LIGNEUS

Bring home the essence of nature

Bhagwati Sai Metal Alloys

(AN ISO 9001 : 2015 CERTIFIED ALLUMINIUM EXTRUSION PLANT)


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• PREFACE •

PROFILES

Bhagwati Sai Metal Alloys have set up an Aluminium Extrusion Plant, first of its kind in entire N.E.Region for Export & Supply of high quality profiles of Aluminium Extrusions in different Alloys and to meet the ever-changing needs of various industries. We have one of the few plants in India that is equipped with the most sophisticated manufacturing facilities (Extrusion press and allied equipment) & computerized tool room to receive high quality & quantity production. Our technical advancement integrated with our field knowledge & engineering expertise allows us to develop innovative products to meet customer specific requirements.

OUR PRODUCTS

We offer a wide range of Aluminium Extrusions and Aluminium profiles in different alloys.

APPLICATIONS

Aluminium Extrusions and Aluminium Profiles in different alloys for general and customized applications in various industries such as :

- Engineering Industry
- Agricultural Industry
- Transport Industry
- Communication Industry
- Electronics Industry
- Construction Industry
- Aviation Industry

OUR STRENGTHS

Advanced Manufacturing Facilities :

We have an ideal combination of modern machinery, gas based aluminium extrusion plant and Engineering expertise to offer high quality extruded Aluminium profiles. Our manufacturing facilities incorporate latest extrusion technology including:

- Sophisticated PLC extrusion press.
- In-house foundry with Hot-Top Casting technology.
- Semi auto Anodizing Plant with Electro coloring facility.
- High Standard Power Coating Plant
- Wood Grain Sublimation Plant

QUALITY ASSURANCE

All our products confirm to international quality standards.

We use LPG as fuel in our manufacturing activities that facilitates in maintaining the quality of products.

CONTINUAL UPGRADATION OF TECHNOLOGY

Constantly updated manufacturing technology, process automation and alloy development enable us to keep pace with the technological advancement in the Aluminium Extrusion Industry.

HIGH QUALITY ANODIZING

Due to use of LPG gas, sulfur content is very negligible that ensures high Quality anodizing.

KEY BENEFITS OF HIGH QUALITY ALUMINIUM EXTRUSIONS ARE MANIFOLD

- **Light Weight** - Aluminium weighing one third the weight of iron, steel, copper or brass and hence becomes easier to handle and transport.
- **Strength** - Aluminium Extrusions can be made as strong as the purpose demands.
- **Strength-to-weight Ratio** - The combined property of strength and lightness in aluminium makes it a key ingredient of many industrial applications.
- **Corrosion Resistant** - Aluminium provides a natural protective layer against environmental, chemical and physical corrosive agents and hence, can never rust
- **Electric Conduction** - Aluminium has better conductivity over copper per unit weight and is universally used for power consumption
- **Uniform Quality** - Aluminium assures reliability and uniformity in quality and hence minimizes rejection rates, corrective fabrication and production downtime.
- **Variety of finish** - A wide array of finishes ranging from paint lacquer and enamel, textures from rough matte to mirror smooth and a variety of powder coated, anodized colours and Wood Grain Finish are available. The finish enhances durability and elegance of the product.

We have our own foundry with tilting furnaces and hot top system to make billets covering a wide range of alloys. Complete metal treatment procedures as degassing, grain refining and filtration are carried out. The alloys are analyzed to ensure that they are within the limits required.

ABOUT CATALOGUE

The section shown in this catalogue are considered standard for which dies are available with us on the Date of publication and are available to customers without die charges. We are continually adding to the range of extrusion dies. If the particular section, required by you, is not given in the Catalogue, please write to our works office to meet your specific needs. To avoid confusion and delay in the Processing of enquiries and execution of orders, correct and detailed information about the desired sections are required.

All the standard sections given in the catalogue are generally available in alloy 6063 temper (IS-733, IS-1285), Extrusions in alloys other than these would be subject to special enquiry. Please note that the sections are arranged in the increasing order of dimensions.

ABOUT EXTRUSION

Extrusion is a most modern and very versatile method of forming Aluminum. The aluminum logs, after casting to the specified alloy are fed into the continuous log homogenizing furnace wherein it is heated to a desired temperature. The logs are than fed into hot logs shear where the logs are sheared to required size billets. These are pushed under tremendous pressure, applied by a hydraulic ram, through a shaped aperture in a steel die. The die aperture may have almost any imaginable contour, thereby making it possible to produce infinite shapes and the cross sections can be sawed to the required lengths. It is possible to control the finish of the extruded sections to such a degree, during its passage through the steel die that no further finishing may be necessary, and if required, the part may be anodized straight away into attractive colors for higher consumer appeal.

PHYSICAL PROPERTIES OF ALLUMINIUM

Specific Gravity-2.70
Electrical conductivity-53 to 62% IACS
Co-efficient of linear expansion -22 x10-6 mm/mm/0c
Thermal conductivity (at 200 c)-0.53 cal/sq.cm/sec./cm/0c
Electrical resistivity (at 200 c)-2.850 micro-ohm (for EC-0)
Modulus of elasticity-7x105 kg /cm2

MAXIMUM CIRCUMSCRIBING CIRCLES SIZES

Solid shapes	- 125 mm.
Hollow shapes	- 115 mm.
Round tubes	- 100 mm.
Rectangle tube	- 150 x 25 mm

MANUFACTURING TOLERANCES

LENGTH : Extrusions are supplied to standard commercial tolerances. Special tolerances are subject to individual enquiry. Unless requested for other exact lengths, material will be supplied in 4876.8 mm (16 feet) standard length. Tolerance+/-5mm

WEIGHT : The weight kg/m given in catalogue are the nominal weights. In practice, tolerance, alloy and such other factors will affect the final weight and a normal variation of + or -10% should be expected.

WEIGHT CALCULATION : Section weight-kg/m= section area (mm^2) x 0.0027

Chemical Composition of Wrought Aluminium And Aluminium Alloys Bars Rods and Sections for General Engineering Purposes

Chemical Composition										
(Composition limits are in percent maximum unless shown otherwise)										
Designation	Aluminiminium	Copper	Magnesium	Silion	Iron	Manganese	Zinc	Titanium And /OR Grain Refining Elements	Chromium	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
63400	Remainder	0.1	0.4-0.9	0.3-0.7	0.6	0.3	0.2	0.2	0.1	----
64423	Remainder	0.5-1.0	0.5-1.3	0.7-1.3	0.8	1.0	----	----	----	----
64430	Remainder	0.1	0.4-1.2	0.6-1.3	0.6	0.4-1.0	0.1	0.2	0.25	----
65032	Remainder	0.15-0.4	0.7-1.2	0.4-0.8	0.7	0.2-0.8	0.2	0.2	0.15-0.35	Either Mn or Cr shall be Present

NOTE 1 - It is the responsibility of the supplier to ensure that any element not specifically limited is not present in an amount such as is generally accepted as having an adverse effect on the product. If a purchaser's requirement necessitate limits for any element not specified these should be agreed to between the supplier and the purchaser.
NOTE 2 - Major alloying elements have been printed in bold face type.
*Titanium and/or other grain refining elements and/or chromium may be present at the option of the supplier provided the total content does not exceed 0.3 percent.

Mechanical Properties of Wrought Aluminium and Aluminium Alloys Bars, Rods and Sections (Extruded) for General Engineering Purposes

		Size (Diameter or Minor Cross Sectional Dimension),mm		0.2% Proof Stress		Tensile Strenght		Elongation % Min, on 50 mm, or 5.65 √So Gauge Length
Designation	Temper Condition	Over	Up to and Including	Min,Mpa	Max,Mpa	Min,Mpa	Max,Mpa	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
63400	T4	----	150	80	----	140	----	14
	T6	----	150	150	----	135	----	7
64423	T4	----	----	155	----	266	----	13
	T6	----	----	265	----	330	----	7
64430	T4	----	150	120	----	185	----	14
	T6	----	5	255	----	295	----	7
65032	T4	----	150	115	----	185	----	14
	T6	----	150	235	----	280	----	7

NOTE - Mpa = 1 N/mm^2 = 0.102 kgf/mm^2
*Properties in M temper are only typial values and are given for information only.

