

Hamilton Medical Breathing Circuits

Technical Specifications

Neonatal/Pediatric Dual limb breathing circuit set, unheated, single use

Physical characteristics



PN 260180	150 cm, swivel Y-piece, neonatal flow sensor, pressure line
PN 260182	300 cm, swivel Y-piece, neonatal flow sensor, pressure line
PN 260170	150 cm, swivel Y-piece, neonatal flow sensor, neonatal expiratory valve set, pressure line
PN 260169	300 cm, swivel Y-piece, neonatal flow sensor, neonatal expiratory valve set, pressure line



PN 260241	150 cm, swivel Y-piece
PN 260244	300 cm, swivel Y-piece

Compliance for breathing circuit sets in various lengths at 60 cmH2O pressure

PN	Circuit length (cm)	Total circuit length (insp. + exp.) (cm)	@ 60 cmH2O
260170, 260180, 260241	150	300	0.3
260169, 260182, 260244	300	600	0.6

Flow resistance for breathing circuit sets in various lengths at various flow rates (cmH2O/(l/min))

PN	Circuit length (cm)	@ 2.5 l/min		@ 15 l/min	
		Insp.	Exp.	Insp.	Exp.
260170, 260180, 260241	150	0.02	0.02	0.04	0.04
260169, 260182, 260244	300	0.03	0.03	0.06	0.06

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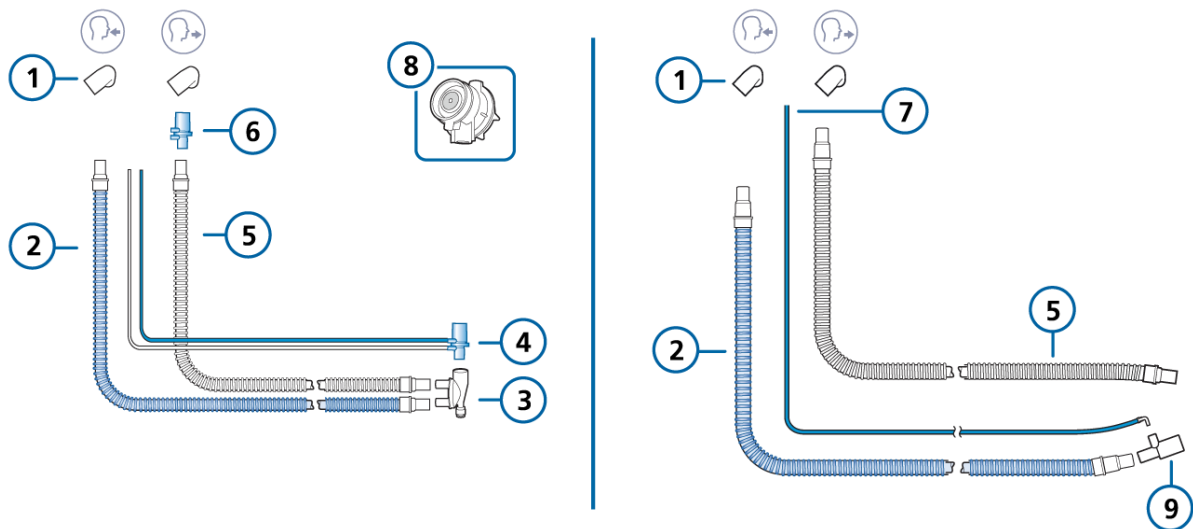
Environmental specifications

Environment		Specifications
Temperature	Operation:	-15°C to 40°C (5°F to 104°F)
	Storage:	-20°C to 60°C (-4°F to 140°F)
Relative humidity	Operation and storage:	5% to 95% relative humidity, noncondensing

Technical specifications

Environment		Specifications
Maximum gas flow rate		30 l/min
Leakage		< 30 ml/min
Maximum working pressure		200 cmH ₂ O

Figure 1. Neonatal/pediatric breathing circuit with flow sensor (left) and pressure line for nCPAP/nCPAP-PC (right)



Breathing circuit components, diameter, materials

Component	Diameter (ID/OD, mm)	Material
1 Elbow adapter	ID22/OD22/ID15	PC
2 Inspiratory limb	150 cm, 300 cm	Polyolefine
3 Swivel Y-piece	2 x ID15/OD10	PP
4 Flow sensor, neonatal	ID15, patient side OD15, ventilator side	PMMA, PVC, PE
5 Expiratory limb	150 cm, 300 cm	Polyolefine
6 nCPAP-PS flow sensor position	--	PMMA, PVC, PET
7 Pressure line (blue) with Luer pin (male)	ID3.05	Non-P PVC, PC, PP
8 Expiratory valve, neonatal	ID15/OD22	PC, silicone, stainless steel
9 Luer-L (female) with T-piece	OD10/OD15	PP, PC

