

# 1

## MARINE FIRE DOOR & FRAME

Ships'  
Accommodation  
Catalogue

**Sungmi**



# MARINE FIRE DOOR &

# SUNGMI





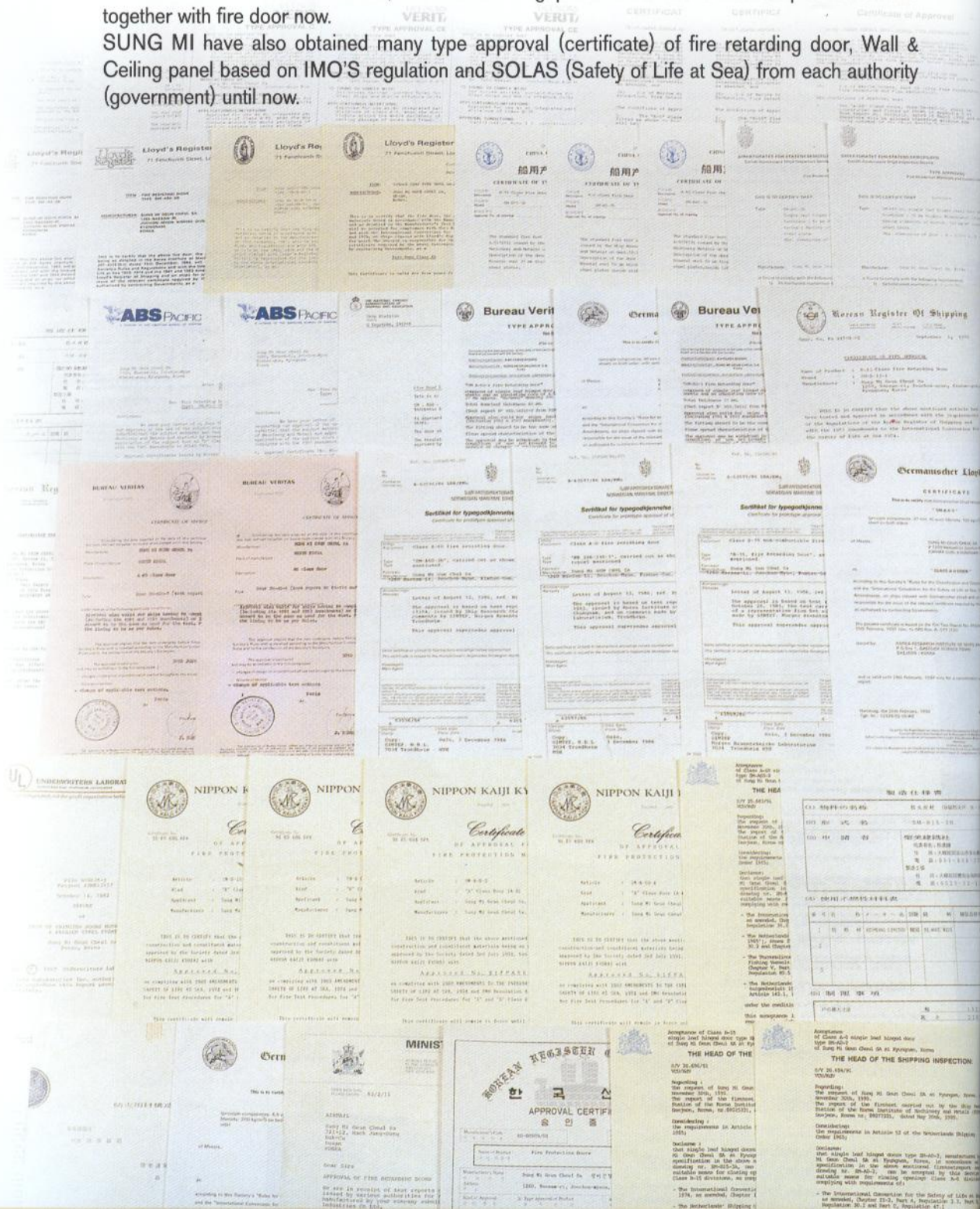
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Before 26 years, SUNG MI had been developed several Kinds of fire door for the purpose of leading manufacturer of fire door in the world and have been obtained own technology & facility to manufacture UL fire door, Wall & Ceiling panel and the other ship's hardware together with fire door now.

SUNG MI have also obtained many type approval (certificate) of fire retarding door, Wall & Ceiling panel based on IMO'S regulation and SOLAS (Safety of Life at Sea) from each authority (government) until now.



# APPROVAL LIST

## FIRE DOOR SYSTEM

● : APPROVED  
● : APPLIED

FIRE CLASS	MODEL NO.	SPECIFICATION	A B S	B V	D N V	(A) D O T (AMSA)	M S A (UK DOT)	N M D	N S I	G L	K R	L R	N K	T C	U S C G	U L	C E (CE)	C R	C C S
H60	SM-H60-3C	SINGLE Z-TYPE		●	●							●							
	SM-H60-1	DOUBLE Z-TYPE		●															
A60	SM-A60-4	SINGLE BOX-TYPE		●	●		●	●	●	●	●	●	●		●		●	●	
	SM-A60-3C	SINGLE Z-TYPE	●	●	●		●	●	●	●	●	●	●		●		●		
	SM-A60-4T	SINGLE BOX-TYPE	●																
	SM-A60-3CB	SINGLE Z-TYPE BOLT VISION GLASS		●	●					●			●				●		
	SM-A60-5G	SINGLE BOX-TYPE VISION GLASS	●	●	●					●	●						●		
	SM-A60-3C.HP	SINGLE Z-TYPE HOSEPORT	●		●					●	●						●		
	SM-A60-3WT	SINGLE Z-TYPE WEATHER TIGHT		●	●					●	●						●		
	SM-A60-3C.EV	SINGLE Z-TYPE ELEVATOR VISION GLASS	●	●	●					●	●	●	●	●			●	●	●
	SM-A60-HD	SINGLE BOX-TYPE HEAVY DUTY VISION GLASS	●	●	●					●	●	●	●				●		
	SM-A60-1SL	SINGLE Z-TYPE SLIDING VISION GLASS	●		●			●			●								
	SM-A60-1.HP	DOUBLE Z-TYPE HOSEPORT		●	●					●	●	●					●		
	SM-A60-1.DG	DOUBLE Z-TYPE VISION GLASS	●	●	●					●	●	●					●		
	SM-A60-1HD	DOUBLE BOX-TYPE HEAVY DUTY VISION GLASS	●	●	●					●		●					●		
A0	SM-A0-3	SINGLE BOX-TYPE	●	●	●		●	●	●	●	●	●	●		●		●	●	
	SM-A0-3B	SINGLE Z-TYPE	●	●	●		●	●	●	●	●	●	●		●		●		
	SM-A0-3BB	SINGLE Z-TYPE BOLT VISION GLASS	●	●	●					●	●	●	●				●		
	SM-A0-3G	SINGLE BOX-TYPE VISION GLASS	●	●	●					●	●	●	●				●		
	SM-A0-3B.HP	SINGLE Z-TYPE HOSEPORT			●					●	●						●		
	SM-A0-1.HP	DOUBLE Z-TYPE HOSEPORT	●	●	●					●	●	●					●		
B30	SM-B30-3HI	SINGLE Z-TYPE HI-NOISE	●	●	●					●	●	●			●		●		
	SM-B30-3D	SINGLE Z-TYPE			●							●			●				
B15	SM-B15-3A	SINGLE Z-TYPE	●	●	●		●	●	●	●	●	●	●				●	●	
	SM-B15-3B	SINGLE BOX-TYPE	●	●	●		●	●	●	●	●	●	●				●	●	
	SM-B15-3AG	SINGLE Z-TYPE VISION GLASS	●	●	●					●	●	●	●				●		
	SM-B15-3G	SINGLE BOX-TYPE VISION GLASS	●	●						●	●	●	●					●	
	SM-B15-3BG	SINGLE BOX-TYPE BIG VISION GLASS	●	●	●					●	●	●					●		
	SM-B15-1	DOUBLE Z-TYPE		●	●						●						●		
	SM-B15-1.DG	DOUBLE Z-TYPE VISION GLASS	●	●	●					●	●	●					●		
	SM-B15-1.BDG	DOUBLE Z-TYPE BIG VISION GLASS	●																
1-1/2 HR	SM-HM-3A	SINGLE / DOUBLE														●			