Characterstics and Typical Uses of Aluminium Alloys

Designation	Characterstics	Available Forms	Typical Uses
63400	Suitable for intricate extruded setions of medium strenght.Forms well in W condition. Highly Corrosion resistant	Extrusion, Tube, Wire, Rolled Rod and Forging	Architectural uses, such as window/door-frames, wall facings, partition, hand rails etc, and other similar applications where surface finish is important and medium strenght would suffice
63401	Do	Do	Bus Bar application
64401	Do	Do	Conductor application
64423	Stronger than 64430 and has Extrusions superior machinability	Extrusions	Application requiring good strenght and machinability such as missile machinery components
64430	Medium - strenght alloy with good mechanical properties, corrosion resistance and weldability	Sheet, Plate, Extrusion, Tube, Wire and Forgings	Structural applications of all kinds, such as road and rail transport vehicles, bridges, cranes, roof trusses, rivets, etc. Cargo containers, milk containers, deep-drawn containers and flooring
65032	Medium strenght alloy similar to 64430	Do	Similar to 64430

Aluminium Vs uPVC

FEATURES	ALUMINIUM	uPVC
STRENGTH	The special aluminium alloy used has very high strength (minimum UTS 185 mPa), can be designed for any size window, and is suitable for high-rise buildings.	uPVC has low strength (minimum UTS 51 mPa), low modules, and low impact resistance. MS/GI/AI reinforcements are required.
AESTHETICS	Limitless colors and textures through anodizing, powder coating and wood finish.	Limited color options Susceptible to fading, discoloration, and chalking from continuous exposure to UV radiation.
TEMPERATURE STABILITY	Stable in the range of 150 degrees Celsius down to sub-zero. It melts at 660 degrees Celsius.	Stable in the range of 60 degrees Celsius to 20 degrees Celsius. It melts at 80 degrees Celsius.
FIRE RESISTANCE	Non combustible.	Flammable vinyl siding can also release toxic fumes when burned, particularly dioxins.
THERMAL EXPANSION	The coefficient of thermal expansion, at 0.0000240/degree Celsius, is more resistant to warping, twisting, or sticking when subjected to the elements.	The coefficient of thermal expansion is 0.0000600/degree Celsius. Exposure to high temperatures may result in expansion and warping, while exposure to sub-zero temperatures may cause uPVC to crack.
THERMAL INSULATION	Window performance is mainly decided by glazing; hence, aluminium or uPVC does not matter, even more in hot climates.	Window performance is mainly decided by glazing, and hence, aluminium or uPVC does not matter, even more, in hot climates.
SOUND INSULATION	Outperforms in noise abatement with a damping factor of 25.9.	The damping factor is very low, at 1.8.
MAINTENANCE	Easy to maintain and at a low cost.	Lower durability implies higher maintenance costs.
RESALE VALUE	100% recyclable, hence the high resale value.	Negligible resale value.
ENVIRONMENT FRIENDLY	Endlessly recyclable.	The purity of material degrades. Additives cause disposal problems.

ANODIZING & COLOURING FACILITY

Aluminum anodizing is the electrochemical process by which aluminum is converted into aluminum oxide on the surface of a part. This coating is desirable in specific applications due to the following properties :

Increased corrosion resistance
Increased durability / wear resistance
Ability to be colored through dying
Electrical insulation
Excellent base or primer for secondary coatings

The process of anodizing consists of an anodizing solution typically made up of sulfuric acid. A cathode is connected to the negative terminal of a voltage source and placed in the solution. An aluminum component is connected to the positive terminal of the voltage source and also placed in the solution. When the circuit is turned on, the oxygen in the anodizing solution will be liberated from the water molecules and combine with the aluminum on the part forming an aluminum oxide coating.

The thickness of the aluminium oxide "anodized" coating can be varied by processing time. The depth of anodized coating may be varied according to application

25 Micron is recommended for heavy duty external permanent architectural application where little deterioration can be tolerated.

15 Micron is recommended for the majority of ordinary architectural requirements.

10 Micron is suitable for internal application and outdoor applications where cleaning is very frequent.

Our modernized anodizing and electro coloring plant ensures uniform coating to match the taste & decor for varied applications, without any color variation. The extrusions are anodized from 10 micron to 25 micron. We also have the facility for coloring the extrusions in different colors like silver, champagne, light bronze, medium bronze, deep bronze & black. A full proof sealing system ensures durable finish for long lasting applications.

POWDER COATING

Powder coating is the process of coating a surtace in which a powder material is applied using an electrostatic or compressed air method. The applied powder is then heated (cured) to its melting point, after which it flows to form a smooth film which dries to a firm, durable finish very resistant to scratches, cracking, peeling, UV rays and rust.

The entire powder coating process involves several steps.

Very generally:

- Cleaning step to ensure the substrate is free of any oils, dirt, rust, mill scale, etc;
- A pretreatment step (an important step not done by all coaters) during which the product is treated with a pretreatment chemical to further protect it and improve the surface for powder adherence;
- Rinse, rinse, rinse..dry completely then
- Powder coat, usually done with an electrostatic gun,

  Finally, FULLY cure the powder in the oven,

The result is a high quality coating with an attractive finish and excellent durability.

ADVANTAGES OF POWDER COATING

- Resistant to heat, corrosion, impact and abrasion
- Resistant to most chemicals and solvents
- Resistant to fading from sunlight
- Resistant to scratching, peeling, and cracking

Powder Coating is highly protective of our environment. While liquid finishes contain solvents which have pollutants known as volatile organic compounds (VOC's), powder coating contains no solvents and release negligible amounts, it any, VOC's into the atmosphere.

✓ FACILITY AVAILABLE WITH US

- Separate facility for dust free smooth finish.
- Colors application- As per AkzoNobel, Asian or Berger RAL Color cards
- Strictly follow International practice for pretreatment and post Treatment
- 60-100 microns.

LIGNEUS

Bring home the essence of nature

Ligneus is an exclusive range of wooden grain finish aluminum profile section. Introduced for the first time in North East India, 'Ligneus', offers not just the strength, durability and non-combustible nature of aluminium, but also adds warm aesthetics and essence of wooden finish to the architecture of your design.

The product offers a wide range of design and color options with the promise of exceptional quality. The product is made using the chemical process of sublimation coating and offers a wide variety of choice to the users.

SUBLIMATION COATING PROCESS

The ligneus product range is made using this process. In this process, the sublimation ink (with the texture and effects of wood) is transferred to into the powder coatings by the use of temperature and pressure. The process also takes into account the UV resistance of the product and thus, keeps a cheek on the UV performance of the product. The process of sublimation is very delicate and detailed.

The intricate process ensures that the final product has guaranteed superior quality, This is because sublimation is done properly only if certain parameters of adequate quality are met.

QUALITY MARKERS OF SUBLIMATION COATING

- Good Powder Coating
- The Quality of the Powder
- Proper process of sublimation with adcquate attention to time and pressure.
- Quality of the film and ink
- Use of correct machine
- The time of curing the powder

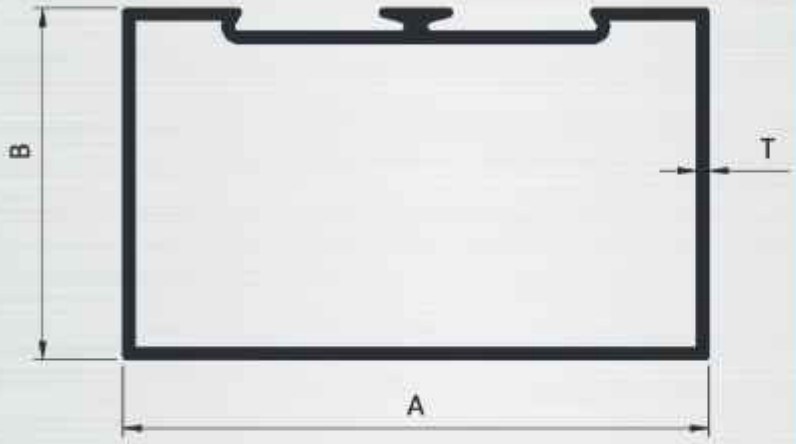
FEATURES

- High weather resistance
- High Customization
- High UV resistance
- No limits in terms of colors and design repetition

FUNCTIONAL UTILITY

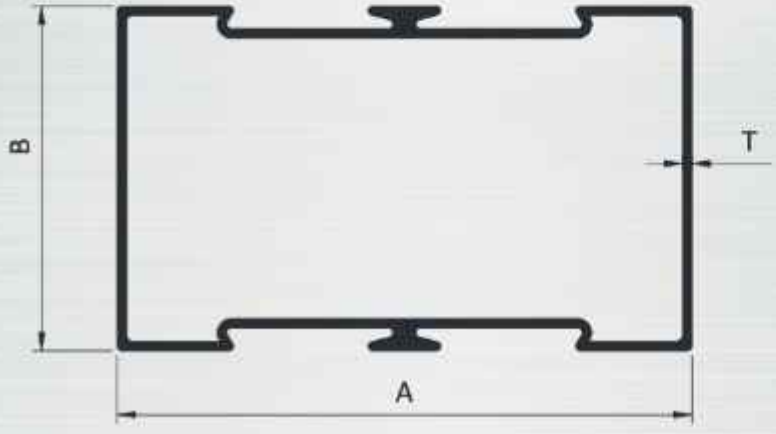
- Window Framing
- Door Framing
- Mosquito Net Screen Frames
- Sun Shades and shutters
- Partition
- Furnitures

