

Data center unit substation transformers

RG-C | Submittal-ready specification

FR3-filled unit substation transformers for indoor electrical rooms and outdoor yards, hardened for vacuum circuit breaker switching transients with one BIL class above standard. Built for repeat orders of 50 to 100 units per campus on a staged delivery schedule. Lead time 12 to 16 weeks after drawing approval.

Ratings and construction

Ratings	1,000 to 12,000 kVA.
Primary voltage	13,800 V and 34,500 V standard; 5, 15, 25, and 35 kV classes available. Externally operable de-energized tap changer.
Secondary voltage	480Y/277 V standard. 415Y/240 V, 208Y/120 V, and medium-voltage secondaries to 13.8 kV available.
Basic impulse level	One class above standard: 150 kV on 15 kV class, 200 kV on 35 kV class.
Impedance	Set to the fault study. 5.75 percent standard; 6.5 to 8 percent available. Available fault currents above 100 kA accommodated.
Fluid and cooling	FM Approved FR3 natural ester standard, fire point above 300 C; mineral oil on request. KNAN self-cooled; KNAN/KNAF with fans for forced-air ratings up to 133 percent.
Temperature rise	65 C standard. 55 C option.
Construction	Snubber-free switching-transient design with series resonance placed above breaker switching frequencies. Welded radiators. Sidewall high-voltage bushings in an air-filled terminal compartment. Molded epoxy low-voltage bushings with NEMA spades, or throat flange for close-coupled switchgear and busway. Skid base with four lifting lugs and jacking pads. Mild steel or 304L stainless. Seismic qualification per IBC and IEEE 693 available.
Monitoring	Dial thermometer, liquid-level gauge, pressure-vacuum gauge, and pressure relief device, all with alarm contacts. Dissolved-gas sensor and digital monitoring provisions. Sudden-pressure relay on request.
Sound level	NEMA TR 1 standard; reduced-sound designs available for occupied spaces.
Lead time	12 to 16 weeks after drawing approval. Campus orders staged by building.

Standards and testing

IEEE C57.12.00, IEEE C57.12.90, IEEE C57.12.36 (distribution substation transformers), IEEE C57.12.28 and C57.12.29 (enclosure integrity, standard and coastal). FM Approvals Class 3990 less-flammable liquid-filled transformers. NEMA TR 1. Efficiency per US Department of Energy 10 CFR 431 for ratings of 5,000 kVA and below with 600 V secondaries. Routine tests on every unit per C57.12.90 with certified reports. Design tests available: lightning impulse, temperature rise, audible sound, short-circuit withstand. Witnessed factory acceptance tests on request.

Options

200 kV BIL on 15 kV class. Forced-air fan package. 304L stainless. Reduced-sound design. Throat flange for busway or switchgear. Seismic qualification. Digital monitoring package with dissolved-gas sensor. Sudden-pressure relay. Vacuum fault interrupter. Custom paint color.

Ordering information

To quote, send the primary and secondary voltages, kVA rating, quantity, impedance if specified, fluid, enclosure material, accessories, the site location, and the date units are needed on site. Submittal drawings are returned within 10 business days of order. Quotes are delivered duty paid (DDP) to the site. Request a quote at riogridpower.com/quote or contact@riogridpower.com.

Ratings and dimensions are confirmed on the submittal drawings for each order. Specifications may be revised without notice; the drawing package governs.