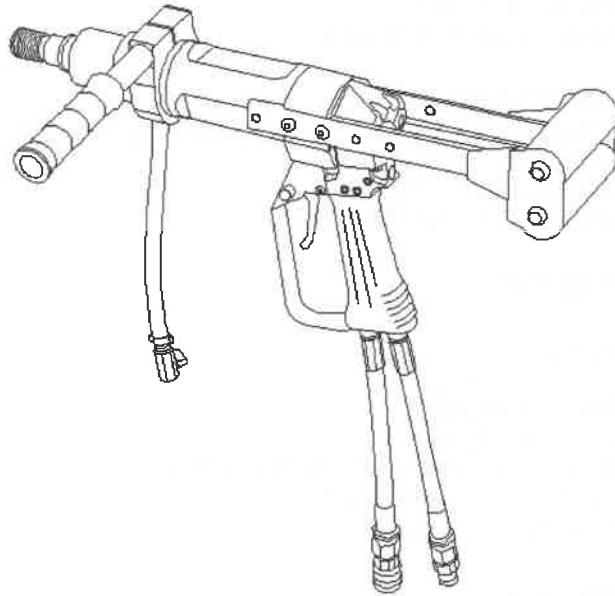


# USE - SAFETY AND MAINTENANCE MANUAL

SEPTEMBER 2004 1<sup>st</sup> Edition



## AK 46 HYDRAULIC PISTOL CORE DRILL

### IMPORTANT

**READ MANUAL BEFORE USE**

**KEEP THIS MANUAL FOR  
FUTURE CONSULTATIONS**



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## INTRODUCTION

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Dear customer,  
Congratulations for having purchased a **DOA** product. The machine you bought was manufactured with high quality materials to assure your maximum satisfaction and a long lasting service without problems. For your safety and obtaining the best result, we recommend to read this manual and respect the simple instructions contained, this will protect you from accidents and avoid damages to the equipment. Keep it always available together with its enclosures, so that it can be consulted when necessary.

### IMPORTANT

**SOME ENCLOSURES CONTAINING INFORMATION ABOUT ACCESSORY PARTS OR SAFETY MANUALS OF THE MANUFACTURER OF SUB PARTS OR SUBCOMPONENTS OF DOA TOOLS, COULD HAVE BEEN SUPPLIED TOGETHER WITH THIS MANUAL. THESE ENCLOSURES ARE AN INTEGRAL PART OF THE MANUAL AND THEY MUST BE KEPT TOGETHER WITH THE MANUAL ITSELF..**



**BE CAREFUL WHEN YOU CONNECT THE TOOL TO AN HYDRAULIC CIRCUIT WHERE ARE UNKNOWN HYDRAULIC MAXIMUM VALUES OF PRESSURE AND FLOW. FOR AVOIDING ACCIDENTS AND DAMAGES TO THE EQUIPMENT, BE SURE THAT THE MAXIMUM VALUES OF PRESSURE AND FLOW OF THE POWERING CIRCUIT ARE COMPATIBLE WITH THOSE ONE OF THE TOOL ITSELF.**

**NOTE – THE TEXT AND THE ILLUSTRATIONS IN THIS MANUAL ARE AN EXCLUSIVE PROPERTY OF DOA S.R.L. THE PERSON WHO USES THE TEXT OR REPRODUCES, EVEN PARTIALLY, ILLUSTRATIONS OR PARAGRAPHS FOR NON-AUTHORISED PURPOSES CAN BE LEGALLY LIABLE.**

**DATA, ILLUSTRATIONS AND CHARACTERISTICS OF THIS MANUAL ARE ONLY INFORMATIVE AND NOT BENDING. DOA RESERVES THE RIGHT TO MAKE MODIFICATIONS AT ANY TIME AND WITHOUT PREVIOUS NOTICE.**

## DESCRIPTION OF THE PRODUCT

**AK 46** IS A HYDRAULIC TOOL DESIGNED TO MAKE HOLES IN REINFORCED CONCRETE , BRICK WALLS, OR COMPOSITE MASONRY MATERIALS, THE TOOL CAN BE USED MANUALLY OR INSTALLED ON DRILL RIGS THAT EASE THE PENETRATION AND ASSURE A BETTER DRILLING PRECISION AND EFFORTLESS OPERATIONS.

TOOL USES DIAMOND CORE BITS FOR WET AND DRY CUT, THE MAXIMUM DRILLING CAPACITY IS 150 mm.

