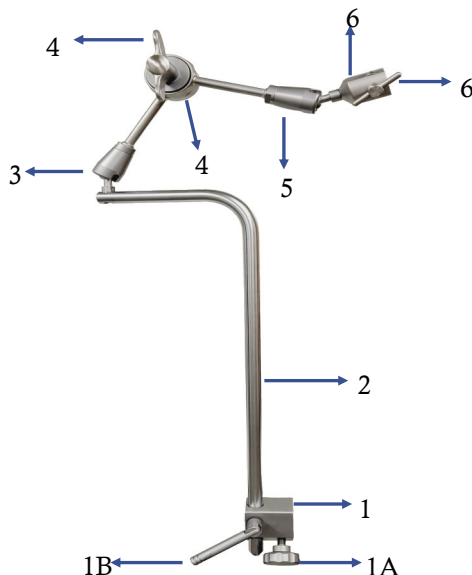


RETRACT-ROBOT SYSTEMS

RECOMMENDATIONS FOR MAINTAINING, CLEANING AND STERILIZATION

THE RETRACT-ROBOT, EVEN THOUGH RUGGEDLY BUILT, IS A SOPHISTICATED AND YET DELICATE SURGICAL INSTRUMENT. THEREFORE, IT SHOULD BE HANDLED ACCORDINGLY.

READ THIS MANUAL THOROUGHLY AND BECOME ACQUAINTED WITH THE WORKING PARTS OF THIS SYSTEM PRIOR TO USING IT IN SURGERY. PAY PARTICULAR ATTENTION TO THE PROPER USE OF THE MAIN JOINT (DIAGRAM NO. 4) DURING SURGERY, AS THIS IS THE HEART OF THE SYSTEM.



1	STERIL-CLAMP ASSEMBLY	4	MAIN ARTICULATING JOINT
1A	KNURLED KNOB TO TIGHTEN STERIL_CLAMP TO THE ACCESSORY RAIL OF THE OPERATING TABLE	4A	WING NUT FOR MAIN ARTICULATING JOINT
1B	LEVER HANDLE TO TIGHTEN THE RETRACT-ROBOT IN THE STERIL_CLAMP	5	FORWARD ARTICULATING JOINT
2	MOUNTING SHAFT	6	INSTRUMENT HOLDER
3	FIRST ARTICULATING JOINT	6A	THUMB SCREW TO TIGHTEN INSTRUMENTS INTO THE HOLDER

SETTING UP THE RETRACT-ROBOT

1. SELECT THE DESIRED POSITION OF THE RETRACT-ROBOT ALONG THE SIDE OF THE OPERATING TABLE.
2. THE AUTOCLAVABLE STERIL-CLAMP IS INSTALLED OVER THE STERILE DRAPE BY OPENING THE KNURLED KNOB (DIAGRAM NO. 1A) ENOUGH SO THAT THE ADJUSTABLE JAWS OF THE CLAMP ARE WIDE ENOUGH TO ACCOMMODATE THE WIDTH OF THE ACCESSORY RAIL. MAKE SURE YOU MOUNT THE CLAMP WITH THE KNOB (DIAGRAM NO. 1A) FACING DOWN AS ILLUSTRATED ON THE DIAGRAM. PLACE THE ADJUSTABLE JAW OVER THE DRAPED ACCESSORY RAIL. THEREAFTER, TURN THE KNURLED KNOB CLOCKWISE TO TIGHTEN THE STERIL-CLAMP ON THE ACCESSORY RAIL SO THAT IT IS COMPLETELY SECURE AND NO FURTHER MOVEMENT IS POSSIBLE.
3. INSERT THE ROUND MOUNTING SHAFT (DIAGRAM NO. 2) INTO THE ROUND OPENING ON THE TOP OF THE STERIL-CLAMP.
4. TIGHTEN THE LEVER HANDLE (DIAGRAM NO. 1B) CLOCKWISE UNTIL THE MOUNTING SHAFT OF THE ROBOT ARM IS SECURE AND WILL NOT MOVE FROM SIDE TO SIDE.
5. PLACE THE INSTRUMENT TO BE USED INTO THE OPENING OF THE ROBOT ARM'S INSTRUMENT HOLDER AND TIGHTEN THE THUMB SCREW (DIAGRAM NO. 6A) UNTIL THE INSTRUMENT IS SECURE AND WILL NOT MOVE FROM SIDE TO SIDE.
6. MAKING CERTAIN THAT THE MAIN ARTICULATING JOINT (DIAGRAM NO. 4) IS NOT TIGHT, MOVE THE ROBOT ARM WITH THE INSTRUMENT IN PLACE TO THE DESIRED POSITION AND RETRACT TO THE NECESSARY TENSION BY PULLING BACK WITH THE MAIN ARTICULATING JOINT'S HOUSING. WHEN THE DESIRED TENSION IS ACHIEVED TURN THE WING NUT OF THE MAIN JOINT (DIAGRAM NO. 4A) CLOCKWISE UNTIL TIGHT. THE JOINT WILL BE SUFFICIENTLY TIGHT WHEN THE INSTRUMENT DOES NOT SLIP OUT OF POSITION AS MANUAL TENSION IS RELEASED. DO NOT OVER TIGHTEN THE MAIN JOINT.
7. TO RELEASE, REVERSE THE ABOVE PROCEDURE.

