6L	insulated	0.5 to 6	side	crimping tool for pre-insulated lugs (<i>3 profiles</i>)	1 420.00
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Jeesoon - Crimping tool for pre-insulated terminals

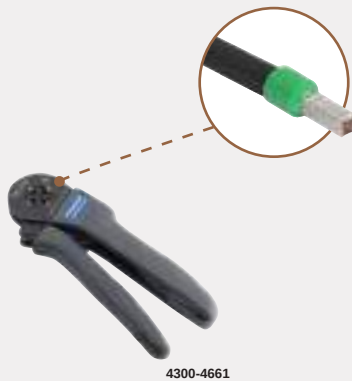
- With ratchet closing control
- Crimping profiles for different wire cross-sections (*red/blue/yellow*)

JSL 1305-1	insulated	0.5 to 6	side	crimping tool for pre-insulated terminals	657.00
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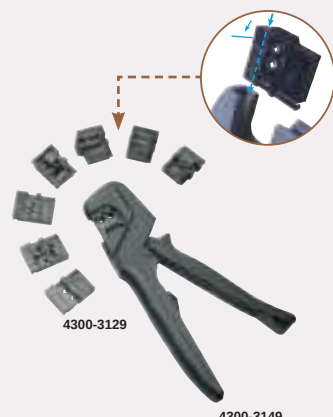
Cembre - Crimpstar range - Ratchet crimping tools

- Ergonomically designed non-slip moulded plastic grips
- Factory-set ratchet for crimping control (*automatic release on completion of crimping operation*)
- Emergency release lever (*releases jaws before completion of crimp*)

HP3	insulated	0.25 to 6	side	red/blue/yellow ratchet crimping tool	1 690.00
HNN3	insulated	1.5 to 10	side	manual indent ratchet crimping tool	1 900.00
HNN4	insulated	10 to 16	side	manual indent ratchet crimping tool	1 810.00
HN-A25	uninsulated	10 to 25	side	manual hexagona ratchet crimping tool	3 050.00
HNKE4	end sleeves	0.5 to 4	side	wire end sleeve crimping tool	1 940.00
HNKE16	end sleeves	4 to 16	side	wire end sleeve crimping tool	2 180.00
HNKE50	end sleeves	25 to 50	side	wire end sleeve crimping tool	2 010.00



4300-4661



4300-3129

4300-3149



IT6L



JSL 1305-1



HNKE50

Cable preparation tools



Professional hand tools for cable preparation

type	wire sizes mm ²	tool length	description	dimensions (mm)			price
				H	W	D	

Cable shears (cutters)

- For cutting single/multi-strand and fine wire aluminium and copper cables
- Easy, clean cut with one hand operation - no crushing or deformation of cables

700 015 36	Cu 70	170 mm	cable shears for stranded conductors up to 70 mm ²				711.00
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 Professional scissors *supplied with carry case and swivel belt hook*

Robust-A professional scissors with special steel frame for high resistance and a long life

- Safe and easy operation even when wearing work gloves
- Dual compound material - soft rubber inserts to maximise grip
- Extremely lightweight and robust for safe, easy handling and comfort
- Easy cutting of conductors up to 50 mm² using the shaped grooves in each blade

SC5X	scissors		professional workmans scissors	162	77	18	550.00
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Crimping tools for insulated and uninsulated ferrules (bootlace terminals)

Entry-level crimping tool for 0.25 – 2.5 mm² ferrules PE 7.1

- Forged body - milled trapezoidal crimp profile

610 001 0	0.25...2.5	150 mm	entry-level crimping tool for ferrules 0.25...2.5 mm ²				549.00
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 Professional crimping tool for 0.08 - 16 mm² ferrules **PEW 8.185 / PEW8.87**

- The established, patented tool further improved
- High-precision die geometry leads to a clearly defined square crimp shape of the ferrule
- Automatic self-adjustment to requested wire size

610 185 3	0.08-16	side entry	professional crimping tool for ferrules 0.08 - 16 mm ²				3 660.00
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610 087 3	0.08-10	front entry	professional crimping tool for ferrules 0.08 - 10 mm ²				3 720.00
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Automatic machines for cable preparation

type	wire sizes (mm ²)	measuring length (mm)	description	dimensions (mm)			price
				H	W	D	

Cable cutting machine

supply voltage 100...240 VAC 50/60Hz

LC 100 offers significant potential savings. Measuring and transport rollers automatically adjust to wire diameter on insertion. Enter the desired length and quantity on the control panel and the production can begin. Included software enables recurring cutting jobs to be saved as projects.

- Easy to use, faster material change
- Cable cross-section is automatically detected
- Simple and fast data entry via clear graphical display and control panel
- High measuring accuracy through separate measuring and transporting roller

LC 100	0.8...10	2 mm...1000 meter	automatic wire cutter	194	228	301	78 500.00
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CS 60 - Stripping machine

supply voltage - 230 VAC 50Hz

CS 60 settings are made by large user-friendly dials. A graphic display indicates values entered within seconds, the cross section settings and stripping length are performed. Insulation of cables not fully stripped to prevent fanning of the wire strands.

- Mobile use by carrying handle
- Fast setting of length and cross section
- Large graphic display facilitates adjustment
- The automatic clamping force adjustment protects sensitive insulations

CS 60	0.8...6	2...20 mm	automatic wire stripper	221	141	363	74 900.00
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Stripping and crimping machines (combined)

type	wire sizes mm ²	crimping length (mm)	description	dimensions (mm)			price
				H	W	D	

Electric stripping and crimping machine

supply voltage - 230 VAC 50Hz

Wire stripping and crimping done in one operation using belt strip ferrules in type K box dispensers Controlled by a sophisticated cam mechanism achieving a stable working process.

- Cycle time: 1.5s
- Easy to use, silent operation
- Cross-sectional change in a few simple steps.

MC 25	0.25...2.5	8 mm	automatic stripper/crimper	270	165	320	156 000.00
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Hydraulic cable preparation tools



Hydraulic crimping / cutting tools

type	for terminals	conductor (mm ²)	crimping force (kN)	description	price
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HT and TC series - Hydraulic tools

lightweight and compact

- Spring loaded handles, dies can be advanced using only one hand
- Pressure release system can easily be operated at any stage of compression
- For ease of operation and comfort of operator, tool head can be fully rotated 180°
- Supplied with sturdy plastic carrying case for tool with compartments. (see dies sets)

HT45 compact hydraulic crimping tool

HT45-E	die dependant	max. 150	50 kN	hydraulic crimping tool	17 900.00
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HT51 -2 speed hydraulic crimping tool

- Supplied with sturdy plastic carrying case for tool and (included) die sets:
ME 5-50, 7-50, 10-50, 14-50, 19-50, 24-50, 30-50, 37-50

KITHT51-1	die dependant	max. 240	50 kN	hydraulic crimping tool	29 300.00
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HT131 hydraulic crimping tool for semi-circular slotted dies

- Supplied with sturdy plastic carrying case for tool and (included) die sets:
ME 10-C, 14-C, 19-C, 24-C, 30-C, 37-C, 48-C

KITHT131-C-1	die dependant	max. 400	130 kN	hydraulic crimping tool	41 000.00
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RH series - Hydraulic presshead

Hydraulic presshead complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max.

RHC131	die dependant	max. 400	130 kN	hydraulic presshead only	16 000.00
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TC series - Hydraulic cutting tool

Hand operated hydraulic tool specifically designed to cut Copper, Aluminium-Steel cables. Double speed action: a fast advancing speed for rapid approach of blades to cable and a slower more powerful speed for cutting.

- HT-TC... can cut copper, aldreyl, aluminium, aluminium-steel cables and steel ropes and steel rods

type	max. cutting diameter Ø	length	width	description	price
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TC026 compact hydraulic cutting tool

supplied with canvas carrying bag for tool

HT-TC026	Ø 25 mm	382 mm	129 mm	hydraulic cutting tool	29 300.00
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TC series -2 speed hydraulic cutting tool

supplied with plastic carrying case for tool

HT-TC041N	Ø 45 mm	550 mm	144 mm	hydraulic cutting tool	39 400.00
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TC series hydraulic cutting head

supplied with canvas carrying bag for tool

Hydraulic cutting head complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max.

TC050	Ø 50 mm	325 mm	112 mm	hydraulic cutting head	26 500.00
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Larger sizes available on request.

Hydraulic foot operated pump

- Pressure release can easily be operated at any stage of compression
- Supplied with 3 meter long high pressure flexible hose with self-lock quick coupler

PO - Foot operated double speed pump

develops a maximum pressure of 700 bar

- Supplied with solid shaped stand providing stability during operation
- Supplied with sturdy plastic carrying case for tool

PO7000	700 BAR	680 mm	200 mm	hydraulic foot operated pump	36 400.00
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Manual crimping tool

- Heat treated steel crimp jaws
- Handles of anti-slip plastic with hilt

TN series (indent crimp)

adjustable for different conductor sizes

- Easily adjustable die positioning by knurled screw and reference vernier scale

TN70SE	uninsulated	6 to 70	indent	adjustable manual crimping tool	5 590.00
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TN120SE	uninsulated	10 to 120	indent	adjustable manual crimping tool	6 560.00
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Battery-operated cable preparation tools / Thermal transfer printer



New

KIT-BX500ND-1



B-TC320NDF



KIT-B-FL750-1



MG4

Cordless hydraulic crimping tools (18.0 V Li-Ion high power batteries)

- Pressure release button
- Extremely quiet, minimal vibration
- One hand operation, improved balance for better handling
- Tool head rotates 180° for ease of operation in confined spaces
- Durable moulded body with high resistance to wear and damage in all operating conditions

type	for terminals	conductor (mm²)	crimping force (kN)	description	price
BX500 series - "Inline" type crimping tool					
KIT-BX500ND-1 is a one-handed, inline cordless crimping tool designed for crimping electrical connectors on conductor cross sections up to 300 mm². Compatible with all CEMBRE 50kN die sets, it offers balanced control.					
• Wide opening head, ideal for derivations from running conductors • One Li-Ion 18.0V 2.0Ah batteries and charger included • Supplied with: A durable plastic carry case, 1 battery, charger, and die set for Cu lugs from 25 to 185 sqmm (ME5-50 to ME37-50)					
KIT-BX500ND-1	die dependant	max. 300	60 kN	battery operated crimping tool	42 600.00
TC320 series - "inline" type cutting tool					
B-TC320NDF is a cordless tool designed for cutting copper, aluminium, and telecommunication cables up to 32 mm. It features high-strength steel blades and a 180° rotating head for versatile operation, suitable for temperatures from -15 to +50°C.					
• LED light illuminating working area • Li-Ion 18.0V 2.0Ah high power battery • Battery is equipped with led indicators that indicate the remaining battery life • Specifically designed to cut Copper, Aluminium and Telecommunications cables • Supplied with: Plastic carrying case for tool, 2 x battery, charger and (included) die sets:					
B-TC320NDF	die dependant	max cutting Ø 32 mm		battery operated cutting tool	51 500.00
FL750 series - "Pistol" portable punching tool					
KIT-B-FL750-1 is a versatile cordless punching tool powered by an 18.0V lithium-ion battery. It features a 360° rotating and 180° pivoting head for easy access in tight spaces and can punch materials up to 3.5 mm thick.					
Supplied with: • Plastic carrying case for tool, battery, charger • Kit includes round punch - KIT-RD 18.8, 20.5, 22.6, 28.5SS					
KIT-B-FL750-1	die dependant	max cutting Ø 32 mm		battery operated punching tool	56 800.00
B1300 series - Portable crimping tool					
• LED light illuminating working area • Li-Ion 18.0V 5.2Ah high power battery • Crimping cycle data stored (up to 200.000 events) in memory for later transfer to PC • Digital display indicating: crimp pressure, available battery life, service/maintenance information • Supplied with: Plastic carrying case for tool, 2 x battery, charger and (included) die sets: ME 10-C, 14-C, 19-C, 24-C, 30-C, 37-C, 48-C					
KITB1300-C-1	die dependant	max. 400	132 kN	battery operated crimping tool	91 200.00
See dies sets					
MARKINGENIUS MG4 (thermal transfer printer) (H) 236 x (W) 240 x (D) 409 mm / 6.1 kg					
Exclusively designed for the identification of conductors and electrical components.					
Plug & Play Thermal Transfer Printer: For tags, markers, legends, and labels on cables, pipes, tubes, terminal blocks, panels, components, and equipment					
Large on-Board Touch Screen: Allows easy management of print projects. The MG4's reliability and robustness make it ideal for intensive use in various applications					
Versatile Power Options: MG4 operates on mains power or optional CEMBRE rechargeable batteries. Use it in the office, production, or on-site. The interchangeable battery, compatible with all CEMBRE tools, ensures full portability					
Efficient Ribbon Save System: Each monochrome ribbon prints over 300,000 MG-TPMF 4x10 mm labels. Pigment dries instantly, making printed sheets immediately ready for use					
type	description				price
MG4	MARKINGENIUS MG4 thermal transfer printer for marking tags and legends				68 000.00

Die sets for crimping tools

Die sets for hydraulic and battery operated crimping tools

type	for terminals	conductor (mm²)	crimping type	for crimping tool	price
Die sets for uninsulated terminals					
ME1	cable lugs	4...6	hexagonal	HT45-E	920.00
ME2	cable lugs	10	hexagonal	HT45-E	723.00
ME3	cable lugs	16	hexagonal	HT45-E	723.00
ME5	cable lugs	25	hexagonal	HT45-E	723.00
ME7	cable lugs	35	hexagonal	HT45-E	723.00
ME10	cable lugs	50	hexagonal	HT45-E	723.00
ME14	cable lugs	70	hexagonal	HT45-E	723.00
ME19	cable lugs	95	hexagonal	HT45-E	723.00
ME24	cable lugs	120	hexagonal	HT45-E	723.00
ME30	cable lugs	150	hexagonal	HT45-E	723.00
ME1-50	cable lugs	4...6	hexagonal	HT51/BX500ND	1 010.00
ME2-50	cable lugs	10	hexagonal	HT51/BX500ND	723.00
ME3-50	cable lugs	16	hexagonal	HT51/BX500ND	723.00
ME5-50	cable lugs	25	hexagonal	HT51/BX500ND	723.00
ME7-50	cable lugs	35	hexagonal	HT51/BX500ND	723.00
ME10-50	cable lugs	50	hexagonal	HT51/BX500ND	723.00
ME14-50	cable lugs	70	hexagonal	HT51/BX500ND	723.00
ME19-50	cable lugs	95	hexagonal	HT51/BX500ND	723.00
ME24L-50	cable lugs	120	hexagonal	BX500ND	871.00
ME30L-50	cable lugs	150	hexagonal	BX500ND	871.00
ME24-50	cable lugs	120	hexagonal	HT51/BX500ND	871.00
ME30-50	cable lugs	150	hexagonal	HT51/BX500ND	871.00
ME37-50	cable lugs	185	hexagonal	HT51/BX500ND	871.00
ME48-50	cable lugs	240	hexagonal	HT51/BX500ND	2 720.00
MA1-50	nest	4...6	indent	HT51/BX500ND	657.00
MA2.3-50	nest	10	indent	HT51/BX500ND	657.00
MA5-50	nest	25	indent	HT51/BX500ND	657.00
PA5-50	indentor	4...25	indent	HT51/BX500ND	1 960.00
MA7-50	nest	35	indent	HT51/BX500ND	640.00
MA10-50	nest	50	indent	HT51/BX500ND	640.00
PA10-50	indentor	35...50	indent	HT51/BX500ND	1 960.00
MA14-50	nest	70	indent	HT51/BX500ND	683.00
MA19-50	nest	95	indent	HT51/BX500ND	683.00
PA19-50	indentor	70...95	indent	HT51/BX500ND	1 960.00
MA24-50	nest	120	indent	HT51/BX500ND	640.00
PA24-50	indentor	120	indent	HT51/BX500ND	1 960.00
ME7-C	cable lugs	35	hexagonal	HT/RHC131/B1300	1 670.00
ME10-C	cable lugs	50	hexagonal	HT/RHC131/B1300	1 670.00
ME14-C	cable lugs	70	hexagonal	HT/RHC131/B1300	1 670.00
ME19-C	cable lugs	95	hexagonal	HT/RHC131/B1300	1 670.00
ME24-C	cable lugs	120	hexagonal	HT/RHC131/B1300	1 670.00
ME30-C	cable lugs	150	hexagonal	HT/RHC131/B1300	1 670.00
ME37-C	cable lugs	185	hexagonal	HT/RHC131/B1300	1 670.00
ME48-C	cable lugs	240	hexagonal	HT/RHC131/B1300	1 670.00
ME60-C	cable lugs	300	hexagonal	HT/RHC131/B1300	1 670.00
ME80-C	cable lugs	400	hexagonal	HT/RHC131/B1300	1 670.00
MA7-C	nest	35	indent	HT/RHC131/B1300	904.00
MA10-C	nest	50	indent	HT/RHC131/B1300	904.00
PA10-C	indentor	10...50	indent	HT/RHC131/B1300	2 000.00
MA14-C	nest	70	indent	HT/RHC131/B1300	904.00
MA19-C	nest	95	indent	HT/RHC131/B1300	904.00
MA24-C	nest	120	indent	HT/RHC131/B1300	904.00
PA24-C	indentor	70...120	indent	HT/RHC131/B1300	2 000.00
MA30-C	nest	150	indent	HT/RHC131/B1300	904.00
MA37-C	nest	185	indent	HT/RHC131/B1300	904.00
MA48-C	nest	240	indent	HT/RHC131/B1300	904.00
PA48-C	indentor	150...240	indent	HT/RHC131/B1300	2 000.00
MA60-C	nest	300	indent	HT/RHC131/B1300	1 560.00
PA60-C	indentor	300	indent	HT/RHC131/B1300	2 000.00
Die sets for insulated terminals					
MN2RF-50	cable lugs	10	radial	HT51/BX500ND	985.00
MN3RF-50	cable lugs	16	radial	HT51/BX500ND	985.00
MN5RF-50	cable lugs	25	radial	HT51/BX500ND	985.00
MN7RF-50	cable lugs	35	radial	HT51/BX500ND	985.00
MN10RF-50	cable lugs	50	radial	HT51/BX500ND	985.00



ME1



ME7



MA1-50



MA19-50



MA7-C



MN2RF-50



MN10RF-50

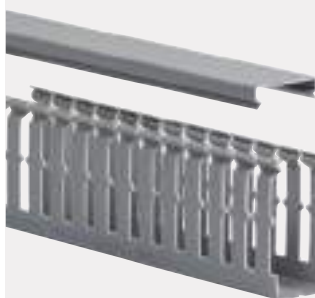
DIN rail & cable trunking cutters



008328



VTC125



TSL040040N

DIN rail cutter (professional)

DIN rail cutter (for steel mounting rail only)

DIN rail is often cut by saw or angle grinder creating dust, noise and a considerable risk of injury. The **RC200** is a high quality, professional DIN rail cutter designed for high output, offering "burr-free" precision cutting and trimming of standard DIN rails.

- Increased work safety and quiet operation
- Quick and professional burr-free processing
- Metric scale plate and table clamp (optional)
- Incorporates two cut profiles (7.5 x 35 and 15 x 35 mm) DIN rails.
- Precision "burr-free" cut and trim of DIN rail to length without waste

type	rail cutter	for rail depth (mm)	description	price
DIN rail cutter (professional)				
RC200 DIN rail cutter for DIN 35 rail 7.5 and 15 mm deep				
008328	cutter	7.5 + 15	DIN rail cutter (2 profiles) for 7.5/15 mm high x 35 mm rail	15 600.00
Accessories for above RC200 DIN rail cutter				
009465	scale	metric scale plate and length stop for above DIN rail cutter		RC200 2 720.00
009102	clamp	table clamp for above DIN rail cutter		RC200 1 140.00



Made in Italy

Wiring duct cutter (professional)

type	duct cutter	max. cut width	max. length stop	description	price
Bench mounting wiring duct (slotted trunking) cutter					
VTC125 provides fast, precise and burr-free cutting of wiring ducts, without leaving chips behind. It enables low-noise and emission-free working. The scale with length stop ensures the wiring ducts are cut to length quickly and with millimetre precision					
For fast, accurate cutting of wiring ducts to lengths, without burrs and with very little force					
• Blade guard guarantees secure operation • Burr-free cut edges - No noise, no chips or dust • Quick and easy cutting - ducts cut precisely to the millimetre • Supplied with a 1 meter graduated dimension rule with length stop • Hardened (replaceable) cutting blade - max. cutting width 125 mm					
VTC125	cutter	125 mm	1000 mm	precision slotted wiring duct cutter	18 800.00

L-Termination and wiring



Ezi Canal slotted cable ducting features an improved cover design for ease of opening and closing, permitting easy access to wiring in control panels.

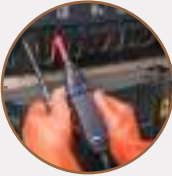
- Simple open/close cover design for easy access to wiring in control panel
- Double score-line permits finger/slot or complete sidewall removal
- Coining process for burr-free edges to protect hands and wiring from abrasion

Standard colour: Grey - others available on request (volume dependant)
Standard length: Supplied in two meter lengths, complete with covers

type	dimensions (mm)		colour	description	slot A (mm)	finger B (mm)	carton qty (L - 2 m)	price each
dimensions (mm)								
(W)		(H)						
Narrow slotted trunking			Finger: 6 mm / Slot - 4 mm		(10 mm pitch)			
• Narrow slot/finger design to closely fit spacing of high density terminal blocks and I/O modules								
KKC1518	15	18	grey	PVC slotted cable trunking	5	7.5	112	see Cat L for pricing.
TSL025025N	25	25	grey	PVC slotted cable trunking	4	6	48	
TSL025040N	25	40	grey	PVC slotted cable trunking	4	6	40	
TSL040040N	40	40	grey	PVC slotted cable trunking	4	6	24	
TSL060040N	60	40	grey	PVC slotted cable trunking	4	6	24	
TSL080040N	80	40	grey	PVC slotted cable trunking	4	6	18	

Digital multimeters

1000V
CAT IV

IP
54


P01191773



P01196773



P01298076

Voltage Absence Tester (VAT) CAT IV 1000 V

Installations connected to an electricity distribution network, require measurements to be performed with power off to avoid electrical hazards (EN 50110-1 standard, DIN VDE 0682-401, NF C 18-510, etc.) Securing the installation to ensure that it is non-current-carrying, requires the use of a Voltage Absence Tester.

- **Comprehensive integrated autotest** - indication of type of fault also displays a text message for information.
- **IP65 protection** for indoor and outdoor use, significantly higher than the IP54 rating required by the standard.
- **Audible and visual continuity** indication up to 100 Ω , in compliance with standards recommendations.
- **Removable test probes** to meet specific requirements in certain applications (*various models available*)

AC and DC voltage testing Voltage detection takes priority, is automatic and indicated by distinct visual (*bargraph*) and intermittent beep. Stray voltages can be detected by pressing two buttons simultaneously to switch to low impedance mode.

2-wire phase rotation with microprocessor Simple and quick, the 2-wire phase rotation function with microprocessor is useful in all circumstances, including installations powered by an electrical generator set or behind an isolating transformer.

Continuity and resistance testing Checks that conductors are correctly connected. Continuity ($R < 100 \Omega$) is indicated by a continuous audio signal whilst the resistance value is displayed directly.

Residual Current Device (RCD) trip test up to 30 mA By simultaneously pressing the double command, you can cause a fault current sufficient to trip the RCD to flow through a low-impedance load.

Ergonomics specially designed for use in the field Digital display, removable test probes ensure excellent handling. A built-in torch illuminates the point of measurement.

type	model	description	price
Voltage Absence Tester		IP65 enclosure	228 x 60 x 39 mm
Display:		LEDs + backlit digital display	
Voltage:		12 VAC - 1.000 VAC / 12 VDC - 1.400 VDC	
Impedance:		> 500 k Ω / Polarity indication	
Android application:		Not applicable	
RCD tripping:		By low-impedance load switching (<i>approx. 30 mA at 230 V</i>)	
Continuity & Resistance:		Buzzer trigger threshold 100 Ω typical (<i>150 Ω max.</i>)	
Extended continuity test:		0.5 Ω to 2.999 k Ω	
Phase rotation:		2-wire type with microprocessor - Ph/Ph voltage 50 V - 1.000 VAC	
Buzzer:		Intermittent for Voltage Detection - Continuous for continuity	
Standards and elec safety:		IEC 61243-3:2009, EN 61243-3:2010, IEC 61010 1.000 V CAT I	
Delivered with: manual, set removable test probes, 2x 1.5 V LR03/AAA batteries, Velcro strap.			
P01191773	C.A 773	CAT IV 1.000 V Voltage Absence Tester (VAT)	4 550.00

Digital multimeter (CAT IV 600 V) IP54

General-purpose professional measuring instrument with TRMS measurements (*sinusoidal, distorted and DC signals*) measurement accuracy, rugged design, reliability of an on-site instrument.

- Double backlit display
- Min/Max memorization
- Large 6000-count display
- Temperature and capacitance measurements

Display:	2 x 6000 counts, backlit
Bargraph:	(63 elements) Bi-mode (<i>full scale / central zero</i>)
Acquisition:	TRMS AC / DC
Measurement rate:	5 measurements per second
Automatic / manual ranges:	Yes / Yes
AC/DC voltage:	600 mV / 6 / 60 / 600 / 1.000 V - accuracy 0.2% - 40Hz to 3kHz
LowZ AC voltage:	Low-impedance setting with Low-pass Filter
AC/DC current:	6.000 A / 10.00 A (20 A/30s)
Resistance measurement:	600 / 6.000 Ω / 60 / 600 k Ω / 6 / 60 M Ω , Audible continuity, Diode test
Frequency:	600 Hz / 6 kHz / 50 kHz
Capacitance:	8 cal.: 6.000 nF to 60.00 mF
Temperature:	-59.6 to +1.200°C / -4 to +2.192°F
Hold facility:	Yes Min / MAX (100 ms)
Min / MAX (100 ms):	Yes
Automatic power-off:	Yes (<i>can be deactivated</i>)
Safety:	IEC 61010-1, IEC 61010-2-033 CAT IV 600 V / CAT III 1000V
Power supply:	1x 9 V 6LR61 battery
Dimensions / weight:	90 x 190 x 45 / 400 g

Delivered with: Set leads, set test probes, 1x 9V 6LR61 battery, K thermocouple temp sensor

P01196773	C.A5273	digital multimeter hand held for all applications	6 260.00
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Accessories for above C.A5273 multimeter

P01298076		carrying bag with MultiFix multi-position mounting accessory	1 040.00
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Portable clamp multimeters

1000V
CAT IV



IP
54



P01120925



P01120947

Digital Power and harmonics clamp multimeter

General-purpose professional clamp-on measuring instrument with True RMS measurement accuracy, reliable and particularly resistant to falls.

