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Medical Gas Pipeline System Design Pressure Loss Report

Client: A Hospital
Project Reference: MGPS-2025-001-Demo
Date: 10/11/2025
Designer: Kevin Pugh
Authorised Person MGPS: Authorised Person MGPS

1. Executive Summary

Project: A Hospital
Total Sections: 305
Departments: 8
System Status: COMPLIANT
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2. System Overview

Design Philosophy: Each department is evaluated independently against full system pressure loss limits as per HTM 02-01.

Pressure Loss Limits per Department:

- 400 kPa Systems: 20 kPa maximum per department
- 700 kPa Systems: 34 kPa maximum per department
- 1100 kPa Systems: 34 kPa maximum per department
- Vacuum Systems: 20 kPa maximum per department (60 kPa to 40 kPa)

3. Department Analysis

Each department is evaluated independently. System passes only if ALL departments meet their individual pressure loss requirements.

Labour Delivery Room LDR 13 - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	5.4365 kPa	20 kPa	PASS ✓
Nitrous Oxide	2.5001 kPa	20 kPa	PASS ✓
Medical Air	7.9914 kPa	20 kPa	PASS ✓
Vacuum	7.5252 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status
A-B	Oxygen	15 mm	20	15	0.0220	PASS ✓
A-B	Nitrous Oxide	15 mm	6	15	0.0020	PASS ✓
A-B	Medical Air	15 mm	40	15	0.0879	PASS ✓

A-B	Vacuum	22 mm	40	15	0.1855	PASS ✓
B-C	Oxygen	15 mm	35	20	0.0992	PASS ✓
B-C	Nitrous Oxide	15 mm	17.5	20	0.0248	PASS ✓
B-C	Medical Air	15 mm	90	20	0.6558	PASS ✓
B-C	Vacuum	22 mm	90	20	1.3600	PASS ✓
C-D	Oxygen	22 mm	35	20	0.0116	PASS ✓
C-D	Nitrous Oxide	15 mm	17.5	20	0.0248	PASS ✓
C-D	Medical Air	22 mm	90	20	0.0769	PASS ✓
C-D	Vacuum	28 mm	90	20	0.3332	PASS ✓
D-E	Oxygen	22 mm	73	18	0.0417	PASS ✓
D-E	Nitrous Oxide	15 mm	36.5	18	0.0878	PASS ✓
D-E	Medical Air	22 mm	190	18	0.2825	PASS ✓
D-E	Vacuum	28 mm	190	18	1.2134	PASS ✓
D-E	Oxygen	22 mm	92	2	0.0063	PASS ✓
D-E	Medical Air	22 mm	350	2	0.0915	PASS ✓
D-E	Vacuum	28 mm	250	2	0.1990	PASS ✓
E-F	Oxygen	22 mm	92	15	0.0552	PASS ✓
E-F	Nitrous Oxide	15 mm	36.5	17	0.0830	PASS ✓
E-F	Medical Air	22 mm	350	15	0.7988	PASS ✓
E-F	Vacuum	35 mm	250	15	0.5347	PASS ✓
F-G	Oxygen	22 mm	233.25	25	0.6457	PASS ✓
F-G	Nitrous Oxide	15 mm	57.5	25	0.3346	PASS ✓
F-G	Medical Air	28 mm	542.5	25	0.8608	PASS ✓
F-G	Vacuum	54 mm	560	25	0.4069	PASS ✓
G-H	Oxygen	22 mm	233.25	6	0.1219	PASS ✓
G-H	Nitrous Oxide	15 mm	57.5	6	0.0621	PASS ✓
G-H	Medical Air	28 mm	542.5	6	0.1639	PASS ✓

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G-H	Vacuum	54 mm	560	6	0.0764	PASS ✓
H-I	Oxygen	22 mm	653.75	6	0.9574	PASS ✓
H-I	Nitrous Oxide	15 mm	69.5	6	0.0908	PASS ✓
H-I	Medical Air	42 mm	3627.5	6	0.8122	PASS ✓
H-I	Vacuum	54 mm	1710	6	0.7127	PASS ✓
I-J	Oxygen	28 mm	864.75	6	0.4166	PASS ✓
I-J	Nitrous Oxide	15 mm	79.5	6	0.1188	PASS ✓
I-J	Medical Air	42 mm	3852.5	6	0.9161	PASS ✓
I-J	Vacuum	76 mm	2290	6	0.2013	PASS ✓
J-K	Oxygen	28 mm	1075.75	6	0.6446	PASS ✓
J-K	Nitrous Oxide	15 mm	89.5	6	0.1505	PASS ✓
J-K	Medical Air	42 mm	4077.5	6	1.0262	PASS ✓
J-K	Vacuum	76 mm	2870	6	0.3162	PASS ✓
K-L	Oxygen	35 mm	1341.75	6	0.3126	PASS ✓
K-L	Nitrous Oxide	15 mm	129.5	6	0.3152	PASS ✓
K-L	Medical Air	54 mm	4332.5	6	0.5274	PASS ✓
K-L	Vacuum	76 mm	3220	6	0.3980	PASS ✓
L-M	Oxygen	35 mm	1536.75	6	0.4101	PASS ✓
L-M	Nitrous Oxide	15 mm	139.5	6	0.3657	PASS ✓
L-M	Medical Air	54 mm	4697.5	6	0.6200	PASS ✓
L-M	Vacuum	76 mm	3760	6	0.5427	PASS ✓
M-N	Oxygen	35 mm	1546	6	0.4151	PASS ✓
M-N	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
M-N	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
M-N	Vacuum	76 mm	3800	6	0.5543	PASS ✓
N-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
N-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓

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N-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
N-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

A-B - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (20 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0026 × 7.0 kPa
P = 0.0220 kPa

A-B - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (6 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0002 × 7.0 kPa
P = 0.0020 kPa

A-B - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (40 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0105 × 7.0 kPa
P = 0.0879 kPa

A-B - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (40 L/min / 116.0 L/min)² × 1.3 kPa
P = 1.2000 × 0.1189 × 1.3 kPa
P = 0.1855 kPa

B-C - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (35 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0177 × 7.0 kPa
P = 0.0992 kPa

B-C - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (17.5 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0044 × 7.0 kPa
P = 0.0248 kPa

B-C - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (90 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.1171 × 7.0 kPa
P = 0.6558 kPa

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B-C - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (90 L/min / 90.0 L/min)² × 1.7 kPa
P = 0.8000 × 1.0000 × 1.7 kPa
P = 1.3600 kPa

C-D - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (35 L/min / 768.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0021 × 7.0 kPa
P = 0.0116 kPa

C-D - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (17.5 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0044 × 7.0 kPa
P = 0.0248 kPa

C-D - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (90 L/min / 768.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0137 × 7.0 kPa
P = 0.0769 kPa

C-D - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (90 L/min / 159.0 L/min)² × 1.3 kPa
P = 0.8000 × 0.3204 × 1.3 kPa
P = 0.3332 kPa

D-E - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (21.6 m / 15 m) × (73 L/min / 1135.0 L/min)² × 7.0 kPa
P = 1.4400 × 0.0041 × 7.0 kPa
P = 0.0417 kPa

D-E - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (21.6 m / 15 m) × (36.5 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.4400 × 0.0087 × 7.0 kPa
P = 0.0878 kPa

D-E - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (21.6 m / 15 m) × (190 L/min / 1135.0 L/min)² × 7.0 kPa
P = 1.4400 × 0.0280 × 7.0 kPa
P = 0.2825 kPa

D-E - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (21.6\ m / 15\ m) \times (190\ L/min / 236.0\ L/min)^2 \times 1.3\ kPa$
$P = 1.4400 \times 0.6482 \times 1.3\ kPa$
P = 1.2134 kPa

D-E - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (2.4\ m / 8\ m) \times (92\ L/min / 1677.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.3000 \times 0.0030 \times 7.0\ kPa$
P = 0.0063 kPa

D-E - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (2.4\ m / 8\ m) \times (350\ L/min / 1677.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.3000 \times 0.0436 \times 7.0\ kPa$
P = 0.0915 kPa

D-E - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (2.4\ m / 8\ m) \times (250\ L/min / 350.0\ L/min)^2 \times 1.3\ kPa$
$P = 0.3000 \times 0.5102 \times 1.3\ kPa$
P = 0.1990 kPa

