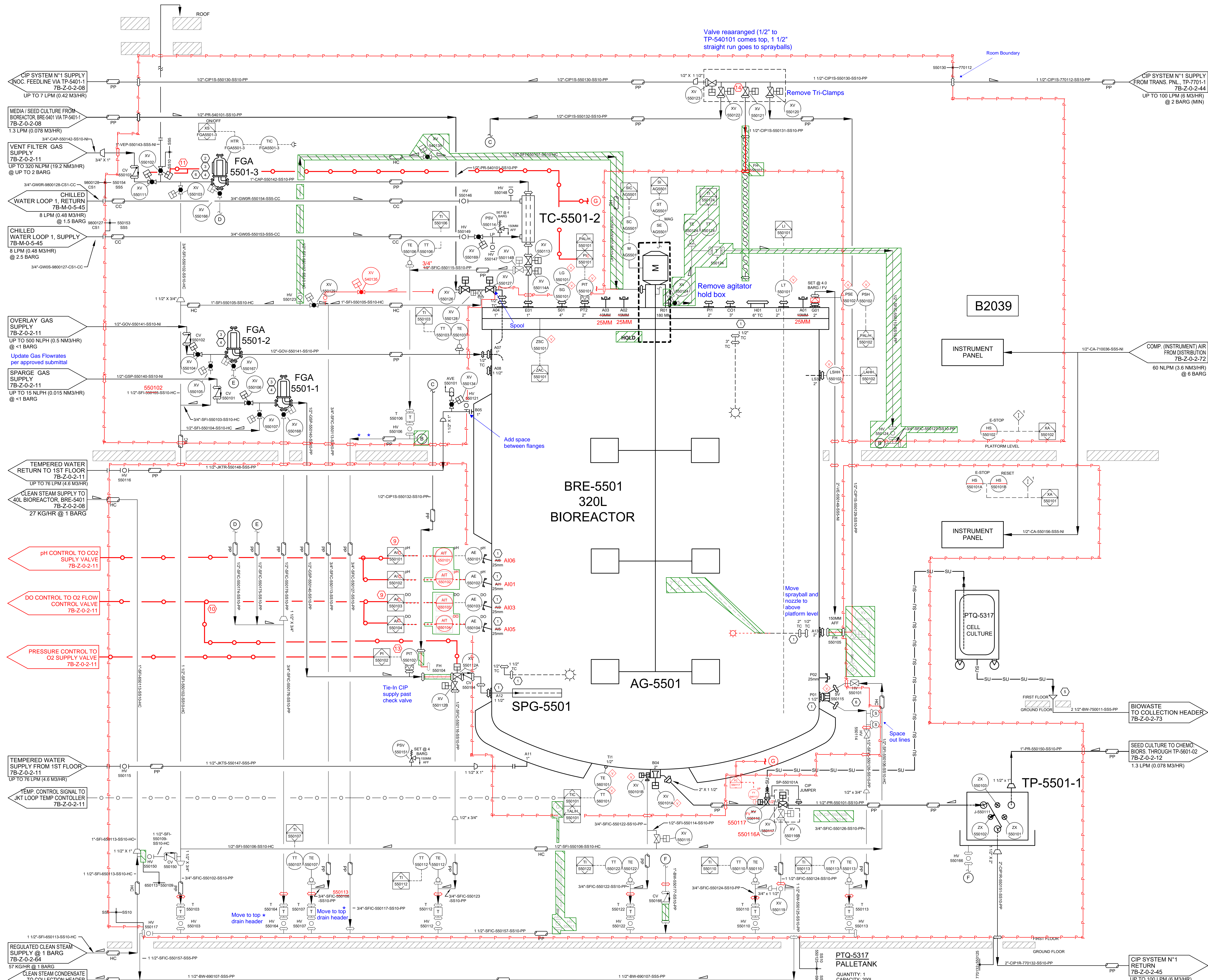


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- GENERAL NOTES:
- 1 ALL COMPONENT & EQUIPMENT NUMBERS ARE PRECEDED BY "7B" TO REPRESENT THE BULK DRUG SUBSTANCE (BDS) BUILDING
  - 2 ALL AUTOMATIC VALVES FAIL CLOSED (F.C.) UNLESS NOTED FAIL OPEN (F.O.)
  - 3 ALL P&ID COMPUTER CONNECTIONS ARE WITHIN THE PCS UNLESS OTHERWISE NOTED.
  - 4 LAST LINE NUMBER: 550177
  - 5 LINE NUMBER NOT USED: 550111, 12, 17-22, 34-39, 52, 55
  - 6 LAST AUTO VALVE NUMBER: XV-550108-10, 25, 30, 33, 37-49, 58, 59
  - 7 AUTO VALVE NUMBERS NOT USED: XV-550108-10, 25, 30, 33, 37-49, 58, 59
  - 8 LAST MANUAL VALVE NUMBER: FH-550102
  - 9 MANUAL VALVE NUMBERS NOT USED: HV-550104/05/06/09/19/20/37/45, 46, 52/58
  - 10 LAST FLEX HOSE NUMBER: FH-550102
  - 11 FLEX HOSE NUMBER NOT USED: FH-550102, 03