## Material Construction;

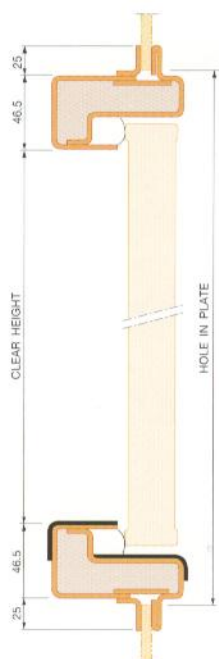
A door panel is made up of a 0.6~0.8mm cold rolled steel plate, finished with edge profile of steel and stainless steel. While stainless steel covers the frame fixed by three hinges, steel is reinforced at the juncture of locks, closers, and hooks.

The door treated with mill board or mineral wool is 37~60mm in its thickness.

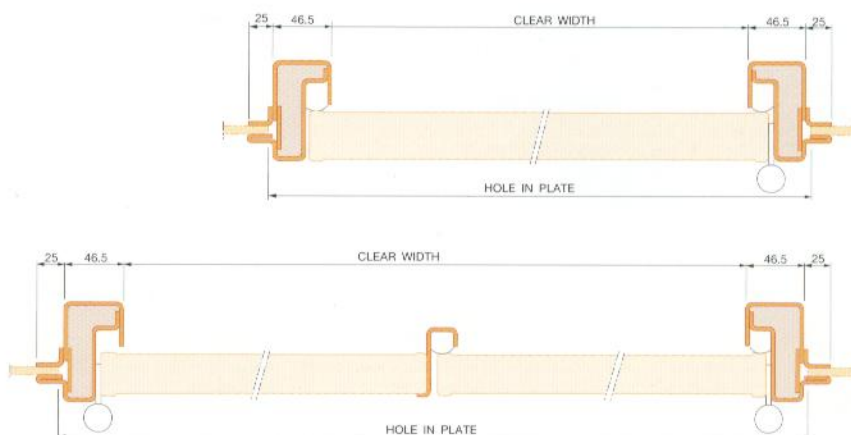


- ① edge profile : steel or stainless steel
- ② door leaf : powder coating or P.V.C film
- ③ cylinder mortise lock with lever handle
- ④ frame : powder coating
- ⑤ packing : ceramic
- ⑥ Sill plate : stainless steel

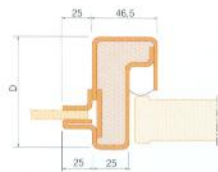
### VERTICAL SECTION



### HORIZONTAL SECTION



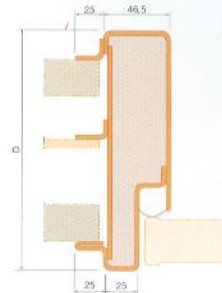
## TYPE OF TOP & JAMB



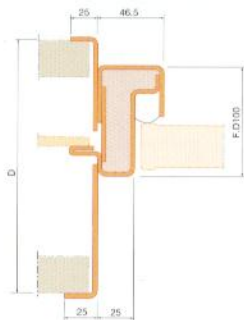
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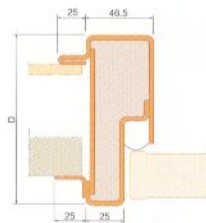
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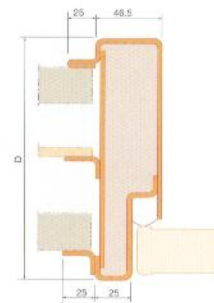
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TYPE : B4

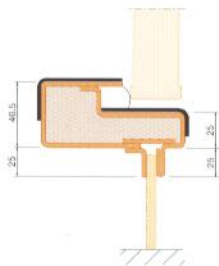


TYPE : B5

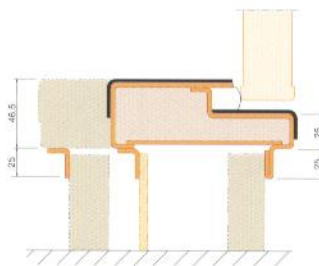


TYPE : B6

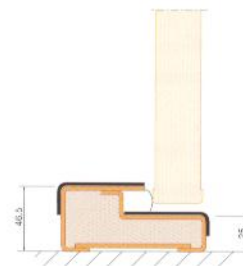
## TYPE OF SILL



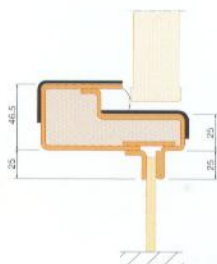
TYPE : S1



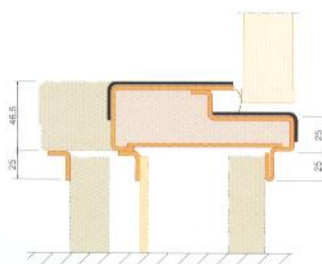
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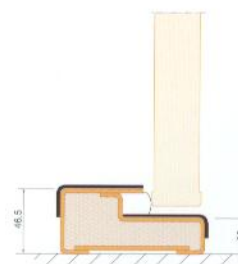
TYPE : S3



