

# **DDK DUCT (IN-SLAB DUCT SYSTEM)**

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MAX 3-H F & FT RATING  
Tested in accordance with  
ULC S115-M95 and ASTM E814-02

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## **GENERAL INFORMATION**

The DDK in-slab duct system is a rectangular spiral seamed duct set into the structural concrete floors of high-rise buildings. This duct system is used primarily to exhaust air from bathroom fans, range hoods and clothes dryers.

The DDK in-slab duct system meets the following specifications:

- made with high quality galvanized steel using a spiral wound seam
- 3 hour F and FT rating tested in accordance with ULC S115-M95 and ASTM E814-02 test requirements
- impact load testing in accordance with CAN 3 A23.1 M77, Falsework for Construction Purposes
- point load testing in accordance with CSA S269 A23.1 M77, Falsework for Construction purposes
- airflow and duct friction charts provided in accordance with SMACNA and ASHRAE guide



The DDK in-slab duct system consists of regular and reinforced slab duct as well as a full range of fittings, as detailed on the following page.



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### COMPONENTS

The DDK in-slab duct system includes the following components:

	Slab duct with reinforcement channel 12" x 1-3/4" 10 ft. lengths		Slab duct w/o channel 12" x 1-3/4" 10 ft. lengths		
	Coupler		Inlet boot FS – available in 5" or 6"		
					Elbows – 30°, 45°, 90°
	Wall discharge		Wall discharge – flat on top		
	Soffit discharge		Wall cap w/damper		
	Aluminum grille with or w/o fold		Plastic support bracket Dual sizing – 3-1/4", 2-1/8"		

# DDK DUCT - 12" x 1-3/4"\*

## Fan sizing table

		INLET STATIC PRESSURE (IN. W.G.)							
		.10	.15	.20	.25	.30	.35	.40	.45
EQUIVALENT FEET OF DUCT	20	119	148	172	193	212	230	246	262
	25	106	131	153	172	189	205	219	233
	30	97	120	140	157	173	187	200	213
	35	90	111	129	145	160	173	185	197
	40	84	104	121	136	149	162	173	184
	45	79	98	114	128	141	153	163	174
	50	75	93	108	122	134	145	155	165
	55	71	88	103	116	127	138	148	157
	60	68	85	99	111	122	132	141	150
	65	66	81	95	107	117	127	136	145
	70	63	78	91	103	113	123	131	139
	75	61	76	88	99	109	118	126	135
	80	59	73	86	96	106	115	122	130
	85	57	71	83	93	102	111	119	126
	90	56	69	81	91	100	108	115	123
	100	50	63	73	82	91	99	106	113
	110	48	60	70	78	87	94	101	108
120	46	58	67	75	83	90	97	103	
130	44	55	64	72	80	87	93	99	
140	42	53	62	69	77	84	90	96	
150	41	51	60	67	74	81	87	92	

\*\*table constructed based on equivalent 4.53" round duct

### Equivalent length of fittings:

Elbow 90°	11 ft
Elbow 45°	7 ft
Elbow 30°	6 ft
Soffit discharge w/grille	12 ft
Wall discharge w/grille	6 ft
Inlet boot	22 ft

### How to use the table:

Determine total equivalent length of duct by adding together: length of straight duct plus equivalent length of fittings.

Determine required airflow of system. Find row in table with equivalent length. Read across row to cfm requirement.

Follow column up to read static pressure at heading of that column.

e.g. If system requires 80 cfm and equivalent length of duct is 60 feet, then fan must be able to deliver 80 cfm at .15" of static pressure.

## **TESTING DATA**

### **Fire Endurance Test:**

The DDK duct system has a 3-HR F & FT Rating. The DDK slab duct system was tested in accordance with ULC S115-95 and ASTM E814-02.

### **Impact Load Test:**

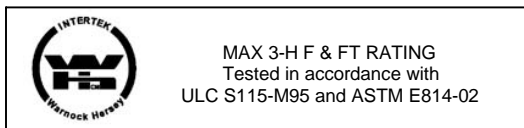
For the impact load test, 440 lbs. of gravel was dropped directly onto DDK slab duct from a height of 1.5 m. DDK slab duct passed the test with no measurable permanent deformation (tested to CAN3-A23).

### **Point Load Test:**

For the point load test, a rigid plate was placed along the length of DDK slab duct. The plate was loaded with a force of 225 lbs. Once the load was removed, DDK slab duct exhibited no measurable permanent deformation (tested to CSA S269.1-1975).

### **Friction Test:**

Various airflow measurements were taken on a typical section of DDK slab duct to determine the friction loss. Pressure loss measurements were also taken on various fittings to determine their friction loss and to calculate equivalent length of these fittings. The results of these tests were used to construct a fan sizing table to allow customers to match fan delivery to DDK slab duct systems at required airflow rate.



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