- SHEET NOTES
- 1 AS PART OF THE CIP SET UP:
    - REMOVE SPARGER ASSEMBLY, INSTRUMENT (PH & DO) PROBES, AND AGITATOR. REPLACE WITH BLIND PLUGS AND CAPS.
    - INSERT SPRAY BALLS INTO NOZZLES CO1, A12, AND A13.
    - CONNECT CIP JUMPERS, SWING ELBOWS, AND CIP SPOOLS.
  - 2 VENDOR SHALL SUPPLY MMS SERIES 48, NEMA 4X FILTER HOUSING HEATER WITH TEMPERATURE CONTROLLER.
  - 3 FILTER HOUSING WILL BE CLEANED OUT OF PLACE.
  - 4 FILTER INTEGRITY TESTING PERFORMED OUT OF PLACE.
  - 5 PALLET TANK PTO-5317 TRANSPORTED TO FLOOR DRAIN TO DISCARD CELL CULTURE TO BIOWASTE.
  - 6 TEMPERATURE INDICATING STICKER TO BE APPLIED TO SURFACE OF FILTER HOUSING PRIOR TO OPERATION.
  - 7 SAMPLE TEES TO BE ORIENTED AWAY FROM OPERATOR DURING MANUAL ACTUATION OF HV-550101.

- INTERLOCKS
- 1 SAFETY INTERLOCK - E-STOP ACTIVATION REMOVES AIR TO ALL ACTUATED VALVES AND DE-ENERGIZES ALL MOTORS (HARDWIRED).
- HOLD NOTES
- AGITATOR NOZZLE LOCATION TO BE RESOLVED WITH VENDOR

- SHEET NOTES (CONT)
- 8 ORDER OF STEAM TRAPS ALONG DRAIN HEADER IS REPRESENTATIVE ONLY. FINAL FABRICATED DESIGN MAY DIFFER.
  - 9 PHDO PROBE FOR CONTROL. SELECTED PRIOR TO OPERATION. UNSELECTED PROBE USED FOR MONITORING ONLY.
  - 10 LOW DO MEASUREMENT TOGGLES XV-550112A OPEN AND INITIALIZES O2 FLOW CONTROL VIA FV-550100 (7B-Z-0-2-11).
  - 11 LOW HEADSPACE PRESSURE TOGGLES XV-550106 OPEN (7B-Z-0-2-11). HIGH HEADSPACE PRESSURE TOGGLES XV-550102 OPEN.
  - 12 VALVE POSITION SET TO PARTIALLY OPEN DURING BATCH DISCARD TO PTO-5316. VALVE POSITION SET TO FULLY OPEN WHEN VALVE IS REQUIRED OPEN DURING CIP/SP.
  - 13 O2 PRESSURE IN SUPPLY LINE MAINTAINED AT -0.3 BARG. CONTROLLED BY FV-550109 (7B-Z-0-2-11).
  - 14 XV-550121 PROVIDED WITH STROKE LIMITER. POSITION TO BE SET DURING CIP VALIDATION.

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REVISION	DATE	DESCRIPTION	BY
A	01JUL2020	90% BD ISSUE	JJR
B	28AUG2020	90% BD ISSUE	JJR
C	27NOV2020	DESIGN ISSUE	RLD
D	12FEB2021	90% DO ISSUE	RLD
E	19MAY2021	BD ISSUE	RLD
F	02JUL2021	90% DO ISSUE	RLD
G	10AUG2021	CONSTRUCTION ISSUE	RLD

**DRAFT**  
**INTERIM P&ID REDLINES**  
13JUL2022



R. Dr. Cesarino Mota Junior, 434 - Vila Buarque, São Paulo - SP, 01221-020

REVISION HISTORY

- 1 REV 0 - REMOVED VALVES XV-550118A, XV-550118B, AND XV-550131.
- 2 REV 0 - RELOCATED VALVE XV-550117 UPSTREAM OF XV-550116A/B.

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**Takeda**  
**Hemobrás**  
Buriti EPCMV

**P&ID DIAGRAM**  
**DRUG SUBSTANCE**  
**320L BIOREACTOR, BRE-5501**  
**VESSEL**

ENGINEER JJR	ARCHITECT BJE	DESIGNER RBN	IPS PROJECT # ITD19439.01
DRAWN BY RBN	REVIEWED BY GJC	SCALE NONE	CADD FILE NAME 7B-Z-0-2-10

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DATE: \_\_\_\_\_

REVISION 0 A VERSION

**7B-Z-0-2-10**

**ISSUED FOR CONSTRUCTION**