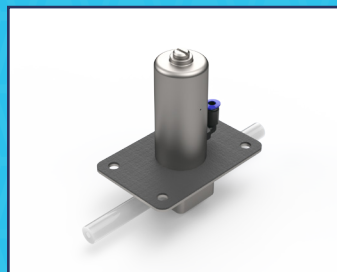
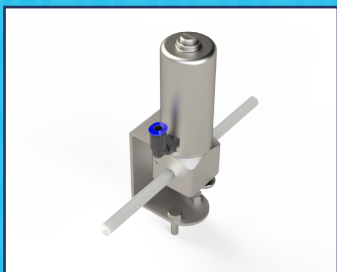


CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

MINI AUTOMATED PINCH VALVES



SUITABLE FOR BENCH TOP, LOW FLOW OR GENE THERAPY APPLICATIONS

WITHIN THE SUT EQUIPMENT DESIGN SPACE, THERE ARE A MULTITUDE OF DRIVERS WHERE CRITICAL EQUIPMENT IS REQUIRED TO RELEASE NEW APPLICATION DEVELOPMENTS. ONE SUCH CRITICAL DEVELOPMENT IS THE RAPID REALISATION OF GENE THERAPIES AS A REALISTIC TREATMENT OF SEVERE DISEASE.

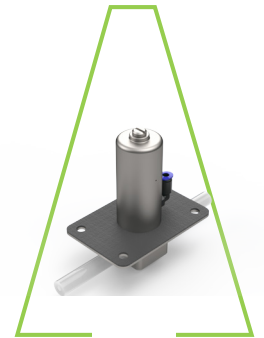
GENE THERAPY CAN ELIMINATE THE NEED FOR CONTINUAL MANAGEMENT OF DISEASE, WHILE REDUCING RELIANCE ON CURRENT STANDARD MEDICATIONS. AS THIS TREATMENT ADDS A NEW GENE, AND IS INTENDED TO PROVIDE A ONE-TIME OR REDUCED TREATMENT, PRODUCTION VOLUMES REQUIRED ARE MUCH LOWER - BUT GIVEN THE COMPLEXITY OF THE TREATMENT, THE COST IS FAR GREATER...

GIVEN MAXIMUM UPSTREAM VOLUMES OF BELOW 2,000L, WITH MULTIPLE PURIFICATION STEPS BEFORE THE VOLUME IS REDUCED TO <20L, SUT TECHNOLOGIES ARE IDEALLY SUITED FOR GENE THERAPY PRODUCTION. ACHIEVING FLUID CONTROL, AND EVEN CONSISTENT AND SAFE SHUTOFF. USING SINGLE-USE TUBING CAN BE CHALLENGING WITH CURRENT PINCH VALVE TECHNOLOGY - HOWEVER CARTEN'S EXPERIENCE IN HIGH PERFORMANCE INDUSTRIES HAS ALLOWED US TO INTRODUCE A COMPACT PNEUMATIC VERSION SUITABLE FOR THIS SCALED-DOWN PRODUCTION REQUIREMENT.

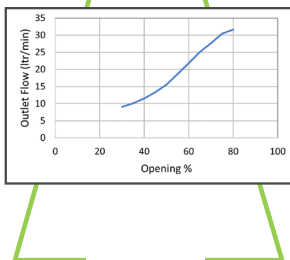
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ADVANTAGES OF MINI AUTOMATED PINCH VALVES

- 1. MINIMUM VALVE SIZES:** ALL VALVES WITHIN THE SAME FOOTPRINT – UP TO 3/8" OD.
- 2. MULTIUSE ASSEMBLIES FOR SINGLE USE:** DURABILITY TO MATCH THE TRADITIONAL STAINLESS STEEL DOMINATED TRADITIONAL BIOPROCESSING MARKET BUT ALLOWS FOR ALL THE ADVANTAGES OF SINGLE USE.
- 3. OPEN ARCHITECTURE DESIGN - ALL TUBING BRANDS/COMPOUNDS:** OPTIONS FOR CONTROL AND SHUTOFF OF EVERY BRAND AND COMPOUND ON THE MARKET – INCLUDING AT 4BAR USING BRAIDED TUBING – AND UP TO 3/8 ID.
- 4. DOME DESIGN FOR HIGH BATCH LIFE CYCLE:** BRAIDED TUBING – FOR A LONG TIME PROBLEMATIC FOR PINCH VALVES – CAN ACHIEVE LONG BATCH LIFE CYCLES USING DOME SHAPED COMPRESSION PLUNGERS. ALLOWS PERFUSION TO BECOME A REALITY FOR USERS.
- 5. ALL STAINLESS MATERIAL GRADES:** MATERIALS OF CONSTRUCTION SUITABLE FOR CLEANLINESS AND STILL PREVALENT CLEAN DOWN REGIMES – FULL STAINLESS-STEEL CONSTRUCTION.



- 6. EASE OF ASSEMBLY (FULL FACE OF VALVE EXPOSED):** FULL ACCESS TO HOLDER WHEN BASE IS SIMPLY FLIPPED TO ALLOW TUBE CHANGEOUT, WHILE SIMULTANEOUSLY REMOVING THE COMPRESSOR PINCH POINT AWAY FROM THE OPERATOR.



- 7. EASY AUTOMATION:** AS SUT SCALES TO PRODUCTION BATCH SIZES, AUTOMATION IS EASILY ACHIEVED WITH LIMIT SWITCHES, PROXIMITY SENSORS, OR POSITIONERS – ALL BRANDS POSSIBLE WITH SIMPLE RISING STEM CONCEPT FOR POSITION CONTROL.

- 8. CONTROL VALVE:** UNIQUE MANIPULATION OF TUBING GEOMETRY ALLOWS GENUINE LINEAR RESPONSE FOR CONTROL APPLICATIONS, ALLOWING TUBING TO REMAIN UNBROKEN AND THE SOLE PRODUCT CONTACT SURFACE. SHUTOFF VALVES CAN BE RETROFITTED FOR CONTROL APPLICATION.

- 9. PROCESS OF RECORD:** VALVES INSTALLED WITH BIOLOGICS MANUFACTURERS, CDMO'S, AND OEM'S IN ALL GLOBAL REGIONS, MULTIPLE APPLICATIONS, AND MANY YEARS. PERFORMANCE IS PROVEN IN THE FIELD.

- 10. INSTALLATION ORIENTATION:** CAN BE INSTALLED IN EVERY PLANE AND ORIENTATION – HORIZONTAL, VERTICAL, AND UPSIDE-DOWN...

- 11. INTEGRATED SAFETY GUARD:** SAFETY GUARD NOW INTEGRATED INTO BATCH CHANGEOUT PROCESS – THE HOLDER ROTATES NOWBASE CLAMPS FULLY SHUT AND ENCAPSULATES THE TUBING – PROVIDING A FULL BARRIER TO PREVENT OPERATOR PINCH POINT DURING PROCESS OPERATION.

- 12. AIR CONNECTOR POSITIONED FURTHER UP CYLINDER:** THIS SUBTLE CHANGE ALLOWS EQUIPMENT MANUFACTURERS SEAL INSTRUMENT AIR SUPPLY WITH UTILITIES BEHIND AN IP-RATED ENCLOSURE.