**AK 46** FEATURES A SAFETY HYDRAULIC VALVE THAT IN CASE OF BLOCK OF THE ROTATION, AUTOMATICALLY PUT THE TOOL IN OFF ELIMINATING THE NEED TO CONTRAST THE ROTATION FORCE WITH THE HANDS, THE TOOL TRIGGER GIVES THE POSSIBILITY TO START GRADUALLY THE ROTATION, THIS HELPS AT THE BEGINNING OF THE DRILLING. THE HANDLES ARE LONG AND WELL DISTANCED TO GIVE AN EASY AND SICURE CONTROL

TOOL IS AVAILABLE IN TWO VERSIONS : MODEL **S** AND MODEL **G** , THE DIFFERENCE IS IN THE SHAFT SPEED AND CONSEQUENTLY IN THE DRILLING CAPACITY

## TYPICAL APPLICATIONS

DRILLING REINFORCED CONCRETE , BRICKS AND MASONRY , STONE WALLS  
DRILLING OF CONCRETE PIPES  
DRILLING OF HOLES OF SIGN POST  
UNDERWATER DRILLING WORKS

## SPECIAL ACCESSORIES ON REQUEST

DRILL RIG COLUMN  
ADJUSTABLE BACK HANDLE  
PRESSURE TANK FOR WATER

## STANDARD DIAMOND CORE BITS

**AK 46** HAS A DRIVE SHAFT WITH MALE ATTACHMENT  
SHAFT THREADS ARE 1 – ¼" BSP AND SHAFT INTERIOR WITH THREAD ½" BSP

TOOL USES STANDARD DIAMOND CORE DRILL BITS.

## TYPICAL POWERING MACHINES

HYDRAULIC POWER PACKS – MINI EXCAVATORS – TRUCKS – ALL CONSTRUCTION MACHINES EQUIPPED WITH A SUFFICIENT HYDRAULIC CIRCUIT

# AK 46 TECHNICAL CHARACTERISTICS

## WEIGHT AND DIMENSIONS

WEIGHT WO HANDLES		Kg. 8
WEIGHT WITH HANDLES		Kg 11,5
HEIGHT	cm	18
LENGTH	cm	43
Ø OF THE SHAFT	mm	16

## PERFORMANCES

TORQUE max	8 KGM ( 84 Nm ) @ 140 bar oil pressure
SPEED model <b>S</b>	1000 RPM @ 20 L/min oil flow 1500 RPM @ 30 L/min oil flow
SPEED model <b>G</b>	400 RPM @ 20 L/min oil flow 600 RPM @ 30 L/min oil flow

	AK46 MOD G		AK46 MOD S	
RPM	400 @ 20 L / min	600 @ 30 L / min	1000 @ 20 L / min	1500 @ 30 L / min
HOLE DIAMETER	100 - 160	50 - 100	40 - 100	20 - 50
	Ø mm		Ø mm	
CUTTING SPEED	2 - 3,5	2 - 4	2 - 4,5	2 - 4
	m / sec		m / sec	

## HYDRAULIC CHARACTERISTICS

FLOW min max	20 - 34 l/min
OPERATING PRESSURE	Bar 90 - 200
TOLERABLE BACK PRESSURE	max 90 bar
EHTMA GROUP	C - D

## NOTE

THE TOOL TORQUE IS ADJUSTED AT THE FACTORY TO ASSURE THE BEST PERFORMANCES – THE CONTROL OF THE ROTATION FORCE ( TORQUE ) IS REGULATED BY TWO HYDRAULIC VALVES INTEGRATED IN THE TOOL THAT GUARANTEE THAT THE MAXIMUM ADMISSIBLE FORCE IS NOT EXCEEDED, THE VALVES GUARANTEE ALSO THAT WHEN THE TOOL ROTATION IS BLOCKED BY THE MATERIAL, THE TOOL AUTOMATICALLY GOES IN "OFF", THE OPERATOR DO NOT NEED THEN TO CONTRAST THE TOOL ROTATION FORCE EVEN IF THE TRIGGER IS NOT RELEASED, TO CONTINUE DRILLING IT WILL BE ENOUGH TO RETRACT THE TOOL AND START AGAIN.

THIS CHARACTERISTICS IS USEFUL ALSO WHEN THE TOOL IS USED ON DRILL RIGS ( SO WITH THE TRIGGER LOCKED ) WHEN THE BIT IS BLOCKED IN THE MATERIAL THE DRILL RIG IS NOT EXPOSED TO USELESS PERMANENT TORSIONS

- PAY THE MAXIMUM ATTENTION WHEN YOU WORK NEAR ENERGIZED ELECTRIC LINES THAT CAN BE BURIED, WALLED OR HIDDEN. BE VERY CAREFUL ALSO TO GAS AND WATER PIPES, TELEPHONE LINES OR OTHER BURIED CABLES OR DUCTS.