SINGLE PARTITION



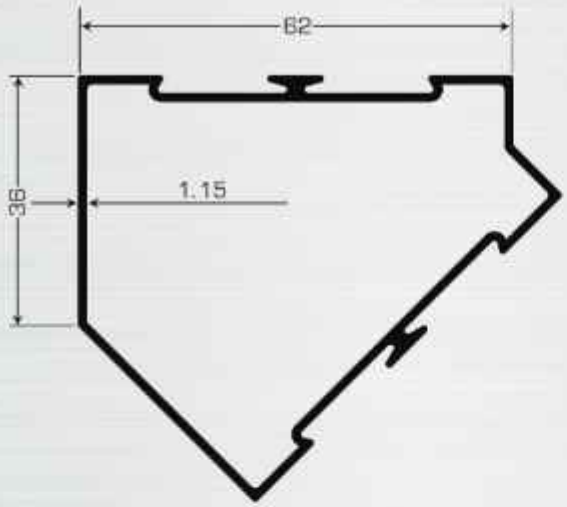
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1.	1001	50.80	25.40	0.80	1.70-2.00
2.	1002	50.80	25.40	1.00	2.10-2.30
3.	1005	63.50	38.10	0.89	2.40-2.60
4.	1006	63.50	38.10	0.99	2.70-3.10
5.	1007	63.50	38.10	1.15	3.20-3.50
6.	1008	63.50	38.10	1.28	3.60-3.90
7.	1009	63.50	38.10	1.40	4.00-4.40
8.	1010	63.50	38.10	1.65	4.50-4.80
9.	1011	63.50	38.10	2.00	5.00-5.50
10.	1012	63.50	38.10	2.72	6.50-7.00
11.	1013	63.50	38.10	3.18	8.50-8.80
12.	1020	101.60	44.45	1.20	4.80-5.30
13.	1021	101.60	44.45	1.30	5.50-6.00
14.	1022	101.60	44.45	1.60	6.50-7.00
15.	1023	101.60	44.45	2.10	7.70-8.50
16.	1024	101.60	44.45	2.50	10.0-10.50
17.	1025	101.60	44.45	3.00	11.30-12.70
18.	1026	101.60	44.45	4.50	15.00-16.00

DOUBLE PARTITION



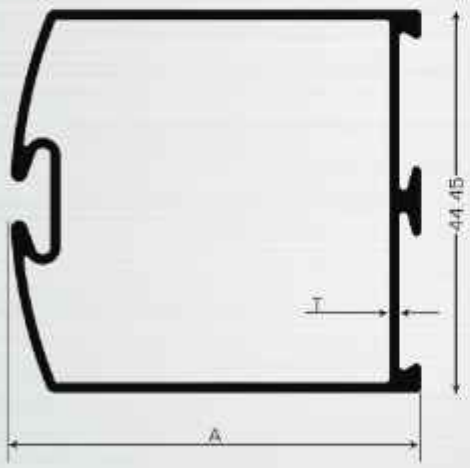
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1031	50.80	25.40	0.80	1.90-2.00
2	1032	50.80	25.40	0.95	2.10-2.30
3	1035	63.50	38.10	0.75	2.40-2.70
4	1036	63.50	38.10	0.87	2.80-3.20
5	1037	63.50	38.10	1.08	3.30-3.50
6	1038	63.50	38.10	1.14	3.60-3.90
7	1039	63.50	38.10	1.40	4.00-4.40
8	1040	63.50	38.10	1.53	4.50-4.90
9	1041	63.50	38.10	1.85	5.00-5.50
10	1042	63.50	38.10	2.30	6.50-7.00
11	1043	63.50	38.10	2.75	7.50-8.50
12	1050	101.60	44.45	1.12	4.80-5.40
13	1051	101.60	44.45	1.30	5.50-6.00
14	1052	101.60	44.45	1.50	6.50-7.00
15	1053	101.60	44.45	2.05	7.70-8.50
16	1054	101.60	44.45	2.50	10.00-10.50
17	1055	101.60	44.45	3.18	11.30-12.00
18	1056	101.60	44.45	4.00	15.00-16.00

Samosa Partition

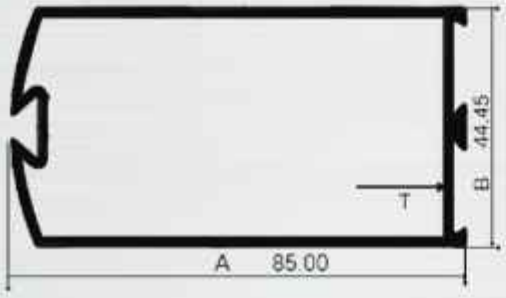


Sl. No.	Section No.	T	Wt. Range KG/16'
1	1081	1.50	4.10-4.30

Door Vertical

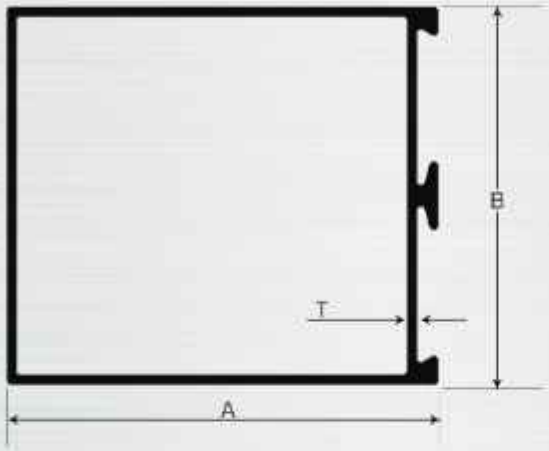


Sl. No.	Section No.	A	B	T	Wt. Range KG/14'
1	1101	44.45	47.62	1.12	2.60-2.90
2	1102	44.45	47.62	1.35	3.20-3.40
3	1103	44.45	47.62	1.52	3.50-3.70
4	1104	44.45	47.62	1.82	4.10-4.20



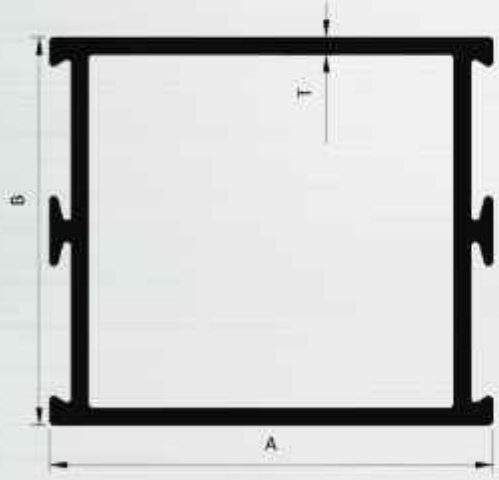
Sl. No.	Section No.	A	B	T	Wt. Range KG/14'
1	1107	85.00	44.45	1.40	4.50-5.00
2	1108	85.00	44.45	1.65	5.10-5.50
3	1109	85.00	44.45	2.54	7.60-7.80
4	1110	85.00	44.45	4.50	11.50-12.00

Door Middle Single



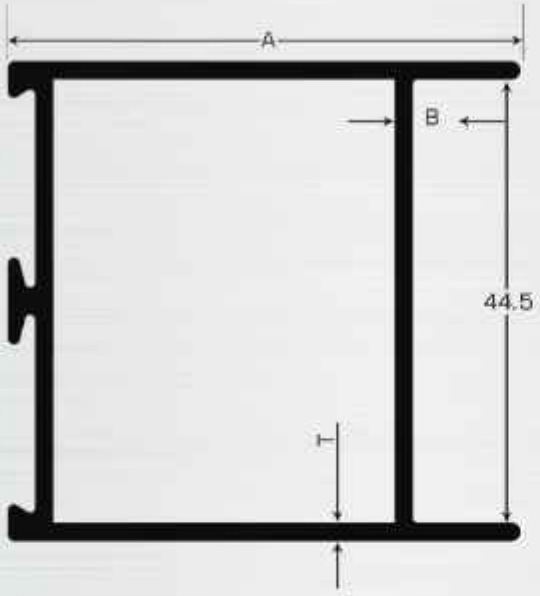
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1120	50.40	44.30	1.20	2.50-3.00
2	1121	50.40	44.30	1.50	3.30-3.50

Door Middle Double



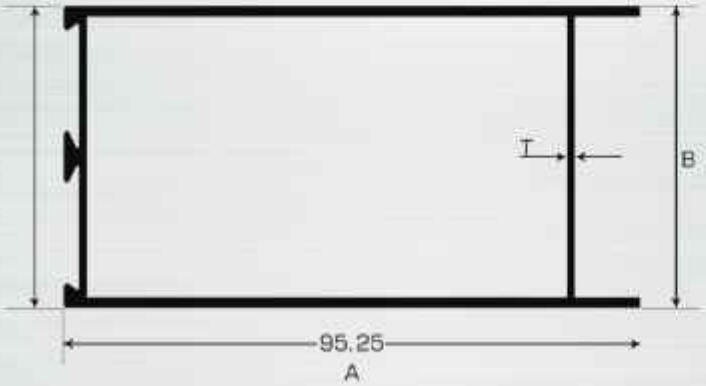
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1127	50.80	44.45	1.20	2.50-3.00
2	1128	50.80	44.45	1.50	3.10-3.50
3	1130	85.50	44.45	1.30	4.50-4.70
4	11130	85.50	44.45	2.30	7.00-7.50
5	21130	85.50	44.45	4.40	12.50-13.00
6	1131	100.00	44.45	2.00	7.70-8.00
7	1131-A	100.00	44.45	3.00	12.50-12.70