Clamping diameter:	Ø34 mm
Display:	Large 6000-count, backlit LCD screen
Amp (RMS)	AC 600 A
	DC, AC+DC 900 A
Volt AC (RMS)	AC 1000 V - 1%
Volt DC	DC, AC+DC 1400 V - 1%
Automatic AC/DC detection:	Yes (V and A)
Frequency for V/I:	Yes / Yes
Resistance measurement:	60 kΩ
Audible continuity:	Yes (< 1 Ω...599Ω)
Diode test:	(semi-conductor junction)
Temperature (type K):	-60.0 to +1000 °C
Power:	W, var, VA, PF Yes - single-phase and total three-phase
Harmonic analysis:	THDf / THDr
Phase rotation:	(2-wire method)
Motor-inrush function:	Yes
True-inrush function:	Yes
"Min / Max" / Peak function:	Yes / Yes
Auto Power off / "Hold" function:	Yes
Low battery indication:	Yes
Electrical safety as per:	IEC 61010 CAT IV 600V, CAT III 1000 V
Dimensions / weight:	78 x 222 x 42 / 340g

Delivered with: 1 set of PVC leads (black/red) with insulated elbowed male banana plug / insulated straight male banana plug, 2 test probes / insulated female plug (black/red) 1 safety crocodile clip (black) 1 x 9 V 6LR61 battery, 1 Multifix shoulder bag, mini-CD containing the User Manual.

type	model	description	price
P01120925	F205	digital clamp multimeter/tong tester for all applications	8 070.00

Power and harmonics clamp multimeter IP54

Current 1000 A, Voltage 1000 V, power, harmonics and recorder

Clamping diameter:	Ø48 mm
Display:	Large triple 10 000 count, backlit screen
Amp (RMS)	AC 150mA to 1000 A - 1%
	DC, AC+DC 150mA to 1500 A - 1%
Volt AC (RMS)	AC 100 mV to 1000 V - 1%
Volt DC	DC, AC+DC 100 mV to 1000 V - 1%
Automatic AC/DC detection:	Yes (V and A)
Resistance measurement:	100 kΩ (continuity buzzer)
Audible continuity:	Yes (< 40 Ω)
Frequency:	15Hz to 20kHz
Power:	W, VA, var Yes - single-phase and total three-phase
PF and cos φ (DPF):	Yes
Total Harmonic Distortion:	THDf % / THDr %
Harmonic decomposition:	Yes - up to 25th order
Crest factor (CF) / Motor InRush:	Yes
Current surge (True InRush):	Yes
"Min Max" / Peak function:	Yes / Yes
Auto power off / "Hold" function:	Yes
REC storage function:	Yes - (up to 3000 measurements)
Data logging:	Yes
PC / Bluetooth interface:	Yes
Electrical safety as per:	IEC 61010 CAT IV 1000V, CAT III 1000 V

Delivered with: Multifix shoulder bag, Power Analyser Transfer (PAT) software, 2 voltage leads (red/black), 2 test probes (red/black), 2 crocodile clips (red/black), 4x 1.5 V AA alkaline batteries, operating manual.

P01120947	F407	digital clamp multimeter/tong tester for all applications	12 500.00
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Accessories for above F205/F407 multimeters

P01102100Z	mounting	hands free mounting clip	455.00
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Portable network analyser

1000V
CAT IVIP
54

P01157151



P01157151 + P01102204



P01120580

Chauvin Arnoux - PEL103 Power & Energy Loggers IP54 casing

Portable, advanced yet simple to use Power and Energy logger, designed for energy audits (ISO 50001 standard) or one-off measurements of the Power and Energy values in low-voltage electrical networks (1000 V CAT III)

PEL100 series Power and Energy loggers provide a complete solution to measuring and identifying energy consumption in any industry, they can be used handsfree, remotely without interruption to the mains power.

The logger tracks even the slightest consumption in an electrical network, providing all Power and Energy measurement recording on the internal 2GB SD card, while simultaneously permitting real-time monitoring on its backlit 4 line LCD display.

Recordings are time/date stamped for ease of comparing measured gains achieved before and after installation modification. Easily transfer recorded data to a PC via the free PEL data transfer software and SD card with USB adaptor (included).

Designed to fit inside most electrical cabinets thanks to its magnetic base or hook for easy mounting.

Key Features of the PEL103 include:

Measurements and display of:

- RMS frequency, voltage and current measurements
- Voltage measurement ranges 10 to 1000V AC/DC $\pm 0.2\% + 0.5\text{ V}$
- Current measurement ranges 5 mA to 10 kAAC / 50 mA to 1.4 kADC $\pm 0.5\%$
- VA, W and var power values
- Power Factor (PF), $\cos \phi$, $\tan \phi$ and crest factor
- Total Harmonic Distortion (THD) for currents and voltages
- DC, 50 Hz, 60 Hz and 400 Hz measurements
- Phase rotation indication and MIN/MAX indication of all parameters
- VAh, Wh (source, load) and varh (4 quadrant) energy values, total energy
- Harmonics: up to the 50th order for currents and voltages (an essential feature to help identify problems)
- **Network types include:** Three phase (with or without neutral), split phase, single phase
- **Automatic recognition:** Of the type of sensor connected
- **Communication / Data transfer:** USB, Ethernet and Bluetooth / PEL transfer PC software (included)
- **Records:** Measurements and calculation results on SD card (included)
- **Acquisition rate:** 128s/period



Scan to watch video

PEL 103 Power and Energy logger (KIT) (created as a complete kit with following accessories)

- 1 x PEL103 Power and Energy Logger: Analyser with backlit LCD screen
- 3 x MA193 (450 mm) flexible current clamps: MINIFLEX MA193 flexible current sensors - 200mA to 10 kA
- 4 x Measurement leads and crocodile clips: Robust high quality test leads for frequent use/built to last
- 1 x Set of coloured rings and Inserts: For easy identification of connections and leads
- 1 x 2GB SD card (internal): SD card to USB adaptor

SD card to USB adapter, USB cable, mains cable, MultiFIX mounting system, operating manual (on CD)
PEL transfer PC software enabling data to be transferred to PC, all in a convenient canvas carrying bag.

type	model	description	dimensions (mm)			price (ea)
			(H)	(W)	(D)	

PEL 103 Power and Energy logger (KIT)

P01157151	PEL103 (KIT)	portable power and energy logger/analyser	256	125	37	60 700.00
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Accessories for PEL103 Power and Energy logger

P01120434B	MN 93A	compact tong clamps for PEL102/3	Ø20 mm	0.005 - 100A		6 260.00
P01120323B	C193	compact tong clamps for PEL102/3	Ø52 mm	1 - 1000A		8 980.00
P01120580	MA193-250	Ampflex 250 mm flexible current sensor	Ø70 mm	200mA - 10kA		5 540.00
P01120526B*	A193-450	Ampflex 450 mm flexible current sensor	Ø140 mm	100mA - 10kA		5 540.00
P01101959	CA833X-F	for reading from 5A secondary CT's		5A adaptor		29 900.00
P01102204	self-power	mains adaptor for self powering PEL from supply		mains adaptor		6 430.00
P01295174*	mains lead	mains power cable - (2P EUR)				319.00
P01295476*	test leads	spare measurement leads (3m) with crocodile clips		KIT (black)		2 960.00
P01102080*	set	ID rings and inserts (for ends of leads and sensors)		diff. colours		867.00
P01298078*	bag no.23	canvas carrying bag for PEL analyser and access				1 720.00

* Items supplied with standard PEL KIT.

Data processing software**power quality & installation supervision**

Automatically recognizes the instrument connected to the PC and opens the corresponding menu, providing direct access to the configuration and saved data. Includes many predefined report templates for quick generation in compliance with applicable standards.

Users can create personalised models to fit their requirements and add comments directly.

- Configuration of all the functions of instruments connected to a PC or via Bluetooth
- Recovery of the recorded measurement data and backup of measurement files
- Opening of saved files / processing and creation of reports (EN50160)
- Export into an Excel spreadsheet or PDF format / Database management

P01102095	DataView	powerful configuration/transfer/measurement data processing software				13 700.00
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Above ZAR prices do not include VAT. E&OE

Thermal camera

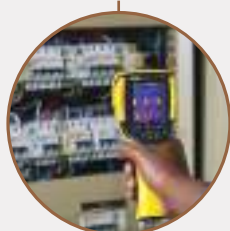
1000V
CAT IV



IP
54



P01651904



DIACAM 2 series - Thermal Camera

DIACAM 2 is a high performance thermal camera making it simple to perform thermal inspections for energy audits, ensuring trouble-free industrial, electrical or mechanical maintenance.

The wide 2.8-inch screen with auto brightness adjustment provides comfortable reading with a field of view of 38° x 28° and the camera is focus-free. A built-in sliding cover protects the highly sensitive lens.

Contextual help guides users step-by-step, limiting the risk of errors. Particularly rugged, with IP54 ingress protection, the camera can withstand falls from 2 metres.

Industrial maintenance For electrical maintenance, can detect electrical equipment malfunctions, particularly abnormal overheating before a fault occurs, avoiding the considerable cost of halting production to carrying out repairs.

Report creation The supplied CAMReport® software, used to create automatic reports can be exported in Word or PDF format, simplifying printing and archiving.

Features:

- Flexible use thanks to its Laser pointer and focus-free capability with 38° x 28° field of view
- Exceptional 9-hour continuous use
- Recovery of data from other measuring instruments (*current, humidity, dew point, etc.*)
- Recording and storage in memory of the configurations for each application
- Allows you to record voice comments directly on the image
- Comfortable grip, perfect balance with direct access to all functions with just one hand
- Wide 2.8-inch screen with automatic or manual brightness control
- Slide-down protective lens cover
- Quick start-up

Detector:

Type: UFPA microbolometer, 8 ~14 µm
Frequency: 9 Hz
Sensitivity (N.E.T.D): 80 mK @ 30°C (0.08 °C @ 30 °C)

Temperature Measurement:

Temperature range: -20 °C to +250 °C
Accuracy: ±2 °C or ±2 % of reading

Image Performance:

Thermal image: -20 °C to +250 °C
Field of view: 38° x 28°
IFOV (*spatial resolution*): 4.1 mrad
Focus: Fixed
Minimum focal distance: 30 cm
Real image: Yes (320 x 240 pixels)
Display mode: Thermal image, real image with automatic parallax compensation (*merging of both images possible with PC software*)

Analytical Functions:

Measuring Tools: Manual cursor + automatic detection + Min Max Avg on adjustable area + temperature profile + isotherm
Parameter settings: Emissivity, environmental temperature, distance, relative humidity
Vocal comments: Yes via Bluetooth (*earphones provided*)
Data storage: On 2 GB micro SD card (*approx. 4.000 images*) replaceable up to 32 GB
Image format: PNG - thermal and real images recorded simultaneously
Laser pointer: Yes

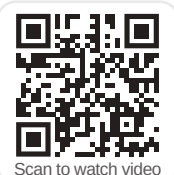
Image Display:

Settings: Automatic or manual adjustment of the min max for the palette
Freezing of image: Animated or fixed image
Display of image: Multi-palette
Screen: 2.8 inch

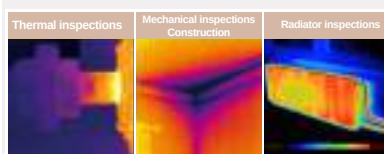
Power Supply:

Type: NiMH rechargeable batteries with low self-discharge
Recharging method: External charger (*supplied*)
Battery life: 9 hrs (*typical*) / 50% brightness and Bluetooth deactivated
Dimensions / weight: 225 x 125 x 83 / 700 g

Delivered with: C.A 1954 thermal camera in a site-proof case with 4 NiMH batteries and battery charger, micro SD HC card, USB cable, Bluetooth earpiece, specimen measurement report, CAM Report® software on CD-Rom and user's manual.



Scan to watch video



Thermal Camera - DIACAM 2		IP54	
type	model	description	price
P01651904	C.A 1954	high performance thermal camera	41 300.00

Electrical installation tester

1000V
CAT IVIP
54

Electrical installation tester

Designed for checking safety on electrical installations, the **C.A 6133** tester can be used to test new before powering up, installations check existing installations whether in operation or not, and troubleshoot malfunctions. For certification organizations, these portable instruments are simple, effective and, above all, compliant with applicable standards.

The C.A 6133 is designed to be exceptionally simple to use. All measurements and functions are accessible directly on the front panel of these compact, lightweight instruments. Explicit markings on terminals prevent any risk of connection errors.

- Earth measurement by stake and loop methods
- Continuity measurement at 0.2A
- Insulation testing
- RCD testing: Current and trip time
- Automatic test sequences
- Storage of test results
- ANDROID application for report generation
- Power supply by mains-rechargeable batteries, USB socket or vehicle cigarette lighter

The C.A 6133 is equipped with a cable compensation function to ensure reliable measurements and can be used for Voltage, Continuity, Resistance, Insulation and Loop measurements. Current can be measured with (optional) MN73A external clamp. The tester also checks the phase rotation and can test type A & AC RCDs in ramp or pulse mode. To save time the C.A6133 can automatically run test sequences and store the results. For example, it is possible to store a sequence such as AUTO LOOP - RCD - MΩ to speed up work in the field.

Ergonomics:

- Stand for positioning on a bench or table
- Magnetized casing for magnetic mounting
- 4-point strap for effortless hands-free use
- Backlit screen for easy reading, even in low light conditions
- Terminals with explicit markings (L, N, PE, H, S, E, +, com connections) prevent connection errors
- Remote-control probe for starting tests remotely
- A three-pole cable for direct measurements on 2P + E sockets

The "IT Report" dedicated to electrical installation testing enables users to download test results via Bluetooth and to generate and view the measurement report.

Voltage measurement:	550 VAC / 800 VDC
Continuity:	At 200mA,
Resistance:	From 1 to 99.99 kΩ
Insulation: test voltage	250V, 500V or 1.000 V (0.01 - 999.9 MΩ / 10 kΩ or 100 kΩ / ± (3% R + 3 cts)
Type AC & A RCDs:	30mA, 100mA, 300 mA, 500 mA, 650 mA
RCD in pulse mode:	Tripping time
RCD in ramp mode (30 mA):	Tripping current
Phase rotation:	45 to 550V; 45 to 65 Hz
Frequency measurement:	30 Hz to 999.9 Hz
Insulation:	Additional 1.000 V test voltage
3P earth (stakes):	Up to 2.000 Ω
Automatic RCD test sequence:	No trip - pulse - ramp
Automatic test sequence:	Loop - RCD - MΩ
Data storage:	30 sites with 99 tests each
Power supply:	By rechargeable batteries with built-in charger
Bluetooth communication:	Yes

Recharging possible via the mains, USB socket or vehicle cigarette lighter socket

Automatic recognition of the optional MN73A external clamp

Delivered with: Carrying bag containing: 1 neck strap, 1 three-pole EURO mains cable, 3 safety cables with crocodile clips, 1 test probe, USB 2A power supply + USB cable, 6 Ni MH rechargeable batteries, test report with measurement report



P01146013

type	model	description	price
P01146013	C.A 6133	electrical installation tester for all applications	17 600.00
Accessories for above C.A 6133 Installation tester			
P01120439	MN73A	current clamp for above electrical installation tester	8 570.00
P01102157		remote-control probe for electrical installation tester	1 330.00

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Skills**
to the Next
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PLC starter kit



EMPOWER-RIG

Delta training kit *(Practical tools for industrial automation training and simulation)*

The Delta PLC starter kit and EMPOWER rig offers the ultimate training solutions for advancing your skills in industrial automation.

Designed for both professionals and students, these kits provide a comprehensive, real-world experience that bridges the gap between theory and application.

Whether you're just starting or looking to deepen your expertise, the Delta PLC starter kit and EMPOWER rig ensure you are fully equipped to tackle the challenges of modern industrial automation.

Register now and start your journey towards mastering industrial automation.

Delta PLC starter kit offers:

- **Simplified entry into automation:** Whether you're a beginner or an expert, this kit simplifies your entry into Delta PLCs and HMIs, providing the tools needed to build a solid foundation in automation technology.
- **Hands-on experience:** Work with real hardware to gain the practical skills necessary for success in manufacturing, process control, building automation, material handling, and energy management.

PLC starter kits

training kits for simplified entry into PLC and HMI applications

PLC starter kits are ideal for experts as well as beginners, simplifies entry into the world of Delta PLCs and HMIs, familiarising users with the programming environment.

type	description	price
UT-14SS2-A	starter kit for learning programming of PLC /HMI	9 300.00
UT-12SE-A1	as above, but with hardware for Ethernet communication	15 300.00
UT-AS332-C	starter kit for learning programming of PLC	11 400.00

"All-in-one" training rig offers:

- **Realistic training environment:** This desktop unit integrates key components such as an AS218 PLC, DOP-107 HMI, and ME300 VFD, along with other essential automation elements, into a single, cohesive training system that simulates real-world automation scenarios.
- **Comprehensive learning:** Design and program control systems, visualise data, and execute automation tasks just like in actual industrial applications.
- **Interconnected systems:** Expand your learning by interlinking up to two additional rigs, simulating complex multi-system environments.

EMPOWER rig

desktop "all-in-one" automation kit

The EMPOWER rig is the latest all in one automation training kit. This desktop type unit consists of an AS218 PLC, DOP-107 HMI, and ME300 VFD, as well as other complementary items, all integrated into a single station.

Additionally up to 2 additional rigs can be interlinked to simulate larger systems.

type	description	price
EMPOWER-RIG	all-in-one automating training rig	12 500.00

All-In-One - Training kit

Comprising of:

1. ME300 VFD
2. DOP-107 HMI
3. AS218 PLC



Scan to watch official
Delta training videos



Indicative rated motor current conversion table

Rated power		3-phase 3-pole 50 hz					Single phase	
		400V	415V	440V	500V	690V	220V	240V
kW	Hp	A	A	A	A	A	A	A
0.37	0.5	0.7	0.6	0.6	0.5	0.4	3.9	3.6
0.55	0.75	1.0	1.0	0.9	0.8	0.6	5.2	4.8
0.75	1	1.4	1.3	1.2	1.1	0.8	6.6	6.1
1.1	1.5	2.0	1.9	1.8	1.6	1.2	9.6	8.8
1.5	2	2.7	2.6	2.5	2.2	1.6	13	12
2.2	3	4.0	3.8	3.6	3.2	2.3	19	17
4	5.5	7.2	7.0	6.6	5.8	4.2	32	29
5.5	7.5	9.9	9.6	9.0	7.9	5.8	41	38
7.5	10	13.5	13.0	12.3	10.8	7.8	7.5	10
10	13.5	18.0	17.4	16.4	14.4	10.5		
11	15	19.8	19.1	18.0	15.9	11.5		
15	20	27.1	26.1	24.6	21.7	15.7		
18.5	25	33.4	32.2	30.3	26.7	19.4		
22	30	40	38	36	32	23		
30	40	54	52	49	43	31		
37	50	67	64	61	53	39		
45	60	81	78	74	65	47		
55	75	99	96	90	79	58		
75	100	135	130	123	108	78		
90	125	162	157	148	130	94		
110	150	198	191	180	159	115		
132	180	238	230	217	191	138		
160	220	289	278	262	231	167		
200	270	361	348	328	289	209		
220	300	397	383	361	318	230		
250	340	451	435	410	361	261		
315	430	568	548	517	455	329		
355	480	641	617	582	512	371		
375	500	677	652	615	541	392		

Note: Rated 3Ø current calculated with a power factor of 0,8
Consult contactor supplier data sheet for maximum power application
3Ø motor power calculation: $P = \sqrt{3} I V \cos\phi$
1Ø motor power calculation : $P = I V \cos\phi$

Contactor utilisation	
Category AC-1	Continuous current rating: All AC loads with a power factor 0.95 - heating, distribution
Category AC-2	Starting, plugging and inching of slip ring motors - starting + 2.5 times rated motor current - stopping < mains supply voltage
Category AC-2	Starting and stopping squirrel cage motors - closing and opening at 6 to 8 times rated motor current - stopping the voltage is at + 20% of mains supply voltage - light breaking
Category AC-4	Plugging and inching of squirrel cage - closing and opening 6 to 8 times rated motor current - severe breaking

Switch category of use	
A	Connecting and disconnecting under no-load conditions
B	Switching of resistive loads, including moderate overloads

AC switch utilisation category (IEC 60947-3)	
Category AC-20	Connecting and disconnecting under no-load conditions
Category AC-21	Switching of resistive loads, including moderate overloads
Category AC-22	Switching of mixed resistive and and inductive loads, including moderate overloads
Category AC-23	Switching of motor loads or highly inductive loads

DC switch utilisation category (IEC 60947-5-1)	
Category DC-20	Connecting and disconnecting under no-load conditions
Category DC-21	Switching of resistive loads, including moderate overloads
Category DC-22	Switching of mixed resistive and and inductive loads, including moderate overloads

Type 2 co-ordination tables

80kA 400V (IEC/EN60947-4-1), Direct-on-line starters with fuses

Motor		Fuse rating					
Rated output (KW)	Rated current (A)	Fuse switch type	gG	aM	Contactor	Thermal overload	Current range (A)
0.37	1.1	3631 3003	6	4	BF09A	RF380160	1-1.6
0.55	1.5	3631 3003	10	4	BF09A	RF380160	1-1.6
0.75	1.9	3631 3003	10	4	BF09A	RF380250	1.6-2.5
1.1	2.7	3631 3003	16	6	BF09A	RF380400	2.5-4
1.5	3.6	3631 3003	16	10	BF09A	RF380400	2.5-4
2.2	4.9	3631 3003	25	10	BF09A	RF380650	4-6.5
3	6.5	3631 3003	32	16	BF12A	RF381000	6.3-10
4	8.5	3631 3003	32	20	BF16A	RF381000	6.3-10
5.5	11.5	3831 3011	50	25	BF25A	RF381400	9-14
7.5	15.5	3831 3011	63	32	BF32A	RF381800	13-18
11	22	3831 3011	80	40	BF32A	RF382500	20-25
15	29	3831 3011	100	63	BF50	RF95333	20-22
18.5	35	3831 3011	125	80	BF50	RF95342	28-32
22	41	3831 3024	160	100	BF65	RF95350	35-50
30	55	3831 3024	200	100	BF95	RF95365	46-65
37	66	3831 3024	200	125	BF95	RF95382	60-82
45	80	3831 3024	250	160	BF160	RF200100	60-100
55	97	3831 3039	315	200	BF195	RF200100	90-150
75	132	3831 3039	400	250	B250	RF200150	120-200
90	160	3831 3039	400	315	B250	RF420250	150-250
110	195	3831 3039	400	355	B310	RF420250	150-250
132	230	3811 3063	630	400	B400	RF420250	150-250
160	280	3811 3063	630	500	B400	RF420300	180-300
200	350	3811 3063	630	630	B500	RF420400	250-420

80kA 400V (IEC/EN60947-4-1), Direct-on-line starters with fuses

Motor		Fuse rating						
Rated output (KW)	Rated current (A)	Fuse switch type	gG	aM	Line	Delta	Star	Current range (A)
4	8.6	3631 3003	20	10	BF9A	BF9A	BF9A	
5.5	11.5	3631 3003	25	16	BF12A	BF12A	BF9A	
7.5	15.2	3631 3003	32	20	BF16A	BF16A	BF9A	6.3-10
11	22	3631 3005	40	25	BF25A	BF25A	BF9A	9-14
15	29	3631 3005	50	32	BF25A	BF25A	BF12A	13-18
18.5	35	3638 3011	63	40	BF25A	BF25A	BF18A	17-23
22	41	3638 3011	80	50	BF32A	BF32A	BF18A	24-32
30	55	3638 3011	100	63	BF38A	BF38A	BF25A	32-38
37	66	3638 3011	125	80	BF50	BF50	BF32A	35-50
45	80	3638 3011	125	100	BF65	BF65	BF32A	35-50
55	97	3831 3024	160	125	BF80	BF80	BF38A	46-65
75	132	3831 3024	200	160	BF80	BF80	BF50	60-100
90	160	3831 3024	250	200	B115	B115	BF65	90-150
110	195	3831 3024	250	200	B115	B115	BF65	120-200
132	230	3831 3039	315	250	BF160	BF160	BF80	120-200
160	280	3831 3039	400	315	BF195	BF195	B115	120-200
250	430	3811 3063	500	500	B250	B250	BF160	150-250
295	540	3811 3063	630	630	B310	B310	BF195	240-400

50kA 400V, between SM circuit breakers and contactors series BG and BF

P(kW)	I0(A)	Current adjustment	Circuit breaker	Contactor
<0.6	-	0.1 - 0.16	SM1R0016	BG6...
0.06	-	0.16 - 0.25	SM1R0025	BG6...
0.09	-	0.25 - 0.4	SM1R0040	BG6...
0.12	-	0.4 - 0.63	SM1R0063	BG6...
0.25	0.85	0.63 - 1	SM1R0100	BG6...
0.55	1.4	1 - 1.6	SM1R0160	BG6...
0.75	1.9	1.6 - 2.5	SM1R0250	BG6...
1.5	3.5	2.5 - 4	SM1R0400	BG6...
2.2	4.8	4 - 6.5	SM1R0650	BG6...
4	8	6.3 - 10	SM1R1000	BG9.../BF9...
5.5	11	9 - 14	SM1R1400	BF12...
7.5	15	13 - 18	SM1R1800	BF16...
11	21	20 - 25	SM1R2500	BF25...
15	29	22 - 32	SM1R3200	BF32...
18.5	35	28 - 40	SM1R4000	BF40...
22	41	40 - 50	SM2R5000	BF50...
30	55	45 - 63	SM2R6300	BF65...
37	67	57 - 75	SM3R7500	BF80...
45	80	80 - 100	SM3R9900	

Brake resistor chart for Delta drives

Drive FRAME	Resistor connection per brake unit	Resistor	ME 300	MS 300	C2000+	ED	Breaking Unit(s)	Total qty resistors
230V 1ph drives - 125% Braking torque/ 10 % ED								
200W	Single	RXLG-80W/750RJ	Yes	Yes			Built in	1
400W	Single	RXLG-80W/200RJ	Yes	Yes			Built in	1
750W	Single	RXLG-80W/200RJ	Yes	Yes			Built in	1
1.5kW	Single	RXLG-200W/91RJ	Yes	Yes			Built in	1
2.2kW	Single	RXLG-300W/70RJ	Yes	Yes			Built in	1
3.7kW	2 in parallel	RXLG-300W/70RJ				Yes	Built in	2
400V 3ph drives - 125% Braking torque/ 10 % ED								
400W	Single	RXLG-80W/750RJ	Yes	Yes			Built in	1
750W	Single	RXLG-80W/750RJ	Yes	Yes	Yes		Built in	1
1.5kW	Single	RXLG-200W/360RJ	Yes	Yes	Yes		Built in	1
2.2kW	Single	RXLG-300W/250RJ	Yes	Yes	Yes	Yes	Built in	1
4kW	2 in parallel	RXLG-300W/250RJ	Yes	Yes	Yes	Yes	Built in	1
5.5kW	Single	RXLG-1KW/75RJ	Yes	Yes	Yes	Yes	Built in	1
7.5kW	Single	RXLG-1KW/75RJ	Yes	Yes	Yes	Yes	Built in	1
11kW	Single	RXLG-1.5KW/43RJ		Yes	Yes	Yes	Built in	1
15kW	Single	RXLG-2kW/32RJ		Yes	Yes	Yes	Built in	1
18.5kW	Single	RXLG-2kW/32RJ		Yes	Yes	Yes	Built in	1
22kW	Single	RXLG-3kW/26RJ		Yes	Yes	Yes	Built in	1
30kW	Single	RXLG-4,8KW/16RJ			Yes	Yes	Built in	
37kW	Single	RXLG-4,8KW/16RJ			Yes	Yes	VFDB4045	1
45kW	Single	RXLG-6KW/14RJ			Yes	Yes	VFDB4045	1
55kW	Single	RXLG-4KW/20RJ			Yes		VFD4030 *2	2
75kW	Single	RXLG-4,8KW/16RJ			Yes		VFD4045 *2	2
90kW	Single	RXLG-6KW/14RJ			Yes		VFD4045 *2	2
110kW	2 in parallel	RXLG-6KW/14RJ *2			Yes		VFDB4110	2
132kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160	4
160kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160	4
185kW	4 in parallel	RXLG-6KW/14RJ *4			Yes		VFDB4185	4
200kW	2 in parallel	RXLG-6KW/14RJ *2			Yes		VFDB4110*2	4
220kW	2 in parallel	RXLG-6KW/14RJ *2			Yes		VFDB4110*2	4
250kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160*2	8
280kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160*2	8
315kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160*2	8
355kW	4 in parallel	RXLG-6KW/14RJ *4			Yes		VFDB4185*2	8
400kW	3 in parallel	RXLG-6KW/14RJ *3			Yes		VFDB4160*3	9
450kW	3 in parallel	RXLG-6KW/14RJ *3			Yes		VFDB4185*3	9
500kW	4 in parallel	RXLG-6KW/14RJ *4			Yes		VFDB4185*3	12
560kW	3 in parallel	RXLG-6KW/14RJ *3			Yes		VFDB4160*4	12