TYPE : S4



TYPE : S5



TYPE : S6

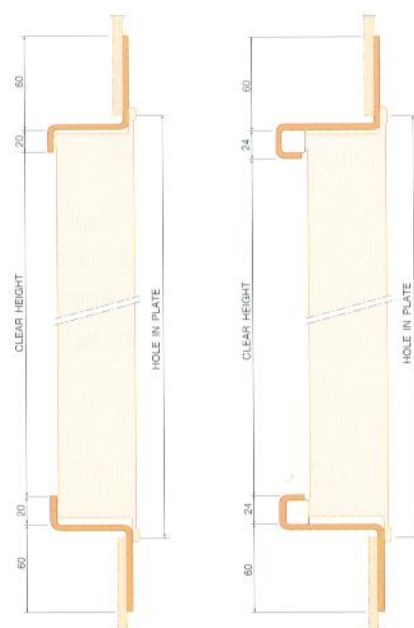
## STANDARD A. CLASS DOOR

- FRAME : Box-Type/profile of 1.6mm steel Z-Type/profile of 4.0mm steel
- DOOR LEAF FINISH : baked enamel paint, vinyl coating, powder coating, plastic laminate.
- FRAME FINISH : baked enamel paint, primer, powder coating
- FRAME MOUNTING : welding or bolting to bulkhead.
- HARD WARE : lock, hinge other necessary hardware refer to SUNG MI hardware catalogue.

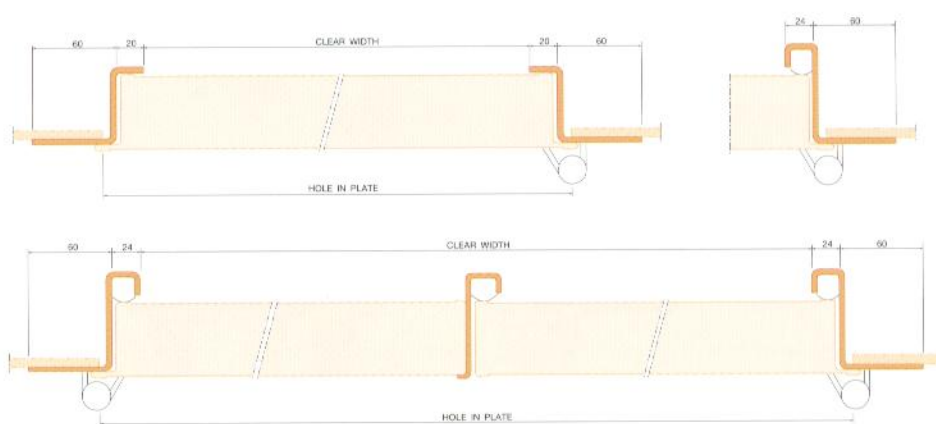


- ❶ frame : powder coating
- ❷ packing : ceramic
- ❸ edge profile : stainless steel
- ❹ mortise latch
- ❺ door leaf : P.V.C film
- ❻ Sill plate : stainless steel

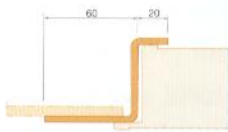
## VERTICAL SECTION



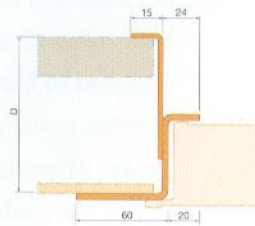
## HORIZONTAL SECTION



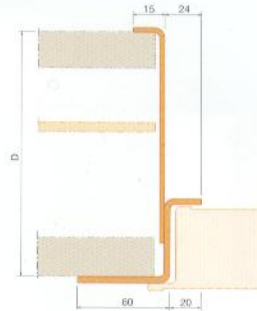
## TYPE OF TOP & JAMB



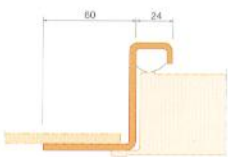
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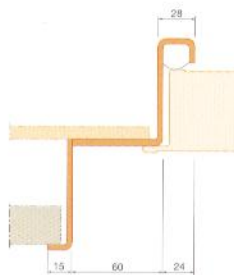
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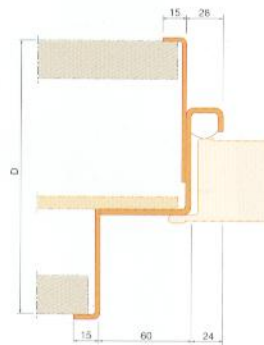
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TYPE : Z4

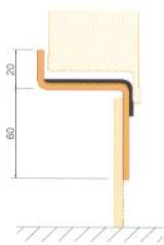


TYPE : Z5

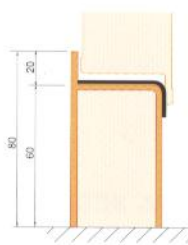


TYPE : Z6

## TYPE OF SILL



TYPE : S7



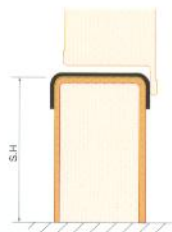
TYPE : S8



TYPE : S9



TYPE : S10



TYPE : S11



TYPE : S12

## Material Construction;

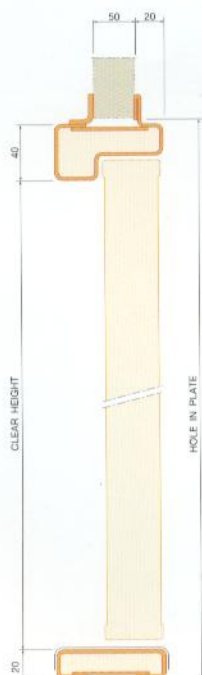
A door panel of 37mm in thickness is identical to A-Class Construction and adiabatically treated with mineral wool. Silencers and bumpers are attached to the juncture of the frame and door.

A door usually holds a vent grill and a kickout panel, whereas non-class, toilet and weathertight doors can add air gaps or windows of below 25mm.