E-F - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (18.0\ m / 15\ m) \times (92\ L/min / 1135.0\ L/min)^2 \times 7.0\ kPa$
$P = 1.2000 \times 0.0066 \times 7.0\ kPa$
P = 0.0552 kPa

E-F - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (20.4\ m / 15\ m) \times (36.5\ L/min / 391.0\ L/min)^2 \times 7.0\ kPa$
$P = 1.3600 \times 0.0087 \times 7.0\ kPa$
P = 0.0830 kPa

E-F - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (18.0\ m / 15\ m) \times (350\ L/min / 1135.0\ L/min)^2 \times 7.0\ kPa$
$P = 1.2000 \times 0.0951 \times 7.0\ kPa$
P = 0.7988 kPa

E-F - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (18.0\ m / 15\ m) \times (250\ L/min / 427.0\ L/min)^2 \times 1.3\ kPa$
$P = 1.2000 \times 0.3428 \times 1.3\ kPa$
P = 0.5347 kPa

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F-G - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (233.25 L/min / 768.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0922 × 7.0 kPa
P = 0.6457 kPa

F-G - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (57.5 L/min / 263.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0478 × 7.0 kPa
P = 0.3346 kPa

F-G - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (542.5 L/min / 1547.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.1230 × 7.0 kPa
P = 0.8608 kPa

F-G - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (560 L/min / 1001.0 L/min)² × 1.3 kPa
P = 1.0000 × 0.3130 × 1.3 kPa
P = 0.4069 kPa

G-H - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (233.25 L/min / 1677.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0193 × 7.0 kPa
P = 0.1219 kPa

G-H - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (57.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0099 × 7.0 kPa
P = 0.0621 kPa

G-H - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (542.5 L/min / 3363.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0260 × 7.0 kPa
P = 0.1639 kPa

G-H - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (560 L/min / 2191.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.0653 × 1.3 kPa
P = 0.0764 kPa

H-I - Oxygen

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (653.75\ L/min / 1677.0\ L/min)^2 \times 7.0\ kPa$

$P = 0.9000 \times 0.1520 \times 7.0\ kPa$

$P = 0.9574\ kPa$

H-I - Nitrous Oxide

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (69.5\ L/min / 579.0\ L/min)^2 \times 7.0\ kPa$

$P = 0.9000 \times 0.0144 \times 7.0\ kPa$

$P = 0.0908\ kPa$

H-I - Medical Air

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (3627.5\ L/min / 10103.0\ L/min)^2 \times 7.0\ kPa$

$P = 0.9000 \times 0.1289 \times 7.0\ kPa$

$P = 0.8122\ kPa$

H-I - Vacuum

HTM02-01 Calculation (Table A5):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (1710\ L/min / 2191.0\ L/min)^2 \times 1.3\ kPa$

$P = 0.9000 \times 0.6091 \times 1.3\ kPa$

$P = 0.7127\ kPa$

I-J - Oxygen

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (864.75\ L/min / 3363.0\ L/min)^2 \times 7.0\ kPa$

$P = 0.9000 \times 0.0661 \times 7.0\ kPa$

$P = 0.4166\ kPa$

I-J - Nitrous Oxide

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (79.5\ L/min / 579.0\ L/min)^2 \times 7.0\ kPa$

$P = 0.9000 \times 0.0189 \times 7.0\ kPa$

$P = 0.1188\ kPa$

I-J - Medical Air

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (3852.5\ L/min / 10103.0\ L/min)^2 \times 7.0\ kPa$

$P = 0.9000 \times 0.1454 \times 7.0\ kPa$

$P = 0.9161\ kPa$

I-J - Vacuum

HTM02-01 Calculation (Table A5):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (7.2\ m / 8\ m) \times (2290\ L/min / 5521.0\ L/min)^2 \times 1.3\ kPa$

$P = 0.9000 \times 0.1720 \times 1.3\ kPa$

$P = 0.2013\ kPa$

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J-K - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1075.75 L/min / 3363.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1023 × 7.0 kPa
P = 0.6446 kPa

J-K - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (89.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0239 × 7.0 kPa
P = 0.1505 kPa

J-K - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4077.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1629 × 7.0 kPa
P = 1.0262 kPa

J-K - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (2870 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.2702 × 1.3 kPa
P = 0.3162 kPa

K-L - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1341.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0496 × 7.0 kPa
P = 0.3126 kPa

K-L - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (129.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0500 × 7.0 kPa
P = 0.3152 kPa

K-L - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4332.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0837 × 7.0 kPa
P = 0.5274 kPa

K-L - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3220 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.3402 × 1.3 kPa
P = 0.3980 kPa

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L-M - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (1536.75\ L/min\ /\ 6023.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9000 \times 0.0651 \times 7.0\ kPa$
$P = 0.4101\ kPa$

L-M - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (139.5\ L/min\ /\ 579.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9000 \times 0.0580 \times 7.0\ kPa$
$P = 0.3657\ kPa$

L-M - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (4697.5\ L/min\ /\ 14974.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9000 \times 0.0984 \times 7.0\ kPa$
$P = 0.6200\ kPa$

L-M - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (3760\ L/min\ /\ 5521.0\ L/min)^2 \times 1.3\ kPa$
$P = 0.9000 \times 0.4638 \times 1.3\ kPa$
$P = 0.5427\ kPa$

M-N - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (1546\ L/min\ /\ 6023.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9000 \times 0.0659 \times 7.0\ kPa$
$P = 0.4151\ kPa$

M-N - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (149.5\ L/min\ /\ 579.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9000 \times 0.0667 \times 7.0\ kPa$
$P = 0.4200\ kPa$

M-N - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (4737.5\ L/min\ /\ 14974.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9000 \times 0.1001 \times 7.0\ kPa$
$P = 0.6306\ kPa$

M-N - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (7.2\ m\ /\ 8\ m) \times (3800\ L/min\ /\ 5521.0\ L/min)^2 \times 1.3\ kPa$
$P = 0.9000 \times 0.4737 \times 1.3\ kPa$
$P = 0.5543\ kPa$

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N-O - Oxygen

```
HTM02-01 Calculation (Table A2):
P = (L_adjusted/L_table) × (Q_design/Q_table)² × ΔP_table
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
```

N-O - Nitrous Oxide

```
HTM02-01 Calculation (Table A2):
P = (L_adjusted/L_table) × (Q_design/Q_table)² × ΔP_table
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
```

N-O - Medical Air

```
HTM02-01 Calculation (Table A2):
P = (L_adjusted/L_table) × (Q_design/Q_table)² × ΔP_table
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
```

N-O - Vacuum

```
HTM02-01 Calculation (Table A5):
P = (L_adjusted/L_table) × (Q_design/Q_table)² × ΔP_table
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
```

NICU Hall Stage 2 - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	6.2751 kPa	20 kPa	PASS ✓
Medical Air	10.4302 kPa	20 kPa	PASS ✓
Vacuum	8.3501 kPa	20 kPa	PASS ✓
Nitrous Oxide	1.8810 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status
O-P	Oxygen	15 mm	10	4	0.0013	PASS ✓
O-P	Medical Air	15 mm	80	4	0.0802	PASS ✓
O-P	Vacuum	15 mm	40	4	0.3585	PASS ✓

P-Q	Oxygen	15 mm	73	15	0.2928	PASS ✓
P-Q	Medical Air	28 mm	640	15	0.6601	PASS ✓
P-Q	Vacuum	28 mm	180	15	0.9075	PASS ✓
Q-R	Oxygen	15 mm	73	6	0.1001	PASS ✓
Q-R	Medical Air	28 mm	640	6	0.2282	PASS ✓
Q-R	Vacuum	28 mm	180	6	0.3095	PASS ✓
R-S	Oxygen	22 mm	141.5	20	0.1901	PASS ✓
R-S	Medical Air	35 mm	1240	20	1.1117	PASS ✓
R-S	Vacuum	42 mm	350	20	0.5350	PASS ✓
S-T	Oxygen	22 mm	157.5	6	0.0556	PASS ✓
S-T	Medical Air	35 mm	1320	6	0.3026	PASS ✓
S-T	Vacuum	42 mm	400	6	0.1623	PASS ✓
T-U	Oxygen	22 mm	181	6	0.0734	PASS ✓
T-U	Medical Air	35 mm	1520	6	0.4012	PASS ✓
T-U	Vacuum	42 mm	470	6	0.2241	PASS ✓
U-V	Oxygen	22 mm	181	14	0.1994	PASS ✓
U-V	Medical Air	35 mm	1520	14	1.0797	PASS ✓
U-V	Vacuum	42 mm	470	14	0.6136	PASS ✓
V-W	Oxygen	22 mm	192.5	10	0.1611	PASS ✓
V-W	Medical Air	42 mm	1520	10	0.2731	PASS ✓
V-W	Vacuum	42 mm	510	10	0.5161	PASS ✓
W-X	Oxygen	22 mm	221	11	0.2335	PASS ✓
W-X	Medical Air	42 mm	1800	11	0.4213	PASS ✓
W-X	Vacuum	42 mm	600	11	0.7857	PASS ✓
X-Y	Oxygen	22 mm	225	7	0.1323	PASS ✓
X-Y	Medical Air	42 mm	1800	7	0.2333	PASS ✓
X-Y	Vacuum	42 mm	600	7	0.4260	PASS ✓