## **THE CONTACT OF THE WATER WITH ELECTRIC ENERGIZED LINES CAN CAUSE SERIOUS ACCIDENTS AND THE DEATH**

- THE WORKING AREA MUST BE FREE FROM OBJECTS THAT MAY FALL, GET SPOILED, CATCH FIRE, MAKE TRIP UP OR MAKE THE OPERATION DIFFICULT OR DANGEROUS.
- WARN AND MOVE AWAY IMPRUDENT BYSTANDERS OR OTHER PEOPLE NOT AUTHORIZED OR INVOLVED WITH THE JOB.
- IF YOU WORK IN NARROW OR CLOSED ROOMS ALWAYS PLAN AN ESCAPE WAY OUT THAT MUST BE KEPT FREE.
- WHEN OPERATING THE TOOL WITH WATER TRY TO FORESEE WHERE THE WATER WILL FALL AND IN CASE CREATE THE OPPORTUNE DEFENCES AND COUNTER MEASURES, MAKE SURE THAT POINT YOU ARE DRILLING IS THE RIGHT ONE AND THAT THERE ARE THE PROPER AUTHORIZATIONS OF THE OWNERS OR OF THE LOCAL AUTHORITIES BEFORE STARTING THE WORKS.
- BEFORE WORKING ALWAYS FORESEE THE EFFECT OF THE OPERATION YOU ARE DOING AND TAKE OPPORTUNE DEFENCES AND COUNTER MEASURES FOR PREVENTING POSSIBLE DAMAGES OR DANGEROUS SITUATIONS.
- BEFORE USING THE EQUIPMENT MAKE SURE AND PREVENT VEHICLES, MACHINES OR PEOPLE FROM PASSING ON THE EQUIPMENT DISCHARGE HOSES OR HYDRAULIC CONNECTIONS
- ALWAYS CONNECT TOOLS TO THE OPERATING MACHINE OR POWER PACK BEFORE STARTING THE ENGINE.
- WHEN WORKING IN NOISY AMBIENT , BE SURE THAT YOUR VOICE MESSAGE OR WARNING OR OTHER SIGNAL GIVEN TO YOUR COLLEAGUES IT HAS REALLY BEEN UNDERSTOOD AND LISTEN . DO NOT TRUST TO ORAL MESSAGE GIVEN WHEN ENGINES OR OTHER NOISY EQUIPMENT ARE IN USE. **GOOD COMMUNICATION MEANS SAFETY**
- DO NOT INSPECT OR DISASSEMBLE THE TOOL WITH THE HYDRAULIC HOSES CONNECTED TO TOOL
- KEEP IN A SAFE DRY PLACE THIS MANUAL AND ITS ENCLOSURES, SO THEY CAN BE ALWAYS AVAILABLE FOR FUTURE CONSULTATIONS

- DO NOT DRILL ON SURFACES MADE TOO SLIPPERY BY THE CONCRETE MUD AND PAY ATTENTION AT THE BEGINNING OF THE HOLE BECAUSE THE BITS TEND TO ESCAPE AWAY WHEN THE INITIAL NICH ( THE ROUND CIRCULAR CUT ) IS NOT YET TRACED
- DO NOT ACTIVATE THE TOOL HOLDING IT WITH ONE HAND ONLY, ALWAYS USE IT WITH BOTH HANDS
- DO NOT CARRY OUT REPAIRS, INSPECTIONS OR CLEANING OF THE POWER PACK WITH THE HYDRAULIC HOSES CONNECTED OR EVEN WORSE WITH THE PACK IS WORKING.
- DO NOT USE AND DISCARD IMMEDIATELY BAD, WORN, DEFORMED OR DAMAGED CORE BITS, ABSOLUTELY AVOID TO INSTALL BITS ON THE TOOL BY IMPROVISED FASTENINGS, THIS WILL IMMEDIATELY END UP WITH ACCIDENTS OR EQUIPMENT DAMAGES.
- DO NOT PULL THE TOOL BY THE HOSES ALWAYS GRAB IT IN ITS SOLID PARTS
- DO NOT MODIFY THE TOOL TRYING TO IMPROVE PERFORMANCES .

## **NEVER USE THE TOOL IF :**

- THE TOOL SHAFT IS DEFORMED OR IF IT IS OFF CENTER OR IF THE DIAMOND BITS ARE NOT THE RIGHT ONES OR NOT EFFICIENT AND SHARP OR IF ONE OR MORE DIAMOND SEGMENTS ( PLAQUETTES ) MISSING
- IF THE RETURN SPRING OF THE TRIGGER IS BLOCKED OR NOT PERFECTLY EFFICIENT AND OPERATIVE
- THE DRILL RIG IS NOT PERFECTLY BLOCKED AND FIRM TO THE SURFACE TO DRILL
- IF YOU ARE NOT ABSOLUTELY SURE ABOUT THE RESULTS AND EFFECTS OF THE ACTION THAT YOU ARE DOING



**DO NOT TRY TO ADJUST THE TORQUE CONTROL VALVE INSTALLED ON THE BACK OF TOOL TRYING TO INCREASE THE TORQUE – THE VALVE IS REGULATED AT THE FACTORY AND SHOULD BE ADJUSTED ONLY AT THE FACTORY OR BY A DOA SERVICE AGENT**

