



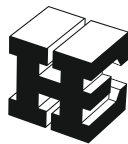
HINDALCO
EXTRUSIONS

EXPERTISE IS OUR STRENGTH



**ELECTRICAL & ELECTRONIC
RENUKOOT**

Printed Jan. 2018



HINDALCO
EXTRUSIONS

EXPERTISE IS OUR STRENGTH



VISION

To be a premium metals major, global in size and reach, excelling in everything we do, and creating value for our stakeholders.

MISSION

To relentlessly pursue the creation of superior shareholder value, by exceeding customer expectation profitably, unleashing employee potential, while being a responsible corporate citizen adhering to our values.

VALUES

Integrity: Honesty in every action

Commitment: Deliver on the promise

Passion: Energized action

Seamlessness: Boundaryless in letter and spirit

Speed: One step ahead always





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HINDALCO - An Overview

Hindalco Industries Limited, a USD 15 billion flagship company of the Aditya Birla Group, is a leading producer of aluminium and copper. Hindalco is present across the value chain of Aluminium & Copper. It has global footprint spanning across 13 countries in 5 continents

Aluminium

- Amongst top 5 aluminium majors worldwide.
- World's largest aluminium rolling company.
- Integrated operations - from mines to alumina to metal to value added products
 - ✦ Ingots & redraw rods (wire rods)
 - ✦ Flat Rolled products
 - ✦ Extrusions
 - ✦ Foils

Copper

- World's largest single-location copper smelting capacity.
- Copper mines in Australia.

Hindalco is a leader in Aluminium Extrusions industry in India with two manufacturing facilities. Both the plants are equipped with state of the art equipment, having well established manufacturing processes and quality systems honed over five decades.

- Manufacturing Facilities
 - ✦ Renukoot, U. P. (North India)
 - ✦ Alupuram, Kerala (South India)
- Capacity 60,000 MT per annum
- Expertise in customised alloys including hard alloys
- Catering to wide range of application segments such as Architectural, Electrical, Industrial, Transport, Defence and Consumer Durable.
- Extrusions manufactured from in-house virgin metal
- Quality Certification
 - ✦ ISO 9001-2008
 - ✦ ISO 14001-2004
 - ✦ OHSAS 18001-2007

This Catalogue covers the Transport sections from the range manufactured in the Renukoot plant of Hindalco



TABLE - 1

Wrought alloys: Near equivalent designations

INDIA		U.S.A. (A.A.)	BRITAIN (B.S.)	CANADA	GERMANY (DIN)	RUSSIA	I.S.O.	FRENCH ND
NEW I.S.	OLD I.S.							
19501	1E	1050(E.C)	1E	C 1S	E-Al 99.5	-	-	-
19500	1B	1050	1B	1S	A-99.5	-	Al-99.5	1050A
24345	H15	2014	H15	B26S	AL-CU-SI	AK	-	-
24534	H14	2017	H14	17S/16S	-	D1	Al-Cu-4Mg Si	-
-	-	2024	-	24S	Al-Cu.Mg2	-	Al-Cu-4Mg 1	2024
31000	N3	3003	N3	3S	Al-Mn	A-Mn	Al-Mn 1	3003
52000	N4	5052	N4	M57S	Al-Mg,2	A-Mg	Al-Mg-2.5	5051
53000	N5	5086	N5	54S	-	A-Mg-3	Al-Mg-4	-
54300	N8	5083	N8	D54S	Al-Mg-4.5 Mn	-	Al-Mg-4.5 Mn	5083
65032	H20	6061	H20	65S	Al-Mg-Si Cu	-	Al-Mg-1Si Cu	-
63400	H9	6063	H9	50S	Al-Mg-Si 0.5	-	Al-Mg Si	-
64430	H30	6351	H30	B51S	Al-Mg-Si 1	AV	Al-Si-1 Mg	6081
64423	H11	6066	H11	C62S	-	-	-	-
62400	-	6005	-	C51S	-	-	-	-
63401	91E	6101	91E	D50S	E,Al,Mg,Si 0.5	-	-	-
64401	-	6201	-	-	-	-	-	-
74530	-	7039	-	D74S	Al-Zn-Mg,1	-	-	3004
-	-	7075	DTD 5124	75S	Al-Zn-Mg Cu 1.5	-	Al-Zn 6 Mg Cu	7075



TABLE - 2

Wrought alloys: Guide to selection

Alloy	Temper	Resistance to Corrosion	Workability (Cold)	Machinability	Brazeability	Weldability	Commonly available forms	Indications of use
EC/1050, 1060 (1B) (19501) (19500) (19600)	F, O	A	A	D	A	A	Flats, Rods, Tubes & other section	Electrical conductors, cable sheathing, impact-extruded products, pressing utilities of anodizing quality, pen caps, piping etc.
1100 (1C) (19000)	F, O	A	A	D	A	A	Flats, Rods, Tubes & other section	Packaging lightly stresses and decorative assemblies in architecture and transport, equipment for chemical, food and brewing industries.
2014 (H 15) (24345)	T4 T6	C C	C D	B B	D D	C C	Rods & Bars Rods & Bars	Highly stressed component of all types in aircraft, ordnance and general engineering.
2017 (H 14) (24534)	T4	C	C	B	D	C	Rods & Bars	Highly stressed parts in aircraft and other structures, screw machine products.
2024	T4	C	C	B	D	C	Rods & Bars	Load Cell, Highly stressed component of all types in aircraft, ordnance and general engineering.
4043 (N 21) (43000)	F, O	A	A	D	A	A	Rods & other sections	Welding wire, architectural applications
5005 (52000A)	O, F	A	A	D	B	A	Flats, Rods, other sections	Structures exposed to marine attractive anodized finish, architectural, electrical conductors etc.
5052 (N 4)	O, F	A	A	D	C	A	Flats, Rods, Tubes & other sections	Structures exposed to marine atmosphere, aircraft parts, wire rope ferrules, rivet stock.
5086 (N 5) (53000)	O, F	A	A	D	D	A	Flats, Rods & other sections	Ship building and other marine applications, rivets, coinage etc.
5056 (N 6) (55000)	O, F	A	A	D	D	A	Rods	Zips, Welding Rods and Rivets.
6061 (H 20) (65032)	O, F T4 T6	A A A	A C D	D C C	A A A	A A A	Rods, Flats, Tubes & other sections	Heavy duty structures, building hardware, sections for bus body, truck and rail coach, furniture, rivets etc.
6063 (H9)	O, F T4 T6 T5	A A A A	A B C C	D C C C	A A A A	A A A A	Rods, Flats, Tubes & other sections	Building hardware, architectural section with good surface finish, medium strength furniture and anodized sections.