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Y-Z	Oxygen	22 mm	392.5	7	0.4026	PASS ✓
Y-Z	Medical Air	42 mm	3040	7	0.6655	PASS ✓
Y-Z	Vacuum	54 mm	1020	7	0.2958	PASS ✓
H-O	Oxygen	22 mm	653.75	6	0.9574	PASS ✓
H-O	Medical Air	42 mm	3627.5	6	0.8122	PASS ✓
H-O	Vacuum	54 mm	1710	6	0.7127	PASS ✓
H-O	Oxygen	28 mm	864.75	6	0.4166	PASS ✓
H-O	Medical Air	42 mm	3852.5	6	0.9161	PASS ✓
H-O	Vacuum	76 mm	2290	6	0.2013	PASS ✓
H-O	Oxygen	28 mm	1075.75	6	0.6446	PASS ✓
H-O	Medical Air	42 mm	4077.5	6	1.0262	PASS ✓
H-O	Vacuum	76 mm	2870	6	0.3162	PASS ✓
H-O	Oxygen	35 mm	1341.75	6	0.3126	PASS ✓
H-O	Medical Air	54 mm	4332.5	6	0.5274	PASS ✓
H-O	Vacuum	76 mm	3220	6	0.3980	PASS ✓
H-O	Oxygen	35 mm	1536.75	6	0.4101	PASS ✓
H-O	Medical Air	54 mm	4697.5	6	0.6200	PASS ✓
H-O	Vacuum	76 mm	3760	6	0.5427	PASS ✓
H-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
H-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
H-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
H-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
H-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
H-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

O-P - Oxygen

HTM02-01 Calculation (Table A2):

$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

$P = (4.8\ m\ /\ 8\ m) \times (10\ L/min\ /\ 579.0\ L/min)^2 \times 7.0\ kPa$

P = 0.6000 × 0.0003 × 7.0 kPa
P = 0.0013 kPa

O-P - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (80 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0191 × 7.0 kPa
P = 0.0802 kPa

O-P - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (40 L/min / 59.0 L/min)² × 1.3 kPa
P = 0.6000 × 0.4596 × 1.3 kPa
P = 0.3585 kPa

P-Q - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (73 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0349 × 7.0 kPa
P = 0.2928 kPa

P-Q - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (640 L/min / 2283.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0786 × 7.0 kPa
P = 0.6601 kPa

P-Q - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (180 L/min / 236.0 L/min)² × 1.3 kPa
P = 1.2000 × 0.5817 × 1.3 kPa
P = 0.9075 kPa

Q-R - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (73 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0159 × 7.0 kPa
P = 0.1001 kPa

Q-R - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (640 L/min / 3363.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0362 × 7.0 kPa
P = 0.2282 kPa

Q-R - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

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P = (7.2 m / 8 m) × (180 L/min / 350.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.2645 × 1.3 kPa
P = 0.3095 kPa

R-S - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (141.5 L/min / 768.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0339 × 7.0 kPa
P = 0.1901 kPa

R-S - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (1240 L/min / 2783.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.1985 × 7.0 kPa
P = 1.1117 kPa

R-S - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (24.0 m / 30 m) × (350 L/min / 488.0 L/min)² × 1.3 kPa
P = 0.8000 × 0.5144 × 1.3 kPa
P = 0.5350 kPa

S-T - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (157.5 L/min / 1677.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0088 × 7.0 kPa
P = 0.0556 kPa

S-T - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1320 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0480 × 7.0 kPa
P = 0.3026 kPa

S-T - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (400 L/min / 1074.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.1387 × 1.3 kPa
P = 0.1623 kPa

T-U - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (181 L/min / 1677.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0116 × 7.0 kPa
P = 0.0734 kPa

T-U - Medical Air

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HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1520 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0637 × 7.0 kPa
P = 0.4012 kPa

T-U - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (470 L/min / 1074.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.1915 × 1.3 kPa
P = 0.2241 kPa

U-V - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (16.8 m / 15 m) × (181 L/min / 1135.0 L/min)² × 7.0 kPa
P = 1.1200 × 0.0254 × 7.0 kPa
P = 0.1994 kPa

U-V - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (16.8 m / 15 m) × (1520 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.1200 × 0.1377 × 7.0 kPa
P = 1.0797 kPa

U-V - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (16.8 m / 15 m) × (470 L/min / 724.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.4214 × 1.3 kPa
P = 0.6136 kPa

V-W - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (12.0 m / 15 m) × (192.5 L/min / 1135.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0288 × 7.0 kPa
P = 0.1611 kPa

V-W - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (12.0 m / 15 m) × (1520 L/min / 6883.0 L/min)² × 7.0 kPa
P = 0.8000 × 0.0488 × 7.0 kPa
P = 0.2731 kPa

V-W - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (12.0 m / 15 m) × (510 L/min / 724.0 L/min)² × 1.3 kPa
P = 0.8000 × 0.4962 × 1.3 kPa
P = 0.5161 kPa

W-X - Oxygen

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HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (221 L/min / 1135.0 L/min)² × 7.0 kPa
P = 0.8800 × 0.0379 × 7.0 kPa
P = 0.2335 kPa

W-X - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (1800 L/min / 6883.0 L/min)² × 7.0 kPa
P = 0.8800 × 0.0684 × 7.0 kPa
P = 0.4213 kPa

W-X - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (600 L/min / 724.0 L/min)² × 1.3 kPa
P = 0.8800 × 0.6868 × 1.3 kPa
P = 0.7857 kPa

X-Y - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (8.4 m / 8 m) × (225 L/min / 1677.0 L/min)² × 7.0 kPa
P = 1.0500 × 0.0180 × 7.0 kPa
P = 0.1323 kPa

X-Y - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (8.4 m / 8 m) × (1800 L/min / 10103.0 L/min)² × 7.0 kPa
P = 1.0500 × 0.0317 × 7.0 kPa
P = 0.2333 kPa

X-Y - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (8.4 m / 8 m) × (600 L/min / 1074.0 L/min)² × 1.3 kPa
P = 1.0500 × 0.3121 × 1.3 kPa
P = 0.4260 kPa

Y-Z - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (8.4 m / 8 m) × (392.5 L/min / 1677.0 L/min)² × 7.0 kPa
P = 1.0500 × 0.0548 × 7.0 kPa
P = 0.4026 kPa

Y-Z - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (8.4 m / 8 m) × (3040 L/min / 10103.0 L/min)² × 7.0 kPa
P = 1.0500 × 0.0905 × 7.0 kPa
P = 0.6655 kPa

Y-Z - Vacuum

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HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (8.4 m / 8 m) × (1020 L/min / 2191.0 L/min)² × 1.3 kPa
P = 1.0500 × 0.2167 × 1.3 kPa
P = 0.2958 kPa

H-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (653.75 L/min / 1677.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1520 × 7.0 kPa
P = 0.9574 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3627.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1289 × 7.0 kPa
P = 0.8122 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1710 L/min / 2191.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.6091 × 1.3 kPa
P = 0.7127 kPa
Complete path copied from H-I to equipment

H-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (864.75 L/min / 3363.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0661 × 7.0 kPa
P = 0.4166 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3852.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1454 × 7.0 kPa
P = 0.9161 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (2290 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.1720 × 1.3 kPa
P = 0.2013 kPa
Complete path copied from H-I to equipment

H-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1075.75 L/min / 3363.0 L/min)² × 7.0 kPa