Adult/Pediatric Coaxial breathing circuit set with expandable limb connection, unheated, single use

Physical characteristics



PN 260206	180 cm
PN 260207	180 cm, flow sensor
PN 260184	180 cm, flow sensor, expiratory valve (HAMILTON-G5/S1)
PN 260257	180 cm, flow sensor, expiratory valve (HAMILTON-C2/C3/C6)
PN 260239	240 cm
PN 260240	240 cm, flow sensor

Compliance for breathing circuit sets in various lengths at 60 cmH₂O pressure

PN	Circuit length (cm)	@ 60 cmH ₂ O
260206, 260207, 260184, 260257	180	1.7
260239, 260240	240	2.3

Flow resistance for breathing circuit sets in various lengths at various flow rates (cmH₂O/(l/min))

PN	Circuit length (cm)	@ 15 l/min		@ 30 l/min	
		Insp.	Exp.	Insp.	Exp.
260206, 260207, 260184, 260257	180	0.01	0.02	0.02	0.04
260239, 260240	240	0.02	0.03	0.03	0.04

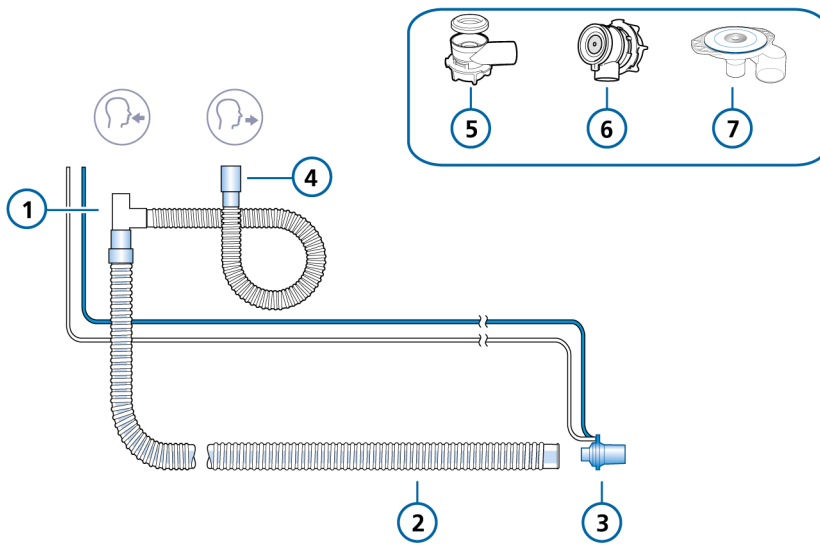
Environmental specifications

Environment	Specifications
Temperature	Operation: -15°C to 50°C (5°F to 122°F)
	Storage: -20°C to 60°C (-4°F to 140°F)
Relative humidity	Operation and storage: 5% to 95% relative humidity, noncondensing

Technical specifications

Parameter	Specifications
Maximum gas flow rate	180 l/min
Leakage	< 50 ml/min
Maximum working pressure	200 cmH ₂ O

Figure 2. Breathing circuit, coaxial, Adult/Ped, single use



Breathing circuit components, diameter, materials

Component	Diameter (ID/OD, mm)	Material
1 Inspiratory connector	ID22	SBC
2 Coaxial inspiratory/expiratory limb	Expiratory circuit: ID26 Inspiratory circuit: ID15	EVA, PP, PE
3 Flow sensor	ID15/OD22, patient side OD15, ventilator side	PSU, PVC, PE
4 Expiratory connector	ID22	PP
5 HAMILTON-C2/C3/C6 Expiratory valve set	ID15/OD22	PC, silicone, stainless steel
6 HAMILTON-C1/T1/MR1 Expiratory valve set	ID15/OD22	PC, silicone, stainless steel
7 HAMILTON-G5/S1 Expiratory valve set	ID15/OD22	PCTG, PC, silicone, stainless steel

Adult/Pediatric Coaxial breathing circuit set with elbow adapter for HAMILTON-C1/T1/MR1, unheated, single use