**AK 46 IS A TOOL THAT GENERATES A TORQUE THAT CAN BE EASILY CONTROLLED AND CONTRASTED MANUALLY.**

**FOR THE MAXIMUM SAFETY AND FOR AVOIDING ACCIDENTS IT IS MANDATORY THAT TOOL IS USED WITH TWO HANDS TO HAVE ALWAYS A SECURE CONTROL OF THE OPERATIONS. IMMEDIATELY STOP WORK IF THE RETURN SPRING OF THE TRIGGER IS BLOCKED OR INEFFICIENT**

**CONTACT DOA FOR MORE INFORMATION IN THIS RESPECT**



**DO NOT USE THE TOOL WITH IMPROVISED ADAPTORS THAT MOUNT THE BITS ON THE TOOL SHAFT, IF THE CORE BIT IS BADLY INSTALLED THIS MAY CAUSE ACCIDENTS AND DAMAGE TO THE EQUIPMENT**

**IN CASE YOU NEVER USED BEFORE A CORE DRILL, THE FIRST TIME USE TOOL ONLY WITH THE PRESENCE OF AN EXPERT, EVEN IF YOU HAVE EXPERIENCE IN TRADITIONAL DRILLS REMEMBER THAT DIAMOND CORE DRILLING HAS PROBLEMATICS AND REACTIONS DIFFERENT THEN THOSE OF NORMAL DRILLS OR GRINDERS**

**IN PARTICULAR THE HOLE BEGINNING CAN CREATE UNEXPECTED REACTIONS OF THE CORE BIT IF ARE NOT USED THE "CENTERING POINTS", IS THEREFORE IMPORTANT TO HAVE EXPERIENCE AND KNOW THE "JOB TRICKS" TO MAKE A GOOD WORK AND AVOID ACCIDENTS AND DAMAGE TO THE EQUIPMENT AND TO THE THINGS**

## USE OF THE TOOL



THIS MANUAL CAN NOT BE NOT A COURSE OF DIAMOND CORE DRILLING OR CONTROLLED DEMOLITIONS TECHNIQUES, FOR FUNCTIONS THE CORE DRILLING IS A SPECIALIST WORK THAT HAS TO BE MADE BY TRAINED AND EXPERIENCED PERSONNEL

THE OPERATOR MUST THEN KNOW ALL THE PRINCIPAL DRILLING PARAMETERS THAT ARE:

- **A** THE CORRECT RATIO BETWEEN THE HOLE DIAMETER AND THE SPEED OF THE BITS ( RIDE PER MINUTE OF THE SHAFT )
- **B** THE RIGHT RATIO AND ADEQUACY OF THE TYPE OF DIAMOND BITS WITH THE TYPE OF MATERIAL TO BE DRILLED
- **C** THE SPEED OF THE BIT DEPENDING IF WET CUT BITS OR DRY BITS ARE USED
- **D** HOW TO CORRECTLY INSTALL AND SECURE THE DRILL RIG TO THE SURFACE

AND IN GENERAL TO EVALUATE THE ADEQUACY OF THE WORK TO BE MADE WITH THE EQUIPMENT AVAILABLE

AK 46 IS A TOOL THAT DEVELOPS A HIGH ROTATION FORCE TOGETHER WITH HIGH SPEED , FOR ITS FUNCTION THE TOOL MUST HAVE TORQUE STRENGTH THAT IS REGULATED AT THE FACTORY, THIS FORCE MUST BE COTROLLED ANDCONTRASTED BY THE OPERATOR THAT MUST ALLWAYS WORK KEEPING THE TOOL WITH TWO HANDS

IN BOTH USES BY HANDS OR ON DRILL RIGS THE PUSHING FORCE OR FEED PENETRATION FORCE IS VERY IMPORTANT TO OBTAIN THE BEST PERFORMANCES , THE PUSHING FORCE MUST BE APPLIED BY THE OPERATOR AND MUST BE LINEAR WITH THE TOOL AXLE , SO PARALLEL WITH THE CENTRAL AXLE OF THE CORE BIT, IF A RADIAL / SIDE FORCE IS APPLIED THIS WILL CREATE MULTIPLE BLOCKS OF ROTATION AND USELESS EFFORTS OF THE TOOL AND REDUCED PERFORMANCES, THE PUSHING FORCE MUST BE A GOOD BALANCE BETWEEN IT AND THE FREE ROTATION OF BIT

### THE MAJOR AND MORE COMMON RISKS DERIVING FROM IMPROPER USES ARE THE FOLLOWING:

COUNTERBLOW / RECOIL KICKS ON THE OPERATOR ARMS DERIVING FROM ARREST OF ROTATION

BLOCK OF ROTATION WHEN THE BIT ENCOUNTERS THE STEEL REBARS

BREAK UP OF THE DRILL RIGS FROM THE ANCHOR DUE TO BAD FIXATION

PREMATURE WEAR OF DIAMOND CORE DRILL BITS, THIS CAN DERIVE FROM DIFFERENT WRONG FACTORS LIKE SPEED TOO HIGH, ABSENCE OF WATER COOLING , BITS NOT ADEQUATE FOR THE MATERIAL ETC