Drive rating chart C2000 525 - 690V for Delta drives

Drive series	Light Duty (Default)				Heavy Duty			
	120% of rated current can endure for 1 minute				150% of rated current can endure for 1 minute, 180% can endure for 3 seconds			
	525V	575V	690V	Rated Amps	525V	575V	690V	Rated Amps
	kW	kW	kW		kW	kW	kW	
Nominal voltage range 525V - 600V (- 15% - + 10%)								
VFD037C53A-21	3.3	3.7	-	6.7	2	2.2	-	4.6
VFD055C53A-21	5	5.5	-	9.9	3.3	3.7	-	6.9
VFD075C53A-21	6.8	7.5	-	12.1	3.3	3.7	-	8.3
VFD110C53A-21	10	11	-	18.7	6.8	7.5	-	13
VFD150C53A-21	13	15	-	24.2	6.8	7.5	-	16.8
Nominal voltage range 525V - 690V (- 15% - + 10%)								
VFD220C63B-21	17	18	22	30	11.41	12.5	15	20
VFD300C63B-21	22	25	30	36	14	15.4	18.5	24
VFD370C63B-21	28	31	37	45	16.73	18.3	22	30
VFD450C63B-21	34	38	45	54	22.82	25	30	36
VFD550C63B-21	42	46	55	67	28.15	30.8	37	45
VFD750C63B-21	57	63	75	86	34.23	37.5	45	54
VFD900C63B-21	68	75	90	104	41.84	45.8	55	67
VFD1100C63B-21	84	92	110	125	57	62.5	75	86
VFD1320C63B-21	100	110	132	150	68.47	75	90	104
VFD1600C63B-21	122	133	160	180	95.1	91.6	110	125
VFD2000C63B-21	152	167	200	220	100.43	110	132	150
VFD2500C63B-21	190	208	250	290	121.73	133.3	160	180
VFD3150C63B-21	240	262	315	350	152.17	166.6	200	220

Drive rating chart C2000+

Drive series	(Default) Heavy Duty		Super Heavy Duty	
	150% (60sec) / 180% (3 sec)		150% (60sec) / 200% (3 sec)	
	kW	Rated Amps	kW	Rated Amps
VFD007C4EA-21*	0.75	3	0.4	1.7
VFD015C4EA-21*	1.5	4	0.75	3
VFD022C4EA-21*	2.2	6	1.5	4
VFD040C4EA-21*	4	10.5	3.7	9
VFD055C4EA-21*	5.5	12	4	10.5
VFD075C4EA-21*	7.5	18	5.5	12
VFD110C4EA-21*	11	24	7.5	18
VFD150C4EA-21*	15	32	11	24
VFD185C4EA-21*	18.5	38	15	32
VFD220C4EA-21*	22	45	18.5	38
VFD300C4EA-21*	30	60	22	45
VFD370C43S-00	37	73	30	60
VFD450C43S-00	45	91	37	73
VFD550C43A-00	55	110	45	91
VFD750C43A-00	75	150	55	110
VFD900C43A-00	90	180	75	150
VFD1100C43A-00	110	220	90	180
VFD1320C43A-00	132	260	110	220
VFD1600C43A-00	160	310	132	260
VFD1850C43A-00	185	370	160	310
VFD2000C43A-00	200	395	160	310
VFD2200C43A-00	220	460	185	370
VFD2500C43A-00	250	481	200	395
VFD2800C43A-00	280	550	220	460
VFD3150C43A-00	315	616	280	550
VFD3550C43A-00	355	683	315	616
VFD4000C43A-00	400	770	355	683
VFD4500C43A-00	450	866	355	683
VFD5000C43A-00	500	930	450	866
VFD5600C43A-00	560	1094	500	930

Drive rating chart CP2000 / CFP2000

Drive series	(Default) Light Duty		Normal Duty	
	120% (1min)		120% (1min) / 160% (3 sec)	
	kW	Rated Amps	kW	Rated Amps
VFD015CP/FP	1.5	4.2	0.75	3
VFD022CP/FP	2.2	5.5	1.5	4
VFD040CP/FP	4	10.5	3.7	9
VFD055CP/FP	5.5	13	4	10.5
VFD075CP/FP	7.5	18	5.5	12
VFD110CP/FP	11	24	7.5	18
VFD150CP/FP	15	32	11	24
VFD185CP/FP	18.5	38	15	32
VFD220CP/FP	22	45	18.5	38
VFD300CP/FP	30	60	22	45
VFD370CP/FP	37	73	30	60
VFD450CP/FP	45	91	37	73
VFD550CP/FP	55	110	45	91
VFD750CP/FP	75	150	55	110
VFD900CP/FP	90	180	75	150
VFD1100CP/FP	110	220	90	180
VFD1320CP/FP	132	260	110	220
VFD1600CP/FP	160	310	132	260
VFD1850CP/FP	185	370	160	310
VFD2200CP/FP	220	460	185	370
VFD2800CP/FP	280	530	220	460
VFD3150CP/FP	315	616	280	550
VFD3550CP/FP	355	683	315	616
VFD4000CP/FP	400	770	355	683

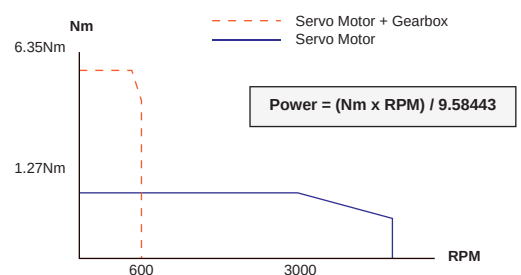
Drive dual rating chart ME300 / MS300

Dual rating allows drives to be used across a range of applications according to overload capacity required, for example:

Light Duty / Normal Duty - Fan and pump application
Heavy Duty - Compressor, crusher, spindle and conveyor

Drive series	(Default) Heavy Duty		Normal Duty	
	150% (60sec) / 200% (3sec)		120% (60sec) / 150% (3sec)	
	kW	Rated Amps	kW	Rated Amps
VFD1A6ME/MS21	0.2	1.6	0.3	1.8
VFD2A8ME/MS21	0.4	2.8	0.55	3.2
VFD4A8ME/MS21	0.75	4.8	0.9	5
VFD7A5ME/MS21	1.5	7.5	1.8	8.5
VFD11A6ME/MS21	2.2	11	3	12.5
VFD1A5ME/MS43	0.4	1.5	0.55	1.8
VFD2A7ME/MS43	0.75	2.7	1.1	3
VFD4A2ME/MS43	1.5	4.2	1.6	4.6
VFD5A5ME/MS43	2.2	5.5	2.8	6.5
VFD9A0ME/MS43	4	9	4.5	10.5
VFD13A6ME/MS43	5.5	13	6	15.7
VFD17A6ME/MS43	7.5	17	8.5	20.5
VFD25AMS43AFS	11	25	12	28
VFD32AMS43AFS	15	32	17	36
VFD38AMS43AFS	18.5	38	20	41.5
VFD45AMS43AFS	22	45	24	49

Gear ratio chart



Example

Servo Motor - ECMA-C10604RS
Rated Torque - 1.27 Nm
Rated Speed - 3000 RPM

Gearbox - WAB-060-005-K-P1
Ratio - 5:1
Rated Torque - 60 Nm

$T_{out} = T_m \times R$
 $T_{out} = 1.27 \times 5$
 $T_{out} = 6.35 \text{ Nm}$

$S_{out} = S_m / R$
 $S_{out} = 3000 / 5$
 $S_{out} = 600 \text{ RPM}$

T_{out} = Torque Output
 S_{out} = Speed Output
 T_m = Motor rated Torque

S_m = Motor rated Speed
 R = Gearbox reduction ratio

Cascading according to IEC 60947-2 MCCB x160, x250, x630, P630, h1000, h1600

Cascading value in kA according to IEC 60947-2. Network: 3 phases + neutral, 380-415 VAC

Upstream Circuit Breaker

	MCBs	MCCBs
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
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HHA		HNA		HHB		HNB		HMJ		HEJ		HMW		HEW		HNE		HEE		HNF		HEF	
25KA	x160	40KA	x160	25KA	x250	40KA	x250	50KA	x830	70KA	630A	50KA	630A	70KA	630A	50KA	h1000	70KA	h1600	50KA	h1600	70KA	
160A	160A	160A	160A	250A	250A	250A	250A	630A	630A	630A	630A	630A	630A	630A	630A	630A	1000A	1000A	1600A	1600A	1600A	1600A	
Thermal Magnetic												Electronic											
25	40	20	20	20	20	40	40	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
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25	40	25	40	25	40	25	40	25	25	25	25	20	20	20	20	20	20	20	20	20	20	20	
25	40	25	40	25	40	25	40	50	55	55	70	30	30	30	30	30	30	30	30	30	30	30	
25	40	25	40	25	40	25	40	50	70	70	25	25	25	25	25	25	25	25	25	25	25	25	
25	40	25	40	25	40	25	40	25	25	25	20	20	20	20	20	20	20	20	20	20	20	20	
25	40	25	40	25	40	27	40	27	27	27	33	33	33	33	33	15	15	15	15	15	15	15	
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25	40	25	40	25	40	27	40	27	27	27	33	33	33	33	33	15	15	15	15	15	15	15	

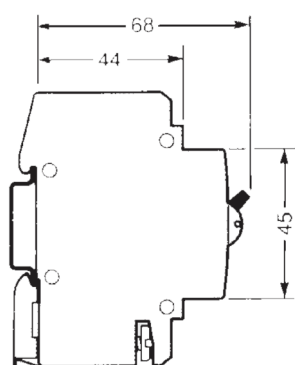
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	HHA	HNA	HHB	HNB	HMJ	HEJ	HMW	HEW	HNE	HEE	HNF	HEF
	25kA	40kA	25kA	40kA	50kA	70kA	50kA	70kA	50kA	70kA	50kA	70kA
	x160	x160	x250	x250	x830		P630		h1000		h1600	
	160A	160A	250A	250A	630A		630A		1000A		1600A	
	Electronic											
	Thermal Magnetic											
	25	40	20	20								
	25	40	25	40	15	15	15	15	15	15	15	15
	25	40	25	40	15	15	15	15	15	15	15	15
	25	40	25	40	25	25	20	20	20	20	20	20
	25	40	25	40	25	25	20	20	20	20	20	20
	25	40	25	40	50	55	30	30	30	30	30	30
	25	40	25	40	50	70	25	25	25	25	25	25
	25	40	25	40	25	25	20	20	20	20	20	20
	25	40	25	40	27	27	33	33	15	15	15	15
	25	40	25	40	27	27	33	33	15	15	15	15
	25	40	25	40	27	27	33	33	15	15	15	15

[illegible][illegible]

Note: Cascading table based on 3Ph 415V networks. MJT - only for 230V networks.

Use of MCBs in DC systems



Protection and control of circuits against overloads and short circuits – in commercial and industrial electrical distribution systems

EN 60898-1
NF C 61-410
IEC 60947-2
SANS 60947-2

DC applications

Because of their quick make and break design and excellent arc quenching capabilities, Hager circuit breakers are suitable for use on DC. When selecting a circuit breaker for any DC application it is necessary to consider 2 main points:

a) System voltage

The system voltage and the type of system determines the number of poles required to provide the necessary breaking capacity and arc control. The table gives the maximum DC voltage and breaking capacity for one pole or two poles connected in the series.

The positioning of these breaking poles in the system depends on whether the system is earthed or insulated and if it is earthed whether one polarity is earthed or the centre point is earthed.

b) Type of DC systems: 3 different types

- Network connected to the earth - one polarity earthed (+ve or -ve):
If -ve is earthed, all poles will be placed in series in the +ve leg.
If the +ve is earthed, all poles will be placed in the -ve leg.
Note: an extra pole will be needed on the earthed polarity to provide isolation.
- Network connected to the earth - middle point earthed:
The number of poles required to break I_{sc} should be placed on each polarity.
- Network insulated to the earth:
The number of poles required to break I_{sc} should be split between the two polarities.

Table 1			Breaking capacity (kA) L/R = 15ms				
Range	In	No. of poles in series needed for breaking	≤48V	60V	125V	250V	500V
MV	6 to 40A	1P	15	–	–	–	–
MA	2 to 63A	1P	15	–	–	–	–
		2P	20	20	–	–	–
		3P	25	25	20	–	–
NF	2 to 40A	4P	35	35	25	–	–
		1P	15	–	–	–	–
		2P	20	20	–	–	–
NFN	50 to 63A	3P	25	25	20	–	–
		4P	35	35	25	15	10
NGN, NCN	2 to 63A	1P	15	15	10	–	–
		2P	20	20	15	6	–
		3P	25	25	20	10	–
NRN	6 to 25A	4P	35	35	25	15	10
		1P	25	25	20	–	–
		2P	35	35	25	15	–
		3P	40	40	35	20	–
	32 to 40A	4P	45	45	40	25	10
		1P	20	20	15	–	–
		2P	25	25	20	10	–
		3P	30	30	30	15	–
	50 to 63A	4P	35	35	35	20	10
		1P	15	15	10	–	–
		2P	20	20	15	6	–
		3P	25	25	20	10	–
HLF	80 to 125A	4P	35	35	35	20	10
		1P	12	12	8	–	–
		2P	15	15	10	4	–
		3P	25	25	25	10	–
HMC, HMD	80 to 125A	4P	30	30	30	15	5
		1P	15	15	10	–	–
		2P	20	20	15	6	–
		3P	30	30	30	15	–

Table 2 magnetic trip		1	2	3	4
		I_{t1}	I_{t2}	I_{rm1}	I_{rm2}
Curve B	AC 50Hz	1.13 In	1.45 In	3 In	5 In
	DC	1.13 In	1.45 In	4 In	7 In
Curve C	AC 50Hz	1.13 In	1.45 In	5 In	10 In
	DC	1.13 In	1.45 In	7 In	15 In
Curve D	AC 50Hz	1.13 In	1.45 In	10 In	20 In
	DC	1.13 In	1.45 In	15 In	30 In

DC applications for DF Electric gG fuse-links

DC applications for DF gG fuse-links

Fuses are generally suitable for both AC and DC applications. The DC performance of fuse-links is different and AC ratings cannot be used for DC applications.

NH gG 500V		(L/R = 15ms)	
Size	Rated Current	Max. DC Voltage	DC Breaking Capacity
000 00	2A...100A 125A...160A	250 VDC	80 kA
0 0S	6A...160A 200A...250A	250 VDC 125 VDC	80 kA
1	50A...250A 315A...355A	250 VDC 80 VDC	80 kA
2	63A...400A 425A...500A	250 VDC 80 VDC	80 kA
3	250A...630A 800A	250 VDC 80 VDC	80 kA
4	315A...1000A 1250A	250 VDC 80 VDC	80 kA

NH gG 690V		(L/R = 15ms)	
Size	Rated Current	Max. DC Voltage	DC Breaking Capacity
000/00	2A...100A	250 VDC	25 kA
0	6A...100A	440 VDC	25 kA
1	50A...200A	440 VDC	25 kA
2	63A...315A	440 VDC	25 kA
3	250A...500A	440 VDC	25 kA
4	400A...800A	440 VDC	25 kA

DF Electric aR NH semiconductor fuse-link charts

Due to the high power dissipation of NH aR fuse links, it is necessary to apply a derating factor that determines the maximum allowable continuous current when these fuse links are installed in open type NH bases or in a fuse switch disconnector.

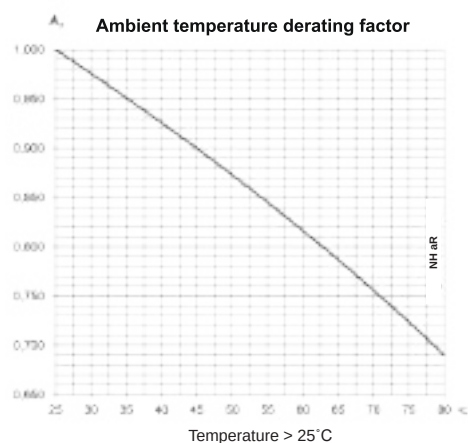
Fuse load constant C_L				$I_{MAX.} = I_n \times C_L$
Size	I_n (A)	Open Type Bases	Fuse Switch Disconnectors	
NH000	16	1	1	
	20	1	1	
	25	1	1	
	32	1	1	
	40	1	1	
	50	1	1	
	63	1	1	
	80	1	0.95	
	100	1	0.90	
	125	0.95	0.85	
	160	0.90	0.75	
	200	0.80	0.70	
	250	0.80	0.60	
NH1	40	1	0.95	
	50	0.90	0.85	
	63	0.90	0.85	
	80	0.90	0.85	
	100	0.90	0.85	
	125	0.75	0.70	
	160	0.75	0.70	
	200	0.75	0.70	
	250	0.75	0.70	
	315	0.75	0.65	
	350	0.70	0.65	
	400	0.70	0.60	

Fuse load constant C_L				$I_{MAX.} = I_n \times C_L$
Size	I_n (A)	Open Type Bases	Fuse Switch Disconnectors	
NH2	200	0.70	0.65	
	250	0.70	0.65	
	315	0.70	0.65	
	350	0.70	0.65	
	400	0.70	0.65	
	450	0.65	0.60	
	500	0.65	0.60	
	550	0.65	0.60	
	630	0.65	0.55	
	700	0.65	0.55	
NH3	500	0.70	0.65	
	550	0.70	0.65	
	630	0.70	0.65	
	700	0.70	0.60	
	800	0.70	0.60	
	900	0.65	0.55	
	1000	0.60	0.50	

Ambient temperature correction coefficient (A1)

When the utilization ambient temperature is higher than 25°C, the fuse-link must be "de-rated". The rated current of fuse link must be multiplied by a derating factor A1 to find the maximum operating current.

$I_{max} = I_n \times A1$



Calculating capacitor size requirements for power factor correction

It is imperative that correct capacitor sizes be selected when calculating capacitor requirements. In the case of group compensation it is recommended that the first capacitor step be equal to half the value of the following steps, to allow a smooth overall more finely tuned correction system.

Table 2 below will assist in calculating capacitor values required in specific applications. Prior knowledge of the following is required:

- Power factor before applying capacitors (*left column*)
- Required power factor after applying capacitors (*top row*)
- Total consumption in kW (per kW)

The correct capacitor size can then be calculated by crossing the horizontal and vertical values of table 2.

Example:

- Convert the plant load to kW (kVA x Power Factor = kW)
400 kVA x 0.70 PF = 280kW (useful power).
- To correct a load of 400 kVA at 0.70 PF to 0.96. Follow the 0.70 value (in the left vertical column table 2) horizontally until below the 0.96 value (in the top horizontal row) the value is 0.729.
- Capacitor required to correct from 0.70 to 0.96 (Power x Capacitor from table value)

$$280\text{kW} \times 0.729 = 204.12 \text{ kVar}$$

Savings:

$$280\text{kW} \text{ at } 0.70 \text{ PF} = 400 \text{ kVA}$$

$$280\text{kW} \text{ at } 0.96 \text{ PF} = 292 \text{ kVA}$$

$$\text{Reduction} = 108 \text{ kVA (27\% less of transformer load)}$$



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PFC Calculator.
Visit our website
www.em.co.za/powerfactor

Table 2

PF load before applying capacitors	Target power factor												
	0.80	0.85	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	Unity
0.40	1.537	1.668	1.805	1.832	1.861	1.924	1.959	1.988	2.037	2.003	2.085	2.146	2.288
0.41	1.474	1.605	1.742	1.769	1.798	1.831	1.860	1.896	1.935	1.973	2.021	2.082	2.225
0.42	1.413	1.544	1.681	1.709	1.738	1.771	1.800	1.836	1.874	1.913	1.961	2.022	2.164
0.43	1.356	1.487	1.624	1.651	1.680	1.713	1.742	1.778	1.816	1.855	1.903	1.964	2.107
0.44	1.290	1.421	1.558	1.585	1.614	1.647	1.677	1.712	1.751	1.790	1.837	1.899	2.041
0.45	1.230	1.360	1.501	1.532	1.561	1.592	1.626	1.659	1.695	1.737	1.784	1.846	1.988
0.46	1.179	1.309	1.446	1.473	1.502	1.533	1.567	1.600	1.636	1.677	1.725	1.786	1.929
0.47	1.130	1.260	1.397	1.425	1.454	1.485	1.519	1.552	1.588	1.629	1.677	1.758	1.881
0.48	1.076	1.206	1.343	1.370	1.400	1.430	1.464	1.497	1.534	1.575	1.623	1.684	1.826
0.49	1.030	1.160	1.297	1.326	1.355	1.386	1.420	1.453	1.489	1.530	1.578	1.639	1.782
0.50	0.982	1.112	1.248	1.276	1.303	1.337	1.369	1.403	1.441	1.481	1.529	1.590	1.732
0.51	0.936	1.066	1.202	1.230	1.257	1.291	1.323	1.357	1.395	1.435	1.483	1.544	1.686
0.52	0.894	1.024	1.160	1.188	1.215	1.249	1.281	1.315	1.353	1.393	1.441	1.502	1.644
0.53	0.850	0.980	1.116	1.144	1.171	1.205	1.237	1.271	1.309	1.349	1.397	1.458	1.600
0.54	0.809	0.939	1.075	1.103	1.130	1.164	1.196	1.230	1.268	1.308	1.356	1.417	1.559
0.55	0.769	0.899	1.035	1.063	1.090	1.124	1.156	1.190	1.228	1.268	1.316	1.377	1.519
0.56	0.730	0.860	0.996	1.024	1.051	1.085	1.117	1.151	1.189	1.229	1.277	1.338	1.480
0.57	0.692	0.822	0.958	0.986	1.013	1.047	1.079	1.113	1.151	1.191	1.239	1.300	1.442
0.58	0.655	0.785	0.921	0.949	0.976	1.010	1.042	1.076	1.114	1.154	1.202	1.263	1.405
0.59	0.618	0.748	0.884	0.912	0.939	0.973	1.005	1.039	1.077	1.117	1.165	1.226	1.368
0.60	0.584	0.714	0.849	0.878	0.905	0.939	0.971	1.005	1.043	1.083	1.131	1.192	1.334
0.61	0.549	0.679	0.815	0.843	0.870	0.904	0.936	0.970	1.008	1.048	1.096	1.157	1.299
0.62	0.515	0.645	0.781	0.809	0.836	0.870	0.902	0.934	0.974	1.014	1.062	1.123	1.265
0.63	0.483	0.613	0.749	0.777	0.804	0.838	0.870	0.904	0.942	0.982	1.030	1.091	1.233
0.64	0.450	0.580	0.716	0.744	0.771	0.805	0.837	0.871	0.909	0.949	0.997	1.058	1.200
0.65	0.419	0.549	0.685	0.713	0.740	0.774	0.806	0.840	0.878	0.918	0.966	1.027	1.169
0.66	0.388	0.518	0.654	0.682	0.709	0.743	0.775	0.809	0.847	0.887	0.935	0.996	1.138
0.67	0.358	0.488	0.624	0.652	0.679	0.713	0.745	0.779	0.817	0.857	0.905	0.966	1.108
0.68	0.329	0.459	0.595	0.623	0.650	0.684	0.716	0.750	0.788	0.828	0.876	0.937	1.079
0.69	0.299	0.429	0.565	0.593	0.620	0.654	0.686	0.720	0.758	0.798	0.840	0.907	1.049
0.70	0.270	0.400	0.536	0.564	0.591	0.625	0.657	0.691	0.729	0.769	0.811	0.878	1.020
0.71	0.242	0.372	0.508	0.536	0.563	0.597	0.629	0.663	0.701	0.741	0.783	0.850	0.992
0.72	0.213	0.343	0.479	0.507	0.534	0.568	0.600	0.634	0.672	0.712	0.754	0.821	0.963
0.73	0.186	0.316	0.452	0.480	0.507	0.541	0.573	0.607	0.645	0.685	0.727	0.794	0.936
0.74	0.159	0.289	0.425	0.453	0.480	0.514	0.546	0.580	0.618	0.658	0.700	0.767	0.909
0.75	0.132	0.262	0.398	0.426	0.453	0.487	0.519	0.553	0.591	0.631	0.673	0.740	0.882
0.76	0.105	0.235	0.371	0.399	0.426	0.460	0.492	0.526	0.564	0.604	0.652	0.713	0.855
0.77	0.079	0.209	0.345	0.373	0.400	0.434	0.466	0.500	0.538	0.578	0.620	0.687	0.829
0.78	0.053	0.183	0.319	0.347	0.374	0.408	0.440	0.474	0.512	0.552	0.594	0.661	0.803
0.79	0.026	0.156	0.292	0.320	0.347	0.381	0.413	0.447	0.485	0.525	0.567	0.634	0.776
0.80	-	0.130	0.266	0.294	0.321	0.355	0.387	0.421	0.459	0.499	0.541	0.608	0.750
0.81	-	0.104	0.240	0.268	0.295	0.329	0.361	0.395	0.433	0.473	0.515	0.582	0.724
0.82	-	0.078	0.214	0.242	0.269	0.303	0.335	0.369	0.407	0.447	0.489	0.556	0.698
0.83	-	0.052	0.188	0.216	0.243	0.277	0.309	0.343	0.381	0.421	0.463	0.530	0.672
0.84	-	0.026	0.162	0.190	0.217	0.251	0.283	0.317	0.355	0.395	0.437	0.504	0.645
0.85	-	-	0.136	0.164	0.191	0.225	0.257	0.291	0.329	0.369	0.417	0.478	0.620
0.86	-	-	0.109	0.140	0.167	0.198	0.230	0.264	0.301	0.343	0.390	0.450	0.593
0.87	-	-	0.083	0.114	0.141	0.172	0.204	0.238	0.275	0.317	0.364	0.424	0.567
0.88	-	-	0.054	0.085	0.112	0.143	0.175	0.209	0.246	0.288	0.335	0.395	0.538
0.89	-	-	0.028	0.059	0.086	0.117	0.149	0.183	0.230	0.262	0.309	0.369	0.512
0.90	-	-	-	0.031	0.058	0.089	0.121	0.155	0.192	0.234	0.281	0.341	0.484
0.91	-	-	-	-	0.027	0.058	0.090	0.124	0.161	0.203	0.250	0.310	0.453
0.92	-	-	-	-	-	0.031	0.063	0.097	0.134	0.176	0.223	0.283	0.426
0.93	-	-	-	-	-	-	0.032	0.066	0.103	0.145	0.192	0.252	0.395

