



INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

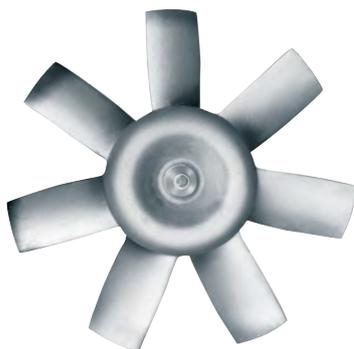
AXIFAN® TUBEAXIAL FANS

MODEL TCTA





TCTA Arr. 9



AXIFAN® Wheel

Model TCTA

The model TCTA AXIFAN® Tubeaxial Fan from Twin City Fan & Blower is designed to handle a wide range of requirements ranging from general ventilation to process air supply. Its mounting flexibility, which allows it to be mounted as part of the ductwork, makes it ideal for many industrial and commercial applications.

The model TCTA includes all of the design advantages of the TCVA AXIFAN® Vaneaxial Fan, except that guide vanes are not provided. This makes the TCTA more suitable for lower pressures and provides cost savings.

Capabilities

- Impeller diameters 305mm to 1524mm
- Airflow to 45 m³/sec
- Static pressures to 1243 Pa
- 37 unique diameters and hub-to-tip ratios

AXIFAN® Impeller

The heart of the TCTA AXIFAN® fan lies in its impeller. Cast of high strength aluminum alloy, the one-piece TCTA AXIFAN® impeller has been developed to maximize the highest efficiency possible. Attention to detail in blade and hub design have created what is felt to be the most efficient and reliable axial fan on the market today. With the wide range of hub-to-tip ratios available, there is a TCTA AXIFAN® to meet any air movement requirement.

Hub-To-Tip Ratio

The multitude of TCTA AXIFAN® impellers evolves from nine basic castings. Each casting is machined and cut to the proper diameter. By cutting the same model casting to one of several different diameters, different hub-to-tip ratios are created. Since each hub ratio has slightly different pressure/efficiency characteristics, the freedom of having several impellers (different hub ratios) for a set diameter provides the opportunity to maximize efficiency at the required point of rating.

Housing

TCTA AXIFAN® housings are one-piece, heavy-gauge, hot-rolled steel construction. Flanges on both the inlet and outlet are integrally rolled and punched for attachment to ductwork or accessories as necessary. The seam is continuously welded and ground smooth to assure efficient airflow through the housing.

Drive Isolated from Airstream

The shaft and bearing assembly is mounted within the inner cylinder to isolate these components from the high velocity airstream.

The V-belt drive assembly is extended through a two-piece belt fairing. The belt fairing is an aerodynamically designed tube, designed to maximize fan efficiency, minimize air blockage and reduce noise generation.

Additional Information

For additional information on the TCTA and TCVA AXIFAN® tubeaxial and vaneaxial fans, refer to Twin City Fan & Blower Catalog AX100.



Model TCTA is available with UL/cUL 705 listing for electrical, File No. E158680.

Model Nomenclature

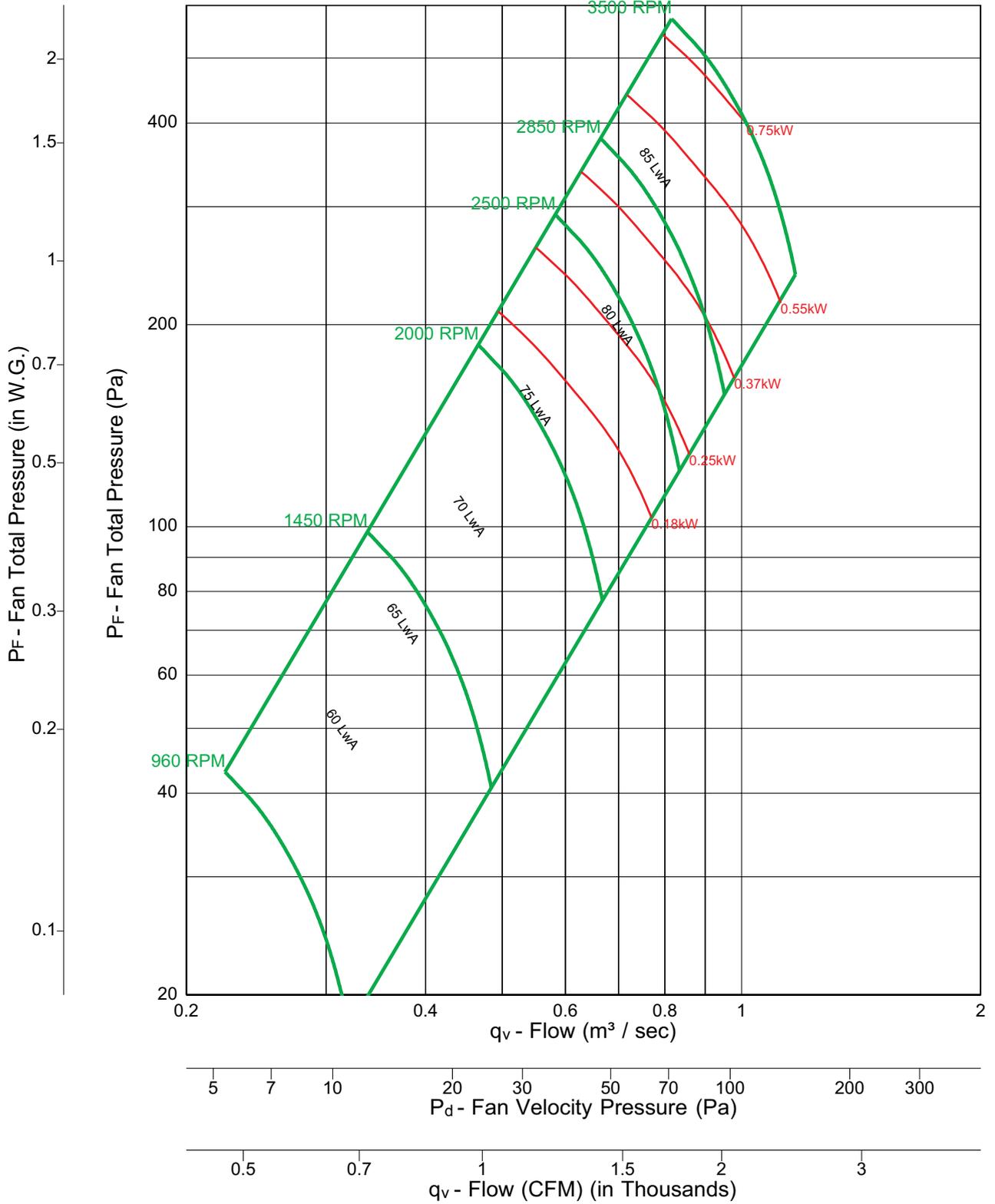
36 B 5

Approximation of Hub-To-Tip Ratio
Where: 3 ≈ 40%, 4 ≈ 43%, 5 = 50%
6 ≈ 57%, 7 ≈ 66%

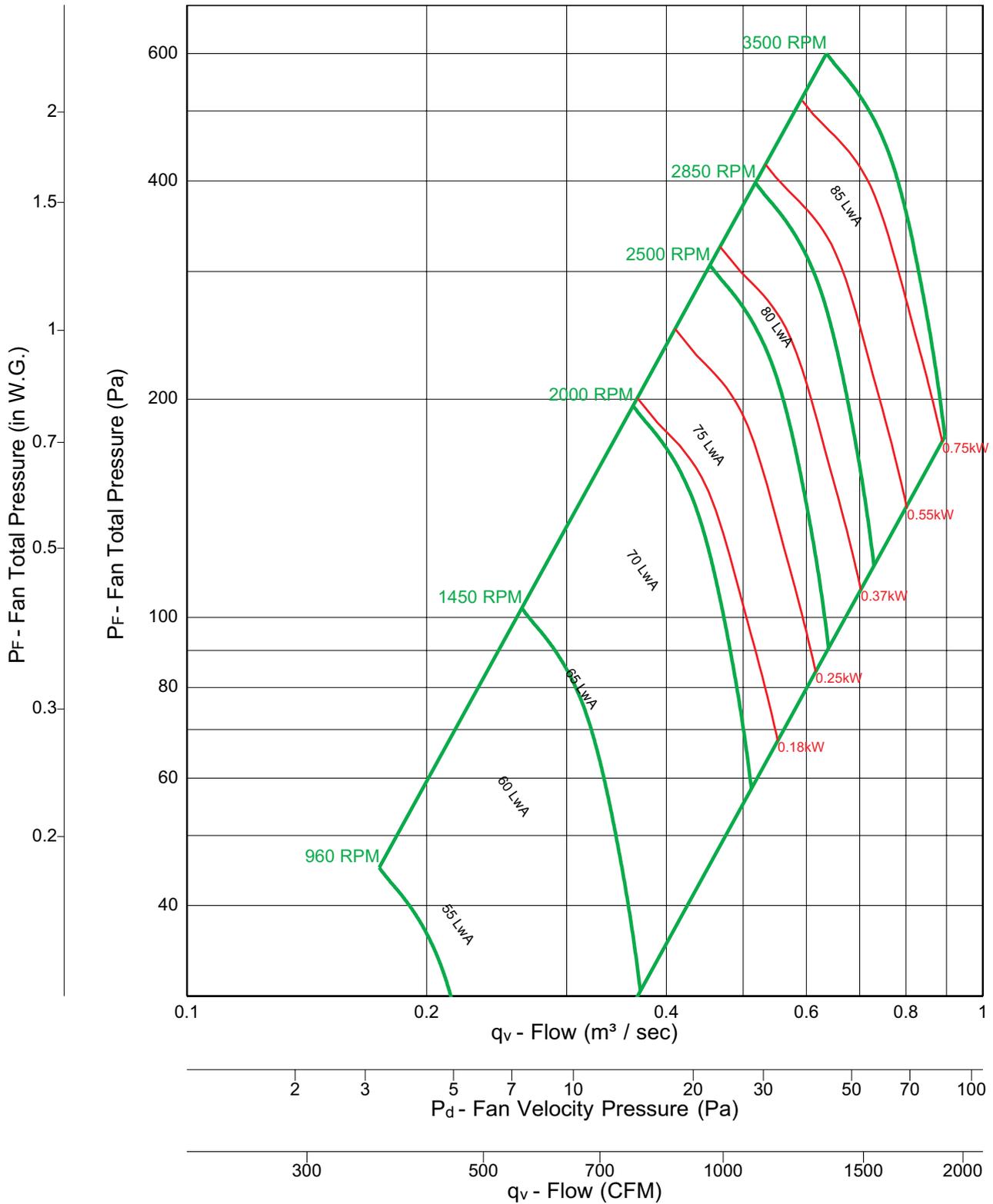
Drive
B = Belt Driven (Arr. 9)
D = Direct Drive (Arr. 4)