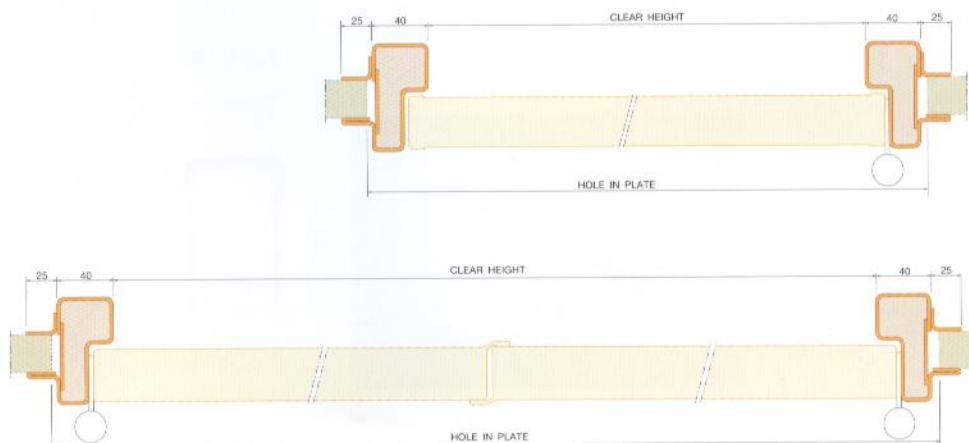


- ① frame : powder coating
- ② edge profile : steel
- ③ door leaf : powder coating
- ④ cylinder mortise lock with lever handle
- ⑤ vent grill : stainless steel
- ⑥ Sill plate : stainless steel

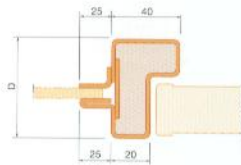
### VERTICAL SECTION



### HORIZONTAL SECTION



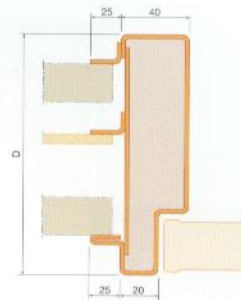
## TYPE OF TOP & JAMB



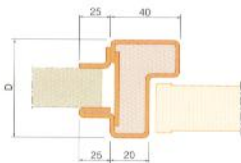
TYPE : B7



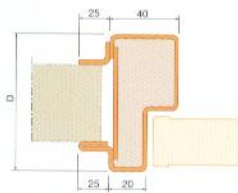
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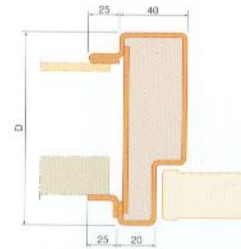
TYPE : B9



TYPE : B10

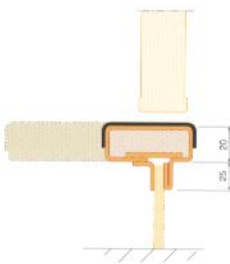


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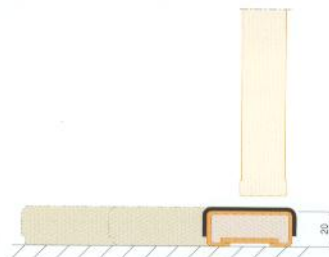


TYPE : B12

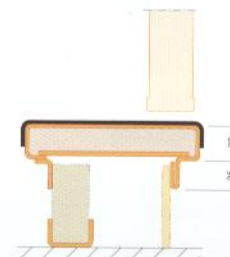
## TYPE OF SILL



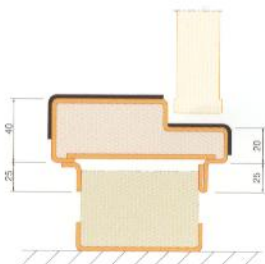
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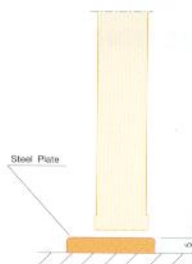
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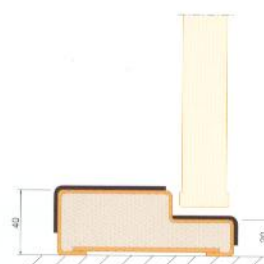
TYPE : S15



TYPE : S16



TYPE : S17



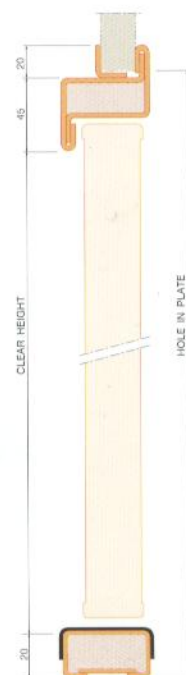
TYPE : S18

- FRAME : Box or Z Type/profile of 1.6mm steel
- DOOR LEAF FINISH : baked enamel paint, vinyl coating, powder coating, plastic laminate.
- FRAME FINISH : baked enamel paint, primer, powder coating
- FRAME MOUNTING : screw or bolting to bulkhead.
- HARD WARE : lock, hinge, vent grill and other necessary hardware refer to SUNG MI hardware catalogue.

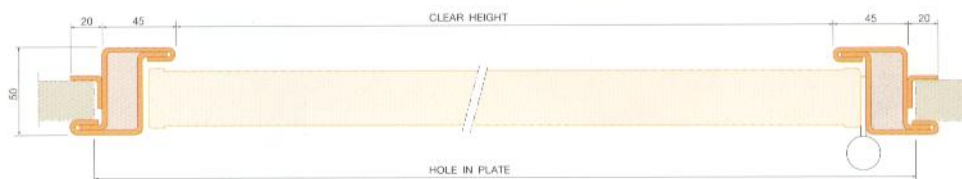


- ❶ hinges : stainless steel
- ❷ edge profile : stainless steel
- ❸ door leaf : P.V.C film
- ❹ frame : powder coating
- ❺ mortise latch with indicator
- ❻ Sill plate : stainless steel

## VERTICAL SECTION

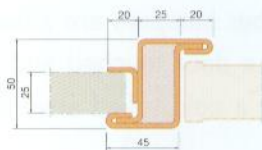


## HORIZONTAL SECTION

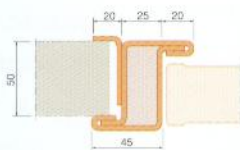


## Z - PROFILE

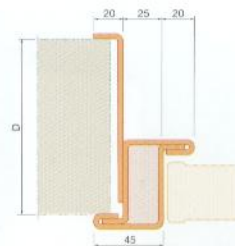
### TYPE OF TOP & JAMB



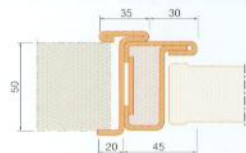
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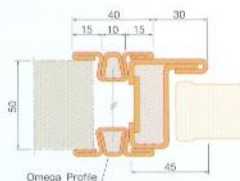
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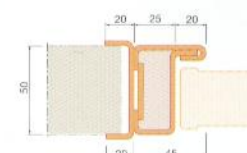
TYPE : Z9



TYPE : Z10



TYPE : Z11

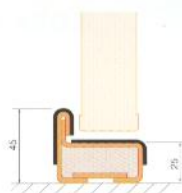


TYPE : Z12

### TYPE OF SILL



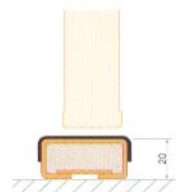
TYPE : S19



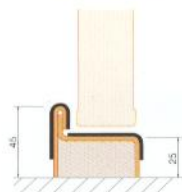
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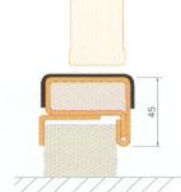
TYPE : S21