TABLE - 2

Wrought alloys: Guide to selection

Alloy	Temper	Resistance to Corrosion	Workability (Cold)	Machinability	Brazeability	Weldability	Commonly available forms	Indications of use
6066 (22450)	O, F T4 T6	B B B	B C C	D B B	A A A	A A A	Rods and other solid sections	For welded structures, textile parts, heavy duty machine parts.
6101 (91 E) (63401)	T4 T6	A A	B B	C C	A A	A A	Rods, Flats, Tubes & other sections	High strength electrical busbar sections.
6201 (64401)	T4	A	A	C	A	A	Redraw Rod	Overhead conductors, ACAR and AAAC
6351 (H 30) (6430)	O, F T4 T6	A A A	A C D	D C C	A A A	A A A	Rods, Flats, Tubes & other sections	Structural and general engineering items such as rail & road transport vehicles, bridges, cranes, roof trusses, rivets etc.
7039 (D74S) (74530)	O, F T4 T6	A A A	A C D	D C C	A A A	A A A	Flats, Tubes, Rods & other sections	Defence structures like mobile bridges etc. Tread and chequered plates, Excellent welding property with no loss of strength in welded zone.
7075 (DTD5124)	O, F T4 T6	A A A	A A D	A A A	A A A	A A A	Rods	Highly stressed structural applications

Notes:

1. Relative ratings for corrosion, workability and machinability in decreasing order of merit A, B, C and D.
2. Weldability & brazeability ratings A, B, C and D are relative ratings defined as follows:
 - A. Generally weldable by the commercial procedure & methods.
 - B. Weldable with special technique.
 - C. Limited weldability due to crack sensitivity or loss in corrosion resistance and mechanical properties.
 - D. Generally not weldable.
3. Availability of other forms subject to special enquiries and methods.



TABLE - 3

Wrought alloys: Chemical composition limits (per cent)

Alloy (ISS) Old	New	Equivalent alloy (AA) U.S.A.	Copper		Magnesium		Silicon		Iron Max.	Manganese		*Others (Total) Max.	Remarks
			Min.	Max.	Min.	Max.	Min.	Max.		Min.	Max.		
1C	19000	1100	-	0.10	-	-	-	0.5	0.6	-	0.1	0.1	Aluminium 99.0% Min
1 B	19500	1050	-	0.05	-	-	-	0.25	0.4	-	0.05	0.1	Aluminium 99.5% Min
1 E	19501	-	-	0.04	-	-	-	0.15	0.35	-	0.03	0.1	Aluminium 99.5% Min
-	19600	1060	-	0.05	-	-	-	0.25	0.35	-	0.03	0.1	Aluminium 99.6% Min
H 15	24345	2014	3.8	5.0	0.2	0.8	0.5	1.2	0.7	0.3	1.2	0.5	-
H 14	24534	2017	3.5	4.7	0.4	1.2	0.2	0.7	0.7	0.4	1.2	0.5	-
		2024	3.8	4.9	1.2	1.8	-	0.5	0.5	0.3	0.9	0.15	Zn 0.25
N 3	91000	3003	-	0.1	-	0.1	-	0.6	0.7	1.0	1.5	0.4	-
		4032	0.8	1.3	0.8	1.3	-	13.5	0.6	-	0.2	0.15	Ni 0.8 - 1.3
N 4	52000	5052	-	0.1	1.7	2.6	-	0.6	0.5	-	0.5	0.4	Cr + Mn = 0.5
M 5	53000	5086	-	0.1	2.8	4.0	-	0.6	0.5	-	0.5	0.4	Cr + Mn = 0.5
N 8	54300	5083	-	0.1	4.0	4.9	-	0.4	0.7	0.5	1.0	0.4	Chromium up to 0.25
H 20	65032	-	0.15	0.4	0.7	1.2	0.4	0.8	0.7	0.2	0.8	0.4	**Cr = 0.15 - 0.35
-	-	6061	0.15	0.4	0.8	1.2	0.4	0.8	0.7	-	0.15	0.4	Chromium 0.04 to 0.35
H 9	63400	6063	-	0.1	0.4	0.9	0.3	0.7	0.6	-	0.3	0.4	-
-	-	6066	0.7	1.2	0.8	1.4	0.9	1.8	0.7	0.6	1.1	0.4	-
-	64423	-	0.5	1.0	0.5	1.3	0.7	1.3	0.8	-	1.0	-	-
9 1E	63401	6101	-	0.05	0.4	0.9	0.3	0.7	0.5	-	0.03	0.1	-
H 30	64430	6351	-	0.1	0.4	1.2	0.6	1.3	0.6	0.4	1.0	0.3	-
		6082	-	0.1	0.6	1.2	0.7	1.3	0.5	0.4	1.0	0.3	Chromium up to 0.25
-	74530	7039	-	0.2	1.0	1.5	-	0.4	0.7	0.2	0.7	0.4	Zinc 4.0 - 5.0 %
-	-	7075	1.2	2.0	2.1	2.9	-	0.5	0.5	-	0.3	0.2	Zinc (5.1 - 6.1) % & Chromium(0.18-0.28) %