Door Top



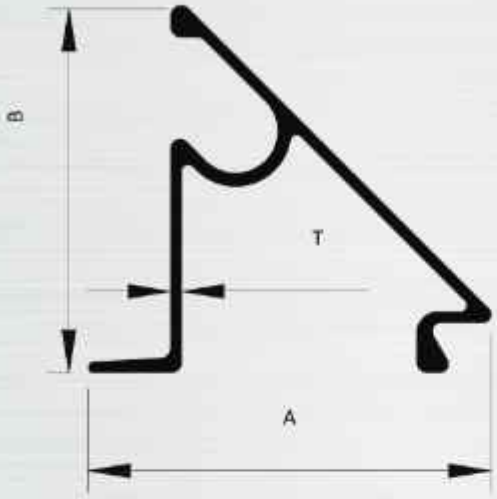
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1139	44.45	47.50	1.05	2.80-3.20
2	1141	44.45	47.50	1.62	3.90-4.10
3	1142	44.45	47.50	2.15	5.10-5.30

Door Bottom



Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1150	85.25	44.45	1.50	4.70-5.30
2	1151	85.25	44.45	1.70	5.70-5.90
3	1152	95.25	44.45	2.00	7.10-7.30
4	1153	101.60	44.45	2.50	9.50-9.70
5	1154	114.30	44.45	2.15	8.80-9.10
6	1155	150.00	44.45	3.00	15.00-15.50

Glazzing Clip

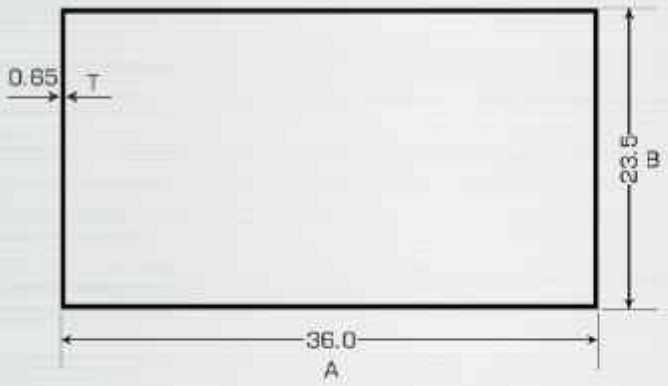


Sl. No.	Section No.	A	B	T	Wt. Range KG/12'
1	1200	19.0	17.3	0.50	0.240-0.270
2	1201	19.0	17.3	0.53	0.280-0.300
3	1202	19.0	17.3	0.63	0.310-0.350
4	1203	19.0	17.3	0.73	0.360-0.400
5	1204	19.0	17.3	0.78	0.410-0.440
6	1205	19.0	17.3	0.91	0.450-0.500

Glazzing Plate

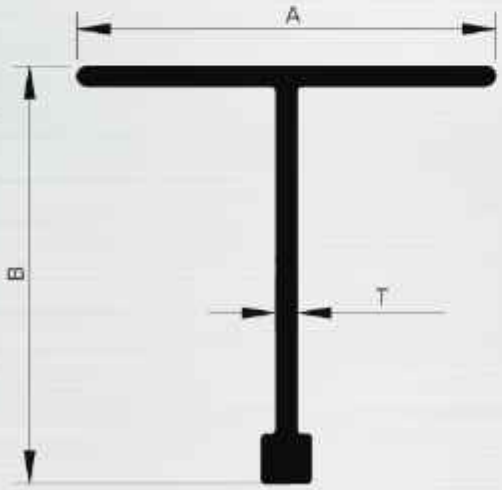
Sl. No.	Section No.	T	Wt. Range KG/12'
1	1211	0.81	0.600-0.800

Rectangular Tubes



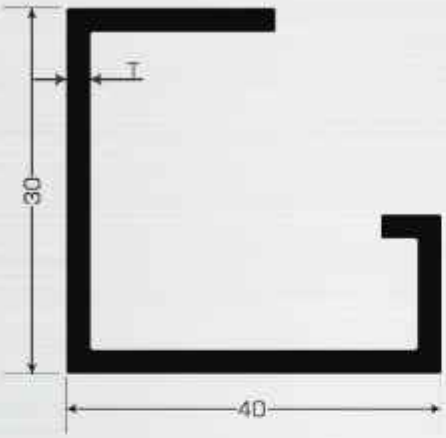
Sl. No.	Section No.	A	B	T	Wt. Range KG/12'
1	1300	38.00	25.00	0.65	0.80-1.00
2	1301	38.00	25.00	0.95	1.10-1.50
3	1302	38.10	25.40	2.00	2.20-2.50
4	1303	38.10	25.40	3.30	3.50-3.80
5	1306	50.80	25.40	1.50	2.10-2.40
6	1307	50.80	25.40	1.18	1.50-1.80
7	1308	50.80	25.40	2.00	2.80-3.30
8	1309	70.00	16.00	2.00	3.00-3.30
9	1310	50.00	12.00	2.00	2.20-2.40
10	1312	63.00	38.10	0.90	1.80-2.10
11	1313	63.00	38.10	1.20	2.20-2.50
12	1314	63.00	38.10	2.00	3.80-4.40
13	1317	65.00	60.00	1.50	3.50-3.90
14	1318	65.00	60.00	2.00	5.10-5.50
15	1320	100.00	44.00	4.40	10.50-10.80
16	1321	100.00	44.00	1.60	3.75-4.10
17	1322	76.00	50.00	1.50	5.00-5.50
18	1323	100.00	30.00	1.50	3.50-3.80

Bulb Tee



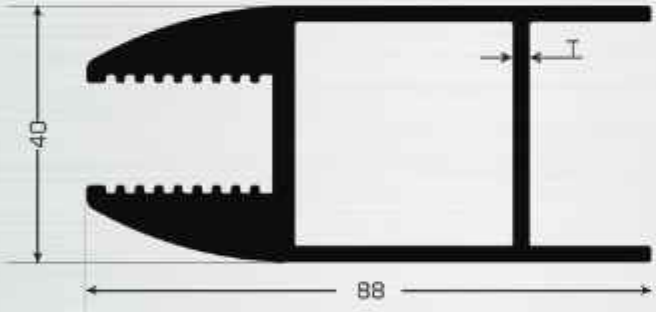
Sl. No.	Section No.	A	B	T	Wt. Range KG/12'
1	1351	25.00	25.00	0.80	0.40-0.50
2	1352	25.00	25.00	1.27	0.60-0.70
3	1357	35.00	24.40	1.42	0.85-0.90

Glazzing Channel



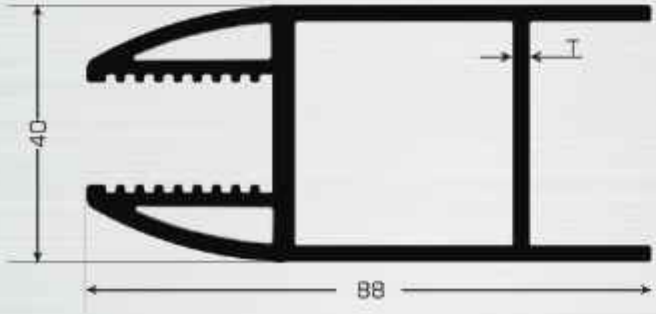
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1371	2.00	3.000-3.500
2	1372	2.60	3.900-4.100

Mager



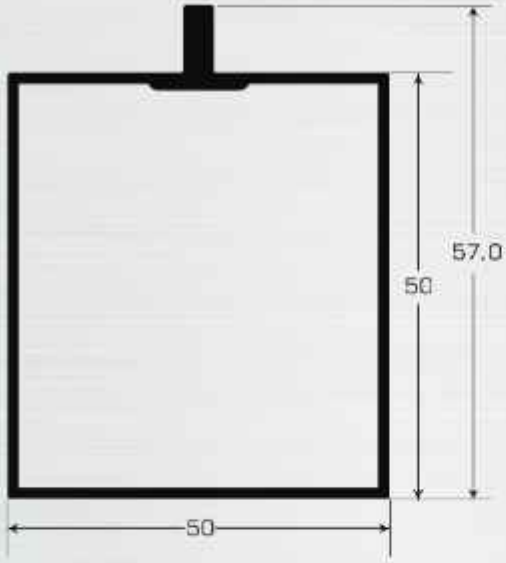
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1376	2.50	12.80-13.00

Mager



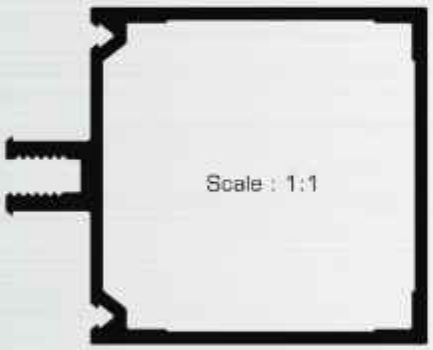
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1377	2.65	11.20-11.50