SCARCE PERFORMANCES DEPENDING FROM SPEED TOO LOW, WORN OUT DIAMOND BITS, BITS NOT ADEQUATE FOR THE MATERIAL ETC

BAD QUALITY OF THE DRILLING - MISALIGNEMENT AND BAD FINISHING OF HOLE

REACTIVITY AND SIDE KICKS OF THE BITS AT THE BEGINNING OF THE HOLE

ACCIDENTAL CUTTING OF HIDDEN BURIED PIPES OR CABLES

## **END OF OPERATIONS**

1. WITH MANUAL USE LAY DOWN THE TOOL LIMITING CONTACTS WITH THE MUD AND DIRT
2. PUT THE FLOW LEVER OF THE POWER PACK IN OFF POSITION, THIS WILL TAKE AWAY FLOW TO TOOL
3. PUT THE PACK ENGINE OFF
4. DISCONNECT THE TOOL FROM THE OIL FLEXIBLE HOSE RELEASING **FIRST THE PRESSURE HOSE** ( IS THE SHORT HOSE ON THE TOOL ON TRIGGER SIDE ) CORRESPONDING TO THE HOLE WITH P – IN PUNCHED ON THE TOOL. THIS OPERATION WILL PREVENT ACCIDENTAL PRESSURE TRAPPING INSIDE THE TOOL.
5. DISCONNECT THE FLEXIBLE OIL HOSE FROM THE POWER PACK
6. ROLL UP THE OIL FLEXIBLE HOSE IN CIRCLES OF ABOUT 60 CM OF DIAMETER, CONNECTING THE QUICK COUPLERS AT THE EXTREMITIES IN THE "HEAD/TAIL" WAY. THIS OPERATION WILL PROTECT THE OIL COUPLERS AGAINST IMPACTS OR SCRAPING AND WILL ALSO HELP IN KEEPING THE HOSE WELL ROLLED UP.
7. DETACH THE DIAMOND CORE BIT FROM THE TOOL IF NEEDED, CONTROL THE STATE AND EFFICIENCY OF THE BIT AND DISCARD THOSE DAMAGED TO AVOID THAT CAN BE REUSED
8. STORE THE EQUIPMENT IN A SAFE PLACE REPAIRED FROM BUMPS AND ATMOSPHERIC AGENTS
9. IF THE EQUIPMENT SHOULD BE TRANSPORTED ON VEHICLES OR TRUCKS, TAKE CARE THAT IT IS LOADED AND BLOCKED IN A PROPER WAY FOR AVOIDING TILTING AND DAMAGES.

## **MAINTENANCE AND CARE OF THE PRODUCT**

### **CLEANING OF THE TOOL**

**WHEN THE CONCRETE MUD BECOMES SOLID CREATES INCRUSTATIONS THAT ARE DIFFICILT TO CLEAN AND MAKE DAMAGES, THE TOOL CLEANING IS ESSENTIAL FOR THE GOOD FUNCTIONING OF THE EQUIPMENT. A CLEAN PRODUCT WILL IMMEDIATELY ALLOW TO FIND OIL LEAKS OR CAUSES OF MALFUNCTIONING. A CLEAN TOOL IS ALSO MORE COMFORTABLE FOR THE OPERATOR AND GUARANTEES A FIRM GRIP.**

#### **CLEANING WITH CLOTHS OR PAPER**

- THE TOOL CAN BE CLEANED WITH A DAMP RAG, USING A BRUSH WITH GASOHOL OR AN AIR GUN FOR ELIMINATING ALL TRACES OF DIRT AND OIL
- CLEAN IN PARTICULAR THE RECESSED POINTS AND CAVITIES AND THE CONNECTION SURFACE OF THE QUICK COUPLERS.
- WITH THE TOOL PERFECTLY DRY, SPRAY A PROTECTIVE-DEWATERING PRODUCT (CRC-or WD40) ON THE TOOL AND ON THE QUICK COUPLERS.
- DRY UP COMPLETELY THE TOOL HANDLE TO GUARANTEE A FIRM GRIP



## DISPOSAL AND SCRAPPING

### IMPORTANT

THE HYDRAULIC OIL –  
HYDRAULIC OIL FILTERS –  
ENGINE OIL –  
ENGINE OIL FILTERS –

BATTERIES OF THE POWER PACKS  
ACID OF THE BATTERIES  
FLEXIBLE HOSES FULL OF OIL  
ALL FUELS

## ARE DANGEROUS WASTES

THAT MUST BE DISPOSED ACCORDING TO THE LOCAL REGULATION OF YOUR COUNTRY OR MUNICIPALITY



DON'T THROW AWAY THE LIQUIDS AND MATERIALS OF THE ABOVE-MENTIONED LIST. THE INFRINGEMENT OF THE RULES REGARDING THE DISPOSAL OF DANGEROUS WASTES IMPLIES LEGAL RESPONSIBILITIES.