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P = 0.9000 × 0.1023 × 7.0 kPa
P = 0.6446 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4077.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1629 × 7.0 kPa
P = 1.0262 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (2870 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.2702 × 1.3 kPa
P = 0.3162 kPa
Complete path copied from H-I to equipment

H-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1341.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0496 × 7.0 kPa
P = 0.3126 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4332.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0837 × 7.0 kPa
P = 0.5274 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3220 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.3402 × 1.3 kPa
P = 0.3980 kPa
Complete path copied from H-I to equipment

H-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1536.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0651 × 7.0 kPa
P = 0.4101 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4697.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0984 × 7.0 kPa

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P = 0.6200 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3760 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4638 × 1.3 kPa
P = 0.5427 kPa
Complete path copied from H-I to equipment

H-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from H-I to equipment

H-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from H-I to equipment

H-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
Complete path copied from H-I to equipment

H-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from H-I to equipment

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AVSU-02-03 Ward - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	4.2788 kPa	20 kPa	PASS ✓
Medical Air	5.8956 kPa	20 kPa	PASS ✓
Vacuum	5.1380 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status
A1-B1	Oxygen	15 mm	10	4	0.0013	PASS ✓
A1-B1	Medical Air	15 mm	20	4	0.0050	PASS ✓
A1-B1	Vacuum	15 mm	40	4	0.3585	PASS ✓
B1-C1	Oxygen	15 mm	25	55	0.1511	PASS ✓
B1-C1	Medical Air	15 mm	45	55	0.4895	PASS ✓
B1-C1	Vacuum	22 mm	40	55	0.8323	PASS ✓
C1-D1	Oxygen	15 mm	36.5	5	0.0209	PASS ✓
C1-D1	Medical Air	15 mm	47.5	5	0.0353	PASS ✓
C1-D1	Vacuum	22 mm	80	5	0.2085	PASS ✓
C1-D1	Oxygen	15 mm	60	24	0.3498	PASS ✓
C1-D1	Medical Air	15 mm	90	24	0.7869	PASS ✓
C1-D1	Vacuum	28 mm	120	24	0.7109	PASS ✓
D1-E1	Oxygen	15 mm	82	4	0.0842	PASS ✓
D1-E1	Medical Air	15 mm	130	4	0.2117	PASS ✓
D1-E1	Vacuum	28 mm	160	4	0.1630	PASS ✓
E1-I	Oxygen	22 mm	202.5	11	0.1961	PASS ✓
E1-I	Medical Air	22 mm	207.5	11	0.2059	PASS ✓
E1-I	Nitrous Oxide	15 mm	10	11	0.0040	PASS ✓

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E1-I	Vacuum	35 mm	240	11	0.3614	PASS ✓
I-O	Oxygen	28 mm	864.75	6	0.4166	PASS ✓
I-O	Nitrous Oxide	15 mm	79.5	6	0.1188	PASS ✓
I-O	Medical Air	42 mm	3852.5	6	0.9161	PASS ✓
I-O	Vacuum	76 mm	2290	6	0.2013	PASS ✓
I-O	Oxygen	28 mm	1075.75	6	0.6446	PASS ✓
I-O	Nitrous Oxide	15 mm	89.5	6	0.1505	PASS ✓
I-O	Medical Air	42 mm	4077.5	6	1.0262	PASS ✓
I-O	Vacuum	76 mm	2870	6	0.3162	PASS ✓
I-O	Oxygen	35 mm	1341.75	6	0.3126	PASS ✓
I-O	Nitrous Oxide	15 mm	129.5	6	0.3152	PASS ✓
I-O	Medical Air	54 mm	4332.5	6	0.5274	PASS ✓
I-O	Vacuum	76 mm	3220	6	0.3980	PASS ✓
I-O	Oxygen	35 mm	1536.75	6	0.4101	PASS ✓
I-O	Nitrous Oxide	15 mm	139.5	6	0.3657	PASS ✓
I-O	Medical Air	54 mm	4697.5	6	0.6200	PASS ✓
I-O	Vacuum	76 mm	3760	6	0.5427	PASS ✓
I-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
I-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
I-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
I-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
I-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
I-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
I-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
I-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

A1-B1 - Oxygen

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HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (10 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0003 × 7.0 kPa
P = 0.0013 kPa

A1-B1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (20 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0012 × 7.0 kPa
P = 0.0050 kPa

A1-B1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (40 L/min / 59.0 L/min)² × 1.3 kPa
P = 0.6000 × 0.4596 × 1.3 kPa
P = 0.3585 kPa

B1-C1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (66.0 m / 61 m) × (25 L/min / 177.0 L/min)² × 7.0 kPa
P = 1.0820 × 0.0199 × 7.0 kPa
P = 0.1511 kPa

B1-C1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (66.0 m / 61 m) × (45 L/min / 177.0 L/min)² × 7.0 kPa
P = 1.0820 × 0.0646 × 7.0 kPa
P = 0.4895 kPa

B1-C1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (66.0 m / 61 m) × (40 L/min / 52.0 L/min)² × 1.3 kPa
P = 1.0820 × 0.5917 × 1.3 kPa
P = 0.8323 kPa

C1-D1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (6.0 m / 8 m) × (36.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0040 × 7.0 kPa
P = 0.0209 kPa

C1-D1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (6.0 m / 8 m) × (47.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0067 × 7.0 kPa
P = 0.0353 kPa

C1-D1 - Vacuum

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HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (6.0 m / 8 m) × (80 L/min / 173.0 L/min)² × 1.3 kPa
P = 0.7500 × 0.2138 × 1.3 kPa
P = 0.2085 kPa

C1-D1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (60 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.0520 × 7.0 kPa
P = 0.3498 kPa

C1-D1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (90 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.1171 × 7.0 kPa
P = 0.7869 kPa

C1-D1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (120 L/min / 159.0 L/min)² × 1.3 kPa
P = 0.9600 × 0.5696 × 1.3 kPa
P = 0.7109 kPa

D1-E1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (82 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0201 × 7.0 kPa
P = 0.0842 kPa

D1-E1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (130 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0504 × 7.0 kPa
P = 0.2117 kPa

D1-E1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (160 L/min / 350.0 L/min)² × 1.3 kPa
P = 0.6000 × 0.2090 × 1.3 kPa
P = 0.1630 kPa

E1-I - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (202.5 L/min / 1135.0 L/min)² × 7.0 kPa
P = 0.8800 × 0.0318 × 7.0 kPa
P = 0.1961 kPa

E1-I - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (207.5 L/min / 1135.0 L/min)² × 7.0 kPa
P = 0.8800 × 0.0334 × 7.0 kPa
P = 0.2059 kPa

E1-I - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (10 L/min / 391.0 L/min)² × 7.0 kPa
P = 0.8800 × 0.0007 × 7.0 kPa
P = 0.0040 kPa

E1-I - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (240 L/min / 427.0 L/min)² × 1.3 kPa
P = 0.8800 × 0.3159 × 1.3 kPa
P = 0.3614 kPa

I-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (864.75 L/min / 3363.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0661 × 7.0 kPa
P = 0.4166 kPa
Complete path copied from I-J to equipment

I-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (79.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0189 × 7.0 kPa
P = 0.1188 kPa
Complete path copied from I-J to equipment

I-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3852.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1454 × 7.0 kPa
P = 0.9161 kPa
Complete path copied from I-J to equipment

I-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (2290 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.1720 × 1.3 kPa
P = 0.2013 kPa
Complete path copied from I-J to equipment

I-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1075.75 L/min / 3363.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1023 × 7.0 kPa

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P = 0.6446 kPa
Complete path copied from I-J to equipment

I-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (89.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0239 × 7.0 kPa
P = 0.1505 kPa
Complete path copied from I-J to equipment

I-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4077.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1629 × 7.0 kPa
P = 1.0262 kPa
Complete path copied from I-J to equipment

I-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (2870 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.2702 × 1.3 kPa
P = 0.3162 kPa
Complete path copied from I-J to equipment

I-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1341.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0496 × 7.0 kPa
P = 0.3126 kPa
Complete path copied from I-J to equipment

I-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (129.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0500 × 7.0 kPa
P = 0.3152 kPa
Complete path copied from I-J to equipment

I-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4332.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0837 × 7.0 kPa
P = 0.5274 kPa
Complete path copied from I-J to equipment

I-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3220 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.3402 × 1.3 kPa
P = 0.3980 kPa
Complete path copied from I-J to equipment