Curtain Wall Single Clip



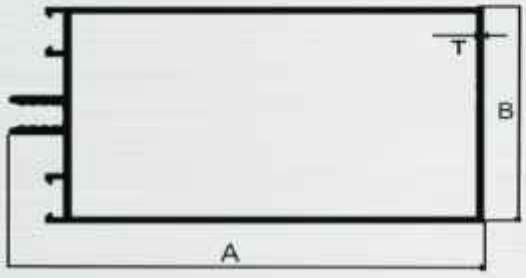
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1409	50	50	1.40	3.50-4.00
2	1410	50	50	1.75	4.50-4.70
3	1414	80	50	3.00	9.00-9.50
4	11410	65	60	1.50	5.00-6.00
5	11411	65	60	2.30	7.40-8.00

Curtain Wall



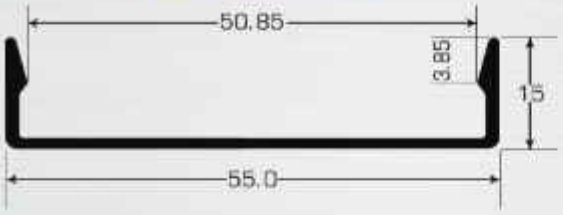
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1411	50.8	50.8	1.30	5.00-5.50
2	1412	50.8	50.8	1.91	6.30-6.60

Curtain Wall



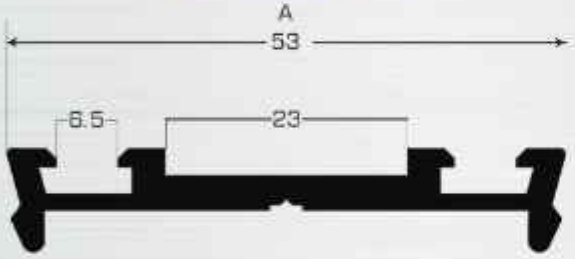
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
3	1431	96.0	55.0	1.70	7.60-8.10
4	1432	96.0	55.0	3.40	12.60-13.10

Cover Plate



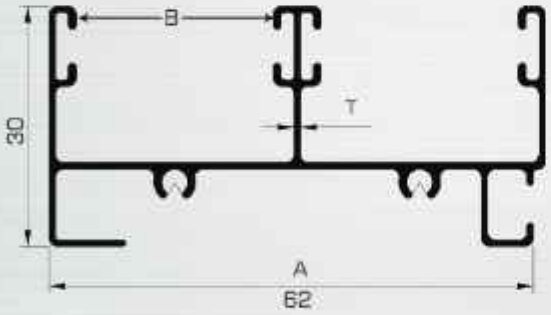
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1450	55.0	15.0	1.50	1.70-1.90

Pressure Plate



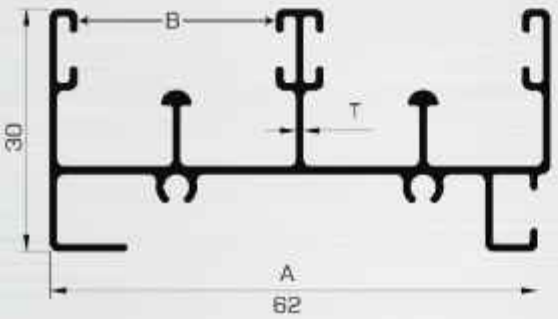
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1460	53.0	8.00	1.50	2.00-2.20

Two Track Top 62X30 (Window)



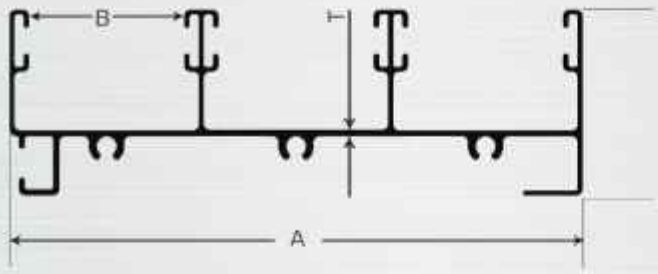
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1501	62.0	23.0	1.00	2.30-2.60
2	1502	62.0	23.0	1.10	2.70-3.00
3	1503	62.0	23.0	1.30	3.20-3.60
4	1504	62.0	23.0	1.50	3.70-4.20
5	1505	63.0	24.0	1.87	4.80-5.20

Two Track Bottom 62X30 (Window)



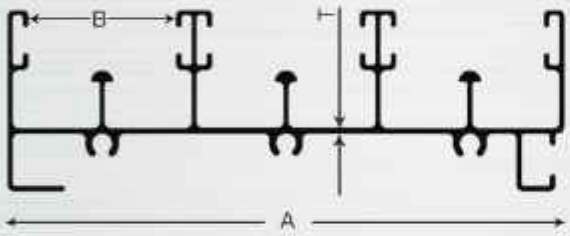
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1506	62.0	23.0	1.10	2.70-3.00
2	1507	62.0	23.0	1.30	3.10-3.60
3	1508	62.0	23.0	1.50	4.00-4.50
4	1509	63.0	24.0	1.87	5.30-5.70

Three Track Top (Window)



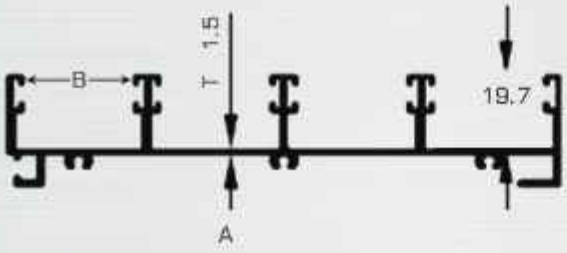
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1510	93.0	23.0	0.85	3.00-3.30
2	1511	93.0	23.0	0.90	3.40-3.60
3	1512	93.0	23.0	1.00	3.70-4.00
4	1513	93.0	23.0	1.20	4.10-4.40
5	21513	93.0	23.0	1.30	4.50-5.00
6	1514	93.0	23.0	1.50	5.10-5.50
7	1515	94.0	24.0	1.90	6.60-6.90

Three Track Bottom (Window)



Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1516	93.0	23.0	1.00	3.50-4.00
2	1517	93.0	23.0	1.20	4.10-4.70
3	21517	93.0	23.0	1.30	4.80-5.20
4	1518	93.0	23.0	1.50	5.90-6.00
5	1519	94.0	24.0	1.90	7.40-7.80

Four Track Top (Window)

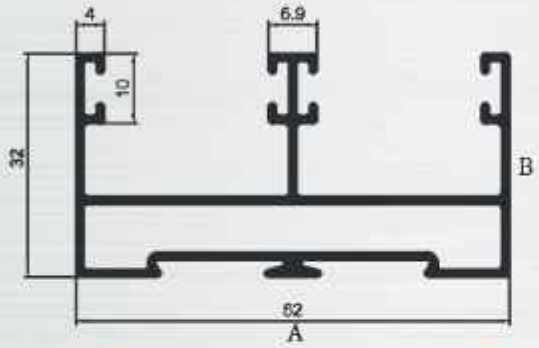


Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1521	125.00	30.00	1.55	5.90-6.10

Four Track Bottom (Window)

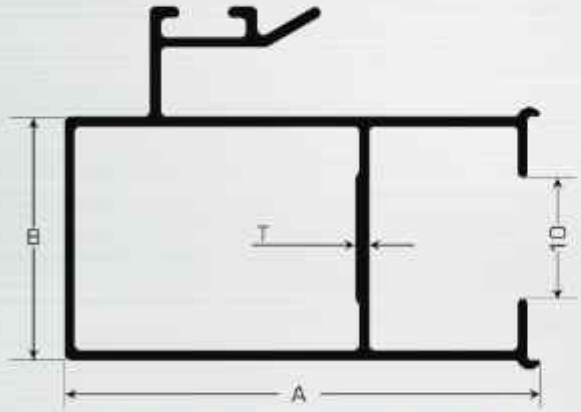
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1526	125.00	29.50	1.50	6.60-7.00

Two Track Top Partition



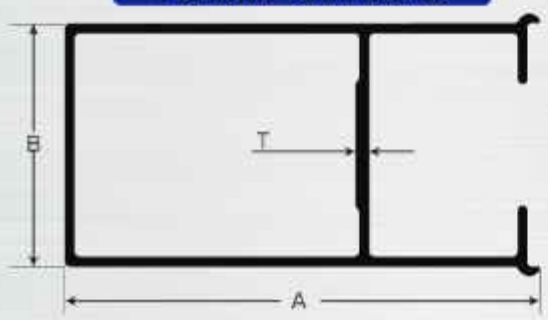
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1530	62	32	1.1	3.50-4.00

Inter Lock (Window)



