CRESSALL

DC7000 locomotive load bank

for testing diesel electric locos up to 4000hp

A purpose-built load bank for the performance testing of engines and generators of all types of diesel electric locomotive up to 4000hp rating, with easy-to-use resistance adjustments allowing tests to be carried out over the whole power envelope.

Capacity

3100kW, 0 - 7000A continuously at up to 2000V DC

Construction

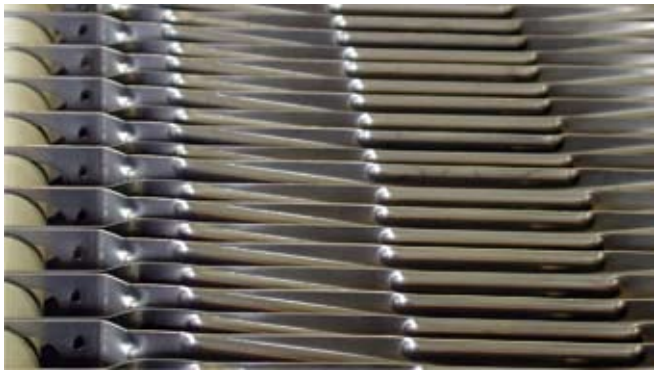
The load consists of twin 14-section fan-cooled resistor ducts with fans, starters and controls, two main load isolating contactors and an integrated off-load switch panel permitting the pre-selection of any one of more than 200 values of resistance between 0.026Ω and 3.3Ω.

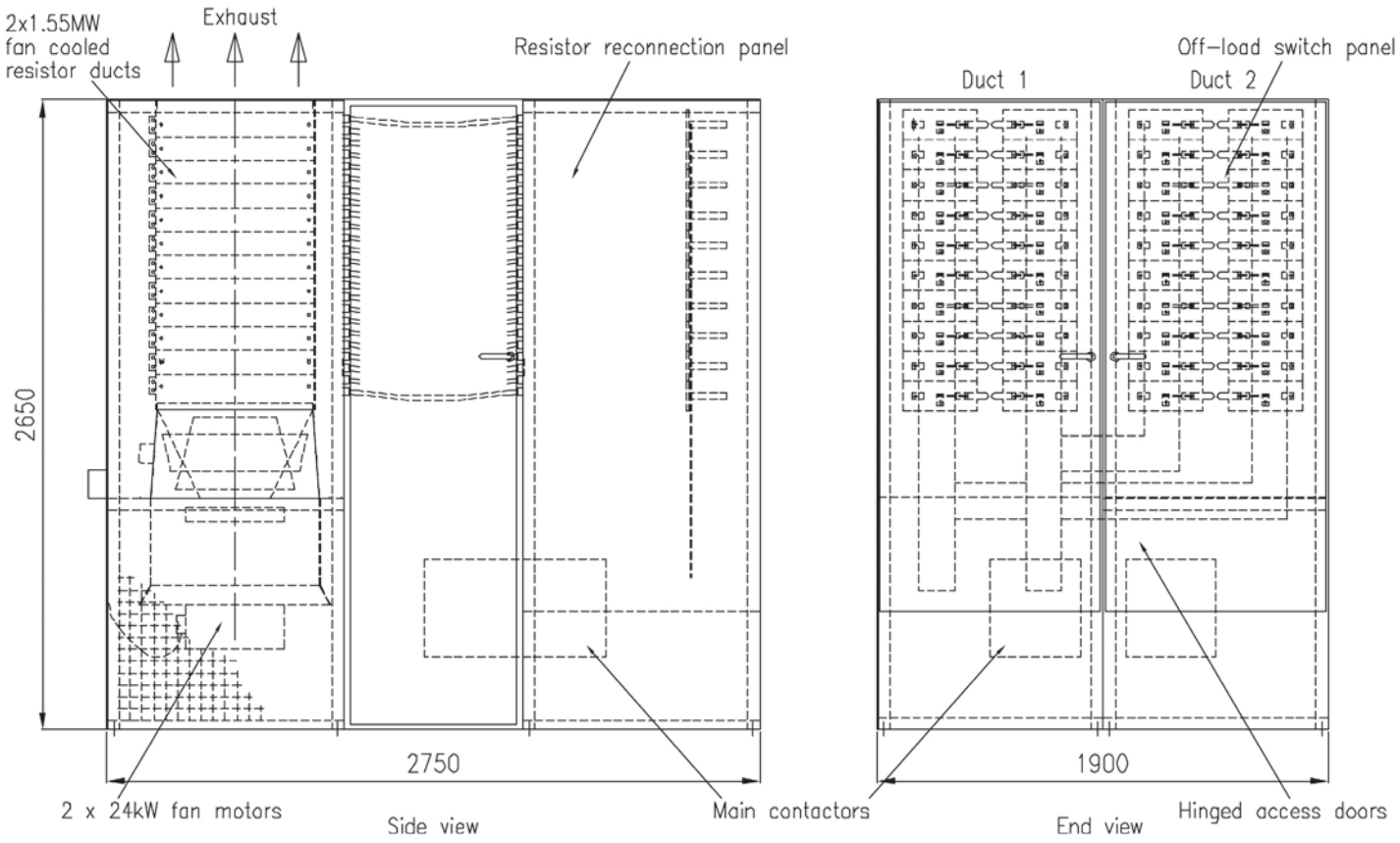
The fans, resistors and switchgear are all built in to a single sheet steel frame with hinged lockable access doors, air intake screens and (optionally) hand-operated outlet louvres. Paint finish is RAL7032 light grey powder coat.