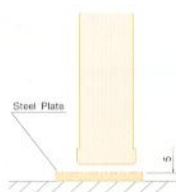
TYPE : S22



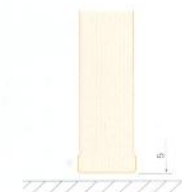
TYPE : S23



TYPE : S24



TYPE : S25



TYPE : S26

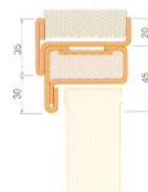


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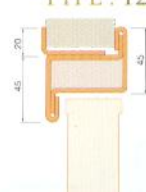
### TYPE OF TOP PIECE



TYPE : T1



TYPE : T2



TYPE : T3

## Material Construction;

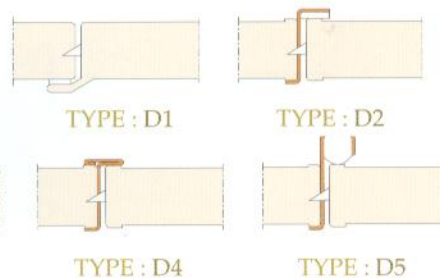
A frame is produced in the form of Z-profile and box-profile.

Ceramic and rubber bumpers are attached to the points where a door touched and a door panel is made by a cold rolled steel plate of 0.6~0.8mm.

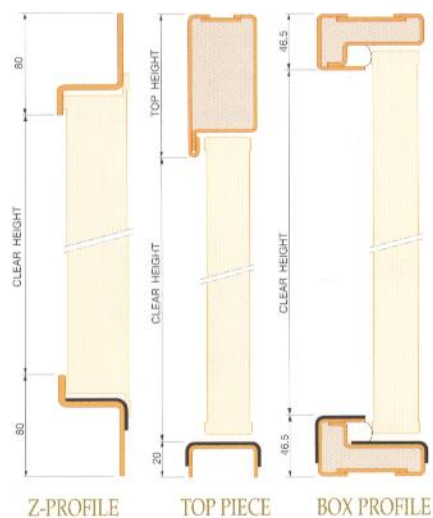
According to the size of a door, 6~8 hinges are fixed to the frame. Also the door and the frame are reinforced with steel so that hardware can be set up.



### LOCK & LATCH DETAIL



### VERTICAL SECTION



### TYPE OF TOP & JAMB

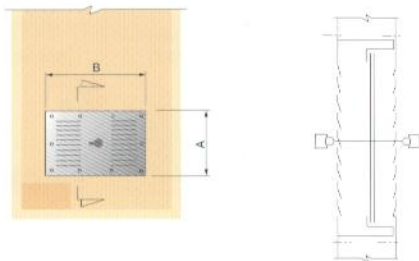


## DOOR EQUIPMENT



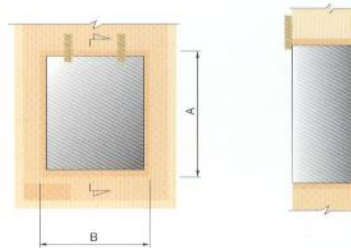
Please refer to SUNG MI hardware catalogue.  
There are many hardware listed in catalogue.  
Such as lock, vent, kick out panel and other door accessory.  
We can supply special dimension of vent grill or  
kick out panel, window.

### VENTILATION GRILL



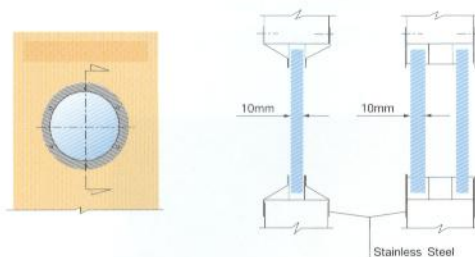
TYPE	AREA(m <sup>2</sup> )	A × B(mm)
SM-V-A	0.02	300 × 410
SM-V-B	0.031	300 × 410
SM-V-C	0.045	450 × 410

### KICK OUT PANEL



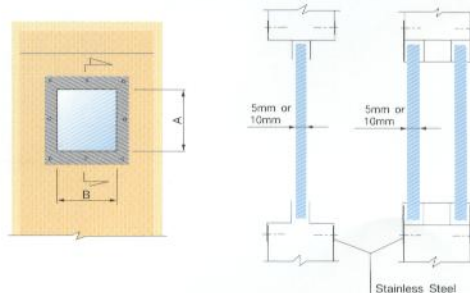
TYPE	AREA(m <sup>2</sup> )	A × B(mm)
SM-K-A	0.02	520 × 420
SM-K-B	0.031	520 × 420
SM-K-C	0.045	520 × 420
SM-K-D	WITHOUT VENT	520 × 420

### SCUTTLE



VIEW SIZE(mm)	REMARK
∅ 250	Single or double glassed windows
∅ 300	
∅ 400	

### WINDOW

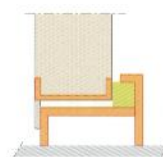


A × B(mm)	CLASS	REMARK
400 × 400	A-60/A-0/B-15	Single or double glassed windows
254 × 254	NON CLASS	
400 × 400		
600 × 600		



An 150 × 150mm size of small door is installed at the lower part of door Leaf for using Fire Hose without opening door at the Emergency. This small door is held by Spring Hinge and it is possible to keep on closing in usual. The Door Handle is attached on the door leaf at the same height as thickness of door in parallel and this is inserted to door inside.

- ① hinges : stainless steel & steel
- ② edge profile : stainless steel
- ③ door leaf : P.V.C film
- ④ frame : powder coating
- ⑤ mortise latch
- ⑥ hose port door
- ⑦ spring hinge
- ⑧ threshold



TYPE : S12  
TYPE OF SILL  
(FOR GAS TIGHT TYPE)



TYPE : S11  
TYPE OF SILL  
(NO GAS TIGHT TYPE)