Fan Size

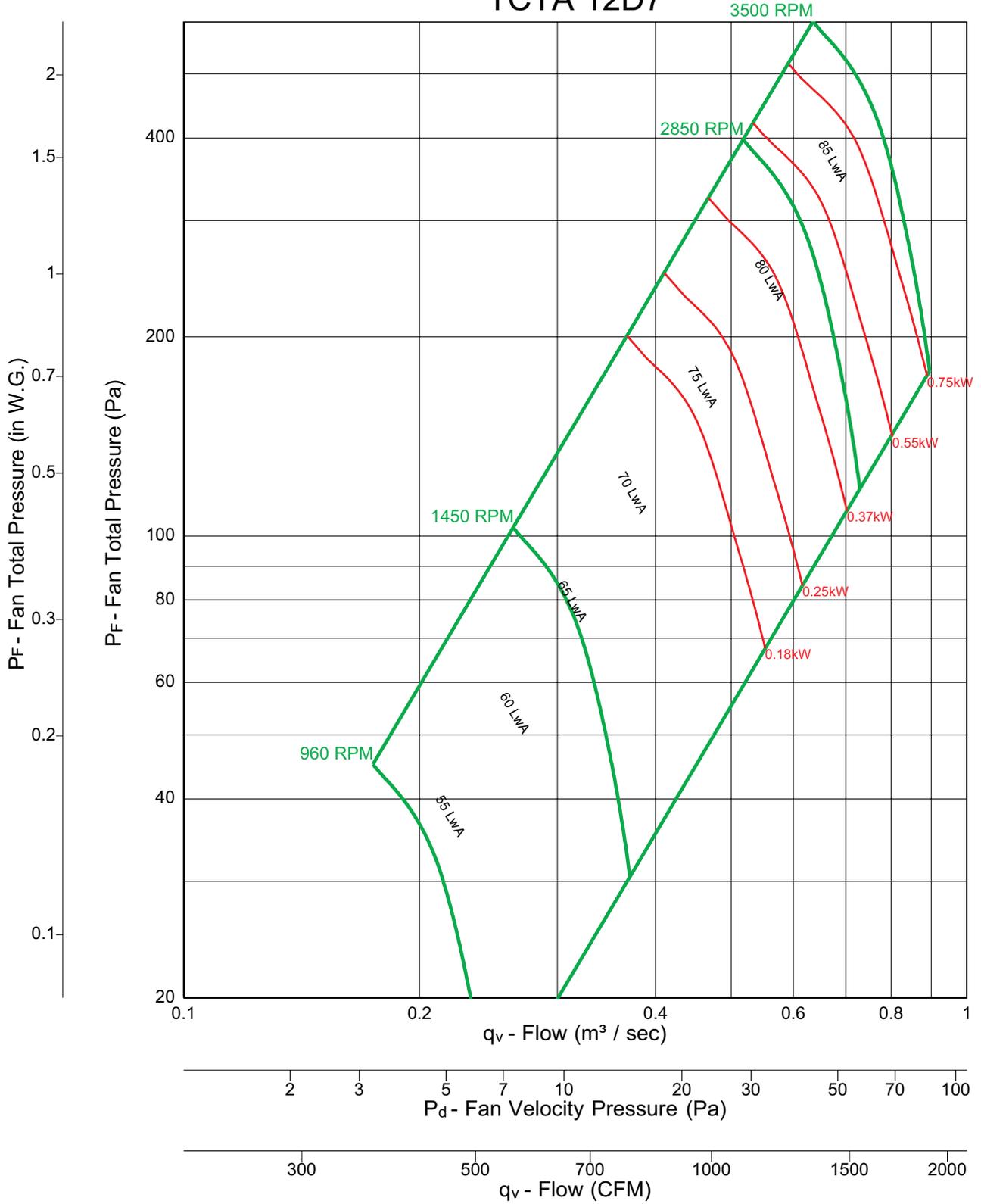
TCTA 12B6



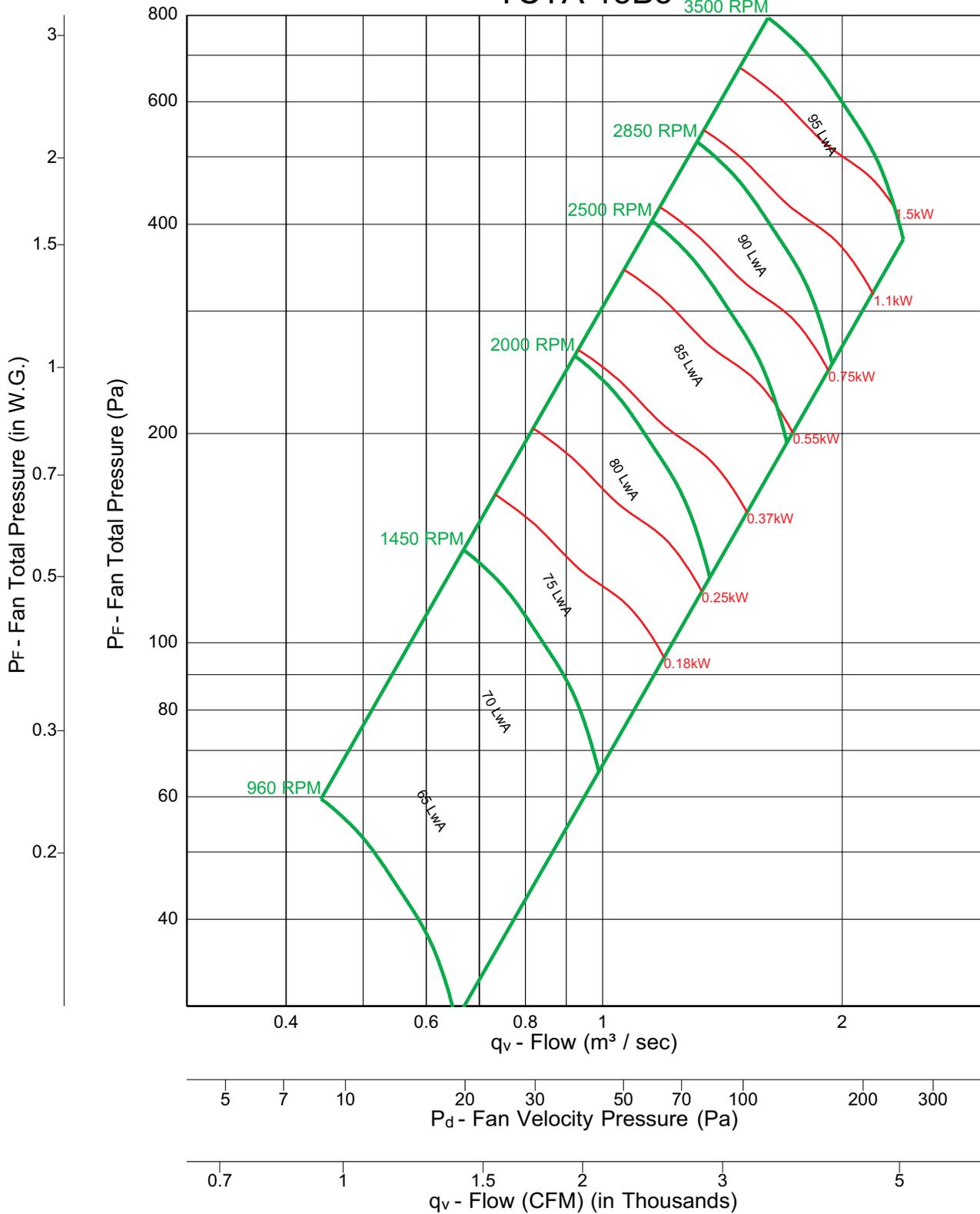
TCTA 12B7



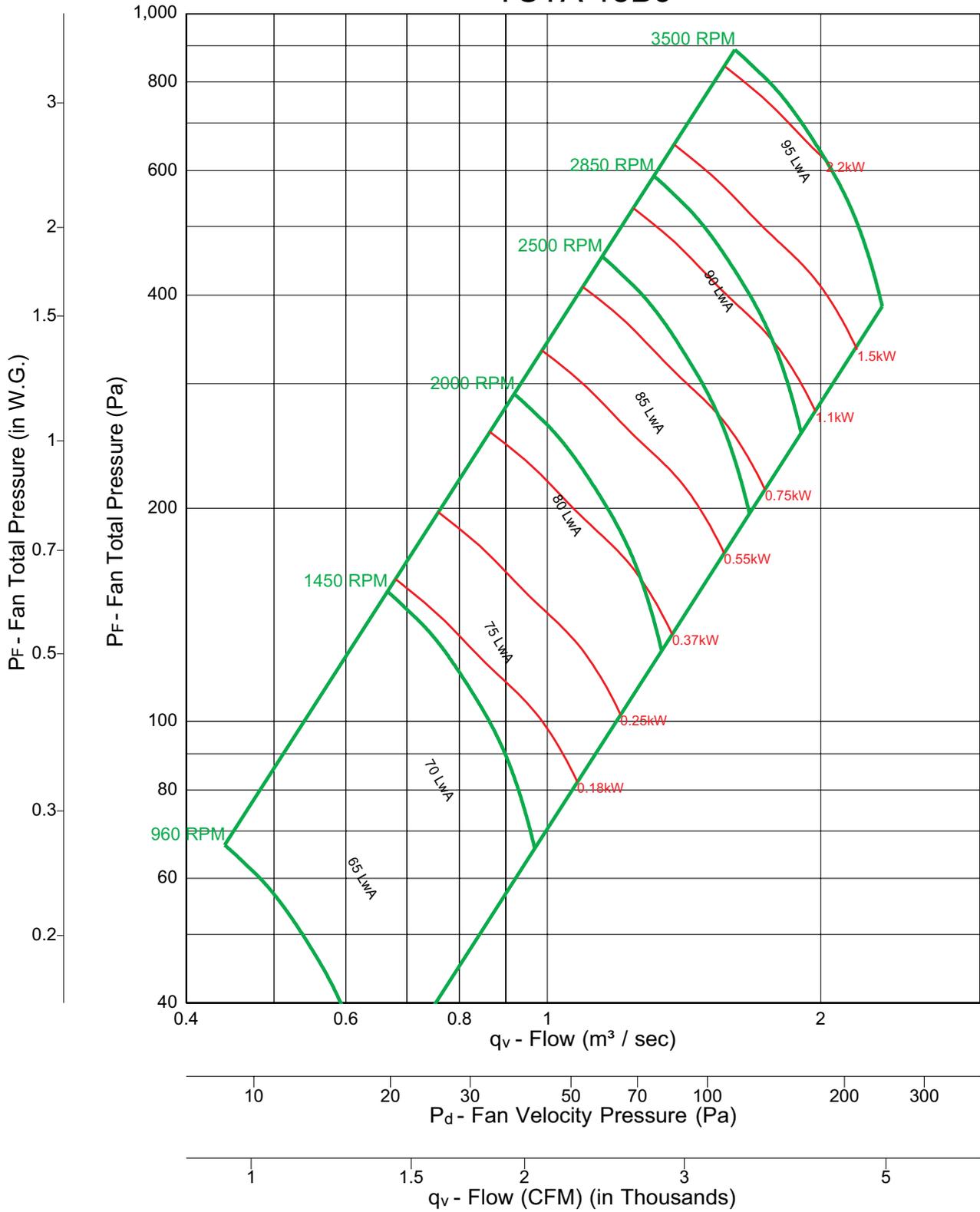
TCTA 12D7



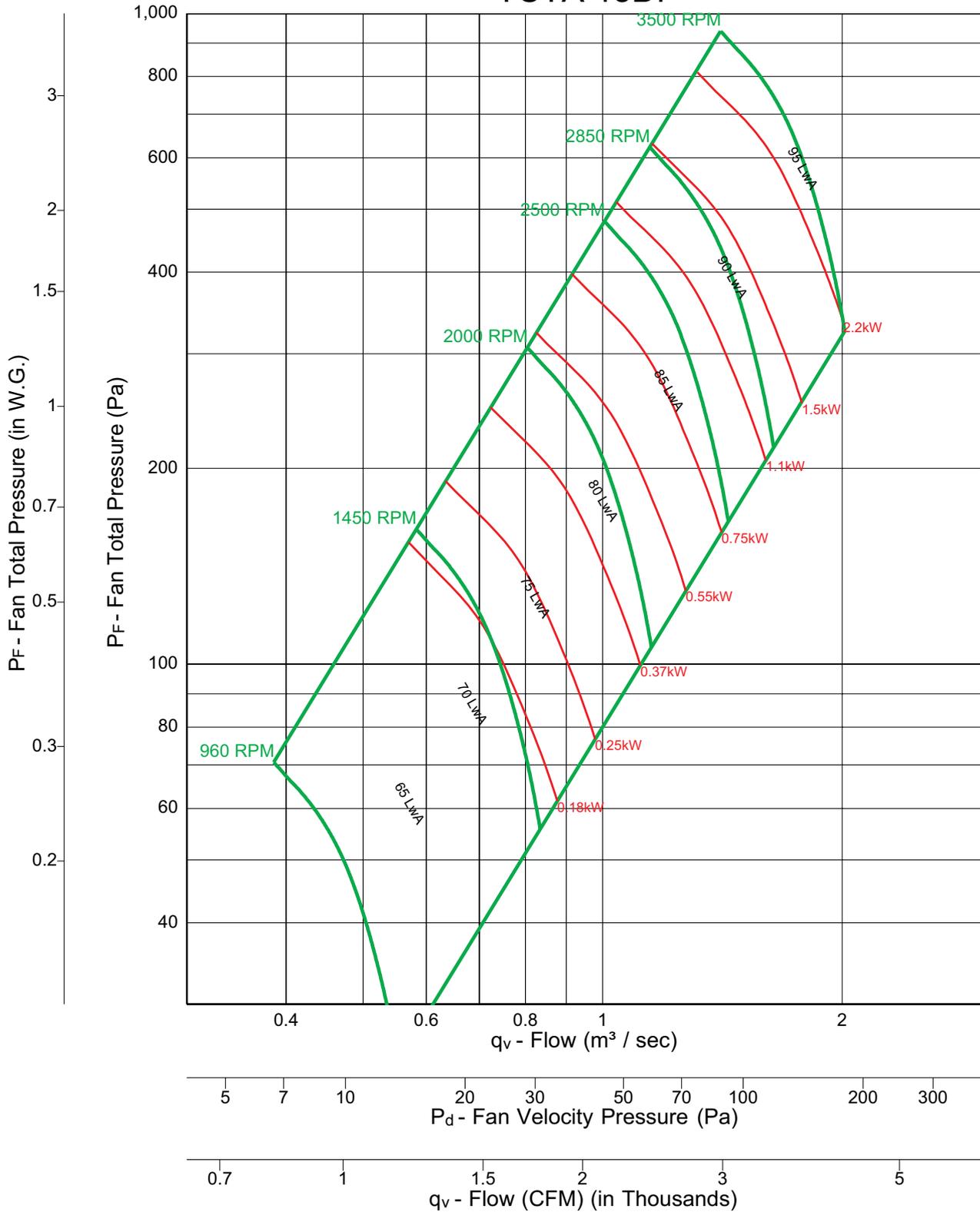
TCTA 15B5



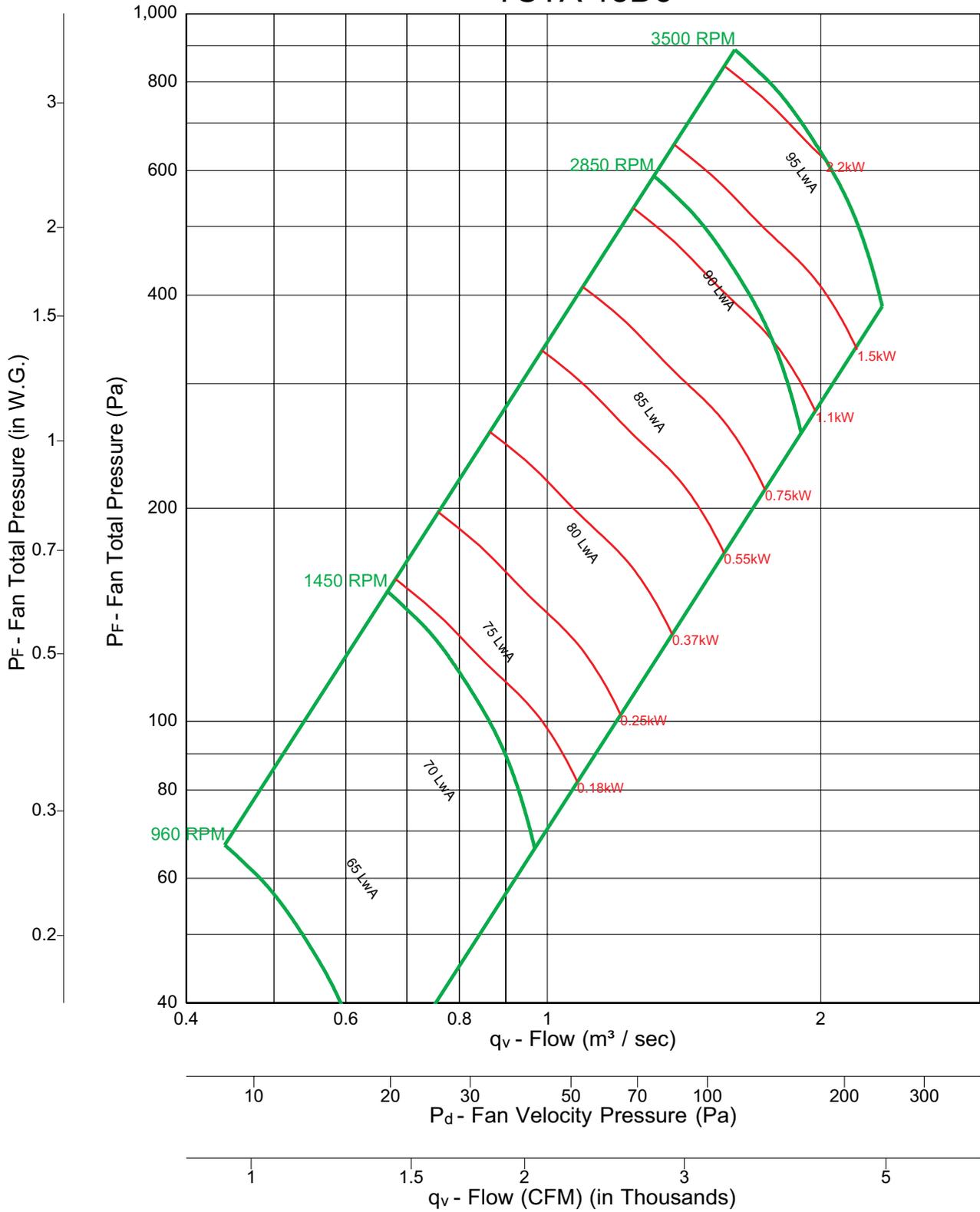
TCTA 15B6



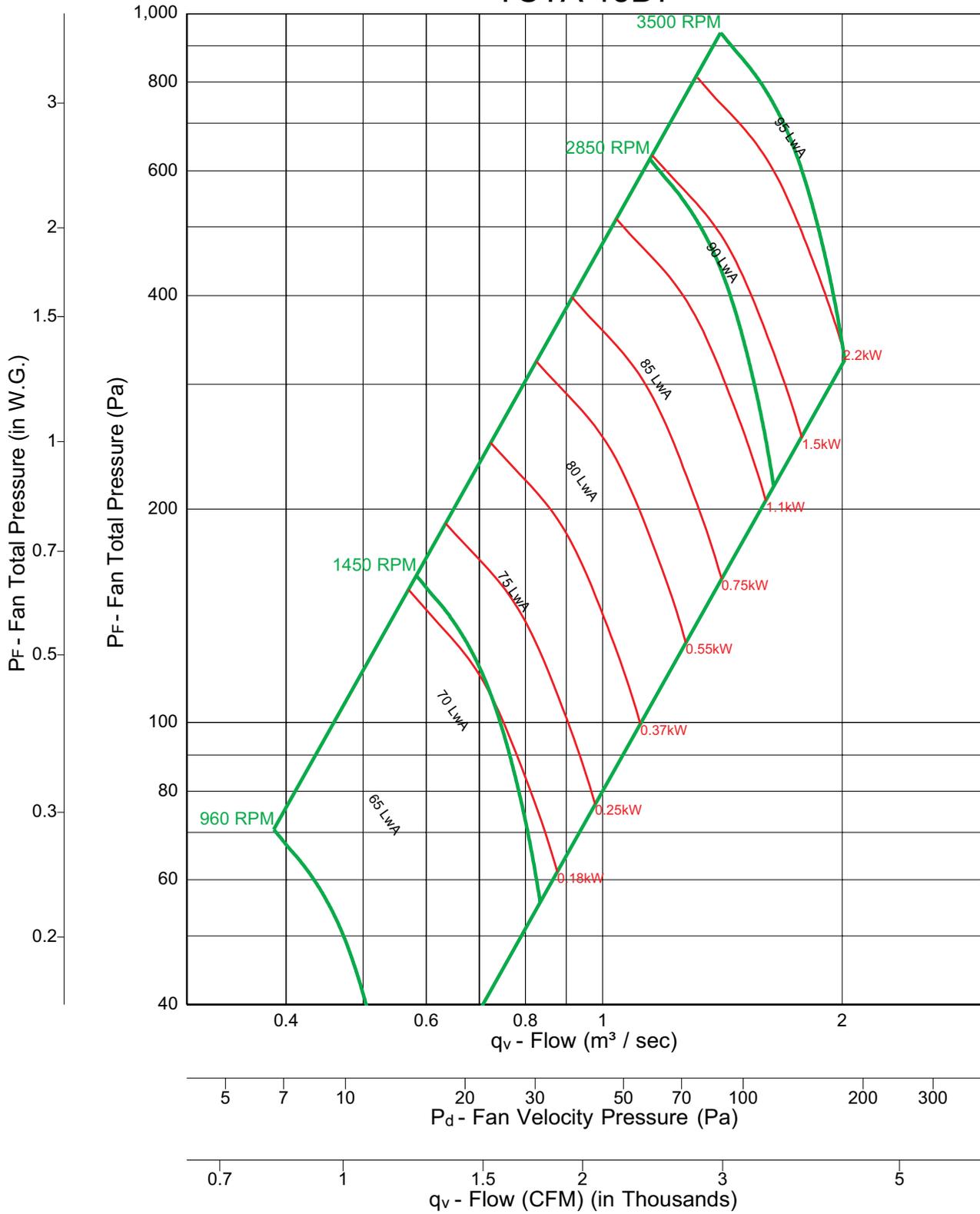
TCTA 15B7



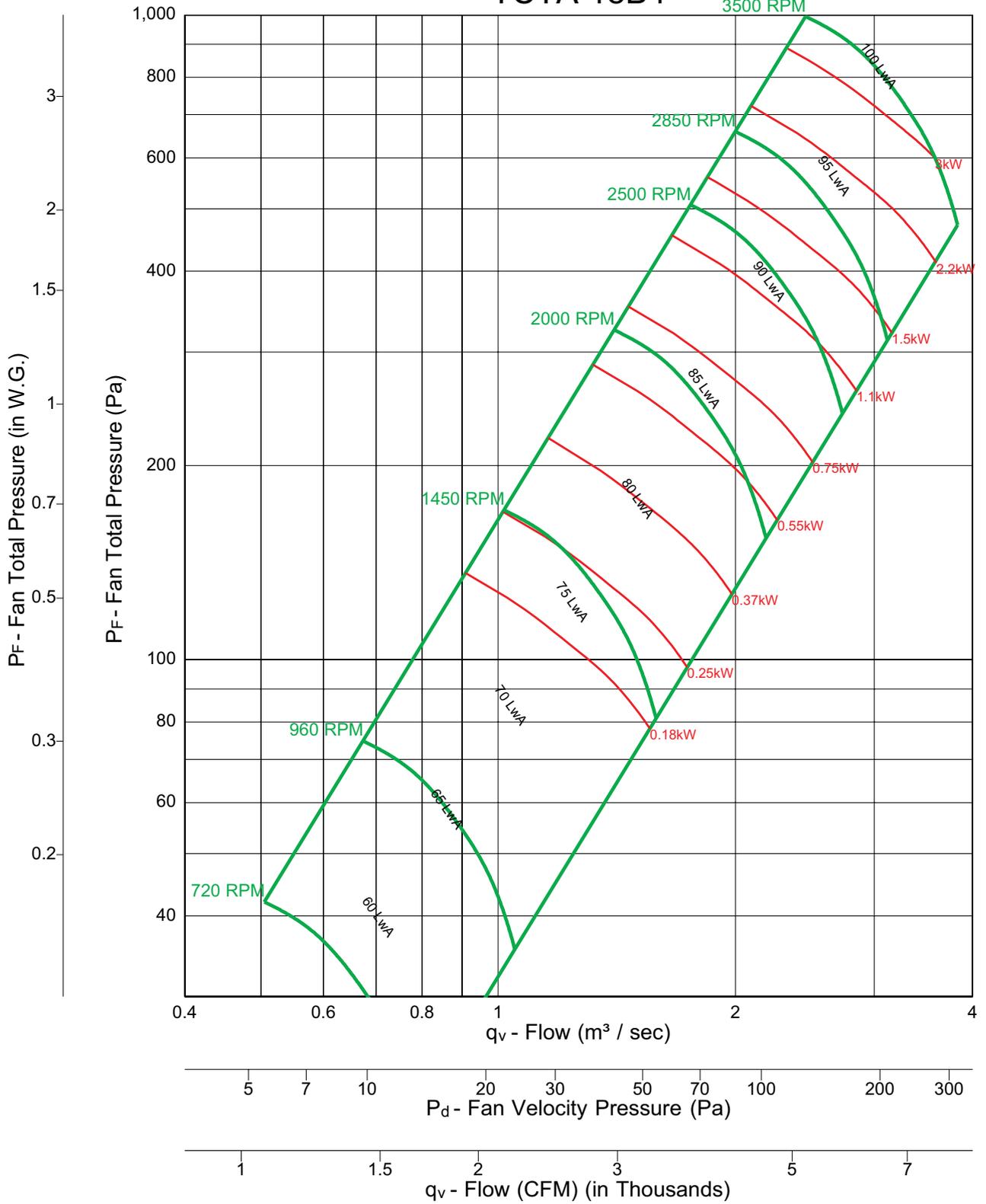
TCTA 15D6



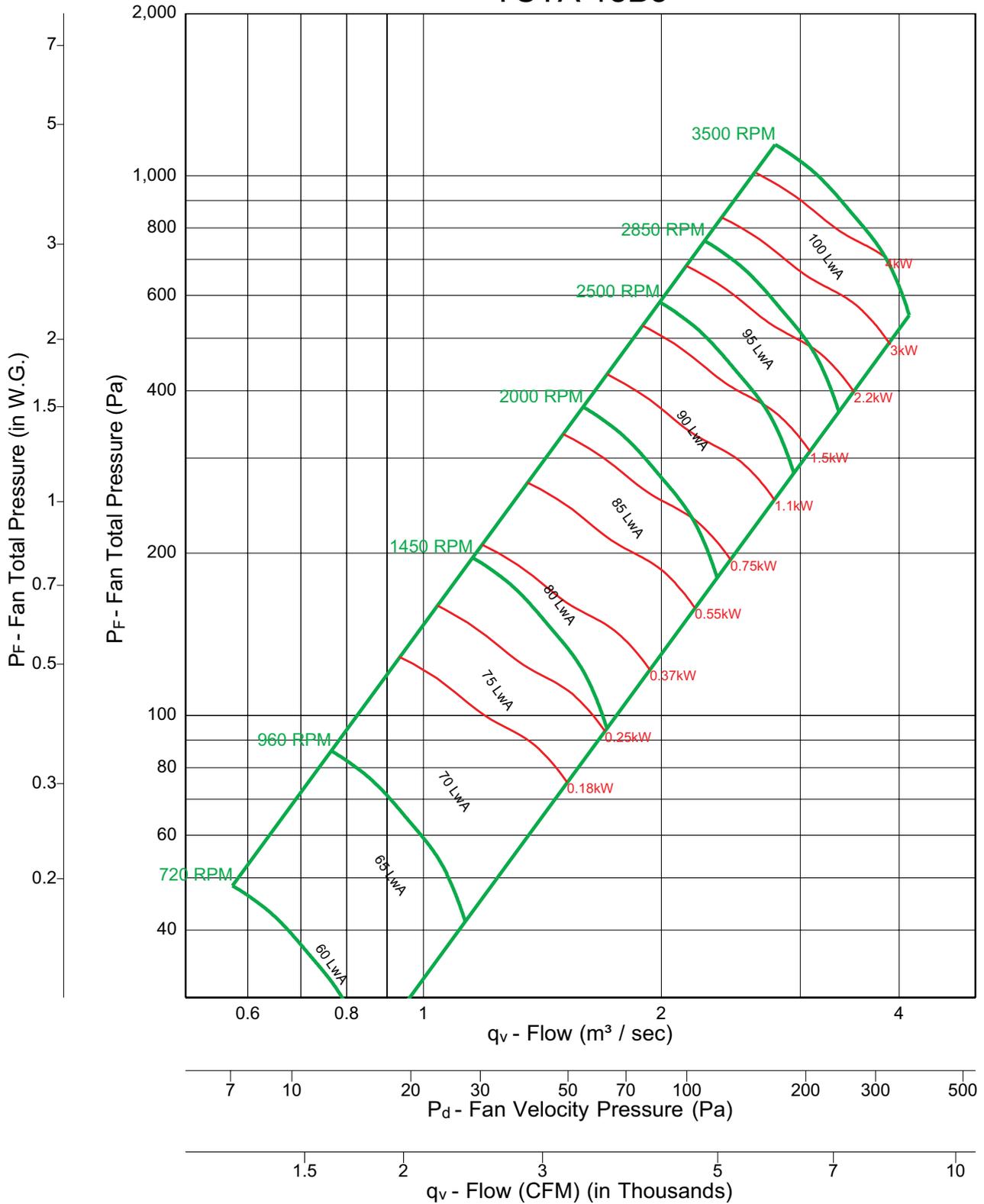
TCTA 15D7



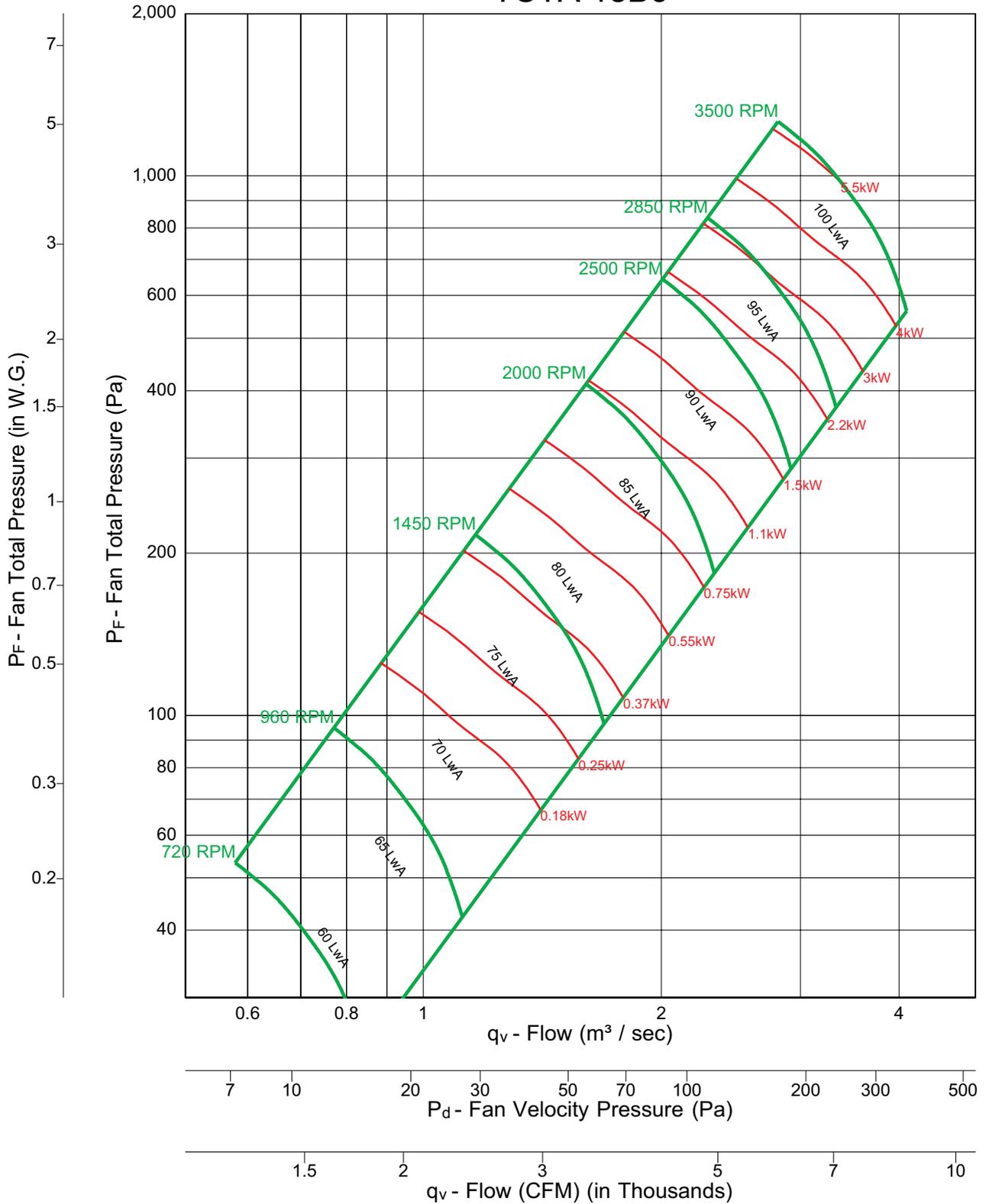
TCTA 18B4



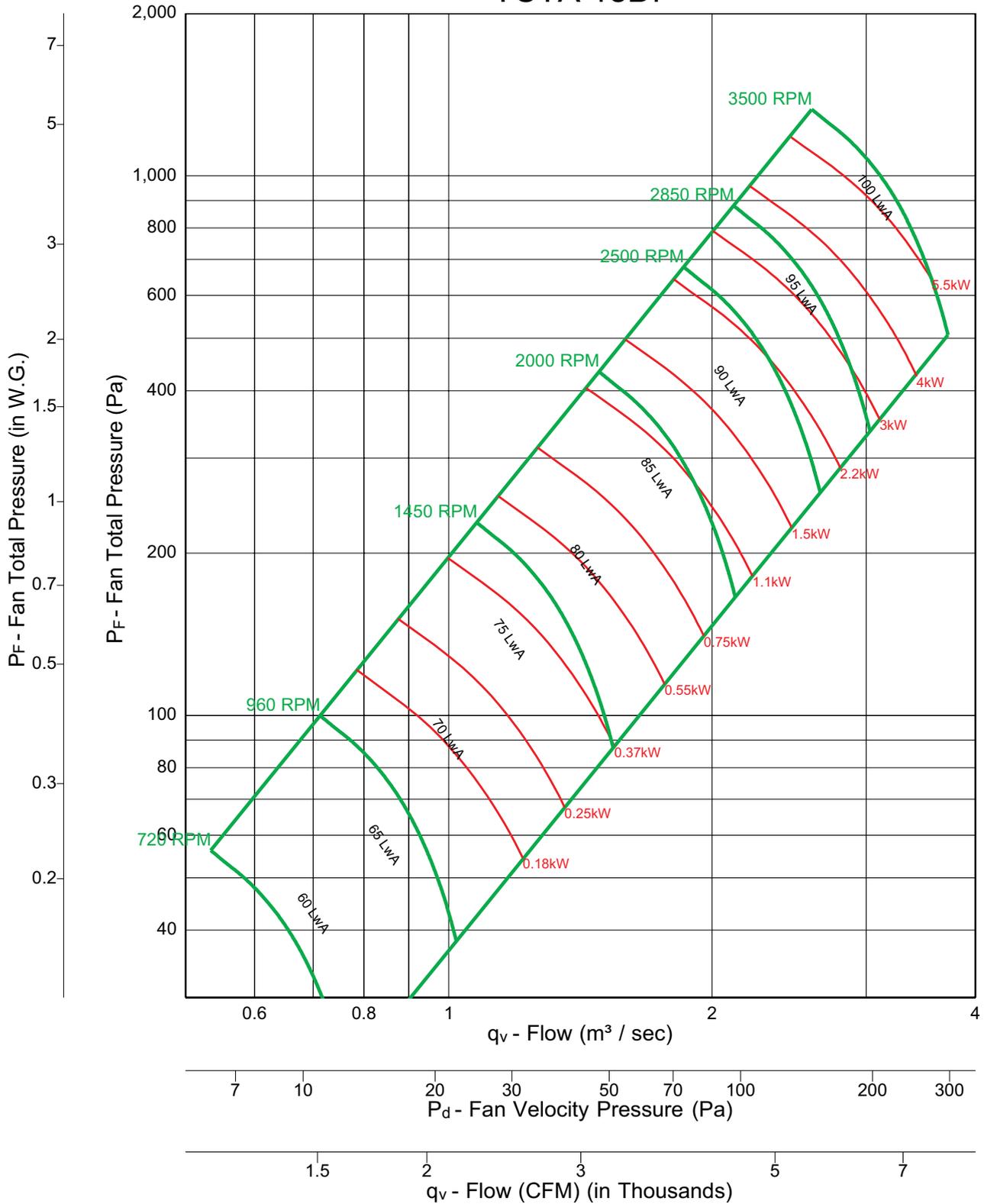
TCTA 18B5



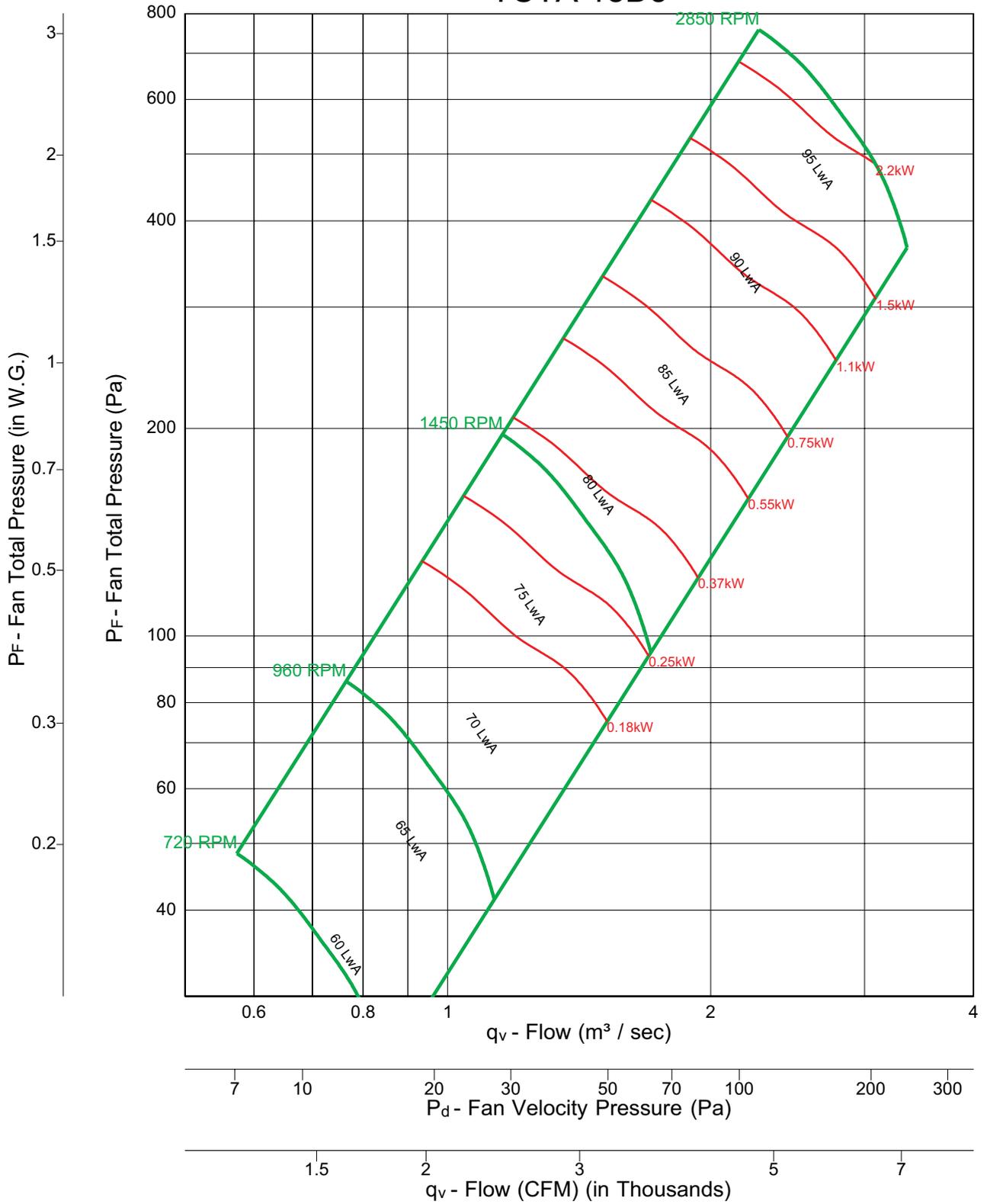
TCTA 18B6



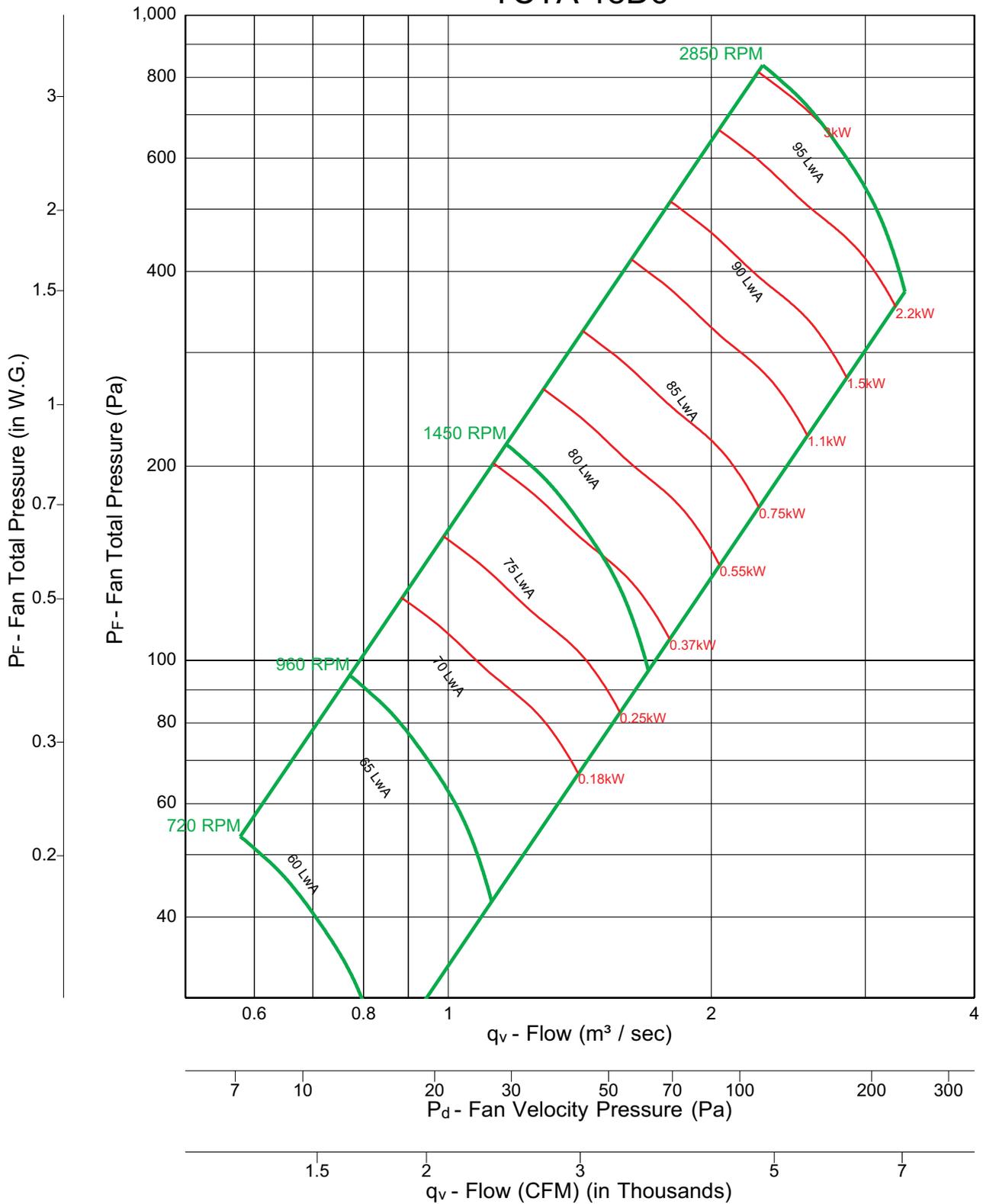
TCTA 18B7



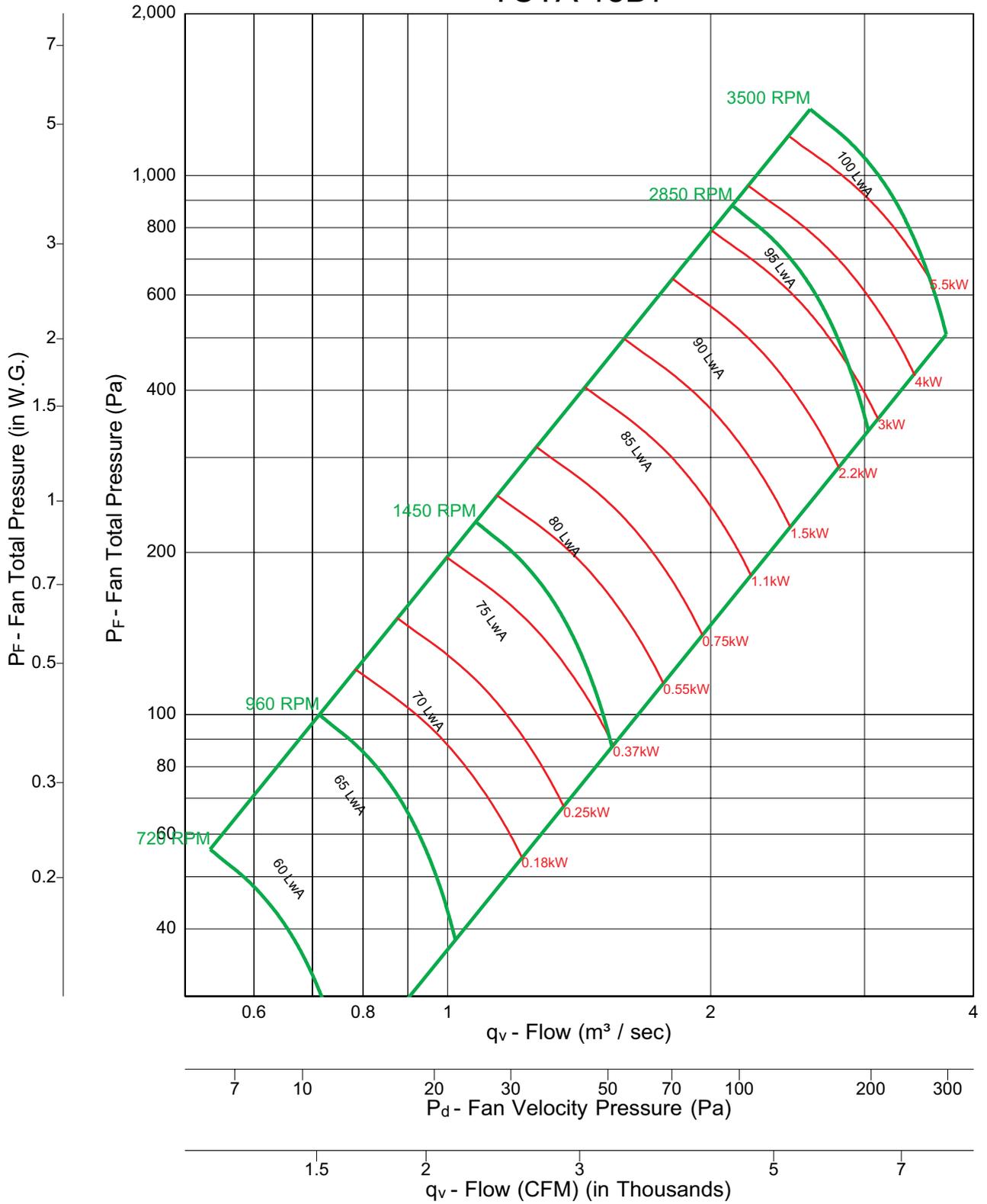
TCTA 18D5



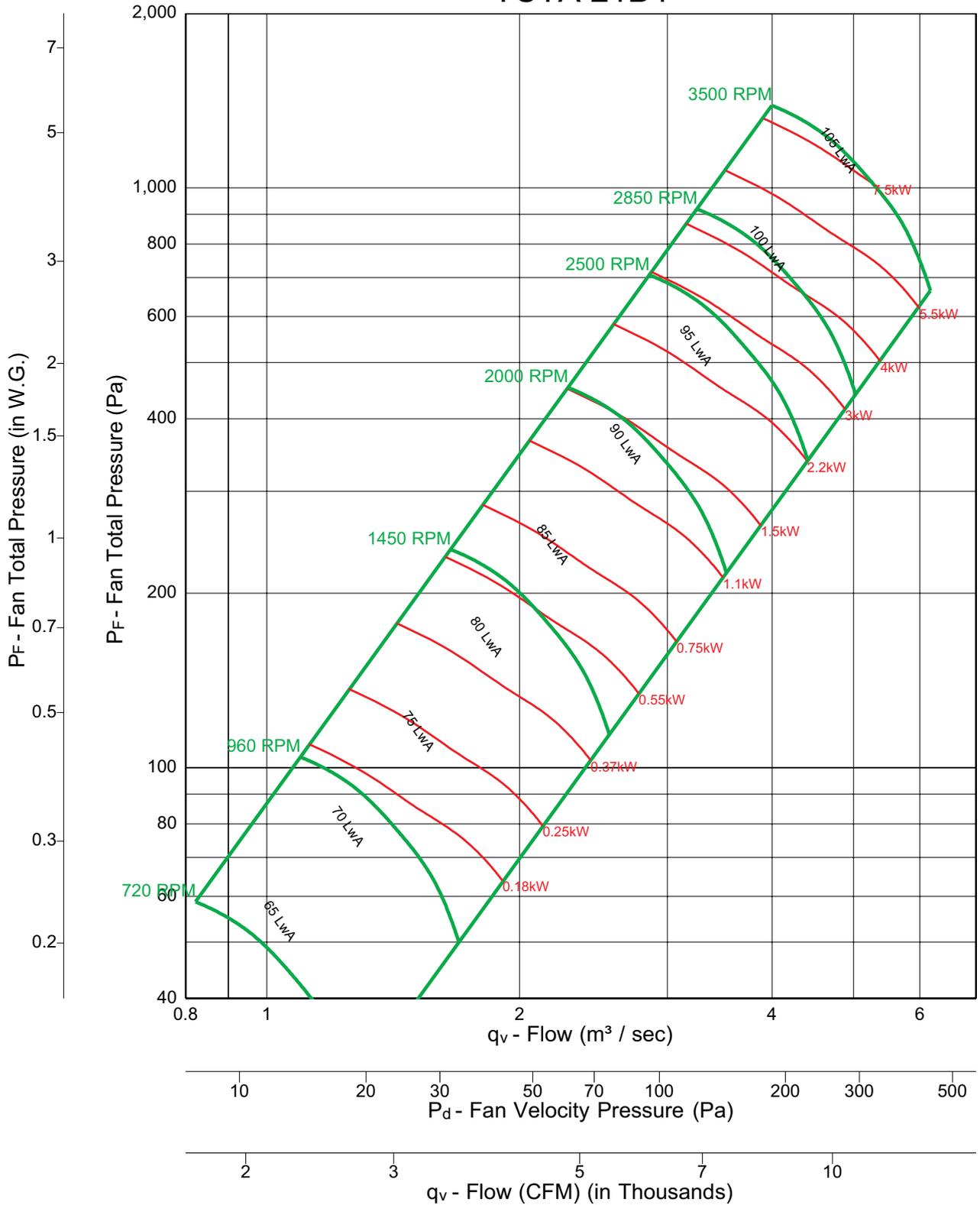
TCTA 18D6



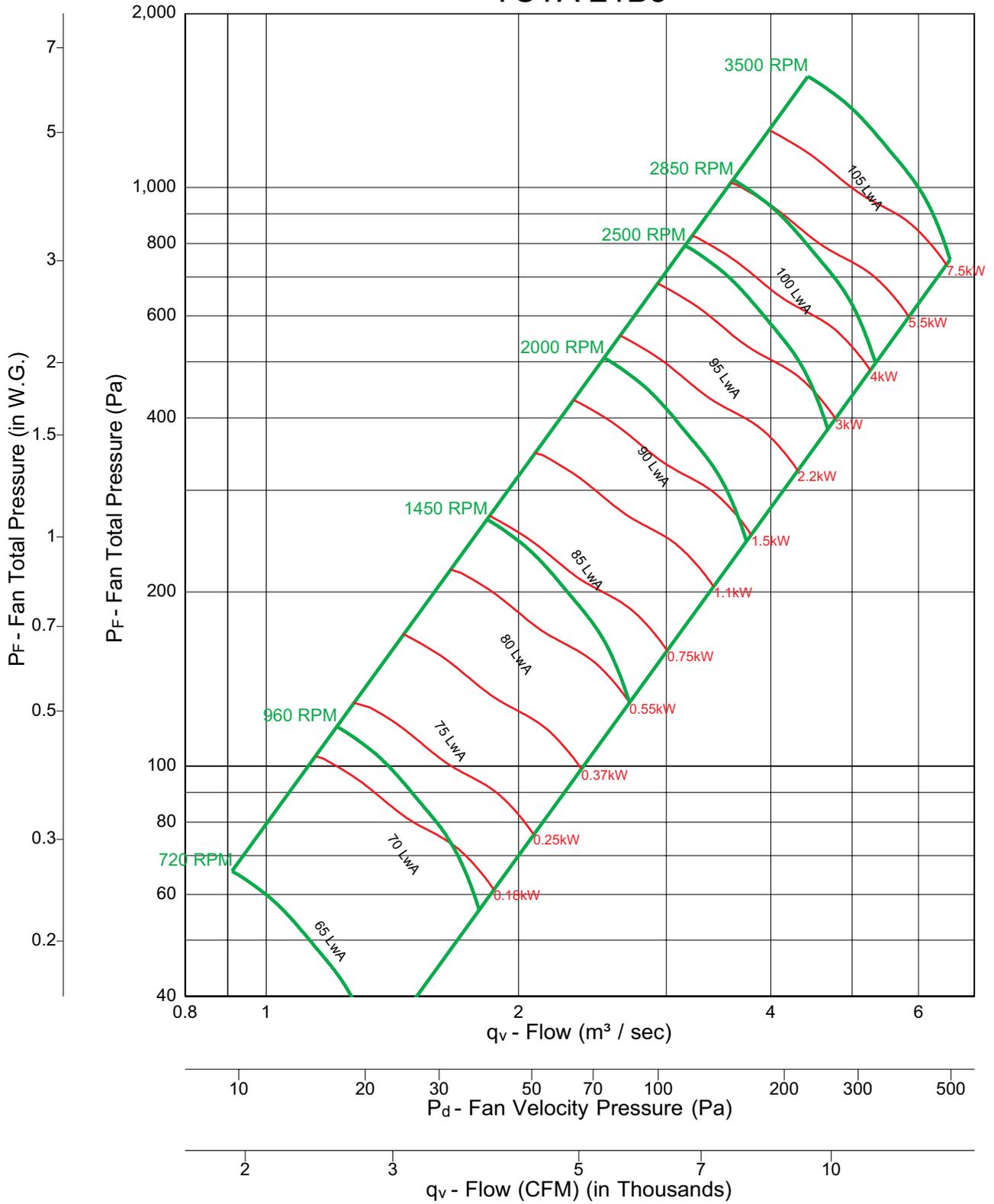
TCTA 18D7



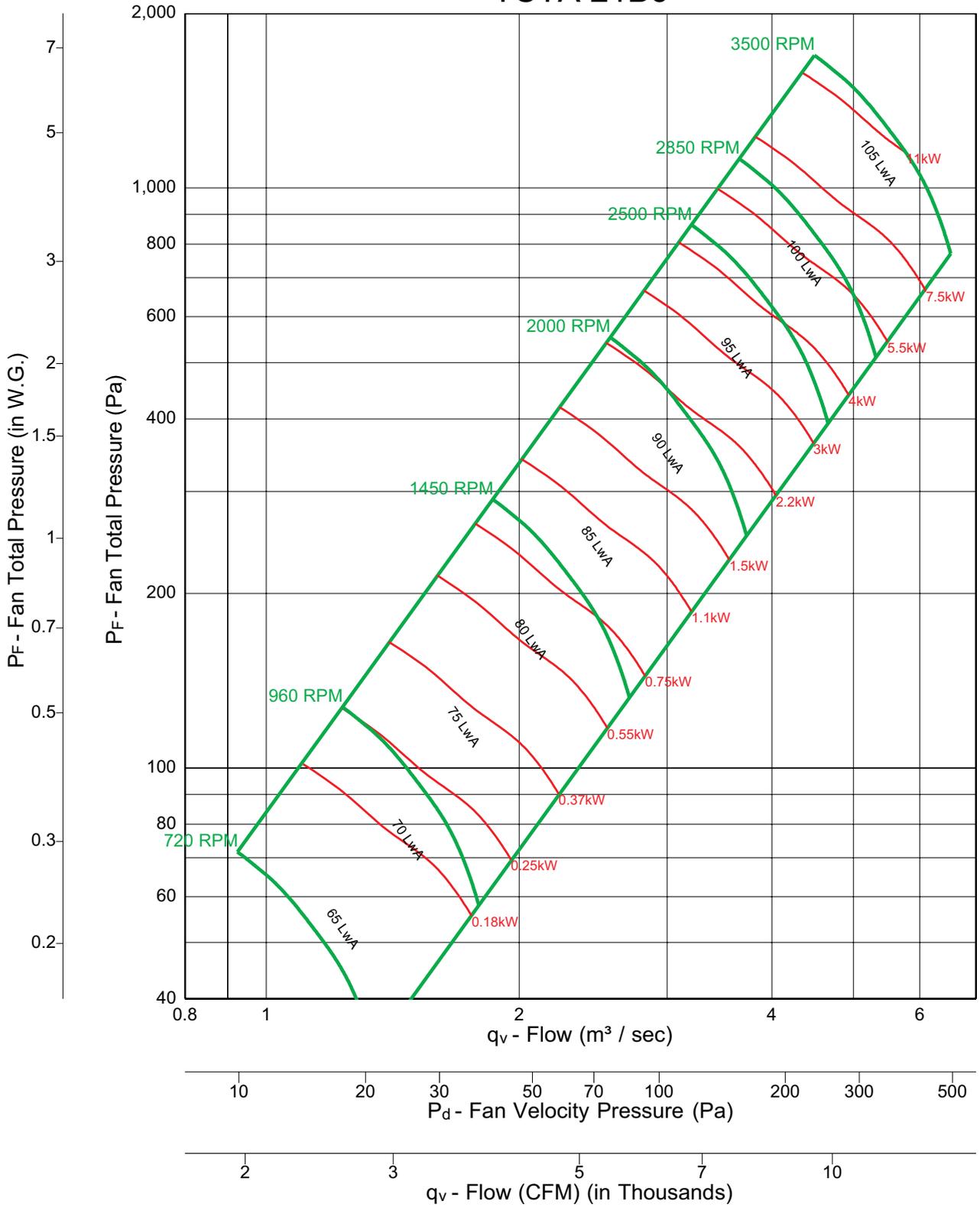
TCTA 21B4



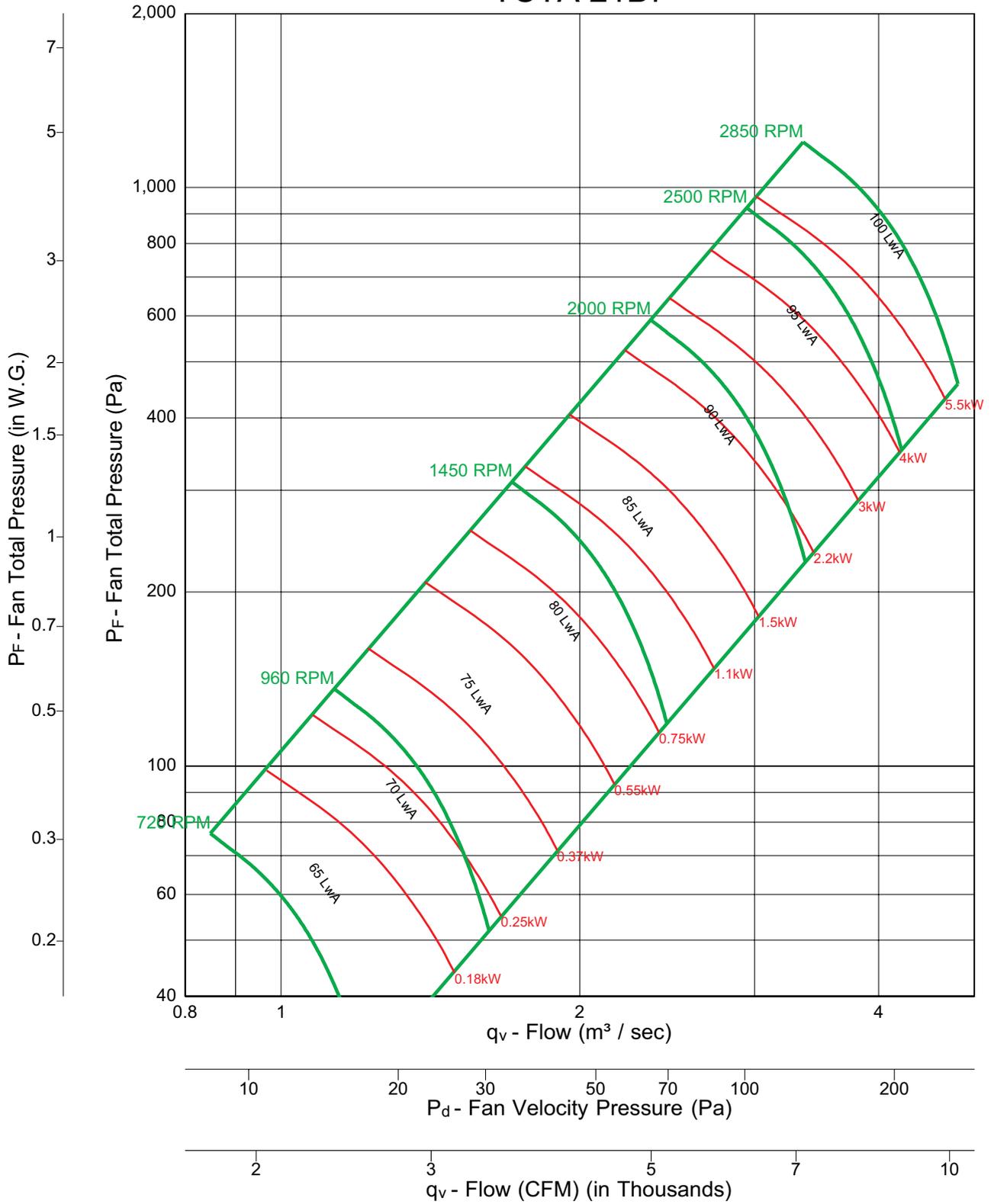
TCTA 21B5



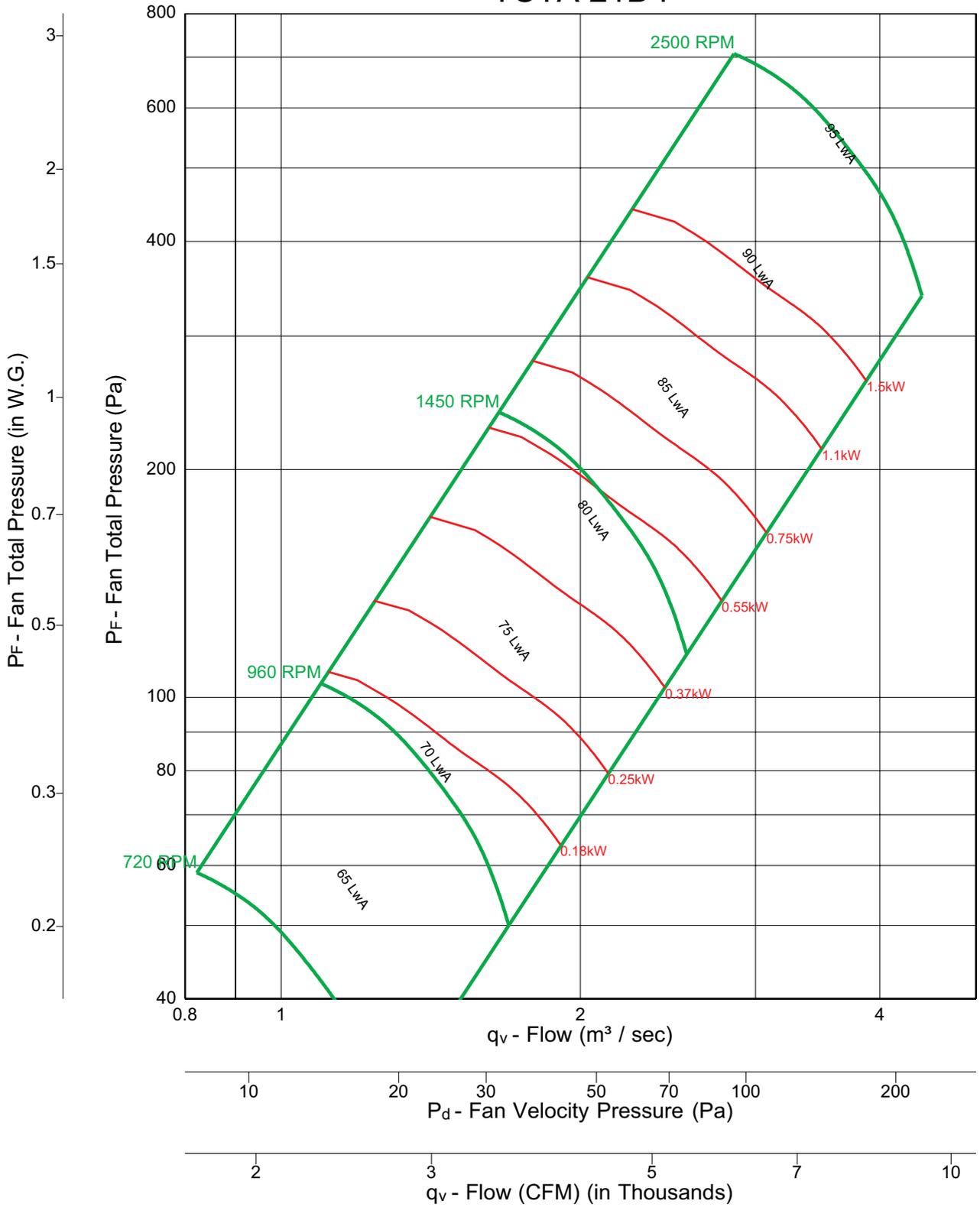
TCTA 21B6



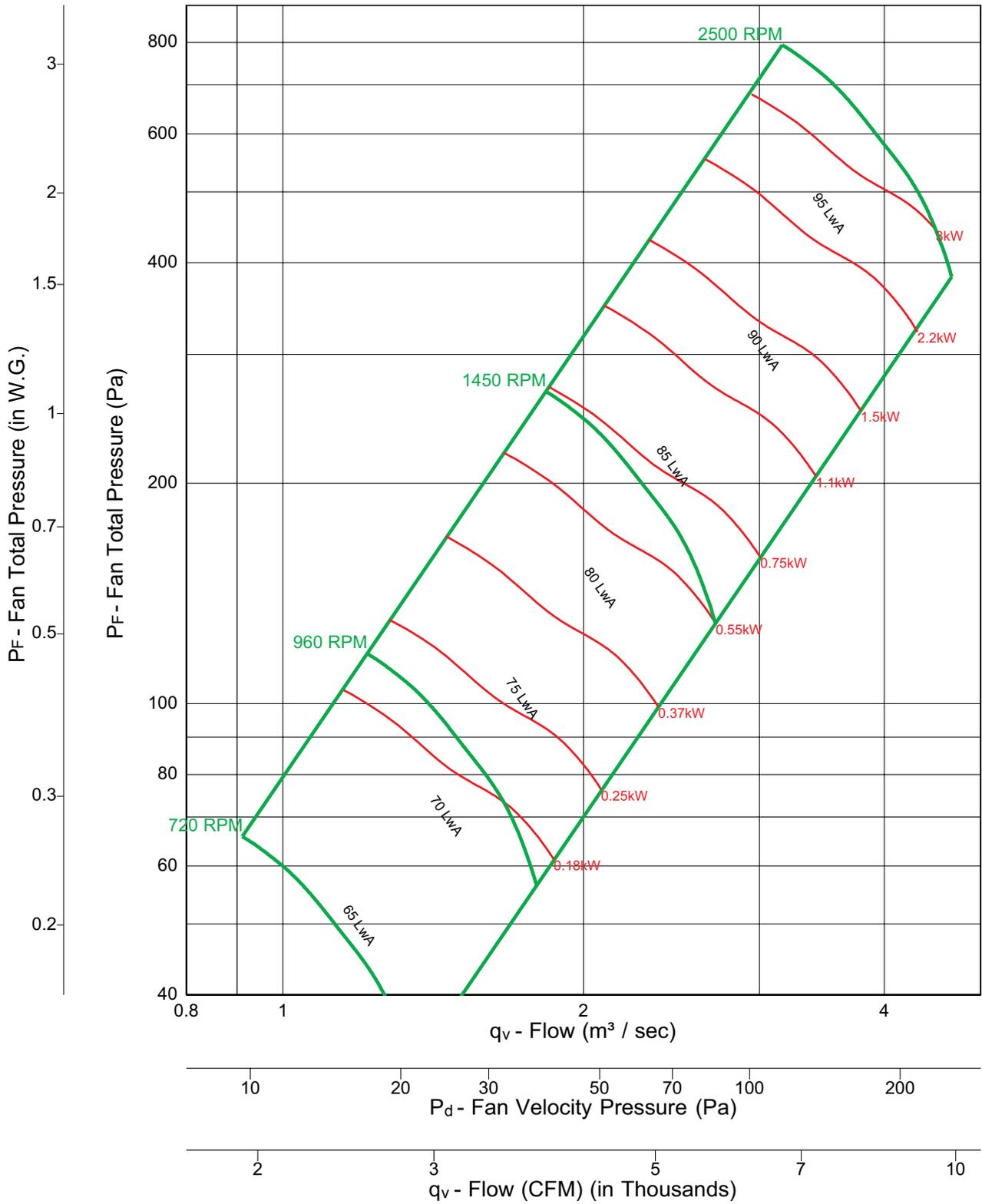
TCTA 21B7



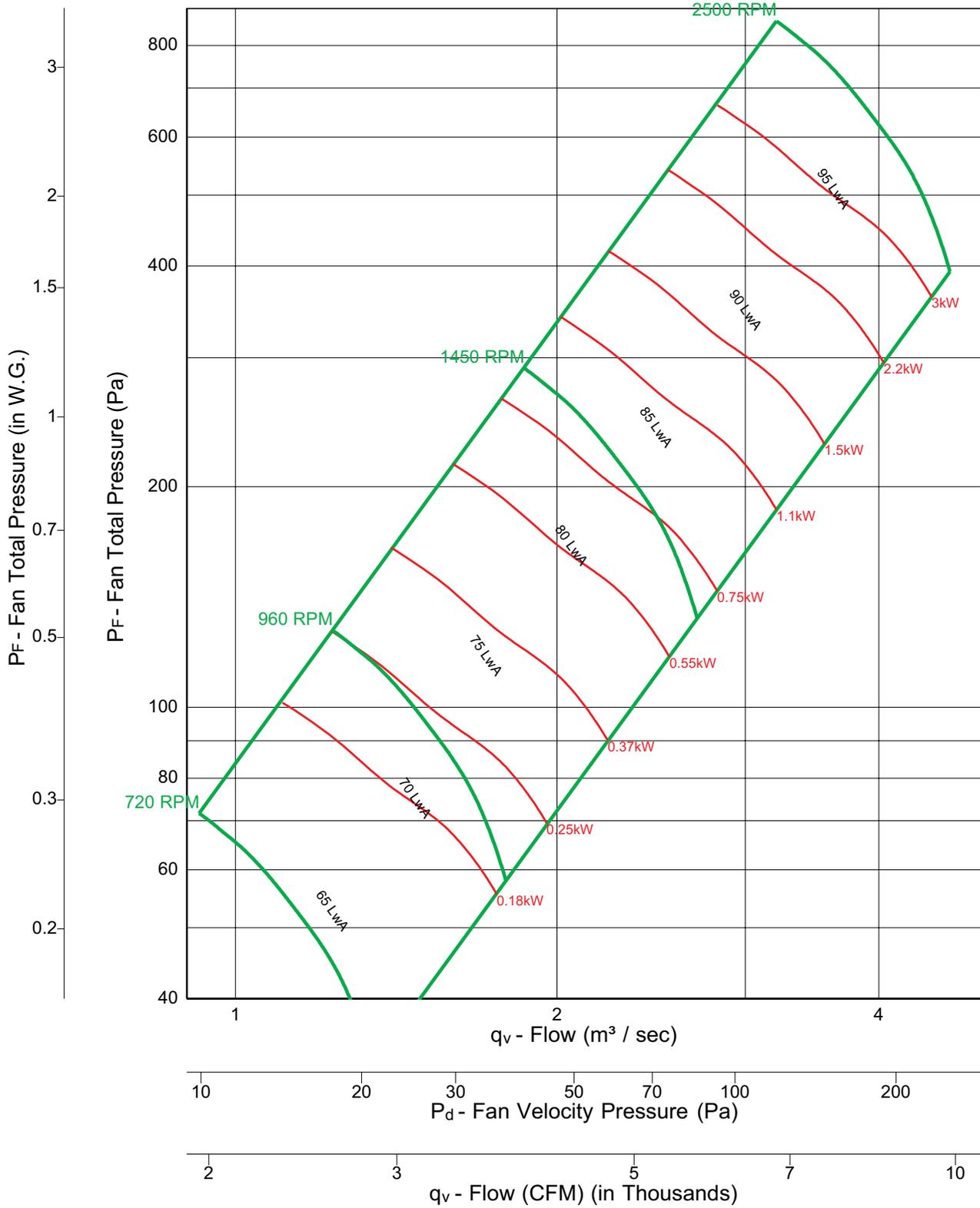
TCTA 21D4



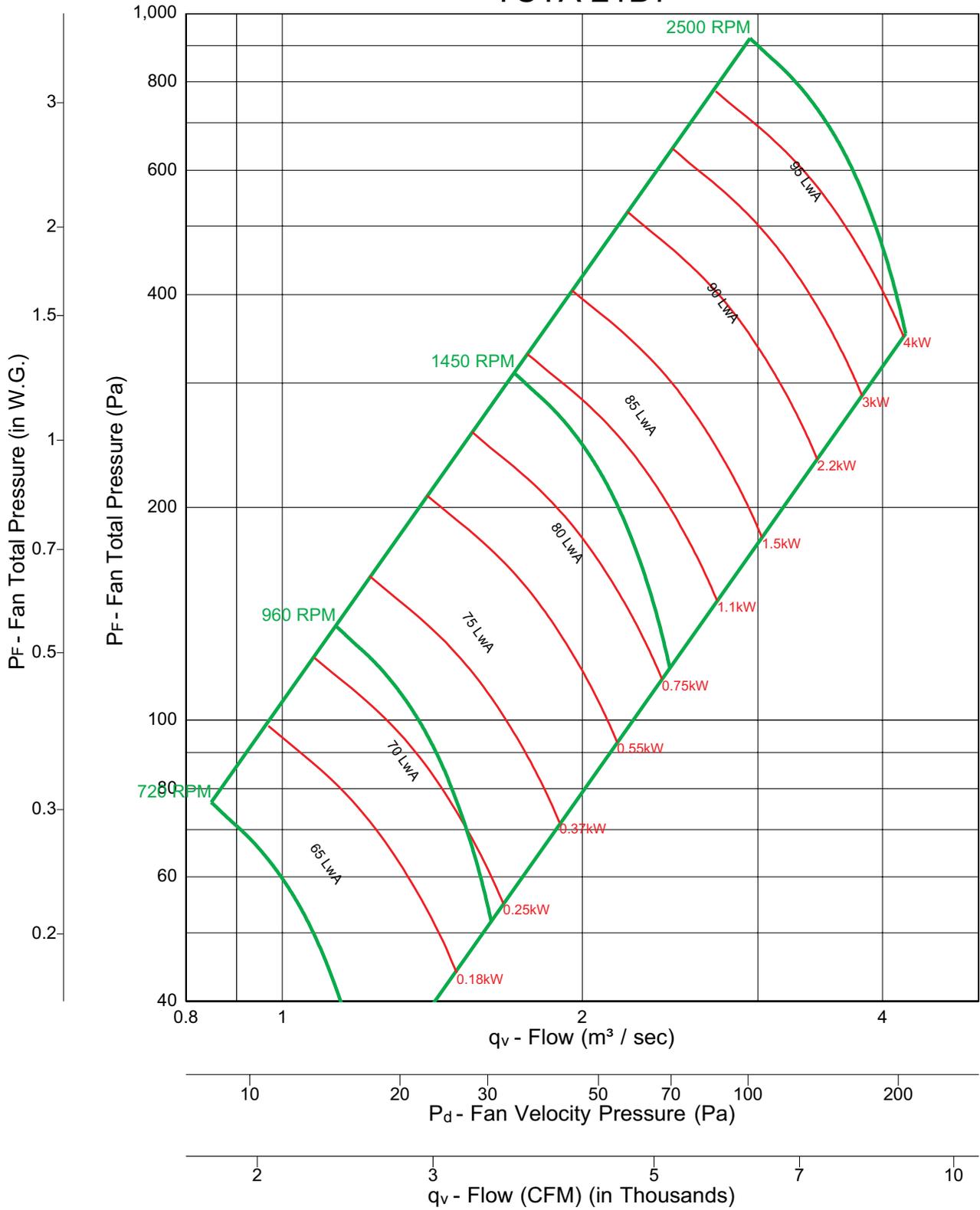
TCTA 21D5



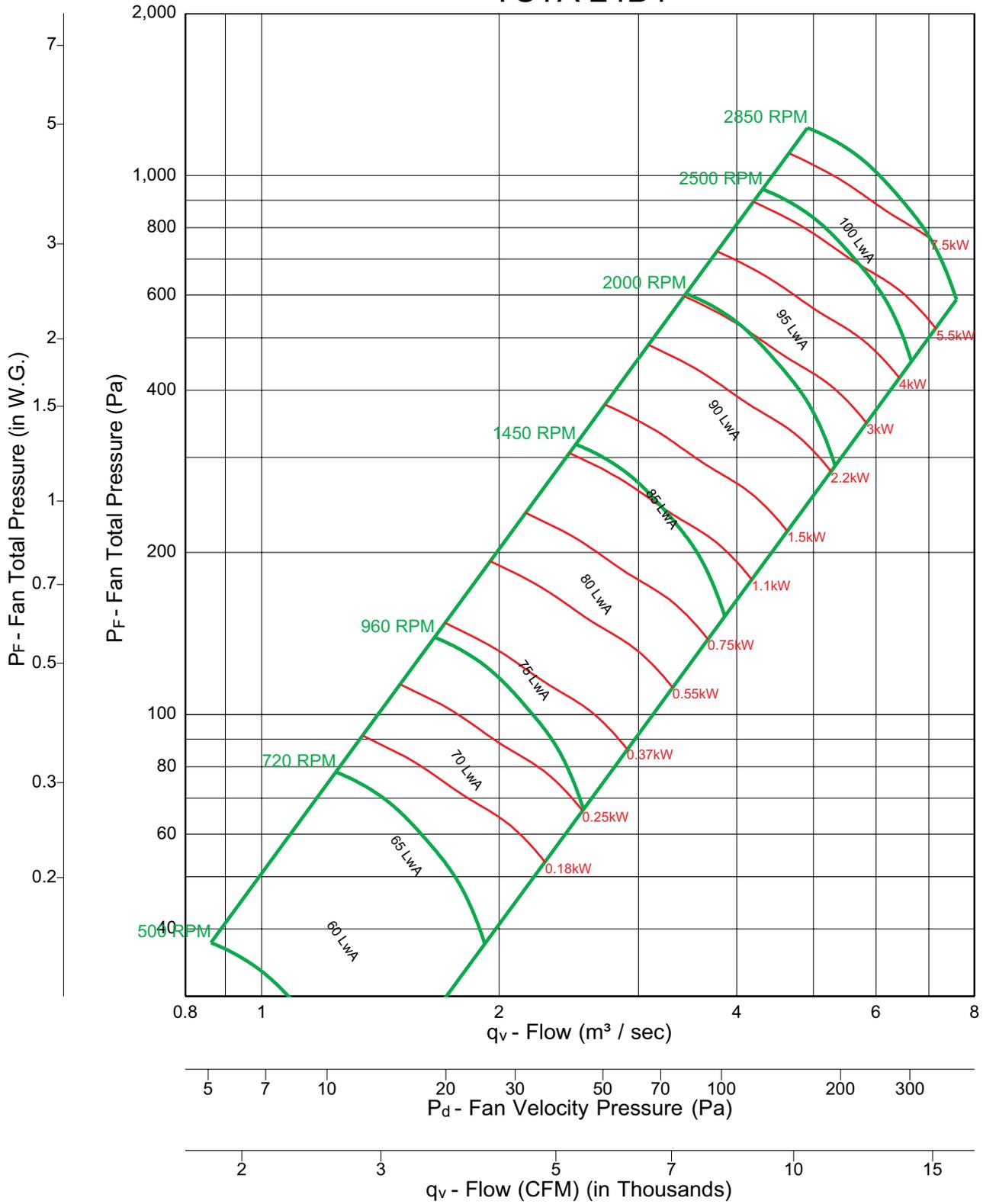
TCTA 21D6



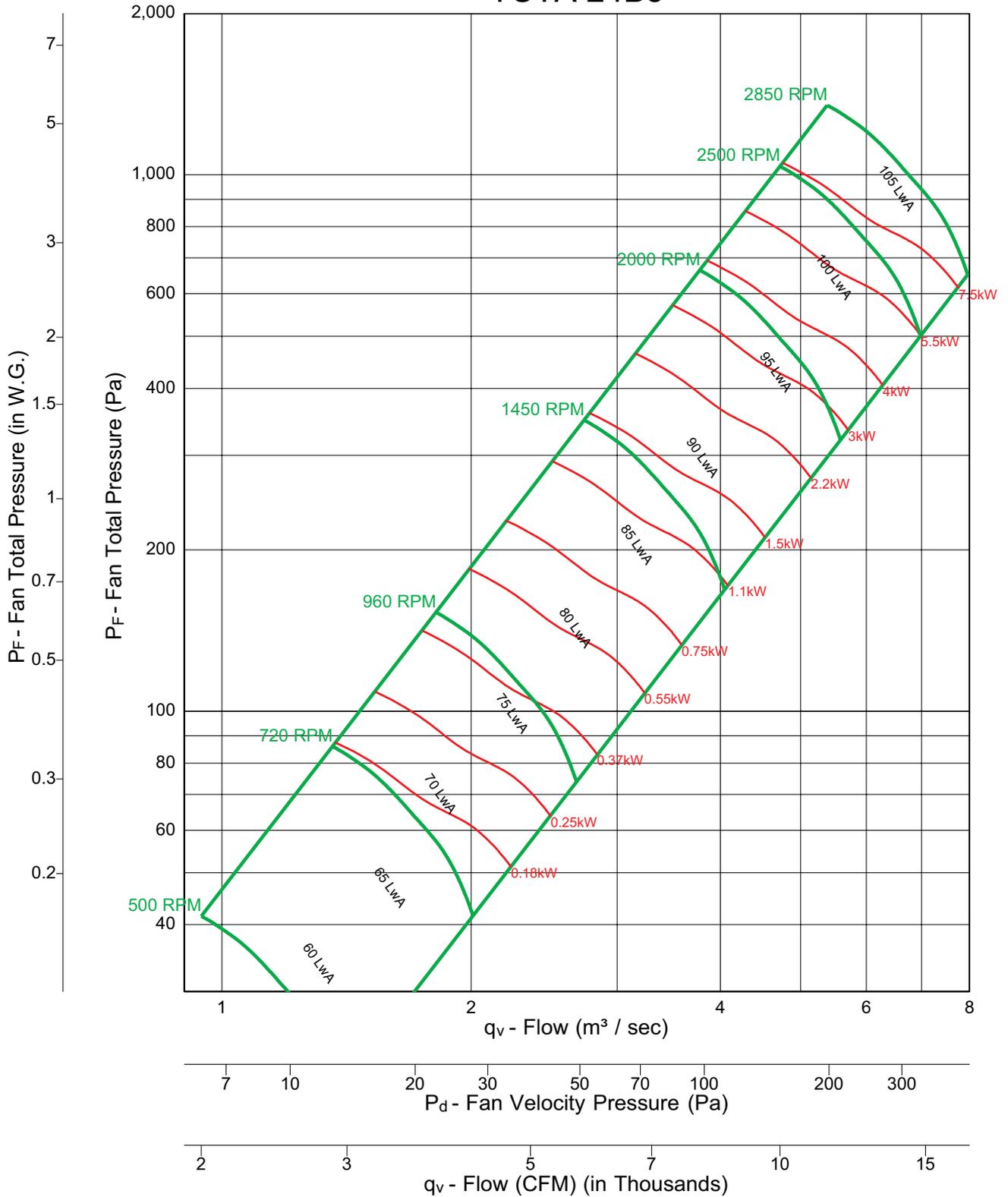
TCTA 21D7



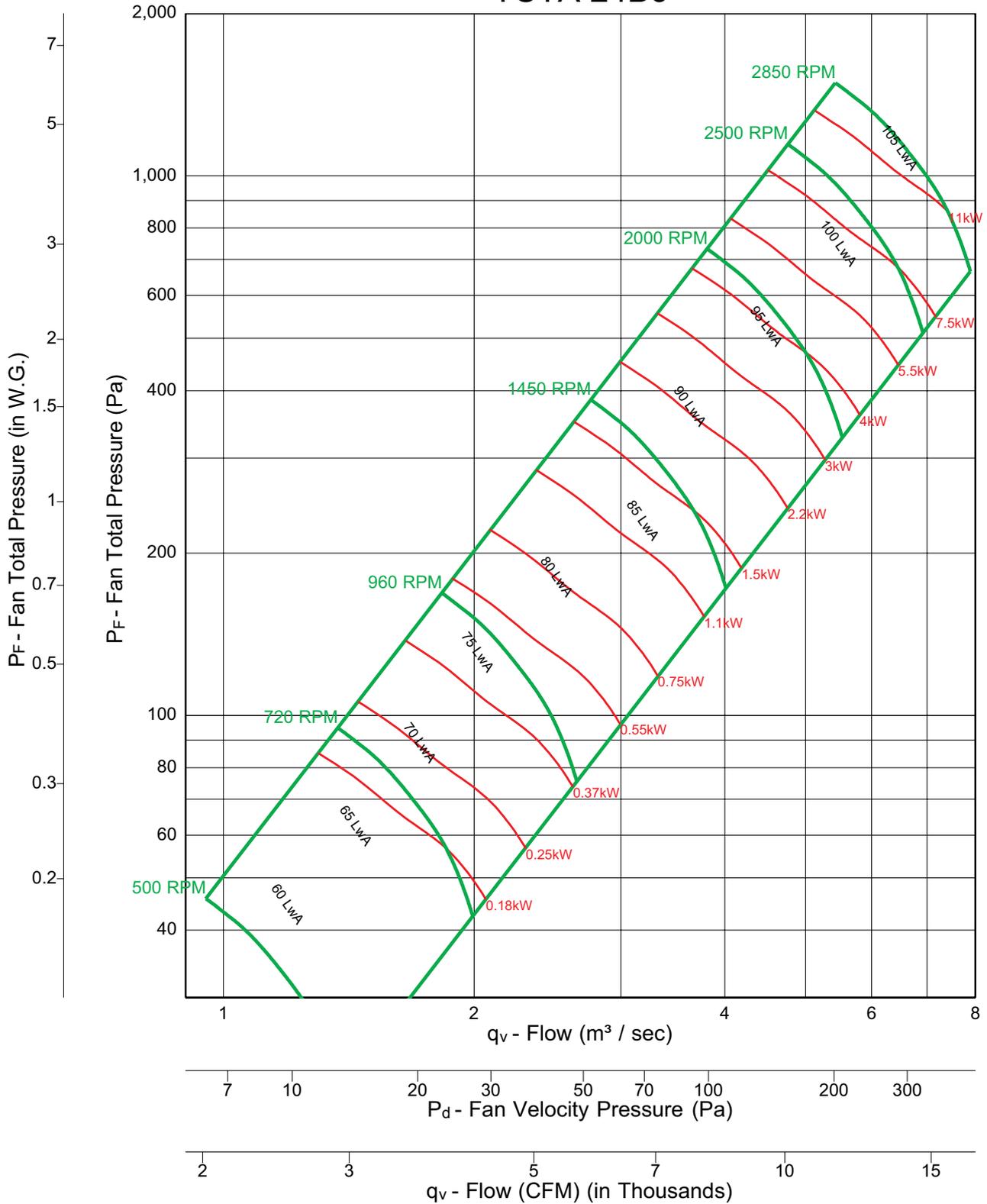
TCTA 24B4



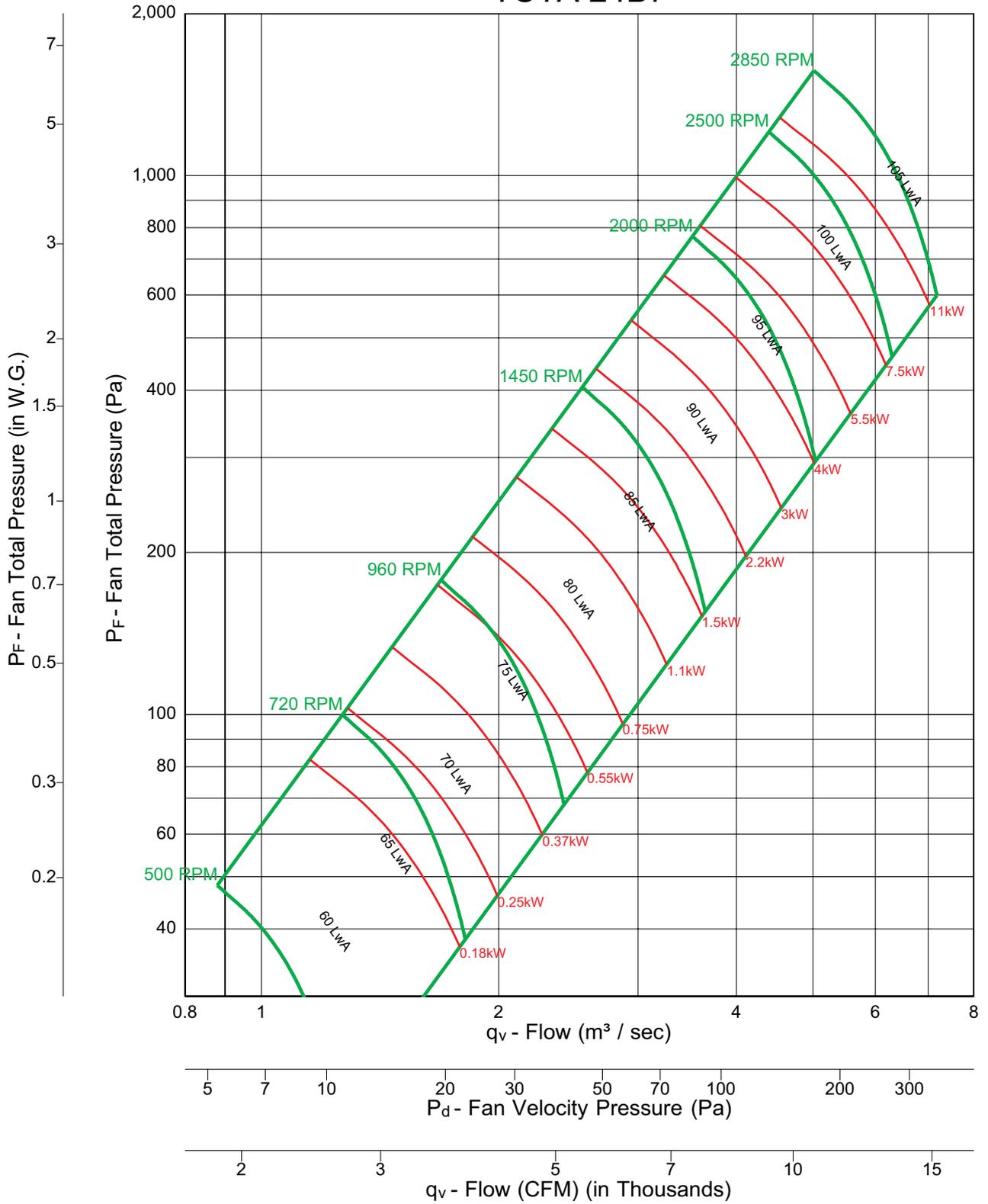
TCTA 24B5



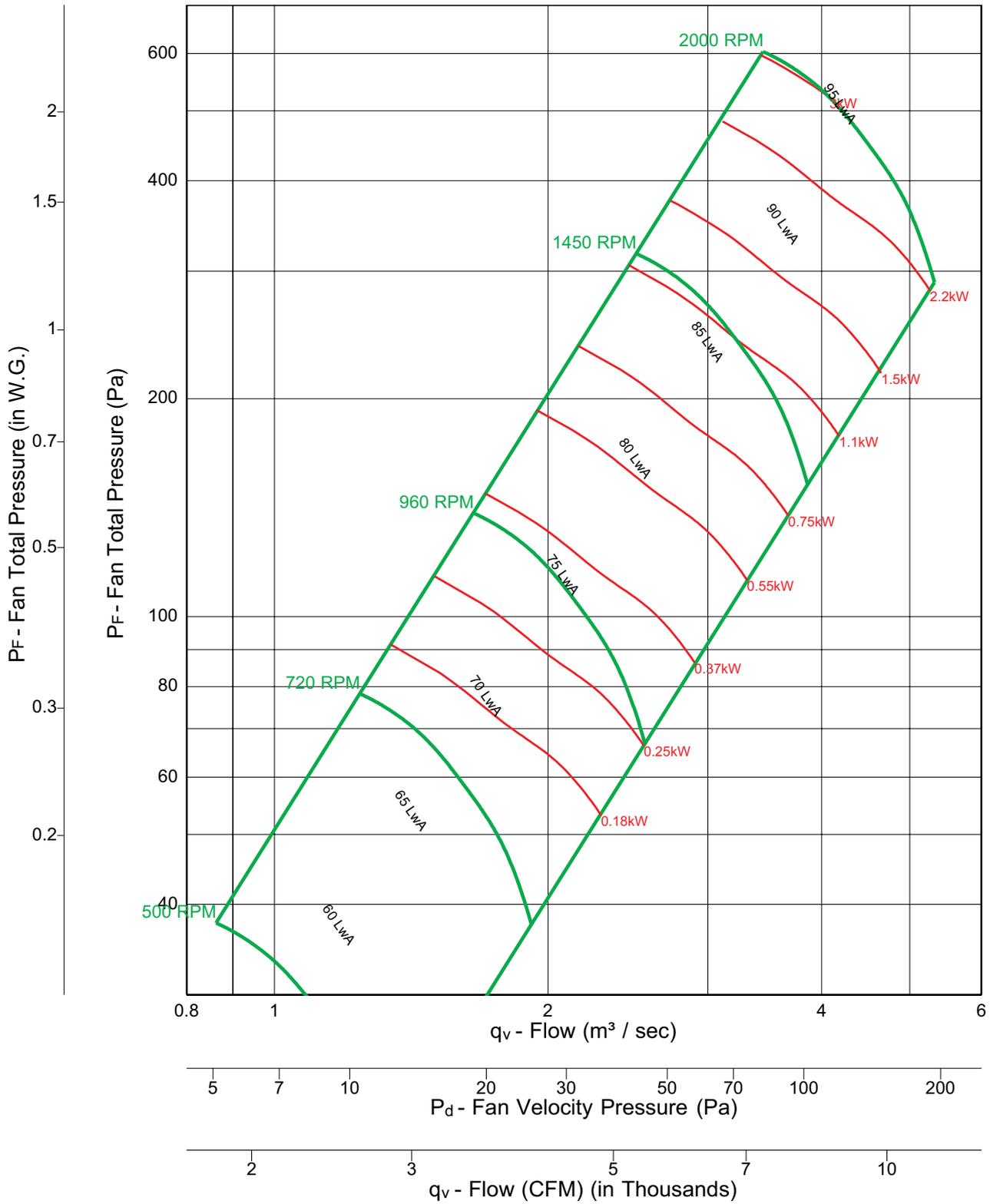
TCTA 24B6



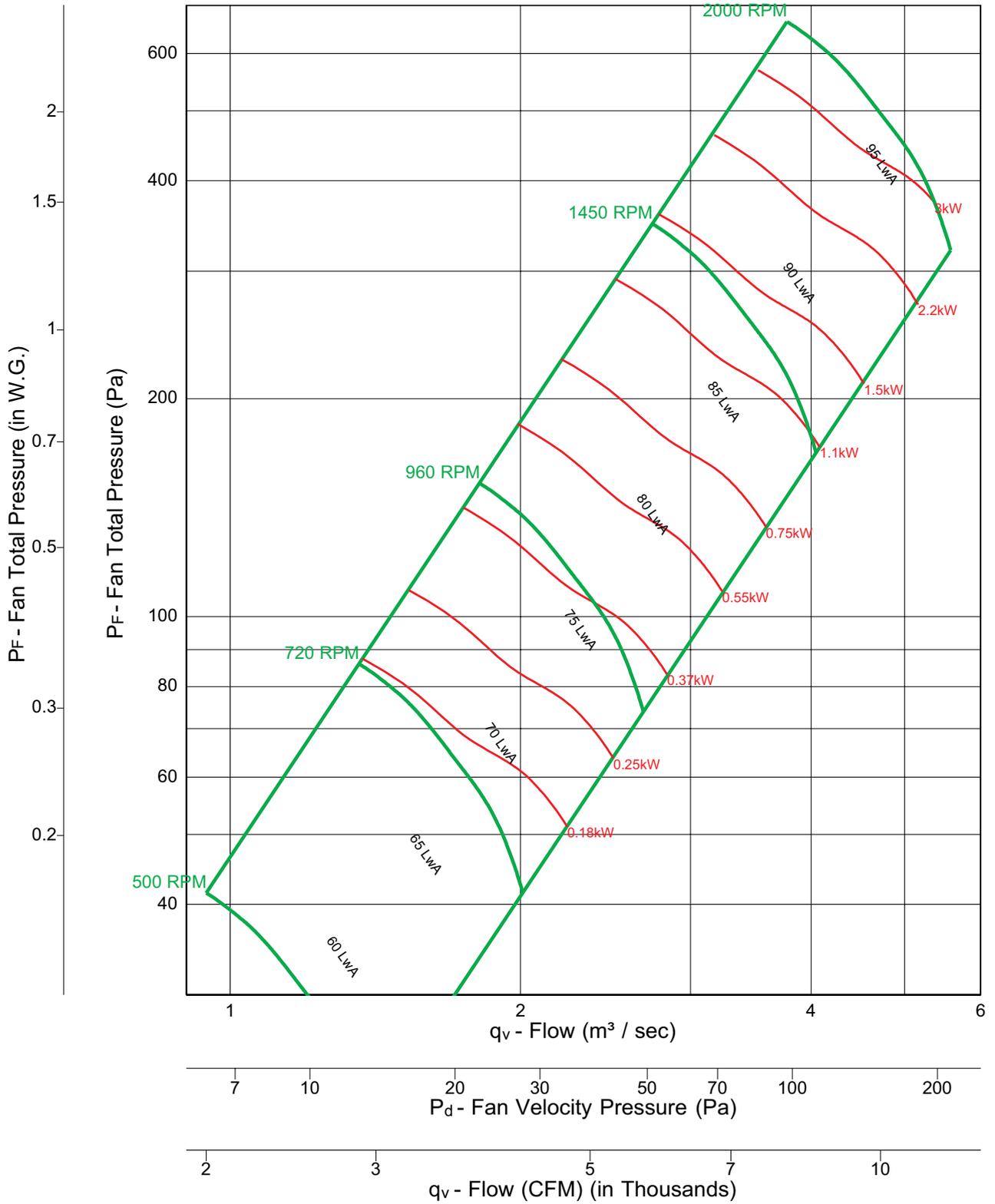
TCTA 24B7



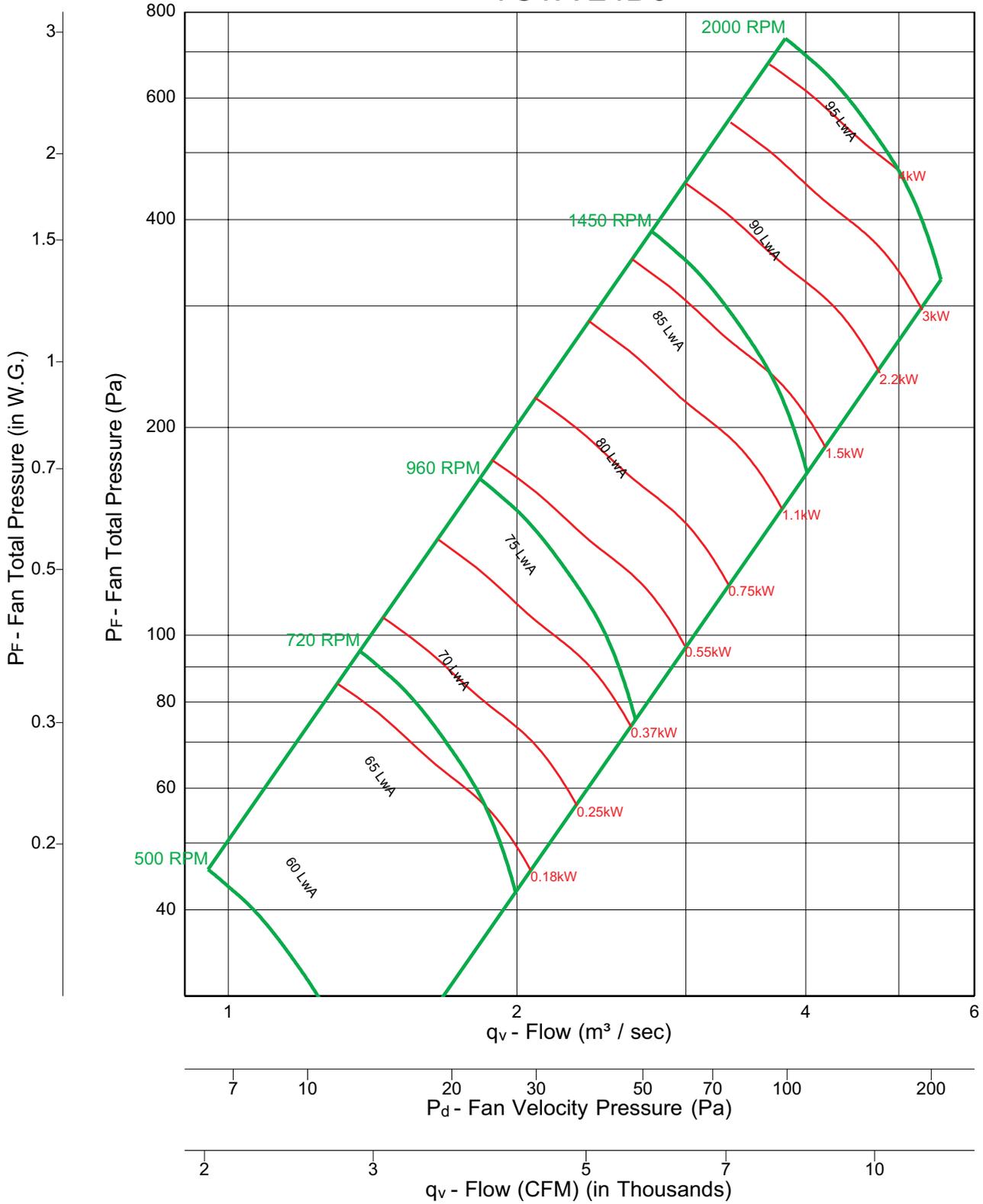
TCTA 24D4



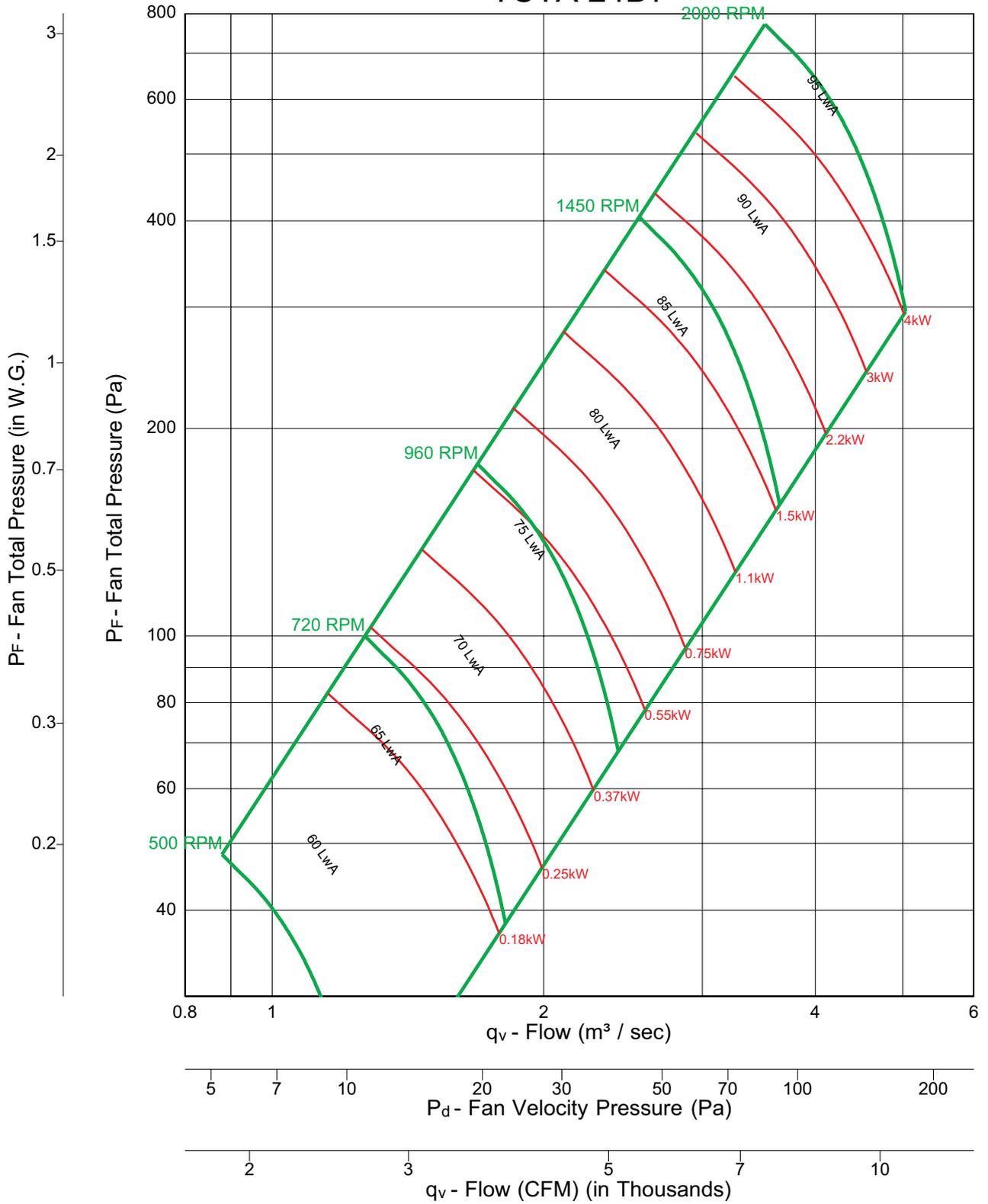
TCTA 24D5



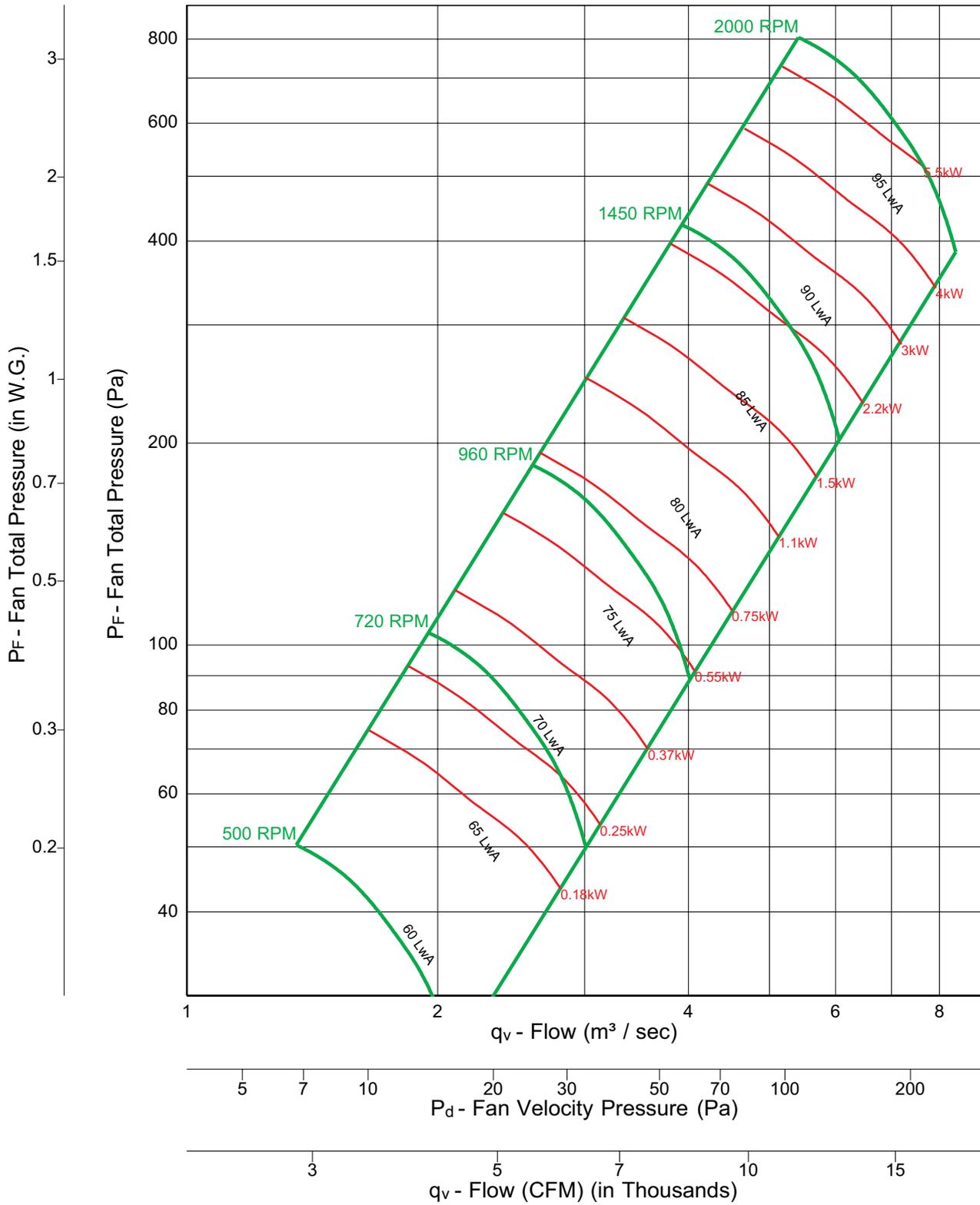
TCTA 24D6



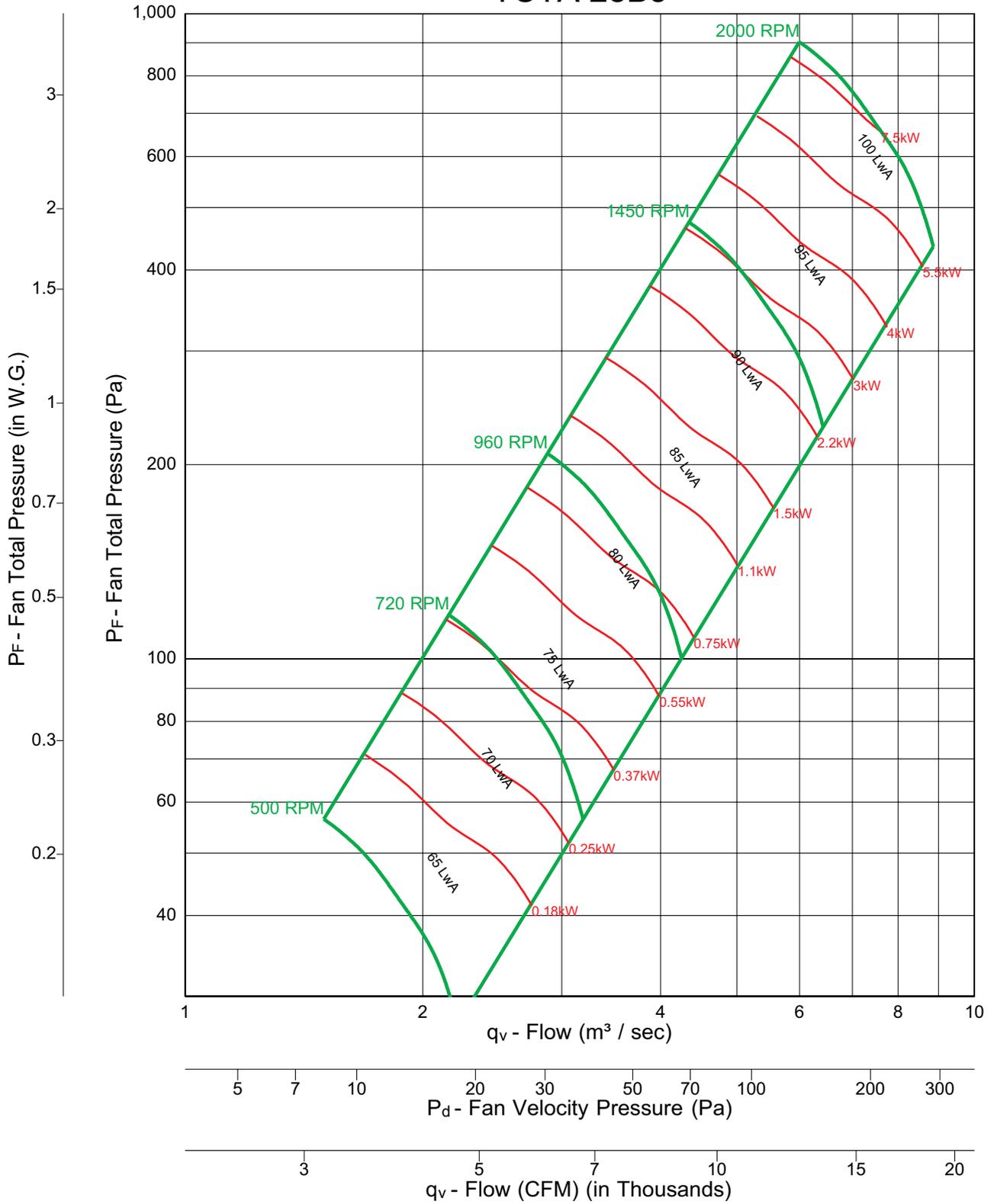