* Titanium and/or other grain refining elements

** Either Mn or Cr shall be present



TABLE - 4

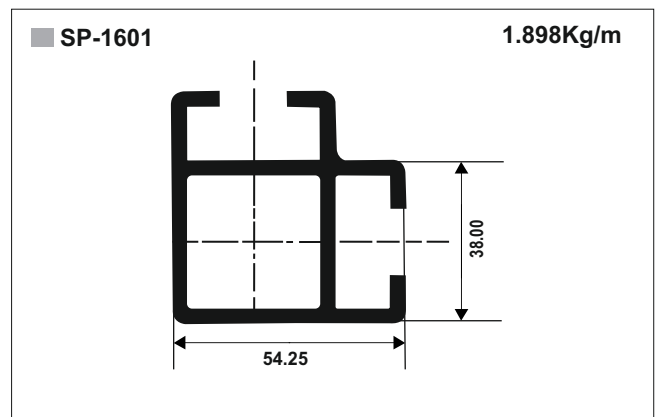
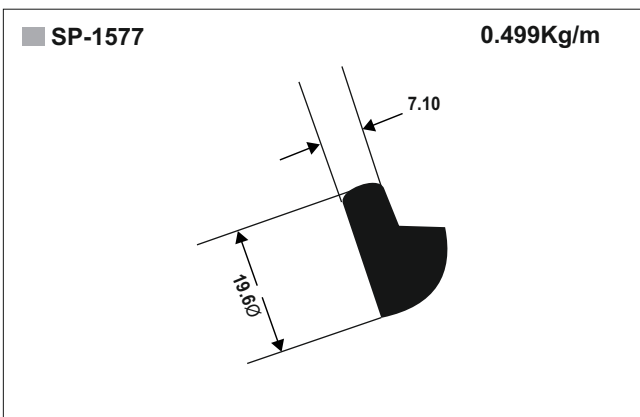
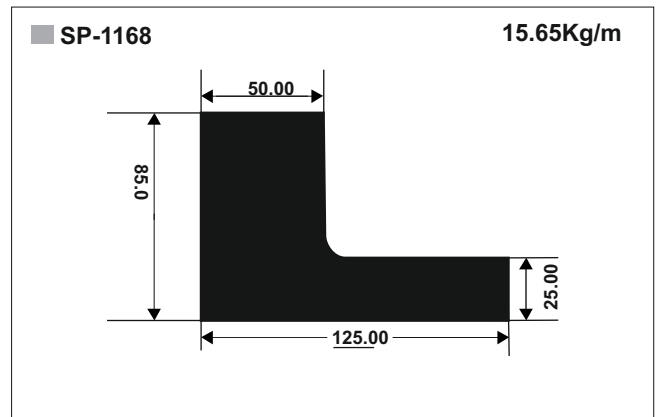
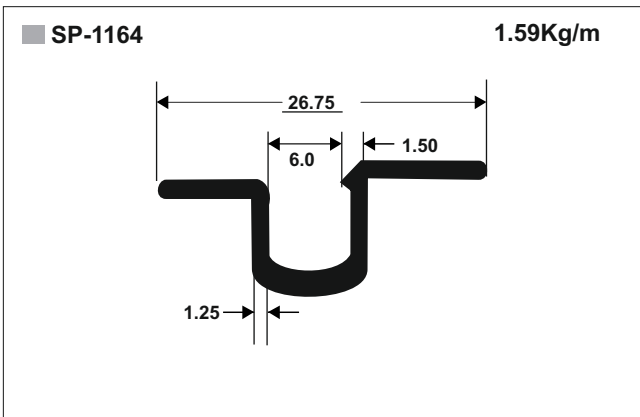
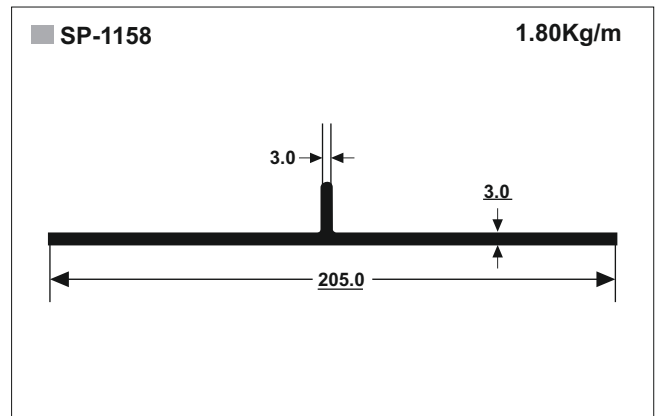
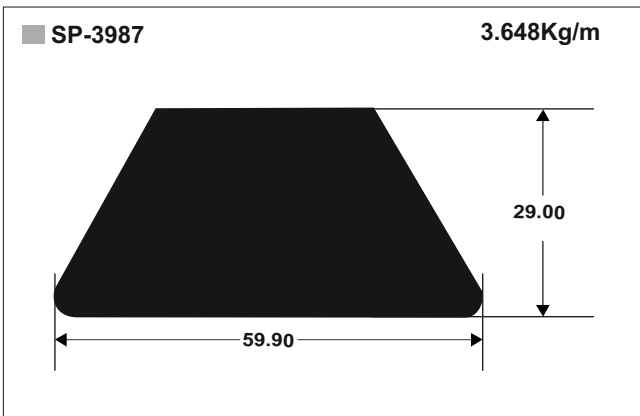
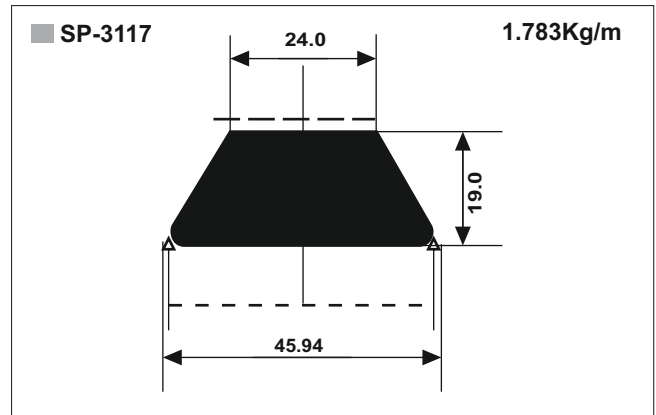
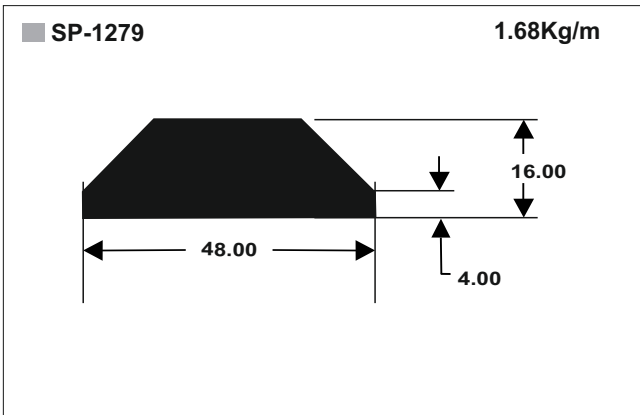
Wrought alloys: Mechanical properties

Heat Treatable Alloys					
Alloy A A Old (ISS) New (ISS)	Temper	Ultimate Tensile Strength Kg/mm ²		0.2% Proof Stress Kg/mm ²	Elongation On 50mm GL
		Min.	Max.		
2014 [H15] [24345]	T4[W]	39	-	24.0	10
	T6 [WP]	49	-	43.0	6
2017 [H14] [24534]	T4[W]	39	-	24.0	10
2024 [H9]	T4	40.5	-	26.5	12
6063 [H9] [63400]	T4[W]	14	-	8.0	14
	T6 [WP]	19	-	15.5	7
6061 [H20] 65032]	M	11.2	-	5.1	12
	T4[W]	19	-	11.5	14
	T6 [WP]	28.5	-	24.0	7
6351[H30] [64430]	M	11.2	-	8.2	12
	T4[W]	19	-	12.0	14
	T6 [WP]	31.5	-	27.5	7
6066	M	11.0	-	-	12
	T4[W]	28	-	17.5	14
	T6 [WP]	35	-	31.5	7
6101[91E] [63401]	T4[W]	14	-	8.0	12
	T6 [WP]	20.5	-	17.0	10
6201 [64401]	T4[W]	16	-	7.0	14
	T8 [WDP]	32	-	-	3
7039 [74530]	T4[W]	28	-	23.5	9
	T6 [WP]	31.5	-	26.5	7
7075	T6 [WP]	54	-	46.5	6

Properties indicated herein are typical properties and are given for information only. However properties of all the profiles in specific alloy shall be as per I. S. Specification.

