

الورقاء  
لف المحركات الكهربائية



**AL WARQA**  
**ELECT & MOTOR TURNING**

Company  
Profile



[www.alwarqaelectrical.com](http://www.alwarqaelectrical.com)



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Sharjah  
Abu Dhabi



## OUR BACKGROUND

Al Warqa Electrical started its activities back in 2007, based at Industrial Area, Sharjah, by providing the most comprehensive components level of repairing & servicing in automation field. Over the last 10 years of extensive & committed services, we have established ourselves as a leading specialist in rewinding AC and DC Electrical Motors, Generators and Transformers and developed a vast customer & client relationship, with our best services on time. To reach our prompt services on time, we have further enlarged by extending our branch at Musaffah, Abu Dhabi, focussing our good relationship with our clients in that geographical area. We are a growth company driven to expand, with the commitment to our valuable customers, who are always the core of our

## OUR SCOPE & SERVICES

We already have a state of the art Work shop facility, with full-fledged team and advanced test equipment for services and maintenance, allowing us to provide our customers with the capability to offer complete refurbishment of rig equipment from Motor & Pump repair to Synchronization of Switchgear and Panels. Our workshop service provider includes fault finding, analysing and inspection on-site by our service engineers, to determine fault and corrective action. The Service Engineers assess the root-cause of the equipment's malfunction and report to the customer with required remedies to solve the problem. We install and commission Pumps & Pump Sets, Motors and Electrical Control Panels to the highest standards and professionalism, in accordance with the original manufacturer's best practice and guidelines. Customer Communication & Satisfaction are the main aspects of Services. We serve you through our best systematic process and well calibrated equipment with sound knowledge person in this field.

- ☒ Rewinding & Overhaul of all AC & DC Motors, Alternators up to 1500 kVA.
- ☒ Automation system, Marine & Industrial equipment, PCB Board repair, Electronic equipment.
- ☒ Diesel Generators, Diesel Engine pumps, Pump set assembly, Rewinding of AC Motors and DC Motors.
- ☒ Lathe & Machining, Turning works.
- ☒ Diagnostic Testing, Electrical Testing.
- ☒ Supply, Repairing, Servicing & Maintenance like AC Drives (VFD), DC Drives, Soft Starters.
- ☒ PLC Programming, PLC based Control System Design, Servo Drives, Servo Motors.
- ☒ Assembly of Water Transfer, Booster, Submersible/Sewage/Drainage Pump sets, Chilled Water Pumps, Fire Pumps.



## WATER TRANSFER PUMP SETS

TRANSFER PUMP SET USUALLY CONSISTS OF ONE OR MORE DUTY PUMP, ONE STANDBY PUMP, ALL FITTED ON A PAINTED BASE FRAME, WITH PIPES & VALVES AND WIRED WITH A CONTROL PANEL AND ALL CONNECTED TOGETHER. THIS IS USED TO LIFT WATER FROM ONE TANK TO ANOTHER, MAY BE FROM A GROUND TANK TO AN OVERHEAD TANK. THE CONSTRUCTION IS SIMILAR TO THE BOOSTER PUMPS, WITH SOME VARIATIONS. HERE PRESSURE SWITCH AND PRESSURE TANK ARE ABSENT. THE OPERATION OF THE PUMPS IS CONTROLLED BY EITHER THE FLOAT SWITCH KEPT ON THE OH TANK OR TIMERS. IF THE PUMP IS CONTROLLED BY FLOAT SWITCH, THE PUMP WILL START WHEN FLOAT IS AT A LOWER LEVEL AND STOP WHEN IT IS AT HIGHER LEVEL. IF THE PUMPS ARE CONTROLLED BY TIMERS, THE PUMP WILL CONTINUE TO WORK AS PER THE TIMER SETTINGS.

