



**FD<sub>C</sub>** *Curtain Type Fire Damper*







## Introduction

With its simple yet robust design, Curtain type Fire damper (PFDC) is used to localise areas of fire in ventilation systems and thus impeding the spread of fire and hazardous gases.

The design principle based on interlocking blades that closes under gravitation force when the connecting thermal link breaks at set temperature.

With interlocking blades design, the damper provides the maximum free area and imposes **minimal** resistance to air flow system

## CONSTRUCTIONS & MATERIALS

- In-airstream, static rated fire damper
- Minimal resistance to air flow system
- Fire integrity rating of 4 hours
- UL33 compliance thermal link rating of 74°C
- SS 333:1996 standard compliance
- BS 476: part 20 : 1987 standard compliance

### Frame Construction



Galvanized Steel

### Blade Construction



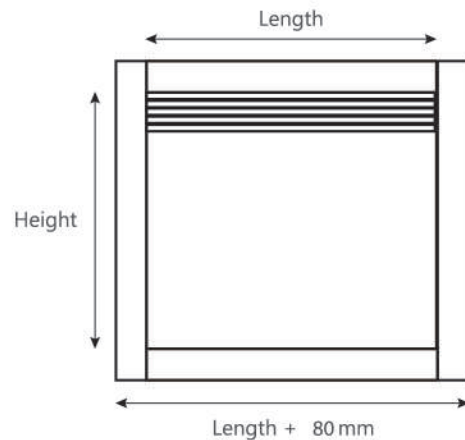
Galvanized Steel

### Flange Construction

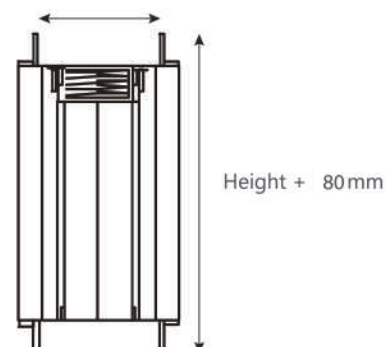


Galvanized Steel

## DIMENSIONS



### Wall Thickness (mm)



**TESTING COMPLIANCE**

- Fire Resistance Test(Branz, 4 Hr rating)
- Multiple Curtain Fire Dampers Modules Assessment (Branz, 3000mm x 3000mm maximum allowable size)
- Stress Assessment On Exposed Fixing Bolts (Branz, Stress within allowable limits)
- Closing Reliability Test (Tuv Sud, Show no evidence of undue wear or damage)
- Closed Leakage Test (VIPAC, Leakage Flow Rate within allowable limits)

**AERODYNAMIC PERFORMANCE**

**Damper Free Area**

- Single module damper configuration
- Free area approximate accuracy +/- 5%

		Length (mm)						
		V	150	300	400	500	600	700
Height (mm)	150	0.013	0.028	0.039	0.049	0.060	0.070	0.081
	300	0.028	0.065	0.088	0.112	0.137	0.161	0.185
	400	0.036	0.087	0.122	0.156	0.191	0.226	0.260
	500	0.049	0.113	0.156	0.200	0.243	0.286	0.330
	600	0.061	0.139	0.191	0.243	0.295	0.347	0.400
	700	0.075	0.165	0.226	0.286	0.347	0.409	0.470
	800	0.088	0.191	0.260	0.330	0.400	0.470	0.541
	900	0.100	0.217	0.295	0.374	0.453	0.532	0.611
	1000	0.113	0.243	0.330	0.417	0.505	0.594	0.682
	1100	0.126	0.269	0.365	0.461	0.558	0.656	0.754
	1200	0.139	0.205	0.400	0.505	0.611	0.718	0.825