RECOMMENDATIONS FOR PROPER OPERATION

THE MAIN ARTICULATING JOINT (DIAGRAM NO. 4) CONTROLS ALL OF THE ARTICULATING JOINTS OF THE SYSTEM. WHEN FIXING OR REPOSITIONING ANY OF THESE ARTICULATING JOINTS, IT IS ABSOLUTELY MANDATORY THAT THE JOINT BE COMPLETELY LOOSENED BY MEANS OF THE WING NUT FOR THE MAIN ARTICULATING JOINT (DIAGRAM NO. 4A) FIRST. IF THIS IS NOT DONE AND THE ARM IS FORCED IN ANY WAY TO ACHIEVE THE DESIRED POSITION, THERE WILL BE DAMAGE TO THE INTERNAL JOINT MECHANISM.

ALSO, WHEN LOOSENING THE WING NUT FOR THE MAIN JOINT, IT IS IMPORTANT NOT TO FORCE IT TO TURN OUT TOO FAR, OTHERWISE THE THREAD WILL BREAK AND THE MAIN JOINT MAY COME APART OR FAIL TO TIGHTEN. THIS WING NUT HAS A BUILT IN STOP WHICH IS INTENDED TO PREVENT TURNING IT OUT TOO FAR.

*****NEVER FORCE THE WING NUT COUNTER-CLOCKWISE PAST THIS STOP!**

RECOMMENDATIONS FOR PROPER STERILIZATION

THE RETRACT-ROBOT MAY BE STEAM OR GAS AUTOCLAVED ALONG WITH OUR OTHER STAINLESS STEEL INSTRUMENTS – SEE “AUTOCLAVING METHODS”. IT IS IMPORTANT THAT THE LONGEST DRYING CYCLE SELECTION ON YOUR STERILIZER BE USED, TO MINIMIZE THE AMOUNT OF MOISTURE THAT MAY ACCUMULATE IN THE JOINTS.

*****WE DO NOT RECOMMEND COLD SOAKING, AS THE MOISTURE FROM THE SOLUTION WILL COLLECT INSIDE THE WORKING MECHANISMS AND CAUSE CORROSION.**

MAINTENANCE RECOMMENDATIONS

THE RETRACT-ROBOT SYSTEM MUST BE CLEANED AND STERILIZED BEFORE BEING USED FOR THE FIRST TIME AND AFTER EVERY SUBSEQUENT USE. APPROPRIATE CLEANING, INSPECTION AND MAINTENANCE HELP TO ENSURE THE SERVICEABILITY OF THE SURGICAL DEVICE AND PROLONG ITS SERVICE LIFE

CLEANING AND RINSING SHOULD BE DONE PROMPTLY AFTER EVERY USE. OTHERWISE TISSUE PARTICLES OR DRIED SECRETIONS MAY ADHERE TO IT, WHICH MAY MAKE SUBSEQUENT CLEANING AND STERILIZATION DIFFICULT.

THE MAIN ARTICULATING JOINT MUST NEVER BE OPENED EXCEPT BY A TRAINED SURGICAL INSTRUMENT OR TOOL AND DIE MAKER WHO IS CAPABLE OF WORKING WITH SUCH DEVICES AND WITH VERY CLOSE TOLERANCES. IF YOU DO OPEN THIS JOINT YOU MAY LOSE IMPORTANT COMPONENTS AND OR BE UNABLE TO ASSEMBLE IT. IT IS NOT NECESSARY TO OPEN THIS JOINT FOR CLEANING AND STERILIZING. NORMAL WASHING AND AUTOCLAVING WILL BE SUFFICIENT.