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I-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1536.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0651 × 7.0 kPa
P = 0.4101 kPa
Complete path copied from I-J to equipment

I-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (139.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0580 × 7.0 kPa
P = 0.3657 kPa
Complete path copied from I-J to equipment

I-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4697.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0984 × 7.0 kPa
P = 0.6200 kPa
Complete path copied from I-J to equipment

I-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3760 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4638 × 1.3 kPa
P = 0.5427 kPa
Complete path copied from I-J to equipment

I-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from I-J to equipment

I-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from I-J to equipment

I-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from I-J to equipment

I-O - Vacuum

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HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from I-J to equipment

I-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from I-J to equipment

I-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from I-J to equipment

I-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
Complete path copied from I-J to equipment

I-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from I-J to equipment

AVSU-01-03 Ward - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	3.8616 kPa	20 kPa	PASS ✓
Medical Air	5.0041 kPa	20 kPa	PASS ✓
Vacuum	4.9367 kPa	20 kPa	PASS ✓
Nitrous Oxide	1.6755 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status

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F1-G1	Oxygen	15 mm	10	4	0.0013	PASS ✓
F1-G1	Medical Air	15 mm	20	4	0.0050	PASS ✓
F1-G1	Vacuum	15 mm	40	4	0.3585	PASS ✓
G1-H1	Oxygen	15 mm	26.5	55	0.1698	PASS ✓
G1-H1	Medical Air	15 mm	47.5	55	0.5454	PASS ✓
G1-H1	Vacuum	22 mm	40	55	0.8323	PASS ✓
H1-J1	Oxygen	15 mm	36.5	5	0.0209	PASS ✓
H1-J1	Medical Air	15 mm	47.5	5	0.0353	PASS ✓
H1-J1	Vacuum	22 mm	80	5	0.2085	PASS ✓
J1-K1	Oxygen	15 mm	60	24	0.3498	PASS ✓
J1-K1	Medical Air	15 mm	90	24	0.7869	PASS ✓
J1-K1	Vacuum	28 mm	120	24	0.7109	PASS ✓
K1-L1	Oxygen	15 mm	72	4	0.0649	PASS ✓
K1-L1	Medical Air	15 mm	120	4	0.1804	PASS ✓
K1-L1	Vacuum	28 mm	160	4	0.1630	PASS ✓
L1-J	Oxygen	22 mm	202.5	11	0.1961	PASS ✓
L1-J	Medical Air	22 mm	207.5	11	0.2059	PASS ✓
L1-J	Nitrous Oxide	15 mm	10	11	0.0040	PASS ✓
L1-J	Vacuum	35 mm	240	11	0.3614	PASS ✓
J-O	Oxygen	28 mm	1075.75	6	0.6446	PASS ✓
J-O	Nitrous Oxide	15 mm	89.5	6	0.1505	PASS ✓
J-O	Medical Air	42 mm	4077.5	6	1.0262	PASS ✓
J-O	Vacuum	76 mm	2870	6	0.3162	PASS ✓
J-O	Oxygen	35 mm	1341.75	6	0.3126	PASS ✓
J-O	Nitrous Oxide	15 mm	129.5	6	0.3152	PASS ✓
J-O	Medical Air	54 mm	4332.5	6	0.5274	PASS ✓
J-O	Vacuum	76 mm	3220	6	0.3980	PASS ✓

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J-O	Oxygen	35 mm	1536.75	6	0.4101	PASS ✓
J-O	Nitrous Oxide	15 mm	139.5	6	0.3657	PASS ✓
J-O	Medical Air	54 mm	4697.5	6	0.6200	PASS ✓
J-O	Vacuum	76 mm	3760	6	0.5427	PASS ✓
J-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
J-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
J-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
J-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
J-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
J-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
J-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
J-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

F1-G1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (10 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0003 × 7.0 kPa
P = 0.0013 kPa

F1-G1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (20 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0012 × 7.0 kPa
P = 0.0050 kPa

F1-G1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (40 L/min / 59.0 L/min)² × 1.3 kPa
P = 0.6000 × 0.4596 × 1.3 kPa
P = 0.3585 kPa

G1-H1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (66.0 m / 61 m) × (26.5 L/min / 177.0 L/min)² × 7.0 kPa
P = 1.0820 × 0.0224 × 7.0 kPa
P = 0.1698 kPa

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G1-H1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (66.0 m / 61 m) × (47.5 L/min / 177.0 L/min)² × 7.0 kPa
P = 1.0820 × 0.0720 × 7.0 kPa
P = 0.5454 kPa

G1-H1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (66.0 m / 61 m) × (40 L/min / 52.0 L/min)² × 1.3 kPa
P = 1.0820 × 0.5917 × 1.3 kPa
P = 0.8323 kPa

H1-J1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (6.0 m / 8 m) × (36.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0040 × 7.0 kPa
P = 0.0209 kPa

H1-J1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (6.0 m / 8 m) × (47.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0067 × 7.0 kPa
P = 0.0353 kPa

H1-J1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (6.0 m / 8 m) × (80 L/min / 173.0 L/min)² × 1.3 kPa
P = 0.7500 × 0.2138 × 1.3 kPa
P = 0.2085 kPa

J1-K1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (60 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.0520 × 7.0 kPa
P = 0.3498 kPa

J1-K1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (90 L/min / 263.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.1171 × 7.0 kPa
P = 0.7869 kPa

J1-K1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (120 L/min / 159.0 L/min)² × 1.3 kPa
P = 0.9600 × 0.5696 × 1.3 kPa
P = 0.7109 kPa

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K1-L1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (72 L/min / 579.0 L/min)^2 × 7.0 kPa
P = 0.6000 × 0.0155 × 7.0 kPa
P = 0.0649 kPa

K1-L1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (120 L/min / 579.0 L/min)^2 × 7.0 kPa
P = 0.6000 × 0.0430 × 7.0 kPa
P = 0.1804 kPa

K1-L1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (160 L/min / 350.0 L/min)^2 × 1.3 kPa
P = 0.6000 × 0.2090 × 1.3 kPa
P = 0.1630 kPa

L1-J - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (202.5 L/min / 1135.0 L/min)^2 × 7.0 kPa
P = 0.8800 × 0.0318 × 7.0 kPa
P = 0.1961 kPa

L1-J - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (207.5 L/min / 1135.0 L/min)^2 × 7.0 kPa
P = 0.8800 × 0.0334 × 7.0 kPa
P = 0.2059 kPa

L1-J - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (10 L/min / 391.0 L/min)^2 × 7.0 kPa
P = 0.8800 × 0.0007 × 7.0 kPa
P = 0.0040 kPa

L1-J - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (13.2 m / 15 m) × (240 L/min / 427.0 L/min)^2 × 1.3 kPa
P = 0.8800 × 0.3159 × 1.3 kPa
P = 0.3614 kPa

J-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1075.75 L/min / 3363.0 L/min)^2 × 7.0 kPa
P = 0.9000 × 0.1023 × 7.0 kPa
P = 0.6446 kPa
Complete path copied from J-K to equipment

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J-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (89.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0239 × 7.0 kPa
P = 0.1505 kPa
Complete path copied from J-K to equipment

J-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4077.5 L/min / 10103.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1629 × 7.0 kPa
P = 1.0262 kPa
Complete path copied from J-K to equipment

J-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (2870 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.2702 × 1.3 kPa
P = 0.3162 kPa
Complete path copied from J-K to equipment

J-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1341.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0496 × 7.0 kPa
P = 0.3126 kPa
Complete path copied from J-K to equipment

J-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (129.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0500 × 7.0 kPa
P = 0.3152 kPa
Complete path copied from J-K to equipment

J-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4332.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0837 × 7.0 kPa
P = 0.5274 kPa
Complete path copied from J-K to equipment

J-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3220 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.3402 × 1.3 kPa
P = 0.3980 kPa
Complete path copied from J-K to equipment

J-O - Oxygen

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HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1536.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0651 × 7.0 kPa
P = 0.4101 kPa
Complete path copied from J-K to equipment

J-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (139.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0580 × 7.0 kPa
P = 0.3657 kPa
Complete path copied from J-K to equipment

J-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4697.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0984 × 7.0 kPa
P = 0.6200 kPa
Complete path copied from J-K to equipment

J-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3760 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4638 × 1.3 kPa
P = 0.5427 kPa
Complete path copied from J-K to equipment

