



LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia
Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT



Piping & Instrument Diagram

Document No. 17735-03

| Project No. | Vendor Doc. | P.O. No. | Department | Document Type | Serial No | Revision | Page |
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Airpack B.V. - Air Compressor -

Integrated Methanol and Ammonia Plant

17735-COM Piping & Instrument Diagram (K020)

code-3
M. Vakili

| REV. | DATE | DESCRIPTION | DRAWN | CHECKED | APPROVED |
|------|------------|---------------------|-------|---------|----------|
| 02 | 02-11-2023 | Issued for Approval | T.T. | S.K. | J.J. |
| 01 | 14-09-2023 | Issued for Approval | S.K. | J.J. | S.K. |

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Piping & Instrument Diagram

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|-----------|----|----|----|----|----|-----------|----|----|----|----|----|-----------|----|----|----|----|----|------------|----|----|----|----|----|--|
| 1 | X | X | | | | 26 | | | | | | 51 | | | | | | 76 | | | | | | |
| 2 | X | X | | | | 27 | | | | | | 52 | | | | | | 77 | | | | | | |
| 3 | X | X | | | | 28 | | | | | | 53 | | | | | | 78 | | | | | | |
| 4 | X | X | | | | 29 | | | | | | 54 | | | | | | 79 | | | | | | |
| 5 | | X | | | | 30 | | | | | | 55 | | | | | | 80 | | | | | | |
| 6 | | X | | | | 31 | | | | | | 56 | | | | | | 81 | | | | | | |
| 7 | | | | | | 32 | | | | | | 57 | | | | | | 82 | | | | | | |
| 8 | | | | | | 33 | | | | | | 58 | | | | | | 83 | | | | | | |
| 9 | | | | | | 34 | | | | | | 59 | | | | | | 84 | | | | | | |
| 10 | | | | | | 35 | | | | | | 60 | | | | | | 85 | | | | | | |
| 11 | | | | | | 36 | | | | | | 61 | | | | | | 86 | | | | | | |
| 12 | | | | | | 37 | | | | | | 62 | | | | | | 87 | | | | | | |
| 13 | | | | | | 38 | | | | | | 63 | | | | | | 88 | | | | | | |
| 14 | | | | | | 39 | | | | | | 64 | | | | | | 89 | | | | | | |
| 15 | | | | | | 40 | | | | | | 65 | | | | | | 90 | | | | | | |
| 16 | | | | | | 41 | | | | | | 66 | | | | | | 91 | | | | | | |
| 17 | | | | | | 42 | | | | | | 67 | | | | | | 92 | | | | | | |
| 18 | | | | | | 43 | | | | | | 68 | | | | | | ATTACHMENT | | | | | | |
| 19 | | | | | | 44 | | | | | | 69 | | | | | | 1 | | | | | | |
| 20 | | | | | | 45 | | | | | | 70 | | | | | | 2 | | | | | | |
| 21 | | | | | | 46 | | | | | | 71 | | | | | | 3 | | | | | | |
| 22 | | | | | | 47 | | | | | | 72 | | | | | | 4 | | | | | | |
| 23 | | | | | | 48 | | | | | | 73 | | | | | | 5 | | | | | | |
| 24 | | | | | | 49 | | | | | | 74 | | | | | | 6 | | | | | | |
| 25 | | | | | | 50 | | | | | | 75 | | | | | | 7 | | | | | | |

Type of valve to be specified.