Physical characteristics



PN 260087	180 cm, flow sensor
PN 260094	240 cm, flow sensor
PN 260145	300 cm, flow sensor
PN 260144	480 cm, flow sensor
PN 260128	180 cm, flow sensor, expiratory valve
PN 260127	240 cm, flow sensor, expiratory valve
PN 260167	300 cm, flow sensor, expiratory valve
PN 260168	480 cm, flow sensor, expiratory valve

Compliance for breathing circuit sets in various lengths at 60 cmH₂O pressure

PN	Circuit length (cm)	@ 60 cmH ₂ O
260087, 260128	180	1.7
260094, 260127	240	2.3
260145, 260167	300	2.7
260144, 260168	480	4.7

Flow resistance for breathing circuit sets in various lengths at various flow rates (cmH₂O/(l/min))

PN	Circuit length (cm)	@ 15 l/min		@ 30 l/min	
		Insp.	Exp.	Insp.	Exp.
260087, 260128	180	0.01	0.02	0.02	0.04
260094, 260127	240	0.02	0.03	0.03	0.04
260145, 260167	300	0.03	0.03	0.04	0.05
260144, 260168	480	0.03	0.03	0.06	0.06

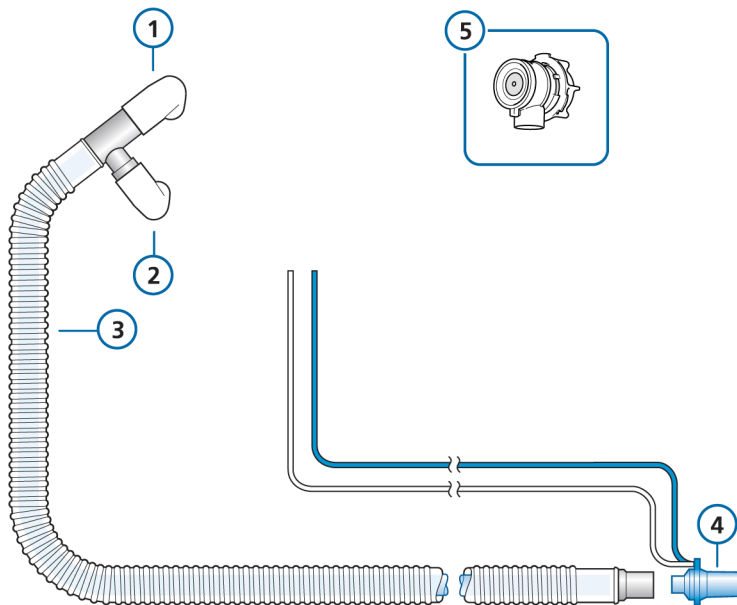
Environmental specifications

Environment	Specifications
Temperature	Operation: -15°C to 50°C (5°F to 122°F)
	Storage: -20°C to 60°C (-4°F to 140°F)
Relative humidity	Operation and storage: 5% to 95% relative humidity, noncondensing

Technical specifications

Parameter	Specifications
Maximum gas flow rate	90 l/min, ≤ 0.2 kPa
Leakage	< 50 ml/min
Maximum working pressure	200 cmH ₂ O

Figure 3. HAMILTON-C1/T1/MR1 breathing circuit set, coaxial, Adult/Pediatric, single use



Breathing circuit components, diameter, materials

Component	Diameter (ID/OD, mm)	Material
1 To patient elbow	ID22/ID22	PE
2 From patient elbow	ID22/ID22	PE
3 Coaxial inspiratory/expiratory limb	Expiratory circuit: ID26 Inspiratory circuit: ID15	EVA, PP, PE
4 Flow sensor	ID15/OD22, patient side OD15, ventilator side	PS, PVC, PE
5 HAMILTON-C1/T1/MR1 Expiratory valve set	ID15/OD22	PC, silicone, stainless steel

Standards and approvals (all breathing circuits)

Classification	Class EU IIa (in accordance with MDR)
Declaration	<p>The breathing circuits were developed in accordance with pertinent international standards and FDA guidelines. The breathing circuits are manufactured within an EN ISO 13485 certified quality management system.</p> <p>The breathing circuits have been designed to comply with: Medical Device Regulation 2017/745 (MDR), ISO 5356-1, ISO 5367, ISO 10993-1, ISO 14971, EN 15223-1, EN 1041, and EN 62366-1.</p>



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