TCTA 24D7



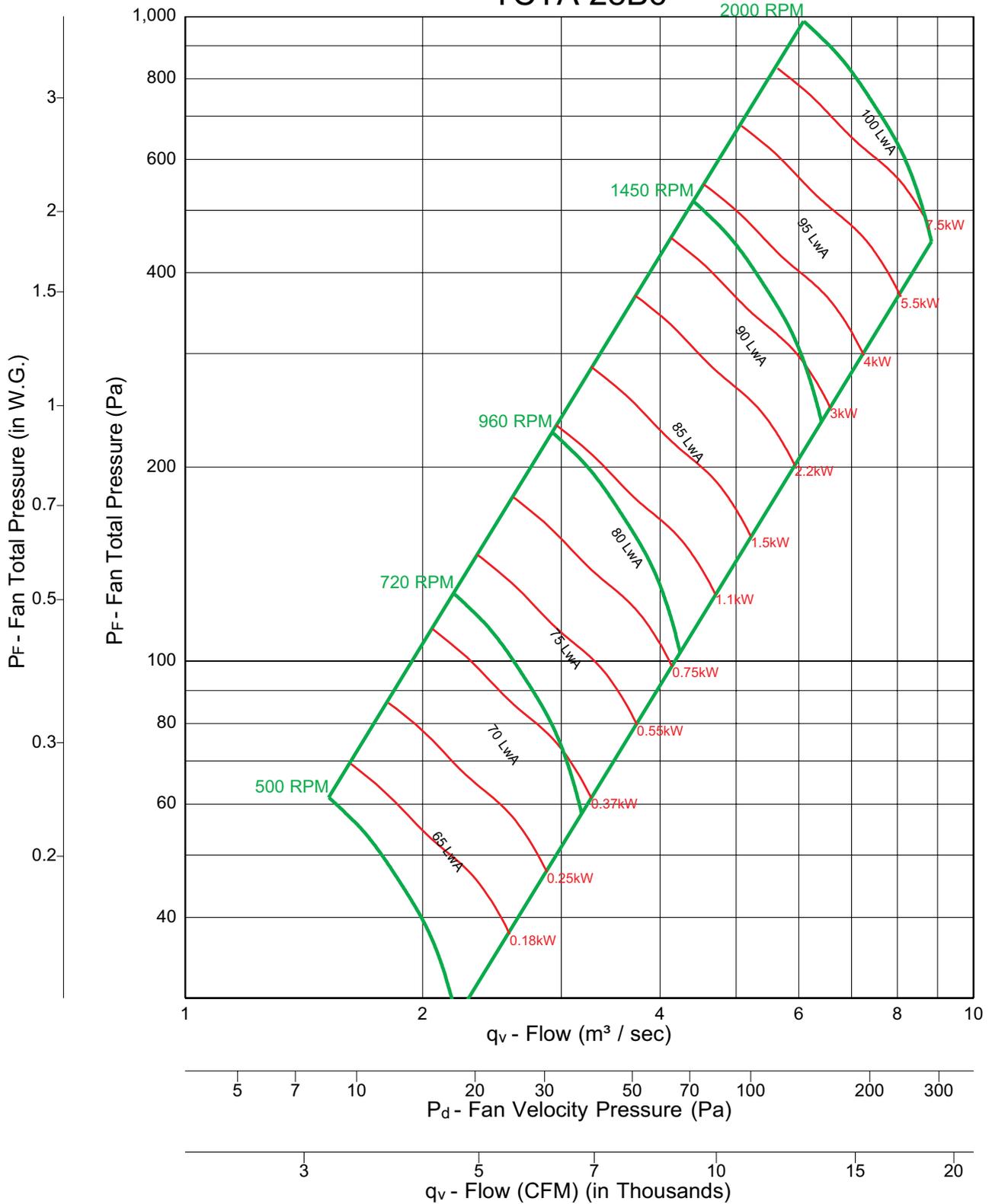
TCTA 28B4



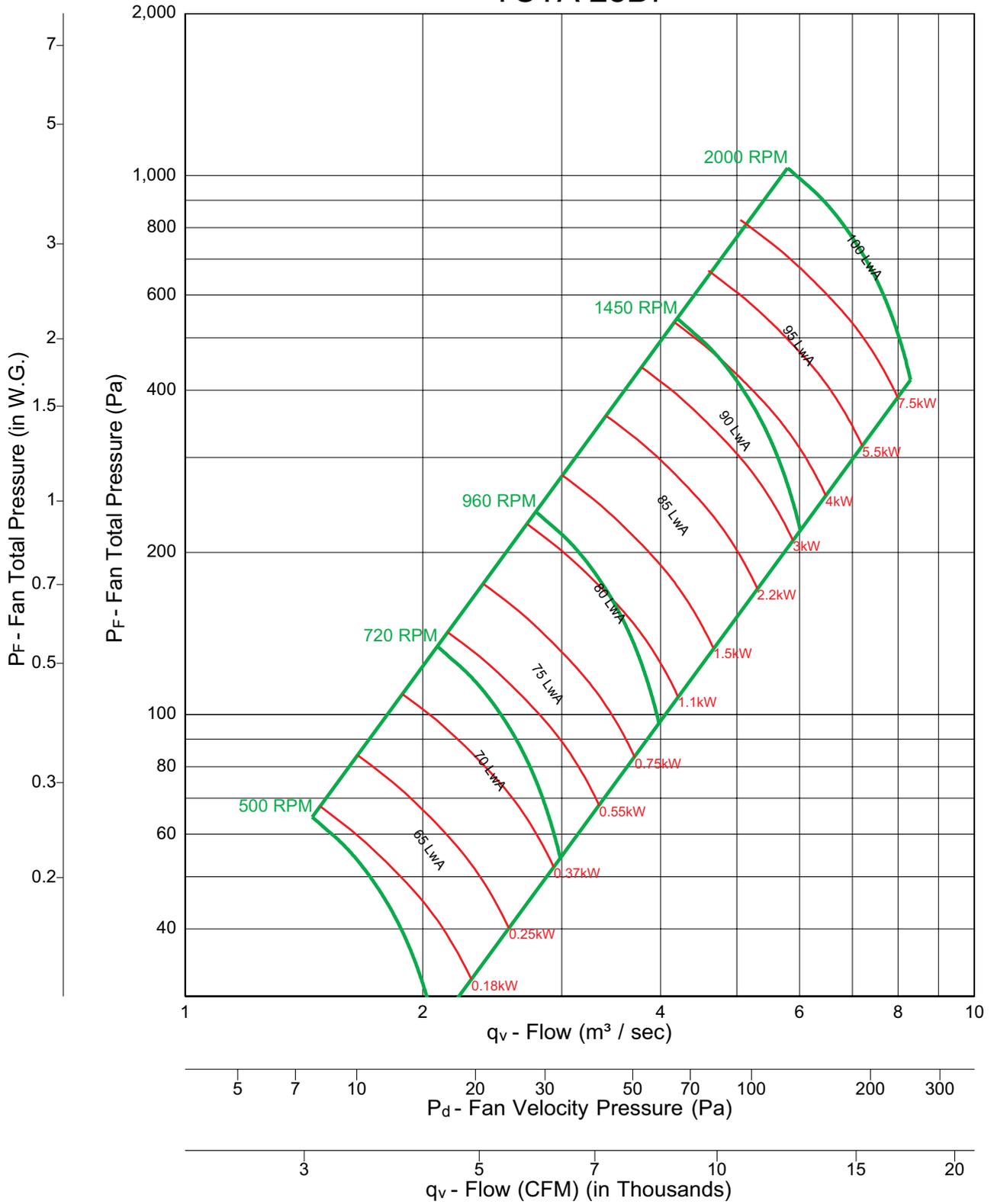
TCTA 28B5



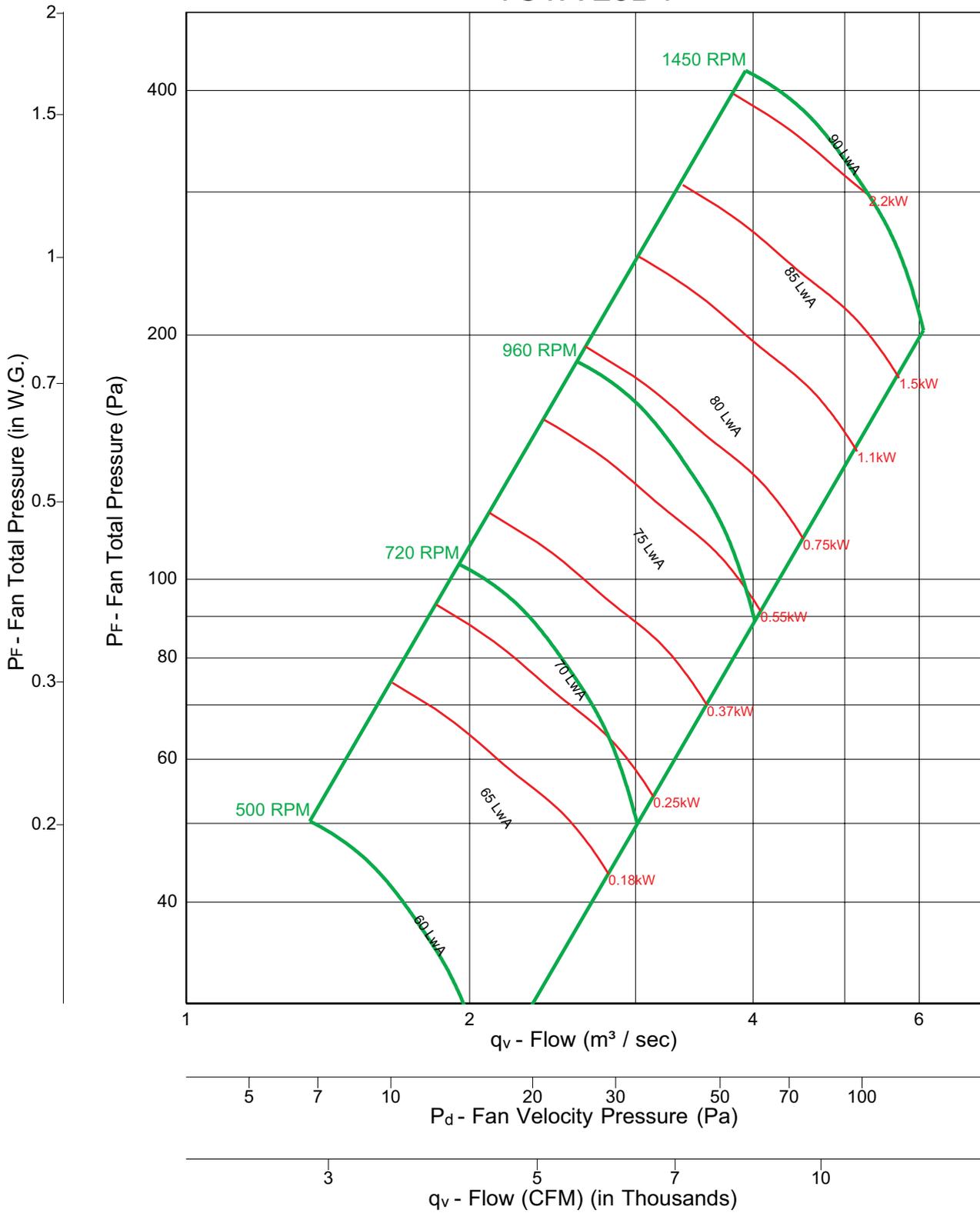
TCTA 28B6



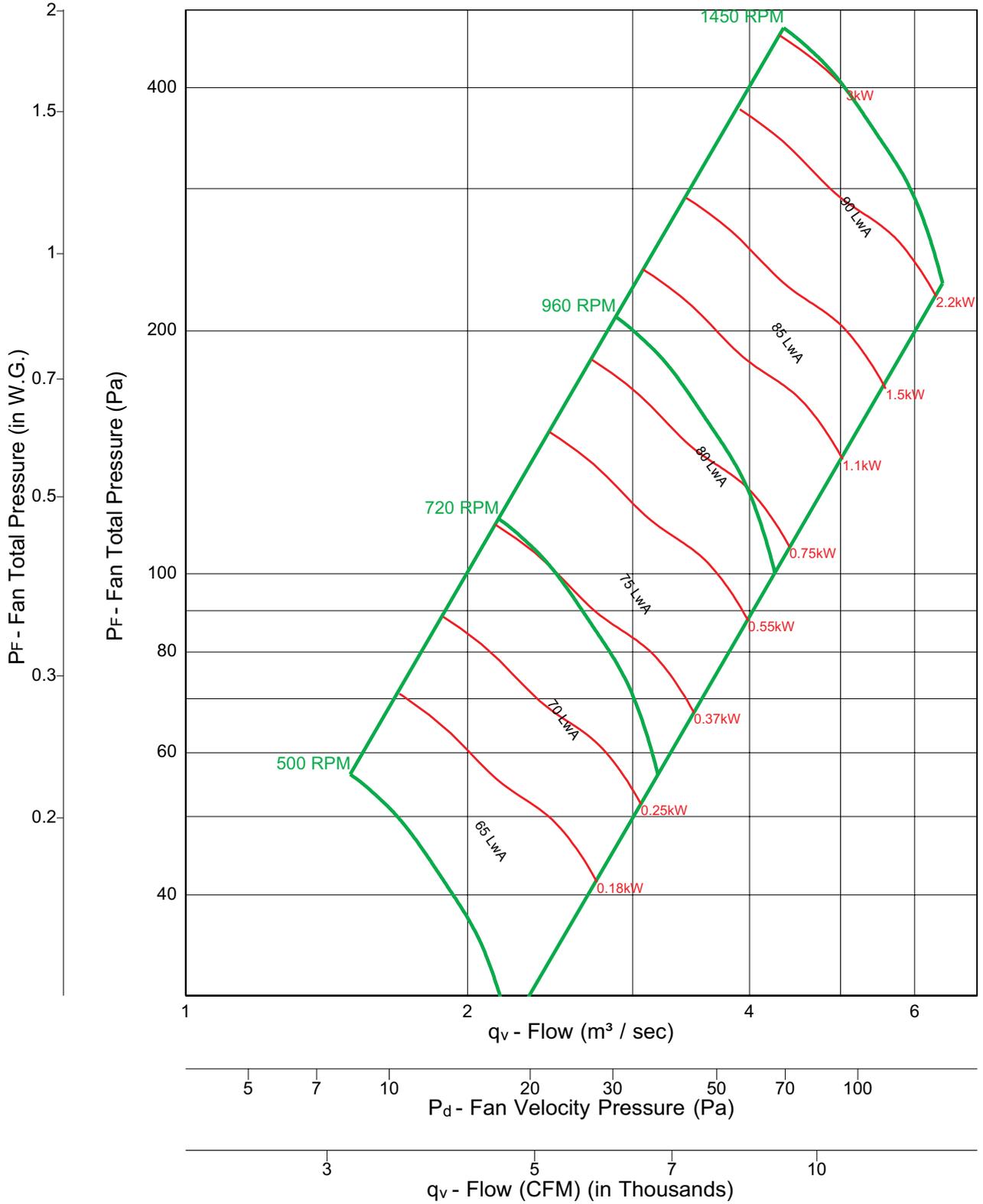
TCTA 28B7



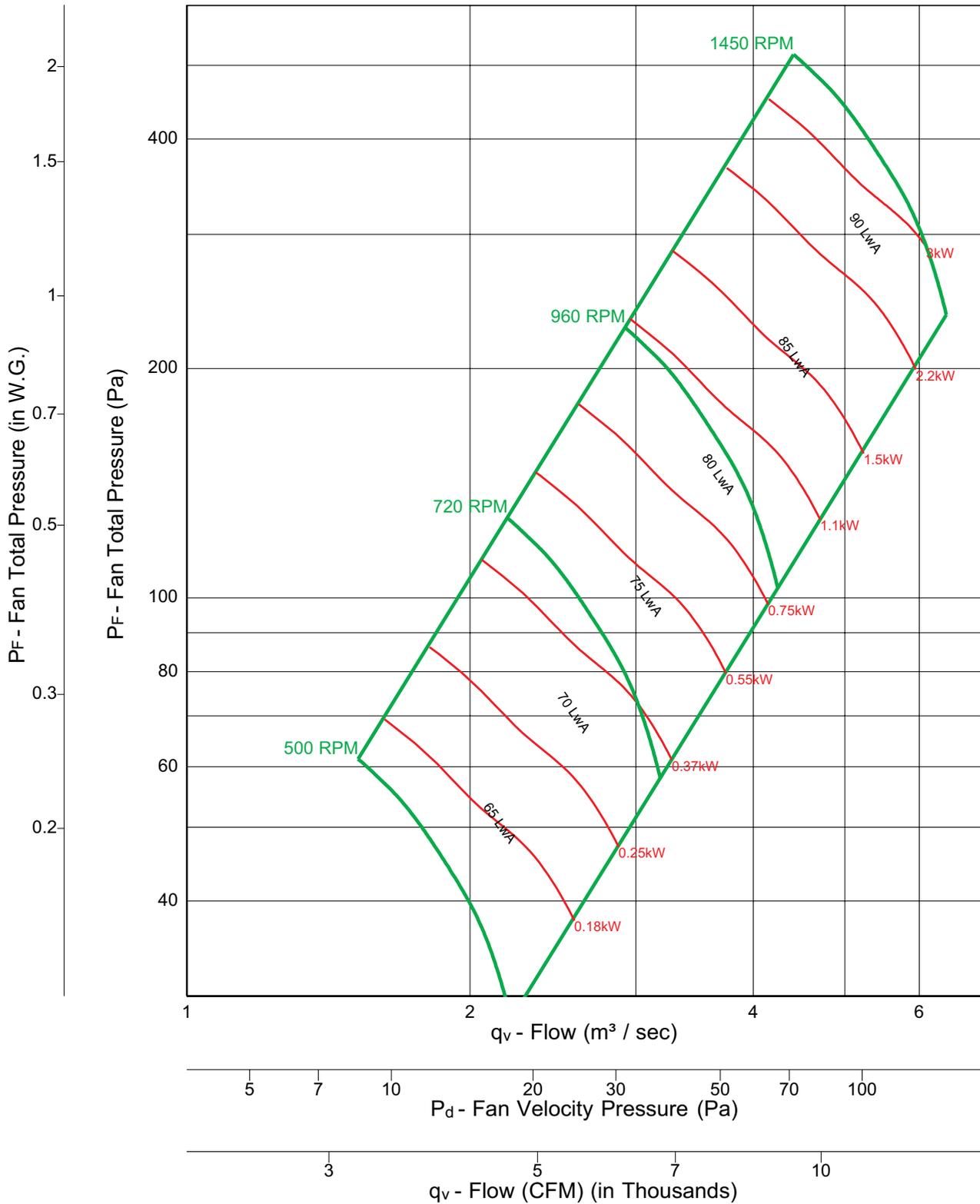
TCTA 28D4



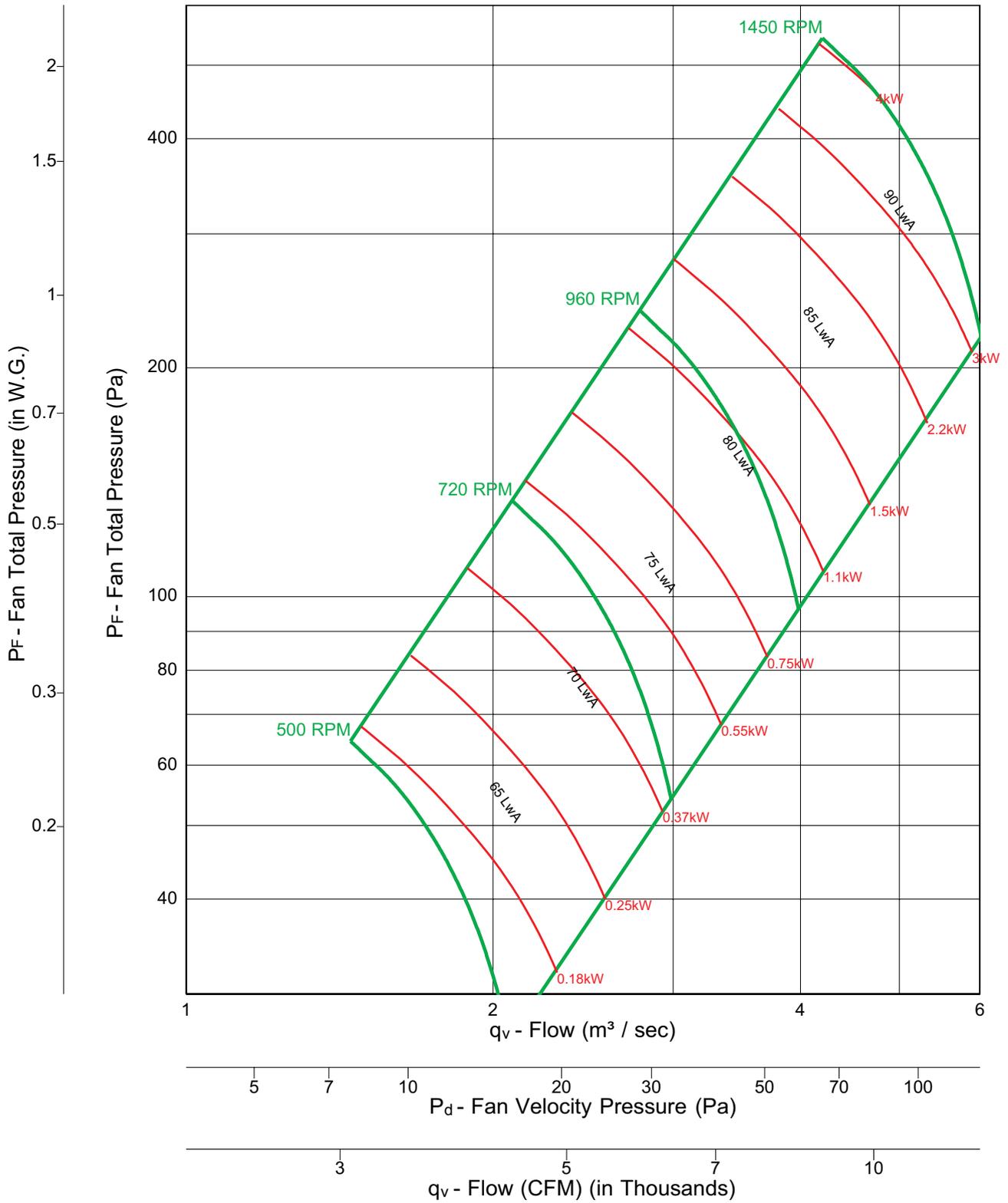
TCTA 28D5



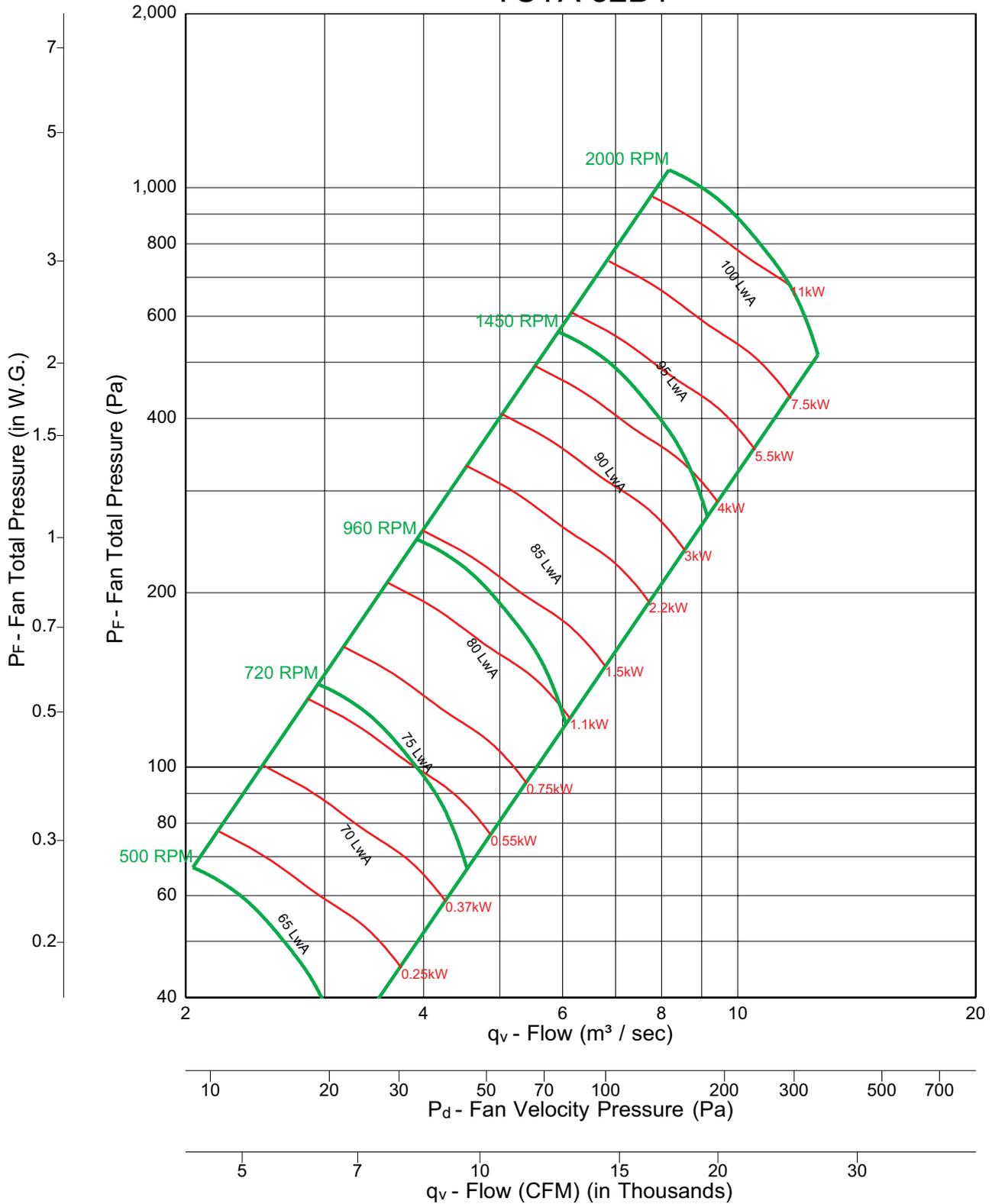
TCTA 28D6



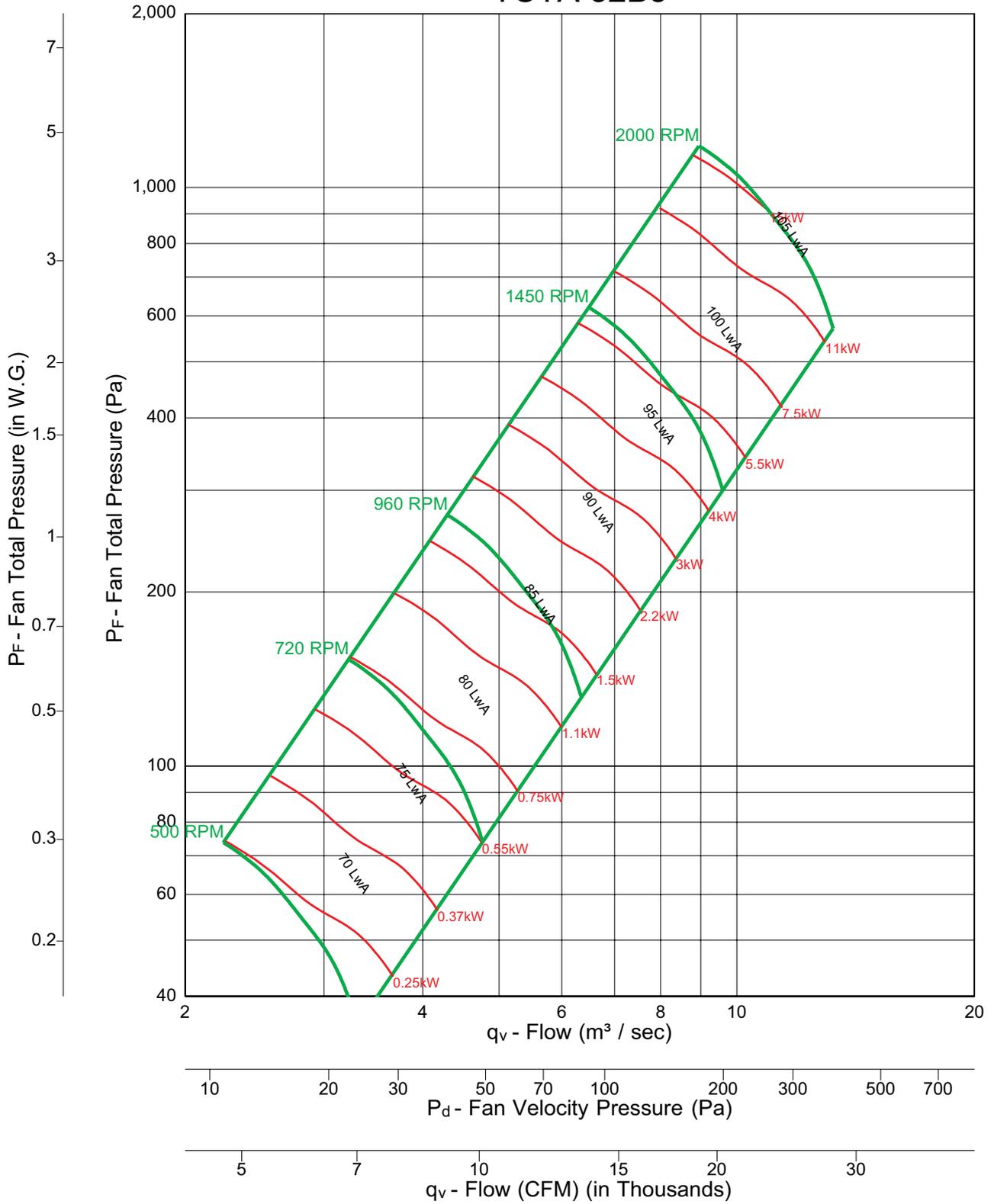
TCTA 28D7



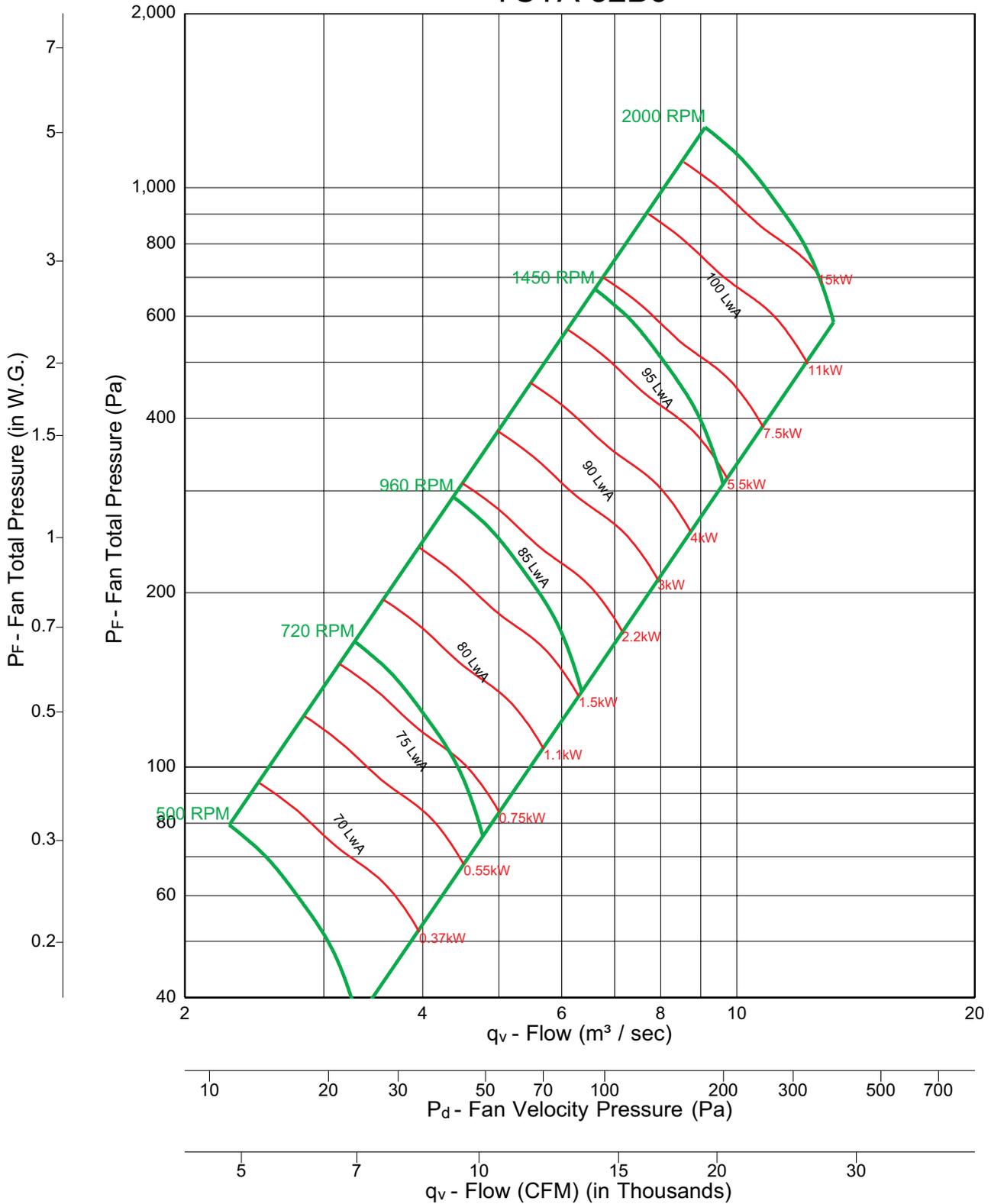
TCTA 32B4



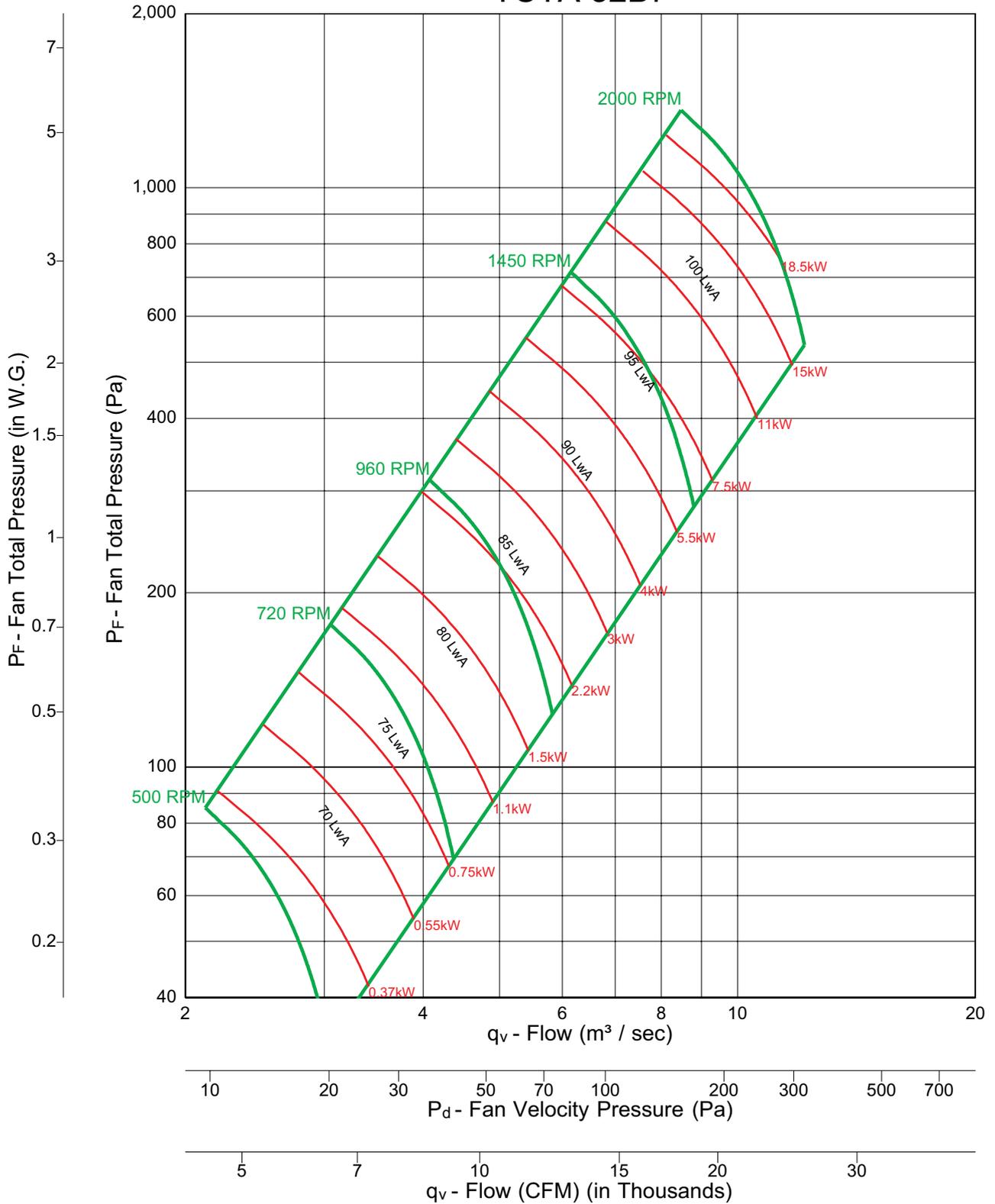
TCTA 32B5



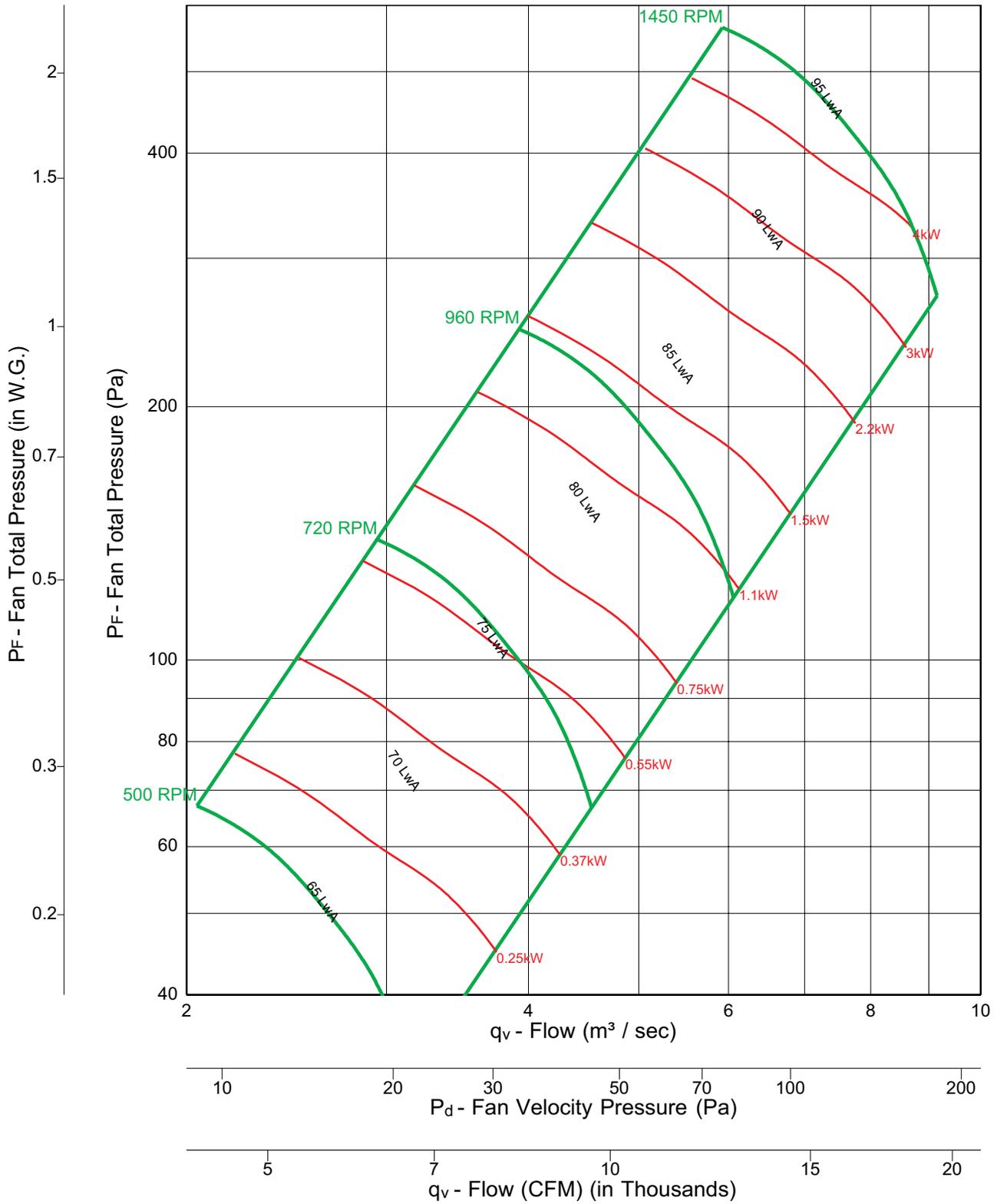
TCTA 32B6



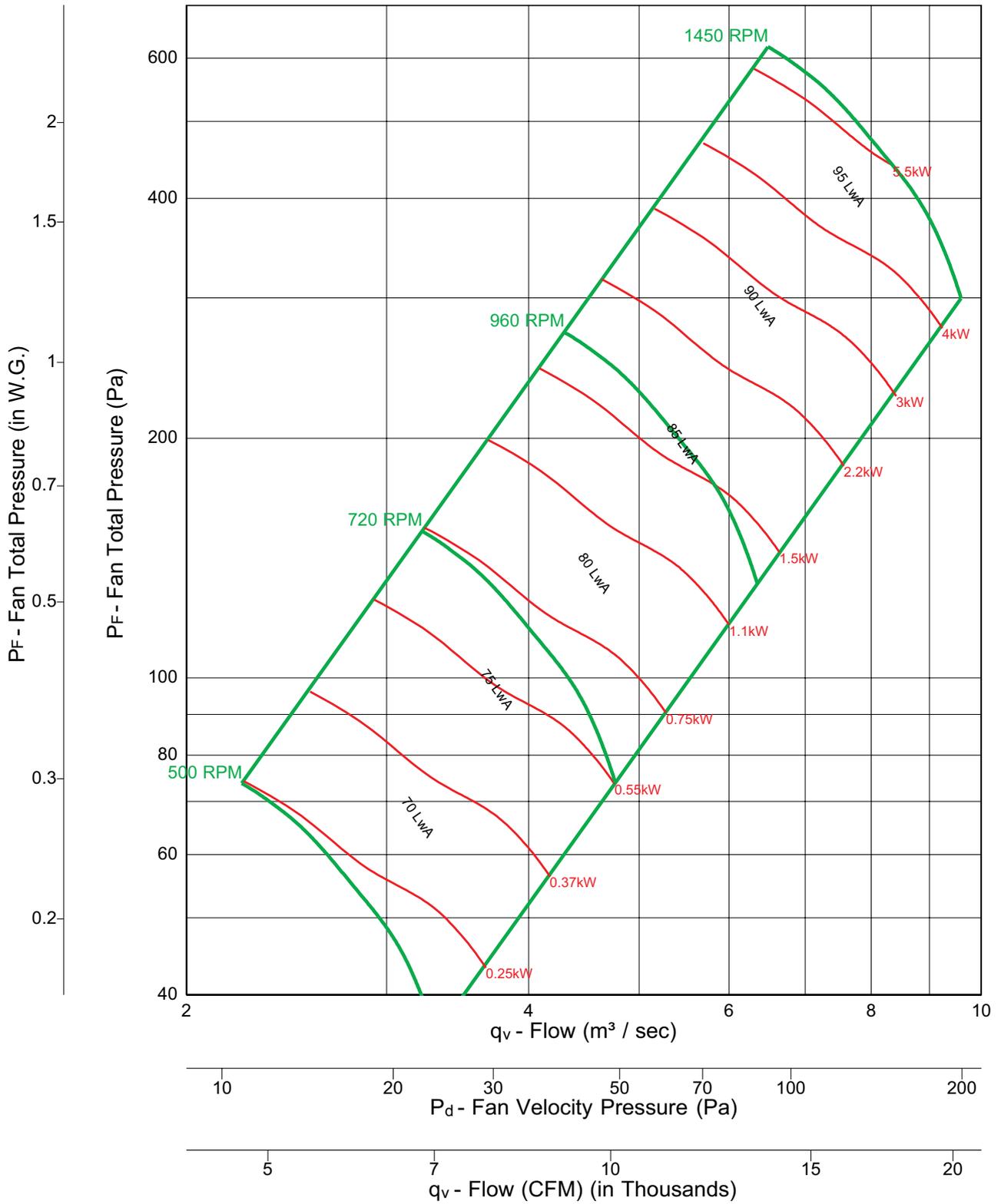
TCTA 32B7



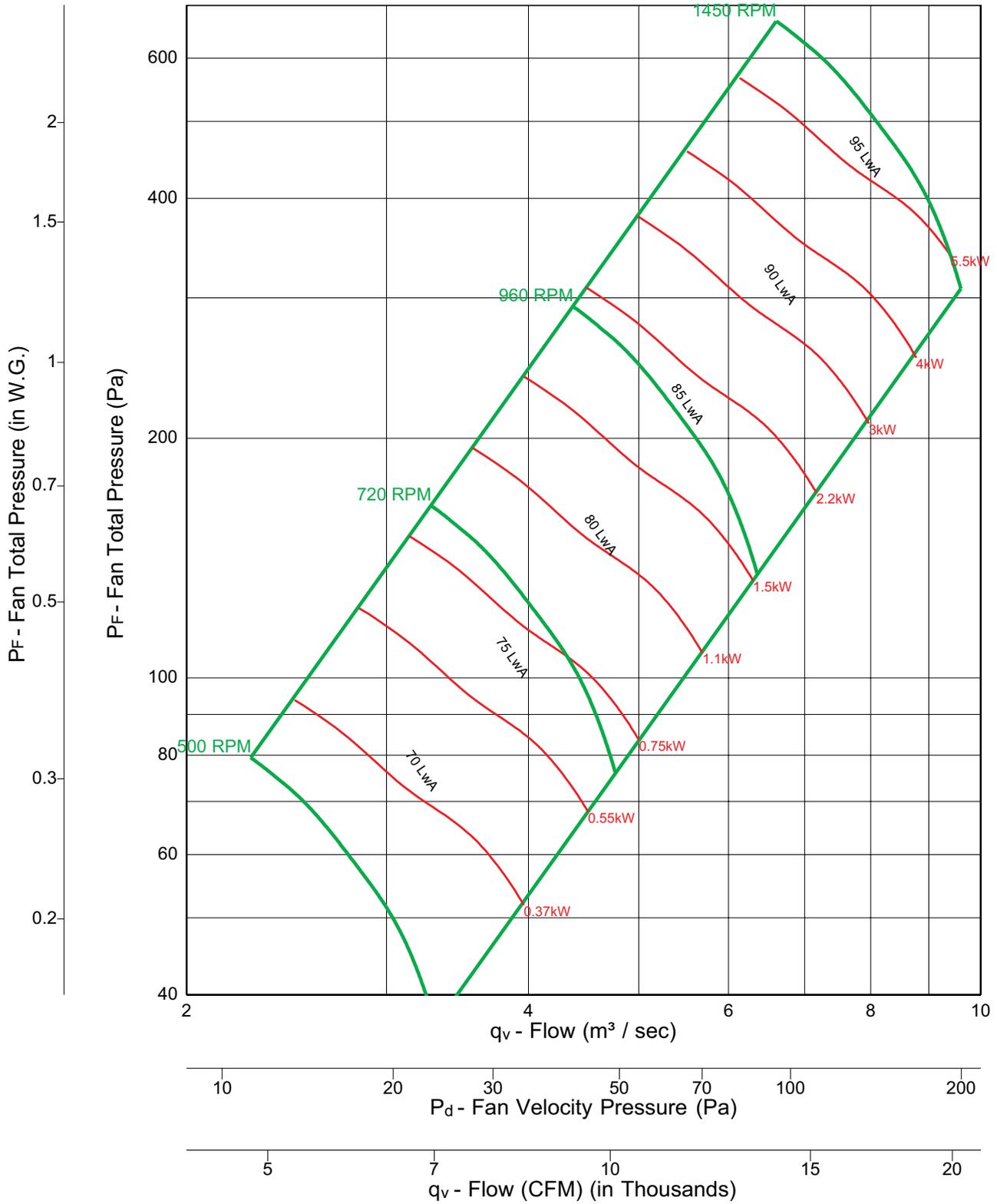
TCTA 32D4



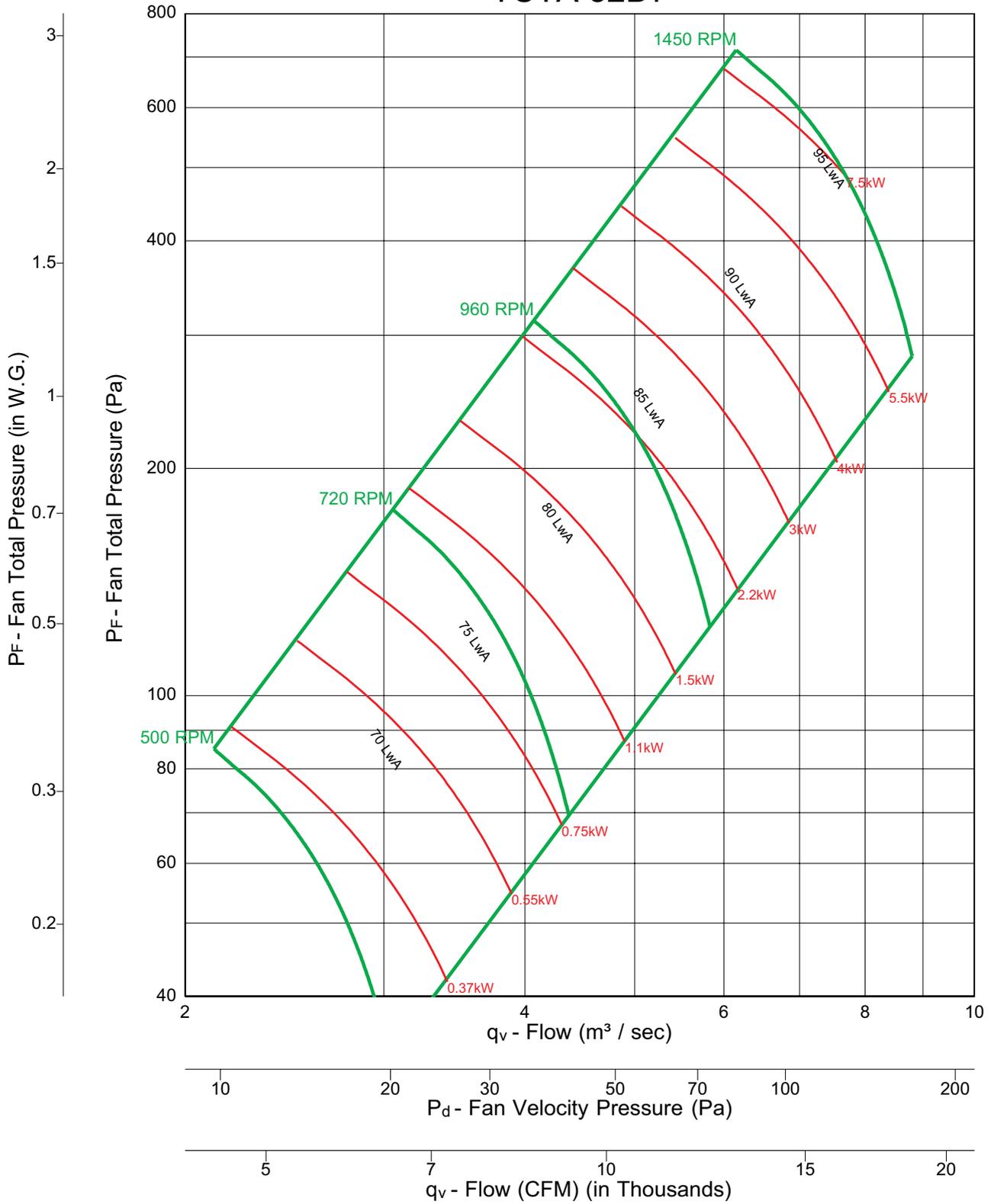
TCTA 32D5



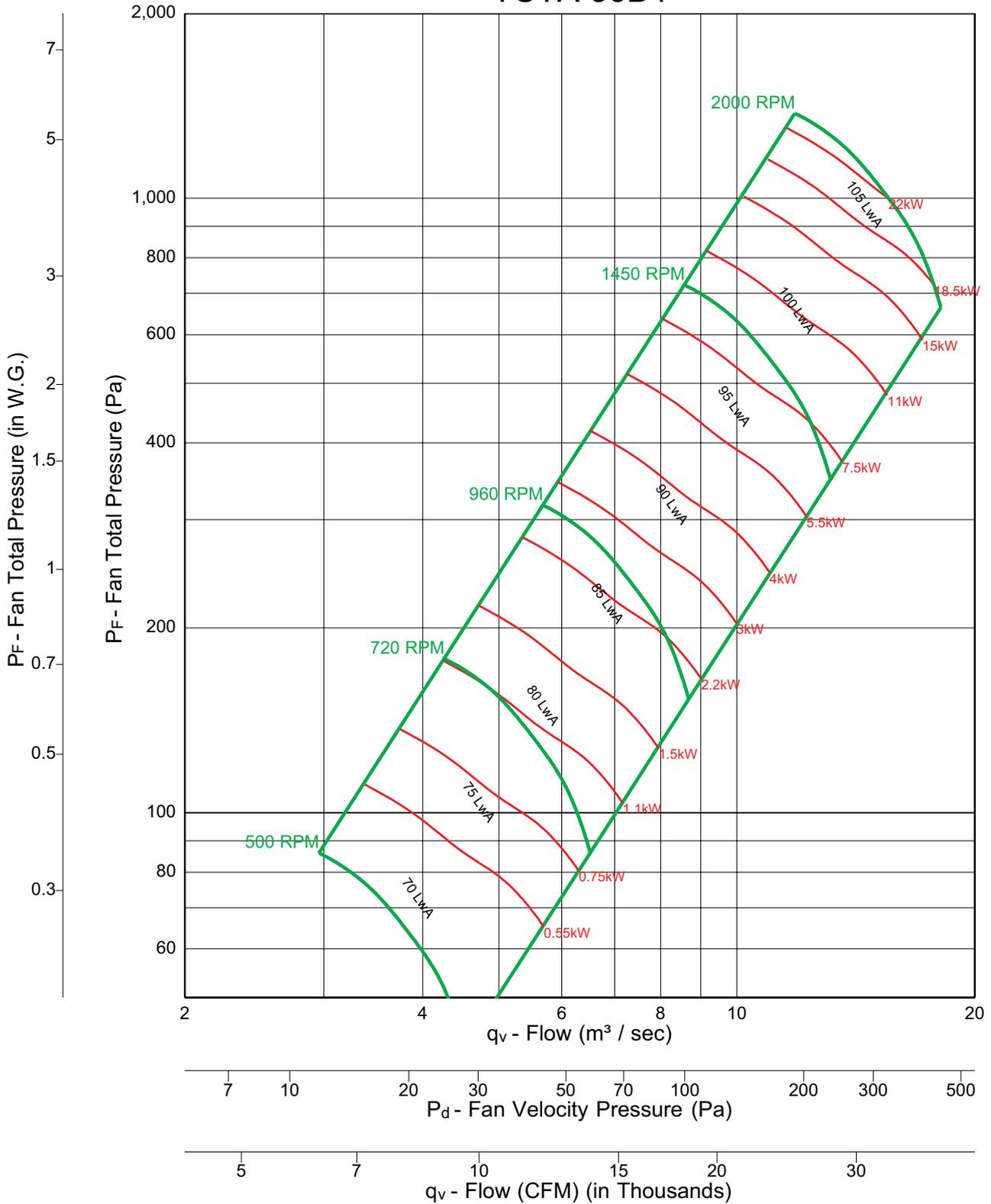
TCTA 32D6



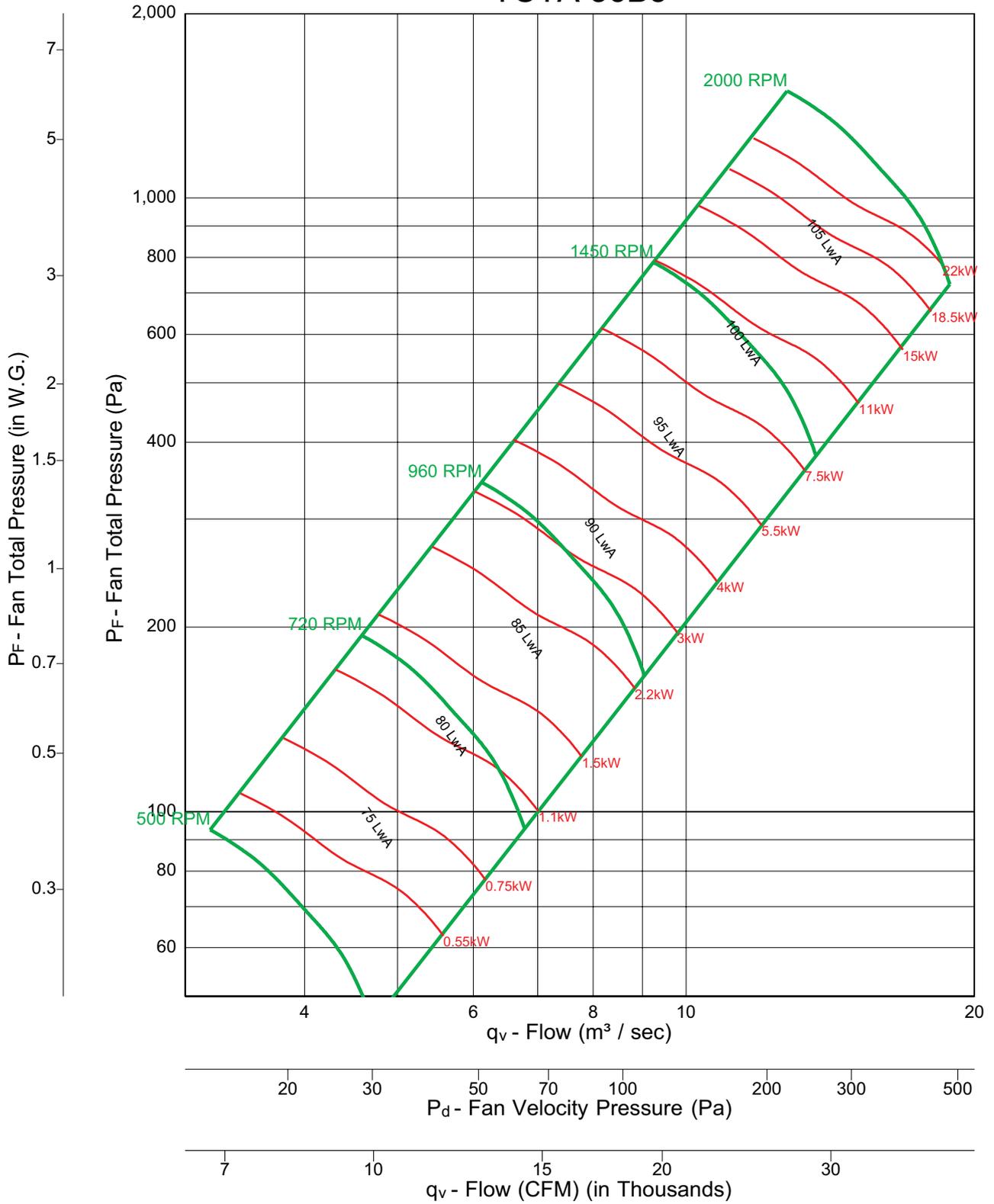
TCTA 32D7



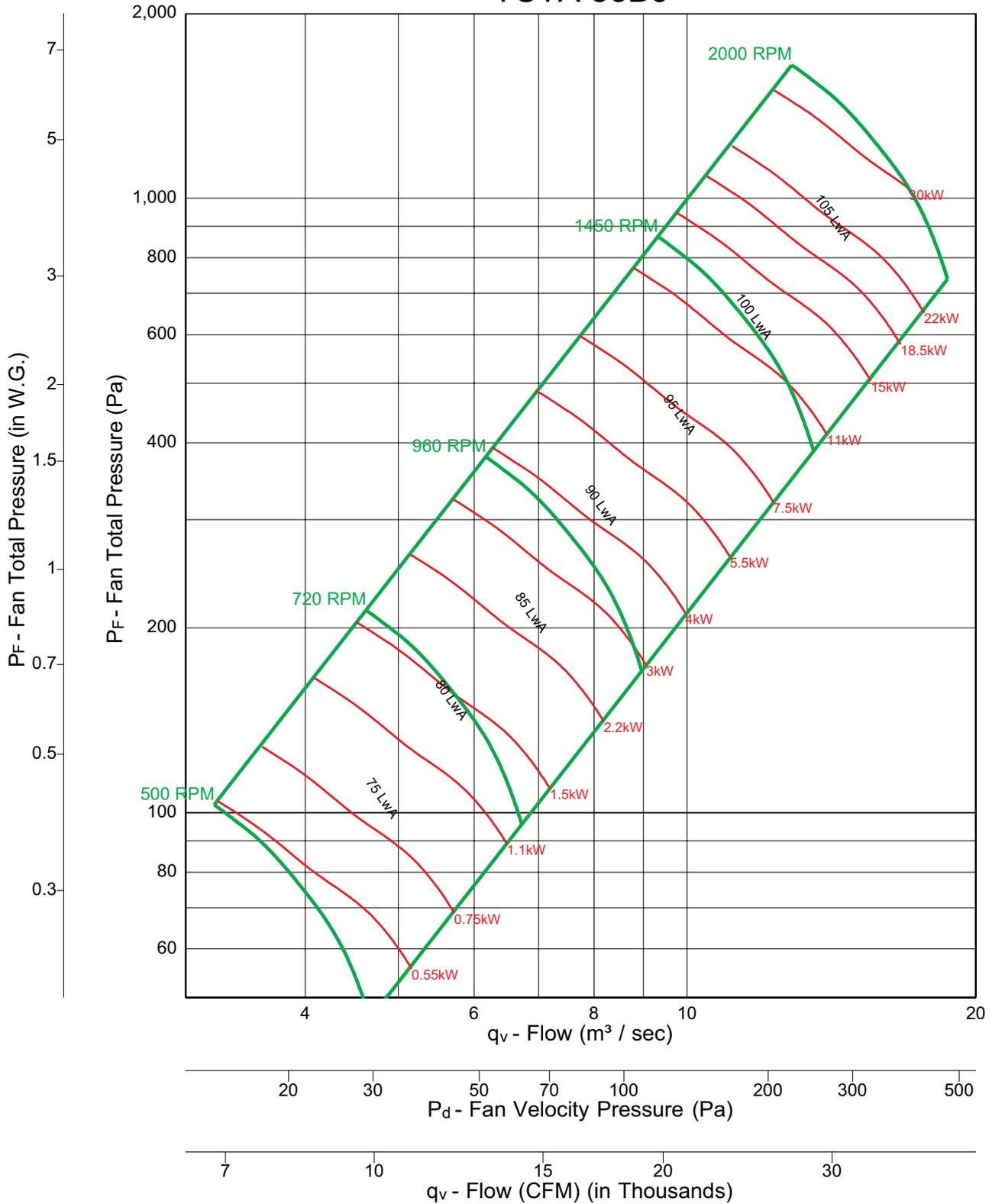
TCTA 36B4



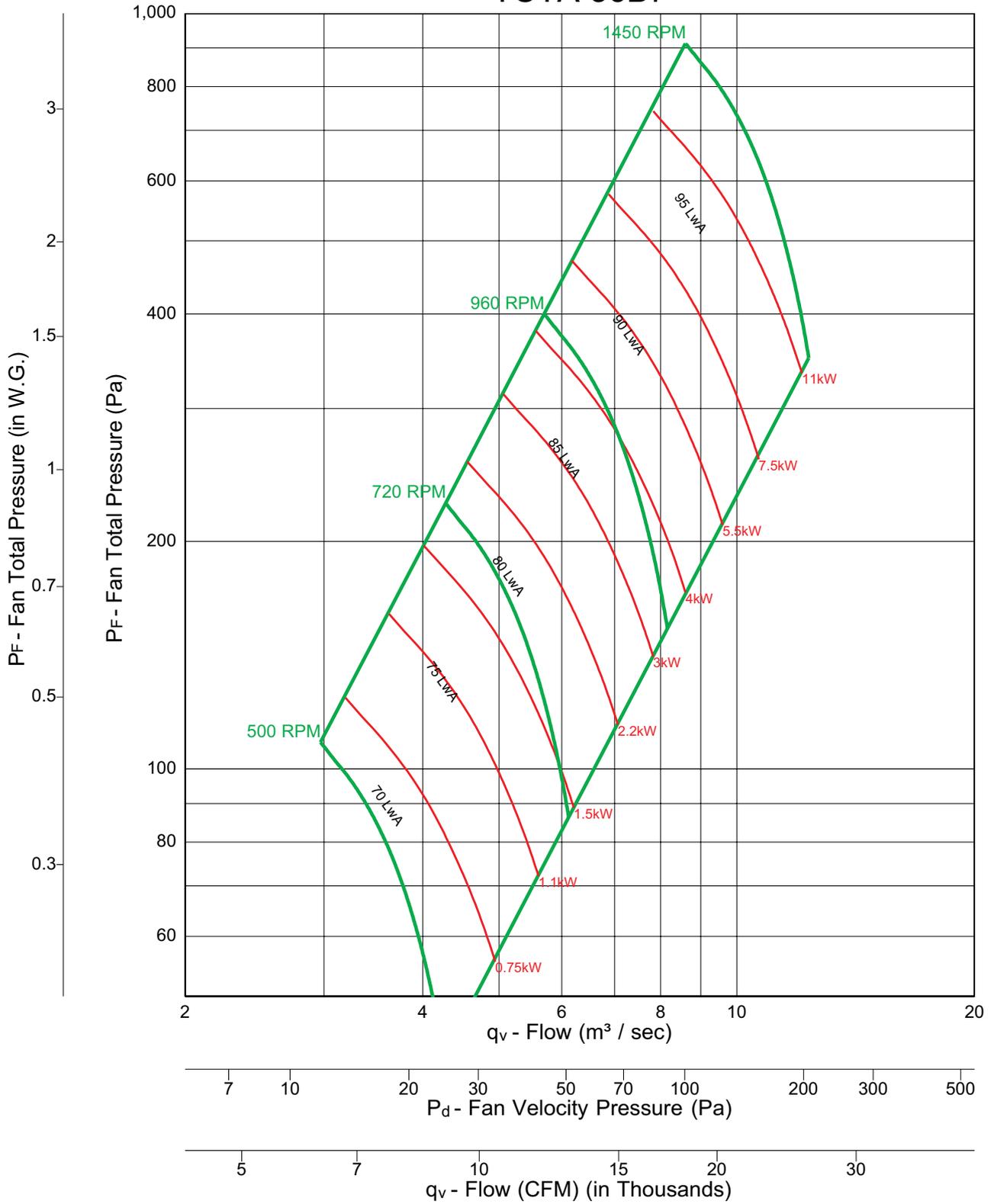
TCTA 36B5



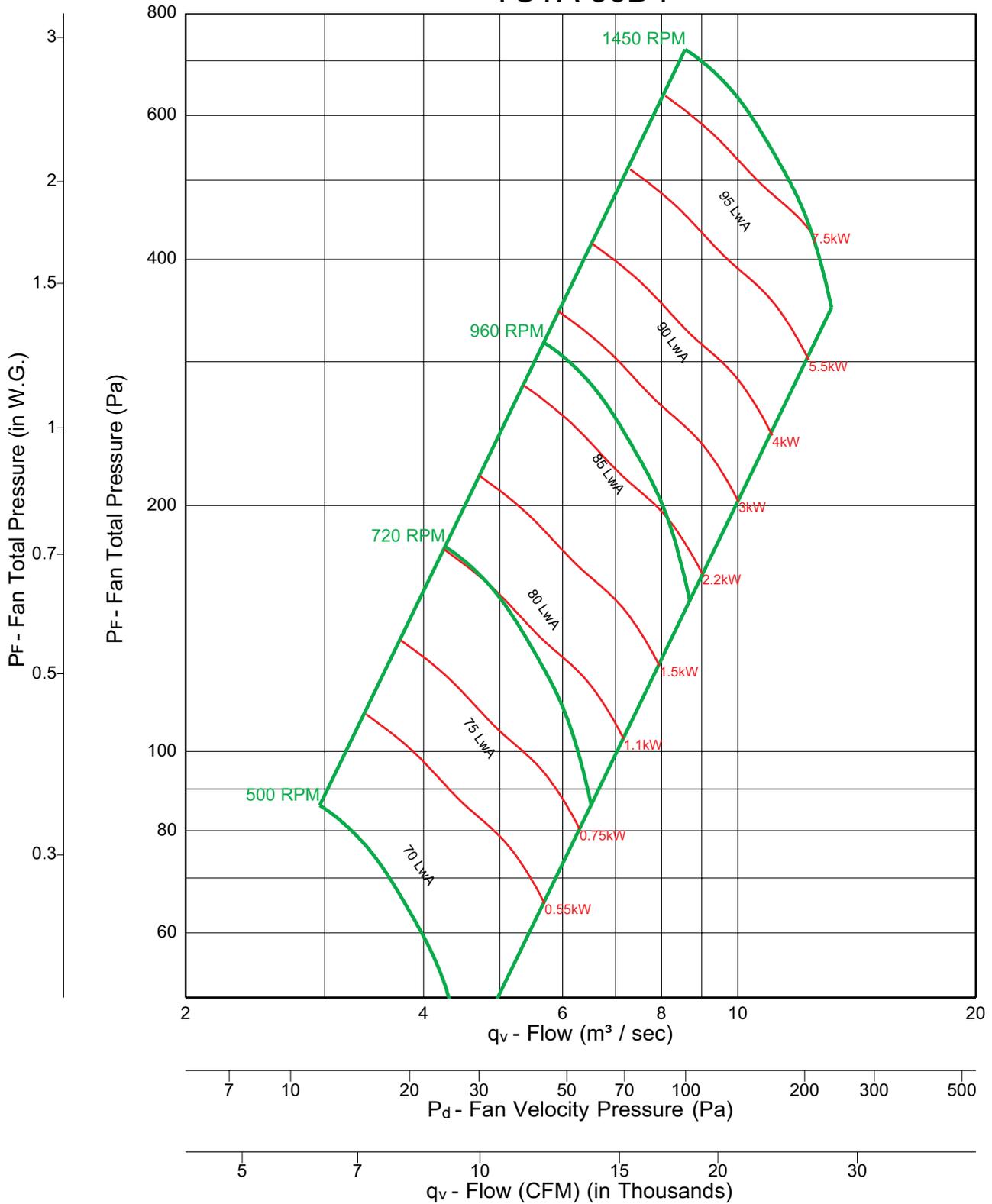
TCTA 36B6



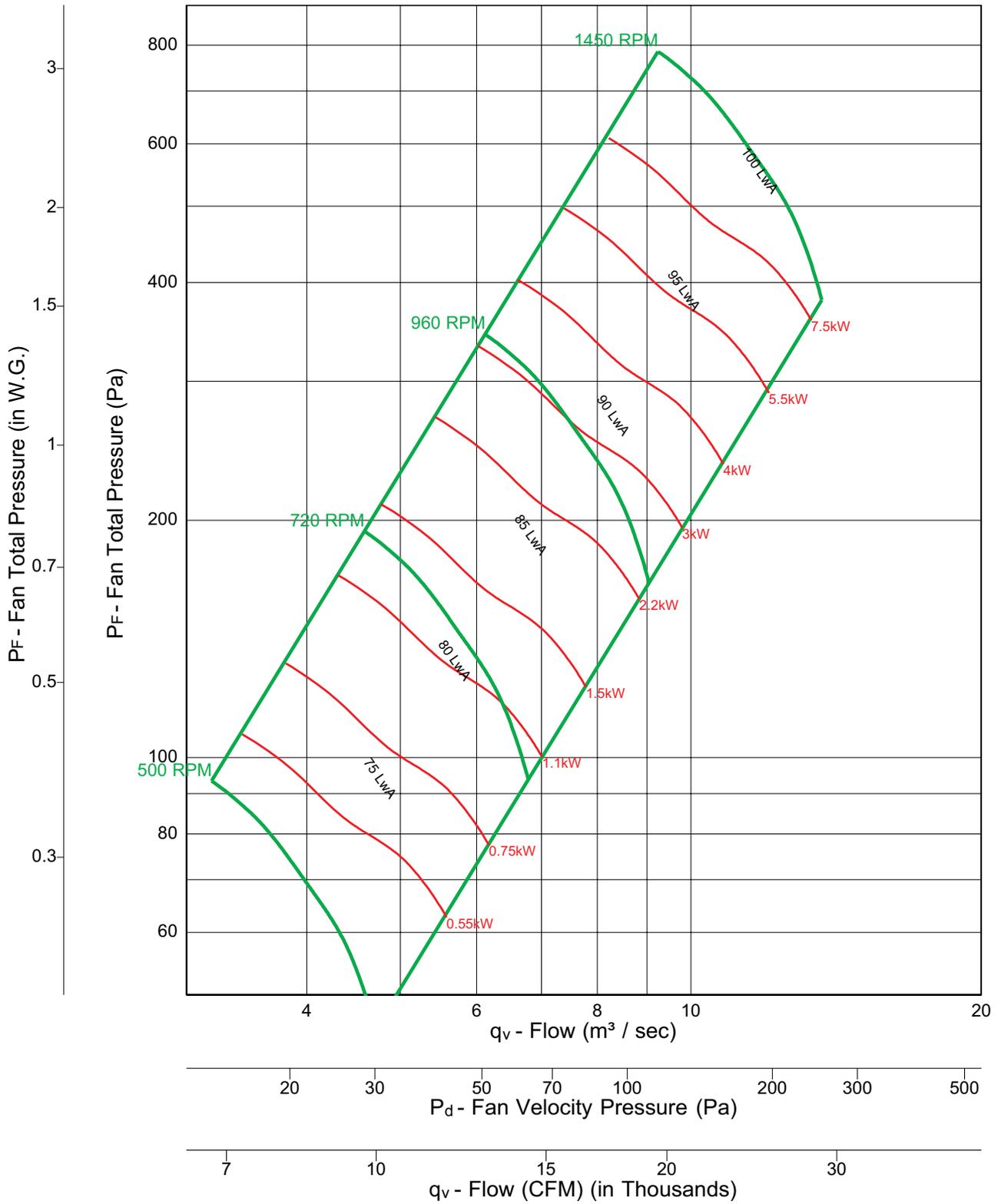
TCTA 36B7



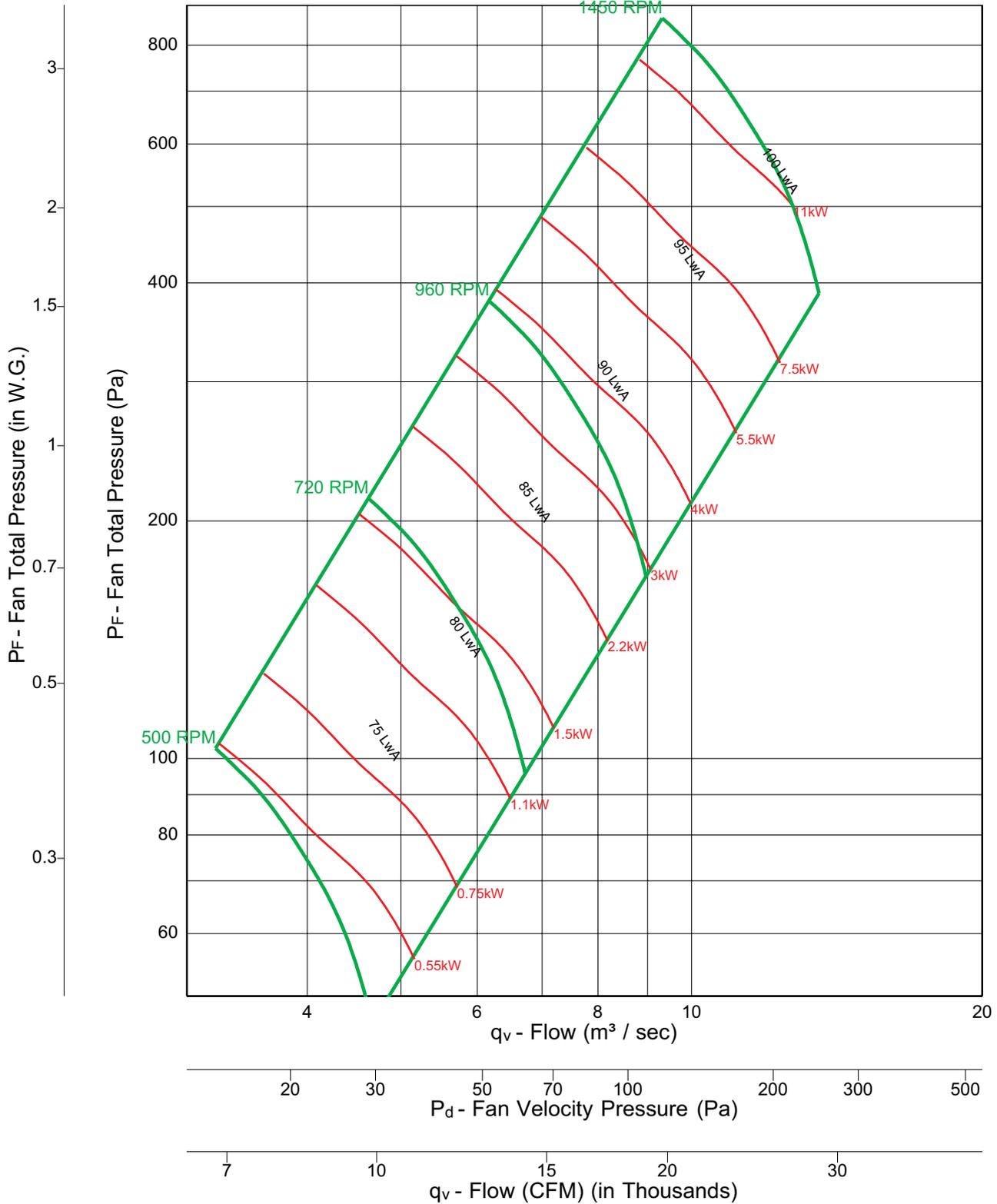
TCTA 36D4



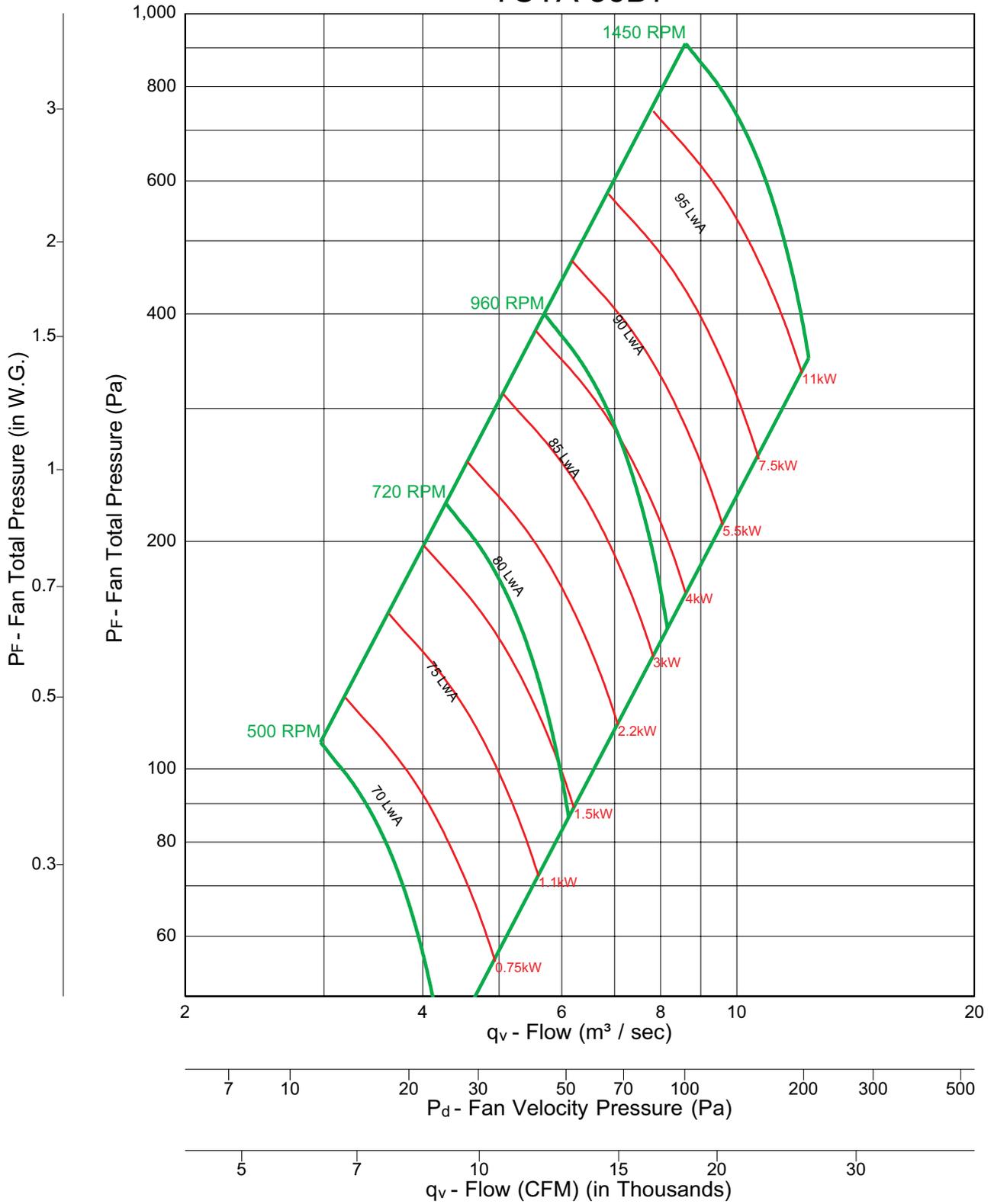
TCTA 36D5



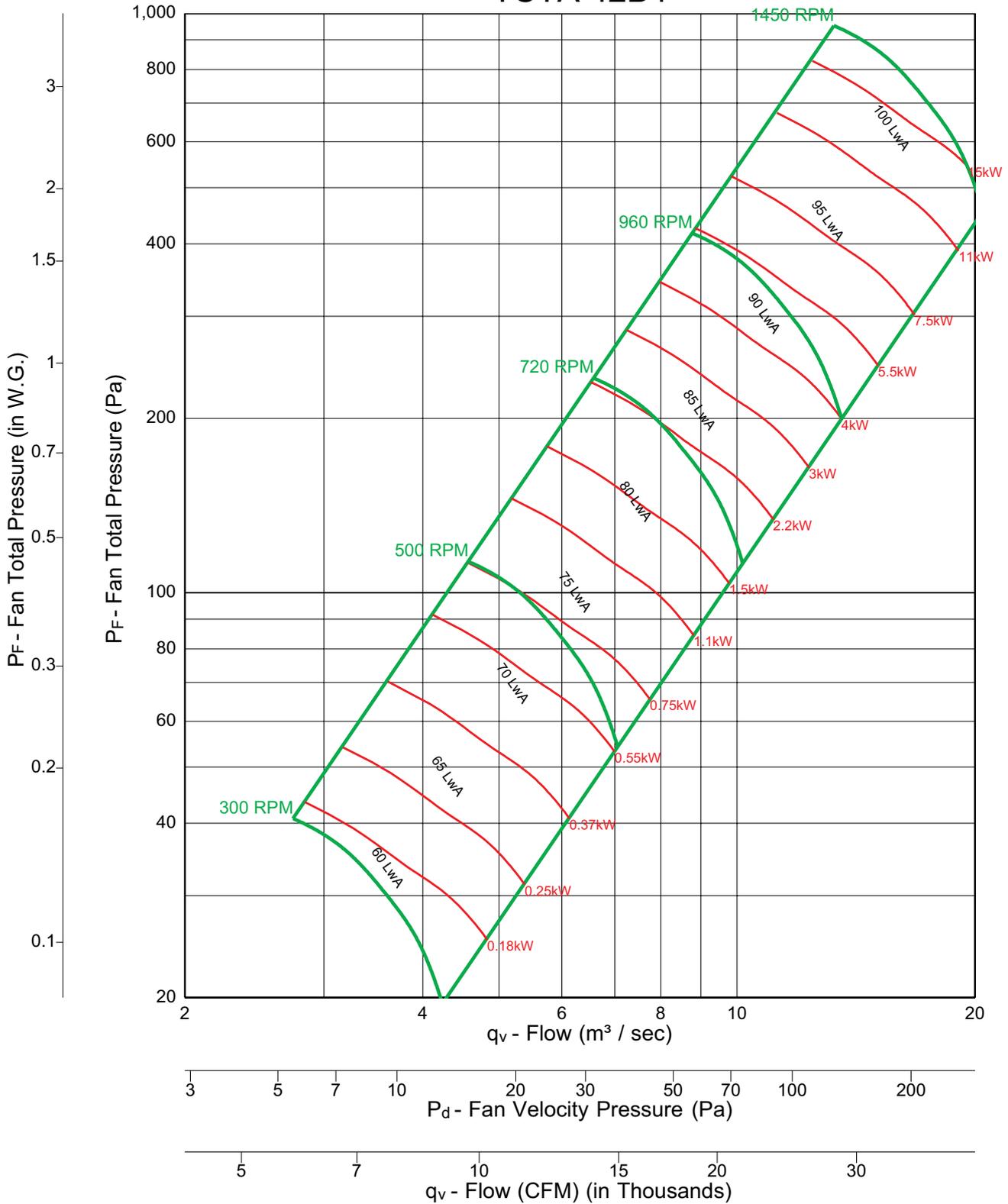
TCTA 36D6



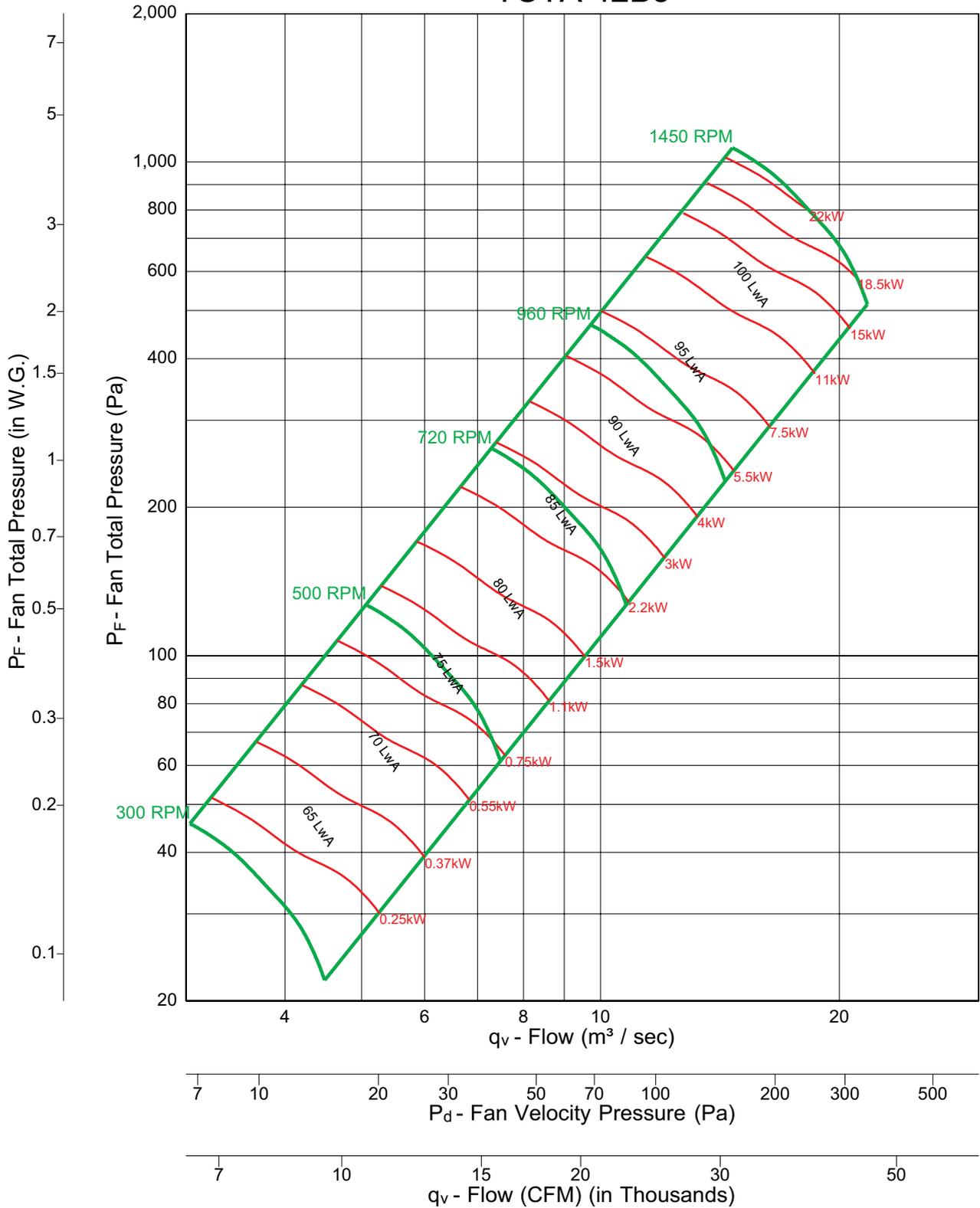
TCTA 36D7



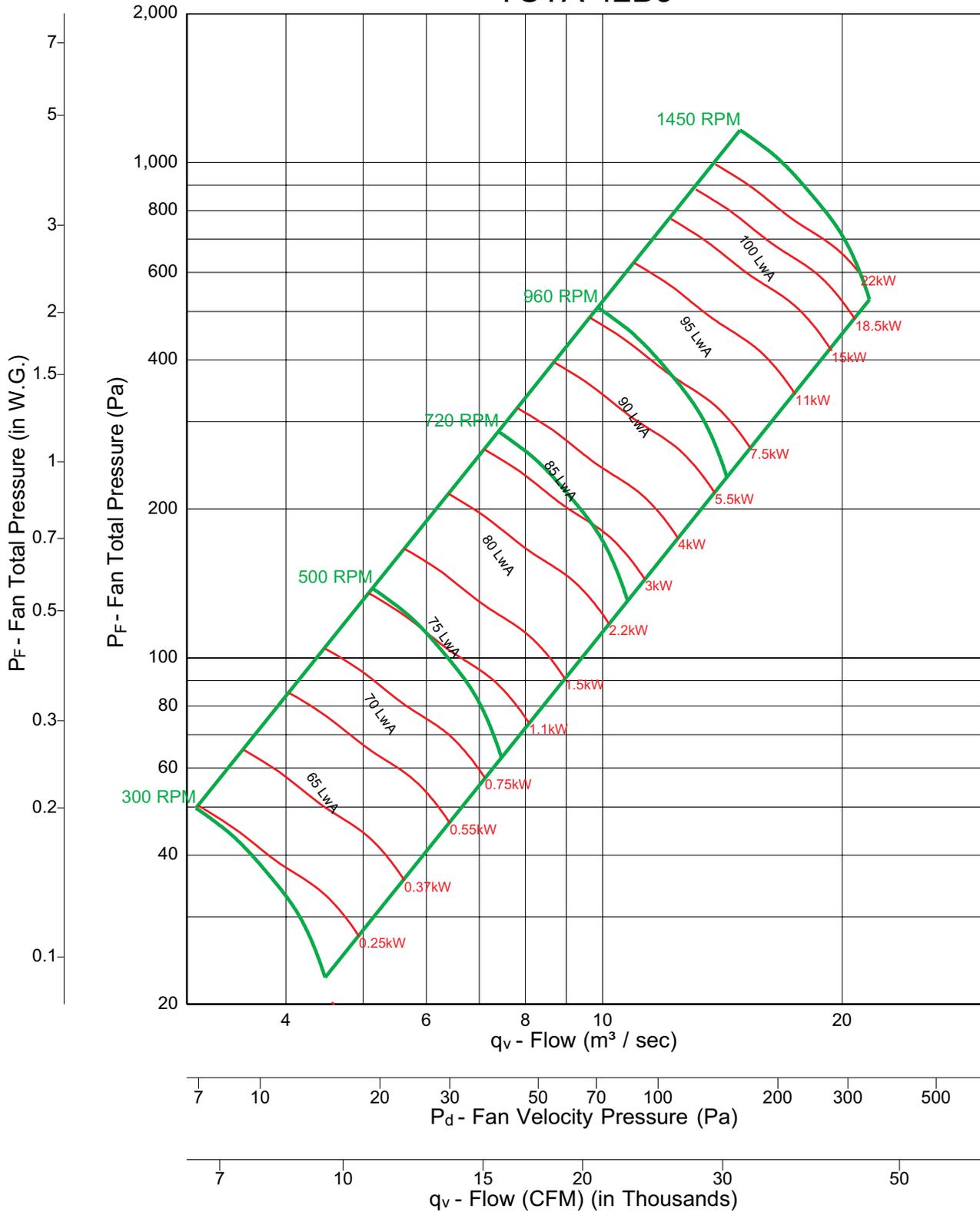
TCTA 42B4



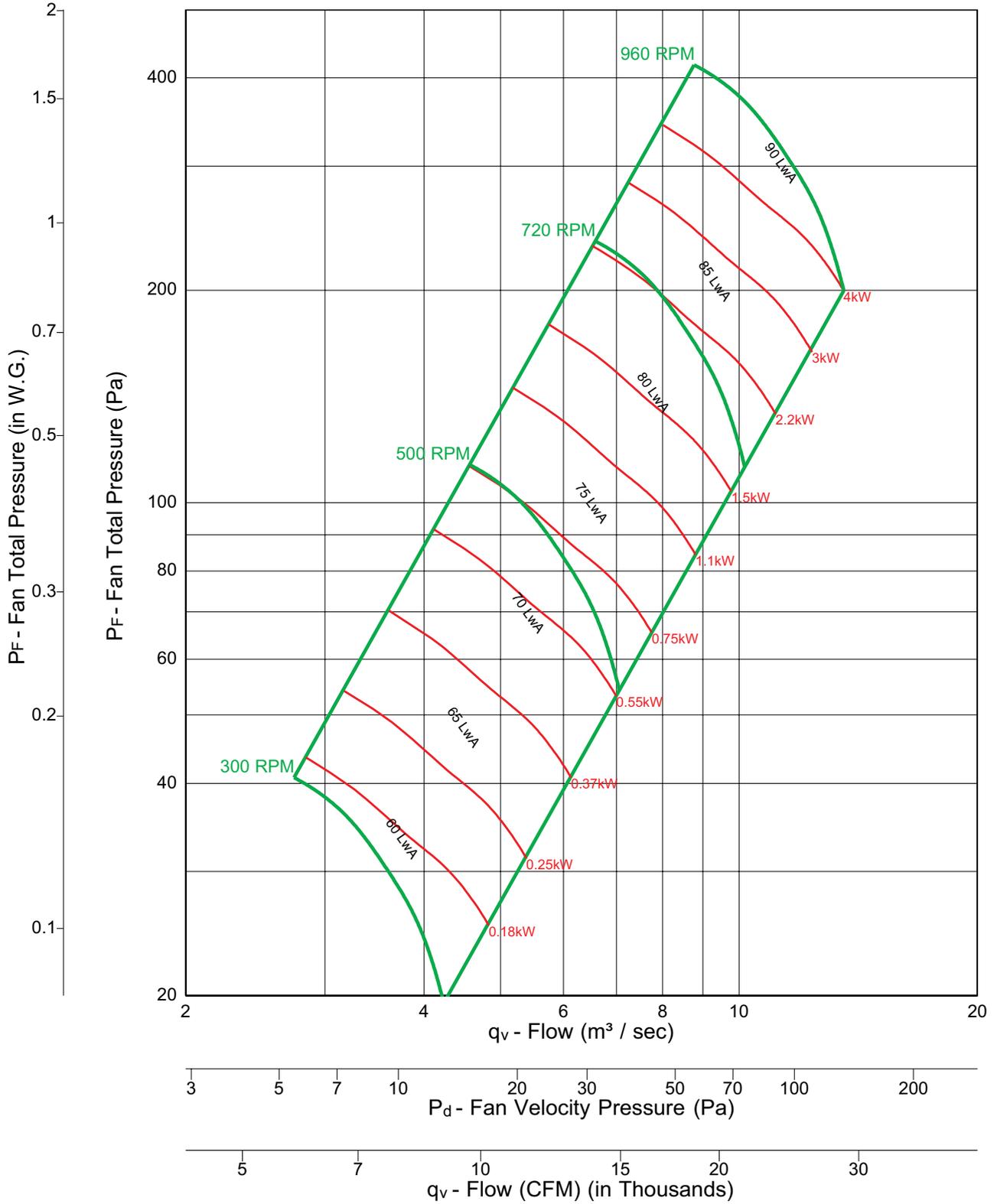
TCTA 42B5



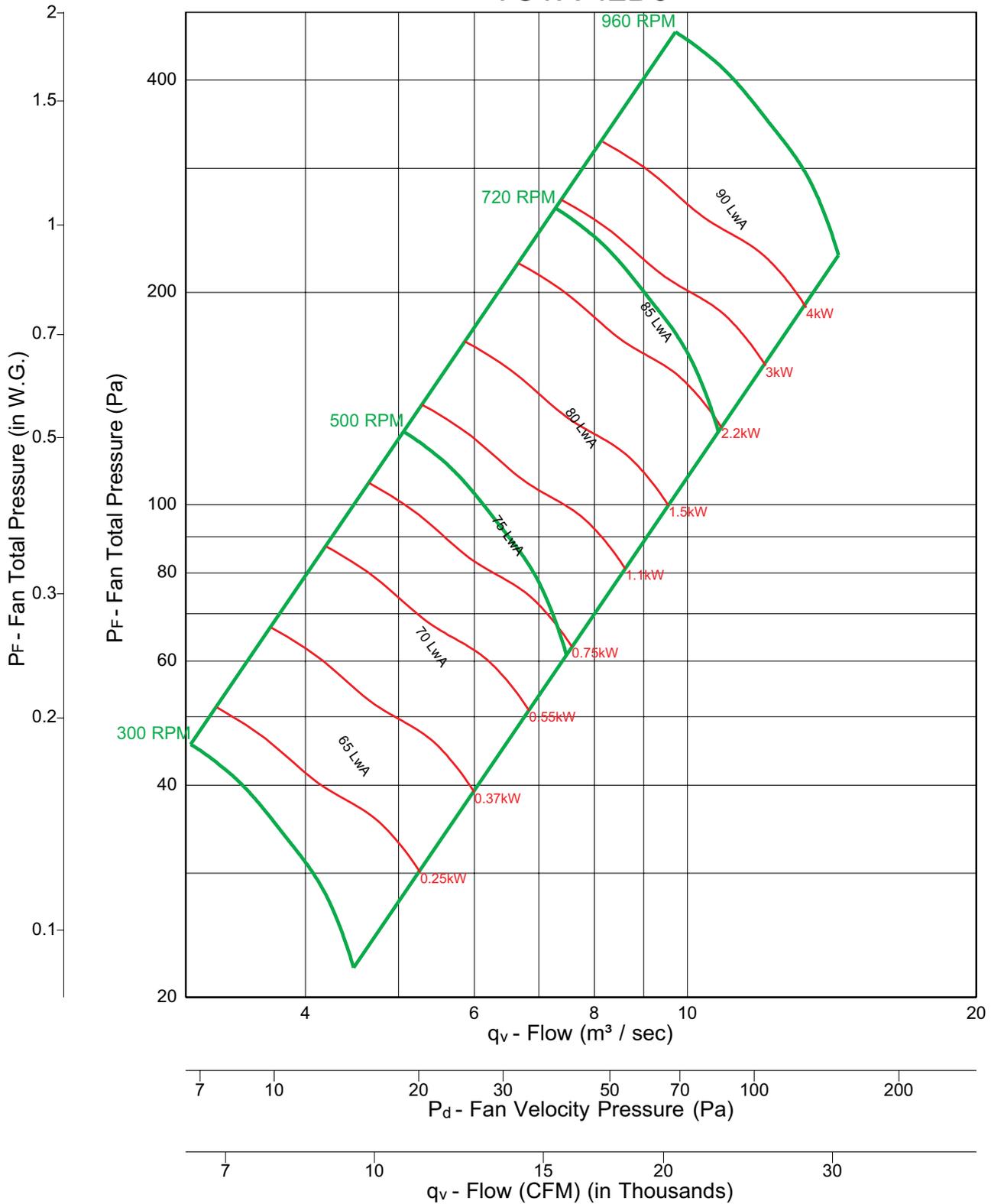
TCTA 42B6



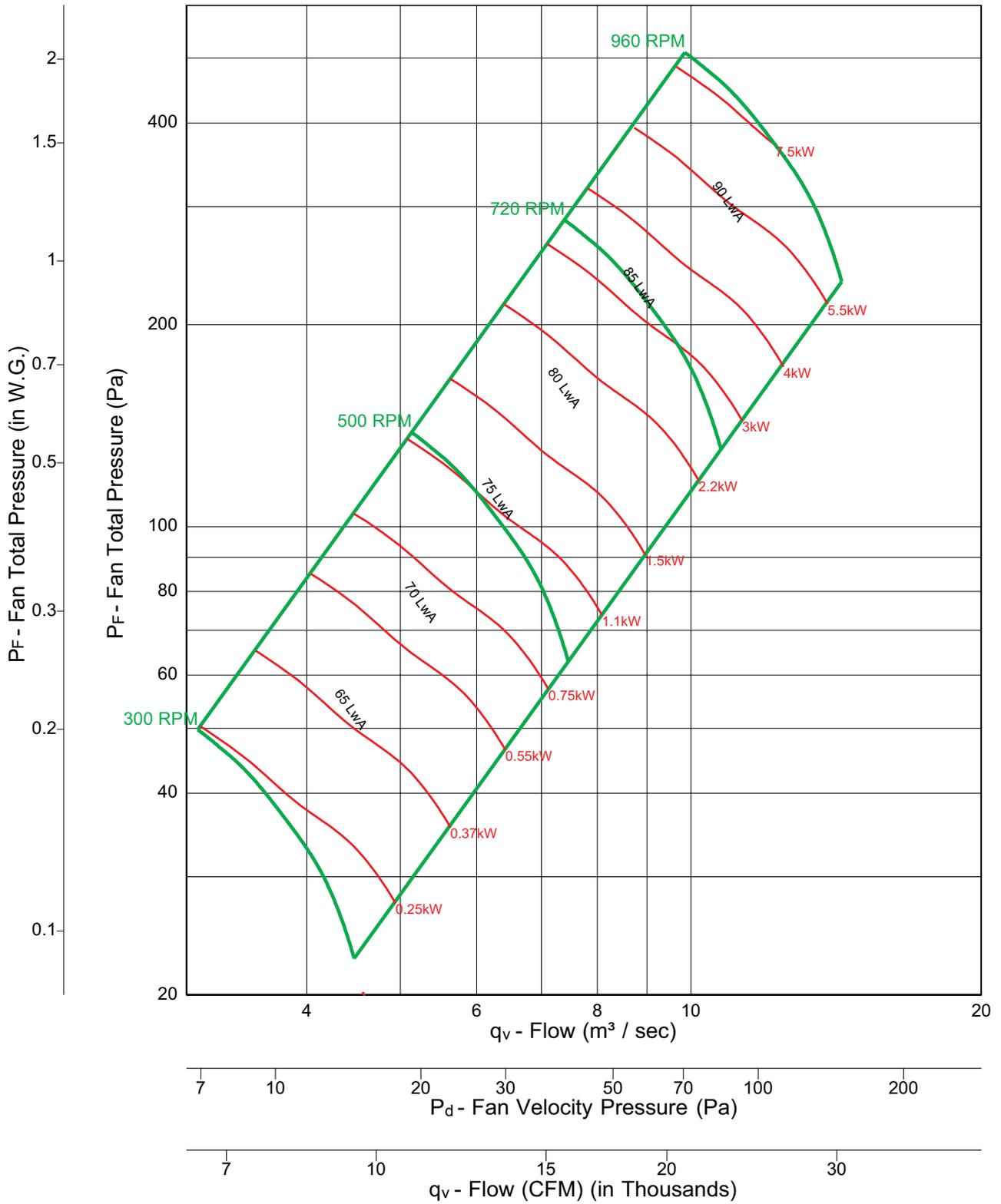
TCTA 42D4



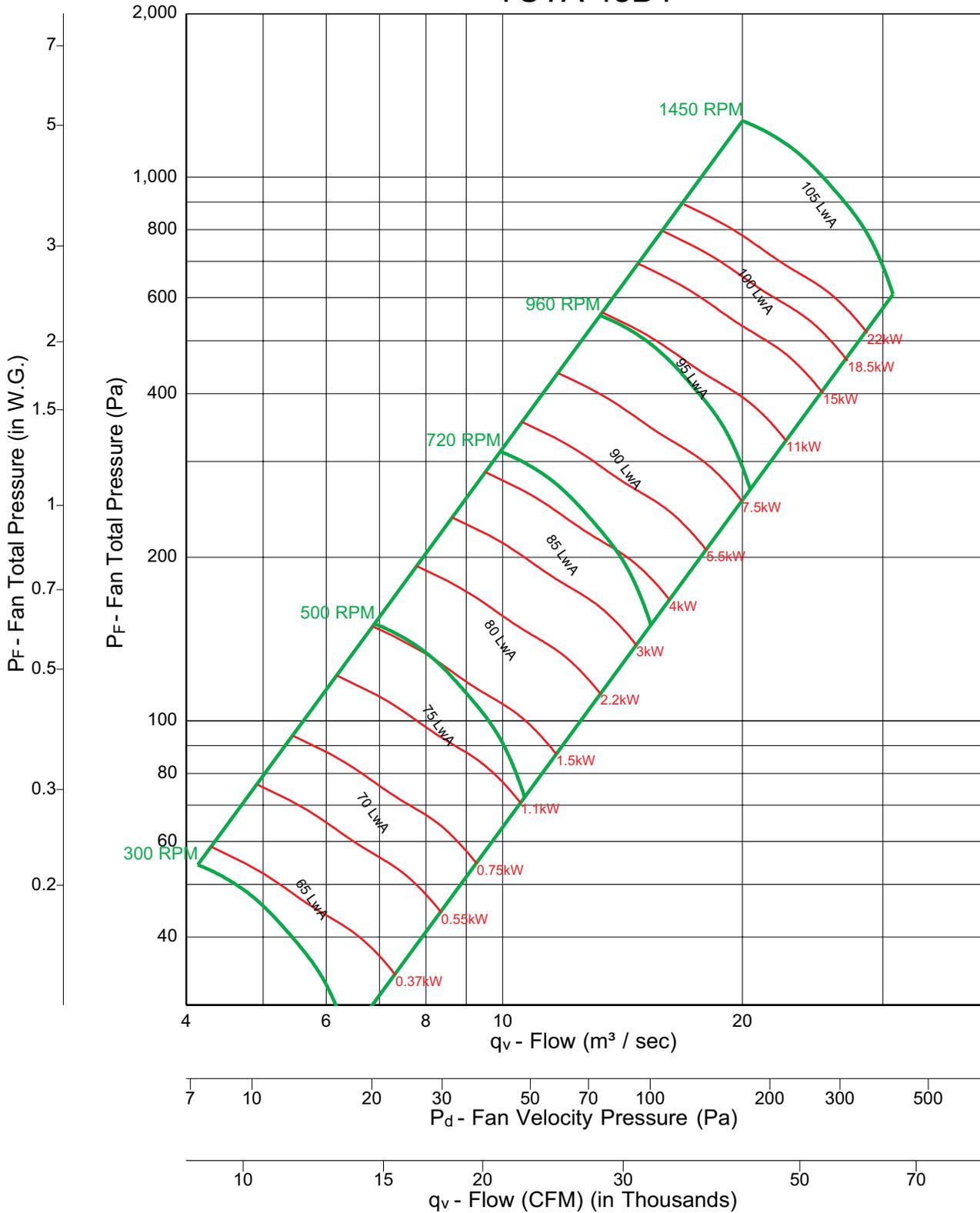
TCTA 42D5



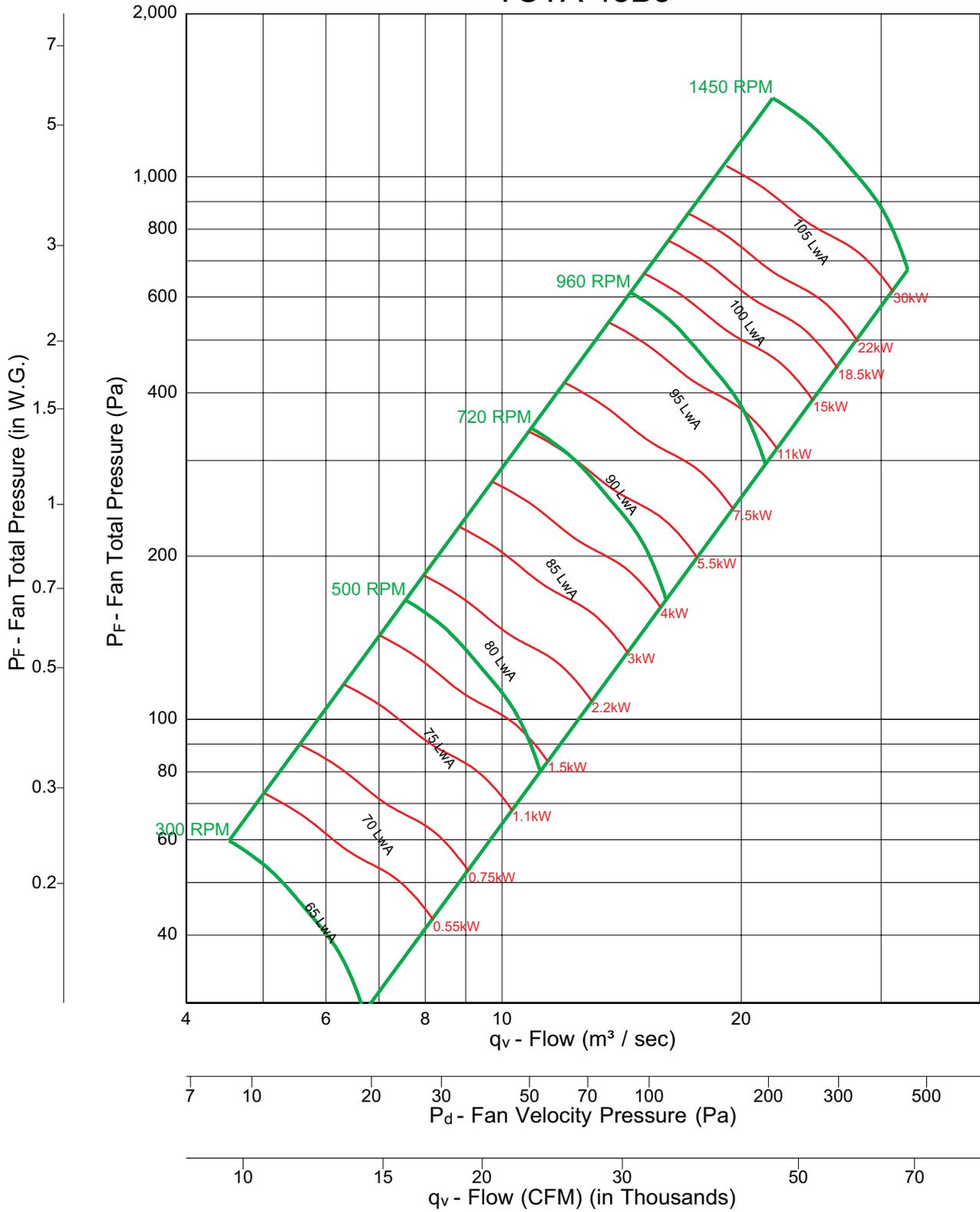
TCTA 42D6



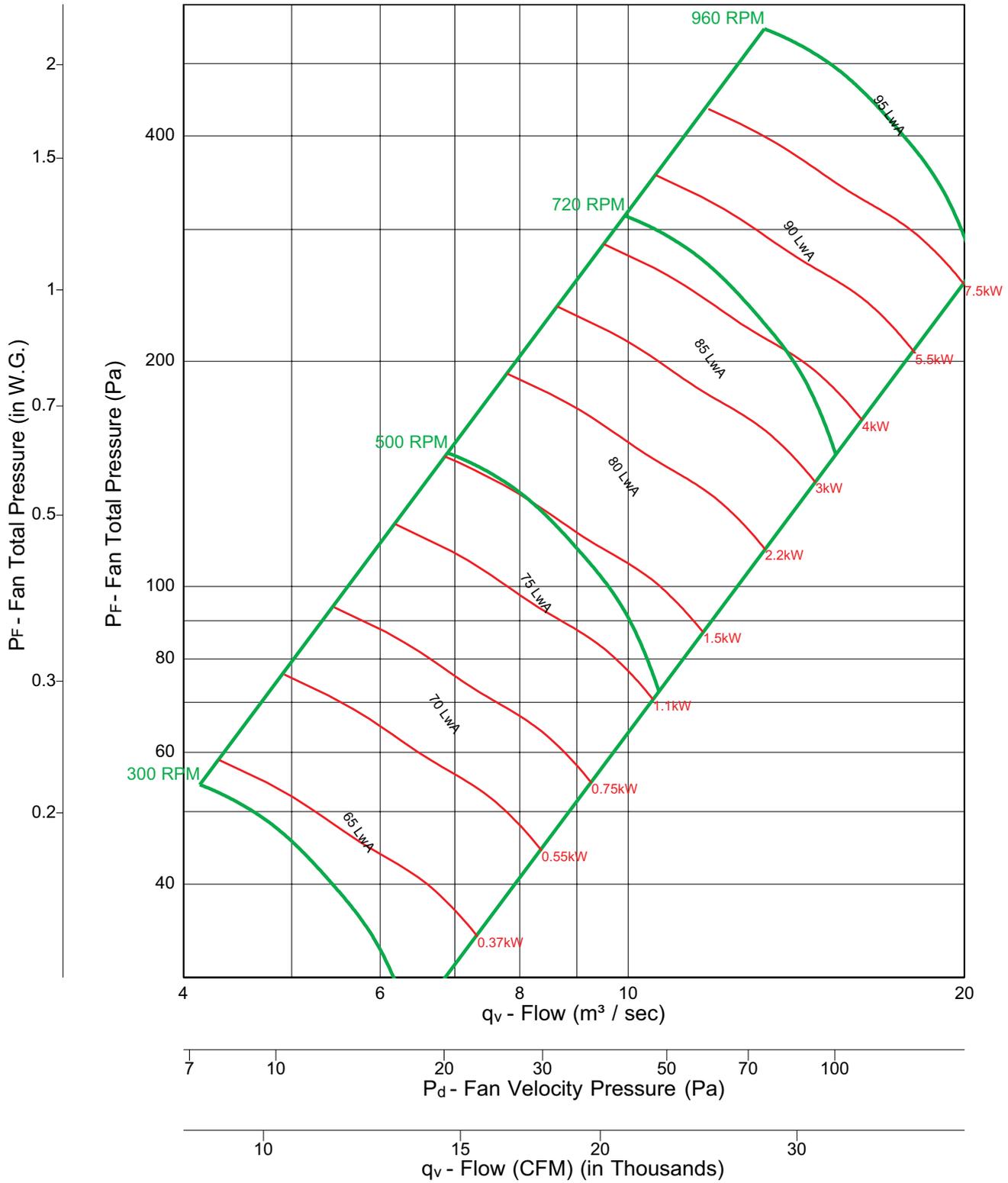
