

OTHER DEVICES

CONTRAST DELIVERY SYSTEMS

Company Name	Product Name	Applications	Flow Range (mL/sec)	Volume Range (mL)	Delivery Pressure Range, Bar (psi)
Acist Medical Systems, Inc.	CVi Contrast Delivery System	Angiography for coronary arteries, ventriculography, aortography, peripheral angiography	0.8–40 responsive variable rate; 0.1-mL increments	User-responsive variable range 0.8–99.9 in 0.1-mL increments	System limits of 200–1,200; user-defined program limits dependent on procedure parameter of choice
	EmpowerCTA	CT	0.1–10	10–200	40–300
Covidien, Liebel-Flarsheim	Angiomat Illumena	Angiography, CT	Angiography, 0.1–40; CT, 0.1–10	0.1–200	75–1,200; CT mode, 75–300
	Optistar Elite	MRI	Side A: 60-mL syringe, 0.1–100 mL/s; 1–0, 15-, 20-, 30-mL syringe, 0.1–8 mL/s; side B: 0.1–10 mL in 0.1-mL increments	0.1–60	10-, 15-, 20-, 30-, 50-mL prefilled syringes at 200; 60-mL empty syringes at 150
	OptiVantage DH	CT	0.1–10	1–125 or 1–200 depending on syringe size	25–325
LeMaitre Vascular, Inc.	LeverEdge Contrast Injector	Angiography	Variable	0.1–32	70–600
Medrad Interventional	Mark V ProVis	Angiography	60-mL syringe: flow-rate range, 0.3–20; 150/200-mL syringe: flow-rate range, 0.3–50; mL/min/h flow-rate range, 0.3–59	0.5–200	100–1,200
	Avanta		Variable flow, 1–10 in 0.1 mL/sec increments; fixed flow, 1–45 in 1-mL increments	Volume 1–150 in 1-mL increments; refillable from attached bulk source	300–1,200

CT, computed tomography; MRI, magnetic resonance imaging; RFID, radiofrequency identification; OEM, original equipment manufacturer.

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Adjustable Rise Time	Syringes	Syringe Capacity (mL)	Disposable	Prefilled	Comments
Yes, 0–1 seconds in 0.1-second increments	Up to 5-times use, disposable	100	Disposable multi-use syringe, patient kits with integrated pressure transducer, and hand controller	N/A	From the inventors of variable-rate technology, designed for coronary injections as well as large-volume injections (left ventriculogram, aortogram, etc.) and all peripheral procedures; air column detector distal to patient tubing connection, auto contrast refill, and air purge tracks contrast delivered and used per injection and case; multiple sensors
N/A	PET	200	Yes	No	New automated syringe initialization, syringe fill, and air purge features; arming at the injector; IRiS Viewer; extravasation detection technology; built-in Bracco protocols, open architecture; simple user interface; upgradable; tilt sensor/lockout; voice prompts; fast shutdown; modular flexibility
Yes, 1–10 seconds	Prefilled, disposable	150, 200	150, 200	50, 75, 100, 125	Versatile exam modes; with just the touch of a button, you can switch between cardio, angio, and CT modes
No		60 on A and B (contrast and saline)	60 mL on A and B (contrast and saline)	Contrast, 10, 15, 20, 30 mL; saline, 50 mL	Battery-free power source, patency check, status line indicator, color-coded push rods, auto retract power-head recessed start
		200	200-mL front loading	Contrast, 50, 75, 100, 125 mL; saline, 125 mL	Optional Optibolus bolus-shaping software improves CT angiography images and contrast agent utilization; RFID technology, an automatic identification technology that captures, stores and transmits data between the Ultraject syringe and the Optivantage DH power injector using devices called RFID transponders, or tags; prevents use of previously used syringe
N/A	Disposable single-use	35	Yes	N/A	Provides manual operator with complete control; patented design injects contrast at pressures six times greater than standard manual syringe
Yes, 0.0–9.9 seconds in 0.1-second increments	Single-use, disposable	60, 150, 200	60, 150, 200	No	Exclusive Mechanical Stop, patented FluiDots, Sentinel Air Check Reminder, 100% OEM compatibility, multiple configurations (table, pedestal, overhead mounts), 99.9% average up-time
Rise time 0.0–9.9 sec in 0.1-second increments	Disposable, multiuse	150	150		Dual infrared fluid-level sensors for saline and contrast line, saline flush capability, multipatient-use disposables, gross air detectors, FluiDots, 100% OEM compatibility, multiple configurations (table, pedestal mounts)