Capacitor ratings at different voltages

kVAr at				capacitance total (uF)	capacitance in delta (uF)	current in delta (A)				line current (A)			
525V	440V	415V	400V			525V	440V	415V	400V	525V	440V	415V	400V
	10	9	8	164	82		8	7	7		13	12	12
	15	13	12	247	123		11	11	10		20	19	18
	20	18	17	329	164		15	14	14		26	25	24
	25	22	21	411	206		19	18	17		33	31	30
	30	27	25	493	247		23	21	21		39	37	36
	40	36	33	658	329		30	29	28		52	50	48
	45	40	37	740	370		34	32	31		59	56	54
	50	44	41	822	411		38	36	34		66	62	60
	60	53	50	987	493		45	43	41		79	74	72
	75	67	62	1234	617		57	54	52		98	93	89
	80	71	66	1316	658		61	57	55		105	99	95
	90	80	74	1480	740		68	64	62		118	111	107
	100	89	83	1645	822		76	71	69		131	124	119
	120	107	99	1974	987		91	86	83		157	149	143
	125	111	103	2056	1028		95	89	86		164	155	149
	150	133	124	2467	1234		114	107	103		197	186	179
	175	156	145	2879	1439		133	125	121		230	217	209
	180	160	149	2961	1480		136	129	124		236	223	215
	200	178	165	3290	1645		152	143	138		262	248	239
	210	187	174	3454	1727		159	150	145		276	260	251
	225	200	186	3701	1851		170	161	155		295	278	268
	240	214	198	3948	1974		182	171	165		315	297	286
	250	222	207	4112	2056		189	179	172		328	309	298
	270	240	223	4441	2221		205	193	186		354	334	322
	275	245	227	4524	2262		208	196	189		361	340	328
	300	267	248	4935	2467		227	214	207		394	371	358
	325	289	269	5346	2673		246	232	224		426	402	388
	330	294	273	5428	2714		250	236	227		433	408	394
	350	311	289	5757	2879		265	250	241		459	433	418
	360	320	298	5922	2961		273	257	248		472	446	429
	375	334	310	6169	3084		284	268	258		492	464	447
	400	356	331	6580	3290		303	286	275		525	495	477
	420	374	347	6909	3454		318	300	289		551	520	501
	425	378	351	6991	3496		322	304	293		558	526	507
	450	400	372	7402	3701		341	322	310		590	557	537
	475	423	393	7814	3907		360	339	327		623	588	567
	480	427	397	7896	3948		364	343	331		630	594	573
	500	445	413	8225	4112		379	357	344		656	619	596
	600	534	496	9870	4935		455	429	413		787	743	716
	700	623	579	11515	5757		530	500	482		919	866	835
10	7	6	6	116	58	6	5	5	5	11	9	9	8
20	14	12	12	231	116	13	11	10	10	22	18	17	17
30	21	19	17	347	173	19	16	15	15	33	28	26	25
40	28	25	23	462	231	25	21	20	19	44	37	35	34
50	35	31	29	578	289	32	27	25	24	55	46	43	42
60	42	37	35	693	347	38	32	30	29	66	55	52	50
70	49	44	41	809	404	44	37	35	34	77	65	61	59
80	56	50	46	924	462	51	43	40	39	88	74	70	67
90	63	56	52	1040	520	57	48	45	44	99	83	78	75
100	70	62	58	1155	578	63	53	50	48	110	92	87	84
120	84	75	70	1387	693	76	64	60	58	132	111	104	101
140	98	87	81	1618	809	89	74	70	68	154	129	122	117
160	112	100	93	1849	924	102	85	80	77	176	147	139	134
180	126	112	104	2080	1040	114	96	90	87	198	166	156	151
200	140	125	116	2311	1155	127	106	100	97	220	184	174	168
220	155	137	128	2542	1271	140	117	110	106	242	203	191	184
240	169	150	139	2773	1387	152	128	120	116	264	221	209	201
260	183	162	151	3004	1502	165	138	130	126	286	240	226	218
280	197	175	163	3235	1618	178	149	141	135	308	258	243	235
300	211	187	174	3466	1733	190	160	151	145	330	276	261	251
320	225	200	186	3697	1849	203	170	161	155	352	295	278	268
400	281	250	232	4622	2311	254	213	201	193	440	369	348	335

Standard rated capacitor voltage 440V or 525V

- Notes:**
1. "capacitance total" refers to total calculated capacitance of the delta connected capacitor at rated capacitor voltage
 2. "capacitance in delta" refers to calculated capacitance between any two terminals of delta wired capacitor
 3. "line current" refers to calculated current at terminals of delta capacitor
 4. calculated values may vary in practice due to tolerances allowed in manufacturing standards, and the effect of cables, discharge resistors, etc

Capacitor selection regarding harmonics

Capacitor without reactor		Capacitor without reactor	Capacitor with reactor	Capacitor with reactor
		Standard type	Standard class	Reinforced class
S.H S.T		15-25%	25-35%	35-50%
	THDU/ THDI	≤ 3% / ≤ 10%	≤ 4% / ≤ 20%	≤ 6% / ≤ 40%

- Notes:**
- S.H and S.T are given in kVA
 - S.H: weighted power of harmonic generators in kVA
 - S.T: power of the transformer HV/LV

Servo combination selection chart

Step 1: Select a Servo Drive			Step 2 : Select a servo Motor				Step 3: Select Power Cable					Step 4: Select Encoder Cable	
Servo Drive	A3/B3 Motor	OR	A2 Motor	OR	A3/B3 Motor + Brake IP 67	OR	Power Cable A3/ B3 Motor IP67	Power Cable A2 Motor	B3/A3 Power Cable + Brake IP67	Power Cable + Brake A2	Encoder Cable A3/ B3 IP67	Encoder Cable A2	
ASD-B3A-0121-x	ECM-B3L-CM0401RJ1		ECMA-C10401RS				ACS3-CAPW5105	ASD-ABPW0005			ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CABDC2	
ASD-B3A-0421-x	ECM-B3M-CM0604RJ1		ECMA-C10604RS		ECM-B3M-CM0604SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105		ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CABDC2	
ASD-B3A-0721-x	ECM-B3M-CM0807RJ1		ECMA-C10807RS		ECM-B3M-CM0807SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105	ASD-ABPW0105	ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CABDC2	
ASD-B3A-1021-x	ECM-B3M-C21010RS1		ECMA-C11010RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1105	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CABDC2	
ASD-B3A-1521-x	ECM-B3M-E21315RS1		ECMA-E11315RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1105	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CABDC2	
ASD-A3-0121-x	ECM-B3L-CM0401RJ1		ECMA-C10401RS				ACS3-CAPW5105	ASD-ABPW0005			ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CAADC2	
ASD-A3-0421-x	ECM-B3M-CM0604RJ1		ECMA-C10604RS		ECM-B3M-CM0604SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105		ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CAADC2	
ASD-A3-0721-x	ECM-B3M-CM0807RJ1		ECMA-C10807RS		ECM-B3M-CM0807SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105	ASD-ABPW0105	ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CAADC2	
ASD-A3-1021-x	ECM-B3M-C21010RS1		ECMA-C11010RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1105	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2	
ASD-A3-1521-x	ECM-B3M-E21315RS1		ECMA-E11315RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2	
ASD-A3-2043-x	ECM-B3M-K21320RS1						ACS3-CAPWA205			ASD-CAPW2305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2	
ASD-A3-3043-x	ECM-B3M-L21830RS1						ACS3-CAPWC405			ASD-CAPW2305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2	
ASD-A3-4543-x	ECM-B3M-L21845RS1						ACS3-CAPWC405			ASD-CAPW2305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2	
ASD-A3-5543-x	ECM-B3M-L21859R31						ACS3-CAPWE605				ACS3-CAENA105		
ASD-A3-7543-x	ECM-B3M-LA1875R31						ACS3-CAPWE605				ACS3-CAENA105		
ASD-A3R-1B43-x	ECM-B3M-LA221BR31						ACS3-CAPWE605				ACS3-CAENA105		
ASD-A3R-1F43-x	ECM-B3M-LA221FR31						ACS3-CAPWE605				ACS3-CAENA105		
ASD-A2-0121-M			ECMA-C10401RS					ASD-ABPW0005				ASD-ABEN0005	
ASD-A2-0421-M			ECMA-C10604RS					ASD-ABPW0005				ASD-ABEN0005	
ASD-A2-0721-M			ECMA-C10807RS			ECMA-C10807SS		ASD-ABPW0005		ASD-ABPW0105		ASD-ABEN0005	
ASD-A2-1021-M			ECMA-C11010RS			ECMA-C11010SS		ASD-CAPW1005		ASD-CAPW1105		ASD-CAEN1005	
ASD-A2-1521-M			ECMA-E11315RS			ECMA-E11315SS		ASD-CAPW1005		ASD-CAPW1105		ASD-CAEN1005	

TEKNOMEGA TOP busbar support fault level chart

Icc pk	Short-circuit current peak value expressed in kA																										
Icc rms	Effective value of short-circuit, duration equal to 1 second, expressed in kA																										

Icc pk (kA)	53 kA				74 kA					110 kA					143 kA					165 kA			187 kA			220 kA		
Icc rms (kA)	25 kA				35 kA					50 kA					65 kA					75 kA			85 kA			100 kA		
Space between phases (mm)	50	75	100	125	50	75	100	125	150	50	75	100	125	150	50	75	100	125	150	100	125	150	100	125	150	100	125	150

TOP 1010 (Top 2/5TN)										(1 x 5mm bar per phase)																			
Bar Cross Section (mm)	30 x 5	225	280	320	360	160	200	230	260	-	110	135	155	175	-	-	100	120	130	-	-	-	-	-	-	-	-	-	
	40 x 5	265	320	370	415	190	230	265	300	-	125	155	180	200	-	-	120	135	155	-	-	-	-	-	-	-	-	-	
	50 x 5	295	360	415	465	210	260	300	335	-	140	175	200	225	-	110	130	155	170	-	-	-	-	-	-	-	-	-	
	60 x 5	330	405	470	525	235	290	335	375	-	160	195	225	250	-	120	150	170	195	-	-	-	-	-	-	-	-	-	
	80 x 5	370	455	530	585	265	325	375	420	-	180	220	250	285	-	135	170	195	220	-	-	-	-	-	-	-	-	-	

TOP 1010 (Top 2/5TN)										(2 x 5mm bars per phase)																		
Bar Cross Section (mm)	30 x 5	320	390	450	510	230	280	320	360	-	150	190	220	240	-	120	150	170	190	-	-	-	-	-	-	-	-	-
	40 x 5	370	450	520	580	260	320	370	420	-	180	220	250	280	-	140	170	190	220	-	-	-	-	-	-	-	-	-
	50 x 5	410	510	580	650	300	360	420	470	-	200	240	280	310	-	150	190	220	240	-	-	-	-	-	-	-	-	-
	60 x 5	460	570	660	730	330	410	470	520	-	220	270	320	350	-	170	210	240	270	-	-	-	-	-	-	-	-	-
	80 x 5	520	640	740	830	370	460	530	590	-	250	310	360	400	-	165	240	250	310	-	-	-	-	-	-	-	-	-

TOP 1025 (Top 1/10T)										(1 x 10mm bars per phase)																			
Bar Cross - Section H x D (mm)	30 x 10	455	555	640	720	325	400	460	520	-	220	270	310	350	-	170	205	240	265	-	-	-	-	-	-	-	-	-	
	40 x 10	525	645	745	835	375	460	530	600	-	255	310	360	400	-	195	240	275	310	-	-	-	-	-	-	-	-	-	
	50 x 10	590	720	830	935	420	515	595	665	-	285	350	400	450	-	200	255	310	345	-	-	-	-	-	-	-	-	-	
	60 x 10	645	790	900	900	460	565	650	730	-	310	380	490	490	-	200	255	340	380	-	-	-	-	-	-	-	-	-	
	80 x 10	745	900	900	900	535	650	750	845	-	335	440	565	565	-	200	300	390	435	-	-	-	-	-	-	-	-	-	
	100 x 10	830	900	900	900	590	730	840	900	-	335	490	635	635	-	200	300	400	490	-	-	-	-	-	-	-	-	-	
120 x 10	900	900	900	900	650	790	900	900	-	335	500	690	690	-	200	300	400	500	-	-	-	-	-	-	-	-	-		

Icc pk (kA)	53 kA				74 kA				110 kA				143 kA				165 kA				187 kA				220 kA				
Icc rms (kA)	25 kA				35 kA				50 kA				65 kA				75 kA				85 kA				100 kA				
Space between phases (mm)	75	100	125		75	100	125	150		75	100	125	150		75	100	125	150	175		100	125	150	175		100	125	150	175

TOP 1040 (Top 2/10TN)										(2 x 10mm bars per phase)																			
Bar Cross - Section H x D (mm)	30 x 10	785	900	900	560	650	720	790	380	440	490	530	270	335	370	410	-	240	265	-	-	205	270	320	310	-	-	-	-
	40 x 10	900	900	900	650	750	840	900	440	500	560	620	270	365	430	470	-	275	310	-	-	205	270	340	320	-	-	-	-
	50 x 10	900	900	900	720	840	900	900	460	560	630	690	270	365	455	530	-	310	345	-	-	205	270	340	320	-	-	-	-
	60 x 10	900	900	900	790	900	900	900	460	610	690	750	270	365	455	545	-	340	380	-	-	205	270	340	320	-	-	-	-
	80 x 10	900	900	900	900	900	900	900	460	610	770	870	270	365	455	545	-	390	435	-	-	205	270	340	320	-	-	-	-
	100 x 10	900	900	900	900	900	900	900	460	610	770	900	270	365	455	545	-	400	490	-	-	205	270	340	320	-	-	-	-
	120 x 10	900	900	900	900	900	900	900	460	610	770	900	270	365	455	545	-	400	500	-	-	205	270	340	320	-	-	-	-

TOP 1050 (Top 3/10TN)										(3 x 10mm bars per phase)																			
Bar Cross - Section H x D (mm)	30 x 10	-	900	900	-	790	890	900	-	530	600	650	-	410	460	500	540	350	400	440	470	275	345	380	420	-	-	-	-
	40 x 10	-	900	900	-	900	900	900	-	620	690	750	-	470	530	580	630	350	440	500	540	275	345	440	480	-	-	-	-
	50 x 10	-	900	900	-	900	900	900	-	690	770	840	-	470	590	650	700	350	440	530	610	275	345	415	480	-	-	-	-
	60 x 10	-	900	900	-	900	900	900	-	750	840	900	-	470	590	710	770	350	440	530	620	275	345	415	480	-	-	-	-
	80 x 10	-	900	900	-	900	900	900	-	870	900	900	-	470	590	710	825	350	440	530	620	275	345	415	480	-	-	-	-
	100 x 10	-	900	900	-	900	900	900	-	900	900	900	-	470	590	710	825	350	440	530	620	275	345	415	480	-	-	-	-
120 x 10	-	900	900	-	900	900	900	-	900	900	900	-	470	590	710	825	350	440	530	620	275	345	415	480	-	-	-	-	

TOP junior compact busbar supports

Icc pk (kA)	53 kA	74 kA	110 kA	132 kA	
Icc rms (kA)	25 kA	35 kA	50 kA	60 kA	
Space between phases (mm)	70 mm				
TOP Junior 1/10 (1 x 10mm bar per phase)					
Bar Cross - Section (mm)	30 x 10	540	385	260	200
	40 x 10	610	445	285	200
	50 x 10	695	495	285	200
	60 x 10	760	545	285	200
	80 x 10	870	630	285	200

Icc pk (kA)	53 kA	74 kA	110 kA	132 kA	
Icc rms (kA)	25 kA	35 kA	50 kA	60 kA	
Space between phases (mm)	70 mm				
TOP Junior 2/5 (1 x 5mm bar per phase)					
Bar Cross - Section (mm)	30 x 10	270	190	130	105
	40 x 10	310	220	150	125
	50 x 10	350	250	165	129
	60 x 10	380	275	180	129
	80 x 10	390	310	210	129

Icc pk (kA)	53 kA	74 kA	110 kA	132 kA	
Icc rms (kA)	25 kA	35 kA	50 kA	60 kA	
Space between phases (mm)	70 mm				
TOP Junior 2/5 (2 x 5mm bar per phase)					
Bar Cross - Section (mm)	30 x 10	380	270	180	150
	40 x 10	440	310	210	165
	50 x 10	490	350	235	165
	60 x 10	540	385	240	165
	80 x 10	620	445	240	165

Socomec busbar support fault levels

Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.

SBC 10 Busbar supports

Peak Isc		15kA	24kA	48kA	63kA	82kA	114kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		9kA	12kA	23kA	30kA	39kA	52kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
25 x 10	1	1000	1000	500	375	275	200	65	-
25 x 10	2	1000	1000	525	400	300	200	90	850
40 x 10	1	1000	1000	650	475	375	250	65	700
40 x 10	2	1000	1000	700	525	400	275	90	1250
50 x 10	1	1000	1000	725	550	425	300	65	850
50 x 10	2	1000	1000	800	600	475	325	90	1550
60 x 10	1	1000	1000	800	625	475	325	65	1000
60 x 10	2	1000	1000	900	675	525	350	90	1800
80 x 10	1	1000	1000	975	725	550	400	65	1300
80 x 10	2	1000	1000	1000	850	650	350	90	2300
100 x 10	1	1000	1000	1000	850	650	400	65	1550
100 x 10	2	1000	1000	1000	975	675	350	90	2750

SBC ER Busbar supports

Peak Isc		63kA	82kA	114kA	152kA	165kA	187kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		30kA	39kA	52kA	69kA	75kA	85kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
50 x 5	1	600	500	325	175	150	-	70	600
50 x 5	2	600	500	325	175	150	100	70	1050
60 x 5	1	625	525	350	200	175	-	70	700
60 x 5	2	625	525	350	200	175	125	70	1250
80 x 5	1	625	525	350	200	175	125	70	900
80 x 5	2	625	525	350	200	175	125	70	1550
100 x 5	1	650	550	375	225	200	175	70	1100
100 x 5	2	650	550	375	225	200	175	70	1900
50 x 10	1	1000	1000	650	250	200	150	70	850
50 x 10	2	1000	1000	650	250	200	150	70	1550
60 x 10	1	1000	1000	675	275	225	175	70	1050
60 x 10	2	1000	1000	675	275	225	175	70	1850
80 x 10	1	1000	1000	700	300	250	175	70	1300
80 x 10	2	1000	1000	700	300	250	175	70	2300
100 x 10	1	1000	1000	725	325	275	175	70	1550
100 x 10	2	1000	1000	725	325	275	175	70	2750
120 x 10	1	1000	1000	725	350	275	200	70	1900
120 x 10	2	1000	1000	725	350	275	200	70	3350

SBE 44 Busbar supports

Peak Isc		10kA	15kA	24kA	38kA	48kA	63kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		6kA	9kA	12kA	19kA	23kA	30kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
15 x 3	1	950	625	400	250	175	-	35	160
15 x 5	1	1000	825	500	300	175	-	35	220
20 x 5	1	1000	1000	675	300	175	-	35	280
20 x 8	1	1000	1000	775	300	175	-	35	370
32 x 5	1	1000	1000	675	250	170	-	35	410

SBP 44 Busbar supports

Peak Isc		10kA	15kA	24kA	48kA	63kA	82kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		6kA	9kA	12kA	23kA	30kA	39kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
20 x 5	1	1000	1000	800	350	200	125	50	280
25 x 5	1	1000	1000	1000	350	200	125	50	330
32 x 5	1	1000	1000	1000	350	200	120	50	390
25 x 10	1	1000	1000	1000	350	200	125	50	500
30 x 10	1	1000	1000	1000	350	200	120	50	580
32 x 10	1	1000	1000	1000	350	200	120	50	610

SANS 10142-1:2017

Edition 2

Single-core PVC insulated cables, unarmoured, with or without sheath.

(SANS 1507-3) Current-carrying capacity copper conductors.

Installation method 3 (*clipped direct*).

Cable current ratings				
Conventional rated thermal current (A)	Copper conductor section			
	Cable		Busbars	
	No.	Section (mm) ²	No.	Dim (mm)
15 A	1x	1.0	-	-
20 A	1x	1.5	-	-
27 A	1x	2.5	-	-
37 A	1x	4.0	-	-
47 A	1x	6.0	-	-
65 A	1x	10	-	-
87 A	1x	16	-	-
115 A	1x	25	-	-
140 A	1x	35	-	-
180 A	1x	50	1	15 x 5
235 A	1x	70	1	20 x 5
280 A	1x	95	-	-
330 A	1x	120	1	30 x 5
380 A	1x	150	-	-
433 A	1x	185	-	-
510 A	1x	240	-	-
590 A	2x	150	-	-
630 A	2x	185	1	30 x 10
740 A	2x	240	1	40 x 10
800 A	-	-	1	40 x 10
1000 A	-	-	1	50 x 10
1250 A	-	-	1	60 x 10
1600 A	-	-	1	80 x 10
2000 A	-	-	1	100 x 10

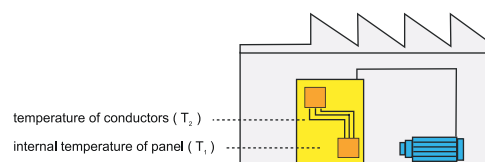
WÖHNER busbar support fault level chart						
I _{cc} kA pk	42	52.7	63	73.5	84	
I _{cc} kA eff. 1 s	20	25	30	35	40	
01485/01495/01356		D = 60 (mm)				
E	20 X 5	400	250	-	-	-
	30 x 5	600	350	250	-	-
	20 x 10	470	300	-	-	-
	30 x 10	650	600	450	300	250
01231("H" Profile)		D = 60 (mm)				
"H" Profile		1100	1000	770	700	550
01479		D = 100 (mm)				
E	30 X 10	600	400	-	-	-
	40 x 10	600	500	-	-	-
	50 x 10	600	500	-	-	-
	60 x 10	650	600	600	-	-
01230		D = 185 (mm)				
E	60 X 10	600	600	500	-	-
	80 x 10	600	600	500	-	-
	100 x 10	600	600	500	-	-
	120 x 10	600	600	500	-	-
	"H" Profile	600	600	600	600	600

Current rating of non-insulated flat busbar												
A correction factor complying with DIN 43671 can be determined for flat busbars using the table below. The factor is dependant on the relevant ambient temperature. This correction factor should be taken into account when conditions change and loading is continuous.												
	busbar temperature											
	50°C	55°C	60°C	65°C	70°C	75°C	80°C	85°C	90°C	100°C	110°C	120°C
air temp	correction factor k ₂											
20°C	1.00	1.15	1.20	1.25	1.35	1.42	1.48	1.55	1.62	1.70	1.80	1.90
25°C	0.95	1.05	1.1	1.20	1.25	1.35	1.40	1.45	1.55	1.65	1.75	1.85
30°C	0.80	0.92	1.0	1.10	1.15	1.25	1.32	1.40	1.45	1.55	1.70	1.80
35°C	0.70	0.80	0.90	1.00	1.10	1.15	1.25	1.30	1.40	1.50	1.60	1.70
40°C	0.55	0.66	0.80	0.90	1.00	1.10	1.15	1.25	1.30	1.45	1.55	1.65
45°C	0.40	0.52	0.65	0.75	0.90	0.95	1.05	1.15	1.25	1.35	1.50	1.60
50°C	0.30	0.35	0.50	0.65	0.80	0.90	1.00	1.05	1.15	1.30	1.40	1.55
55°C	—	—	0.35	0.55	0.65	0.75	0.90	0.95	1.05	1.20	1.35	1.45
60°C	—	—	—	0.30	0.50	0.65	0.75	0.85	0.95	1.10	1.25	1.40
30 x 10 busbar can under normal operating conditions be loaded with 630A. If the load is increased to 800 A - it represents a 1.27 increase factor. With 35°C ambient, one can expect between 80°C and 85°C busbar temperature												

Δ T (°K) calculation

eg.

T₁ (internal panel temperature) 50°C
T₂ (temperature of conductor) 100°C

temperature rise of conductor = T₂ - T₁ = Δ T (°K)eg. T₂ (100°C) - T₁ (50°C) = select from 50°K

IP rating chart

The system provides a classification from solid objects to liquids in relation to electrical equipment and enclosures.
IP rating consists of **2 codes** (i.e. IP65).

First digit	Protection against solid objects	Second digit	Protection against moisture
0	No protection	0	No protection
1	Protection against objects >50mm	1	Protection against vertically dripping water
2	Protection against objects >12.5mm	2	Protection against spraying water ±15° from vertical
3	Protection against objects >2.5mm	3	Protection against spraying water ±60° from vertical
4	Protection against objects 1.0mm	4	Protection against spraying water ±90° from vertical
5	Dust protection (limited ingress)	5	Protection against low pressure water jets
6	Dust tight protection	6	Protection against high pressure water jets
		7	Protection against temporary immersion (15cm and 1cm)
		8	Protection against continuous immersion under pressure

NB: IP69K refers to the product ability to resist ingress of high temperature (steam) and high pressure washdowns normally used to sanitise equipment.

IK rating chart

Degree of protection against mechanical wear and tear.
IK rating consists of **2 codes** (i.e. IK06).