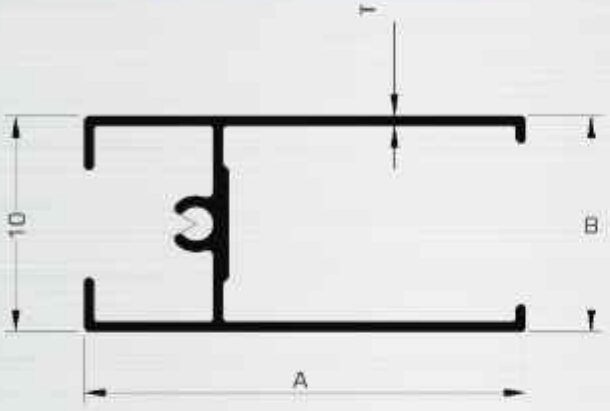
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1531	0.81	1.60-1.90
2	1532	1.00	2.00-2.20
3	1533	1.11	2.30-2.50
4	1534	1.50	2.70-3.10
5	1535	1.90	3.50-3.70

Handle (Window)



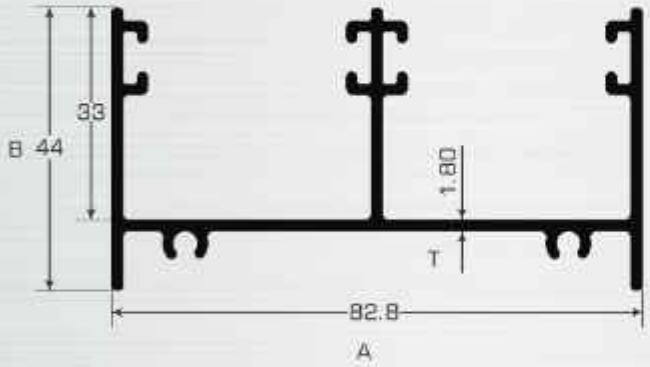
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1536	1.01	1.40-1.60
2	1537	1.11	1.70-1.90
3	1538	1.21	1.90-2.20
4	1539	1.48	2.30-2.60
5	1540	1.90	3.00-3.40

Shutter (Window)



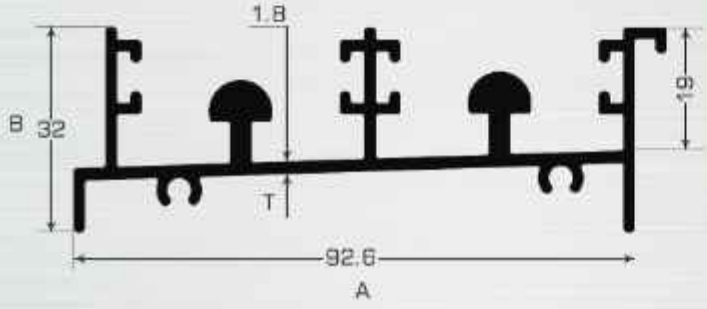
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1541	1.00	1.40-1.60
2	1542	1.20	1.60-1.90
3	1543	1.50	2.20-2.50
4	1544	1.90	2.90-3.30

Two Track Top (Door)



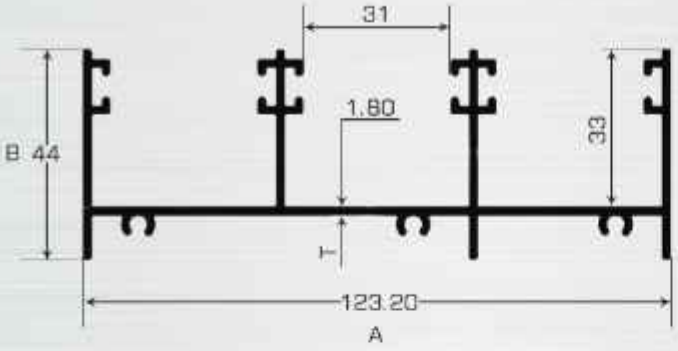
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1571	82.80	44.00	1.80	6.00-6.40
2	21571	82.80	44.00	2.20	6.50-7.50

Two Track Bottom (Door)



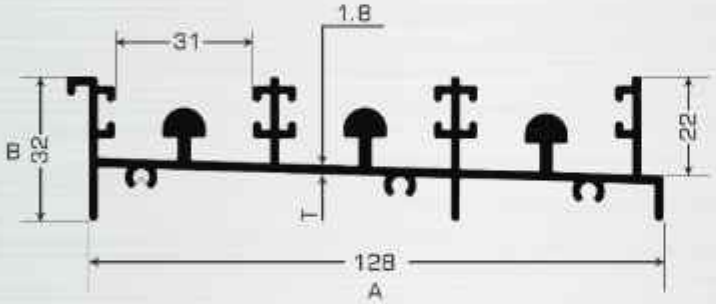
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1572	92.60	32.00	1.90	7.50-7.70
2	21572	92.60	32.00	2.20	7.80-8.50

Three Track Top (Door)



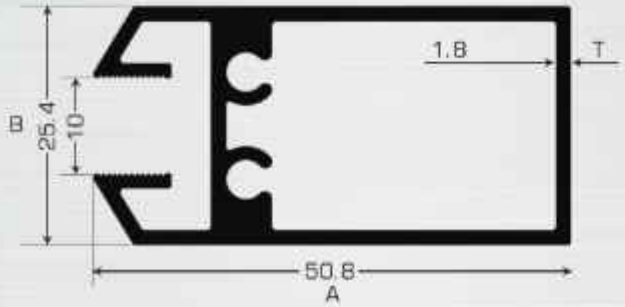
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1573	123.20	44.00	1.75	8.40-9.00
2	21573	123.20	44.00	2.30	10.00-11.00

Three Track Bottom (Door)



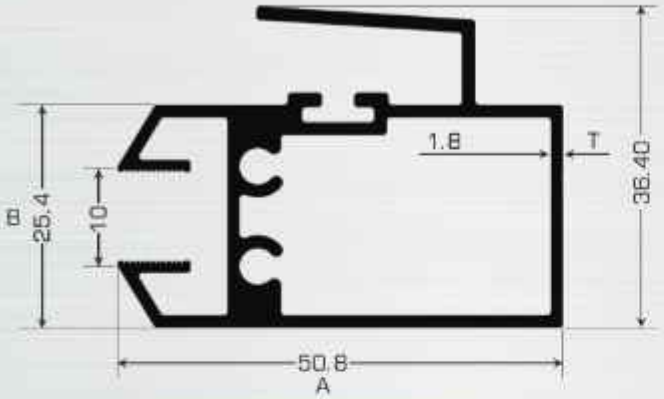
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1574	128.00	32.00	1.75	10.60-10.90
2	21574	128.00	32.00	2.30	11.00-12.00

Door Handle



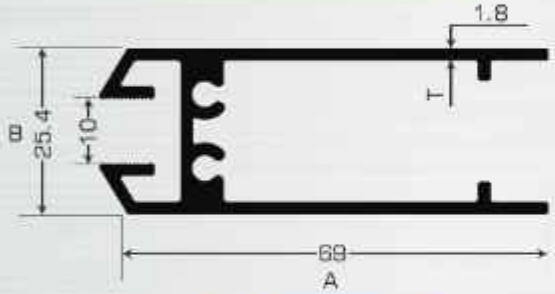
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1575	50.80	25.40	1.68	4.00-4.50

Inter Lock (Door)



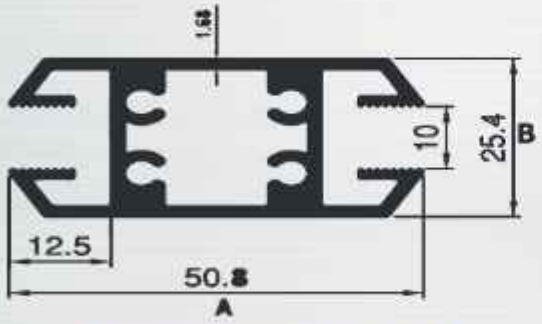
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1576	50.80	25.40	1.45	4.50-5.00

Door Shutter



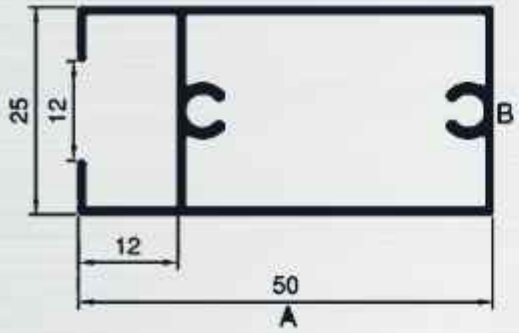
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1577	69.00	25.40	1.78	4.90-5.50

Matting



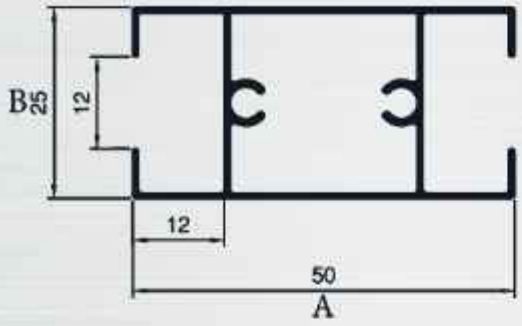
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1578	50.80	25.40	1.68	5.00-5.50