TCTA 48B4



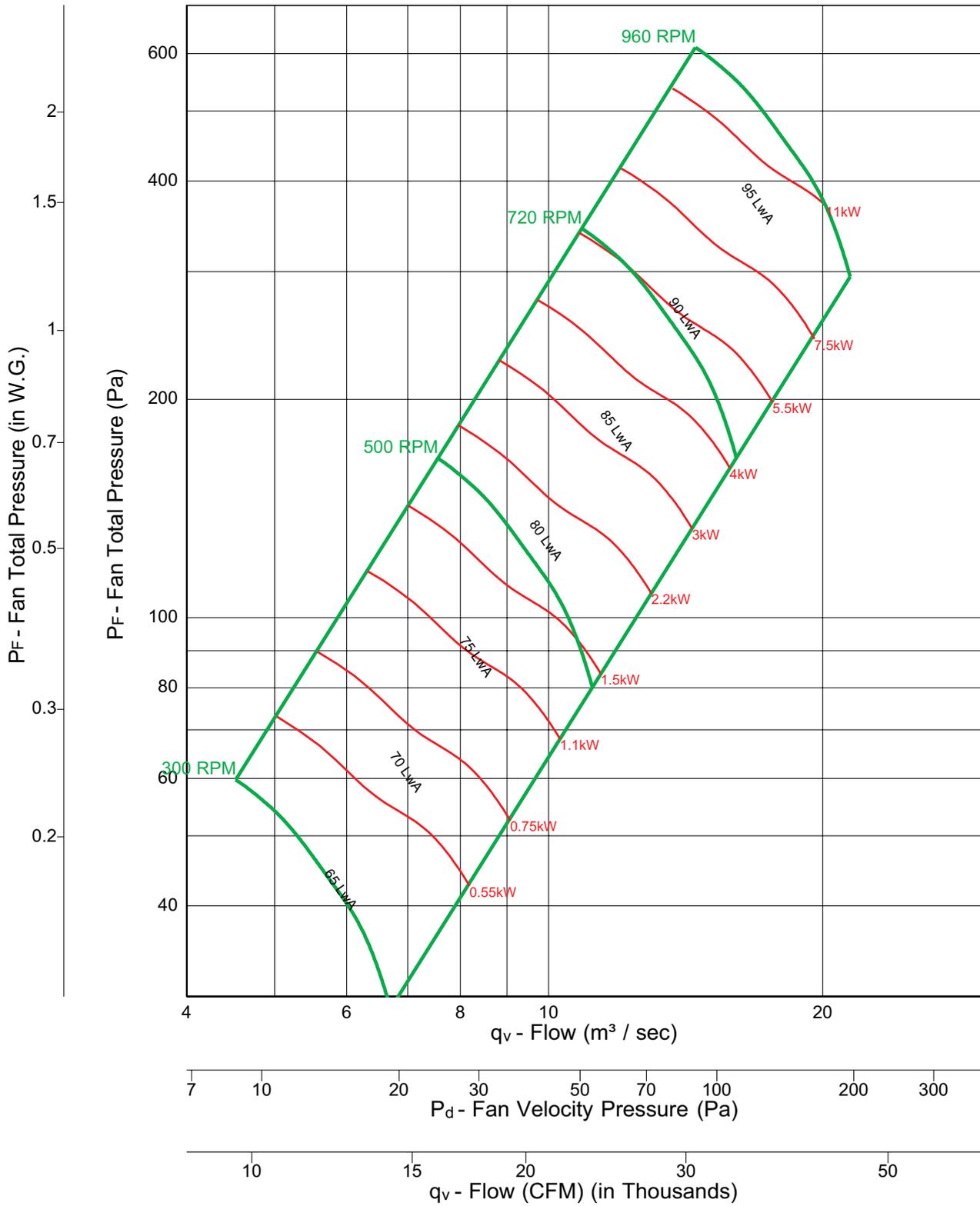
TCTA 48B5



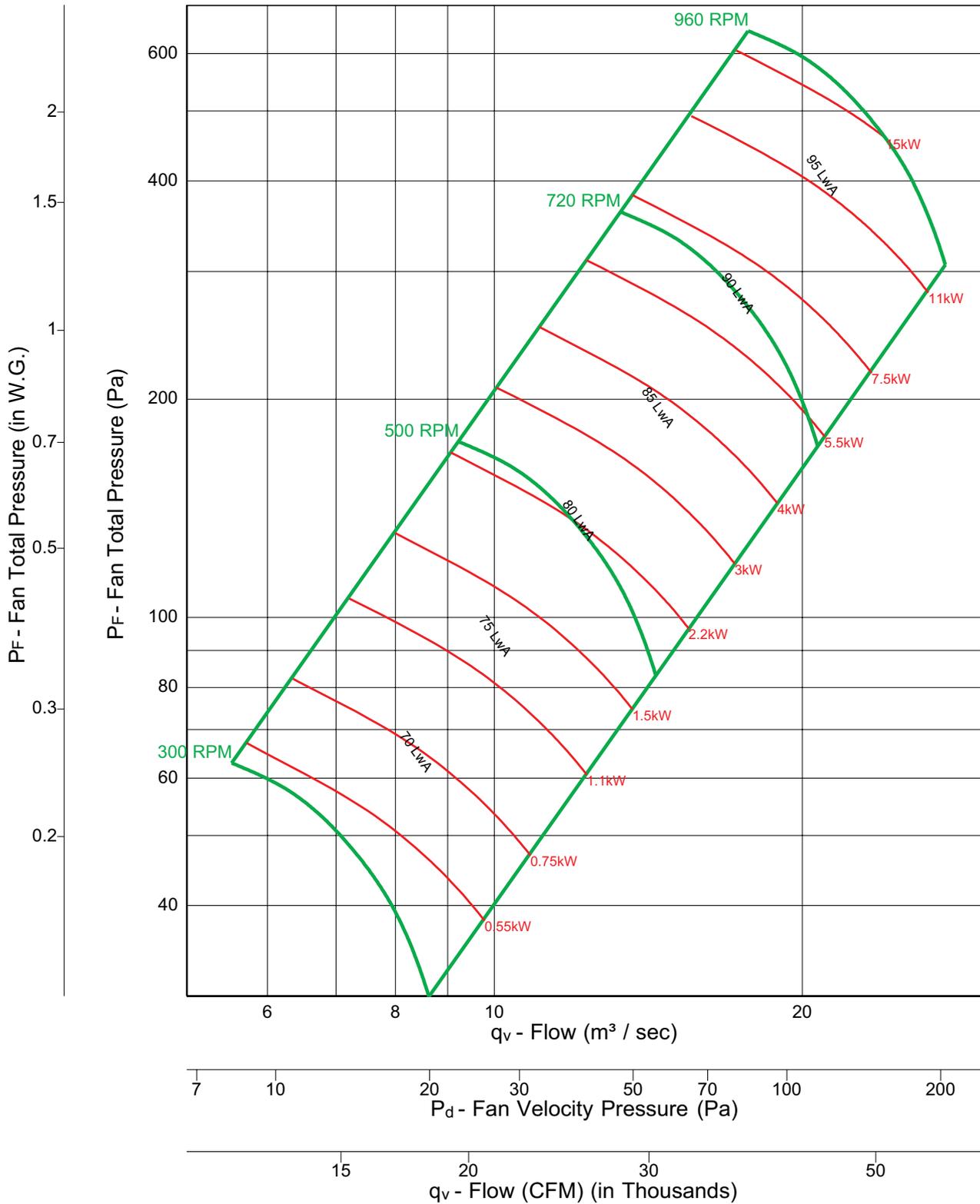
TCTA 48D4



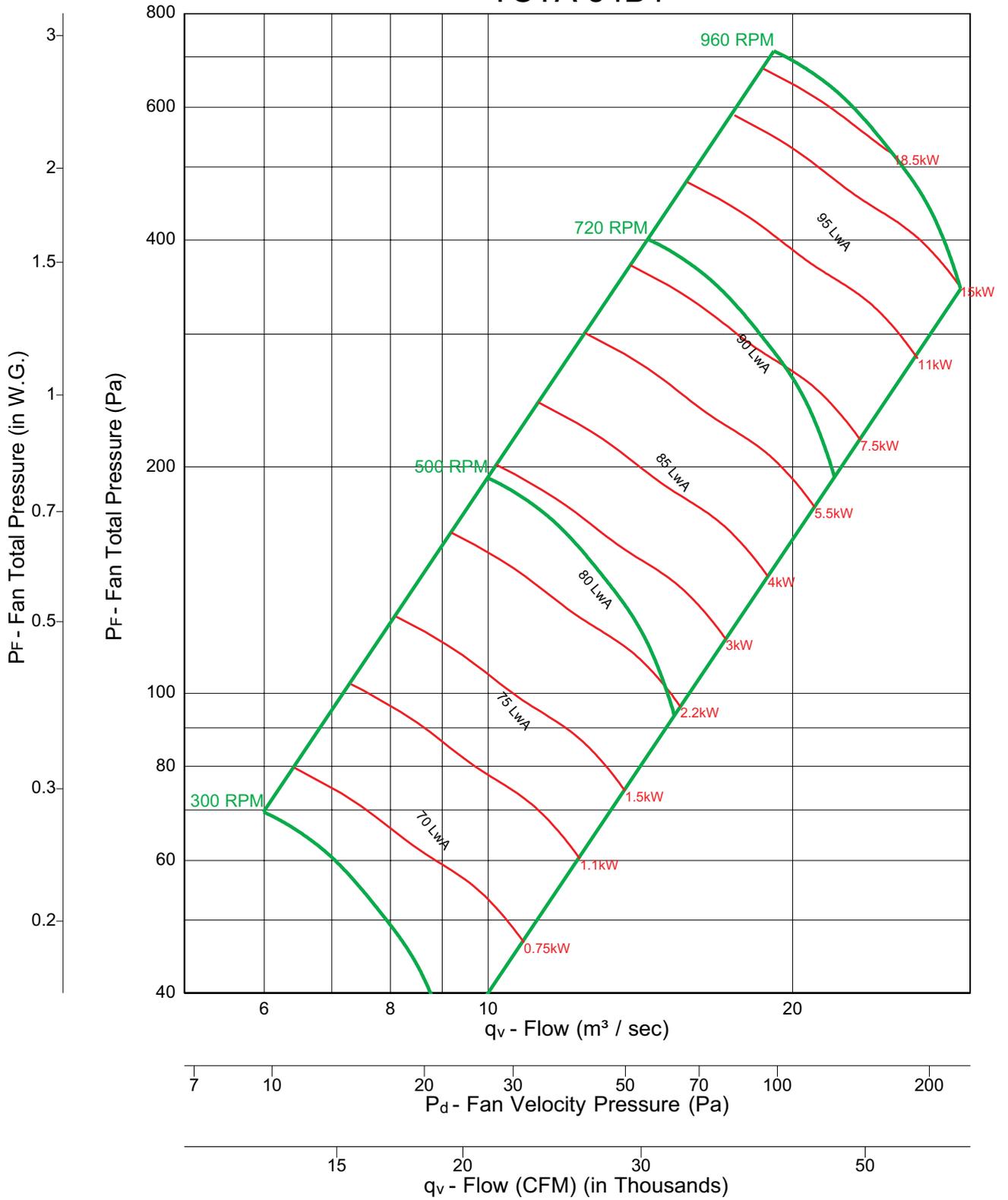
TCTA 48D5



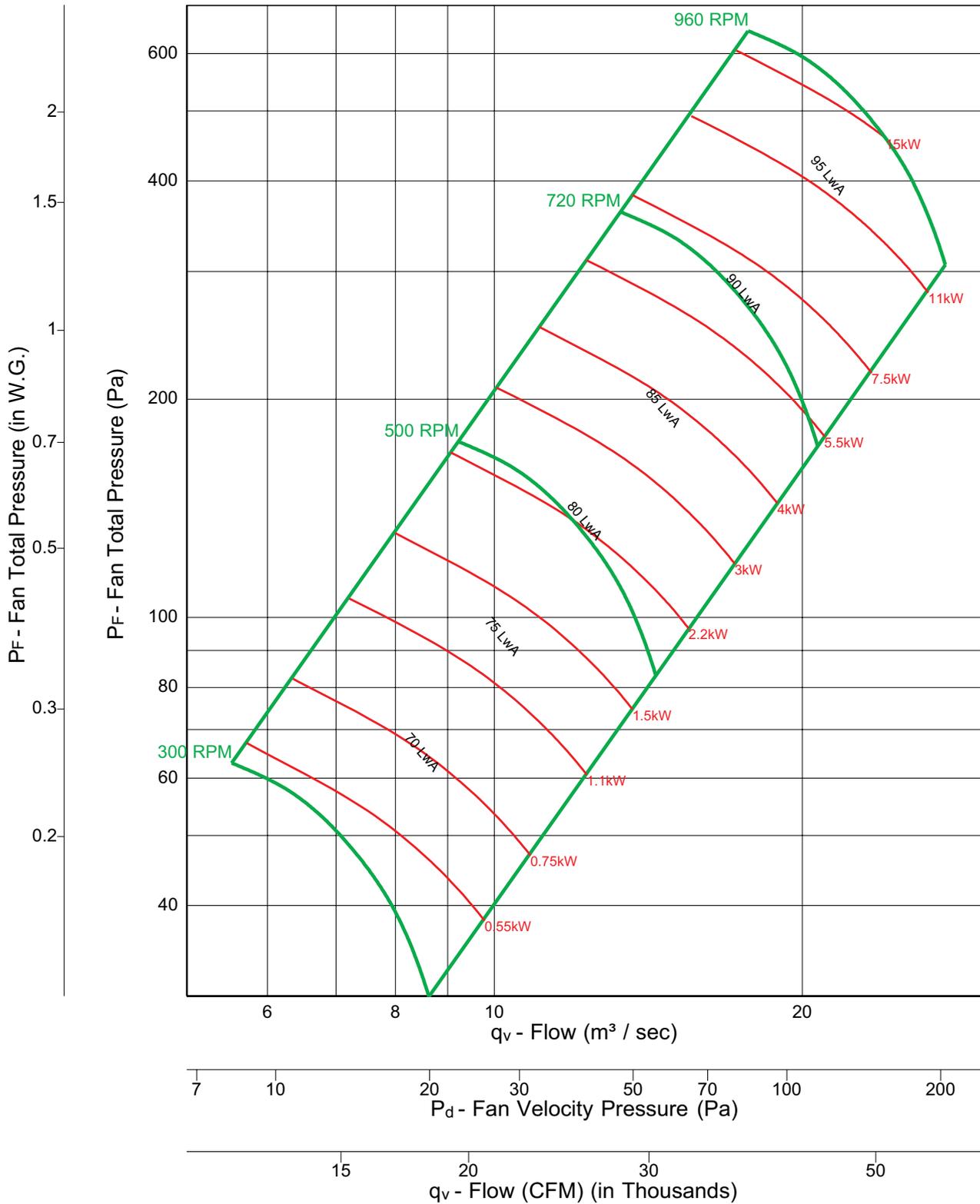
TCTA 54B3



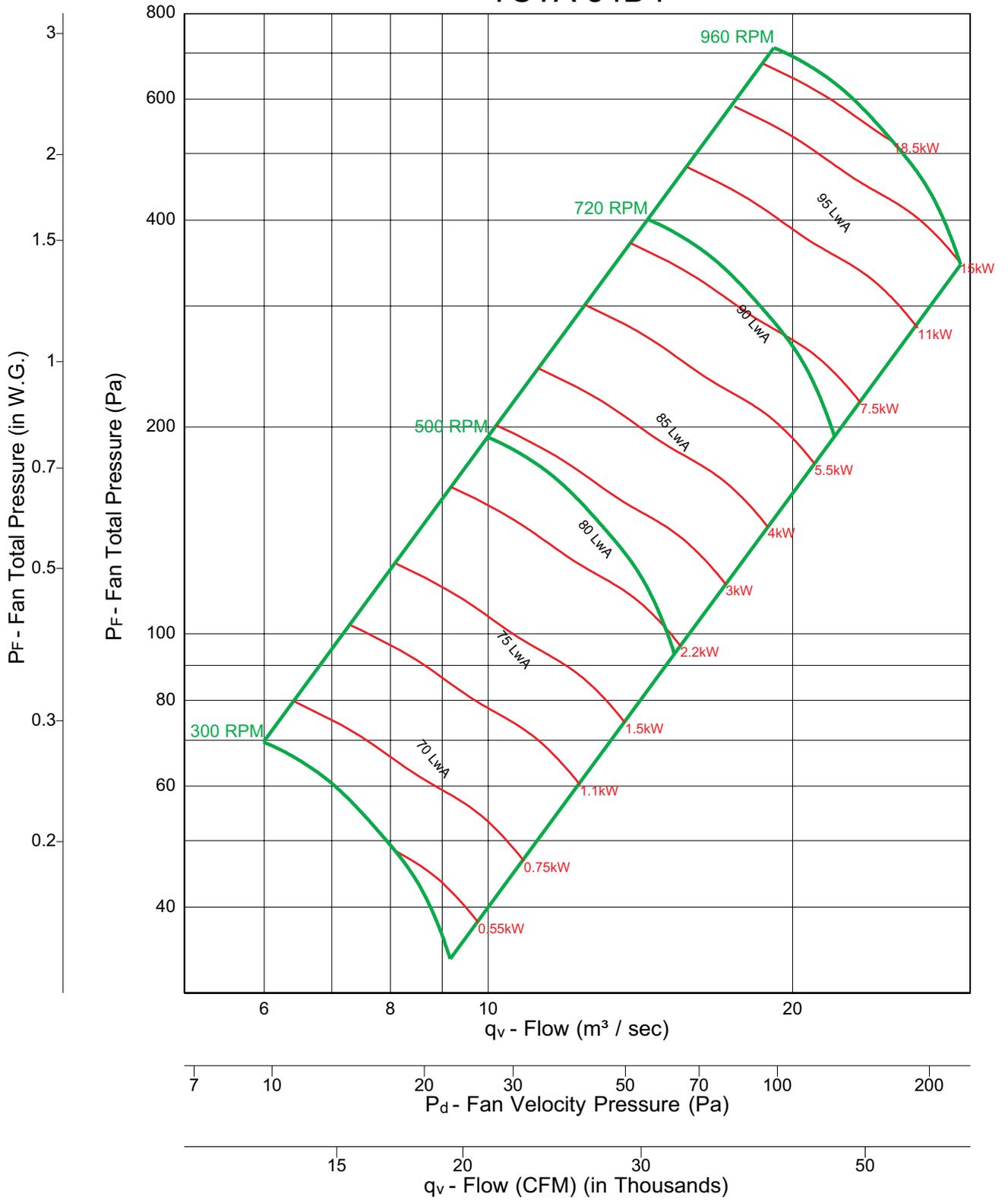
TCTA 54B4



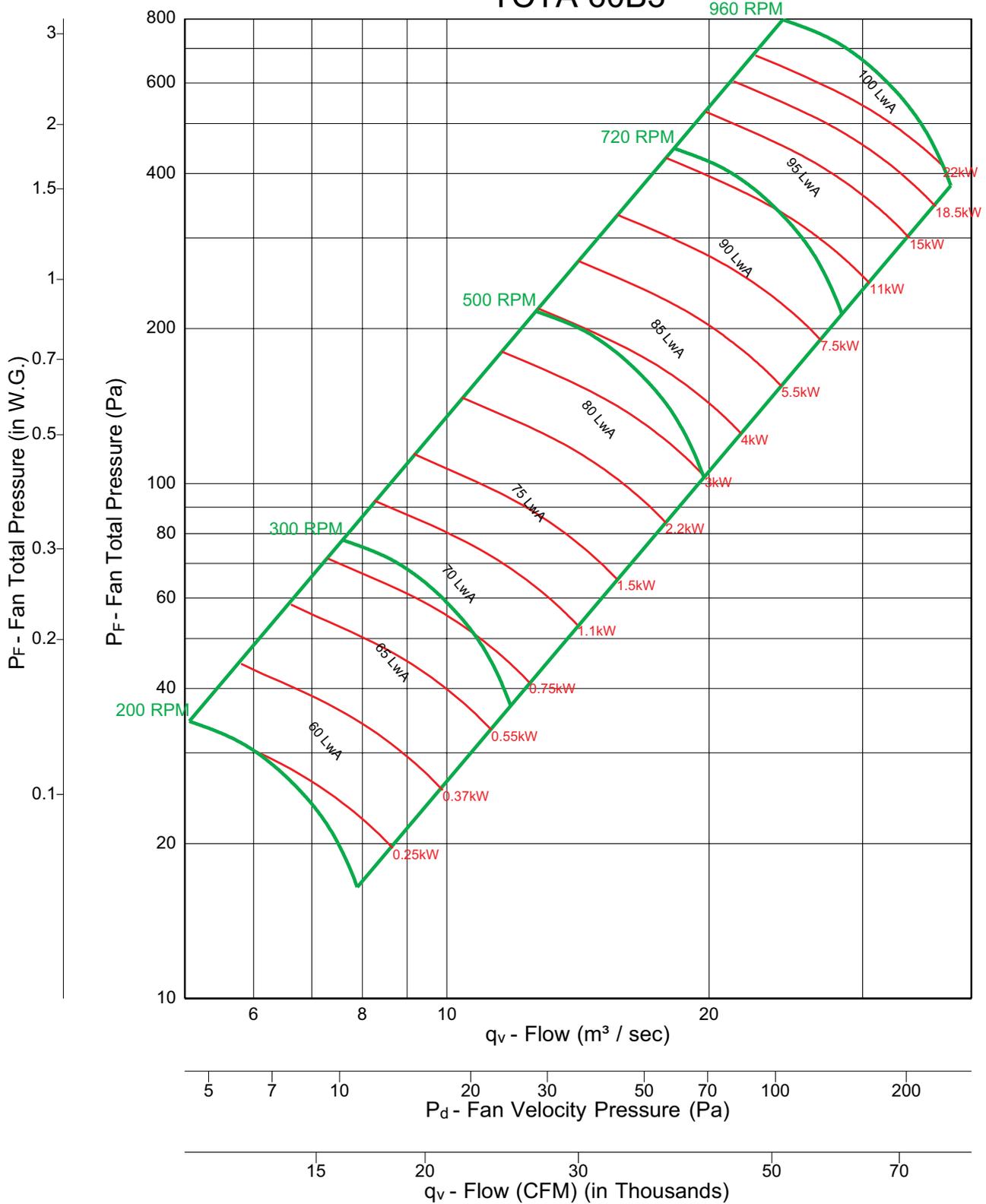
TCTA 54D3



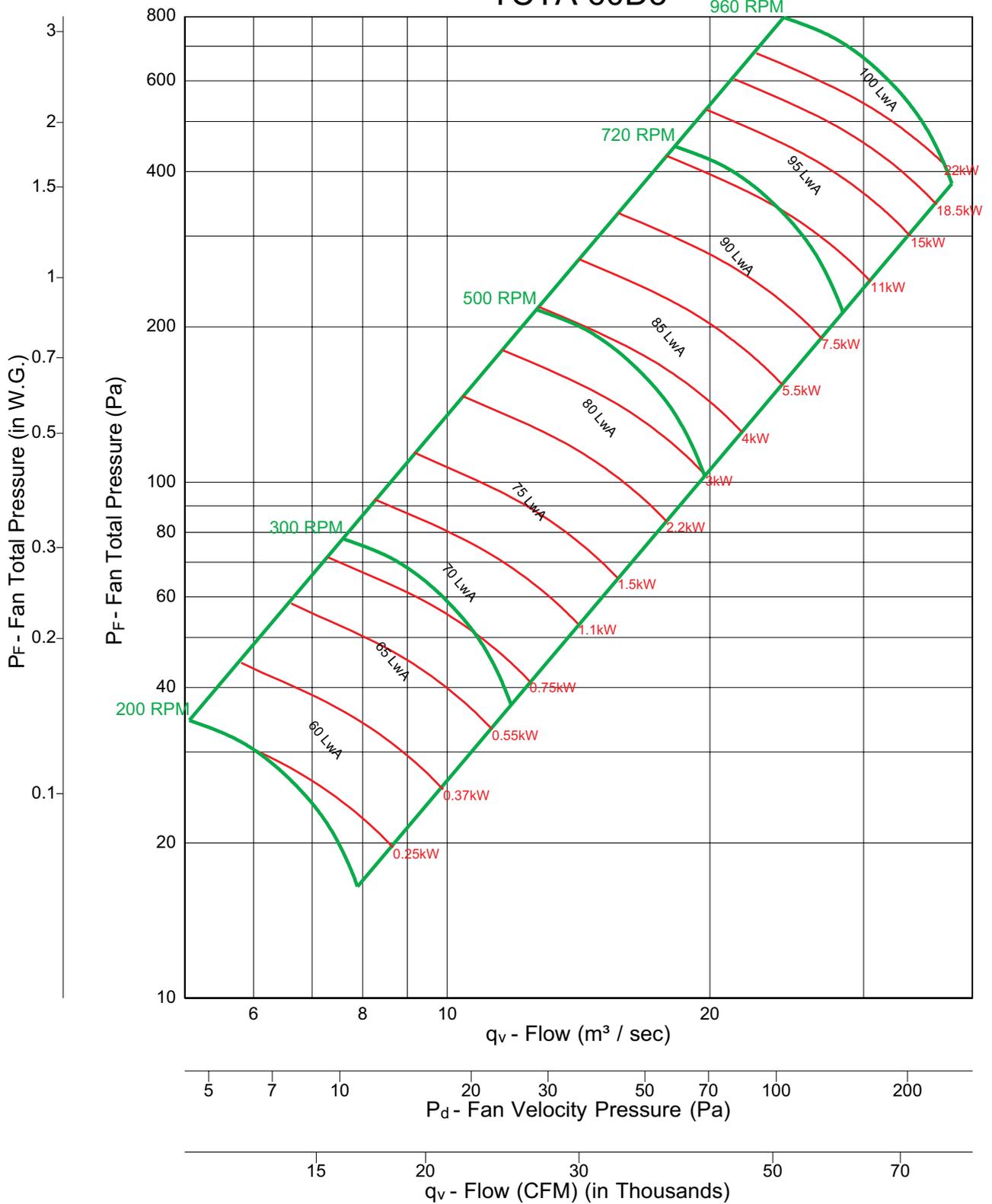
TCTA 54D4



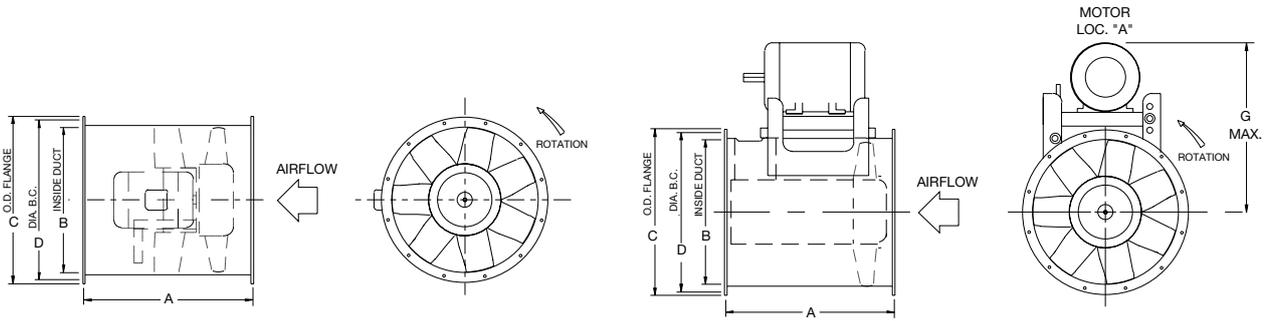
TCTA 60B3



TCTA 60D3



TCTA

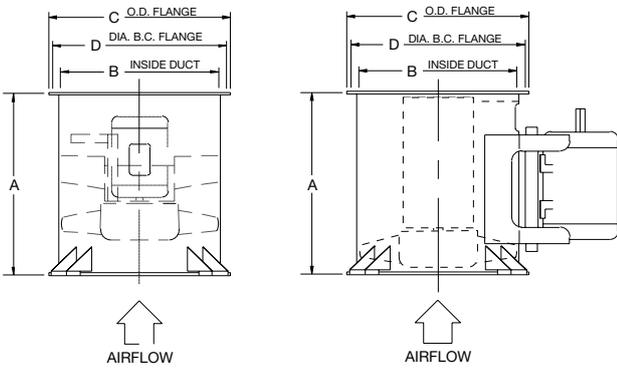


ARR. 4 - HORIZONTAL

ARR. 9 - HORIZONTAL

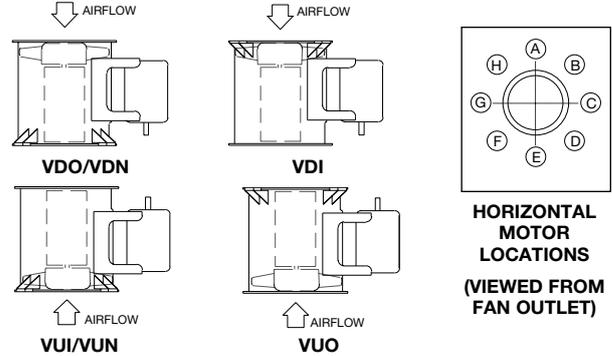
HORIZONTAL DISCHARGES

HOR = Horizontal - No Clips or Legs **HCH** = Horizontal Ceiling Hung with Suspension Clips
HBM = Horizontal Base Mounted with Support Legs



ARR. 4 - VERTICAL

ARR. 9 - VERTICAL



VERTICAL DISCHARGES

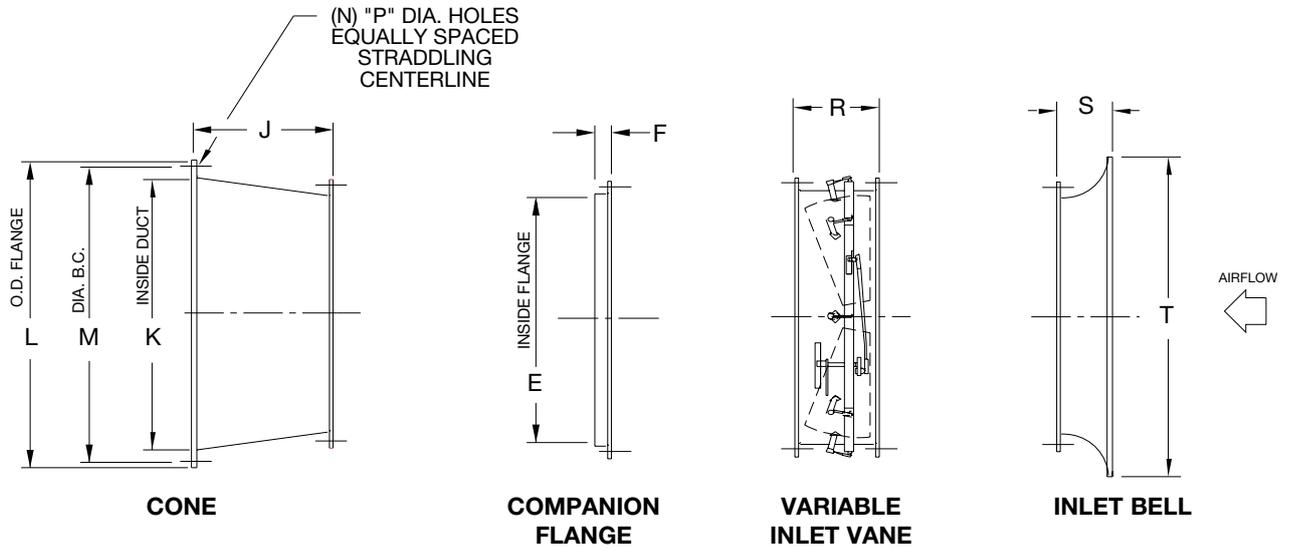
VDO = Vertical Down Floor Mounted With Legs **VUI** = Vertical Up Floor Mounted With Legs
VDN = Vertical Down Discharge Without Legs **VUN** = Vertical Up Discharge Without Legs
VDI = Vertical Down Ceiling Hung With Legs **VUO** = Vertical Up Ceiling Hung With Legs

FAN SIZE	DIMENSIONS (IN.)				B	C	D	G (MAX.)	MAXIMUM MOTOR FRAME									
	ARR. 9 HUB RATIO		ARR. 4 HUB RATIO						ARR. 9 - HUB RATIO					ARR. 4 - HUB RATIO				
	3-5	6-7	3-5	6-7					3	4	5	6	7	3	4	5	6	7
12	NA	622	NA	622	309	385	353	489	NA	NA	NA	112M	112M	NA	NA	NA	NA	90L
15	559	686	NA	686	385	461	429	521	NA	NA	132M	132M	132M	NA	NA	NA	90L	112M
18	622	711	622	711	461	537	505	699	NA	132M	132M	132M	132M	NA	NA	90L	112M	132M
21	686	813	686	813	538	614	581	806	NA	160L	160L	160L	160L	NA	90L	112M	132M	132M
24	711	821	711	921	614	691	657	876	NA	160L	160L	160L	160L	NA	112M	132M	132M	160L
