

JAN2011

# DIAMOND®

## OPERATING/SAFETY ORIGINAL INSTRUCTIONS ELECTRO-HYDRAULIC REBAR CUTTER

### DC-SERIES

DC-13LV	DC-16W	(DC-16LZ)
DC-20W, DC-20DW	DC-20HL	DC-20WH
DC-25X	DC-25W	DC-32WH



DC-16W



DC-20HL



DC-32WH



DC-25X

TO REDUCE THE RISK OF INJURY, YOU MUST READ AND  
UNDERSTAND THIS INSTRUCTIONS

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THESE TOOLS ARE FOR INDUSTRIAL USE ONLY.

## GENERAL SAFETY RULES

WARNING: REARD AND UNDERSTAND ALL INSTRUCTIONS.

**Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.** The term “power tool” in all of the warnings listed below refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

### WORK AREA SAFETY

- **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

### ELECTRICAL SAFETY

- **Power tools plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tools will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- **Do not use AC only rated tools with a DC power supply.**

### PERSONAL SAFETY

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.

- **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- **Avoid accidental starting. Ensure the switch is in the off-position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
- **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** User of these devices can reduce dust-related hazards.
- **Keep handles dry, clean and free from oil and grease.** Slippery hands cannot safely control the power tool.

#### POWER TOOL USE AND CARE

- **Do not force the power tool. Use the correct power tools for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- **Do not use the power tool if the switch does not turn in on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Do not cover air vents or operate the tool on dirt.** Use a plywood base under the tool to keep armature and fan clean. If the vents are covered, the motor will overheat and may burn out.
- **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

- **Maintain power tools. Check for misalignment or binding or moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

#### SERVICE

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

#### SPECIFIC SAFETY RULES

- **Hold power tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.** Contact with a “live” wire will make exposed metal parts of the tool “live” and shock the operator.
- **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Never leave the trigger locked “ON”.** Before plugging the tool in, check that the trigger lock is “OFF”. Accidental start-ups could cause injury.
- **Keep hand away from cutting area and moving parts.**
- **Do not use dull or damaged blades, cutter blocks and rollers.** Damaged part(s) can break easily or could cause injury.
- **Maintain labels and nameplates.**

## GROUNDING

- **WARNING:** Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the cord or plug is damaged. If damaged, have it repaired by a DIAMOND service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

### Grounded Tools (Single Insulated Tool):

- Tools with Three Prong Plugs Tools have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal. Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances.

### Double Insulated Tools:

- Tools with Two Plugs. Tool marked "Double Insulated" do not require grounding. They have a special double insulation system.

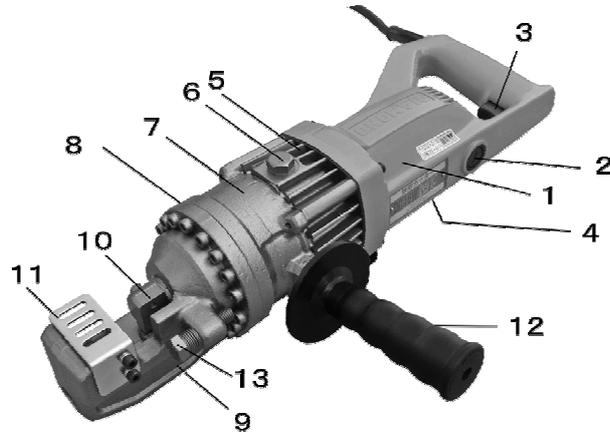
## EXTENSION CORDS

- Grounded tools require a three wire extension cord. Double insulation tools can use either a two or three wire extension cord. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting loss of power and possible tool damage. Refer to the table shown to determine the required minimum wire size.