## WATER BOOSTER PUMP SETS

BOOSTER PUMP SET USUALLY CONSISTS OF ONE OR MORE DUTY PUMP, ONE STANDBY PUMP, ONE JOCKEY PUMP (IF APPLICABLE ONLY), ALL FITTED ON A PAINTED BASE FRAME, WITH PIPES & VALVES AND PRESSURE VESSEL, WIRED WITH A CONTROL PANEL AND ALL CONNECTED TOGETHER. THESE ARE USED TO INCREASE THE PRESSURE OF THE WATER BEING PUMPED. AS AN EXAMPLE, TAKE THE CASE OF A FOUR-STORIED BUILDING, WHERE WATER TANK IS SITUATED ON THE TOP OF THE ROOF. THE PRESSURE OF WATER WILL BE SUFFICIENT UP TO THE THIRD FLOOR, BUT THE TOP FLOOR WILL NOT HAVE ENOUGH PRESSURE. HERE WE HAVE TO FIX A PUMP TO INCREASE THE PRESSURE. IN SOME CASES, IT WILL NOT BE POSSIBLE TO CONSTRUCT A WATER TANK ON THE ROOF DUE TO VARIOUS REASONS. IN SUCH CASES WE HAVE TO INSTALL A PUMP TO PROVIDE WATER TO ALL OUTLETS. FOR IRRIGATION PUMPS ALSO THE BASIC PRINCIPLE IS THE SAME, HOWEVER, WE HAVE TO INCREASE THE PRESSURE WHICH IS COMPATIBLE WITH THE SPRINKLERS, DRIP, SOLENOID VALVE ETC. USED FOR IRRIGATION.

## PRESSURIZATION UNIT

CHILLED WATER PRESSURIZATION UNIT USUALLY CONSISTS OF ONE DUTY PUMP, ONE STANDBY PUMP, ALL FITTED ON A PAINTED BASE FRAME, WITH PIPES & VALVES, PVC HOLDING TANK & PRESSURE VESSEL, WIRED WITH A CONTROL PANEL AND ALL CONNECTED TOGETHER. THIS UNIT IS A MECHANICAL MEANS OF PRESSURISING A SYSTEM BEING HEATING OR HOT AND COLD WATER SERVICES AND GENERALLY ELIMINATES THE NEED FOR A COLD WATER STORAGE SYSTEM IN THE ROOF. IT COMES COMPLETE WITH OPERATING PRESSURE SWITCHES AND IN SOME CASE HIGH AND LOW PRESSURE INTERLOCK SWITCHES.



## FIRE PUMPS / PUMP SETS

OUR TECHNICIANS HAVE PERFORMED HUNDREDS OF PUMP REPAIRS AND WE PRIDE OURSELVES ON DOING THE JOB RIGHT THE FIRST TIME AND APPRECIATE THE IMPORTANCE OF GETTING A FIRE PUMP BACK INTO SERVICE. OUR TECHNICAL TEAM IS WELL VERSED IN EVERY FIRE PUMP MAKE AND MODEL AND THE FIRE PUMP PARTS ASSOCIATED WITH ANY REPAIR. EVERY PUMP WE WORK ON IS PROPERLY DISASSEMBLED, INSPECTED, CLEANED, RE-ASSEMBLED AND TEST RUN; EXECUTING THE ENTIRE JOB WITH QUALITY FIRE PUMP PARTS, MATCHING CUSTOMER'S BUDGET.

A FIRE PUMP IS A PART OF A FIRE SPRINKLER SYSTEM'S WATER SUPPLY AND POWERED BY ELECTRIC, DIESEL OR STEAM. THE FIRE PUMP STARTS WHEN THE PRESSURE IN THE FIRE SPRINKLER SYSTEM DROPS BELOW A THRESHOLD. THE PUMP PROVIDES WATER FLOW AT A HIGHER PRESSURE TO THE SPRINKLER SYSTEM RISERS AND HOSE STANDPIPES. A FIRE PUMP IS TESTED AND LISTED FOR ITS USE SPECIFICALLY FOR FIRE SERVICE BY A THIRD-PARTY TESTING AND LISTING AGENCY, SUCH AS UL OR FM GLOBAL.

FIRE PUMPS FUNCTION EITHER BY AN ELECTRIC MOTOR OR A DIESEL ENGINE, OR, OCCASIONALLY A STEAM TURBINE. IF THE LOCAL BUILDING CODE REQUIRES POWER INDEPENDENT OF THE LOCAL ELECTRIC POWER GRID, A PUMP USING AN ELECTRIC MOTOR MAY UTILIZE, WHEN CONNECTED VIA A LISTED TRANSFER SWITCH, THE INSTALLATION OF AN EMERGENCY GENERATOR.