28	813	1022	813	1022	718	794	762	972	NA	180L	180L	180L	180L	NA	132M	132M	160L	180L
32	921	1194	921	1194	819	895	864	1041	NA	180L	180L	180L	180L	NA	132M	160L	180L	225M
36	1022	1353	1022	1353	921	997	965	1149	NA	200L	200L	200L	200L	NA	160L	180L	225M	250M
42	1194	1353	1194	1353	1076	1178	1134	1257	NA	200L	200L	200L	200L	NA	180L	225M	250M	NA
48	1353	NA	1353	NA	1229	1330	1286	1353	NA	200L	200L	NA	NA	NA	225M	250M	NA	NA
54	1353	NA	1353	NA	1382	1483	1438	1499	225M	225M	NA	NA	NA	225M	250M	NA	NA	NA
60	1353	NA	1353	NA	1534	1635	1610	1530	225M	NA	NA	NA	NA	250M	NA	NA	NA	NA

AC13596B AC13792B
 AC13597B AC13793A

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

TCTA Accessories



FAN SIZE	COMPANION FLANGE		CONE						VARIABLE INLET VANE	INLET BELL		FAN AREA (M ²)	CONE AREA (M ²)
	E	F	J	K	L	M	N	P		R	S		
12	537	38	216	385	468	429	8	14	140	64	386	0.075	0.116
15	385	38	216	461	545	505	8	14	165	79	502	0.116	0.17
18	461	38	216	538	622	581	8	14	191	94	602	0.17	0.23
21	538	38	216	614	699	657	12	14	222	109	703	0.23	0.30
24	614	38	292	718	801	762	12	14	254	126	803	0.30	0.40
28	718	38	292	819	903	864	12	14	292	146	937	0.40	0.53
32	819	38	292	921	1005	965	16	14	330	166	1071	0.53	0.67
36	921	38	432	1076	1189	1134	16	18	254	188	1205	0.67	0.91
42	1076	51	432	1229	1341	1286	16	18	298	218	1406	0.91	1.19
48	1229	51	432	1381	1491	1438	16	18	337	248	1607	1.19	1.50
54	1381	51	432	1534	1649	1610	20	18	375	289	1807	1.50	1.85
60	1534	76	432	1688	1802	1762	24	18	413	310	2001	1.85	2.24

AC13716M

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.