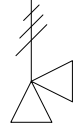
VALVE



BLOCK AND BLEED 2-WAY MANIFOLDS



Y-STRAINER



PRESSURE SAFETY VALVE



TUBING VALVE



VENT



SIDE GLASS



COMPRESSOR STAGE



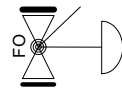
VALVE (CLOSED)



GATE VALVE



REDUCER



PRESSURE CONTROL VALVE



CHECK VALVE



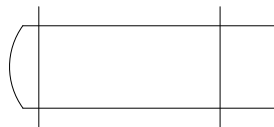
SIGNAL



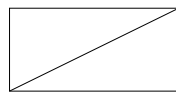
INSTRUMENT



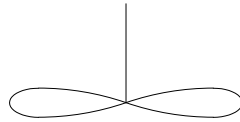
VESSEL



TUBE COOLER



MOTOR



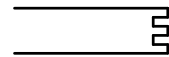
FAN



PUMP



OIL SIEVE






OIL HEATER



LIGHT



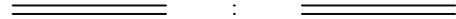


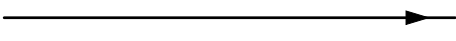



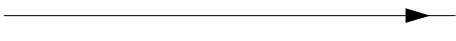







PUSH BUTTON




| 01 | 24/10/23 | ISSUED FOR REVIEW | TT | SK | JJ | | |
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| 00 | 29/08/23 | ISSUED FOR REVIEW | SK | KP | JJ | | |
| REV. | DATE | DESCRIPTION | DRAWN | CHECK | APPROVED | | |
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| PROJECT TITLE: LIDCO, Pars SEE Zone, Assaluyeh Integrated Methanol and Ammonia Plant 3000 MTPD MeOH/900 MTPD NH3 PROJECT | | | | | | | |
| DRAWING TITLE: P&ID for High Pressure Air Compressor K020 | | | | | | | |
| DOCUMENT No: 17735-03 P&ID | | | | SC. | | | |
| | | | | SIZE: A3 | | | |
| PROJECT No. | VENDOR DOC. | P.O. No. | DEPARTMENT | DOC. TYPE | SERIAL No. | REV. | SHEET No. |
| N278 | VD | 6019 | PR | PID | 0002 | 02 | 3 OF 6 |

ABBREVIATIONS

AAH = HIGH DEWPOINT ALARM
 AC = ANALYZER CONTROLLER
 AI = DEWPOINT INDICATOR
 AT = DEWPOINT TRANSMITTER
 BPV = BACK PRESSURE VALVE
 CV = CHECK VALVE
 DI = DIRT INDICATOR
 FG = FLOW GAUGE
 FO = FLOW ORIFICE
 FT = FLOW TRANSMITTER
 FH = FLEXIBLE HOSE
 LCP = LOCAL CONTROL PANAL
 LG = LEVEL GAUGE
 LSH = HIGH LEVEL SWITCH
 LSHH = HIGH / HIGH LEVEL SWITCH
 LSL = LOW LEVEL SWITCH
 LSLL = LOW / LOW LEVEL SWITCH
 MSP = MOTOR STARTER PANEL
 PAH = HIGH PRESSURE ALARM (TRANSMITTER)
 PAHH = HIGH PRESSURE TRIP (TRANSMITTER)
 PAHL = PRESSURE SWITCH POINT HIGH LOW (TRANSMITTER)
 PAL = LOW PRESSURE ALARM (TRANSMITTER)
 PALL = LOW PRESSURE TRIP (TRANSMITTER)
 PCV = PRESSURE CONTROL VALVE
 PDAH = HIGH PRESSURE DIFFERENTIAL ALARM (TRANSMITTER)
 PDAH= HIGH PRESSURE DIFFERENTIAL TRIP (TRANSMITTER)
 PDAL = LOW PRESSURE DIFFERENTIAL ALARM (TRANSMITTER)
 PDALL = LOW PRESSURE DIFFERENTIAL TRIP (TRANSMITTER)
 PDG = PRESSURE DIFFERENTIAL GAUGE
 PDIT = PRESSURE DIFFERENTIAL INDICATING TRANSMITTER
 PDSL = LOW PRESSURE DIFFERENTIAL SWITCH
 PDSLL = LOW / LOW PRESSURE DIFFERENTIAL SWITCH
 PDT = PRESSURE DIFFERENTIAL TRANSMITTER
 PG = PRESSURE GAUGE
 PIT = PRESSURE INDICATING TRANSMITTER
 PRV = PRESSURE REDUCING VALVE
 PSH = HIGH PRESSURE SWITCH
 PSHH = HIGH / HIGH PRESSURE SWITCH
 PSL = LOW PRESSURE SWITCH