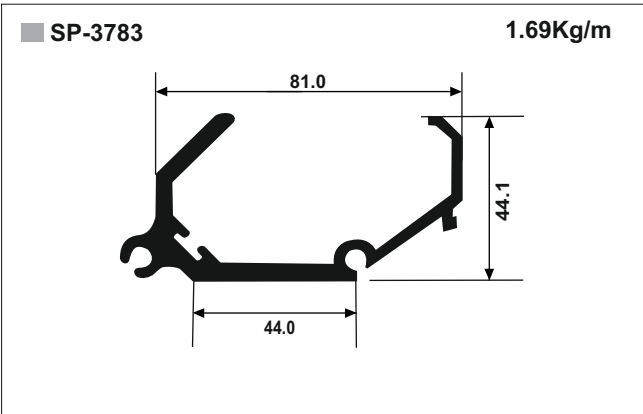
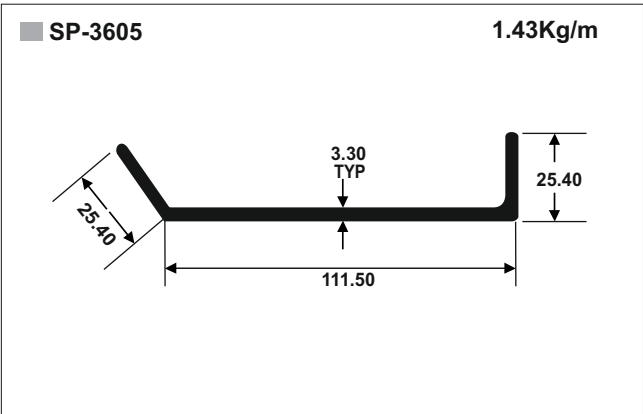
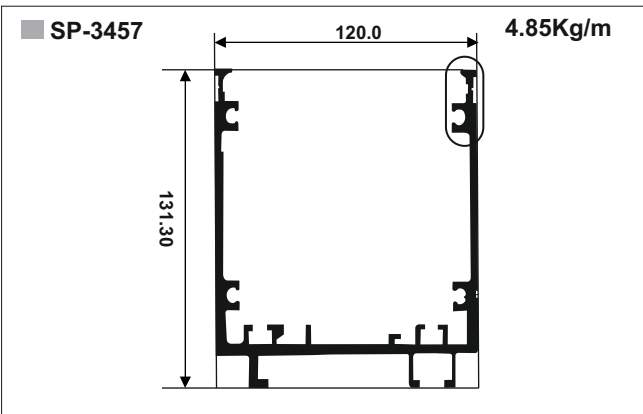
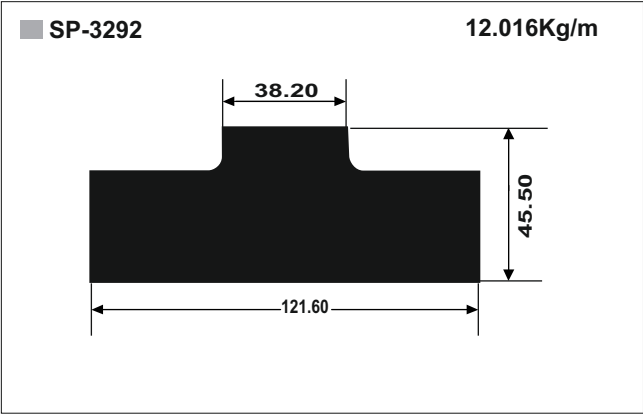
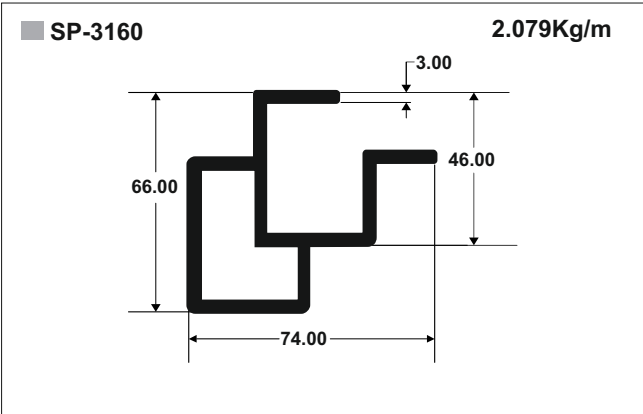
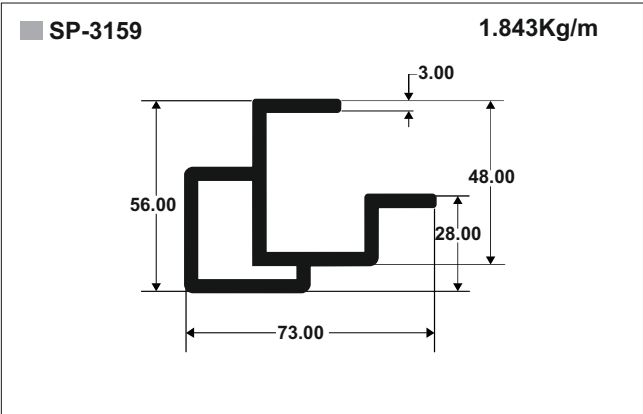
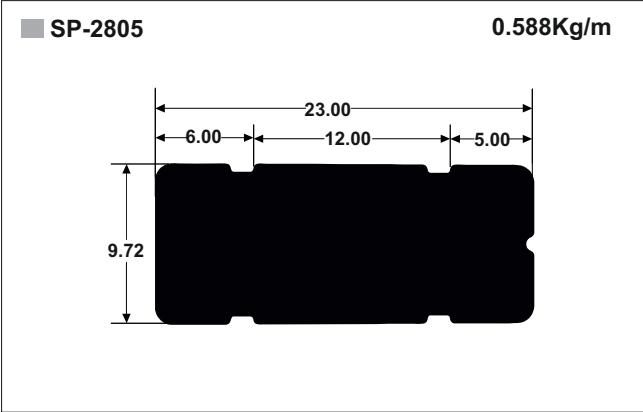
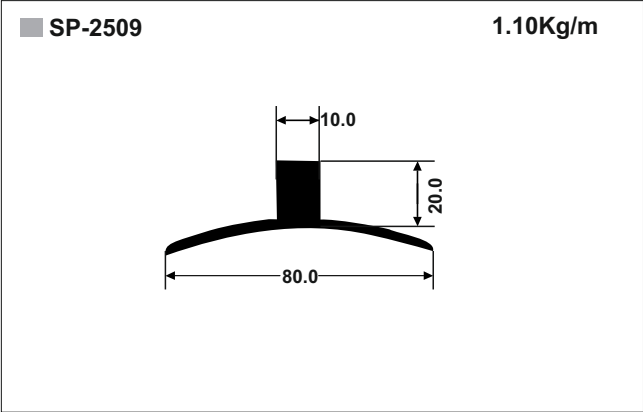