Fans shall be Model TCTA AXIFAN® Tubeaxial Fans as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota. Fans shall be Arrangement 9, V-belt driven with the impeller mounted on a separate shaft and bearings supported completely within an enclosed tube isolated from the high velocity airstream or Arrangement 4, with the impeller mounted directly on the motor shaft and with the impeller and motor assembly enclosed entirely within the fan casing.

PERFORMANCE — Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory.

Model TCTA shall be available UL 705 listed. Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

HOUSING — Fan housings shall be welded of 2mm ASTM A-569 hot rolled steel on size 12, 3mm hot rolled steel on sizes 15 through 21, 3mm hot rolled steel on sizes 24 through 36, and 5mm hot rolled steel on sizes 42 through 60. Inlet and outlet flanges are standard.

IMPELLER — The fan impeller shall be a solid one-piece sand casting of 319 alloy aluminium and shall contain seven blades and an integral centre hub. The impeller shall have blades of airfoil shape designed with a variable hub ratio system to allow the selected fan to operate at the highest efficiency possible. Impellers shall be machined to the proper diameter so that blade tip clearance shall be within tolerance necessary to insure certified fan performance. The impeller shall be secured to the fan/motor shaft with a Trantorque® or taperlock bushing.

SHAFT (ARR. 9) — Shafts shall be AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

BEARINGS (ARR. 9) — Bearings shall be heavy duty, grease lubricated, anti-friction ball or roller, self-aligning, pillow block type and selected for a minimum average bearing life (AFBMA L-50) in excess of 200,000 hours at the maximum fan RPM. All bearings are provided with pre-filled factory extended lubrication lines terminating at the housing exterior.