A - Section (Handle)



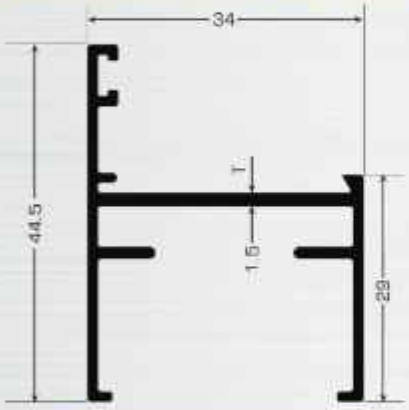
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1580	50.00	25.00	0.80	1.80-2.00

H - Section (Shutter)



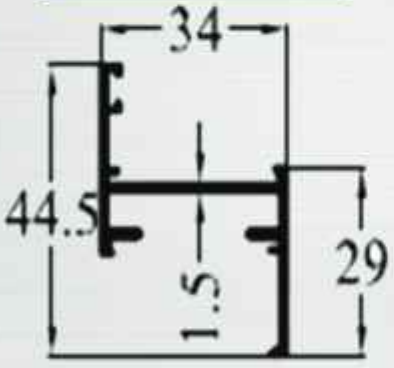
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1545	40.00	20.00	0.80	1.60-2.00
2	1585	50.00	25.00	0.72	1.90-2.30

H Line (Outer) 34 Series



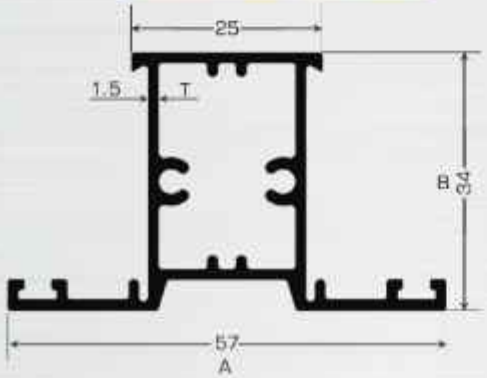
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1600	1.05	2.00-2.30
2	1601	1.30	2.40-2.60

Z Line (34 Series)



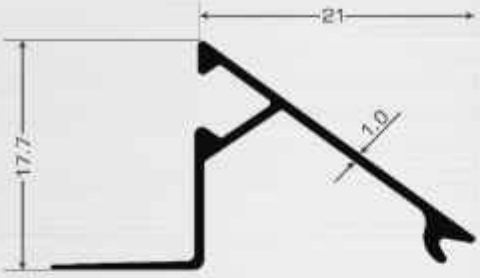
Sl. No.	Section No.	T	Wt. Range KG/16'
1	1602	1.30	2.00-2.30
2	21602	1.70	2.40-2.70

Mullion (34 Series)



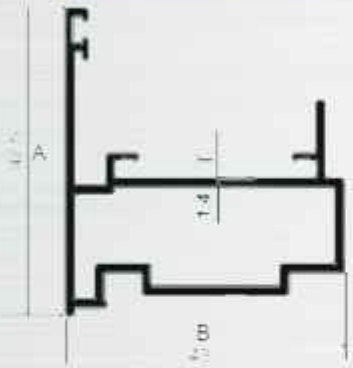
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1603	57.70	34.00	1.30	3.10-3.50
2	21603	57.70	34.00	1.45	3.60-4.00

Tepper Clip (34 Series)



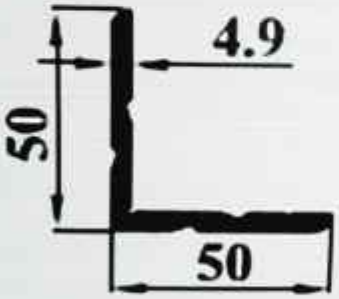
Sl. No.	Section No.				Wt. Range KG/
1	1604	32.60	17.60	0.80	0.450-0.540
2	1605	32.60	17.60	0.85	0.550-0.600
3	1606	32.60	17.60	1.15	0.630-0.700

Mullion (34 Series)



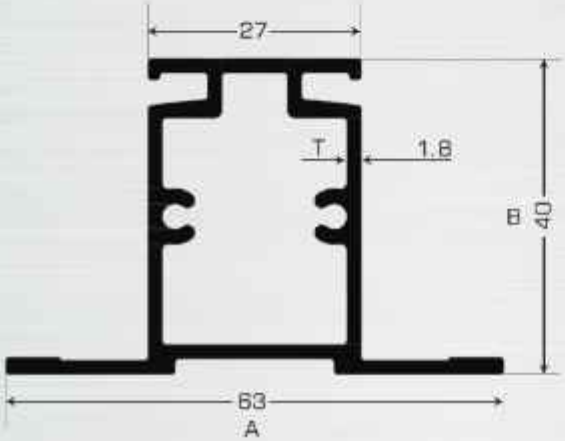
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1608	47.50	43.00	1.30	3.10-3.50

Clit Angle



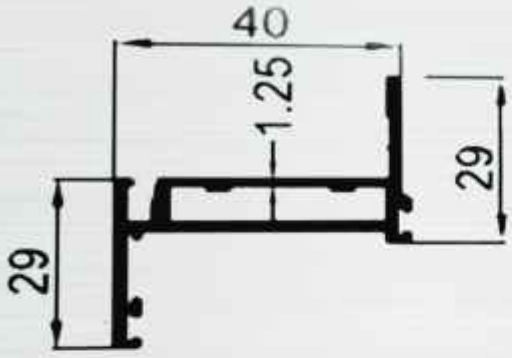
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1609	50	50	4.00	4.40-4.70
2	1610	50	50	5.00	5.70-6.00

Mullion (40 Series)



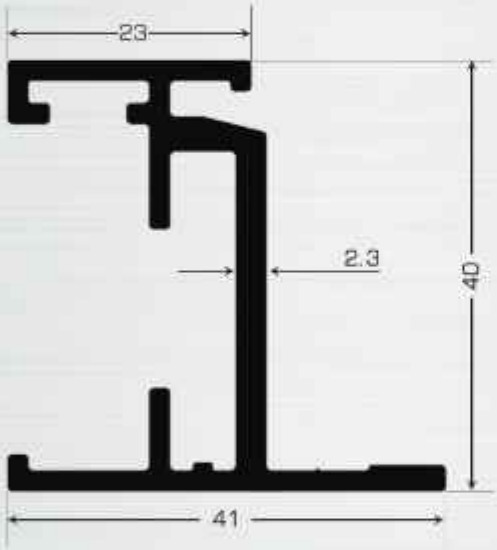
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1611	63.00	40.00	1.90	5.10-5.30
2	1621	63.00	40.00	1.50	4.30-4.60

Z Hollow (40 Series)



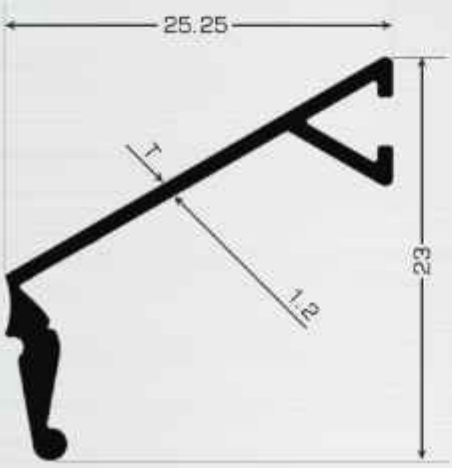
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1612	47.20	40.00	2.00	4.00-4.20
2	1622	47.20	40.00	1.40	3.00-3.30
3	1632	47.20	40.00	1.20	2.40-2.90

H Section (40 Series)



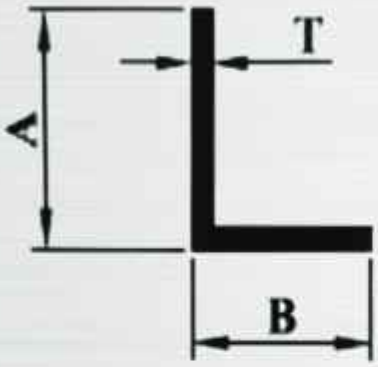
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	1613	40.00	40.60	2.50	4.00-4.30
2	1623	40.00	40.60	1.40	3.00-3.50

Clip (40 Series)



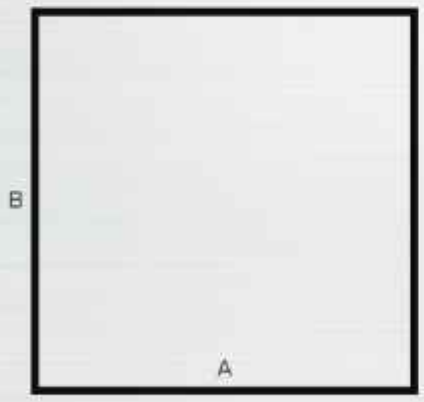
Sl. No.	Section No.	T	Wt. Range KG/12'
1	1614	1.00	0.450-0.600