Also the storing and charging/discharging management of the materials of the above-mentioned list have to be run according to the specific regulation.

For information about the handling and disposal of the dangerous wastes contact the ENVIRONMENT department of your municipality.

### NOTE !

Except for the liquids and materials of the previous list, the other components of the products manufactured by DOA are fabricated with recyclable materials that can be stored, disposed and scrapped without particular cautions.

MATERIALS AND COMPONENTS USED BY DOA DO NOT CONTAIN ASBESTOS OR OTHER TOXIC ELEMENTS THAT REQUIRE SPECIAL CAUTION FOR THEIR USE.

## REPAIR

DISASSEMBLY – INSPECTION OF THE PARTS – REASSEMBLY



DOA HYDRAULIC TOOLS ARE PROFESSIONAL PRODUCTS THAT SHOULD BE REPAIRED ONLY BY QUALIFIED PERSONNEL.

THE TOOL REPAIR MAY REQUIRE TECHNICAL LITERATURE AND INSTRUMENTS FOR THE CONTROL OF THE HYDRAULIC VALUES AND AN ADEQUATE HYDRAULIC SOURCE NECESSARY FOR CARRYING OUT THE TOOL FUNCTIONING TESTS.

IT IS THEREFORE ADVISABLE NOT TO START THE COMPLETE DISASSEMBLY OF THE PRODUCT IF YOU ARE NOT A TECHNICIAN AND IF PROFESSIONAL TOOLS AND EQUIPMENT ARE NOT AVAILABLE

## DISASSEMBLY

- REMOVE THE PIG-TAIL HOSES OR THE QUICK COUPLERS FROM THE TOOLS, MEMORIZING THE ORIGINAL POSITION OF THE PARTS. REMIND THAT THE FEMALE QUICK COUPLERS SHOULD BE INSTALLED ON THE PUMP IN THE HOLE WITH P PUNCHED (OIL ENTERS THE TOOL), COLLECT THE DRIPPING OIL IN A CLEAN CONTAINER. CHECK IF THE OIL IS DIRTY, OR WITH IMPURITIES, THIS WILL HELP IN FINDING SOME CAUSES OF PROBLEMS.
- IF A VICE IS USED FOR HOLDING THE TOOL, ALWAYS COVER THE JAWS OF THE VICE WITH SOFT PROTECTIONS, AND BLOCK THE TOOL IN ITS MORE SOLID POINT, FOR NOT DEFORMING THE PARTS.
- IF IT IS POSSIBLE TO MEMORIZE THE ORIGINAL POSITION OF THE SCREWS AND THEIR TENSION.
- IF IT IS POSSIBLE TO DISASSEMBLE ONLY THE PART INVOLVED IN THE PROBLEM, MEMORIZING THEIR ORIGINAL POSITION AND THE ORIENTATION OF THE SEALS.

### IMPORTANT

THE HYDRAULIC COMPONENTS OF DOA PRODUCTS ARE MANUFACTURED WITH FINE WORKMANSHIP AND STRICT TOLERANCES. BE CAREFUL NOT TO DEFORM AND DROP THEM. IT IS COMPULSORY TO KEEP EVERYTHING CLEAN. WHEN IT IS POSSIBLE INSTALL PARTS WITH MORE THAN ONE INSTALLABLE POSITION, IN THE ORIGINAL POSITION.

## HYDRAULIC COMPONENTS INSPECTION



**THE HYDRAULIC MOTOR SHOULD NEVER BE DISASSEMBLED. IF THE MOTOR SHOWS OIL LEAKS OR OTHER DAMAGES IT MUST BE SHIPPED TO DOA FOR REPAIR**

### SEALS - O-RINGS

- CONTROL THE CONDITION AND AREA OF WEAR, TRYING TO FIND THE CAUSE (DIRTY OIL, EXCESS OF TURNS, OTHER). IT IS ALWAYS BETTER TO REPLACE ALL SEALS THAT HAVE BEEN DISASSEMBLED, IN PARTICULAR THE "DYNAMIC SEALS", WHICH SEAL MOVING OR ROTATING PARTS. THESE SEALS ARE MORE SUBJECT TO WEAR.

### NOTE !

IF WORKING PROBLEMS REOCCUR OVER AND OVER, THE CAUSE OR CAUSES OF MALFUNCTIONING ARE PROBABLY IN THE HYDRAULIC CIRCUIT. FOR SOLVING THESE PROBLEMS, CONTACT THE NEAREST DOA SERVICE AGENT. THE TROUBLE SHOOTING CHART PROBLEM-CAUSE-SOLUTION AT THE END OF THIS MANUAL GIVES SOME GENERAL INFORMATION ABOUT FUNCTIONING PROBLEMS LINKED WITH HYDRAULIC CIRCUITS.