DRIVE (ARR. 9) — The fan shall be equipped with a (fixed/adjustable) pitch V-belt drive selected to operate the fan at the correct operational RPM. The V-belt drive shall consist of cast iron sheaves and anti-static conducting belts and shall be selected with a (1.2/1.5) safety factor based upon the required brake horsepower of the fan.

The complete fan shaft and bearing assembly is mounted within a steel fabricated inner cylinder. The V-belt drive assembly is extended through a two-piece belt fairing. The belt fairing shall be an aerodynamically shaped tube designed to maximize fan efficiency. The belt fairing is welded continuously to both the inner cylinder that houses the fan shaft and bearings and the fan housing.

MOTOR — Motors for Arrangement 9 fans shall be manufactured in accordance with current applicable standards. Motors shall be foot-mounted, NEMA standard (ODP, TEFC, Explosion-Proof), continuous duty, ball bearing type with class (B, F) insulation and of cast iron construction when commercially available.

Motors for Arrangement 4 fans shall be foot-mounted, NEMA standard, totally enclosed fan cooled (TEFC), continuous duty, ball bearing type with class "F" insulation and of cast iron construction when commercially available. For ease in wiring the motor, wiring connections shall be extended to an exterior conduit box located on the exterior of the fan housing. A duplicate motor nameplate shall be mounted on the exterior of the fan adjacent to the fan nameplate. External grease fittings with pre-filled factory extended grease leads shall be supplied for lubrication of the motor bearings on all motors that provide grease fittings.