Angle



Sl. No.	Section No.	A	B	T	Wt. Range KG/12'
1	1711	38.10	25.40	2.40	1.400-1.600
2	1712	38.10	25.40	3.10	1.800-2.000
3	1713	38.00	25.00	6.00	3.500-3.600
4	1714	50.00	25.00	3.00	2.300-2.500
5	3032	25.40	25.40	1.10	0.530-0.560
6	3033	25.40	25.40	1.20	0.600-0.640
7	3034	25.00	25.00	1.50	0.670-0.720
8	3035	25.00	25.00	2.00	0.900-1.200
9	3036	25.00	25.00	3.00	1.300-1.500

Square Tubes



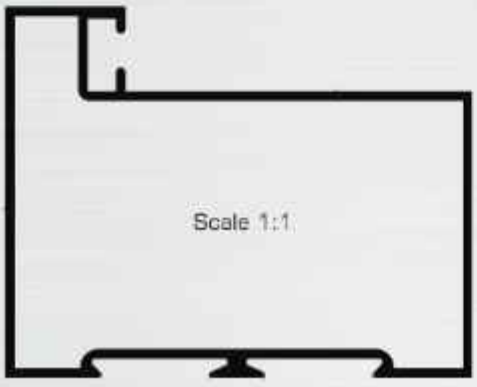
Scale : 1:1

Sl. No.	Section No.	A	T	Wt. Range KG/12'
1	2001	19.00	0.80	0.60-0.80
2	2002	19.00	1.15	0.90-1.10
3	2003	19.00	1.40	1.10-1.50
4	2005	25.00	0.65	0.60-0.90
5	2006	25.00	1.30	1.10-1.30
6	2007	38.00	1.60	2.40-2.80
7	2008	50.00	1.50	2.80-3.20
8	2009	50.00	2.00	4.00-4.30
9	2014	70.00	2.50	6.30-6.70

Flat Bar

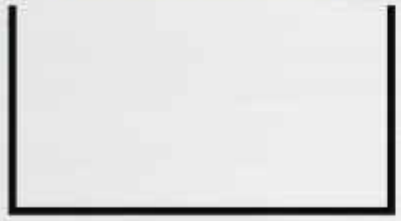
Sl. No.	Section No.	W	T	Wt. Range KG/12'
1	3030	35.00	25.00	8.70
2	3048	25.00	3.00	0.85
3	3050	25.00	6.00	1.50
4	3051	38.00	6.00	2.20
5	3052	50.00	6.00	3.00
6	3061	20.00	5.00	0.95
7	3062	25.00	5.00	1.20
8	3063	30.00	5.00	1.45
9	3064	40.00	3.00	1.30
10	3065	60.00	20.00	11.80
11	3071	25.00	10.00	2.45
12	3072	30.00	10.00	2.90
13	3073	40.00	10.00	3.90
14	3074	60.00	10.00	5.80
15	3075	80.00	10.00	7.90
16	3076	100.00	6.00	6.00
17	3077	100.00	10.00	10.00
18	3078	100.00	12.00	11.50
19	3080	100.00	15.00	15.00

Leg Partition (Door Step)



Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	5101	63.50	49.50	1.20	3.50-4.00

U Channnel



Scale : 1:1

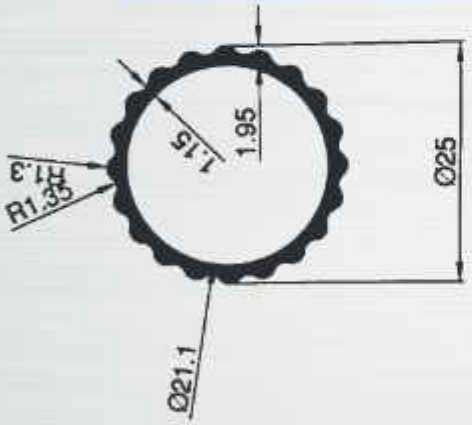
Sl. No.	Section No.	A	B	T	Wt. Range KG/12'
1	5201	25.00	25.00	2.00	1.90-2.30
2	5202	10.00	13.00	1.00	0.340-0.370

Louver

Scale 1:1

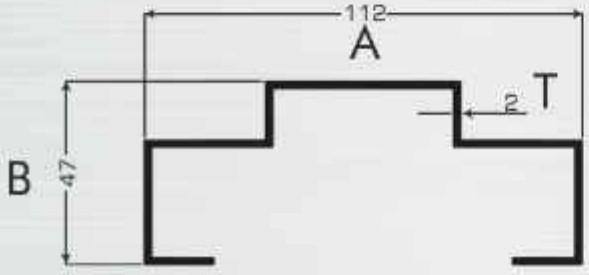
Sl. No.	Section No.	A	T	Wt. Range KG/16'
1	5301	77.00	1.58	2.90-3.30

Curtain/Flutted Pipe



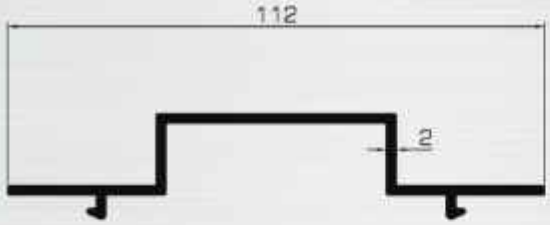
Sl. No.	Section No.	A	T	Wt. Range KG/12'
1	5401	25.00	0.65	0.560-0.600
2	5402	25.00	1.15	1.200-1.400

Door Frame (Chokath)



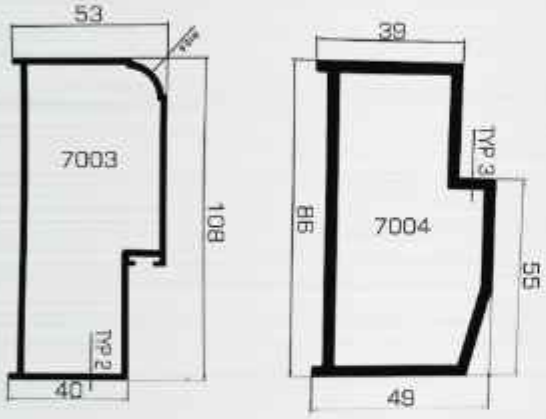
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	7001	112.0	47.00	2.00	4.60-4.80

Door Frame Plate



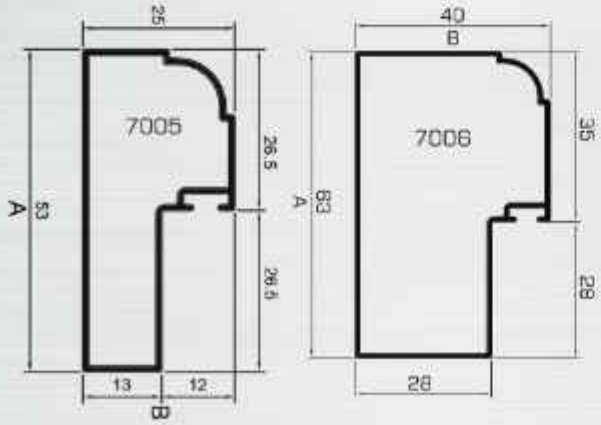
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	7002	112.0	22.0	2.00	3.00-3.30

Door Frame Chowkath



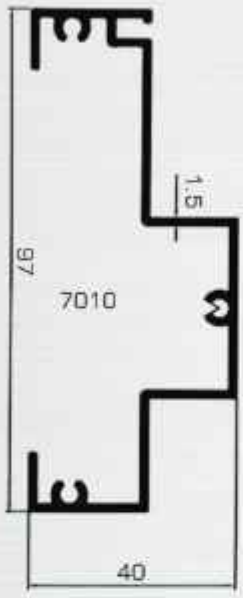
Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	7003	108.0	53.0	2.00	8.40-8.70
2	7004	86.0	49.0	3.00	10.00-10.30

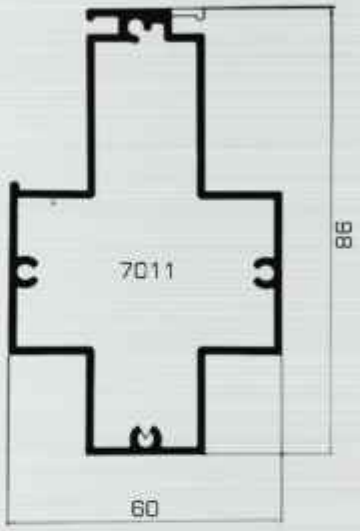
Door Chowkath (L-Pipe)



Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	7005	53.00	25.00	0.98	1.90-2.20
2	7006	63.00	40.00	1.00	1.90-2.20

Door Frame Chowkath





Sl. No.	Section No.	A	B	T	Wt. Range KG/16'
1	7010	97.0	40.0	1.50	4.60-4.90
2	7011	98.0	60.0	1.80	7.40-7.70