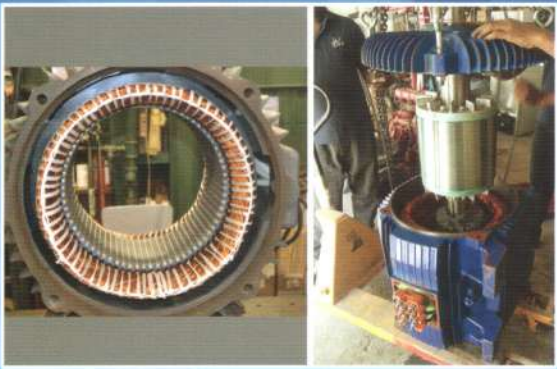
TYPES OF PUMPS USED FOR FIRE SERVICE INCLUDE: HORIZONTAL SPLIT CASE, VERTICAL SPLIT CASE, VERTICAL INLINE, VERTICAL TURBINE, AND END SUCTION.

A JOCKEY PUMP IS A SMALL PUMP CONNECTED TO A FIRE SPRINKLER SYSTEM AND IS INTENDED TO MAINTAIN PRESSURE IN A FIRE PROTECTION PIPING SYSTEM TO AN ARTIFICIALLY HIGH LEVEL SO THAT THE OPERATION OF A SINGLE FIRE SPRINKLER WILL CAUSE A PRESSURE DROP WHICH WILL BE SENSED BY THE FIRE PUMP AUTOMATIC CONTROLLER, CAUSING THE FIRE PUMP TO START.

## DIESEL ENGINE

DIESEL ENGINE REPAIR AND MAINTENANCE IS ONE OF THE CORE SERVICES OF AL WARQA ELECT & MOTOR TURNING. SKILLED ENGINEERS AND MECHANICS WITH SHIPYARD, OEM, POWER STATION AND SEAGOING EXPERIENCE KNOW WHERE TO LOOK AND WHERE TO START. WITH DEEP TECHNICAL AND ENGINEERING SKILLS, WE ARE ABLE TROUBLE-SHOOTING ANY ENGINE TO QUICKLY ANALYSE REQUIREMENTS AND GET DOWN TO COMPLETING THE JOB. OUR EXPERTISE DOES NOT STOP WITH THE ENGINE ITSELF, BUT EXTENDS TO TAKE CARE OF ALL VITAL EQUIPMENT IN THE ENGINE ROOM. ALSO WE ARE CAPABLE TO COVER TURBOCHARGERS, FUEL EQUIPMENT, GOVERNORS, ALARM SYSTEMS, AUTOMATION AND CONTROLS.





## CHILLED WATER PUMPS

CHILLED WATER PUMPS USUALLY CONSISTS OF PRIMARY, SECONDARY, TERTIARY OR MORE HORIZONTAL PUMPS, ALL FITTED ON A PAINTED BASE FRAME, WIRED WITH A CONTROL PANEL. THEY ARE USED IN AC APPLICATION. IN MULTI-STOREYED BUILDINGS, AIR CONDITIONING IS BASED ON CHILLED WATER PRINCIPLE. CHILLED WATER PUMPS CIRCULATE THE WATER THROUGH THE PIPES AND HEAT EXCHANGER. THEY ARE GENERALLY LARGE END SUCTION OR HORIZONTAL SPLIT CASING PUMPS RUNNING AT 1450 RPM. THE PUMPS ARE COUPLED TO THE MOTORS AND SUPPLIED AS ONE UNIT.

## VFD REPAIR AND SERVICE

OVER THE LAST FOUR DECADES, POWER ELECTRONICS TECHNOLOGY HAS REDUCED VFD COST AND SIZE AND HAS IMPROVED PERFORMANCE THROUGH ADVANCES IN SEMICONDUCTOR SWITCHING DEVICES, DRIVE TYPOLOGIES, SIMULATION AND CONTROL TECHNIQUES, AND CONTROL HARDWARE AND SOFTWARE. AT ALWARQA ELECT & MOTOR TURNING VFDS ARE AVAILABLE IN A NUMBER OF DIFFERENT LOW AND MEDIUM VOLTAGE AC-AC AND DC-AC TYPOLOGIES. SOME OF THE MOST POPULAR BRANDS WE ARE DEALING WITH MITSUBISHI, SEIMENS, HONEYWELL, EMERSON, DANFOSS, ABB, ALLEN BRADLEY, ETC... WE SELL AND REPAIR ALL TYPES OF VFDS, SINCE LAST 10 YEARS, ALL OVER UAE, GCC & MIDDLE EAST.