PSLL = LOW / LOW PRESSURE SWITCH
 PSV = PRESSURE SAFETY VALVE
 PT = PRESSURE TRANSMITTER
 SG = SIGHT GLASS
 XY = SOLENOID VALVE
 TAH = HIGH TEMPERATURE ALARM (TRANSMITTER)
 TAHH = HIGH TEMPERATURE TRIP (TRANSMITTER)
 TAL = LOW TEMPERATURE ALARM (TRANSMITTER)
 TALL = LOW TEMPERATURE TRIP (TRANSMITTER)
 TCV = TEMPERATURE CONTROL VALVE
 TG = TEMPERATURE GAUGE
 TIT = TEMPERATURE INDICATING TRANSMITTER
 TRV = THERMAL RELIEF VALVE
 TSH = HIGH TEMPERATURE SWITCH
 TSHH = HIGH / HIGH TEMPERATURE SWITCH
 TT = TEMPERATURE TRANSMITTER
 TW = THERMOWELL
 VSH = HIGH VIBRATION SWITCH
 VSHH = HIGH / HIGH VIBRATION SWTICH
 HE = HEATER
 B = BLOWER
 VAH = HIGH VIBRATION ALARM (TRANSMITTER)
 VAHH = HIGH VIBRATION TRIP (TRANSMITTER)
 XI = ANNUNCIATOR (HORN)
 VT = VIBRATION TRANSMITTER
 FIT = FLOW INDICATED TRANSMITTER
 TIC = TEMPERATURE INDICATED CONTROL
 PIC = PRESSURE INDICATED CONTROL

| | | | |
|---|---|---|-----------------------|
|  | : |  | BELT |
|  | |  | SHAFT |
|  | |  | MECHANICAL CONNECTION |
|  | |  | COOLING WATER LINE |
|  | |  | ELECTRICAL LINE |
|  | | | GAS/AIR LINE |
|  | | | HEAT TRACING |
|  | | | OIL LINE |
|  | | | PURGE AIR |
|  | | | INSULATION |

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Design condition to be added.

Operating and Design condition for shell and tube side to be specified.

to be revised
interstage design pressure is 30.5 barg

75°C

Repeated Comments:
Compressor shall not be started at the Low Low suction pressure. I.e. Permissible to start signal shall be generated from NOT low low condition of suction pressure.

Please refer to additional comments on attached files (comments are not merged because of lack of space)