### IMPORTANT

#### IF THE PRODUCT SHOULD BE SHIPPED:

DRIP THE TOOL COMPLETELY AND MAKE SURE THAT THE TOOL IS PERFECTLY SEALED AND THAT THERE ARE NOT OIL OR WATER LEAKS DURING THE TRANSPORT. USE AN ADEQUATE CONTAINER OR PACKAGING, SUFFICIENTLY STRONG AND PROPORTIONAL TO THE TOOL WEIGHT, IN ORDER TO PROTECT THE TOOL AND MAINTAIN ITS INTEGRITY.

Broken hydraulic motor or broken drive shaft	Control / repair or contact the nearest DOA service agent
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**PROBLEM**

**THE DIAMOND BIT TURNS BUT THERE ARE POOR PERFORMANCES – TOOL HAS NO POWER**

<b>CAUSE</b>	<b>SOLUTION</b>
The torque control valves integrated in the tool are dirty, damaged or blocked	Control, clean or change
The power pack does not give sufficient pressure The power pack has low setting of the relief valve	Control the power pack pressure delivery Increase setting of relief valve of power pack
Tool broken	Control and contact the nearest DOA service agent

**PROBLEM:**

**THE TOOL SPEED IS TOO HIGH OR TOO LOW**

<b>CAUSE</b>	<b>SOLUTION</b>
The tool trigger and its ON OFF valve are broken	Control, clean, repair or change
The power pack gives low flow, insufficient flow to tool	Control the flow delivery of power pack in case contact the nearest DOA service agent
Broken tool or broken power pack or bad oil circulation	Control or repair and contact the nearest DOA service agent

## **WARRANTY**

All parts produced by DOA s.r.l. are guaranteed for a period of twelve months from the date of delivery to the final customer, against defect of: material, workmanship-assembly.

Cost of labour and transports are not covered by warranty and should be paid by the customer.

Parts and complete components not produced by DOA such as engines, compressors, alternators, etc., are covered by the warranty of the manufacturer.

Batteries of power packs and "worn out " accessories, such as chisel bits, drill bits, cut off discs, flexible hoses, quick couplers, or other accessories that have not an identification number, are covered by a **LIMITED WARRANTY OF THREE MONTHS** from the date of starting.

DOA reserves the right to substitute only those parts recognized to be defective after an inspection of DOA engineers under warranty at its own expenses and in its own plant.

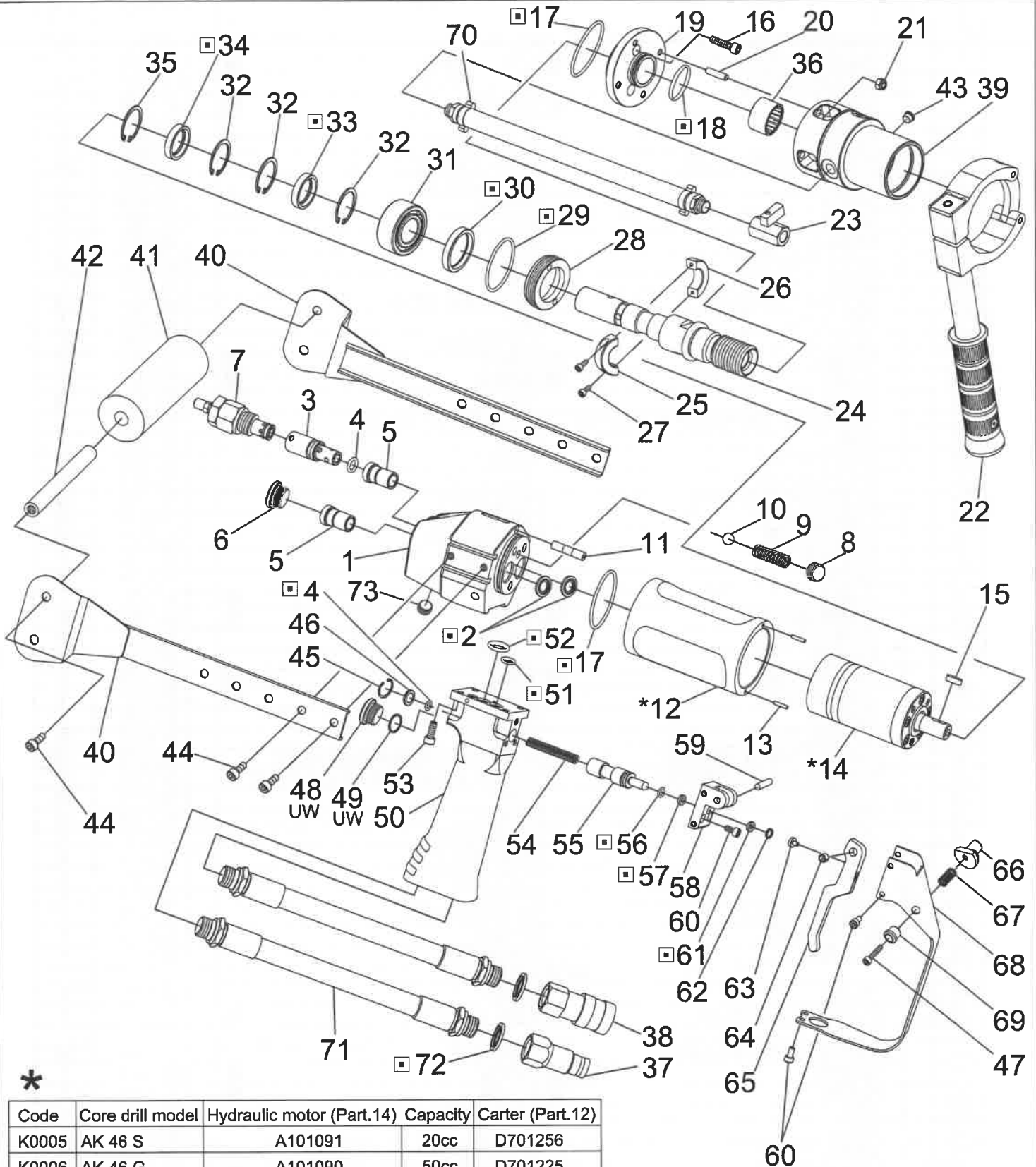
If the repairs during the warranty period are performed by the customers, DOA will reject any charge for labour expenses.