## ELECTRICAL REWINDING

PRIOR TO ANY ALTERNATOR REPAIR WORKS, IT IS ESSENTIAL TO MAKE SURE THAT IT IS ACTUALLY DEFECTIVE. THIS PROCESS REQUIRES A SIMPLE VOLTMETER, NO MATTER WHETHER AN ANALOGUE OR DIGITAL MEASURING DEVICE. NOW, THE SUITABLE VOLTAGE RANGE IS SET COVERING A MEASURING RANGE OF 10-15V. THE ENGINE WILL BE STARED AND 2 MEASUREMENTS WILL BE TAKEN. ONE MEASUREMENT WILL BE CARRIED OUT WHEN THE ENGINE IS IDLING, THE OTHER ONE WITH AN ENGINE SPEED OF 4000 RPM. THIS ALWAYS IMPLIES A CHECK OF THE VOLTAGE ON THE BATTERY. IF THE ALTERNATOR CHARGES PROPERLY, THE CHARGE INDICATOR LAMP WILL HAVE TO GO OUT AFTER STARTING THE ENGINE AND A CHARGING VOLTAGE OF 13.8V 14.6V HAS TO BE APPLIED ON THE BATTERY. VOLTAGE SHOULD BE ENSURED IN BOTH MEASURING CYCLES MENTIONED ABOVE, OTHERWISE, THE ALTERNATOR IS DEFECTIVE. TOO LOW CHARGING VOLTAGE DURING THE TESTING PROCESS CAN BE CAUSED BY SEVERAL FACTORS, E.G. THE FOLLOWING ALTERNATOR PARTS MIGHT BE DEFECTIVE: REGULATOR, SLOP RING, CARBONS, DIODES, WINDING. IF, HOWEVER, THE ALTERNATOR MAKES NOISES DURING OPERATION, THIS WILL POINT TO DEFECTIVE BEARINGS OR A DEFECTIVE CLUTCH PULLEY.



## SEWAGE / SUBMERSIBLE PUMPS

SEWAGE PUMP SETS USUALLY CONSISTS OF ONE OR MORE DUTY PUMP, ONE STANDBY PUMP, ALL SUPPLIED LOOSE, ALONG WITH A CONTROL PANEL. THESE PUMPS ARE USED FOR EMPTYING SEWAGE PIT, STORM WATER OR DRAINAGE APPLICATIONS. THERE ARE DIFFERENT TYPES OF SEWAGE PUMPS. SEWAGE PUMPS ARE USED FOR BUILDING SERVICES AND TREATMENT PLANTS. GENERALLY, PUMPS ARE SUPPLIED WITH A CONTROL PANEL THAT IS DIFFERENT FROM THE ABOVE-MENTIONED PANELS. FOUR FLOAT SWITCHES, PLACED AT DIFFERENT LEVELS IN THE TANK, CONTROL THE LOGIC OF OPERATION. THE PANELS ARE FITTED WITH AUDIO-VISUAL ALARMS.

APART FROM PUMPS, THE OTHER MAIN COMPONENTS USED FOR THE ASSEMBLY OF PACKAGED PUMP SETS ARE PRESSURE SWITCH, FLOAT SWITCH, PRESSURE VESSEL, PRESSURE GAUGE, VALVES, STRAINERS, FLEXIBLE CONNECTORS AND SS/MS/CU PIPE WORKS.

WE DEAL WITH ALMOST ALL REPUTED & APPROVED PUMP BRANDS AVAILABLE IN UAE, COMPLYING WITH CLIENTS / CONSULTANT'S GIVEN SPECIFICATIONS WHICH WE ARE FULLY GUARANTEED & COMMITTED, INCLUDES SUPPLY, TESTING & COMMISSIONING.