**Pressure Drop Estimator**

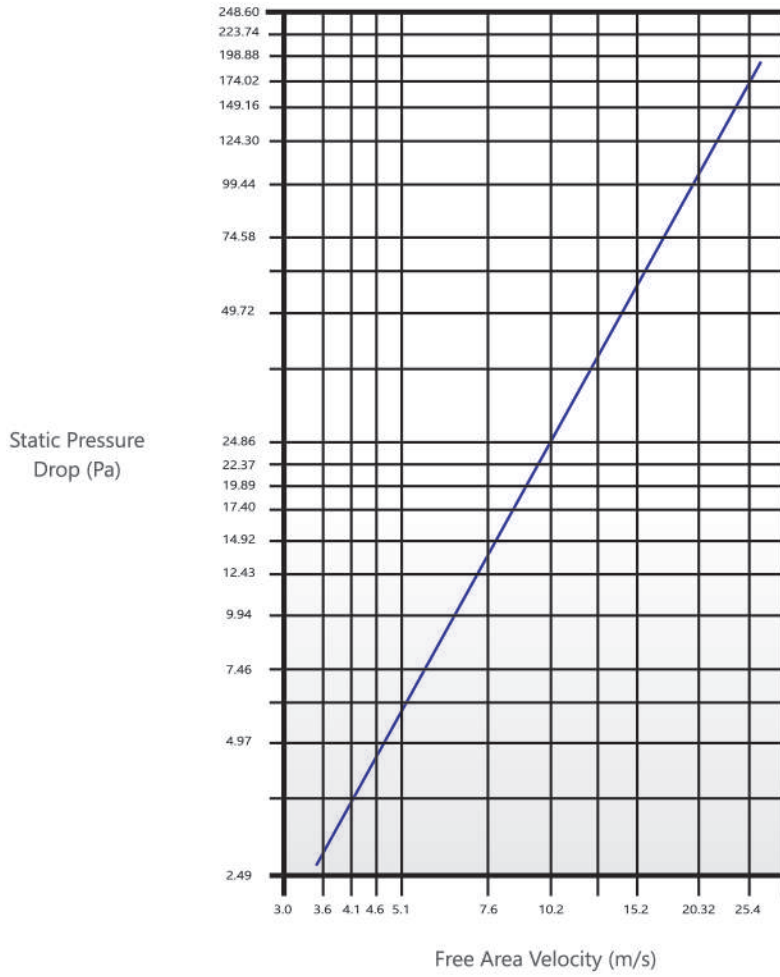
To estimate the pressure drop across open damper :

- Calculate free area velocity as shown below
- Find velocity on curve (Free Area Velocity VS Static Pressure Drop Graph)
- Read across for static pressure drop

$$\text{Free Area Velocity (m/s)} = \frac{\text{(Volume Flowrate, m}^3\text{/s)}}{\text{(Free Area, m}^2\text{)}}$$

AERODYNAMIC PERFORMANCE CONTD'

Free Area Velocity VS Static Pressure Drop



Closed Damper Leakage

Information Accuracy:

- i) Damper Size : 1200mm x 1200mm
- ii) Pressure Drop : +/- 5% or 1.0 Pa whichever is greater
- iii) Airflow : +/- 5%

STATIC PRESSURE DROP ACROSS DAMPER (PA)	LEAKAGE FLOW RATE (L/S)
250	154
500	230
750	283
1000	335
1250	381





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**PEMBAHARUAN**

NO. RUJUKAN : **JPBM:BKK/005/19/33/40 ( II )**  
NO. SIRI : **AK/FD/530/2009 (P2)**

TARIKH : **14/03/2011**

**SIJIL PERAKUAN BAHAN 2011/2012  
ALAT KELENGKAPAN  
FIRE DAMPER (4 JAM)**



Jabatan ini memperakui **ALAT KELENGKAPAN** tersebut di atas berdasarkan Piawaian dan Laporan ujiannya, dan Pihak Arkitek atau Jurutera Profesional bagi projek berkaitan adalah bertanggungjawab menentukan kesahihan **ALAT KELENGKAPAN** dipasang mengikut Laporan Piawaian ujiannya (Rujuk pada 1.5 dan 1.6)

- 1.1 Nama & Alamat Pengedar : **PRUDENT AIRE MARKETING SDN BHD  
LOT 1849B, KG BARU BALAKONG,  
43300 SERI KEMBANGAN,  
SELANGOR DE.**
- 1.2 Nama & Alamat Pengeluar : **--SDA--**
- 1.3 Jenis Alat Kelengkapan : **FIRE DAMPER C/W FUSIBLE LINK (74°C)**
- 1.4 Tempoh Sah Perakuan : **30/03/2011 HINGGA 29/03/2012**
- 1.5 No. Laporan ujian/Tarikh : **BRANZ FAR3294 (11/03/2009), FR3896 (03/09/2008) &  
SIRIM 2009FE0345 (28/12/2009)**
- 1.6 Piawaian : **SS 333:1996 & BS 476:PART 20:1987**
- 1.7 Spesifikasi/Jenama : **MODEL: PFD-S**
- 1.8 Skim SIRIM : **----**
- 1.9 Had Kegunaan : **PEMASANGAN PERLU MEMATUHI SPESIFIKASI UJIAN DAN  
UBBL 1984.**