SPRING HINGE SECTION

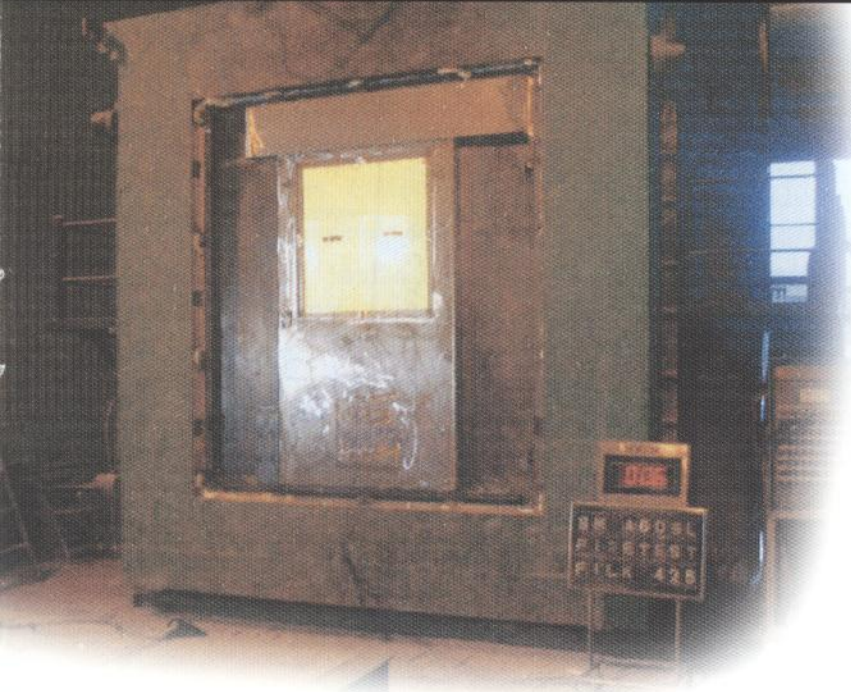
## B-15 CLASS SINGLE & DOUBLE BIG GLASS DOOR



- Door leaf : 37mm thick door construction with 0.6mm steel and stainless steel.
- Frame : 1.5mm steel and stainless steel for tapping screw fixing to 50mm bulkhead.
- Accessories : Max. size 620mm × 1860mm fire glass : Single door.  
(Double Door : 620mm × 1860mm × 2SH fire glass)  
Fire glass with ETCHING (Etching depth: 0.05~0.08mm)



## A-60 CLASS & NON CLASS GAS TIGHT SLIDING DOOR



- Door leaf : 60mm thick with 1.5mm steel and stainless steel.
- Frame : 4.0mm thick of steel plate and stainless steel.
- Drive system : Counter weight type.
- Accessories : Cylinder and 880mm × 880mm fire glass.

## A-CLASS WEATHER TIGHT CLAMP DOOR



We have improved the existing Steel Door for Weather Area into pontoon box type and it is possible for you to operate 3 parts of clamp dogs simultaneously by using 1 pc of Handle.

- ① hinges : stainless steel & steel
- ② door leaf : 80mm thick heavy duty door construction with 3.0mm steel face sheet
- ③ frame : 6.0mm heavy duty profiled steel frame for welding to bulkhead.
- ④ hardware : Three point clamp and heavy duty handle type

**H-60 CLASS HEAVY DUTY SINGLE & DOUBLE WEATHER TIGHT DOOR**

Our H-class Door had been carried out the test in accordance with H-Class Door IMO. res, 754(18) and Hydrocarbon Fire Test mentioned by Lloyd's register Standard Test Procedure. The time and temperature were based on NPD-Hydrocarbon Curve.



- ① hinges : heavy duty hinges with grease nipples.
- ② fire glass : Single / Double leaf  $300 \times 500\text{mm}$
- ③ door leaf : 101mm thick heavy duty door construction with 3.0mm steel face sheet.
- ④ frame : 5.0mm heavy duty profiled steel frame for Welding to bulkhead.
- ⑤ hardware : lever handle

Max. Approved size : Single leaf clear opening  $1000 \times 2100\text{mm}$   
Double leaf clear opening  $1760 \times 2150\text{mm}$