Electrical Components



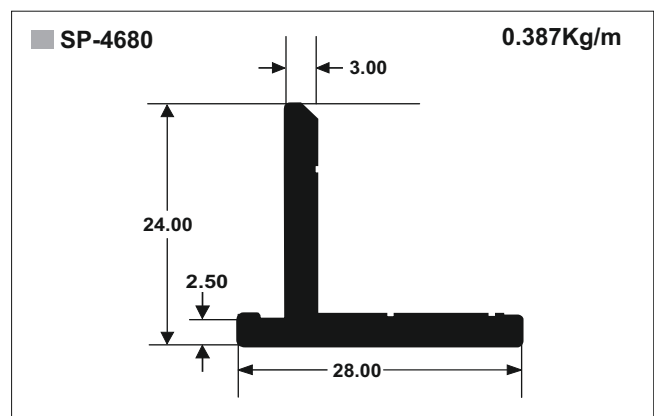
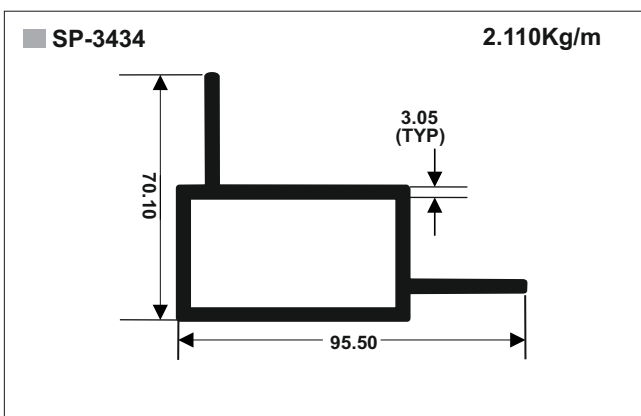
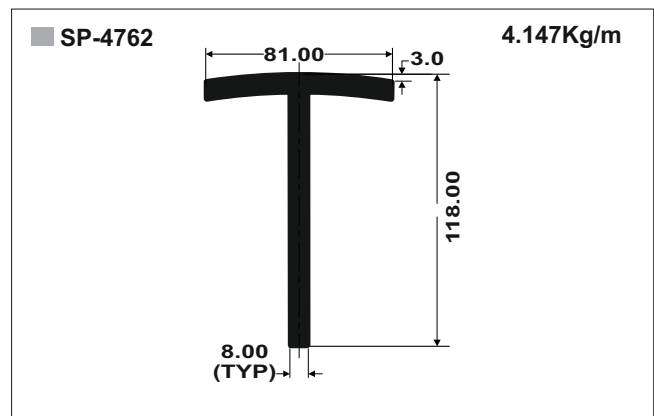
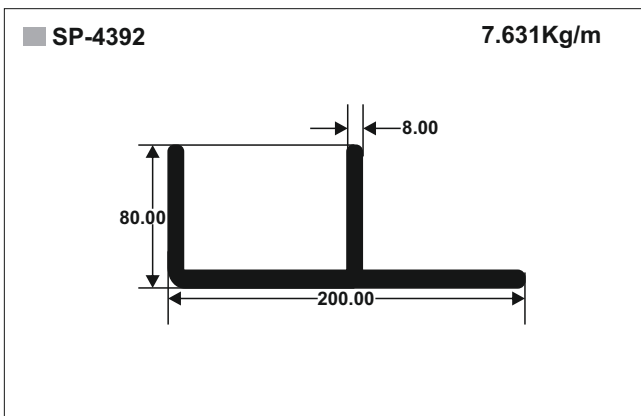
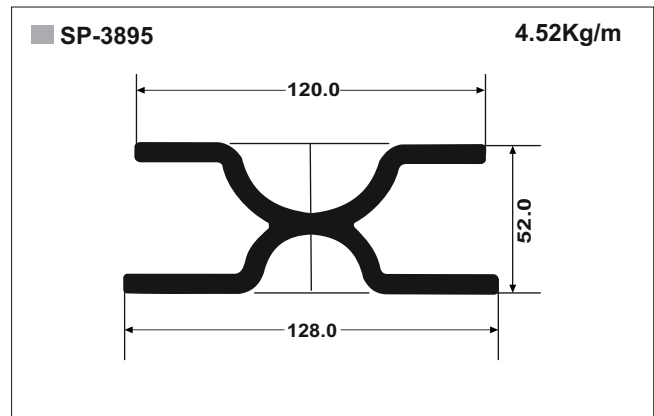
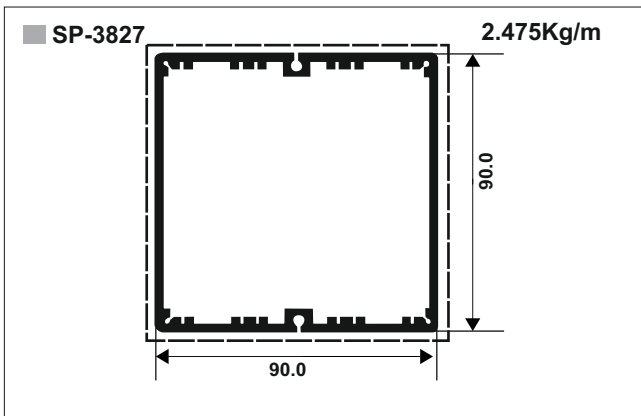
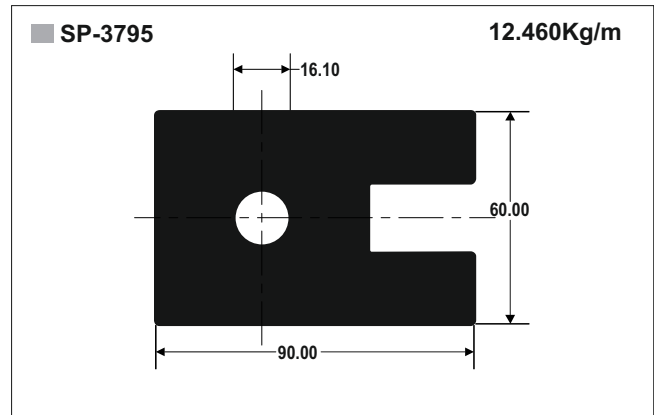
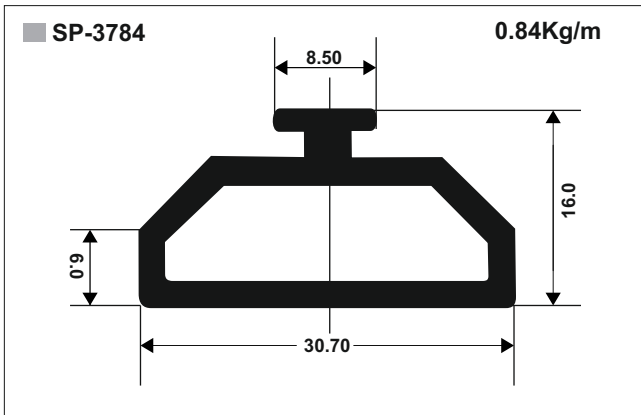