Code		Height (cm)	Impact Energy (J)
01	0.2kg	7.5	0.15
02		10	0.20
03		17.5	0.35
04		25	0.50
05	0.5kg	35	0.70
06		20	1
07		40	2
08	1.7kg	29.5	5
09	5kg	20	10
10		40	20

Conversion tables

Length	From:	to	meter	foot	inch
	1 meter (m)		1	3.281	39.37
	1 inch (in / ")		0.0254	0.08378	1
	1 foot (ft / ')		0.3048	1	12
Weight	From:	to	kg	lb	oz
	1 kilogram (kg)		1	2.205	35.27
	1 pound (1b)		0.454	1	16
	1 ounce (oz)		0.028	0.0625	1
Pressure	From:	to	n/m²	bar	PSI
	1 n/m² or pascal		1	0.00001	0.000145
	1 bar		100000	1	14.504
	1 PSI		6849.76	0.0689476	1

Power Factor Correction

Individual motor compensation

Capacitor rating in kVAr			To improve P.F to 0.95 or better at all loads			
motor kW	2 pole 3000rpm	4 pole 1500rpm	6 pole 1000rpm	8 pole 750rpm	10 pole 600rpm	12 pole 500rpm
1.5	0.5	1	1	1.5	1.5	1.5
2.2	0.75	1	1	1.5	1.5	1.5
4	1.0	1.5	2	2.5	3	3
5.5	1.5	2	3	3.5	4	4
7.5	2.5	3	3.5	4	5	5
11	4	4	4.5	6	6	6
15	5	5	6	8	8	10
18.5	6	6	7	8	10	12
22	7	8	9	10	12	14
30	9	10	11	14	14	16
37	12	12	14	16	18	18
45	14	14	15	18	20	22
55	15	16	18	20	22	26
63	16	18	20	22	24	28
75	20	22	24	26	28	32
90	25	26	30	32	35	30
110	28	30	32	35	38	45
132	30	32	32.6	38	45	60

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492230.....	B-48	5120160.....	B-45	525373.....	L-9	561.16866.....	I-6	59002N.....	L-52	64193-SBS.....	L-50
492250.....	B-48	5120200.....	B-45	525381.....	L-9	561.1687.....	I-6	59010N.....	L-52	64197-SBS.....	L-50
492255.....	B-48	5120250.....	B-45	525382.....	L-9	561.16876.....	I-6	59020N.....	L-52	64293-SBS.....	L-50
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4941 3724.....	B-12	513.1656TS.....	I-4	528.9330033411.....	K-19	561.6387.....	I-6	600112.....	J-28	653180240300.....	J-7
4941 3740.....	B-12	513.1657.....	I-4	528.9400033411.....	K-19	561.63876.....	I-6	600113.....	J-28	653180480000.....	J-7
4941 3741.....	B-12	513.1657T.....	I-4	528110.....	L-9	563280120040.....	J-5	600114.....	J-28	653180480300.....	J-7
4942 3723.....	B-12	513.1657TS.....	I-4	540.941S052401.....	K-20	563280240040.....	J-5	600115.....	J-28	653181100000.....	J-7
49498.....	L-54	513.3253.....	I-4	540.943S052401.....	K-20	563280480040.....	J-5	600116.....	J-28	653181100300.....	J-7
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4950 0014.....	B-12	513.3256T.....	I-4	5406C.....	L-15	563290240040.....	J-5	601280360040.....	J-6	653184000300.....	J-7
4950 0031.....	B-12	513.3256TS.....	I-4	548.12586.....	I-6	563290480040.....	J-5	601280480040.....	J-6	653190120000.....	J-7
4950 6030.....	B-12	513.3257.....	I-4	548.12587.....	I-6	563290600040.....	J-5	601280600040.....	J-6	653190120300.....	J-7
4950 6050.....	B-12	513.3257T.....	I-4	548.9300152401.....	K-20	563291100040.....	J-5	601281100040.....	J-6	653190240000.....	J-7
4950 6080.....	B-12	513.3257TS.....	I-4	548.9310152401.....	K-20	563292200040.....	J-5	601282400040.....	J-6	653190240300.....	J-7
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		518.1653T.....	I-4	551480240000.....	J-3	568.3287.....	I-7	601390120040.....	J-6	654.0360.....	I-8
		518.1653TS.....	I-4	551481100000.....	J-3	568.6383.....	I-7	601390240040.....	J-6	654.0362.....	I-8
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657.0121.....	I-9	692.930007141.....	K-21	73.710.0753.0.....	I-12	80189-01.....	I-20	9023SMA.....	J-6	92.032.9658.0.....	I-12
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657.0938-000.....	I-9	69785.....	D-30	73.800.0853.0.....	I-13	80189-03.....	I-20	9026SMA.....	J-6	92.932.3053.0.....	I-12
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66070N.....	L-50	699.913011010.....	K-21	73.810.2453.0.....	I-13	80190-04.....	I-20	90320.....	L-49	9225HD4BBLs.....	H-20
66090N.....	L-50	699.913014010.....	K-21	73.810.4253.0.....	I-13	80191-00.....	I-20	90340.....	L-49	9233SMA.....	J-5
66502.....	D-26	699.913021110.....	K-21	73.810.7253.0.....	I-13	8025HA2BPT.....	H-20	90343.....	D-30	9238HA2BPT.....	H-20
66503.....	D-26	699.913024110.....	K-21	742F 2111.....	B-34	8025HD4BBLs.....	H-20	90345.....	D-30	927224.....	B-68
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66513.....	D-26	699.915021110.....	K-21	75099.....	L-56	8400008WPYG.....	L-56	90352.....	D-29	929221.....	B-68
66514.....	D-26	699.915024110.....	K-21	750S-SSPLR-O.....	A-33	8400017WPYG.....	L-56	90353.....	D-29	9311.....	J-1
66542.....	D-26	699.931011010.....	K-21	76.320.0729.0.....	I-12	8400038WPYG.....	L-56	90354.....	D-29	9323 2006.....	B-40
66543.....	D-26	699.931014010.....	K-21	76.320.0753.0.....	I-12	8400042WPYG.....	L-56	90358.....	D-29	9323 2008.....	B-40
66544.....	D-26	699.931021110.....	K-21	76.321.0729.0.....	I-12	8400051WPYG.....	L-56	90360.....	D-29	9323 4006.....	B-40
66552.....	D-26	699.931024110.....	K-21	76.321.0753.0.....	I-12	8400072WPYG.....	L-56	90361.....	D-29	9323 4008.....	B-40
66553.....	D-26			76.350.0736.1.....	I-12	8400073WPYG.....	L-56	90362.....	D-29	9323 4010.....	B-40
66554.....	D-26			76.350.0760.1.....	I-12	8400083WPYG.....	L-56	90363.....	D-29	9323 4012.....	B-40
668280120000.....	J-7	70.300.0640.0.....	I-13	76.352.0736.1.....	I-12	8400092WPYG.....	L-56	90367.....	D-30	9323 4016.....	B-40
668280240000.....	J-7	70.300.1040.0.....	I-13	76.352.0760.1.....	I-12	8400094WPYG.....	L-56	90368.....	D-30	9353 2006.....	B-40
668281100000.....	J-7	70.300.1640.0.....	I-13	78010-00.....	I-19	8401008WPYG.....	L-56	90369.....	D-30	9353 2008.....	B-40
668282400000.....	J-7	70.300.2440.0.....	I-13	78111-00.....	I-19	8401010WPYG.....	L-56	90370.....	D-30	9354 4006.....	B-40
668290120000.....	J-7	70.300.3253.0.....	I-13	78176-01.....	I-19	8409 1600.....	B-34	90370N.....	L-49	9354 4008.....	B-40
668290240000.....	J-7	70.300.4840.0.....	I-13	78180-00.....	I-19	842112.....	L-56	90371.....	D-30	9354 4010.....	B-40
668291100000.....	J-7	70.310.0640.0.....	I-13	78180-02.....	I-19	8499 0001.....	B-34	90372.....	D-30	9354 4012.....	B-40
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9553 3040.....	B-41	990768N.....	L-52	ACS3-CAPW1105.....	C-21	AD22-22DSY01.....	D-14	ADXTC01KIT.....	A-14	AK6/BN-3H.....	K-2
9553 3063.....	B-41	990798N.....	L-52	ACS3-CAPW2105.....	C-21	AD22-22DSY02.....	D-14	ADXTTRTU.....	A-14	AK6/BN-4H.....	K-2
9553 3080.....	B-41	990824.....	L-52	ACS3-CAPW5105.....	C-21	AD22-22DSY11.....	D-14	ADXTTTC.....	A-14	AK6/BP-1A.....	K-2
9553 3100.....	B-41	990880.....	L-52	ACS3-CAPW6105.....	C-21	AD22-22DSY22.....	D-14	AE1/AP-1A.....	K-1	AK6/BP-2A.....	K-2
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9553 3160.....	B-41	991000.....	L-48	ACS3-CAPWA205.....	C-21	AD22-22HZB.....	D-16	AE1/CP-1A.....	K-1	AK6/BP-4H.....	K-2
9553 4016.....	B-41	991002.....	L-48	ACS3-CAPWC000.....	C-21	AD22-22HZG.....	D-16	AE1/CP-2A.....	K-1	AK6/D2-5H.....	K-3
9553 4025.....	B-41	991004.....	L-48	ACS3-CAPWC405.....	C-21	AD22-22HZR.....	D-16	AE6/AP-3A.....	K-1	AM1/A0-1H.....	K-1
9553 4040.....	B-41	991008.....	L-48	ACS3-CAPWE000.....	C-21	AD22-22HZW.....	D-16	AE6/AP-3F.....	K-1	AM1/A0-2H.....	K-1
9553 4063.....	B-41	991010.....	L-48	ACS3-CAPWE605.....	C-21	AD22-22HZY.....	D-16	AE6/AP-4A.....	K-1	AM1/A0-3H.....	K-1
9553 4080.....	B-41	991011.....	L-48	ACS3-CNADC150.....	C-21	AD22-22MK02.....	D-15	AE6/AP-4F.....	K-1	AM1/A0-4H.....	K-1
9553 4100.....	B-41	991104.....	L-55	ACS3-CNEN2A00.....	C-21	AD22-22MK22.....	D-15	AE6/CP-3A.....	K-1	AM1/AN-1A.....	K-1
9553 4120.....	B-41	991105.....	L-55	ACS3-CNEN2C00.....	C-21	AD22-22MR02.....	D-15	AE6/CP-3F.....	K-1	AM1/AN-2A.....	K-1
9553 4160.....	B-41	991106.....	L-55	ACS3-CNEN2C00.....	C-21	AD22-22MR22.....	D-15	AE6/CP-4A.....	K-1	AM1/AP-1A.....	K-1
9594 4012.....	B-39	991107.....	L-55	ACS3-CNPW1A00.....	C-21	AD22-22SR02.....	D-15	AE6/CP-4F.....	K-1	AM1/AP-2A.....	K-1
9594 9012.....	B-39	991109.....	L-55	ACS3-CNTB0500.....	C-21	AD22-22SR22.....	D-15	AEA05P00.....	K-35	AM1/BP-1H.....	K-1
9599 4001.....	B-39	991110.....	L-55	ACS3-CRPWA000.....	C-21	AD22-22VAMB.....	D-16	AEA10P00.....	K-35	AM1/BP-2H.....	K-1
95A151340.....	K-7	991600.....	L-48	ACS3-CRPWA305.....	C-21	AD22-22VAMG.....	D-16	AFA05S00.....	K-35	AM1/CN-1A.....	K-1
95A151360.....	K-7	991601.....	L-48	ACS3-CRPWC405.....	C-21	AD22-22VAMR.....	D-16	AFA10S00.....	K-35	AM1/CN-2A.....	K-1
95A900052.....	K-14	991602.....	L-48	ACS3-IFSC2626.....	C-21	AD22-22VAMW.....	D-16	AGD05S00.....	K-35	AM1/CP-1A.....	K-1
95A900053.....	K-14	991606.....	L-48	ACS3-IFSC5020.....	C-21	AD22-22VAMY.....	D-16	AGD10S00.....	K-35	AM1/CP-2A.....	K-1
95ACC0024.....	K-7	991670.....	L-48	ACS3-MDTB5000.....	C-21	AD22-22VBB.....	D-16	AGQ22F-11/E/JS/02/B.....	D-17	AM1/D2-5H.....	K-3
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95ACC0033.....	K-7			AD1/CP-3A.....	K-1	AD22-22VBW.....	D-16	AGQ22F-11/E/JS/02/W.....	D-17	AM6/AP-4A.....	K-1
95P5SPA.....	J-2			AD101-22AMB.....	D-16	AD22-22VBV.....	D-16	AGQ22F-11/E/JS/02/Y.....	D-17	AM6/AP-4H.....	K-1
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96.031.4153.1.....	I-11	A03-M5.....	L-23	AD101-22AMR.....	D-16	AD22-22VMB.....	D-16	AGQ22F-11/E/JS/22/B.....	D-17	AM6/CP-3H.....	K-1
96.031.4253.1.....	I-11	A03-M6.....	L-23	AD101-22AMV.....	D-16	AD22-22VMB.....	D-16	AGQ22F-11/E/JS/22/G.....	D-17	AM6/CP-3H.....	K-1
96.031.4353.1.....	I-11	A06-M4.....	L-23	AD101-22AMW.....	D-16	AD22-22VMR.....	D-16	AGQ22F-11/E/JS/22/R.....	D-17	AM6/CP-4A.....	K-1
96.031.4554.3.....	I-11	A06-M5.....	L-23	AD101-22AMY.....	D-16	AD22-22VMR.....	D-16	AGQ22F-11/E/JS/22/W.....	D-17	AM6/CP-4H.....	K-1
96.031.5053.1.....	I-11	A06-M6.....	L-23	AD101-22HZB.....	D-16	AD22-22VMY.....	D-16	AGQ22F-11/E/JS/22/Y.....	D-17	AM6/CP-4H.....	K-1
96.031.5054.3.....	I-11	A06-M8.....	L-23	AD101-22HZG.....	D-16	AD25.0.....	L-27	AGQ22F-11/JS.....	D-17	ANE10-M10.....	L-22
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96.032.5053.1.....	I-11	A1-M5.....	L-23	AD101-22TMB.....	D-16	AD30-30DSG02.....	D-15	AH-03127-S.....	K-54	ANE2-M5.....	L-22
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96.051.4153.1.....	I-11	A1-M8.....	L-23	AD101-22TMG.....	D-16	AD30-30DSG38.....	D-15	AH04AD-5A.....	C-12	ANE2-M8.....	L-22
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96.051.5053.1.....	I-11	A10-M12.....	L-23	AD101-22TMW.....	D-16	AD30-30DSR22.....	D-15	AH04HC-5A.....	C-12	ANE2-U4.....	L-22
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96.052.5053.1.....	I-11	A10-M6.....	L-23	AD101-22VMB.....	D-16	AD30-30DSW02.....	D-15	AH04TC-5A.....	C-12	ANE3-M4.....	L-22
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961145.....	B-67	A14-M12.....	L-23	AD101-22VMY.....	D-16	AD30-30DSY02.....	D-15	AH08AD-5C.....	C-12	ANE3-M8.....	L-22
961146.....	B-67	A14-M16.....	L-23	AD13.0.....	L-27	AD30-30DSY22.....	D-15	AH08AD-5B.....	C-12	ANE3-M8.....	L-22
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961180.....	B-67	A19-M10.....	L-23	AD16-16DSB02.....	D-14	AD30-30MR02.....	D-15	AH08TC-5A.....	C-12	ANE3-U4.....	L-22
961185.....	B-67	A19-M12.....	L-23	AD16-16DSB11.....	D-14	AD30-30MR22.....	D-15	AH10EN-5A.....	C-12	ANE3-U5.....	L-22
961200.....	B-67	A19-M16.....	L-23	AD16-16DSB22.....	D-14	AD34.5.....	L-27	AH10PM-5A.....	C-12	ANE5-M10.....	L-22
961205.....	B-67	A19B-M8/15.5.....	C-23	AD16-16DSG02.....	D-14	AD42.5.....	L-27	AH10SCM-5A.....	C-12	ANE5-M5.....	L-22
9612SMA.....	J-5	A2-G-256-C.....	C-24	AD16-16DSG11.....	D-14	AD54.5.....	L-27	AH16AM10N-5A.....	C-11	ANE5-M6.....	L-22
9614SMA.....	J-5	A2-M10.....	L-23	AD16-16DSG22.....	D-14	ADR1200/F5A.....	L-13	AH16AM30N-5A.....	C-11	ANE5-M8.....	L-22
97.051.4053.1.....	I-11	A2-M4.....	L-23	AD16-16DSG22.....	D-14	ADXL0018600.....	A-14	AH16AN01P-5A.....	C-11	ANE5-P16.....	L-22
97.051.5553.1.....	I-11	A2-M5.....	L-23	AD16-16DSR02.....	D-14	ADXL0030600.....	A-14	AH16AN01R-5A.....	C-11	ANE7-M10.....	L-22
97.052.4053.1.....	I-11	A2-M6.....	L-23	AD16-16DSR11.....	D-14	ADXL0045600.....	A-14	AH16AN01S-5A.....	C-11	ANE7-M12.....	L-22
97.052.5553.1.....	I-11	A2-M8.....	L-23	AD16-16DSR22.....	D-14	ADXL0060600.....	A-14	AH16AN01T-5A.....	C-11	ANE7-M8.....	L-22
9701SPA.....	J-3	A24-M10.....	L-23	AD16-16DSW02.....	D-14	ADXL0075600.....	A-14	AH16AP11P-5A.....	C-11	ANE7-P20.....	L-22
9702SPA.....	J-3	A24-M12.....	L-23	AD16-16DSW11.....	D-14	ADXL0085600.....	A-14	AH16AP11R-5A.....	C-11	ANT 2.....	J-31
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9704A/*GB.....	L-2	A24-M8.....	L-23	AD16-16DSY02.....	D-14	ADXL0135600.....	A-14	AH32AM10N-5A.....	C-11	AS-ATXB.....	C-8
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AS02LC-A.....	C-9	ASRTU-EC16AP1TA.....	C-9	BF0901A.....	A-2	BFX10C01.....	A-5	BG09T2D.....	A-1	CFX 1150.....	L-39
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AS04AD-A.....	C-8	AT1/A0-2H.....	K-3	BF0910D.....	A-3	BFX10K3.....	A-4	BG09T4D.....	A-1	CFX 1180.....	L-39
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AS04RTD-A.....	C-8	AT1/A0-4H.....	K-3	BF09T2A.....	A-4	BFX1202.....	A-5	BG1210A.....	A-1	CFX 1200.....	L-39
AS04SIL-A.....	C-9	AT1/AN-1A.....	K-3	BF09T4A.....	A-2	BFX1211.....	A-5	BGP09T4A.....	A-1	CFX 1210.....	L-39
AS04TC-A.....	C-8	AT1/AN-2A.....	K-3	BF09T4D.....	A-3	BFX1220.....	A-5	BGX1002.....	A-1	CFX 1215.....	L-39
AS06RTD-A.....	C-8	AT1/AP-1A.....	K-3	BF11500A.....	A-2	BFX12C02.....	A-5	BGX1004.....	A-1	CFX 1230.....	L-39
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AS08AD-B.....	C-8	AT1/CN-1A.....	K-3	BF1201A.....	A-2	BFX12C20.....	A-5	BGX1020.....	A-1	CFX 1245.....	L-39
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AS08TC-A.....	C-8	AT6/BP-3H.....	K-3	BF15000E.....	A-3	BFX3231.....	A-6	BOC 1005.....	L-35	CM1300.....	K-30
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AS148P-A.....	C-7	ATL500.....	F-3	BF1801A.....	A-2	BFX3331.....	A-6	BRF1005.....	L-36	CM1307.....	K-30
AS148R-A.....	C-7	ATL600.....	F-3	BF1810A.....	A-2	BFX3361.....	A-6	BRF1010.....	L-36	CM1308.....	K-30
AS164P-A.....	C-7	ATL601.....	F-3	BF1810D.....	A-3	BFX3371.....	A-6	BRF1015.....	L-36	CM1309.....	K-30
AS164R-A.....	C-7	ATL610.....	F-3	BF1810L.....	A-3	BFX3401.....	A-6	BRF1020.....	L-36	CM1701.....	K-30
AS16AM10N-A.....	C-8	ATL800.....	F-3	BF1810L.....	A-3	BFX3431.....	A-6	BRF1045.....	L-36	CM1703.....	K-30
AS16AN01P-A.....	C-8	ATL900.....	F-3	BF1870A.....	A-4	BFX3432.....	A-6	BS232VE.....	B-45	CM1704.....	K-30
AS16AN01R-A.....	C-8	AX-300NA0PA1.....	C-7	BF1870D.....	A-4	BFX3461.....	A-6	BS6/00-0C.....	K-11	CM1705.....	K-30
AS16AN01T-A.....	C-8	AX-304ELA0MA1P.....	C-7	BF1872A.....	A-4	BFX3471.....	A-6	BS8/00-0C.....	K-11	CM1743.....	K-30
AS16AP11P-A.....	C-8	AX-308EA0MA1T.....	C-7	BF1872D.....	A-4	BFX3501.....	A-6	BSC/00-0C.....	K-11	CMC-EC01.....	A-30
AS16AP11R-A.....	C-8	AX-324NA0PA1P.....	C-7	BF1874A.....	A-2	BFX3531.....	A-6	BT1-10V.....	L-20	CMC-EIP02.....	A-30
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AS218PX-A.....	C-7			BF19500E.....	A-2	BFX3561.....	A-6	BT1-14V.....	L-20	CMC-PN01.....	A-30
AS218RX-A.....	C-7			BF195T4E.....	A-2	BFX3571.....	A-6	BT1-18V.....	L-20	CMM-COP02.....	A-26
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AS228P-A.....	C-7			BF230T4E.....	A-2	BFX3584.....	A-7	BT2-13V.....	L-20	CMM-EIP02.....	A-26
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AS228T-A.....	C-7			BF2510A.....	A-2	BFX3593.....	A-6	BT2-18V.....	L-20	CMM-PN02.....	A-26
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AS324MT-A.....	C-7			BF2600D.....	A-3	BFX3661.....	A-6	BTC380E.....	B-8	CMV104D.....	K-30
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AS332T-A.....	C-7			BF265T4E.....	A-2	BFX3692.....	A-6	BVC/00-0C.....	K-11	CMV16031C.....	K-30
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ASD-A3-0421-M.....	C-19			BF3800D.....	A-3	BFX5400.....	A-6			CN06-S02-LM6.....	I-17
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ASD-A3-2043-M.....	C-19			BF6500A.....	A-2	BFX805.....	A-6			CN08-S02-LM6.....	I-17
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F2-4.8V/5.....	L-20	FCL20001.....	D-23	FL-2/030-7.....	E-25	FMS37504.....	F-9	FN942E.....	H-11	FZ506.....	H-11
F2-4.8VD/5.....	L-20	FCL40003.....	D-23	FL-2/040-7.....	E-25	FMS38426.....	F-9	FN943E.....	H-11	FZ516.....	H-11
F2-6.4V.....	L-20	FD-31.....	K-17	FL-2/050-7.....	E-25	FMS43804.....	F-9	FN944E.....	H-11	FZ517.....	H-6
F2-6.4VD.....	L-20	FD-41.....	K-17	FL-2/060-7.....	E-25	FMS44826.....	F-9	FN946E.....	H-11	FZ519.....	H-11
F2-6.4VF.....	L-20	FD-61.....	K-17	FL-2/075-7.....	E-25	FMS47504.....	F-9	FN947E.....	H-11	FZ520.....	H-11
F2-6.4VQD.....	L-20	FD-R31G.....	K-17	FL-2/100-7.....	E-25	FMS51226.....	F-9	FN948E.....	H-11	FZ537.....	H-11
F2-8V.....	L-20	FD-R41.....	K-17	FL000A.....	H-14	FMS57524.....	F-9	FN949E.....	H-11	FZ760E.....	H-11
F2-8VD.....	L-20	FD00A1.....	H-6	FL102A.....	H-13	FMS57626.....	F-9	FN950.....	H-11	FZ767.....	H-11
F201110001.....	D-24	FD00C2.....	H-6	FL104A.....	H-13	FMS64026.....	F-9	FN951.....	H-11	FZ794.....	H-6
F201110002.....	D-24	FD00F1.....	H-6	FL110A.....	H-13	FMS67524.....	F-9	FN952.....	H-8	FZ795D.....	H-11
F201120001.....	D-24	FD00F2.....	H-6	FL112A.....	H-13	FMS70426.....	F-9	FN954E.....	H-11	FZ850.....	H-11
F202210001.....	D-24	FD00M2.....	H-6	FL117A.....	H-13	FMS76826.....	F-9	FRT1/230A.....	J-34		
F30024AD.....	J-34	FD00S1.....	H-6	FL120A.....	H-13	FMS77524.....	F-9	FS-100.....	K-38		
F30230A.....	J-34	FD01A1.....	H-5	FL124A.....	H-13	FMS83226.....	F-9	FS-300.....	K-38		
F5-6.4V.....	L-20	FD01A2.....	H-5	FL128AEM.....	H-13	FMS87524.....	F-9	FS-402.....	K-38		
F5-6.4VD.....	L-20	FD01K1.....	H-5	FL130AEM.....	H-13	FMS89626.....	F-9	FS-500.....	K-38		
F5-6.4VQD.....	L-20	FD02A1.....	H-6	FL204B.....	H-13	FMS96026.....	F-9	FS-902.....	K-38		
F5-9.5V.....	L-20	FD02C2.....	H-6	FL209B.....	H-13	FN013EW.....	H-7	FS-IR1902D-NPN NC.....	K-37		
F5-9.5											