### Recommended Minimum Wire Gauge for Extension Cords

	110 / 115V (50/60Hz)	230V (50/60Hz)
Cable length	Cable size (AWG)	Nominal diameter
Up to 10 m (25 ft.)	16	1.0mm <sup>2</sup>
Up to 15 m (50 ft.)	14	1.25mm <sup>2</sup>
Up to 30 m (100 ft.)	10	1.5mm <sup>2</sup>

<b>PARTS NAME AND SPECIFICATIONS</b>
--------------------------------------



- |                             |                              |                                |
|-----------------------------|------------------------------|--------------------------------|
| 1. Motor                    | 2. Carbon brush caps         | 3. Switch (Safety switch lock) |
| 4. Name plate               | 5. Pump case                 | 6. Oil-plug                    |
| 7. Cylinder                 | 8. Pressure Relief valve (*) | 9. Housing                     |
| 10. Cutter block            | 11. Cutting guard            | 12. Side handle (detachable)   |
| 13. Adjustable stopper bolt |                              |                                |

\* not visible in the Illustration

(Illustration shows DC-16W)

Model	DC-13LV	DC-16W	DC-20W, 20DW	DC-20HL
Voltage ±5%	100/115/230V AC only			
Wattage	1020W	1050W	2500W	1050W
Motor	Double insulated	Double insulated	Double insulated	Double insulated
Dimensions (L×W×H)	380×220×105mm	460×270×115mm	500×150×135mm	400×110×220mm
Weight	6.0 Kg	8.0 Kg	10.5 Kg	11.5 Kg
Max. rebar diameter	13mm	16mm	20mm	20mm
Min. rebar diameter	4mm	4mm	4mm	4mm
Max. rebar hardness	Tensile strength 650 N/mm <sup>2</sup>			
Cutting speed	1.5~2 sec.	2.5~3 sec.	4 sec.	4~5 sec.

Model	DC-20WH	DC-25X	DC-25W	DC-32WH
Voltage ±5%	100/115/230V AC only			
Wattage	1050W	1330W	2000W	2000W
Motor	Single Insulated	Single Insulated	Double insulated	Double insulated
Dimensions (L×W×H)	510x110x210mm	515x150x250mm	525x145x250mm	645x180x260mm
Weight	11.5Kg	22.5Kg	23.5 Kg	35.0 Kg
Max. rebar diameter	20mm	25mm	25mm	32mm
Min. rebar diameter	4mm	4mm	4mm	13mm
Max. rebar hardness	Tensile strength 650 N/mm <sup>2</sup>			
Cutting speed	3~4 sec.	5~6 sec.	4~6 sec.	9~13 sec.

## BASIC CUTTING INSTRUCTIONS

**Important:** Always read, understand and obey the safety instructions included with your new Electro-Hydraulic Rebar Cutter before operating this tool or any other power tool. Use Electro-Hydraulic Rebar Cutters on concrete reinforcing bars only. These tools are not to be used in cutting other kinds of metal or materials. Do not cut ungraded rebar.

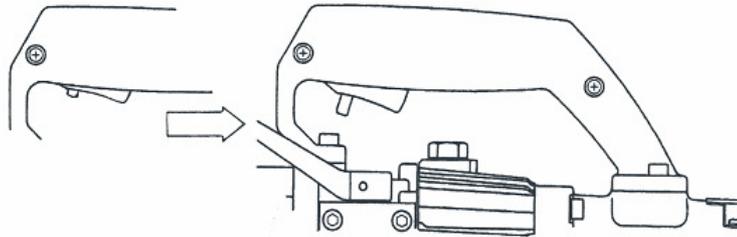
### **PRE-SUE CHECKS**

1. **WARNING:** Do not expose the tool to rain or wet conditions. Water entering a power tools will increase the risk of electric shock.
  - **WARNING:** **DC-20WH and DC-25X is single insulated tool / earthed (grounded) power tools. The plug must be connected to a properly grounded outlet. Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock. (See GROUNDING page 4)**
2. **WARNING:** Wear safety goggles, safety glasses with side shields or a face shield when using these tools.

3. Check that the power source is appropriate to the tool.  
*CARE:* If voltage is too high, the motor will burn out. If voltage is too low, insufficient power will be generated. Never use DC current.
4. *WARNING:* Avoid accidental starting. Ensure the switch is in the off-position before plugging in.

**DC-20WH and DC-25X :**

To disengage lock, pull trigger switch, lock pin will pop out.



Do not attempt to cut rebar by locking the ON/OFF switch to the ON position. This locking procedure is to be used only to warm the tool in cold climates. This is a safety issue and may cause damage to your Rebar Cutter. Always pull the ON/OFF switch by hand for each individual cut.