TYPE : ZH-1  
TYPE OF TOP & JAMB



TYPE : ZH-2  
TYPE OF TOP & JAMB



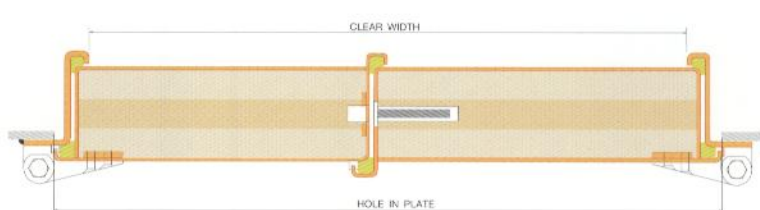
TYPE : SH-1  
TYPE OF SILL



TYPE : SH-2  
TYPE OF SILL

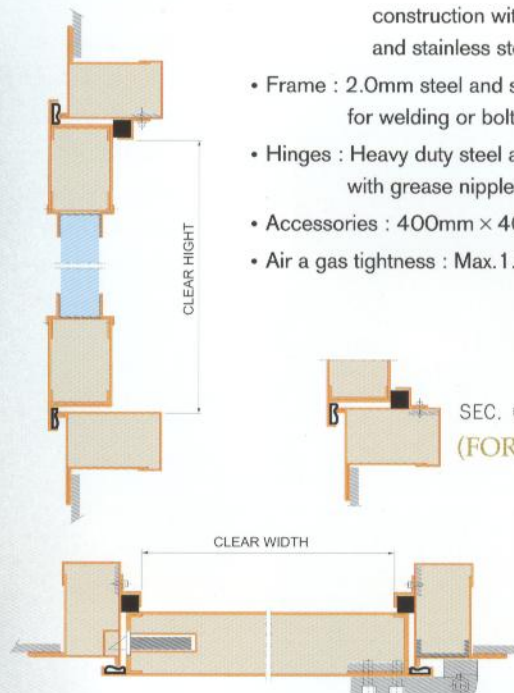


SING DOOR HORIZONTAL SECTION



DOUBLE DOOR HORIZONTAL SECTION

## A-60 CLASS A WEATHER TIGHT HEAVY DUTY DOOR

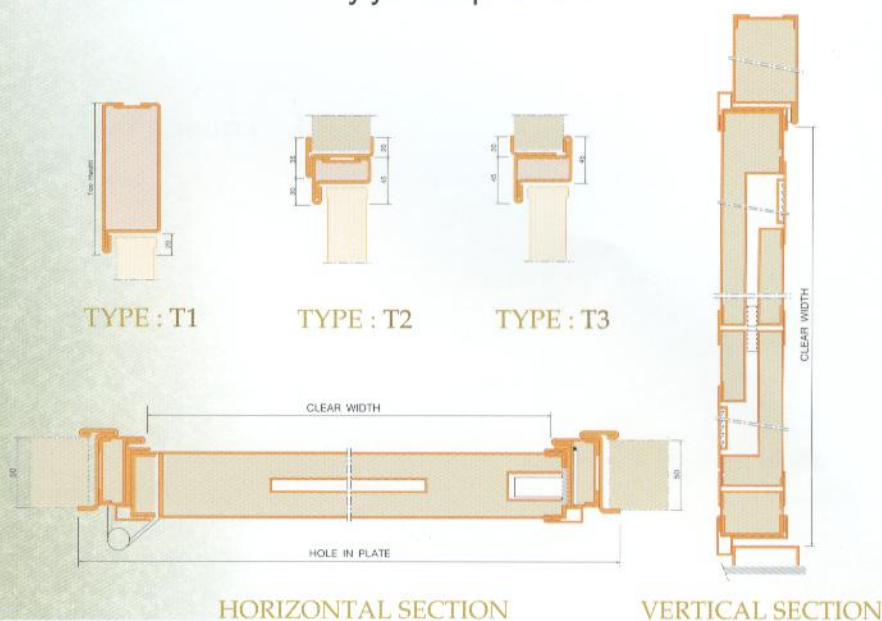


- Door leaf : 70mm thick weather tight heavy duty door construction with 2.0mm steel and stainless steel.
- Frame : 2.0mm steel and stainless steel frame for welding or bolt / nut to bulkhead.
- Hinges : Heavy duty steel and stainless steel hinges with grease nipples.
- Accessories : 400mm × 400mm fire glass.
- Air a gas tightness : Max.1.11 m<sup>3</sup> / h.m<sup>2</sup> at 50pa.

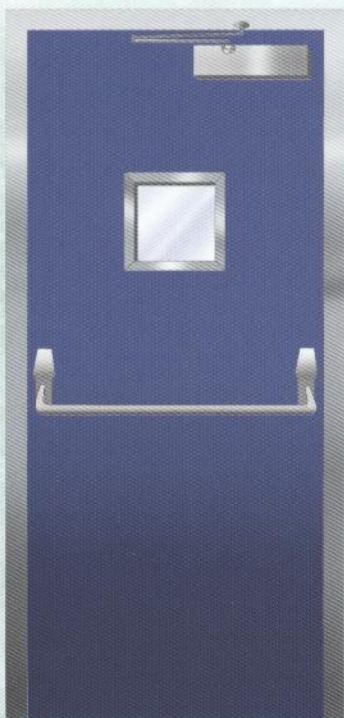
## B-15/30 CLASS SINGLE HI-NOISE DOOR

(SOUND REDUCTION : 41dB)

This door has been specialized the structure that the Ducts are inserted in the inside of door in order to be circulated the air and 1.0mm of many holes perforated in the inside of ducts are possible to be absorbed the noise of door by it self. Also it is possible for you to attach Louver or Kick Out Panel on this door by your requirement.



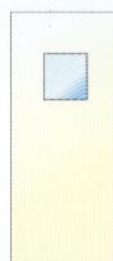
SUNG MI has so far endeavored to produce many quality products like fireproof doors, UL-approved hollow metal doors and frames. We can also produce 1-1/2HR(B) and 3/4HR(C) label fire doors approved by the UL 10, ANSI A 2.2 as well as various hardware articles of locks and exit devices. Inside of the door is treated with mineral wool of  $120\text{kg/m}^3$ , while glasses and louvers can be added to doors. In additions, two frames of single and double types are manufactured according to the UL 63, ANSI A 155.1, whereas corners comprised by the welded and knock-down system.



Flush Door



Double Flush Door



Vision Life Door



Louvered Door

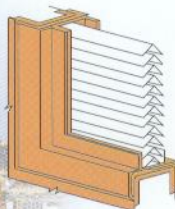


Half Glass Door

#### LOUVER SIZE

TYPE	SIZE	FREE AIR(sq.in.)
FIXED GRID	12 × 8	70
	12 × 12	162
	12 × 16	218
	12 × 20	275
	12 × 24	331
FIXED SLAP	12 × 8	30
	12 × 12	45
	12 × 8	40
	12 × 12	60
	12 × 8	50
	12 × 12	74
	12 × 16	99

#### LOUVER TYPE



FIXED SLAP



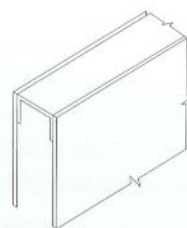
FIXED GRID



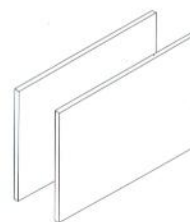
#### UNDERWRITERS LABORATORIES CLASSIFIED

CLASSIFIED UL	UNDERWRITERS LABORATORIES INC. CLASSIFIED HOLLOWMETAL FIRE DOOR NO. [REDACTED] FIRE RATING: 1-1/2 HR. (B)	MINIMUM LATCHM THROW 3/4IN. PAIRS 5/8IN. SINGLE
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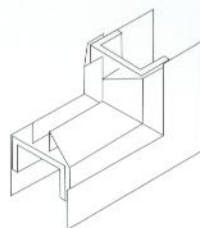
1-1/2 Hr.  
"B" Label  
100sg. In.  
Per door  
leaf.



**1 DOOR TOP AND BOTTOM**



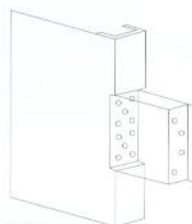
**2 FULL MINERAL WOOL CORE**



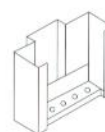
**3 SNAP-IN GLAZING**



**4 LOCK** Cylindrical, Mortise lock ANSI A 115.1 and 2, 3



**5 HINGE**  
Full mortise hinge  
ANSI A 156.7



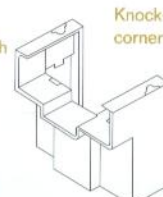
**6 WELDED FLOOR ANCHOR**

Welded corner construction



Components Set-up & welded

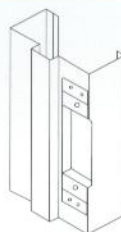
Corners ground smooth



Knock-down corner construction

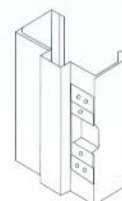
Components mechanically assembled in the field

**7 CORNER CONSTRUCTION**  
Welded corner construction



4 1/2" High

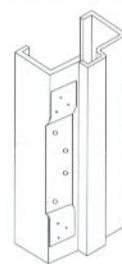
**8 STRIKE**



3 1/2" High



ANSI(4 7/8")  
Univ  
A 115.1 and 2



ANSI(2 3/4")  
Cyl.  
A 115.3


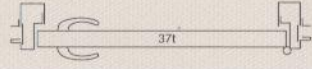
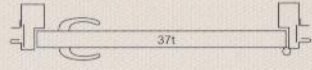
**9 HINGE**  
Preparations conform to ANSI A 156.7



## PRODUCTS CONSTRUCTION LIST(BOX-PROFILE)

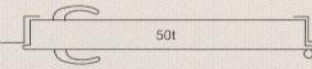

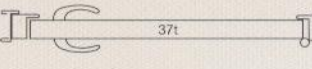
Our company at last succeeded in developing light and strong doors, standing next to none in the world market and approved by many governmental organizations. Its hot press automation system and painting system will ever satisfy the demands of buyers. We have attained many classification certificates like the ABS, BV, DNV, KR, LR, JG, NK, MSA, USCG, UL, CE(MED) and ISO 9001 and we will continue to do our best for quality control and production of the best products.