2. Lain-lain (nyatakan) : Sila kemukakan Borang **C1/ C2/ C3** (diisi oleh pihak berkenaan) ke Jabatan Bomba dan Penyelamat Negeri dimana projek dijalankan dan Ibu Pejabat Bomba dan Penyelamat, Malaysia apabila selesainya tiap tiap projek tersebut.

2.1 Syarat-syarat Perakuan Bomba dan Penyelamat ini yang mesti dipatuhi seperti di **Lampiran A1 dan A2**. Spesifikasi **ALAT KELENGKAPAN** ini adalah seperti dalam Laporan ujian (di para 1.5 di atas)

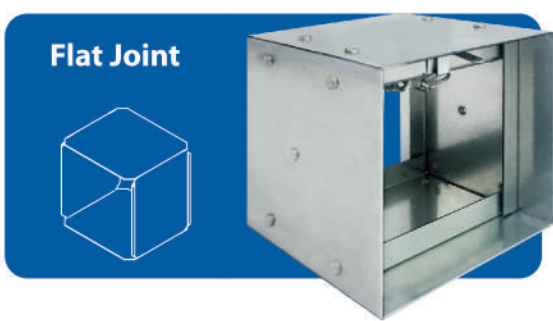
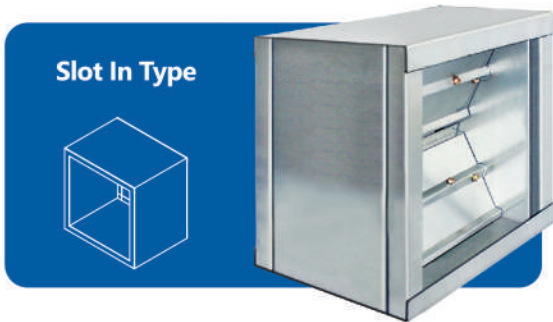
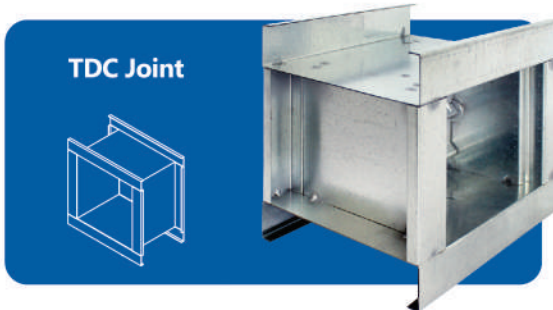
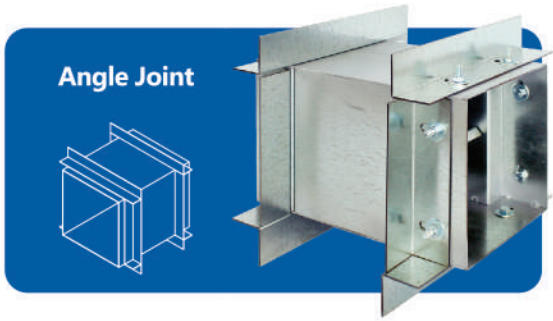
**(DATO' RUSMANI BIN MUHAMAD)**  
Penolong Ketua Pengarah,  
Bahagian Keselamatan Kelabakutan,  
b.p. Ketua Pengarah  
Jabatan Bomba Dan Penyelamat,  
Malaysia.



**CERTIFIED TO ISO 9001 : 2008  
CERT. NO : AR 5037**

## JOINING METHODS

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Notice :

Damper size would be fabricate as exact neck size





# FD<sub>c</sub> | *Curtain Type Fire Damper*

## Products Range

- Grilles 
- Diffusers 
- Dampers 
- Fire & Smoke Protection  ◀
- VAV 
- Others 
- Accessories 



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