5. Check that cord is undamaged and that plug is not loose.  
*CAUTION:* Cut or abraded covering could result in a short and electric shock to operator
6. Check and keep work area clean and enough work space.
7. Check condition of cutter blocks and tightness of cutter block bolts. - CHECK FOR CRACKS OR DAMAGE, LOOSEN BOLTS
8. Before using, always check that the two bolts on each cutter block are properly tightened. Using a loose block will result in damage to block and housing. Also check condition of cutter blocks. If either cutting edge is dull or chipped, remove retaining bolts and rotate both blocks so that two new edges come into use. Replace and tighten bolts. (Each block has four cutting edges.) When all four cutting edges have been used or if either block is cracked or otherwise damaged, replace both blocks. *CAUTION:* A loose or cracked block may result in injury to operator.

## **CUTTING REBAR (Max. Tensile strength 650 N/mm<sup>2</sup>)**

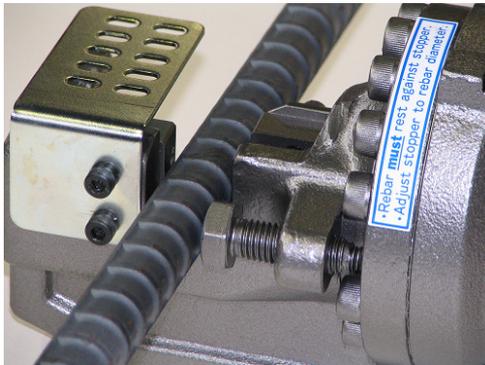
**WARNING:** There is always a chance that the cut end may shoot out, especially if less than 30cm in length. Exceeding designated material specifications will greatly increase this risk and will also damage the tool. Do not attempt to cut rebars harder, thicker or thinner than specified for the specific tool.

**DO NOT CUT SHORT PIECES:** Be especially careful when cutting off short lengths (30cm or less) as the cut end tends to fly out.

### **OPERATING INSTRUCTIONS**

#### **STOPPER BOLT ADJUSTMENT**

1. The adjustable stopper functions to maintain the rebar in the correct position during cutting and must be properly set for each size of rebar before making a cut. Screw in the stopper to provide sufficient clearance for the rebar. Keeping rebar at right-angles (90°) to front cutter block, screw out the stopper until it is just touching the rebar. Once set, the stopper needs no further adjustment while cutting rebars of the same diameter, but must be re-set for a different size rebar.



**WARNING:** Failure to correctly set the stopper will result in excessive wear of cutter blocks and **may cause cut end to fly out**. This may lead to piston and cylinder damage.

2. Make sure the unit is plugged into the proper outlet 115V/230V 50/60Hz, (Please check the voltage of your REBAR CUTTER.).

**WARNING:** Avoid accidental starting. Ensure the switch is in the OFF-position before plugging in. **DC-20WH and DC-25X** : To disengage lock, pull trigger switch, lock pin will pop out and check the switch on the OFF-position. (See **PRE-SUE CHECKS page 8**)

### **WARM UP**

3. In cold weather, you should warm up the tool for 30-60 seconds so that the hydraulic oil reaches the proper viscosity. Pull trigger-switch to extend piston then release the switch and open release valve lever when it has reached its full stroke. Repeat 3-5 times without rebar.