J-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from J-K to equipment

J-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from J-K to equipment

J-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from J-K to equipment

J-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$

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P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from J-K to equipment
```

J-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from J-K to equipment

J-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from J-K to equipment

J-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
Complete path copied from J-K to equipment

J-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from J-K to equipment

AVSU-GF-09 X Ray - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	5.1727 kPa	20 kPa	PASS ✓
Vacuum	6.7641 kPa	20 kPa	PASS ✓
Nitrous Oxide	2.4234 kPa	20 kPa	PASS ✓
Medical Air	4.5425 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status

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L1-M1	Oxygen	15 mm	10	17	0.0062	PASS ✓
L1-M1	Vacuum	22 mm	40	17	0.2102	PASS ✓
M1-N1	Oxygen	15 mm	20	2	0.0025	PASS ✓
M1-N1	Nitrous Oxide	15 mm	10	2	0.0006	PASS ✓
M1-N1	Medical Air	15 mm	40	2	0.0100	PASS ✓
M1-N1	Vacuum	22 mm	40	2	0.0208	PASS ✓
N1-O1	Oxygen	15 mm	30	30	0.1093	PASS ✓
N1-O1	Nitrous Oxide	15 mm	10	30	0.0121	PASS ✓
N1-O1	Medical Air	15 mm	40	30	0.1943	PASS ✓
O1-P1	Oxygen	15 mm	41.5	5	0.0270	PASS ✓
O1-P1	Nitrous Oxide	15 mm	10	5	0.0016	PASS ✓
O1-P1	Medical Air	15 mm	40	5	0.0251	PASS ✓
O1-P1	Vacuum	28 mm	170	5	0.2300	PASS ✓
P1-Q1	Oxygen	15 mm	61.5	11	0.1524	PASS ✓
P1-Q1	Nitrous Oxide	15 mm	20	11	0.0161	PASS ✓
P1-Q1	Medical Air	15 mm	80	11	0.2579	PASS ✓
P1-Q1	Vacuum	28 mm	210	11	0.9058	PASS ✓
Q1-R1	Oxygen	15 mm	71.5	1	0.0160	PASS ✓
Q1-R1	Nitrous Oxide	15 mm	20	1	0.0013	PASS ✓
Q1-R1	Medical Air	15 mm	100	1	0.0313	PASS ✓
Q1-R1	Vacuum	28 mm	250	1	0.0995	PASS ✓
R1-S1	Oxygen	15 mm	86	3	0.0695	PASS ✓
R1-S1	Nitrous Oxide	15 mm	20	3	0.0038	PASS ✓
R1-S1	Medical Air	15 mm	127.5	3	0.1527	PASS ✓
R1-S1	Vacuum	28 mm	290	3	0.4016	PASS ✓
S1-T1	Oxygen	15 mm	186	4	0.4334	PASS ✓
S1-T1	Nitrous Oxide	15 mm	20	4	0.0050	PASS ✓

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S1-T1	Medical Air	15 mm	167.5	4	0.3515	PASS ✓
S1-T1	Vacuum	28 mm	330	4	0.6934	PASS ✓
T1-K	Oxygen	22 mm	196	15	0.2505	PASS ✓
T1-K	Nitrous Oxide	15 mm	20	15	0.0220	PASS ✓
T1-K	Medical Air	22 mm	187.5	15	0.2292	PASS ✓
T1-K	Vacuum	35 mm	370	15	1.1713	PASS ✓
K-O	Oxygen	35 mm	1341.75	6	0.3126	PASS ✓
K-O	Nitrous Oxide	15 mm	129.5	6	0.3152	PASS ✓
K-O	Medical Air	54 mm	4332.5	6	0.5274	PASS ✓
K-O	Vacuum	76 mm	3220	6	0.3980	PASS ✓
K-O	Oxygen	35 mm	1536.75	6	0.4101	PASS ✓
K-O	Nitrous Oxide	15 mm	139.5	6	0.3657	PASS ✓
K-O	Medical Air	54 mm	4697.5	6	0.6200	PASS ✓
K-O	Vacuum	76 mm	3760	6	0.5427	PASS ✓
K-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
K-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
K-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
K-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
K-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
K-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
K-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
K-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓
K-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
K-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
K-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
K-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
K-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓

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K-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
K-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
K-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

L1-M1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (20.4 m / 15 m) × (10 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.3600 × 0.0007 × 7.0 kPa
P = 0.0062 kPa

L1-M1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (20.4 m / 15 m) × (40 L/min / 116.0 L/min)² × 1.3 kPa
P = 1.3600 × 0.1189 × 1.3 kPa
P = 0.2102 kPa

M1-N1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (2.4 m / 8 m) × (20 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.3000 × 0.0012 × 7.0 kPa
P = 0.0025 kPa

M1-N1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (2.4 m / 8 m) × (10 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.3000 × 0.0003 × 7.0 kPa
P = 0.0006 kPa

M1-N1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (2.4 m / 8 m) × (40 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.3000 × 0.0048 × 7.0 kPa
P = 0.0100 kPa

M1-N1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (2.4 m / 8 m) × (40 L/min / 173.0 L/min)² × 1.3 kPa
P = 0.3000 × 0.0535 × 1.3 kPa
P = 0.0208 kPa

N1-O1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (36.0 m / 30 m) × (30 L/min / 263.0 L/min)² × 7.0 kPa

$P = 1.2000 × 0.0130 × 7.0$ kPa
P = 0.1093 kPa

N1-O1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (36.0 m / 30 m) × (10 L/min / 263.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0014 × 7.0 kPa
P = 0.0121 kPa

N1-O1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (36.0 m / 30 m) × (40 L/min / 263.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0231 × 7.0 kPa
P = 0.1943 kPa

O1-P1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (6.0 m / 8 m) × (41.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0051 × 7.0 kPa
P = 0.0270 kPa

O1-P1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (6.0 m / 8 m) × (10 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0003 × 7.0 kPa
P = 0.0016 kPa

O1-P1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (6.0 m / 8 m) × (40 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.7500 × 0.0048 × 7.0 kPa
P = 0.0251 kPa

O1-P1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (6.0 m / 8 m) × (170 L/min / 350.0 L/min)² × 1.3 kPa
P = 0.7500 × 0.2359 × 1.3 kPa
P = 0.2300 kPa

P1-Q1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$
P = (13.2 m / 15 m) × (61.5 L/min / 391.0 L/min)² × 7.0 kPa
P = 0.8800 × 0.0247 × 7.0 kPa
P = 0.1524 kPa

P1-Q1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) × (Q_{design}/Q_{table})^2 × \Delta P_{table}$

$P = (13.2 \text{ m} / 15 \text{ m}) \times (20 \text{ L/min} / 391.0 \text{ L/min})^2 \times 7.0 \text{ kPa}$
$P = 0.8800 \times 0.0026 \times 7.0 \text{ kPa}$
$P = 0.0161 \text{ kPa}$

P1-Q1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (13.2 \text{ m} / 15 \text{ m}) \times (80 \text{ L/min} / 391.0 \text{ L/min})^2 \times 7.0 \text{ kPa}$
$P = 0.8800 \times 0.0419 \times 7.0 \text{ kPa}$
$P = 0.2579 \text{ kPa}$

P1-Q1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (13.2 \text{ m} / 15 \text{ m}) \times (210 \text{ L/min} / 236.0 \text{ L/min})^2 \times 1.3 \text{ kPa}$
$P = 0.8800 \times 0.7918 \times 1.3 \text{ kPa}$
$P = 0.9058 \text{ kPa}$

Q1-R1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (1.2 \text{ m} / 8 \text{ m}) \times (71.5 \text{ L/min} / 579.0 \text{ L/min})^2 \times 7.0 \text{ kPa}$
$P = 0.1500 \times 0.0152 \times 7.0 \text{ kPa}$
$P = 0.0160 \text{ kPa}$

Q1-R1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (1.2 \text{ m} / 8 \text{ m}) \times (20 \text{ L/min} / 579.0 \text{ L/min})^2 \times 7.0 \text{ kPa}$
$P = 0.1500 \times 0.0012 \times 7.0 \text{ kPa}$
$P = 0.0013 \text{ kPa}$

Q1-R1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (1.2 \text{ m} / 8 \text{ m}) \times (100 \text{ L/min} / 579.0 \text{ L/min})^2 \times 7.0 \text{ kPa}$
$P = 0.1500 \times 0.0298 \times 7.0 \text{ kPa}$
$P = 0.0313 \text{ kPa}$

Q1-R1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (1.2 \text{ m} / 8 \text{ m}) \times (250 \text{ L/min} / 350.0 \text{ L/min})^2 \times 1.3 \text{ kPa}$
$P = 0.1500 \times 0.5102 \times 1.3 \text{ kPa}$
$P = 0.0995 \text{ kPa}$

R1-S1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (3.6 \text{ m} / 8 \text{ m}) \times (86 \text{ L/min} / 579.0 \text{ L/min})^2 \times 7.0 \text{ kPa}$
$P = 0.4500 \times 0.0221 \times 7.0 \text{ kPa}$
$P = 0.0695 \text{ kPa}$

R1-S1 - Nitrous Oxide

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HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (3.6 m / 8 m) × (20 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.4500 × 0.0012 × 7.0 kPa
P = 0.0038 kPa

R1-S1 - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (3.6 m / 8 m) × (127.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.4500 × 0.0485 × 7.0 kPa
P = 0.1527 kPa

R1-S1 - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (3.6 m / 8 m) × (290 L/min / 350.0 L/min)² × 1.3 kPa
P = 0.4500 × 0.6865 × 1.3 kPa
P = 0.4016 kPa

S1-T1 - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (186 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.1032 × 7.0 kPa
P = 0.4334 kPa

S1-T1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (20 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0012 × 7.0 kPa
P = 0.0050 kPa

S1-T1 - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (167.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.6000 × 0.0837 × 7.0 kPa
P = 0.3515 kPa

S1-T1 - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (4.8 m / 8 m) × (330 L/min / 350.0 L/min)² × 1.3 kPa
P = 0.6000 × 0.8890 × 1.3 kPa
P = 0.6934 kPa

T1-K - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (196 L/min / 1135.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0298 × 7.0 kPa
P = 0.2505 kPa