Electrical Components



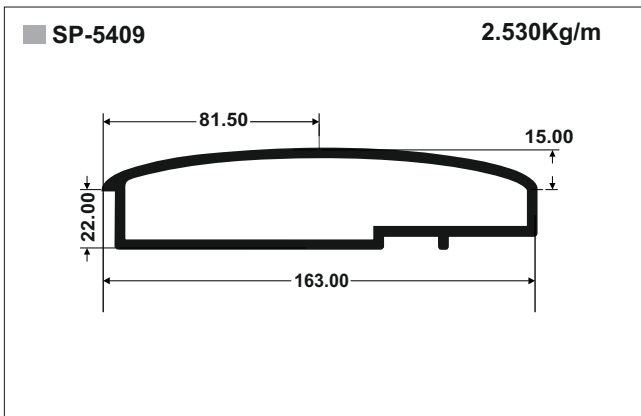
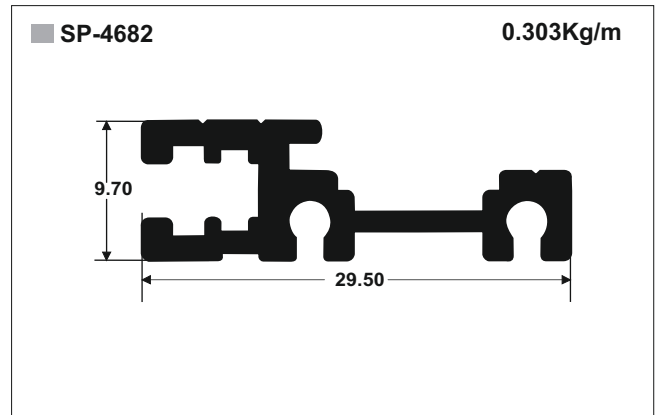
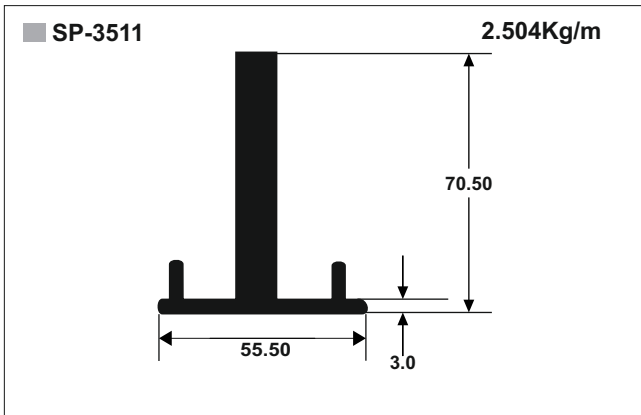


Electrical Components





Electrical Components

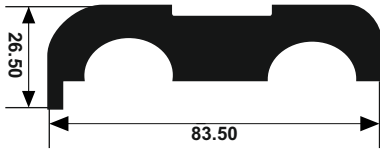




Electrical Accessories

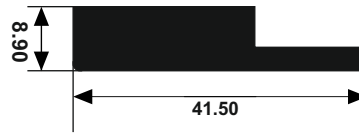
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2.929Kg/m



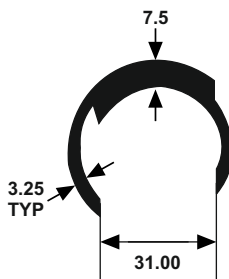
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0.766Kg/m



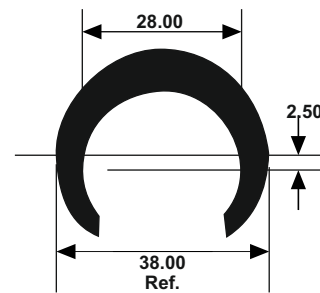
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1.16Kg/m



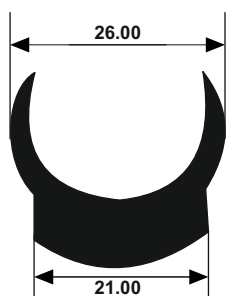
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1.22Kg/m



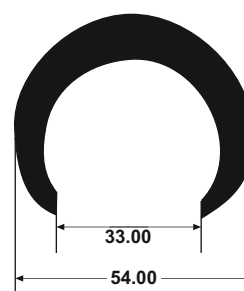
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0.60Kg/m



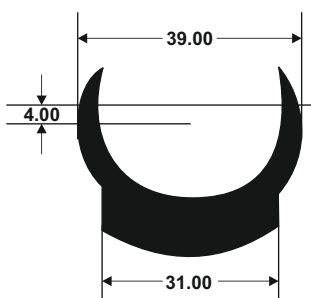
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2.32Kg/m



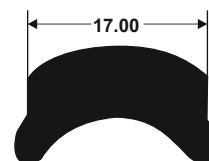
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1.32Kg/m