FINISH — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminium components shall be unpainted.

FACTORY RUN TEST — All fans with motors and drives mounted by Twin City Fan & Blower shall be completely assembled and test run as a unit at the specified operating speed prior to shipment. Each impeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to Fan Application Category BV-3, Balance Quality Grade G6.3. Balance readings shall be taken by electronic type equipment in the axial, vertical, and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

GUARANTEE — The manufacturer shall guarantee the workmanship and materials for its TCTA AXIFAN® tubeaxial fans at least one (1) year from start-up or eighteen (18) months from shipment, whichever occurs first.



INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS
MIXED FLOW FANS | TUBEAXIAL & VANEAXIAL FANS | PROPELLER WALL FANS | PROPELLER ROOF VENTILATORS
CENTRIFUGAL ROOF & WALL EXHAUSTERS | CEILING VENTILATORS | GRAVITY VENTILATORS | DUCT BLOWERS
RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS
LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS



TWIN CITY FAN & BLOWER
WWW.TCF.COM

5959 TRENTON LANE N | MINNEAPOLIS, MN 55442 | PHONE: 763-551-7600 | FAX: 763-551-7601

©2018 Twin City Fan Companies, Ltd., Minneapolis, MN. All rights reserved. Catalog illustrations cover the general appearance of Twin City Fan & Blower products at the time of publication and we reserve the right to make changes in design and construction at any time without notice.