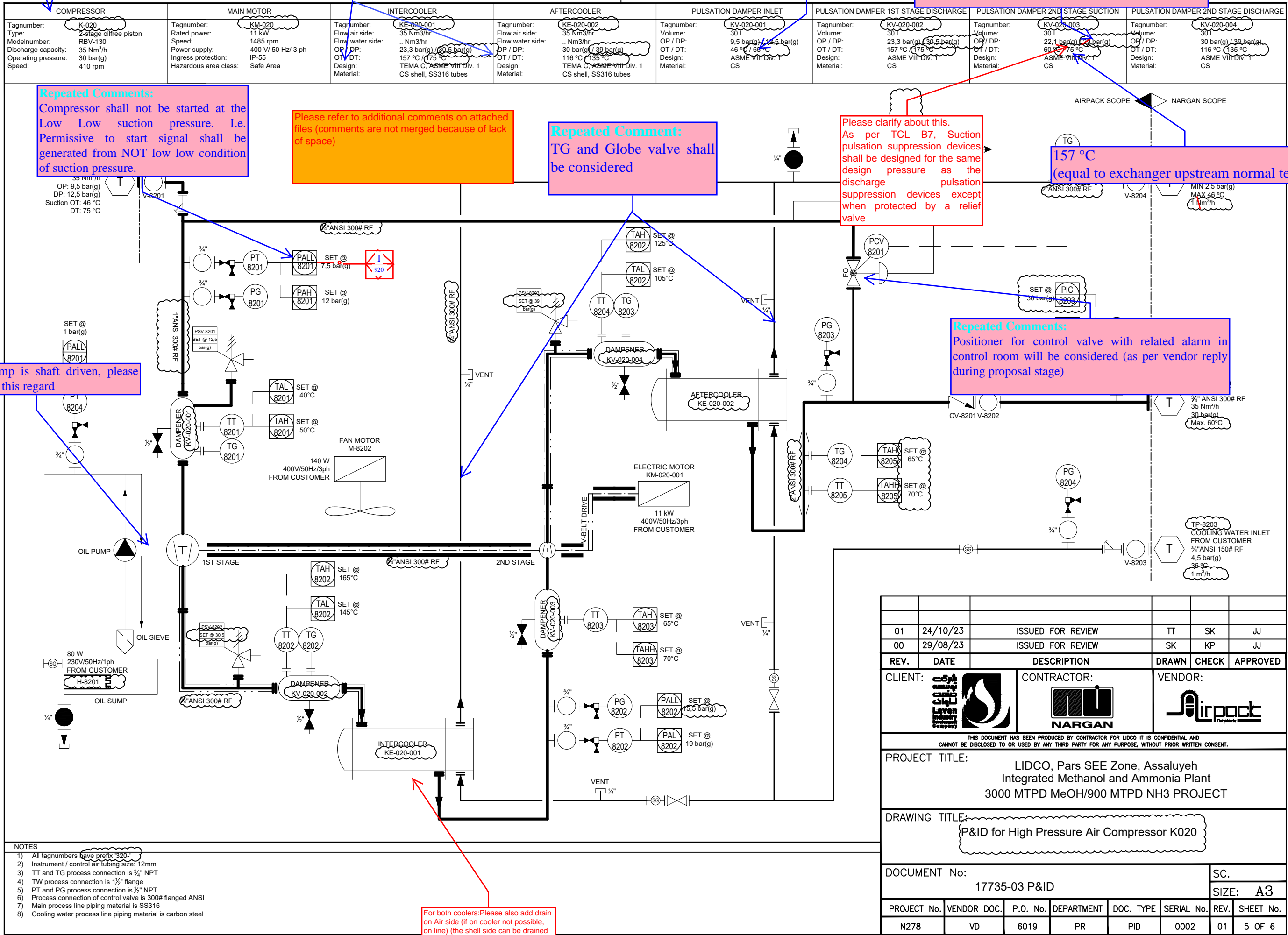
Repeated Comment:
TG and Globe valve shall be considered

Please clarify about this. As per TCL B7, Suction pulsation suppression devices shall be designed for the same design pressure as the discharge pulsation suppression devices except when protected by a relief valve

157°C
(equal to exchanger upstream normal temp)

Repeated Comments:
Positioner for control valve with related alarm in control room will be considered (as per vendor reply during proposal stage)

since oil pump is shaft driven, please add a note in this regard



- NOTES
- All tag numbers have prefix '320'
 - Instrument / control air tubing size: 12mm
 - TT and TG process connection is 3/4" NPT
 - TW process connection is 1 1/2" flange
 - PT and PG process connection is 1/2" NPT
 - Process connection of control valve is 300# flanged ANSI
 - Main process line piping material is SS316
 - Cooling water process line piping material is carbon steel

For both coolers: Please also add drain on Air side (if on cooler not possible, on line) (the shell side can be drained in case of any tube rupture after years.) Please also confirm that water side of cooler can be drained/vented with those considered on water lines