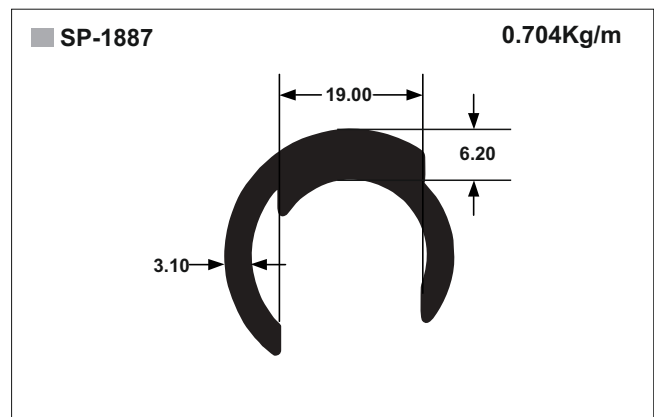
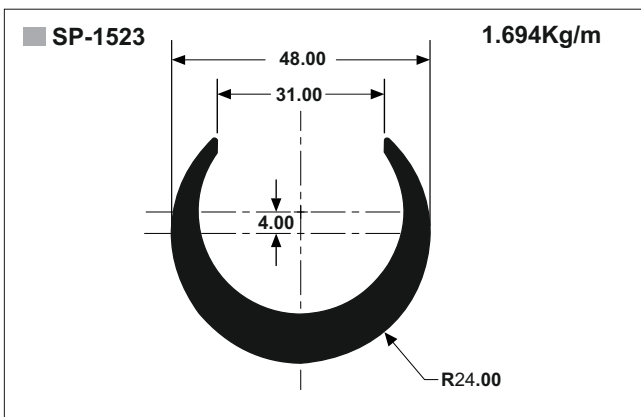
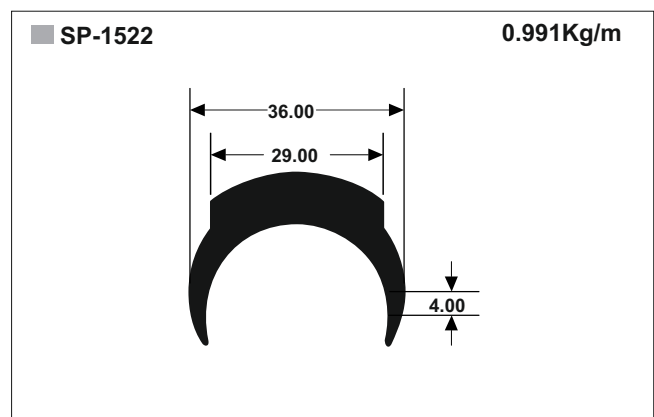
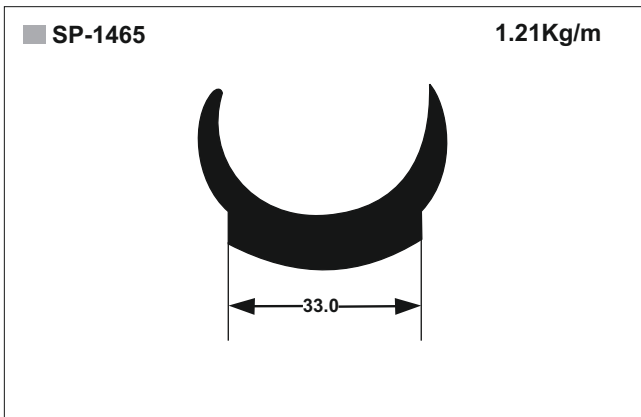
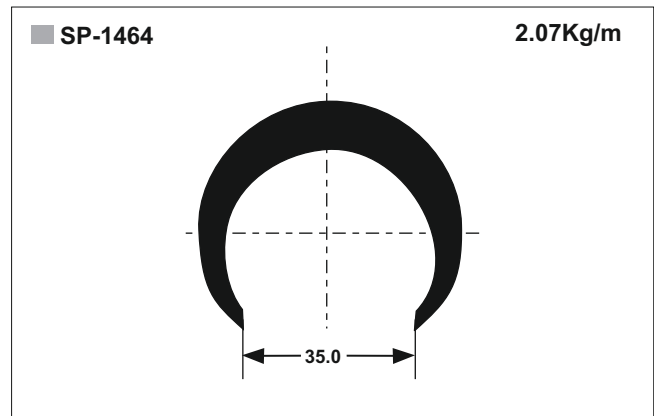
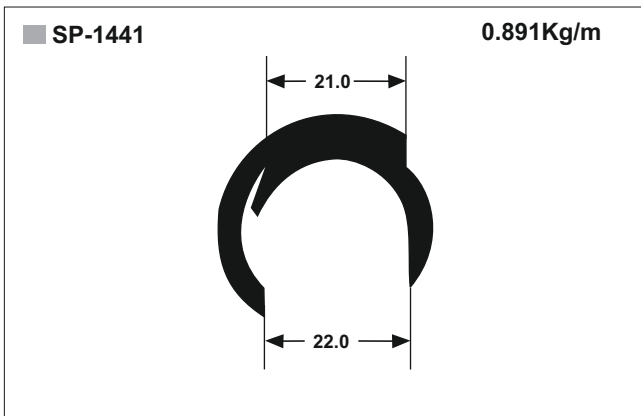
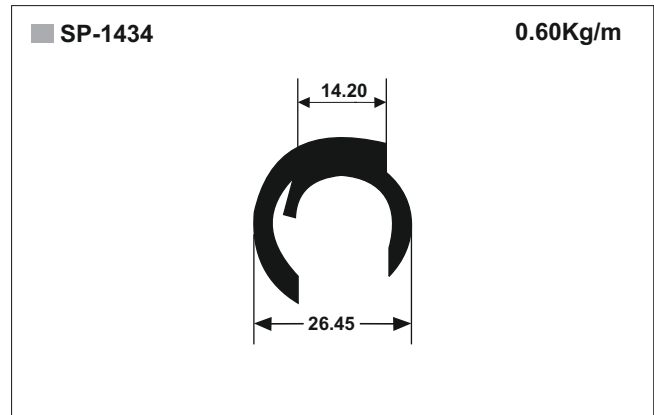
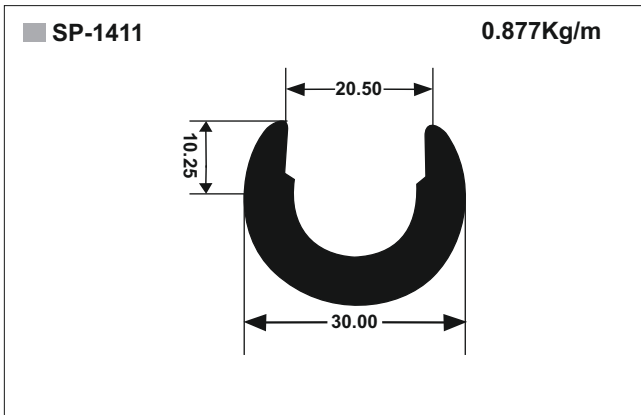
■ SP-1410