G-280C	A-41	GAX67B	A-18	GLX63CB	A-20	GX32 10U	D-12	HE09645	H-16	HJM5AUX800	B-18
G-315C2P	A-41	GAX68	A-17	GLX63DB	A-19	GX32 10U25	D-12	HE12960GP1	H-16	HJMSDC250/2-125	B-18
G-315C4/6P	A-41	GAX7200	A-17	GLX7200S10	A-19	GX32 51U	D-12	HE200	H-15	HJMSDC250/2-160	B-18
G-355C2P	A-41	GAX7200AN	A-17	GLX7200S12	A-19	GX32 52U	D-12	HE200-G	H-15	HJMSDC250/2-200	B-18
G-355C4/6P	A-41	GAX7300	A-17	GLX7300S10	A-19	GX32 530U	D-12	HE201	H-15	HJMSDC250/2-250	B-18
G-80C	A-41	GAX7300AN	A-17	GLX7300S12	A-19	GX32 54U	D-12	HE201-G	H-15	HJMSDC250/2-320	B-18
G-90C	A-41	GAX81	A-18	GLX7400S10	A-19	GX32 55U	D-12	HE201T	H-15	HJMSDC800/2-325	B-18
G-CHECK 230	B-66	GAX82	A-18	GLX7400S12	A-19	GX32 56U	D-12	HE201T-G	H-15	HJMSDC800/2-400	B-18
G218	A-5	GAX83	A-18	GLX7500S10	A-19	GX32 69U	D-12	HE202	H-15	HJMSDC800/2-500	B-18
G222	A-6	GAX84	A-18	GLX7500S12	A-19	GX32 75U	D-12	HE202-G	H-15	HJMSDC800/2-630	B-18
G228220	A-8	GAZ016	A-21	GLX800	A-19	GX32 90U	D-12	HE202T	H-15	HJMSDC800/2-800	B-18
G231	A-7	GAZ025	A-21	GLX802	A-19	GX32 91U	D-12	HE202T-G	H-15	HJM5HU250/3-125	B-18
G232	A-7	GAZ025ET6	A-20	GLX804	A-19	GX32 92U	D-12	HE203	H-15	HJM5HU250/3-160	B-18
G233	A-8	GAZ032	A-21	GLX900	A-19	GX32 92U25	D-12	HE203-G	H-15	HJM5HU250/3-200	B-18
G270	A-8	GAZ040EM	A-21	GLX902	A-19	GX40 10U	D-12	HE203GP1	H-15	HJM5HU250/3-250	B-18
G272	A-6	GAZ040ET6	A-20	GLX904	A-19	GX40 51U	D-12	HE203T	H-15	HJM5HU250/3-320	B-18
G280	A-5	GAZ063EM	A-21	GLZM0200EM	A-21	GX40 52U	D-12	HE203T-G	H-15	HJMSHU630/3-630	B-18
G324	A-1	GAZ080EM	A-21	GLZM0250EM	A-21	GX40 53U	D-12	HE204	H-15	HJMSHU800/3-630	B-18
G326	A-1	GAZ080ET6	A-20	GLZM0315EM	A-21	GX40 55U	D-12	HE204-G	H-15	HJMSHU800/3-800	B-18
G350	A-5	GAZ1	A-21	GLZM0400EM	A-21	GX40 90U	D-12	HE204T	H-15	HJM5SHT300	B-18
G354	A-5	GAZ125EM	A-21	GLZM0630EM	A-21	GX40 91U	D-12	HE204T-G	H-15	HJM5SHT630	B-18
G355	A-6	GAZ125ET6	A-20	GLZM0800EM	A-21	GX40 92U	D-12	HE205	H-15	HKP015015R1A	L-14
G3564	A-6	GAZ160EM	A-21	GLZM1000EM	A-21	GXM5	D-12	HE205-G	H-15	HKP015015ZDA	L-14
G3565	A-6	GAZ2	A-21	GP102T	H-3	GXM6	D-12	HE205T	H-15	HKP015015ZEA	L-14
G358	A-5	GAZ3	A-21	GP104T	H-3	GZ04E	H-3	HE205T-G	H-15	HKP015015ZKA	L-14
G370	A-5	GAZM016EM	A-21	GP106T	H-3	GZ04N	H-3	HE206	H-15	HKP020025R3A	L-14
G371	A-7	GAZM025EM	A-21	GP110T	H-3	GZ104S	H-3	HE206-G	H-15	HKP020025ZDA	L-14
G41801	A-5	GAZM032EM	A-21	GQ101T-JN/02/B	D-17	GZ106S	H-3	HE206E	H-15	HKP020025ZEA	L-14
G41801D	A-5	GAZM040EM	A-21	GQ101T-JN/02/G	D-17	GZ110S	H-3	HE206E-G	H-15	HKP020025ZKA	L-14
G41810	A-5	GAZM063EM	A-21	GQ101T-JN/02/R	D-17			HE206EGP1	H-15	HKP040060R5A	L-14
G41810A	A-5	GAZM080EM	A-21	GQ101T-JN/02/W	D-17			HE206ET	H-15	HKP040060Z5A	L-14
G419	A-5	GAZM125EM	A-21	GQ101T-JN/02/Y	D-17			HE206ET-G	H-15	HKP040060ZDA	L-14
G454	A-6	GAZM160EM	A-21	GQ101T-JN/22/B	D-17			HE206T	H-15	HKP040060ZEA	L-14
G455	A-6	GAZM1E	H-16	GQ101T-JN/22/G	D-17			HE206T-G	H-15	HKP040060ZKA	L-14
G460	A-4	GAZS1E	H-16	GQ101T-JN/22/R	D-17			HE207	H-15	HLF180S	B-3
G48102	A-5	GD102B	H-3	GQ101T-JN/22/W	D-17			HE207-G	H-15	HLF190S	B-3
G48111	A-5	GD104B	H-3	GQ101T-JN/22/Y	D-17			HE207E	H-15	HLF199S	B-3
G48120	A-5	GD106B	H-3	GQ12T-JN/02/B	D-17			HE207E-G	H-15	HLF280S	B-3
G483	A-5	GD110B	H-3	GQ12T-JN/02/G	D-17			HE207EGP1	H-15	HLF290S	B-3
G48403	A-5	GI03010.1	L-9	GQ12T-JN/02/R	D-17			HE207ET	H-15	HLF299S	B-3
G48412	A-5	GI06006.1	L-4	GQ12T-JN/02/W	D-17			HE207ET-G	H-15	HLF380S	B-3
G48421	A-5	GL0160C1	A-19	GQ12T-JN/02/Y	D-17			HE207T	H-15	HLF390S	B-3
G48430	A-5	GL0200C1	A-19	GQ12T-JN/22/B	D-17			HE207T-G	H-15	HLF399S	B-3
G485120	A-5	GL0250C1	A-19	GQ12T-JN/22/G	D-17			HE208	H-15	HLF480S	B-3
G4856	A-5	GL0315C1	A-19	GQ12T-JN/22/R	D-17			HE208-G	H-15	HLF490S	B-3
G48560	A-5	GL0400C1	A-19	GQ12T-JN/22/W	D-17			HE208E	H-15	HLF499S	B-3
G486120	A-5	GL0500C1	A-19	GQ12T-JN/22/Y	D-17			HE208E-G	H-15	HMC180	B-5
G4866	A-5	GL0630C1	A-19	GQ16T-LN/02/B	D-17			HE208ET	H-15	HMC190	B-5
G48660	A-5	GL0800C1	A-19	GQ16T-LN/02/G	D-17			HE208ET-G	H-15	HMC199	B-5
G487	A-5	GL1000C1	A-19	GQ16T-LN/02/R	D-17			HE208T	H-15	HMC280	B-5
G525	A-7	GLC0160C1	A-20	GQ16T-LN/02/W	D-17			HE208T-G	H-15	HMC299	B-5
G526	A-7	GLC0160T4C1	A-20	GQ16T-LN/02/Y	D-17			HEE800H	B-22	HMC380	B-5
GA016A	A-17	GLC0200C1	A-20	GQ16T-LN/22/B	D-17			HEE970H	B-22	HMC390	B-5
GA025A	A-17	GLC0200T4C1	A-20	GQ16T-LN/22/G	D-17			HEE971H	B-22	HMC399	B-5
GA025C	A-18	GLC0250C1	A-20	GQ16T-LN/22/R	D-17			HEF980H	B-22	HMC480	B-5
GA025ET6	A-20	GLC0250T4C1	A-20	GQ16T-LN/22/W	D-17			HEF981H	B-22	HMC490	B-5
GA032A	A-17	GLC0315C1	A-20	GQ16T-LN/22/Y	D-17			HEF990H	B-22	HMC499	B-5
GA040A	A-17	GLC0315T4C1	A-20	GQ22T-LN/02/B	D-17			HEF991H	B-22	HMD180	B-4
GA040C	A-18	GLC0400C1	A-20	GQ22T-LN/02/G	D-17			HEJ320DR	B-21	HMD190	B-4
GA040ET6	A-20	GLC0400T4C1	A-20	GQ22T-LN/02/R	D-17			HEJ321DR	B-21	HMD199	B-4
GA063A	A-17	GLC0500C1	A-20	GQ22T-LN/02/W	D-17			HEJ400DR	B-21	HMD280	B-4
GA063SA	A-17	GLC0500T4C1	A-20	GQ22T-LN/22/B	D-17			HEJ401DR	B-21	HMD290	B-4
GA063SAET6	A-20	GLC0630C1	A-20	GQ22T-LN/22/G	D-17			HEJ630DE	B-21	HMD299	B-4
GA080A	A-17	GLC0630T4C1	A-20	GQ22T-LN/22/R	D-17			HEJ631DE	B-21	HMD380	B-4
GA080C	A-18	GLC0800C1	A-20	GQ22T-LN/22/W	D-17			HEW400JR	B-22	HMD390	B-4
GA080ET6	A-20	GLC0800T4C1	A-20	GQ22T-LN/22/Y	D-17			HEW401JR	B-22	HMD399	B-4
GA125A	A-17	GLC1000C1	A-20	GQ22T-LN/22/Y	D-17			HEW630JR	B-22	HMD480	B-4
GA125C	A-18	GLC1000T4C1	A-20	GX16 10U	D-12			HEW631JR	B-22	HMD490	B-4
GA125ET6	A-20	GLX00	A-17	GX16 10U25	D-12			HFR-008BK	L-32	HMD499	B-4
GA160A	A-17	GLX1001	A-19	GX16 51U	D-12			HFR-010BK	L-32	HMJ320DR	B-21
GA160ET6	A-20	GLX1010EA	A-19	GX16 52U	D-12			HFR-012BK	L-32	HMJ321DR	B-21
GAM3012D	J-34	GLX201	A-20	GX16 53U	D-12			HFR-015BK	L-32	HMJ400DR	B-21
GAM3024D	J-34	GLX202	A-20	GX16 54U	D-12			HFR-020BK	L-32	HMJ401DR	B-21
GAX1011A	A-18	GLX206	A-20	GX16 55U	D-12			HFR-030BK	L-32	HMJ630DE	B-21
GAX1011C	A-18	GLX207	A-20	GX16 56U	D-12			HFR-040BK	L-32	HMJ631DE	B-21
GAX1110EA	A-18	GLX208	A-20	GX16 66U	D-12			HFR-050BK	L-32	HMW400JR	B-22
GAX1210EA	A-18	GLX209	A-20	GX16 67U	D-12			HFR1207	F-11	HMW401JR	B-22
GAX391	A-18	GLX420315	A-19	GX16 69U	D-12			HFR1314	F-11	HMW630JR	B-22
GAX41040A	A-17	GLX420400	A-19	GX16 75U	D-12			HFR2507	F-11	HMW631JR	B-22
GAX41125A	A-17	GLX420630	A-19	GX16 90U	D-12			HFR2714	F-11	HN-A25	M-3
GAX42040A	A-17	GLX420800	A-19	GX16 91U	D-12			HFR5007	F-11	HNA025U	B-21
GAX42040C	A-18	GLX421000	A-19	GX16 92U	D-12			HFR5414	F-11	HNA026U	B-21
GAX42063SA	A-17	GLX550	A-19	GX16 92U25	D-12			HG-C1030-P	K-18	HNA040U	B-21
GAX42080A	A-17	GLX551	A-19	GX16 97U	D-12			HG-C1050-P	K-18	HNA041U	B-21
GAX42125A	A-17	GLX552	A-19	GX16 98U	D-12			HG-C1100-P	K-18	HNA063U	B-21
GAX42125C	A-18	GLX553	A-19	GX20 10U	D-12			HG-C1200-P	K-18	HNA064U	B-21
GAX42160A	A-17	GLX61	A-19	GX20 51U	D-12			HG-C1400-P	K-18	HNA100U	B-21
GAX5000	A-18	GLX61B	A-19	GX20 52U	D-12			HHA016Z	B-21	HNA101U	B-21
GAX5001	A-18	GLX61CB	A-20	GX20 53U	D-12			HHA020Z	B-21	HNA125U	B-21
GAX6000	A-18	GLX61D	A-19	GX20 54U	D-12			HHA025Z	B-21	HNA126U	B-21
GAX6001	A-18	GLX61DB	A-19	GX20 55U	D-12			HHA032Z	B-21	HNA160U	B-21
GAX60B	A-17	GLX62	A-19	GX20 56U	D-12			HHA040Z	B-21	HNA161U	B-21
GAX61	A-17	GLX62B	A-20	GX20 69U	D-12			HHA050Z	B-21	HNB250U	B-21
GAX63	A-17	GLX62CB	A-20	GX20 75U	D-12			HHA063Z	B-21	HNB251U	B-21
GAX63B	A-17	GLX62DB	A-19	GX20 90U	D-12			HHA080Z	B-21	HND320P	B-21
GAX64	A-17	GLX63	A-19	GX20 91U	D-12			HHA100Z	B-21	HND400P	B-21
GAX66N	A-17	GLX63B	A-19	GX20 92U	D-12			HHA125Z	B-21	HNE500P	B-21
GAX66NB	A-17							HHA160Z	B-21	HNE630P	B-21
								HHB200Z	B-21	HNE800H	B-22
								HHB250Z	B-21	HNE800P	B-21
								HJ-6X6	C-23	HNE801H	B-22
								HJM5AUX320	B-18	HNE970H	B-22
								HJM5AUX630	B-18	HNE971H	B-22