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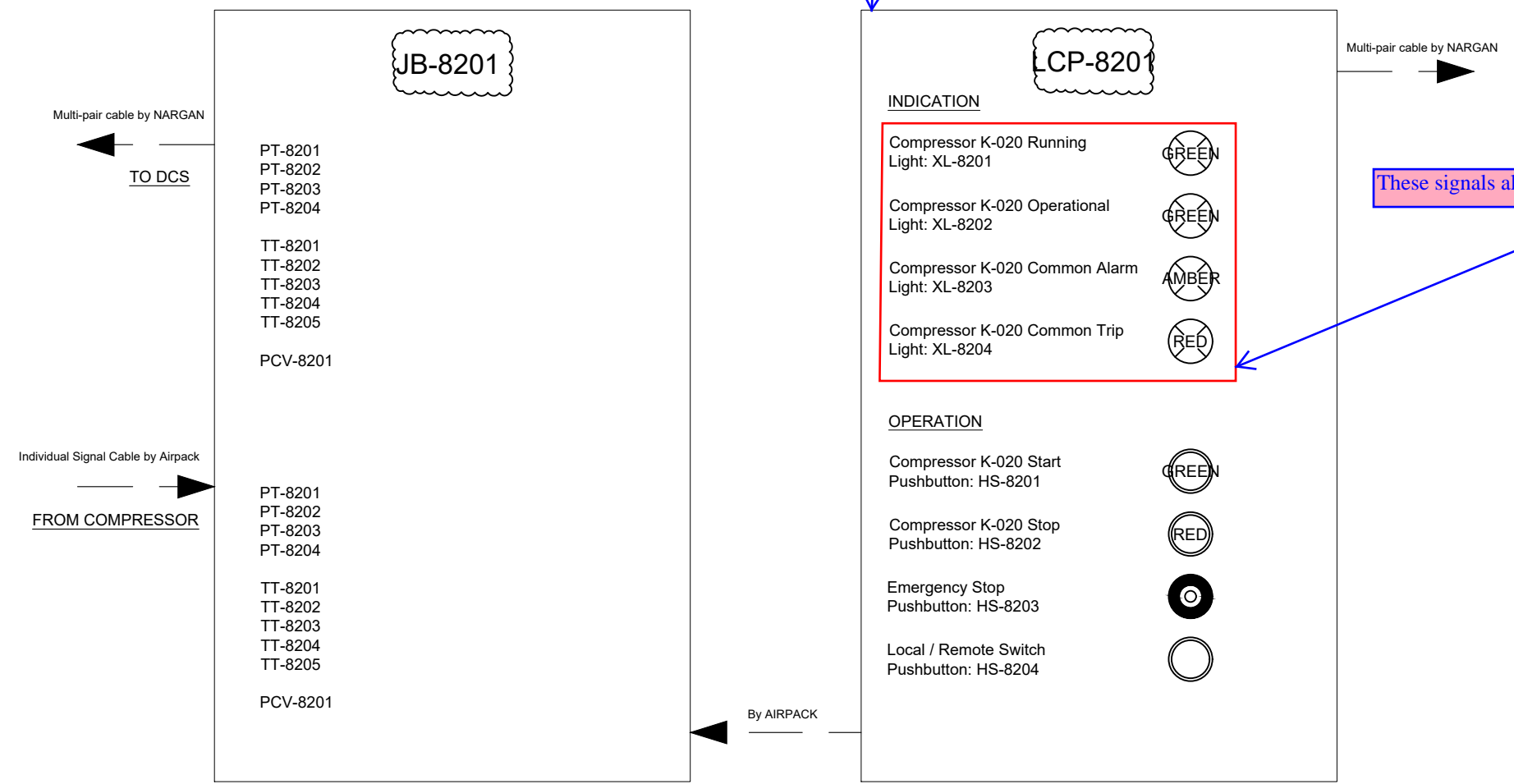
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Repeated Comment: Interlock IP922 / IP920 from process for package start / stop shall be shown.



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NOTES
 1) All tagnumbers have prefix '320-'
 2) Package will be DCS controlled (by others)