T1-K - Nitrous Oxide

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HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (20 L/min / 391.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0026 × 7.0 kPa
P = 0.0220 kPa

T1-K - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (187.5 L/min / 1135.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0273 × 7.0 kPa
P = 0.2292 kPa

T1-K - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (18.0 m / 15 m) × (370 L/min / 427.0 L/min)² × 1.3 kPa
P = 1.2000 × 0.7508 × 1.3 kPa
P = 1.1713 kPa

K-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1341.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0496 × 7.0 kPa
P = 0.3126 kPa
Complete path copied from K-L to equipment

K-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (129.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0500 × 7.0 kPa
P = 0.3152 kPa
Complete path copied from K-L to equipment

K-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4332.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0837 × 7.0 kPa
P = 0.5274 kPa
Complete path copied from K-L to equipment

K-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3220 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.3402 × 1.3 kPa
P = 0.3980 kPa
Complete path copied from K-L to equipment

K-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1536.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0651 × 7.0 kPa

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P = 0.4101 kPa
Complete path copied from K-L to equipment

K-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (139.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0580 × 7.0 kPa
P = 0.3657 kPa
Complete path copied from K-L to equipment

K-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4697.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0984 × 7.0 kPa
P = 0.6200 kPa
Complete path copied from K-L to equipment

K-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3760 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4638 × 1.3 kPa
P = 0.5427 kPa
Complete path copied from K-L to equipment

K-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from K-L to equipment

K-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from K-L to equipment

K-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from K-L to equipment

K-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from K-L to equipment

K-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from K-L to equipment

K-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from K-L to equipment

K-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
Complete path copied from K-L to equipment

K-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from K-L to equipment

K-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

K-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

K-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

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K-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

K-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

K-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

K-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

K-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from M-N to equipment
Complete path copied from K-L to equipment

AVSU-GF-X Ray - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	2.4143 kPa	20 kPa	PASS ✓
Nitrous Oxide	1.5209 kPa	20 kPa	PASS ✓
Medical Air	2.2189 kPa	20 kPa	PASS ✓
Vacuum	1.9860 kPa	20 kPa	PASS ✓

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Department Status: All gas systems within department limits

AVSU-B1-08 Ultrasound - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	2.8337 kPa	20 kPa	PASS ✓
Vacuum	2.9904 kPa	20 kPa	PASS ✓
Medical Air	2.9817 kPa	20 kPa	PASS ✓
Nitrous Oxide	1.2203 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status
U1-V1	Oxygen	15 mm	10	24	0.0097	PASS ✓
U1-V1	Vacuum	22 mm	40	24	0.3282	PASS ✓
V1-W1	Oxygen	15 mm	36.5	24	0.1294	PASS ✓
V1-W1	Medical Air	15 mm	47.5	24	0.2192	PASS ✓
V1-W1	Vacuum	28 mm	80	24	0.3159	PASS ✓
W1-X1	Oxygen	15 mm	57	8	0.0814	PASS ✓
W1-X1	Medical Air	15 mm	85	8	0.1810	PASS ✓
W1-X1	Vacuum	28 mm	120	8	0.1834	PASS ✓
X1-Y1	Oxygen	22 mm	157.5	25	0.2944	PASS ✓
X1-Y1	Nitrous Oxide	15 mm	10	25	0.0101	PASS ✓
X1-Y1	Medical Air	22 mm	125	25	0.1854	PASS ✓
X1-Y1	Vacuum	35 mm	160	25	0.4012	PASS ✓
Y1-L	Oxygen	22 mm	204	12	0.2171	PASS ✓
Y1-L	Nitrous Oxide	15 mm	10	12	0.0044	PASS ✓
Y1-L	Medical Air	22 mm	367.5	12	0.7045	PASS ✓
Y1-L	Vacuum	42 mm	270	12	0.1736	PASS ✓

L-O	Oxygen	35 mm	1536.75	6	0.4101	PASS ✓
L-O	Nitrous Oxide	15 mm	139.5	6	0.3657	PASS ✓
L-O	Medical Air	54 mm	4697.5	6	0.6200	PASS ✓
L-O	Vacuum	76 mm	3760	6	0.5427	PASS ✓
L-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
L-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
L-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
L-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
L-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
L-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
L-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
L-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

U1-V1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (28.8\ m / 30\ m) \times (10\ L/min / 263.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9600 \times 0.0014 \times 7.0\ kPa$
P = 0.0097 kPa

U1-V1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (28.8\ m / 30\ m) \times (40\ L/min / 78.0\ L/min)^2 \times 1.3\ kPa$
$P = 0.9600 \times 0.2630 \times 1.3\ kPa$
P = 0.3282 kPa

V1-W1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (28.8\ m / 30\ m) \times (36.5\ L/min / 263.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9600 \times 0.0193 \times 7.0\ kPa$
P = 0.1294 kPa

V1-W1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
$P = (28.8\ m / 30\ m) \times (47.5\ L/min / 263.0\ L/min)^2 \times 7.0\ kPa$
$P = 0.9600 \times 0.0326 \times 7.0\ kPa$
P = 0.2192 kPa

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V1-W1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (28.8 m / 30 m) × (80 L/min / 159.0 L/min)² × 1.3 kPa
P = 0.9600 × 0.2532 × 1.3 kPa
P = 0.3159 kPa

W1-X1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (9.6 m / 8 m) × (57 L/min / 579.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0097 × 7.0 kPa
P = 0.0814 kPa

W1-X1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (9.6 m / 8 m) × (85 L/min / 579.0 L/min)² × 7.0 kPa
P = 1.2000 × 0.0216 × 7.0 kPa
P = 0.1810 kPa

W1-X1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (9.6 m / 8 m) × (120 L/min / 350.0 L/min)² × 1.3 kPa
P = 1.2000 × 0.1176 × 1.3 kPa
P = 0.1834 kPa

X1-Y1 - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (157.5 L/min / 768.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0421 × 7.0 kPa
P = 0.2944 kPa

X1-Y1 - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (10 L/min / 263.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0014 × 7.0 kPa
P = 0.0101 kPa

X1-Y1 - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (125 L/min / 768.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0265 × 7.0 kPa
P = 0.1854 kPa

X1-Y1 - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (160 L/min / 288.0 L/min)² × 1.3 kPa
P = 1.0000 × 0.3086 × 1.3 kPa
P = 0.4012 kPa

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Y1-L - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (14.4 m / 15 m) × (204 L/min / 1135.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.0323 × 7.0 kPa
P = 0.2171 kPa

Y1-L - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (14.4 m / 15 m) × (10 L/min / 391.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.0007 × 7.0 kPa
P = 0.0044 kPa

Y1-L - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (14.4 m / 15 m) × (367.5 L/min / 1135.0 L/min)² × 7.0 kPa
P = 0.9600 × 0.1048 × 7.0 kPa
P = 0.7045 kPa

Y1-L - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (14.4 m / 15 m) × (270 L/min / 724.0 L/min)² × 1.3 kPa
P = 0.9600 × 0.1391 × 1.3 kPa
P = 0.1736 kPa

L-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1536.75 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0651 × 7.0 kPa
P = 0.4101 kPa
Complete path copied from L-M to equipment

L-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (139.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0580 × 7.0 kPa
P = 0.3657 kPa
Complete path copied from L-M to equipment

L-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4697.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0984 × 7.0 kPa
P = 0.6200 kPa
Complete path copied from L-M to equipment

L-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3760 L/min / 5521.0 L/min)² × 1.3 kPa

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P = 0.9000 × 0.4638 × 1.3 kPa
P = 0.5427 kPa
Complete path copied from L-M to equipment

L-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from L-M to equipment

L-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from L-M to equipment

L-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from L-M to equipment

L-O - Vacuum

HTM02-01 Calculation (Table A5):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from L-M to equipment

L-O - Oxygen

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from L-M to equipment

L-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from L-M to equipment

L-O - Medical Air

HTM02-01 Calculation (Table A2):
P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa

```
P = 0.4409 kPa
Complete path copied from L-M to equipment
```

L-O - Vacuum

```
HTM02-01 Calculation (Table A5):
P = (L_adjusted/L_table) × (Q_design/Q_table)² × ΔP_table
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from L-M to equipment
```

AVSU-B2-01 Equipment Workshop - COMPLIANT ✓

Department Gas System Totals:

Gas System	Total Pressure Loss	Department Limit	Status
Oxygen	2.0149 kPa	20 kPa	PASS ✓
Nitrous Oxide	0.8677 kPa	20 kPa	PASS ✓
Medical Air	1.5146 kPa	20 kPa	PASS ✓
Vacuum	1.9987 kPa	20 kPa	PASS ✓

Department Status: All gas systems within department limits

Detailed Section Analysis:

Designation	Gas System	Pipe Size	Flow Rate (L/min)	Length (m)	Pressure Drop (kPa)	Status
Z1-M	Oxygen	22 mm	100	63	0.3233	PASS ✓
Z1-M	Nitrous Oxide	15 mm	10	63	0.0277	PASS ✓
Z1-M	Medical Air	15 mm	40	63	0.4431	PASS ✓
Z1-M	Vacuum	22 mm	40	63	0.9533	PASS ✓
M-O	Oxygen	35 mm	1546	6	0.4151	PASS ✓
M-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
M-O	Medical Air	54 mm	4737.5	6	0.6306	PASS ✓
M-O	Vacuum	76 mm	3800	6	0.5543	PASS ✓
M-O	Oxygen	35 mm	1546	16	1.2765	PASS ✓
M-O	Nitrous Oxide	15 mm	149.5	6	0.4200	PASS ✓
M-O	Medical Air	76 mm	4737.5	25	0.4409	PASS ✓
M-O	Vacuum	108 mm	3800	28	0.4911	PASS ✓

Pressure Loss Calculations:

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Z1-M - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (75.6 m / 61 m) × (100 L/min / 518.0 L/min)² × 7.0 kPa
P = 1.2393 × 0.0373 × 7.0 kPa
P = 0.3233 kPa

Z1-M - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (75.6 m / 61 m) × (10 L/min / 177.0 L/min)² × 7.0 kPa
P = 1.2393 × 0.0032 × 7.0 kPa
P = 0.0277 kPa

Z1-M - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (75.6 m / 61 m) × (40 L/min / 177.0 L/min)² × 7.0 kPa
P = 1.2393 × 0.0511 × 7.0 kPa
P = 0.4431 kPa

Z1-M - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (75.6 m / 61 m) × (40 L/min / 52.0 L/min)² × 1.3 kPa
P = 1.2393 × 0.5917 × 1.3 kPa
P = 0.9533 kPa

M-O - Oxygen

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (1546 L/min / 6023.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0659 × 7.0 kPa
P = 0.4151 kPa
Complete path copied from M-N to equipment

M-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from M-N to equipment

M-O - Medical Air

HTM02-01 Calculation (Table A2):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (4737.5 L/min / 14974.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.1001 × 7.0 kPa
P = 0.6306 kPa
Complete path copied from M-N to equipment

M-O - Vacuum

HTM02-01 Calculation (Table A5):
$P = (L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (3800 L/min / 5521.0 L/min)² × 1.3 kPa

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```
P = 0.9000 × 0.4737 × 1.3 kPa
P = 0.5543 kPa
Complete path copied from M-N to equipment
```

M-O - Oxygen

HTM02-01 Calculation (Table A2):

P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (19.2 m / 15 m) × (1546 L/min / 4096.0 L/min)² × 7.0 kPa
P = 1.2800 × 0.1425 × 7.0 kPa
P = 1.2765 kPa
Complete path copied from M-N to equipment

M-O - Nitrous Oxide

HTM02-01 Calculation (Table A2):

P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (7.2 m / 8 m) × (149.5 L/min / 579.0 L/min)² × 7.0 kPa
P = 0.9000 × 0.0667 × 7.0 kPa
P = 0.4200 kPa
Complete path copied from M-N to equipment

M-O - Medical Air

HTM02-01 Calculation (Table A2):

P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (30.0 m / 30 m) × (4737.5 L/min / 18877.0 L/min)² × 7.0 kPa
P = 1.0000 × 0.0630 × 7.0 kPa
P = 0.4409 kPa
Complete path copied from M-N to equipment

M-O - Vacuum

HTM02-01 Calculation (Table A5):

P = $(L_{adjusted}/L_{table}) \times (Q_{design}/Q_{table})^2 \times \Delta P_{table}$
P = (33.6 m / 30 m) × (3800 L/min / 6543.0 L/min)² × 1.3 kPa
P = 1.1200 × 0.3373 × 1.3 kPa
P = 0.4911 kPa
Complete path copied from M-N to equipment

4. Compliance Statement

SYSTEM COMPLIANT

This medical gas pipeline system design meets the requirements of HTM 02-01.

Evaluation Criteria: Each department must have pressure losses within the specified limits for each gas system type.

All departments meet the required pressure loss criteria for all gas systems.

Design Limits Reference

System Type	Operating Pressure	Maximum Allowable Pressure Loss per Department
Oxygen	400 kPa	20 kPa
Medical Air	400 kPa	20 kPa
Nitrous Oxide	400 kPa	20 kPa
Entonox	400 kPa	20 kPa
Carbon Dioxide	400 kPa	20 kPa
Surgical Air SA7	700 kPa	34 kPa
11 Bar Air	1100 kPa	34 kPa
Vacuum	60 kPa to 40 kPa	20 kPa

5. Approval

Designer
Kevin Pugh
Date: 10/29/2025
Authorised Person MGPS
Authorised Person MGPS
Date: ____________________

- Make no representations or warranties of any kind, express or implied, regarding the accuracy, completeness, reliability, suitability, or availability of the Report or the calculations therein.
- Shall not be liable for any direct, indirect, incidental, special, consequential, or punitive damages, including but not limited to loss of profits, data, or business opportunity, personal injury, or damage to property arising out of or in connection with the use, reliance upon, or inability to use the Report or the calculator.
- The entire risk associated with the use and application of the information in this Report resides solely with the user and the responsible project design team.

6. Medical Device and Patient Safety
Medical gas pipeline systems are classified as medical devices in many jurisdictions. The final installation must be validated and certified to ensure patient and user safety. This automated Report is not a part of the medical device certification process. The safety of patients, staff, and the public depends on the correct installation, testing, and validation of the actual system by competent professionals.

7. Final Authority
The signed approval of the Authorised Person (MGPS) and the project's responsible Chartered Engineer shall supersede any and all information contained within this automated Report. This Report shall have no authority once a final, professionally certified design is issued for construction.

This disclaimer was generated for use with the MediPress Pro Medical Gas Pipeline System Calculator. The calculations within this report are based on Health Technical Memorandum 02-01: Medical Gas Pipeline Systems.