### **THE WARRANTY WILL BE AUTOMATICALLY VOIDED IF:**

- Repairs are performed using non original, adapted or modified parts.
- The maximum hydraulic values of pressure, back pressure and flow are exceeded, or the filtration and other operative conditions of the hydraulic circuits are inadequate to power DOA tools.
- If the tool has been modified or used in excessive heavy applications or different from its natural applications.
- If the attached WARRANTY CARD is not properly filled and mailed to DOA.

In any case the warranty excludes any redraft or reimbursement for damages of any kind and there are not other explicit or implicit warranties besides the above mentioned one.

**FOR ANY CONTROVERSY, THE COMPETENT COURT IS IN COMO-ITALY.**



\*

Code	Core drill model	Hydraulic motor (Part.14) Capacity	Carter (Part.12)	
K0005	AK 46 S	A101091	20cc	D701256
K0006	AK 46 G	A101090	50cc	D701225
K0251	AK 46 S UW	A101091	20cc	D701256
K0261	AK 46 F	A101245	13cc	D701256
K0338	AK 46 G UW	A101090	50cc	D701225

DOA reserves the right to make modifications at any time and without previous notice.

DOA si riserva la facoltà di fare modifiche in qualsiasi istante senza preavviso.

□ - denotes parts included in seal kit  
- denota parti incluse nel kit guarnizioni

61	1	<b>GUARNIZIONE</b>	■	<b>SEAL</b>	■	A 65 1315	<b>5</b>
62	1	ANELLO		RING		A 50 1034	<b>1</b>
63	1	PASTIGLIA DI CONTATTO		TAPPET		D 70 1244	<b>3</b>
64	2	BOCCOLA		BUSHING		A 61 1028	<b>3</b>
65	1	LEVA ON / OFF		ON / OFF LEVER		D 40 1277	<b>20</b>
66	1	BLOCCAGGIO LEVA ON / OFF		ON / OFF LEVER CLAMP		D 70 1260	<b>10</b>
67	1	MOLLA		SPRING		D 50 1026	<b>1</b>
68	1	PROTEZIONE		GUARD		D 90 1090	<b>11</b>
69	1	BUSSOLA		BUSH		D 70 1261	<b>7</b>
70	1	ASSIEME TUBO		HOSE ASSEMBLY		D 15 1027	<b>9</b>
71	2	ASSIEME TUBO		HOSE ASSEMBLY		D 15 1028	<b>9</b>
72	2	<b>RONDELLA DI TENUTA</b>	■	<b>SEAL WASHER</b>	■	A 65 1200	<b>1</b>
73	1	TAPPO		PLUG SCREW		A 16 1062	<b>1</b>
	1	<b>KIT GUARNIZIONI AK46</b>		<b>SEALS KIT AK46</b>		D 68 0117	<b>15</b>
	1	<b>KIT PER MOTORE IDRAULICO (Part.20)</b>		<b>SEAL KIT FOR HYDRAULIC MOTOR(Part.20)</b>		A 65 1232	<b>19</b>

■ IDENTIFICA IL KIT GUARNIZIONI

■ DENOTES PARTS IN SEAL KIT