*****THE USE OF SILICONE SPRAY LUBRICANT IS NOT RECOMMENDED, DUE TO ITS ABILITY TO HOLD MOISTURE INTO THE JOINTS. THE USE OF SILICONE SPRAY WILL TRAP MOISTURE INSIDE THESE JOINTS, CAUSING CORROSION.**

CLEANING:

- **SOAK:** AN ENZYMATIC CLEANER BATH (SOAK) A SOLUTION OF WATER AND NEUTRAL pH (7) DETERGENT ARE EFFECTIVE IN REMOVING ORGANIC MATERIAL FROM THE DEVICE. USE DISTILLED (DEMINERALIZED) WATER IF POSSIBLE. THE DEVICE SHOULD BE FULLY SUBMERGED FOR AT LEAST 10 MINUTES. RINSE DEVICE UNDER RUNNING WATER TO REMOVE SOLUTIONS. CHANGE SOLUTIONS FREQUENTLY.
- **ULTRASONIC CLEANING:** THE DEVICE MUST BE FULLY SUBMERGED IN THE OPEN POSITION. USE DISTILLED (DEMINERALIZED) WATER IF POSSIBLE. PROCESS THE DEVICE FOR FULL RECOMMENDED ULTRASONIC CLEANING CYCLE. CHANGE SOLUTION FREQUENTLY, OR AS OFTEN AS THE MANUFACTURER RECOMMENDS. RINSE DEVICE WITH WATER TO REMOVE THE CLEANING SOLUTION.
- **AUTOMATIC WASHER STERILIZERS:** FOLLOW MANUFACTURERS' RECOMMENDATIONS BUT ENSURE THE DEVICE IS LUBRICATED AFTER THE LAST RINSE CYCLE AND BEFORE THE STERILIZATION CYCLE.
- **MANUAL CLEANING:** USE STIFF NYLON CLEANING BRUSHES. DO NOT USE STEEL WOOL OR WIRE BRUSHES. USE ONLY NEUTRAL pH (7) DETERGENTS. IF NOT RINSED OFF PROPERLY, LOW pH (ACIDIC - LESS THAN 6 pH) DETERGENTS BREAK DOWN THE STAINLESS PROTECTIVE SURFACE RESULTING IN PITTING AND/OR BLACK STAINING. HIGH pH DETERGENTS (ALKALINE - MORE THAN 8 pH) CAN CAUSE BROWN STAINS (PHOSPHATE SURFACE DEPOSIT) WHICH CAN ALSO INTERFERE WITH THE SMOOTH OPERATION OF THE DEVICE. MOST BROWN STAINS ARE NOT RUST AND ARE EASILY REMOVED. BRUSH THE DEVICE CAREFULLY. MAKE SURE THE SURFACES ARE VISIBLY CLEAN AND FREE FROM STAINS AND TISSUE. THIS IS ALSO A GOOD TIME TO INSPECT THE DEVICE FOR PROPER FUNCTION AND CONDITION.

APPROXIMATELY ONCE EVERY MONTH THE RETRACT-ROBOT SHOULD BE IMMERSSED IN INSTRUMENT MILK TO KEEP ALL THE MOVING PARTS LUBRICATED AND TO PROTECT THE STAINLESS STEEL COMPONENTS. AS AN ALTERNATE YOU CAN USE A “SPRAY LUBE” (ELMED PART NO. 52003-82) FOLLOW THE INSTRUCTIONS ON THE BOTTLE. ONCE OR TWICE A MONTH, PUT A FEW DROPS OF INSTRUMENT OIL (ELMED PART NO. 52003-40) ONTO THE THREAD OF 6A, 1A AND 1B. FROM TIME TO TIME (BETWEEN SIX MONTHS TO ONE YEAR IN CASE OF HEAVY USAGE) THE RETRACT-ROBOT SHOULD BE SUBJECTED TO PREVENTATIVE MAINTENANCE SERVICE. WE CAN PROVIDE THIS SERVICE TO YOU ON A ONE-DAY TURN-AROUND TIME BASIS FOR A NOMINAL CHARGE.

THE SERVICE IS RELATIVELY INEXPENSIVE AND SHOULD BE CONSIDERED SIMILAR TO THE COST OF MAINTAINING OTHER SOPHISTICATED INSTRUMENTS. IT WILL SAVE MONEY IN THE LONG RUN.