The enclosure is designed for floor mounting with bottom cable entry. Fan motor and control voltages are set to suit customer's own available supply voltage and frequency.

Resistor elements

Type EN650 traction resistor elements, arranged in individually replaceable banks with all-welded interconnections. Each bank is contained in a fully insulated duct section with two independent levels of 3kV electrical insulation.





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Resistor material

The resistor elements are manufactured from Inco alloy 601, a 60:23 nickel-chrome stainless steel. This is a high-grade stainless steel with excellent corrosion resistance properties and a low (0.04%/°C) temperature coefficient of resistance, giving very stable resistance values over the whole range of operation.

Connection scheme

The off-load knife switches allow for the reconnection of the twelve resistors in each stack into more than 200 different configurations with a range from .026Ω/7000A through to 3.25Ω/600A. There are intermediate points to suit the majority of loco alternators up to 4000hp rating. Representative capacities are tabled opposite.

Main contactors

The two main contactors carry the maximum continuous thermal current of 7000A and have a peak breaking capacity of 1000A, allowing for on-load isolation from the loco generator after the excitation has been reduced. For safety, the contacts are mechanically latched and have a separate trip coil so that there is no possibility of accidental opening during testing.

Load bank setting **Continuous rating**

step	ohms	volts	amps	kW
1	3.33	2000	580	1160
2	2.85	1770	600	1062
3	2.38	1475	600	885
4	1.90	1180	600	708
5	1.66	2000	1160	2320
6	1.43	1770	1200	2124
7	1.19	1475	1200	1770
8	0.95	1180	1200	1416
9	0.83	1035	1200	1242
10	0.71	890	1200	1068
11	0.59	730	1200	876
12	0.48	1135	2320	2633
13	0.42	1030	2400	2472
14	0.36	890	2400	2136
15	0.32	1015	3080	3126
16	0.28	940	3300	3102
17	0.24	860	3480	2993
18	0.20	735	3600	2646
19	0.18	755	4120	3111
20	0.15	690	4520	3119
21	0.12	570	4640	2645
22	0.095	545	5620	3063
23	0.079	508	6120	3109
24	0.059	295	4800	1416
25	0.048	297	6000	1782
26	0.040	286	7000	2002
27	0.034	248	7000	1736
28	0.026	189	7000	1323

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