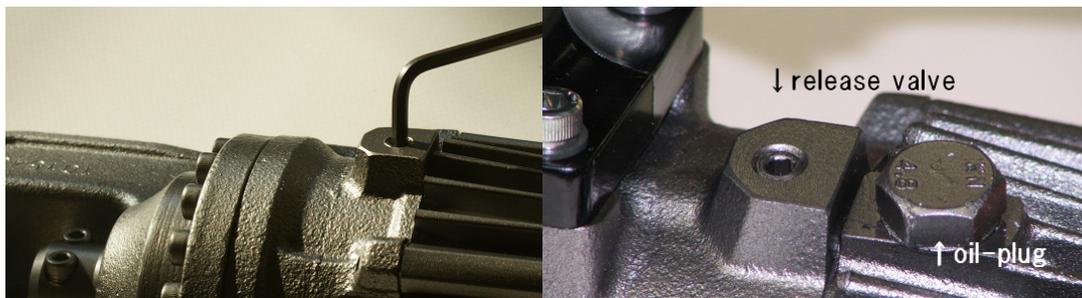
### **CUTTING**

4. Erect safety screens to protect co-workers from possible flying ends. Place a safety screen under the tool when working in high places.
5. Insert rebar between the stopper and front cutter block, making sure that it is properly seated in the U-shaped support. Keeping rebar at right angles (90 degrees) to front cutter block.
6. Press the safety switch lock (white button) (DC-13LV, DC-16W, DC-20W and DC-20DW). Pull the trigger-switch and keep depressed while the piston advances and cut rebar. (If the switch is released at an intermediate point, the piston will stop.)
7. When the cut is complete, release the switch. The piston retracts automatically. (Note that the switch cannot be re-activated until the piston has fully retracted.)
8. Switch "OFF". Disconnect tool from power outlet when not in use and before cleaning, adjusting or servicing. Do not disconnect plug from outlet by pulling the cord. Always check that the switch is OFF before plugging in.

### **RELEASE VALVE**

9. In the event that the piston should fail to return automatically for any reason (for example, you would like to retract the piston or the piston has become jammed by some reasons), use the 4mm hexagon wrench provided to slightly loosen the release valve (approx. a 1/2 turn).

N.B. Make sure to tighten the release valve before making the next cut.



(DC-16W)

(DC-20HL)

### **POINTS OF ATTENTION**

1. **If hydraulic oil exceeds 70 degrees C (158 degrees F) in temperature, power will drop.** Allow tool to cool before resuming operation. [Be particularly careful in summer, when the pump case heats up quicker.]
2. Do not cover air vents.

**CARE:** If vents are covered, motor will overheat and may burn out.

4. If a drop in power is observed and the motor is unusually hot, check the carbon-brushes. (See CARBON BRUSHES.)
5. If the piston should ever fail to retract completely, push the rear cutter block backwards to manually retract the piston or check under piston to remove any debris keeping the piston from retracting.

**CAUTION:** Use a rebar or flat metal bar for this purpose.

Never push the cutter block with any part of the hand, even if gloved.

Once the piston has been retracted, pull the trigger-switch long enough to partially advance the piston. Unplug the tool. Check the piston and housing for accumulated dirt and iron filings that may be jamming the piston. If, after cleaning, the piston still does not automatically retract when fully extended, the piston itself may be damaged. Return the tool to an authorized distributor for repair.

### **CLEANING**

Clean your tool every day, preferably immediately after use.

**WARNING:** To avoid accidents always disconnect the tool from the power supply before cleaning or performing any maintenance.

**CAUTION:** *Wear gloves to protect hands from metal splinters.*

Do not use an air gun: blasting with air can cause metal filings and/or dust to get into eyes and respiratory system. Disconnect the unit. Wipe or brush away all dirt and metal filings. Pay particular attention to the lower half of the piston, where dirt is more easily accumulated.

### **OIL-LEVEL CHECK (ADD OIL)**

As the tool is hydraulically operated, the oil-level must be checked at **preferably once a year**. Failure to maintain the oil at the proper level results in a drop in pressure and loss of power. If there is no oil leak and oil level is too low, it is thought that there is the damage or shriveled of the Air bag. Replace new air bag.

**CAUTION:** Hydraulic oil is highly flammable. Keep away from sparks and naked flame. Do not smoke. Hydraulic oil may cause inflammation of the eyes and skin. If ingested,

it could cause diarrhea and vomiting. In case of eye contact, rinse in clean water for at least 15 minutes and consult a physician. In case of skin contact, wash thoroughly with soap and water. In case of ingestion, consult a physician immediately. Do not induce vomiting.

1. Oil should be warm but not hot.
2. If piston is still moving, pinch a piece of rebar, just stopping before it actually breaks off. (It is a 1/2 movement of piston.)
3. Unplug tool from the power source.
4. Remove oil-plug and seal-washer (packing).

*CAUTION:* Never remove oil-plug when unit is hot or oil will spurt out.



(DC16W)



(DC-20HL)

5. Check that oil is level with bottom of plug hole (i.e. that pump case if full to the brim). If oil level is low, top up with fresh hydraulic oil with anti-foam and anti-abrasion properties (ISO viscosity grade VG46, e.g. Tellus46 (Shell), DTE-25 (Mobil) or Uni-Power VG46 (Esso).
6. After topping up, extract air from system. Gently tilt tool lengthwise and return it to a level position. Top up again and tilt in the opposite direction. Repeat this process until all air has been extracted.