HNF980H.....	B-22	HWX015HSA.....	B-29	HYA019H.....	B-24	ISO2267.....	L-37	KB P1 L11.....	K-31	L7-M.....	L-24
HNF981H.....	B-22	HWX020HSA.....	B-29	HYA027H.....	B-24	ISO2270.....	L-37	KB P2 L11.....	K-31	LA52130A.....	J-35
HNF990H.....	B-22	HWX022HSA.....	B-29	HYA028H.....	B-24	ISO2280.....	L-37	KB Q1 L11.....	K-48	LA55230A.....	J-35
HNF991H.....	B-22	HWX023HSA.....	B-29	HYA033H.....	B-24	ISO2295.....	L-37	KB163N.....	B-7	LA55400A.....	J-35
HNKE16.....	M-3	HWX024HSA.....	B-29	HYA036H.....	B-24	ISO3005.....	L-37	KB163P.....	B-7	LB1-3V.....	L-20
HNKE4.....	M-3	HWX025HSA.....	B-29	HYB001H.....	B-24	ISO3015.....	L-37	KB190C.....	B-7	LB1-4.6V.....	L-20
HNKE50.....	M-3	HWX027HSA.....	B-29	HYB011H.....	B-24	ISO3020.....	L-37	KB263C.....	B-7	LB2-3V.....	L-20
HNN3.....	M-3	HWX028HSA.....	B-29	HYB012H.....	B-24	ITB1000.....	L-35	KB363C.....	B-7	LB2-4.6V.....	L-20
HNN4.....	M-3	HWX029HSA.....	B-29	HYB019H.....	B-24	ITB1005.....	L-35	KB380B.....	B-7	LB5-3V.....	L-20
HP-SST-200-02.....	L-21	HWX030HSA.....	B-29	HYB021H.....	B-24	ITB1010.....	L-35	KB463C.....	B-7	LB5-4.6V.....	L-20
HP-SST-200-03.....	L-21	HWX032HSA.....	B-29	HYB022H.....	B-24	ITB1015.....	L-35	KCD1-104.....	D-37	LB6BP03.....	D-35
HP-SST-200-04.....	L-21	HWX033HSA.....	B-29	HYB033H.....	B-24	ITB1020.....	L-35	KD-8-3.....	L-32	LB6BP05.....	D-35
HP3.....	M-3	HWX034HSA.....	B-29	HYD001H.....	B-24	ITB1025.....	L-35	KF83B.....	B-7	LB6BP07.....	D-35
HPN-6A-2500-3-PP.....	C-23	HWX040HSA.....	B-29	HYE021H.....	B-24	ITB1030.....	L-35	KF83C.....	B-7	LB6EL1.....	D-35
HR500.....	B-9	HWX042HSA.....	B-29	HYE022H.....	B-24	ITB1035.....	L-35	KF84A.....	B-7	LB6EL3.....	D-35
HR502.....	B-9	HWX050HSA.....	B-30	HYW001H.....	B-24	ITB1040.....	L-35	KG100S11.....	K-31	LB6EL4.....	D-35
HR510.....	B-9	HWX090HSA.....	B-29	HYW014H.....	B-24	ITB2000.....	L-35	KG200S11.....	K-31	LB6EL5.....	D-35
HR520.....	B-9	HWX701HSA.....	B-29	HYW015H.....	B-24			KGX01.....	K-31	LB6EL6.....	D-35
HR700.....	B-9	HWX711HSA.....	B-29	HYW019H.....	B-24			KGX02.....	K-31	LB6EL8.....	D-35
HR742.....	B-9	HWY001H.....	B-30	HYW023H.....	B-24			KIT-B-FL750-1.....	M-6	LB6GLB1.....	D-35
HR743.....	B-9	HWY002H.....	B-30	HYW024H.....	B-24			KIT-BX500ND-1.....	M-6	LB6GLB3.....	D-35
HR745.....	B-9	HWY005H.....	B-30					KITB1300-C-1.....	M-6	LB6GLB4.....	D-35
HR830.....	B-9	HWY006H.....	B-30					KITH7131-C-1.....	M-5	LB6GLB8.....	D-35
HRD025144.....	F-8	HWY040HSA.....	B-30	IBNP/05.....	E-25			KITHT51-1.....	M-5	LB6GLB5.....	D-35
HRD025274.....	F-8	HWY041HSA.....	B-30	IBNP/10.....	E-25			KJ01A.....	H-18	LB6GLB6.....	D-35
HRD038144.....	F-8	HWY044HSA.....	B-30	IBNP/15.....	E-25			KJ01B.....	H-18	LB6GLM1.....	D-35
HRD038374.....	F-8	HWY045HSA.....	B-30	IBNP/20.....	E-25			KJ01C.....	H-18	LB6GLM3.....	D-35
HRD050144.....	F-8	HWY089HSA.....	B-30	IBNP/25.....	E-25			KJ01D.....	H-18	LB6GLM4.....	D-35
HRD050274.....	F-8	HWY090HSA.....	B-30	IBNP/30.....	E-25			KJ02A.....	H-18	LB6GLM5.....	D-35
HRD050724.....	F-8	HWY090HSA.....	B-30	IBNP/40.....	E-25			KJ02B.....	H-18	LB6GLM6.....	D-35
HRD075374.....	F-8	HWY218H.....	B-29	IBNP/40.....	E-25			KJ02C.....	H-18	LC 100.....	M-4
HRD100274.....	F-8	HWY224H.....	B-29	IBR1/06.....	E-25			KJ02D.....	H-18	LCP-1250A4FDRJ.....	G-1
HRS013074.....	F-8	HWY225H.....	B-29	IBR1/08.....	E-25			KJ02E.....	H-18	LE40SZSN20DPR-E2.....	K-15
HRS025074.....	F-8	HWY226H.....	B-29	IBR1/10.....	E-25			KKC1518.....	L-11	LE40XZSF15DPR-D.....	K-15
HRS050074.....	F-8	HWY227H.....	B-29	IBR1/12.....	E-25			KM A1 S11.....	K-31	LE40XZSN20ATO-D.....	K-15
HRS054144.....	F-8	HWY228H.....	B-29	IBR3/12.....	E-25			KM B2 S11.....	K-31	LE40XZSN20DNR-D.....	K-15
HS-600.....	L-16	HWY238H.....	B-30	IBR3/16.....	E-25			KM C2 S11.....	K-31	LE40XZSN20DPR-D.....	K-15
HT-TC026.....	M-5	HWY239H.....	B-30	IBR3/20.....	E-25			KM E2 S11.....	K-31	LE80XZSN50ATO-D.....	K-15
HT-TC041N.....	M-5	HWY240HSA.....	B-30	IBR3/25.....	E-25			KM F2 S11.....	K-31	LE80XZSN50DPR-D.....	K-15
HT45-E.....	M-5	HWY241HSA.....	B-30	IBR3/30.....	E-25			KM H1 S11.....	K-31	LF01-150.....	K-39
HTM060.....	H-21	HWY246HSA.....	B-30	ID02.....	H-16			KM L2 S11.....	K-31	LF01-200.....	K-39
HTM100.....	H-21	HWY247HSA.....	B-30	ID03.....	H-16			KM M1 S11.....	K-31	LF01-250.....	K-39
HTM150.....	H-21	HWY248HSA.....	B-30	ID04.....	H-16			KM13E.....	H-18	LF01-300.....	K-39
HTR-3A-100A-P.....	C-23	HWY249HSA.....	B-30	ID05.....	H-16			KM13N.....	H-18	LF01-400.....	K-39
HTR-3A-1024A-P.....	C-23	HWY260HSA.....	B-30	ID06.....	H-16			KN-1/2PT-8-200-J.....	K-27	LF01-500.....	K-39
HTR-3A-360A-P.....	C-23	HWY261HSA.....	B-30	ID06E.....	H-16			KN-1/2PT-8-200-K.....	K-27	LF01-600.....	K-39
HTR-3A-500A-P.....	C-23	HWY265HSA.....	B-30	ID07.....	H-16			KN-1/2PT-8-200-PT.....	K-27	LF01-700.....	K-39
HTR-5B-1024A-H.....	C-23	HWY269HSA.....	B-30	ID07E.....	H-16			KN-1/2PT-8-300-J.....	K-27	LF10-1H11123-115.....	K-29
HTR-5B-1024A-P.....	C-23	HWY280H.....	B-29	ID08.....	H-16			KN-1/2PT-8-300-K.....	K-27	LF10-1H11123-150.....	K-29
HTR-5B-2000A-H.....	C-23	HWY281H.....	B-29	ID08E.....	H-16			KN-1/2PT-8-300-PT.....	K-27	LF10-1H11123-80.....	K-29
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HTR-5B-360A-H.....	C-23	HWY285H.....	B-29	ID3CR-12.....	H-17			KN04N.....	H-18	LF16-111-50PSI.....	K-29
HTR-5B-360A-P.....	C-23	HWY288H.....	B-29	ID3CR-4.....	H-17			KN04P.....	H-18	LF16-111-60PSI.....	K-29
HTR-HD30-1024-3-PP.....	C-23	HWY289H.....	B-29	ID3CR-5.....	H-17			KN07N.....	H-18	LF18-111121-10BAR.....	K-29
HTR-HD30-600-3-PP.....	C-23	HWY701.....	B-30	ID3CR-6.....	H-17			KN07P.....	H-18	LF18-111121-5BAR.....	K-29
HTR-HM15-1024-3-PP.....	C-23	HWY702.....	B-30	ID3CR-7.....	H-17			KN10E.....	H-18	LF18-111121-7BAR.....	K-29
HTR-HM15-600-3-PP.....	C-23	HWY703.....	B-30	ID3CR-8.....	H-17			KN10N.....	H-18	LF19-111121-3BAR.....	K-29
HTR-HN-8-1024A-P.....	C-23	HWY704.....	B-30	ID3CR-9.....	H-17			KN10P.....	H-18	LF19-111121-4BAR.....	K-29
HTR-HN-8-360A-P.....	C-23	HWY705.....	B-30	IF9.....	D-13			KN18E.....	H-18	LF5503.....	K-29
HTR-HN-8-500A-P.....	C-23	HWY950HSA.....	B-29	IFD6500.....	G-2			KN18N.....	H-18	LF5506.....	K-29
HW1E312DB.....	B-28	HWY952HSA.....	B-29	IFD6503.....	G-2			KN18P.....	H-18	LF5510.....	K-29
HW1E312FB.....	B-27	HWY958H.....	B-30	IFD6530.....	A-30			KN26E.....	H-18	LF5516.....	K-29
HW1E316DB.....	B-28	HWY959H.....	B-30	IFD8500-A.....	C-17			KN26N.....	H-18	LF5520.....	K-29
HW1E316FB.....	B-27	HXA00*H.....	B-23	IFD8510.....	G-2			KN26P.....	H-18	LF5520.....	K-29
HW1E412DB.....	B-28	HXA014H.....	B-23	IFD9506.....	G-2			KN3C-R1021.....	D-37	LF55-1000.....	K-39
HW1E412FB.....	B-27	HXA015H.....	B-23	IGR35F.....	H-21			KN3C-R1121.....	D-37	LF55-1000/4-20.....	K-39
HW1E416DB.....	B-28	HXA021H.....	B-23	IL1/AN-3A.....	K-3			KN3C-R1122.....	D-37	LF55-1200.....	K-39
HW1E416FB.....	B-27	HXA024H.....	B-23	IL1/AP-3A.....	K-3			KN3C-R1221.....	D-37	LF55-1200/4-20.....	K-39
HW1W312DS.....	B-28	HXA030H.....	B-23	IL1/CN-3A.....	K-3			KN3C-R1321.....	D-37	LF55-1400.....	K-39
HW1W312FS.....	B-27	HXA031H.....	B-23	IL1/CP-3A.....	K-3			KN3C-R1322.....	D-37	LF55-1400/4-20.....	K-39
HW1W316DS.....	B-28	HXB030H.....	B-23	IL8/AN-3A.....	K-3			KN99E.....	H-18	LF55-150.....	K-39
HW1W316FS.....	B-27	HXB031H.....	B-23	IL8/AP-3A.....	K-3			KN99N.....	H-18	LF55-150/4-20.....	K-39
HW1W412DS.....	B-28	HXB042H.....	B-24	IL8/CN-3A.....	K-3			KN99P.....	H-18	LF55-1600.....	K-39
HW1W412FS.....	B-27	HXC00*H.....	B-23	IL8/CP-3A.....	K-3			KPC-CC01.....	A-26	LF55-1600/4-20.....	K-39
HW1W416DS.....	B-28	HXC021H.....	B-23	IMN1/05.....	E-25			KPMS-LE01.....	A-26	LF55-200.....	K-39
HW1W416FS.....	B-27	HXC024H.....	B-23	IMN1/06.....	E-25			KR100S11.....	K-31	LF55-200/4-20.....	K-39
HW2E325DB.....	B-28	HXD00*P.....	B-23	IMN1/07.....	E-25			KR200S11.....	K-31	LF55-2000.....	K-39
HW2E325FB.....	B-27	HXD014P.....	B-23	IMN1/10.....	E-25			KX B A11.....	K-31	LF55-2000/4-20.....	K-39
HW2E425DB.....	B-28	HXD015P.....	B-23	IMN1/12.....	E-25			KX B L11.....	K-31	LF55-250.....	K-39
HW2E425FB.....	B-27	HXD022P.....	B-23	IMN1/15.....	E-25			KX B L21.....	K-31	LF55-300.....	K-39
HW2W325DS.....	B-28	HXD024P.....	B-23	IMN1/16.....	E-25			KX B S02.....	K-31	LF55-300/4-20.....	K-39
HW2W325FS.....	B-27	HXD031P.....	B-23	IMN1/20.....	E-25			KX B S11.....	K-31	LF55-350.....	K-39
HW2W425DS.....	B-28	HXD042P.....	B-24	IMN1/25.....	E-25			KX N1.....	K-48	LF55-400.....	K-39
HW2W425FS.....	B-27	HXE00*P.....	B-23	IMN2/16.....	E-25			KX N2.....	K-48	LF55-400/4-20.....	K-39
HW4S332DB.....	B-28	HXE014H.....	B-23	IMN2/20.....	E-25			KX N3.....	K-48	LF55-500.....	K-39
HW4S332FB.....	B-27	HXE014P.....	B-23	IMN2/25.....	E-25			KX N4.....	K-48	LF55-500/4-20.....	K-39
HW4S340DB.....	B-28	HXE015H.....	B-23	IMN2/30.....	E-25			KZ022.....	B-7	LF55-500/4-20.....	K-39
HW4S340FB.....	B-27	HXE015P.....	B-23	IMN2/40.....	E-25			KZ023A.....	B-7	LF55-600.....	K-39
HW4S432DB.....	B-28	HXE022P.....	B-23	IMN2/50.....	E-25			KZ024.....	B-7	LF55-600/4-20.....	K-39
HW4S432FB.....	B-27	HXE024P.....	B-23	IMN2/60.....	E-25					LF55-800.....	K-39
HW4S440DB.....	B-28	HXE030H.....	B-23	INC1/DO-3A.....	K-4					LF55-800/4-20.....	K-39
HW4S440FB.....	B-27	HXE031H.....	B-23	ISO2010.....	L-37					LFTN-150.....	K-39
HW4W332DS.....	B-28	HXE031P.....	B-23	ISO2020.....	L-37					LFTN-200.....	K-39
HW4W332FS.....	B-27	HXE042H.....	B-24	ISO2030.....	L-37					LFTN-250.....	K-39
HW4W340DS.....	B-28	HXE042P.....	B-24	ISO2040.....	L-37					LFTN-300.....	K-39
HW4W340FS.....	B-27	HXF00*H.....	B-23	ISO2055.....	L-37					LFTN-400.....	K-39
HW4W432DS.....	B-28	HXF030H.....	B-23	ISO2070.....	L-37					LFTN-500.....	K-39
HW4W432FS.....	B-27	HXF031H.....	B-23	ISO2085.....	L-37					LFTN-600.....	K-39
HW4W440DS.....	B-28	HXF042H.....	B-24	ISO2100.....	L-37					LH-E-HD-265B.....	L-15
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HWM015.....	H-21	HXW031H.....	B-23	ISO2155.....	L-37					LH-HD-380B.....	L-15
HWM030.....	H-21	HXW042H.....	B-24	ISO2170.....	L-37					LH-HD-380UV.....	L-15
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LH-I-250N.....	L-15	LPC Q204.....	D-1	LPM LE3.....	D-9	LPX AU13.....	D-8	LRXP01.....	C-24	M1015V.....	L-33
LH-I-370B.....	L-15	LPC Q205.....	D-1	LPM LE4.....	D-9	LPX AU14.....	D-8	LRXSW.....	C-24	M107B.....	L-33
LH-M-100B.....	L-15	LPC Q206.....	D-1	LPM LE5.....	D-9	LPX AU157.....	D-8	LRXSWP01.....	C-24	M107G.....	L-33
LH-M-100N.....	L-15	LPC QL103.....	D-2	LPM LE6.....	D-9	LPX AU158.....	D-8	LS-052-1.....	K-37	M107V.....	L-33
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LH-MP-12/3MB.....	L-15	LPC QL106.....	D-2	LPM LM3.....	D-9	LPX AU170.....	D-8	LS-147.....	K-38	M1P00912A5.....	A-11
LH-MP-20/3MB.....	L-15	LPC QL203.....	D-2	LPM LM4.....	D-9	LPX B10.....	D-8	LS-148.....	K-38	M1P00912A6.....	A-11
LH-MP-20/3MN.....	L-15	LPC QL204.....	D-2	LPM LM5.....	D-9	LPX B20.....	D-8	LS-154-1.....	K-38	M1P00912A7.....	A-11
LH-MP-30/3MB.....	L-15	LPC QL205.....	D-2	LPM LM6.....	D-9	LPX BL10.....	D-8	LS-264.....	K-37	M1P00912A8.....	A-11
LH-MP-30/3MN.....	L-15	LPC QL206.....	D-2	LPM LM7.....	D-9	LPX BL20.....	D-8	LS-297.....	K-37	M1P00912A9.....	A-11
LH-MP-40/3MB.....	L-15	LPC QL207.....	D-2	LPS B102.....	D-4	LPX C01.....	D-7	LS-317.....	K-37	M1P00912B0.....	A-11
LH-S-200B.....	L-15	LPC R1002.....	D-3	LPS B103.....	D-4	LPX C01D.....	D-7	LS-318-1.....	K-37	M1P01812B1.....	A-11
LH-S-200UV.....	L-15	LPC R1004.....	D-3	LPS B104.....	D-4	LPX C02.....	D-7	LSN501.....	B-17	M1PA.....	A-11
LH-S-300B.....	L-15	LPC R1006.....	D-3	LPS B105.....	D-4	LPX C10.....	D-7	LSN502.....	B-17	M2-2.8V/5.....	L-20
LH-S-300UV.....	L-15	LPC R1196.....	D-3	LPS B106.....	D-4	LPX C10A.....	D-7	LSP120-01-LD6.....	I-18	M2-2.8VD/5.....	L-20
LH-S-390B.....	L-15	LPC S120.....	D-2	LPS B1104.....	D-4	LPX C11.....	D-7	LSP120-01-LM6.....	I-18	M2-4.8V/5.....	L-20
LH-S-390N.....	L-15	LPC S121.....	D-2	LPS B1113.....	D-4	LPX C20.....	D-7	LSP120-01-M6.....	I-18	M2-4.8VD/5.....	L-20
LH-SC-M3B.....	L-15	LPC S130.....	D-2	LPS B1134.....	D-4	LPX CB01.....	D-11	LSP120-02-LD6.....	I-18	M2-6.4V.....	L-20
LH-SC-M3SB.....	L-15	LPC S131.....	D-2	LPS B1142.....	D-4	LPX CB10.....	D-11	LSP120-02-LM6.....	I-18	M2-6.4VD.....	L-20
LH-SC-M4B.....	L-15	LPC S132.....	D-2	LPS B1152.....	D-4	LPX CS01.....	D-7	LSP120-02-M6.....	I-18	M24N.....	A-11
LH-SC-M5B.....	L-15	LPC S133.....	D-2	LPS B1163.....	D-4	LPX CS10.....	D-7	LSP200-01-LD8.....	I-18	M25N.....	A-11
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LMP B102T11.....	D-9	LPC S221.....	D-2	LPS B202.....	D-4	LPX DAU115230.....	D-8	LSP200-01-M6.....	I-18	M2P02512B2.....	A-11
LMP B103T10.....	D-9	LPC S230.....	D-2	LPS B203.....	D-4	LPX DIN.....	D-8	LSP200-02-LD8.....	I-18	M2P03212B4.....	A-11
LMP B103T11.....	D-9	LPC S231.....	D-2	LPS B204.....	D-4	LPX LFB3.....	D-7	LSP200-02-LM6.....	I-18	M2P03812B5.....	A-11
LMP B104T01.....	D-9	LPC S232.....	D-2	LPS B2104.....	D-4	LPX LFB4.....	D-7	LSP200-02-M6.....	I-18	M2PA.....	A-11
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LMP B108T11.....	D-9	LPC S320.....	D-2	LPS B6634.....	D-4	LPX LFB6.....	D-7	LSP400-01-LM8.....	I-18	M3PA.....	A-11
LMP B204T11.....	D-9	LPC S321.....	D-2	LPS B6644.....	D-4	LPX LFB8.....	D-7	LSP400-01-M8.....	I-18	M5-6.4V.....	L-20
LMP B6144T11.....	D-9	LPC S330.....	D-2	LPS B6844.....	D-4	LPX LFE.....	D-7	LSP400-02-LD10.....	I-18	M5-6.4VD.....	L-20
LMP B6644T01.....	D-9	LPC S331.....	D-2	LPS B7113.....	D-4	LPX LFM3.....	D-7	LSP400-02-LM8.....	I-18	MA1-50.....	M-7
LMP B6644T11.....	D-9	LPC S332.....	D-2	LPS B7191.....	D-4	LPX LFM4.....	D-7	LSP400-02-M8.....	I-18	MA10-50.....	M-7
LMP Q102T11.....	D-9	LPC S333.....	D-2	LPS B7223.....	D-4	LPX LFM5.....	D-7	LT7ALLB.....	D-35	MA10-C.....	M-7
LMP S120T10.....	D-9	LPC S340.....	D-2	LPS B7345.....	D-4	LPX LFM6.....	D-7	LT7ALLM.....	D-35	MA102Z.....	B-2
LMP S120T11.....	D-9	LPC S360.....	D-2	LPS B7355.....	D-4	LPX LFM8.....	D-7	LT7BP01.....	D-35	MA106Z.....	B-2
LMP S130T20.....	D-9	LPC S370.....	D-2	LPS B7365.....	D-4	LPX LPB3.....	D-7	LT7BP02.....	D-35	MA110Z.....	B-2
LMP S131T20.....	D-9	LPC SL1203.....	D-3	LPS B7375.....	D-4	LPX LPB4.....	D-7	LTN50BM1.....	D-35	MA116Z.....	B-2
LMP S320T10.....	D-9	LPC SL1204.....	D-3	LPS BL103.....	D-5	LPX LPB5.....	D-7	LTN50BP1.....	D-35	MA120Z.....	B-2
LMP S330T20.....	D-9	LPC SL1205.....	D-3	LPS BL104.....	D-5	LPX LPB6.....	D-7	LTN50BP3.....	D-35	MA125Z.....	B-2
LP1230A.....	J-36	LPC SL1206.....	D-3	LPS BL105.....	D-5	LPX LPB8.....	D-7	LTN50C.....	D-35	MA130Z.....	B-2
LP2230A.....	J-36	LPC SL1208.....	D-3	LPS BL106.....	D-5	LPX LPBB.....	D-11	LTN50ML1.....	D-35	MA14-50.....	M-7
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LPC B102.....	D-1	LPC SL1216.....	D-3	LPS BL206.....	D-5	LPX LPE5.....	D-7	LTN50ML8.....	D-35	MA163Z.....	B-2
LPC B103.....	D-1	LPC SL1218.....	D-3	LPS BL6644.....	D-5	LPX LPE6.....	D-7	LTN50MSL.....	D-35	MA19-50.....	M-7
LPC B104.....	D-1	LPC SL1303.....	D-3	LPS J200.....	D-5	LPX LPE8.....	D-7	LTN50MW024.....	D-35	MA19-C.....	M-7
LPC B105.....	D-1	LPC SL1304.....	D-3	LPS J201.....	D-5	LPX LPM3.....	D-7	LTN50MW230.....	D-35	MA2-3-50.....	M-7
LPC B106.....	D-1	LPC SL1305.....	D-3	LPS J210.....	D-5	LPX LPM4.....	D-7	LTN50P100T.....	D-35	MA202Z.....	B-2
LPC B1104.....	D-1	LPC SL1306.....	D-3	LPS J211.....	D-5	LPX LPM5.....	D-7	LTN70BM1.....	D-36	MA206Z.....	B-2
LPC B1113.....	D-1	LPC SL1308.....	D-3	LPS J400.....	D-5	LPX LPM6.....	D-7	LTN70BP1.....	D-36	MA210Z.....	B-2
LPC B1134.....	D-1	LPC SL1313.....	D-3	LPS J401.....	D-5	LPX LPM8.....	D-7	LTN70BP3.....	D-36	MA216Z.....	B-2
LPC B1142.....	D-1	LPC SL1314.....	D-3	LPS J410.....	D-5	LPX LPSB.....	D-7	LTN70C.....	D-36	MA220Z.....	B-2
LPC B1152.....	D-1	LPC SL1315.....	D-3	LPS J411.....	D-5	LPX LPSM.....	D-7	LTN70ML1.....	D-36	MA225Z.....	B-2
LPC B1163.....	D-1	LPC SL1316.....	D-3	LPS L3.....	D-5	LPZ M12CA8.....	D-11	LTN70ML3.....	D-36	MA232Z.....	B-2
LPC B1196.....	D-1	LPC SL1318.....	D-3	LPS L4.....	D-5	LPZ M16CA8.....	D-11	LTN70ML4.....	D-36	MA24-50.....	M-7
LPC B202.....	D-1	LPC ZSA.....	D-10	LPS L5.....	D-5	LPZ M1A5.....	D-11	LTN70ML6.....	D-36	MA24-C.....	M-7
LPC B203.....	D-1	LPC ZSAIP.....	D-10	LPS L6.....	D-5	LPZ M1A5P.....	D-11	LTN70ML8.....	D-36	MA240Z.....	B-2
LPC B204.....	D-1	LPC ZSB.....	D-10	LPS L7.....	D-5	LPZ M1A8.....	D-11	LTN70MSL.....	D-36	MA250Z.....	B-2
LPC B205.....	D-1	LPC ZSBIP.....	D-10	LPS S120.....	D-4	LPZ M1E8.....	H-2	LTN70MW024.....	D-36	MA263Z.....	B-2
LPC B206.....	D-1	LPC ZSM.....	D-10	LPS S121.....	D-4	LPZ M2A8.....	D-11	LTN70MW230.....	D-36	MA30-C.....	M-7
LPC B2104.....	D-1	LPC ZSMIP.....	D-10	LPS S122.....	D-4	LPZ M2E8.....	H-2	LTN70P100T.....	D-36	MA302Z.....	B-2
LPC B6144.....	D-1	LPF B102.....	D-6	LPS S131.....	D-4	LPZ M3A8.....	D-11	LV1024A.....	J-36	MA306Z.....	B-2
LPC B6164.....	D-1	LPF B103.....	D-6	LPS S132.....	D-4	LPZ M3E8.....	H-2	LV1024D.....	J-36	MA310Z.....	B-2
LPC B6344.....	D-1	LPF B104.....	D-6	LPS S133.....	D-4	LPZ M4A8.....	D-11	LV1110A.....	J-36	MA316Z.....	B-2
LPC B6634.....	D-1	LPF B105.....	D-6	LPS S320.....	D-4	LPZ M5A8.....	D-11	LV1230A.....	J-36	MA320Z.....	B-2
LPC B6644.....	D-1	LPF B106.....	D-6	LPS S321.....	D-4	LPZ M5E8.....	H-2	LV1400A.....	J-36	MA325Z.....	B-2
LPC B6744.....	D-1	LPF B204.....	D-6	LPS S330.....	D-4	LPZ M6A8.....	D-11	LV1525A.....	J-36	MA332Z.....	B-2
LPC B6844.....	D-1	LPF BL103.....	D-6	LPS S331.....	D-4	LPZ M6E8.....	H-2	LVC1230A.....	J-36	MA340Z.....	B-2
LPC B7113.....	D-1	LPF BL104.....	D-6	LPS S333.....	D-4	LPZ M7E8.....	H-2	LVFSA1D05.....	J-20	MA350Z.....	B-2
LPC B7191.....	D-1	LPF BL105.....	D-6	LPS S340.....	D-4	LPZ M8CA8.....	D-11	LVFSA1D10.....	J-20	MA363Z.....	B-2
LPC B71502.....	D-1	LPF BL106.....	D-6	LPS S360.....	D-4	LPZ P1A5.....	D-11	LVFSA1D15.....	J-20	MA37-C.....	M-7
LPC B7223.....	D-1	LPF L3.....	D-6	LPS S370.....	D-4	LPZ P1A5P.....	D-11	LVFSN1B05.....	J-20	MA406Z.....	B-2
LPC B7345.....	D-1	LPF L4.....	D-6	LPS SL1203.....	D-5	LPZ P1A8.....	D-11	LVFSN1B10.....	J-20	MA410Z.....	B-2
LPC B7355.....	D-1	LPF L5.....	D-6	LPS SL1204.....	D-5	LPZ P1B5600.....	D-11	LVFSN1B15.....	J-20	MA416Z.....	B-2
LPC B7365.....	D-1	LPF L6.....	D-6	LPS SL1205.....	D-5	LPZ P1B8100.....	D-11	LVFSP1W05.....	J-20	MA420Z.....	B-2
LPC B7375.....	D-1	LPF S120.....	D-6	LPS SL1206.....	D-5	LPZ P1B8102.....	D-11	LVFSP1W10.....	J-20	MA425Z.....	B-2
LPC BL103.....	D-2	LPF S121.....	D-6	LPS SL1303.....	D-5	LPZ P2A8.....	D-11	LVFSP1W15.....	J-20	MA432Z.....	B-2
LPC BL104.....	D-2	LPF S130.....	D-6	LPS SL1304.....	D-5	LPZ P2B802ZA.....	D-11	LVM20A240.....	J-19	MA440Z.....	B-2
LPC BL105.....	D-2	LPF S131.....	D-6	LPS SL1305.....	D-5	LPZ P2B8901.....	D-11	LVM20A415.....	J-19	MA450Z.....	B-2
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ME1-50.....	M-7	MR-5-150-WH-O.....	K-14	NF106A.....	B-3	PFA9142A0025001.....	D-23	PFA9142A0025001.....	D-23	PMGB63-45.....	L-25
ME10.....	M-7	MRC2150.....	L-34	NF110A.....	B-3	PFA9142A0050001.....	D-23	PFA9142A0050001.....	D-23	PMGB63-45B.....	L-25
ME10-50.....	M-7	MRC2250.....	L-34	NF116A.....	B-3	PFA9142A0075001.....	D-23	PFA9142A0075001.....	D-23	PMT-12V100W2BA.....	B-70
ME10-C.....	M-7	MRS122.....	L-34	NF125A.....	B-3	PFA9142A0103001.....	D-23	PFA9142A0103001.....	D-23	PMT-12V150W2BA.....	B-70
ME14.....	M-7	MRS1501.....	L-35	NF132A.....	B-3	NRN325.....	B-6	PFA9142A0158001.....	D-23	PMT-12V35W2BA.....	B-70
ME14-50.....	M-7	MRS1506.....	L-35	NF140A.....	B-3	NRN332.....	B-6	PFA9142A0158001.....	D-23	PMT-12V35W2BA.....	B-70
ME14-C.....	M-7	MRS2000.....	L-35	NF202A.....	B-3	NRN340.....	B-6	PFB9067L0016010.....	D-23	PMT-12V50W2BA.....	B-70
ME19.....	M-7	MRS3000.....	L-35	NF206A.....	B-3	NRN350.....	B-6	PFB9067L0027007.....	D-23	PMT-24V100W2BA.....	B-70
ME19-50.....	M-7	MRS3005.....	L-35	NF210A.....	B-3	NRN363.....	B-6	PFB9067L0062033.....	D-23	PMT-24V150W2BA.....	B-70
ME19-C.....	M-7	MRS3010.....	L-35	NF216A.....	B-3	NRN406.....	B-6	PFB9067L0103037.....	D-23	PMT-24V200W2BR.....	B-70
ME2.....	M-7	MRS3500.....	L-35	NF220A.....	B-3	NRN410.....	B-6	PFB9067L0162007.....	D-23	PMT-24V350W2BR.....	B-70
ME2-50.....	M-7	MRS416.....	L-34	NF225A.....	B-3	NRN416.....	B-6	PFB9067L0222011.....	D-23	PMT-24V35W2BA.....	B-70
ME24.....	M-7	MRS420.....	L-34	NF232A.....	B-3	NRN420.....	B-6	PFB9067L0254019.....	D-23	PMT-24V50W2BA.....	B-70
ME24-50.....	M-7	MRSS5000.....	L-35	NF240A.....	B-3	NRN425.....	B-6	PFC9067L0031032.....	D-23	PMT-5V350W1AM.....	B-70
ME24-C.....	M-7	MS-EX201.....	K-18	NF302A.....	B-3	NRN432.....	B-6	PFC9067L0062004.....	D-23	PMV10A440.....	J-18
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ME7-C.....	M-7	MV120Z.....	B-1	NFN363.....	B-3			PHPM50B.....	L-26	PPGB21-18B.....	L-25
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MEC-SG1026S.....	A-31	MV132Z.....	B-1	NGN102.....	B-4			PJ-SWB-06.....	L-27	PPGB9-8B.....	L-25
MEC-SG3026S.....	A-31	MV140Z.....	B-1	NGN104.....	B-4			PJ-SWB-12.....	L-27	PPKS11BX10.....	K-34
MG-120.....	H-20	MV2/A0-0A.....	K-5	NGN106.....	B-4			PJ-SWB-19.....	L-27	PR18S-BC10DPC-E2.....	K-16
MG-172.....	H-20	MV2/CO-0A.....	K-5	NGN110.....	B-4			PJ-VH-13.0.....	L-27	PR18S-BC10DPO-E2.....	K-16
MG-220.....	H-20	MV4/A0-0A.....	K-5	NGN116.....	B-4			PJ-VH-15.8.....	L-27	PR18S-BC40DPC-E2.....	K-16
MG-250.....	H-20	MV4/CO-0A.....	K-5	NGN120.....	B-4			PJ-VH-21.2.....	L-27	PR18S-BC40DPO-E2.....	K-16
MG-80.....	H-20	MV6/A0-0A.....	K-5	NGN125.....	B-4			PJ-VH-25.0.....	L-27	PR18S-DM3DPC-E2.....	K-16
MG-92.....	H-20	MV6/CO-0A.....	K-5	NGN132.....	B-4			PJ-VH-34.5.....	L-27	PR18S-DM3DPO-E2.....	K-16
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MGM16-8.....	L-25	MVE/00-0A.....	K-5	NGN150.....	B-4			PK3/00-1H.....	K-2	PR18S-TM20DPO.....	K-16
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MGM25-16.....	L-25	MVR/CO-0A.....	K-5	NGN216.....	B-4			PL-Y-AT-1.....	G-4	PRSL0173PI.....	D-22
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MGM40-30.....	L-25	MX21P.....	A-11	NGN232.....	B-4			PL-Y-T15.....	G-4	PRSL0919PI.....	D-23
MGM50-38.....	L-25	MX30.....	A-11	NGN240.....	B-4			PL-Y-T150.....	G-4	PRSL0920PI.....	D-23
MGM63-44.....	L-25	MX31.....	A-11	NGN250.....	B-4			PL-Y-T250.....	G-4	PRSL0981PI.....	D-23
MGM8-4.5.....	L-25	MZ201.....	B-7	NGN263.....	B-4			PL-Y-T32.....	G-4	PRSL1000PI.....	D-20
MJT702.....	B-1	MZ202.....	B-7	NGN306.....	B-4			PL-Y-T50.....	G-4	PRSL1001PI.....	D-20
MJT706.....	B-1	MZ203.....	B-7	NGN310.....	B-4			PL-Y-T500.....	G-4	PRSL1002PI.....	D-20
MJT710.....	B-1	MZ204.....	B-7	NGN316.....	B-4			PLN131311.....	K-48	PRSL1003PI.....	D-20
MJT716.....	B-1	MZ206.....	B-7	NGN320.....	B-4			PLNM12B.....	L-26	PRSL1009PI.....	D-20
MJT720.....	B-1	MZ212.....	B-7	NGN325.....	B-4			PLNM16B.....	L-26	PRSL1800PI.....	D-19
MJT725.....	B-1	MZN130.....	B-7	NGN332.....	B-4			PLNM20B.....	L-26	PRSL1801PI.....	D-19
MJT732.....	B-1	MZN131.....	B-7	NGN340.....	B-4			PLNM22B.....	L-26	PRSL1810PI.....	D-20
MJT740.....	B-1	MZN175.....	B-7	NGN350.....	B-4			PLNM25B.....	L-26	PRSL1811PI.....	D-20
MKC-AFM.....	A-30			NGN363.....	B-4			PLNM32B.....	L-26	PRSL1820PI.....	D-19
MKC-BFM.....	A-30			NGN406.....	B-4			PLNM40B.....	L-26	PRSL1821PI.....	D-19
MKC-CFM.....	A-30			NGN410.....	B-4			PLNM50B.....	L-26	PRSL1830PI.....	D-20
MKC-DN1CB.....	A-30			NGN416.....	B-4			PLNM63B.....	L-26	PRSL1831PI.....	D-20
MKC-EN1CB.....	A-30			NGN425.....	B-4			PLNU1AT25W.....	K-48	PRSL1840PI.....	D-20
MKC-FN1CB.....	A-30							PM-A-2.....	G-3	PRSL1841PI.....	D-20
MKC-KPPK.....	A-30							PM-A-24.....	G-3	PRSL1842PI.....	D-20
MKM-DRB.....	A-26							PM-A-28.....	G-3	PRSL1845PI.....	D-20
MKM-DRC.....	A-26							PM-A-32.....	G-3	PRSL1846PI.....	D-20
MKM-HUB01.....	A-26							PM-CAB-D-10.....	G-3	PRSL1850PI.....	D-20
ML100L1-4.....	A-38							PM-CAB-D-2.....	G-3	PRSL1856BIC.....	D-20
ML100L1-4 B5.....	A-40							PM-CAB-D-5.....	G-3	PRSL1858BIC.....	D-20
ML711-2.....	A-38							PM-CAB-RS-10.....	G-3	PRSL1862BIC.....	D-20
								PM-CAB-RS-2.....	G-3	PRSL1868PI.....	D-20