## OUR SPECIALIZATION

MOST OF THE SUBMERSIBLE PUMPS ARE WITH ONE SIDE CLOSED STATORS. UNLIKE OTHERS, WE ARE REMOVING STATOR WINDING USING HYDRAULIC PULLING MACHINES ONLY, WITH UTMOST CARE, MAINTAINING THE SAME FRESH CONDITION AS MANUFACTURED. ALSO AFTER REWINDING THE STATOR, IT WILL BE FIXED BACK USING THE HYDRAULIC SYSTEM. THIS WILL AVOID ANY CRACKS OR DAMAGES WHILE REMOVING OR FIXING USING OTHER METHODS. IT IS OBSERVED THAT MANY REPAIR AND MAINTENANCE PROFESSIONALS PERFORMING THESE REMOVALS AND FIXINGS BY HITTING THE MOTOR STATOR USING HARD TOOLS, ALSO BY HEATING, AGAIN HITTING; WHICH CAUSES PERMANENT DAMAGES TO THE BODY OF THE STATOR AND MOTOR ITSELF, CAUSING ITS LIFE SUSTAINABILITY



## LATHE / TURNING

IN A METALWORKING LATHE, METAL IS REMOVED FROM THE WORK PIECE USING A HARDENED CUTTING TOOL, WHICH IS USUALLY FIXED TO A SOLID MOVEABLE MOUNTING, EITHER A TOOL-POST OR A TURRET, WHICH IS THEN MOVED AGAINST THE WORK PIECE USING HAND WHEELS AND/OR COMPUTER-CONTROLLED MOTORS. THESE CUTTING TOOLS COME IN A WIDE RANGE OF SIZES AND SHAPES, DEPENDING UPON THEIR APPLICATION. SOME COMMON STYLES ARE DIAMOND, ROUND, SQUARE AND TRIANGULAR. THE TOOL-POST IS OPERATED BY LEAD-SCREWS THAT CAN ACCURATELY POSITION THE TOOL IN A VARIETY OF PLANES. THE TOOL-POST MAY BE DRIVEN MANUALLY OR AUTOMATICALLY TO PRODUCE THE ROUGHING AND FINISHING CUTS REQUIRED TO TURN THE WORK PIECE TO THE DESIRED SHAPE AND DIMENSIONS, OR FOR CUTTING THREADS, WORM GEARS, ETC. CUTTING FLUID MAY ALSO BE PUMPED TO THE CUTTING SITE TO PROVIDE COOLING, LUBRICATION AND CLEARING OF SWarf FROM THE WORK PIECE. SOME LATHES MAY BE OPERATED UNDER CONTROL OF A COMPUTER FOR MASS PRODUCTION OF PARTS (SEE 'COMPUTER NUMERICAL CONTROL').

MANUALLY CONTROLLED METALWORKING LATHES ARE COMMONLY PROVIDED WITH A VARIABLE-RATIO GEAR-TRAIN TO DRIVE THE MAIN LEAD-SCREW. THIS ENABLES DIFFERENT THREAD PITCHES TO BE CUT. ON SOME OLDER LATHES OR MORE AFFORDABLE NEW LATHES, THE GEAR TRAINS ARE CHANGED BY SWAPPING GEARS WITH VARIOUS NUMBERS OF TEETH ONTO OR OFF OF THE SHAFTS, WHILE MORE MODERN OR EXPENSIVE MANUALLY CONTROLLED LATHES HAVE A QUICK-CHANGE BOX TO PROVIDE COMMONLY USED RATIOS BY THE OPERATION OF A LEVER. CNC LATHES USE COMPUTERS AND SERVOMECHANISMS TO REGULATE THE RATES OF MOVEMENT. THERE ARE SOME EFFECTS ON MATERIAL PROPERTIES WHEN USING A METALWORKING LATHE. THERE ARE FEW CHEMICAL OR PHYSICAL EFFECTS, BUT THERE ARE MANY MECHANICAL EFFECTS, WHICH INCLUDE RESIDUAL STRESS, MICRO-CRACKS, WORK-HARDENING, AND TEMPERING IN HARDENED MATERIALS.

## GENERATOR SERVICE

AL WARQA ELECT & MOTOR TURNING SERVICES INCLUDES COMPLETE TESTING FAILURE ANALYSIS, REBUILDING/REPAIRING AC & DC MOTORS, STATOR REWINDS AND UPGRADES OF MOTOR WINDINGS AND FULL ON-SITE SERVICING CAPABILITIES. OUR SERVICE RANGE FROM BASIC RECONDITIONING TO COMPLETE RE-BUILDS: MAIN STATOR REWINDS, MAIN ROTOR BAR REPLACEMENT/REPAIR, ARMATURE & WOUND ROTOR REWIND, STATOR AND ROTOR CORE RESTACK, ROTOR SHAFT MAINTENANCE, BALANCING AND SERVICING, BEARING REPLACEMENT, ELECTRICAL TESTING.



# AL WARQA

## ELECT & MOTOR TURNING

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