## SINGLE LEAF DOOR

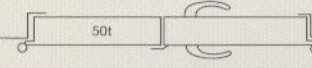
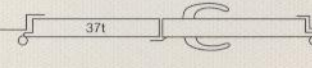

FIRE CLASS	MODEL NO.	SHAPE	DENSITY OF MINERAL WOOL	THICKNESS OF DOOR LEAF STEEL SHEET	WEIGHT
A-60	SM-A60-4		280kg/m <sup>3</sup>		
				0.8mm	
			40kg/m <sup>2</sup>		
A-0	SM-A0-3		120kg/m <sup>3</sup>		
				0.6mm	
			25kg/m <sup>2</sup>		
B-15	SM-B15-3B		120kg/m <sup>3</sup>		
				0.6mm	
			25kg/m <sup>2</sup>		

## PRODUCTS CONSTRUCTION LIST(Z-PROFILE)

## SINGLE LEFT DOOR

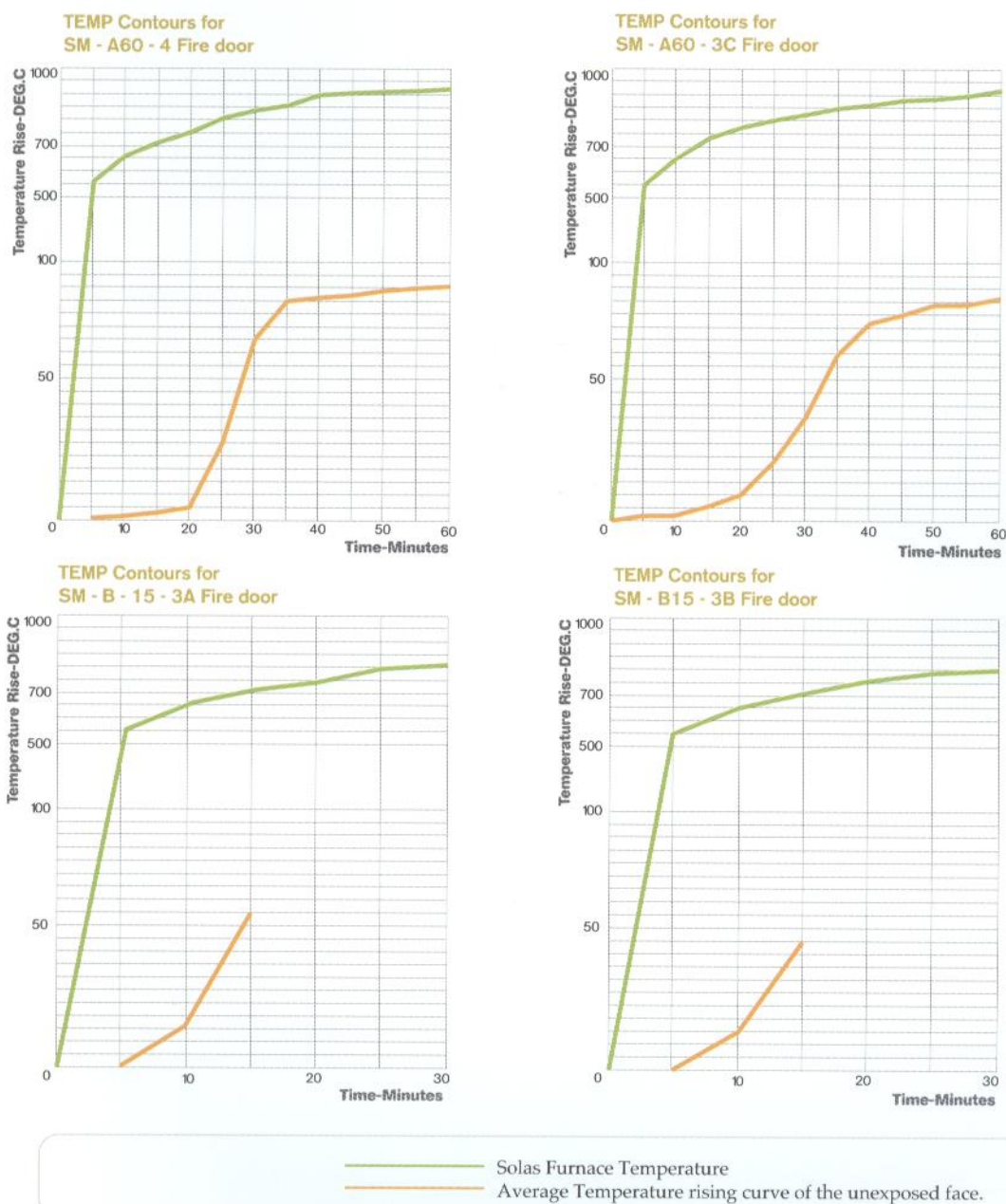
FIRE CLASS	MODEL NO.	SHAPE	DENSITY OF MINERAL WOOL	THICKNESS OF DOOR LEAF STEEL SHEET	WEIGHT
A-60	SM-A60-3C		280kg/m <sup>3</sup>		
				0.6mm	
			42kg/m <sup>2</sup>		
A-0	SM-A0-3B		120kg/m <sup>3</sup>		
				0.6mm	
			27kg/m <sup>2</sup>		
B-15	SM-B15-3A		120kg/m <sup>3</sup>		
				0.6mm	
			25kg/m <sup>2</sup>		

## DOUBLE LEFT DOOR (H.P : HOSE PORT DOOR)

A-60	SM-A60-1Hp		280kg/m <sup>3</sup>		
				0.8mm	
			50kg/m <sup>2</sup>		
A-0	SM-A0-1Hp		140kg/m <sup>3</sup>		
				0.8mm	
			25kg/m <sup>2</sup>		
B-15	SM-B15-1		140kg/m <sup>3</sup>		
				0.8mm	
			25kg/m <sup>2</sup>		

## INFORMATION OF CLASS DOOR FIRE TEST

The SUNG MI accommodation fire doors have been subjected to a fire resistance test in accordance with the international Convention for the safety of life at sea (1974), 1981 amendments and IMO resolution A.754(18) adopted in 1983 as followings.



## STANDARD FIRE TEST

Standard fire test of SUNG MI Accommodation fire door was made by the IMO Resolution. A-class door be capable of preventing the passage of smoke and flame during 60minutes and the average temperature of unexposed side neither rise more than the original temperature 140 °C, nor temperature of any one point, including any joint, rise more than 180 °C. In the structural character of B-class door, Average temperature neither rise more than the original temperature 140 °C, nor rise more than 225 °C during 30minutes.