PRSL1870PI.....	D-20	PVM12B.....	L-31	RCS01204.....	F-8	RPQ1015.....	L-36	S3N-PR-5-T51-PL.....	K-7	SF4-250DV.....	E-18
PRSL1880PI.....	D-20	PVM16.....	L-31	RCS02504.....	F-8	RPQ1018.....	L-36	S3N-PR-5-T53-OZ.....	K-8	SF4-2HA25.....	E-18
PRSL1885ROC.....	D-20	PVM16B.....	L-31	RCS05004.....	F-8	RPT3000.....	L-36	S3N-PR-5-W03-OZ.....	K-8	SF4-2HA45.....	E-18
PRSL1890PI.....	D-20	PVM8.....	L-31	RD-ST1.....	J-26	RPT3005.....	L-36	S45/604/B6/02A.....	J-29	SF463.....	B-13
PRSL4540PI.....	D-21	PVM8B.....	L-31	RD-TPA1.....	J-24	RPU2995.....	L-36	S45/604/B6/11A.....	J-29	SF7-3CM5A.....	E-17
PRSL4541PI.....	D-21	PXL.....	J-19	RD-TPA2.....	J-24	RPU3000.....	L-36	S45/604/B6/22A.....	J-29	SF7-3HA25.....	E-18
PRSL8512PI.....	D-20			RD-TPD1.....	J-24	RPU3005.....	L-36	S48/704/B6/02A.....	J-29	SF7-3HA45.....	E-18
PRSL8750PI.....	D-20			RD-TPD2.....	J-24	RPU3010.....	L-36	S48/704/B6/11A.....	J-29	SF7-3MD5A.....	E-17
PRSL9825PI.....	D-22	Q01-4.....	K-54	RE1-4VF.....	L-21	RPU3015.....	L-36	S48/704/B6/22A.....	J-29	SF7-8/5A.....	E-17
PRSL9828PI.....	D-22	Q048.....	D-13	RE1-4VFD.....	L-21	RPU3020.....	L-36	S5-4SV.....	L-19	SF7-8/7DA.....	E-18
PRSL9838PI.....	D-22	Q05-4.....	K-54	RE2-5VF.....	L-21	RRP1012D.....	J-34	S5-5V.....	L-19	SF7-8000DA.....	E-18
PRSL9839PI.....	D-22	Q50I8/OT-0A.....	K-10	RE5-5VFD.....	L-21	RRP1024AD.....	J-34	S5-6SV.....	L-19	SF7-8001A.....	E-17
PRSL9841PI.....	D-22	Q50I8/B0-0E.....	K-10	RE5-5VFD.....	L-21	RRP1110A.....	J-34	S940700075.....	K-7	SF7-8001DA.....	E-18
PRSL9844PI.....	D-22	Q50ID/OT-0A.....	K-10	RF110095.....	A-8	RRP1230A.....	J-34	SBN132.....	B-13	SF7-8005A.....	E-17
PRSL9845PI.....	D-22	Q50ID/B0-0E.....	K-10	RF110110.....	A-8	RS-LC3.....	J-26	SBN163.....	B-13	SF7-8005DA.....	E-18
PRSL9849PI.....	D-22	Q50IH/00-0E.....	K-10	RF120016.....	A-1	RS-MI10A.....	J-25	SBN190.....	B-13	SF7-8007DV.....	E-18
PRSL9873PI.....	D-22	Q50IH/OT-0A.....	K-10	RF120025.....	A-1	RS-MI5A.....	J-25	SBN199.....	B-13	SF7-8010A.....	E-17
PRSL9890PI.....	D-21	Q50IS/B0-0E.....	K-10	RF120040.....	A-1	RS-MV13.....	J-25	SBN232.....	B-13	SF7-8010DA.....	E-18
PRTA001MPI.....	D-20	Q50RN/OT-0A.....	K-10	RF120063.....	A-1	RS-MV31M.....	J-25	SBN263.....	B-13	SF7-8015A.....	E-17
PRTA002MPI.....	D-20	Q50RN/B0-0E.....	K-10	RF120080.....	A-1	RS-MV32M.....	J-25	SBN290.....	B-13	SF7-8015DA.....	E-18
PRTA003MPI.....	D-20	QA31-4.....	K-54	RF120100.....	A-1	RS-MV34M.....	J-25	SBN299.....	B-13	SF7-8015V.....	E-17
PRTA004MPI.....	D-20	QCM12-AD13.....	L-27	RF120160.....	A-1	RS-MV36M.....	J-25	SBN332.....	B-13	SF7-8022Z.....	E-18
PRTA005MPI.....	D-20	QCM16-AD15.8.....	L-27	RF120250.....	A-1	RS-TA14.....	J-23	SBN363.....	B-13	SF7-8030A.....	E-17
PRTA006MPI.....	D-20	QCM20-AD15.8.....	L-27	RF120400.....	A-1	RS-TB14.....	J-23	SBN390.....	B-13	SF7-8030DA.....	E-18
PRTA007MPI.....	D-20	QCM20-AD21.2.....	L-27	RF120630.....	A-1	RS-TC23.....	J-23	SBN399.....	B-13	SF7-8030V.....	E-17
PRTA008MPI.....	D-20	QCM25-AD25.....	L-27	RF121000.....	A-1	RS-TM14.....	J-23	SBN432.....	B-13	SF7-8038Z.....	E-18
PRTA011MPI.....	D-20	QCM32-AD34.5.....	L-27	RF121250.....	A-1	RS-TSL.....	J-24	SBN463.....	B-13	SF7-8038DV.....	E-18
PRTA012MPI.....	D-20	QCM40-AD42.5.....	L-27	RF200150.....	A-8	RS-TT13.....	J-23	SBN490.....	B-13	SF7-8050V.....	E-17
PRTA0150PE.....	D-21	QCM50-AD54.5.....	L-27	RF200200.....	A-8	RS-WIFI 12.....	J-23	SBN499.....	B-13	SF7-8060V.....	E-17
PRTA0151PE.....	D-21	QCM63-AD54.5.....	L-27	RF380016.....	A-8	RS-WIFI 2.....	J-23	SBQ1000.....	L-38	SF7-815DV.....	E-18
PRTA0152PE.....	D-21	QF14/BP-1F.....	K-9	RF380025.....	A-8	R511310.....	K-48	SBQ1005.....	L-38	SF7-8420DA.....	E-18
PRTA018MPI.....	D-20	QFR8/BP-1F.....	K-9	RF380040.....	A-8	RT110.....	B-11	SBQ1015.....	L-38	SF7-850DV.....	E-18
PRTA019MPI.....	D-20	QFRN/BP-1F.....	K-9	RF380063.....	A-8	RT120.....	B-11	SBQ1020.....	L-38	SF808A.....	H-20
PRTA022MPI.....	D-20	QFRS/BP-1F.....	K-9	RF380100.....	A-8	RT60.....	B-11	SBQ1025.....	L-38	SF808B.....	H-20
PRTA023MPI.....	D-20	QM19/OP-0F.....	K-9	RF380160.....	A-8	RT80.....	B-11	SBR1000.....	L-38	SF809A.....	H-20
PRTA026MPI.....	D-20	QM1C/OP-0F.....	K-9	RF380250.....	A-8	RTA110.....	B-11	SBR1005.....	L-38	SF809B.....	H-20
PRTA027MPI.....	D-20	QMR7/ON-0F.....	K-9	RF380400.....	A-8	RTA210.....	B-11	SBR1010.....	L-38	SF812A.....	H-20
PRTA095MPI.....	D-20	QMR7/OP-0F.....	K-9	RF380650.....	A-8	RTU-485.....	C-4	SBR1020.....	L-38	SF812B.....	H-20
PRTR0160PE.....	D-22	QMR8/ON-0F.....	K-9	RF382300.....	A-8	RTU-ECAT.....	C-4	SBR1025.....	L-38	SF817A.....	H-20
PRTR1035PE.....	D-20	QMR8/OP-0F.....	K-9	RF382500.....	A-8	RTU-EN01.....	C-4	SC120A111230A.....	J-35	SF817B.....	H-20
PRVV9020PE.....	D-21	QMRN/ON-0F.....	K-9	RF383200.....	A-8	RTU-PD01.....	C-4	SC120A211230A.....	J-35	SF822B.....	H-20
PRVV9025PE.....	D-21	QMRN/OP-0F.....	K-9	RF383800.....	A-8	RXLG-1.5KW/43RJ.....	A-36	SC5X.....	M-4	SF825B.....	H-20
PRVV9035PE.....	D-21	QMRHD/ON-0F.....	K-9	RF420250.....	A-8	RXLG-1KW/75RJ.....	A-36	SC10100600.....	J-15	SF9-3CM5A.....	E-17
PS3S.....	J-19	QMRHD/OP-0F.....	K-9	RF420300.....	A-8	RXLG-200W/360RJ.....	A-36	SC10251700.....	J-15	SF9-3HA25.....	E-18
PSC-100N.....	B-63	QMLR/ON-0F.....	K-9	RF420420.....	A-8	RXLG-200W/91RJ.....	A-36	SC10501200.....	J-15	SF9-3HA45.....	E-18
PSC-25/230.....	B-63	QMLR/OP-0F.....	K-9	RF824200.....	A-8	RXLG-2KW/32RJ.....	A-36	SCT-16-6X6.....	C-23	SF9-3MD5A.....	E-17
PSC-5/1000 PV.....	B-65	QMRN/OP-0F.....	K-9	RF825000.....	A-8	RXLG-3KW/26RJ.....	A-36	SCT-20-8X8.....	C-23	SF9-8/5A.....	E-17
PSC-5/1500 PV.....	B-65	QMR5/OP-0F.....	K-9	RF826500.....	A-8	RXLG-300W/250RJ.....	A-36	SCT-25-10X10.....	C-23	SF9-8/7DA.....	E-18
PSC2-25/230 TT.....	B-63	QXC/A0-1A.....	K-11	RF828200.....	A-8	RXLG-300W/70RJ.....	A-36	SCT-25-8X10.....	C-23	SF9-8000DA.....	E-18
PSC2-25/230 TT IR.....	B-63	QXC/C0-1A.....	K-11	RF829500.....	A-8	RXLG-4KW/20RJ.....	A-36	SDI0501700.....	J-15	SF9-8001A.....	E-17
PSC3-5/1000 PV.....	B-65	QXR/A0-1A.....	K-11	RFE450200.....	A-8	RXLG-6KW/14RJ.....	A-36	SDI0501710.....	J-15	SF9-8001DA.....	E-18
PSC3-5/1000 PV IR.....	B-65	QXR/C0-1A.....	K-11	RFE450800.....	A-8	RXLG-80W/200RJ.....	A-36	SE1035.....	H-17	SF9-8005A.....	E-17
PSC3-5/1500 PV.....	B-65	QXX/00-1A.....	K-11	RFE453200.....	A-8	RXLG-80W/750RJ.....	A-36	SE1040.....	H-17	SF9-8005DA.....	E-18
PSC4-25/400 TT.....	B-63			RFE454500.....	A-8	RZ3A1A60S3.....	D-15	SE1040T.....	H-17	SF9-8007DV.....	E-18
PSC4-25/400 TT IR.....	B-63			RFX20035.....	A-8			SE1050.....	H-17	SF9-8010A.....	E-17
PSE-BC30DPBR-E3.....	K-16	R1-10V.....	L-19	RFX3801.....	A-8			SE1050T.....	H-17	SF9-8010DA.....	E-18
PSE-GM2DPBB-E3.....	K-16	R1-12V.....	L-19	RFX3802.....	A-8	S1-3.5MV.....	L-19	SE1065.....	H-17	SF9-8015A.....	E-17
PSE-PM3DPBR-E3.....	K-16	R1-3.5MV.....	L-19	RFX3803.....	A-8	S1-3.5V.....	L-19	SE1065T.....	H-17	SF9-8015DA.....	E-18
PSE-TM10DPBR-E3.....	K-16	R1-3V.....	L-19	RFX3804.....	A-8	S1-4MV.....	L-19	SE1070.....	H-17	SF9-8015V.....	E-17
PSE-TM10DR-E3.....	K-16	R1-4LV.....	L-19	RFX42035.....	A-8	S1-4SV.....	L-19	SE1070T.....	H-17	SF9-8022Z.....	E-18
PSE-TM20D-E3.....	K-16	R1-4SV.....	L-19	RFX42036.....	A-8	S1-5SV.....	L-19	SE1080.....	H-17	SF9-8030A.....	E-17
PSE-TM20DPB-E3.....	K-16	R1-5V.....	L-19	RGK400SA.....	F-2	S1-6SV.....	L-19	SE1080T.....	H-17	SF9-8030DA.....	E-18
PSM-20/230.....	B-64	R1-6V.....	L-19	RGK420SA.....	F-2	S2-3.5MV.....	L-19	SE1090.....	H-17	SF9-8030V.....	E-17
PSM-20N.....	B-64	R1-8V.....	L-19	RGK600.....	F-1	S2-3.5V.....	L-19	SE1090T.....	H-17	SF9-8038Z.....	E-18
PSM-30/750.....	B-64	R1D 415.....	B-11	RGK601.....	F-1	S2-4LV.....	L-19	SE1100.....	H-17	SF9-803DV.....	E-18
PSM-40/1000 PV.....	B-65	R2-10V.....	L-19	RGK601SA.....	F-2	S2-4SV.....	L-19	SE1100T.....	H-17	SF9-8050V.....	E-17
PSM-40/1500 PV.....	B-65	R2-12V.....	L-19	RGK610.....	F-1	S2-5SV.....	L-19	SE1201.....	H-17	SF9-8060V.....	E-17
PSM-40/600 PV.....	B-65	R2-3.5MV.....	L-19	RGK700.....	F-1	S2-6SV.....	L-19	SE1201T.....	H-17	SF9-815DV.....	E-18
PSM1-20/230.....	B-64	R2-3V.....	L-19	RGK800.....	F-1	S3N-PH-5-B01-N.....	K-7	SF1110A.....	J-35	SF9-8420DA.....	E-18
PSM1-20N.....	B-64	R2-4LV.....	L-19	RGK900.....	F-1	S3N-PH-5-B01-P.....	K-7	SF1400A.....	J-35	SF9-850DV.....	E-18
PSM1-30/750 IR.....	B-64	R2-4SV.....	L-19	RGK900MC.....	F-1	S3N-PH-5-B03-OZ.....	K-8	SF1525A.....	J-35	SFH125.....	B-13
PSM2-20/230 TT.....	B-64	R2-5SV.....	L-19	RGK900SA.....	F-1	S3N-PH-5-FG01-N.....	K-7	SF1K400A.....	J-35	SFH225.....	B-13
PSM2-40/230 SG.....	B-66	R2-6V.....	L-19	RGK900SA.....	F-1	S3N-PH-5-FG01-P.....	K-7	SF1K525A.....	J-35	SFN-4K1-DCU.....	E-19
PSM3-30/750 TNC.....	B-64	R2-8V.....	L-19	RGK900SA.....	F-1	S3N-PH-5-FG03-OZ.....	K-8	SF263.....	B-13	SFN-4K1-F.....	E-19
PSM3-30/750 TNC IR.....	B-64	R2D 415.....	B-11	RGK900SA.....	F-1	S3N-PH-5-M01-N.....	K-7	SF4-2/5A.....	E-17	SFN-4K1-I.....	E-19
PSM3-40/1000 PV.....	B-65	R2U012AD.....	J-33	RGK900SA.....	F-1	S3N-PH-5-M01-P.....	K-7	SF4-2/7DA.....	E-18	SFN-4K1-U.....	E-19
PSM3-40/1000 PV IR.....	B-65	R2U024AD.....	J-33	RGK900SA.....	F-1	S3N-PH-5-M03-OZ.....	K-8	SF4-2000DA.....	E-18	SFN-4K3-3I.....	E-19
PSM3-40/1500 PV.....	B-65	R2U230A.....	J-33	RGK900SA.....	F-1	S3N-PR-5-B01-N.....	K-7	SF4-2001A.....	E-17	SFN-4K3-3U.....	E-19
PSM3-40/1500 PV IR.....	B-65	R2U400A.....	J-33	RGK900SA.....	F-1	S3N-PR-5-B01-PD.....	K-7	SF4-2001DA.....	E-18	SFN-4K3-UIF.....	E-19
PSM3-40/600 PV.....	B-65	R4D 415.....	B-11	RGK900SA.....	F-1	S3N-PR-5-B01-PL.....	K-7	SF4-2005A.....	E-17	SFN-5K1-DCU.....	E-19
PSM3-40/600 PV IR.....	B-65	R5-10V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-B03-OZ.....	K-8	SF4-2005DA.....	E-18	SFN-5K1-F.....	E-19
PSM4-20/400 TT.....	B-64	R5-12V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C01-N.....	K-7	SF4-2007DV.....	E-18	SFN-5K1-I.....	E-19
PSM4-40/400 SG.....	B-66	R5-3.5SV.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C01-PD.....	K-7	SF4-2010A.....	E-17	SFN-5K1-U.....	E-19
PSP1002.....	L-36	R5-3V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C03-OZ.....	K-8	SF4-2010DA.....	E-18	SFN-5K1-DCU.....	E-19
PSP1005.....	L-36	R5-4LV.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C11-PL.....	K-7	SF4-2015A.....	E-17	SFN-7K1-DCU.....	E-19
PSR1230A.....	J-36	R5-5V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C13-OZ.....	K-8	SF4-2015V.....	E-17	SFN-7K1-F.....	E-19
PSRM12-P-7B.....	L-26	R5-6V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-FG01-N.....	K-7	SF4-2022Z.....	E-18	SFN-7K1-I.....	E-19
PSRM16-P-10B.....	L-26	R5-8V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-FG01-PD.....	K-7	SF4-2030A.....	E-17	SFN-7K1-U.....	E-19
PSRM20S-P-12B.....	L-26	RAM16/M12H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-FG01-PL.....	K-7	SF4-2030DA.....	E-18	SFN-7K1DC-I.....	E-19
PT1-10V.....	L-19	RAM20/M16H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-FG03-OZ.....	K-8	SF4-2030V.....	E-17	SFN-7K3-3I.....	E-19
PT2-10V.....	L-19	RAM25/M20H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M01-N.....	K-7	SF4-2038Z.....	E-18	SFN-7K3-3U.....	E-19
PT2-12V.....	L-19	RAM32/M25H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M01-PD.....	K-7	SF4-203DV.....	E-18	SFN-7K3-UIF.....	E-19
PT5-13V.....	L-19	RAM40/M32H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M01-PL.....	K-7	SF4-2050V.....	E-17	SFN-9K1-DCU.....	E-19
PTF/30.....	B-45	RAM50/M40H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M03-OZ.....	K-8	SF4-2060V.....	E-17	SFN-9K1-F.....	E-19
PTF/35.....	B-45	RC110 415.....	B-11	RGK900SA.....	F-1	S3N-PR-5-T51-N.....	K-7	SF4-215DV.....	E-18	SFN-9K1-I.....	E-19
PTF/45.....	B-45	RC60 415.....	B-11	RGK900SA.....	F-1	S3N-PR-5-T51-PD.....	K-7	SF4-2420			

SFN-9K1DC-I	E-19	SM1R2500	A-9	SOB965660	J-13	SVF113H	H-19	T3CR 160L-4 B5	A-39	TMS1055	L-41
SFN-9K3-3I	E-19	SM1R3200	A-9	SOM020100	J-15	SVF114H	H-19	T3CR 160L-6	A-38	TMS1060	L-41
SFN-9K3-3U	E-19	SM1R4000	A-9	SOM040200	J-15	SVF115H	H-19	T3CR 160L-6 B5	A-40	TMS1065	L-41
SFN-9K3-UIF	E-19	SM1X1111	A-10	SP1	L-21	SVF116H	H-19	T3CR 160M-4	A-37	TMS1070	L-41
SFR-APF4-100/0.4B	F-13	SM1X1120	A-10	SP2	L-21	SVN121	B-17	T3CR 160M-4 B5	A-39	TMS1075	L-41
SFR-APF4-150/0.4B	F-13	SM1X1211	A-10	SP5	L-21	SVN122	B-17	T3CR 160M-6	A-38	TMS1080	L-41
SFR-APF4-30/0.4B	F-13	SM1X1220	A-10	SPA801	B-16	SVN123	B-17	T3CR 160M-6 B5	A-40	TMS1085	L-41
SFR-APF4-50/0.4B	F-13	SM1X1311	A-10	SPB040D	B-16	SVN126	B-17	T3CR 160M1-2	A-37	TMS1090	L-41
SFR-APF4-75/0.4B	F-13	SM1X14230	A-10	SPB040N	B-16	SVN131	B-17	T3CR 160M1-2 B5	A-39	TMS1100	L-41
SFR-SVG4-100/0.4B	F-14	SM1X14400	A-10	SPB140D	B-16	SVN132	B-17	T3CR 160M2-2	A-37	TMS1105	L-41
SFR-SVG4-30/0.4B	F-14	SM1X16024	A-10	SPB240D	B-16	SVN223	B-17	T3CR 160M2-2 B5	A-39	TMS1110	L-41
SFR-SVG4-50/0.4B	F-14	SM1X16110	A-10	SPB240R	B-16	SVN351	B-17	T3CR 180L-4	A-37	TMS1115	L-41
SFR-SVG4-75/0.4B	F-14	SM1X16230	A-10	SPB440D	B-16	SVN391	B-17	T3CR 180L-4 B5	A-39	TMS1120	L-41
SFT125	B-13	SM1X16400	A-10	SPB440R	B-16	SVN411	B-17	T3CR 180L-6	A-38	TMS1125	L-41
SFT140	B-13	SM1X1740P	A-10	SPN802R	B-16	SY-CP4A-F	I-16	T3CR 180L-6 B5	A-40	TMS1130	L-41
SFT240	B-13	SM1X1745P	A-10	SPR-024-B	L-31	SY-CP4A-M	I-16	T3CR 180M-2	A-37	TMS1135	L-41
SFT440	B-13	SM1X18200R	A-10	SPR-034-B	L-31			T3CR 180M-2 B5	A-39	TMS1140	L-41
SGB8850200	J-16	SM1X18S	A-10	SPR-060-B	L-31			T3CR 180M-4	A-37	TMS1145	L-41
SGB8890200	J-16	SM1X3040P	A-10	SPR-071-B	L-31			T3CR 180M-4 B5	A-39	TMST	J-17
SGT8658500	J-16	SM1X3040R	A-10	SPR-100-B	L-31			T3CR 200L1-2	A-37	TMSTA440	J-17
SGT8670500	J-16	SM1X3141P	A-10	SPR-120-B	L-31			T3CR 200L1-2 B5	A-39	TN120SE	M-5
SGT8678500	J-16	SM1X3141R	A-10	SPR-140-B	L-31			T3CR 200L1-4	A-37	TN70SE	M-5
SGT8690500	J-16	SM1X3150R	A-13	SPR-158-B	L-31			T3CR 200L1-4 B5	A-39	TNE180S230A	J-33
SGT8698500	J-16	SM1X3241P	A-10	SPR-178-B	L-31			T3CR 200L1-6	A-38	TNE30S024AD	J-33
SGT8850200	J-16	SM1X3241R	A-10	SPR-215-B	L-31			T3CR 200L1-6 B5	A-40	TNE30S110A	J-33
SGT9834300	J-16	SM1Z1701P	A-10	SPR-245-B	L-31			T3CR 200L2-2	A-37	TNE30S230A	J-33
SGT9854300	J-16	SM1Z1705P	A-10	SPR-306-B	L-31			T3CR 200L2-2 B5	A-39	TNE30S400A	J-33
SGT9874300	J-16	SM1Z1715R	A-10	SSM1089-04	L-16			T3CR 200L2-6	A-38	TNE60S024AD	J-33
SGTA4650	J-16	SM20	L-37	SSM1089-04/PS	L-16			T3CR 200L2-6 B5	A-40	TNE60S230A	J-33
SGTA4654	J-16	SM25	L-37	SSM1089-16	L-16			T3CR 225M-2	A-37	TNE60S400A	J-33
SJ-100/J505B	K-27	SM2R5000	A-9	SSM1089-16/PS	L-16			T3CR 225M-2 B5	A-39	TOP1000	L-38
SJ-100/J505B3	K-27	SM2R6300	A-9	SSM12-6.5	L-25			T3CR 225M-6	A-38	TOP1005	L-38
SJ-100/J510B	K-27	SM2X1111	A-10	SSM16-08	L-25			T3CR 225M-6 B5	A-40	TOP1010	L-38
SJ-100/J510B3	K-27	SM2X1120	A-10	SSM1989-04	L-16			T3CR 225M1-4	A-37	TOP1025	L-38
SJ-100/J520B	K-27	SM2X1211	A-10	SSM1989-04/PS	L-16			T3CR 225M1-4 B5	A-39	TOP1030	L-38
SJ-100/J520B3	K-27	SM2X1220	A-10	SSM1989-16	L-16			T3CR 225S-4	A-37	TOP1035	L-38
SJ-100/K505B	K-27	SM2X1311	A-10	SSM1989-16/PS	L-16			T3CR 225S-4 B5	A-39	TOP1040	L-38
SJ-100/K505B3	K-27	SM2X14230	A-10	SSM20-12	L-25			T3CR 250M1-2	A-37	TOP1045	L-38
SJ-100/K510B	K-27	SM2X14400	A-10	SSM25-16	L-25			T3CR 250M1-2 B5	A-39	TOP1050	L-38
SJ-100/K510B3	K-27	SM2X16024	A-10	SSM32-22	L-25			T3CR 250M1-4	A-37	TOP1055	L-38
SJ-100/K520B	K-27	SM2X16110	A-10	SST4/15-04	L-16			T3CR 250M1-4 B5	A-39	TOP1100	L-38
SJ-100/K520B3	K-27	SM2X16230	A-10	SST4/25-04	L-16			T3CR 250M1-6	A-38	TOP1105	L-38
SJ-105/J510B	K-27	SM2X16400	A-10	SST4/35-04	L-16			T3CR 250M1-6 B5	A-40	TOP2000	L-38
SJ-105/J510B3	K-27	SM2X18200R	A-10	SST4/45-04	L-16			T3CR 250M2-2	A-37	TP04G-AL-C	C-14
SJ-105/J520B	K-27	SM30	L-37	SST4/55-04	L-16			T3CR 250M2-2 B5	A-39	TP04G-AL-2	C-14
SJ-105/J520B3	K-27	SM35	L-37	SST7/25-04	L-16			T3CR 250M2-4	A-37	TP04G-AS2	C-14
SJ-105/K510B	K-27	SM3R7500	A-9	SST7/45-04	L-16			T3CR 250M2-4 B5	A-39	TP04P-16TPIR	C-14
SJ-105/K510B3	K-27	SM3R9000	A-9	SST7/60-04	L-16			T3CR 250M2-6	A-38	TP04P-22XA1R	C-14
SJ-105/K520B	K-27	SM3R9900	A-9	SST7/80-04	L-16			T3CR 250M2-6 B5	A-40	TP04P-32TPIR	C-14
SJ-105/K520B3	K-27	SM40	L-37	SSTP4/20-16	L-16			T3CR 280M1-2	A-37	TP08G-BT2	C-14
SJ-106/JM8B	K-27	SM45	L-37	SSTP4/30-16	L-16			T3CR 280M1-2 B5	A-39	TP1	J-32
SJ-106/JM8B3	K-27	SM51	L-37	SSTP4/40-16	L-16			T3CR 280M1-4	A-37	TP19U230B	H-22
SJ-106/KM8B	K-27	SM60	L-37	SSTP4/50-16	L-16			T3CR 280M1-4 B5	A-39	TP19U230B54	H-22
SJ-106/KM8B3	K-27	SM76	L-37	SSTP7/30-16	L-16			T3CR 280M1-6	A-38	TP70P-16TPIR	C-14
SJ-107/J5BB	K-27	SMB8650510	J-16	SSTP7/40-16	L-16			T3CR 280M1-6 B5	A-40	TP70P-21EX1R	C-14
SJ-107/J5BB3	K-27	SMB8670910	J-16	SSTP7/60-16	L-16			T3CR 280M2-2	A-37	TP70P-22XA1R	C-14
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SJ-107/K5BB3	K-27	SMT8628520	J-16	ST 01	K-11			T3CR 280M2-4	A-37	TP70P-32TPIR	C-14
SJ-301/P505P	K-27	SMX9030	A-10	ST 02	K-11			T3CR 280M2-4 B5	A-39	TPC150-W1010	C-16
SJ-301/P505P3	K-27	SMX9032	A-10	ST 03	K-11			T3CR 280M2-6	A-38	TPC190-W1010	C-16
SJ-301/P510T	K-27	SMX9033	A-10	ST 03U	K-11			T3CR 280M2-6 B5	A-40	TPC238-W1010	C-16
SJ-301/P510T3	K-27	SMX9034	A-10	ST 101	K-11			T3CR 801-2	A-37	TRT-10A230V-NC	H-21
SJ-301/P520T	K-27	SMX9035	A-10	ST 102	K-11			T3CR 801-2 B5	A-39	TRT-10A230V-NO	H-21
SJ-301/P520T3	K-27	SMX9042	A-10	ST 103	K-11			T3CR 802-2	A-37	TS-01	J-26
SJ-302/P510T	K-27	SMX9043	A-10	ST 104	K-11			T3CR 802-2 B5	A-39	TS-S M5	L-13
SJ-302/P510T3	K-27	SMX9044	A-10	ST 18-A	K-11			T3CR 802-4	A-37	TS35	L-13
SJ-302/P520T	K-27	SMX9045	A-10	ST 30-C	K-11			T3CR 802-4 B5	A-39	TS35/C	L-13
SJ-302/P520T3	K-27	SN1	J-19	ST 30-A	K-11			T3CR 802-4 B5	A-39	TS35/CF5A	L-13
SJ-305/P520T	K-27	SNL1	J-26	ST 30-C	K-11			T3CR 90L-2	A-37	TS35/CF5A	L-13
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SM1P0016	A-9	SO465320	J-15	ST 81	K-11			T3CR 90L-4	A-37	TS35/SF6	L-13
SM1P0025	A-9	SO465420	J-15	ST18-S	K-4			T3CR 90L-4 B5	A-39	TSLO25025N	L-11
SM1P0040	A-9	SO467420	J-15	ST18-V	K-4			T3CR 90L-6	A-38	TSLO25040N	L-11
SM1P0063	A-9	SO468020	J-15	ST300D	K-11			T3CR 90L-6 B5	A-40	TSLO25060N	L-11
SM1P0100	A-9	SO468420	J-15	ST303	B-17			T3CR 90S-2	A-37	TSLO25080N	L-11
SM1P0160	A-9	SO469020	J-15	ST305	B-17			T3CR 90S-4	A-37	TSLO25080N	L-11
SM1P0250	A-9	SO469420	J-15	ST312	B-17			T3CR 90S-4 B5	A-39	TSLO400040N	L-11
SM1P0400	A-9	SO765090	J-13	ST314	B-17			T3CR 90S-6	A-38	TSLO40060N	L-11
SM1P0650	A-9	SO767090	J-13	ST315	B-17			T3CR 90S-6 B5	A-40	TSLO40060W	L-11
SM1P1000	A-9	SO768090	J-13	STQMO	K-11			T3M024AD	J-33	TSLO40100N	L-11
SM1P1400	A-9	SO842074	J-13	SU213	B-17			T3M110A	J-33	TSLO40100W	L-11
SM1P1800	A-9	SO842974	J-13	SU214	B-17			T3M230A	J-33	TSLO60040N	L-11
SM1P2500	A-9	SO845070	J-13	SU215	B-17			TAP-CN03	C-17	TSLO60060N	L-11
SM1P3200	A-9	SO865070	J-13	SU842070	J-14			TAP-TR01	C-17	TSLO60060W	L-11
SM1P4000	A-9	SO865970	J-13	SU842970	J-14			TB006	I-16	TSLO60080N	L-11
SM1R0016	A-9	SO867070	J-13	SU865070	J-14			TC-CA-H/S	K-27	TSLO60080W	L-11
SM1R0025	A-9	SO867970	J-13	SU865970	J-14			TC-IC-H/S	K-27	TSLO60100N	L-11
SM1R0040	A-9	SO868070	J-13	SU867070	J-14			TCO50	M-5	TSLO60100W	L-11
SM1R0063	A-9	SO868970	J-13	SU942460	J-14			TD-02	K-16	TSLO80040N	L-11
SM1R0100	A-9	SO869070	J-13	SU963460	J-14			TD-09	K-16	TSLO80060N	L-11
SM1R0160	A-9	SO869970	J-13	SU965460	J-14			TG 3102-24V	H-23	TSLO80060W	L-11
SM1R0250	A-9	SO941460	J-13	SU967460	J-14			TG 3200-24V	H-23	TSLO80080N	L-11
SM1R0400	A-9	SO942460	J-13	SUL842070	J-14			THB510	I-16	TSLO80080W	L-11
SM1R0650	A-9	SO943460	J-13	SUL842970	J-14			THC1230A	J-34	TSLO80100N	L-11
SM1R1000	A-9	SO945460	J-13	SUL865970	J-14			TMD	J-17	TSLO80100W	L-11
SM1R1400	A-9	SO965460	J-13	SUL942460	J-14			TMM1	J-17	TSLO80060N	L-11
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