*CARE:* Tool cannot function properly if oil contains air bubbles.

7. Replace oil-plug. The operation is now complete.
8. **If oil level is too low**, replace the oil-plug and lightly tighten. Then connect the tool to power outlet. Switch “ON” to extend piston then release the switch when it has reached its full stroke.
9. When the piston is completely retracted in the start position. Disconnect the tool from the power supply. And remove the oil-plug to let overflows oil with air (bubbles).
10. Gently tilt tool lengthwise and return it to a level position. Slowly fill the tool with fresh oil again. Replace the plug and lightly tighten, connect the tool to power supply and advance the piston a few millimeters. Again remove the oil-plug. Top up

oil-level and replace the plug.

11. Repeat this process until the pinch a piece of rebar, stopping just before it breaks off. (It is a 1/2 movement of piston.) Then check that oil is level with bottom of plug hole. This is full level of oil. *CARE:* Be careful not to pour too much oil.

*CARE:* Tool cannot function properly if oil contains air bubbles or too much oil.

12. Replace the oil plug and tighten it.
13. The operation is now complete.

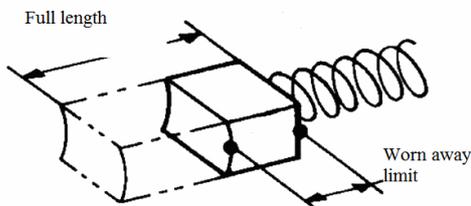
NOTE: Dispose of hydraulic oil in accordance with local regulations. Do not pour into the sea, a river, a lake or drains.

### **BOLT TIGHTNESS**

Once a week, or after every 500 cuts, check the tightness of all bolts. Especially, those bolt which fixing cutter blocks and securing the housing to the cylinder. Loose bolts will damage part(s) can break easily or could cause injury.

### **CARBON BRUSHES**

Inspect the two carbon brushes at least once every two months. (Nominal brush life is 200 hours).



*CARE:* Worn brushes will result in power loss; cause the motor to run hot and irreparably damage the armature.

1. Disconnect tool from electrical outlet.
2. Unscrew both brush caps and pull out carbon brushes.
3. Replace brushes if less than 6mm in length.

(We recommend the automatic stop carbon brush for the Model: DC-16W, DC-20DW, DC20-WH, DC-20HL, DBC-16H, HB-16W and DBR-32WH/WN.)

Automatic stop carbon brush      Parts #.7HTK999073B

Standard carbon brush              Parts #.7HTK999043B

## **OVERHAUL**

Return the unit to an authorized distributor for overhaul at least once every two years, sooner if subject to heavy use.

Ignorance of proper operating procedures can lead to accidents.

If you have any other questions about any procedures, please contact the nearest authorized distributor.

\*Specifications are subject to change without prior notice.

## CE Declaration of conformity

We declare under our sole responsibility that this product is on conformity with the following standards or standardized documents: EN60745-1, EN55014-1&2, EN61000-3-2 in accordance with directive 2006/42/EC, 2004/108/EC, 2006/95/EC.  
CE XX

Model	Description
DC XX	Rebar Cutter

## Noise Information

Measured values determined according to EN60745-1.

Typically the A-weighted noise levels are follows of this tool.

sound pressure level: XX dB(A)

sound power level: XX dB(A)

on January, 2011  
IKK Co., Ltd.  
396-59, Ashitaka Numazu City,  
Shizuoka-ken, Japan  
Yorio Irisawa, President

- 
- ① 機械指令 - 2006/42/EC 2009/12/29 日から運用 (旧 98/37/EC)  
機械の安全  
EN60745 (旧 EN50144) - 電動工具は振動値の記載が必要
- ② EMC 指令 - 2004/108/EC 2007/7/20 日から運用 (旧 89/336/EEC)  
電磁妨害をしない、受けない  
EN55014-1 -- 機器が他に干渉を与えない (エミッション)  
EN55014-2 -- 他から干渉を受けない (イミニティ)  
EN61000 -- Harmonic current 妨害高周波
- ③ 低電圧指令 - 2006/95/EC 2007/1/16 日から運用 (旧 73/23/EEC)  
定格電圧 AC50-1000V 機器の安全