PLEASE NOTE

- ALL ELMED RETRACT-ROBOT SYSTEMS MUST BE ONLY USED FOR ITS INTENDED PURPOSE.
- THESE RETRACTOR SYSTEMS ARE ONLY FOR USE BY A QUALIFIED PHYSICIAN.
- THESE RETRACTOR SYSTEMS MUST BE INSPECTED PRIOR TO EACH USE TO MAKE CERTAIN THEY ARE IN PROPER WORKING ORDER.
- ALL ELMED RETRACT-ROBOT SYSTEM PARTS MUST BE STERILIZED BEFORE EACH USE.
- SELECTING THE PROPER TECHNIQUE WILL HELP TO PRESERVE THE FUNCTION AND EXTEND THE LIFE OF YOUR SURGICAL INSTRUMENTS

AUTOCLAVING METHODS

ETO STERILIZATION

WITH A PRESSURE READING NOT TO EXCEED 12 PSI, AND A TEMPERATURE NOT TO EXCEED 68.3°C (155°F), THE ELECTROSURGICAL ACCESSORIES CAN BE STERILIZED BY ETHYLENE OXIDE IN ANY STANDARD CYCLE.

CONCERNING HUMIDIFICATION, VACUUM, CYCLE TIME, GAS CONCENTRATION AND TEMPERATURE, WE RECOMMEND FOLLOWING THE MANUFACTURER'S INSTRUCTIONS FOR THE ETO STERILIZATION UNIT.

STEAM AUTOCLAVING WITH PRE VACUUM AND GRAVITY STERILIZERS

IF A WRAPPING METHOD IS USED, MAKE CERTAIN THAT THE INSTRUMENTS ARE INDIVIDUALLY WRAPPED OR SEALED IN A STERILE PACK. OTHER METAL OBJECTS SHOULD NEVER COME IN CONTACT WITH THE INSULATING MATERIAL OF FORCEPS AND HANDLES, OR WITH RF-CONNECTION CABLES. SUCH POINTS OF CONTACT MAY CAUSE MELTING OF THE INSULATION.

WE RECOMMEND THE FOLLOWING VALUES/PARAMETERS, BUT WE ALSO SUGGEST FOLLOWING THE MANUFACTURER'S INSTRUCTIONS FOR STEAM STERILIZATION:

CYCLE	STERILIZING TEMP.	STERILIZING TIME	DRYING TIME* ³
PRE VACUUM/WRAPPED	270° F (132° C)	4 MINUTES	30 MINUTES
GRAVITY/WRAPPED	250° F (121° C)	30 MINUTES	45 MINUTES
GRAVITY/WRAPPED	270° F (132° C)	30 MINUTES	45 MINUTES

**IT IS IMPORTANT THAT THE LONGEST DRYING CYCLE POSSIBLE IS EMPLOYED, TO PREVENT BUILD UP OF MOISTURE INSIDE THE INSTRUMENT. IF THE CYCLE OF YOUR AUTOCLAVE ALLOWS A 45 MIN DRY TIME, WE RECOMMEND IT. CORROSION, PITTING OR INTERMITTENT OPERATION ARE USUAL SIGNS OF A MOISTURE INDUCED CORROSION PROBLEM.*

FLASH AUTOCLAVING (FAST HEATING/COOLING CYCLE)

FLASH STERILIZATION: MINIMUM EXPOSURE TIME 4 MINUTES AT 132°C. AVERAGE DRYING TIME 8 TO 15 MINUTES.

IMPORTANT! FLASH AUTOCLAVING WILL REDUCE THE USEFUL LIFE OF THE INSTRUMENT PARTICULARLY WHEN IT IS CONSTRUCTED OF VARIOUS MATERIALS, ENCOMPASSING DIFFERENT EXPANSION RATES.

STERRAD STERILIZATION PROCESS INCLUDING STERRAD NX

THE STERILIZATION PROCESS IS A MULTIPLE STERILIZATION PROCESS THAT UTILIZES A COMBINATION OF EXPOSURE TO HYDROGEN PEROXIDE VAPOR AND PLASMA TO AFFECT STERILIZATION. THE STERRAD NX STERILIZER CAN STERILIZE INSTRUMENTS WHICH HAVE DIFFUSION RESTRICTED SPACES, SUCH AS HINGED PORTIONS OF FORCEPS AND SCISSORS.

ADHERE TO THE STERILIZATION INSTRUCTIONS PROVIDED BY THE MANUFACTURER. (ADVANCED STERILIZATION PRODUCTS A JOHN-SON & JOHNSON COMPANY).

CHEMICAL / COLD STERILIZATION: NOT RECOMMENDED

WE DESIGN, MANUFACTURE, & SELL THE TOOLS THE SURGEONS USE

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