0.35Kg/m



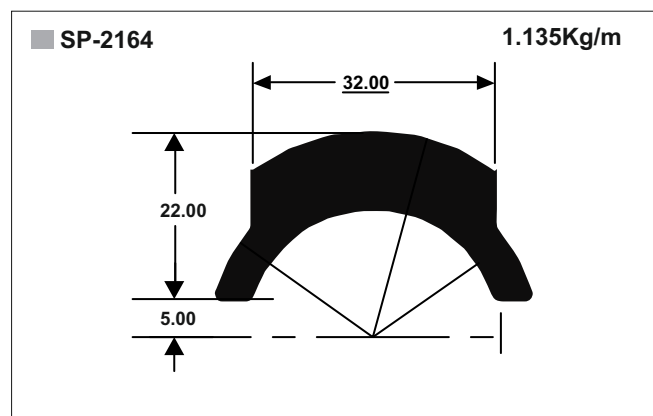
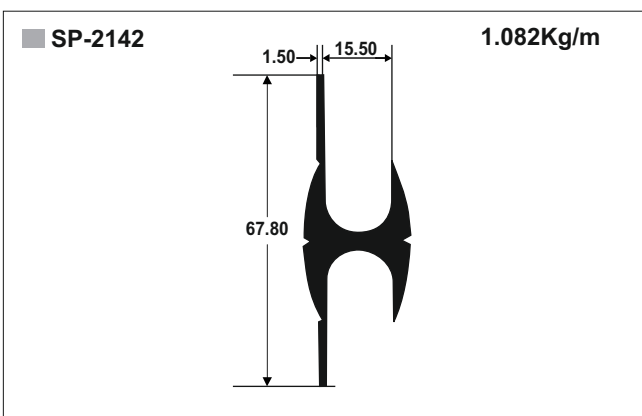
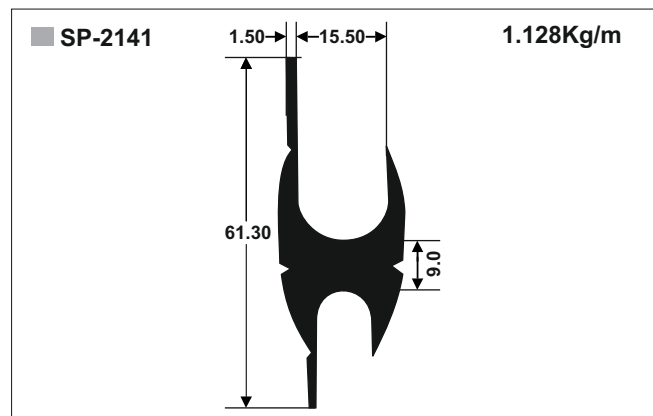
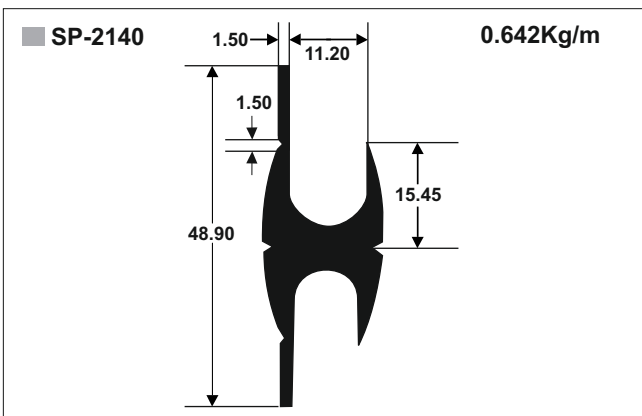
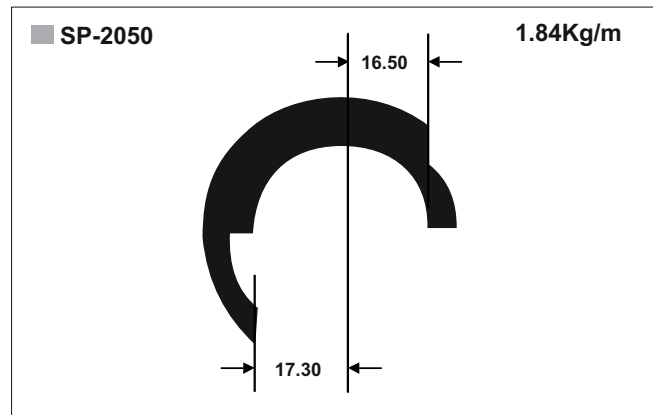
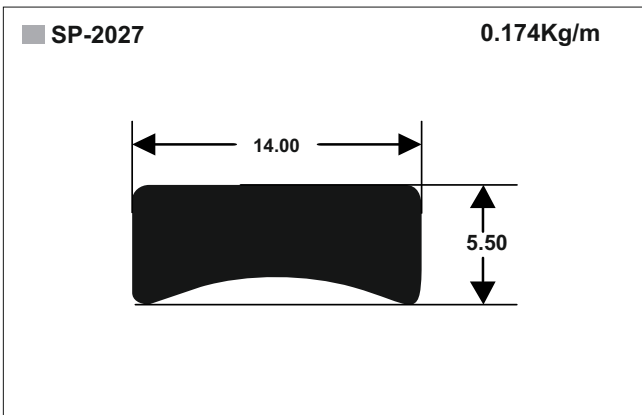
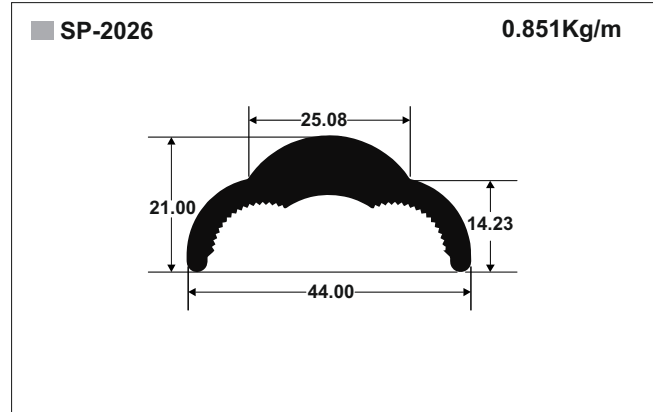
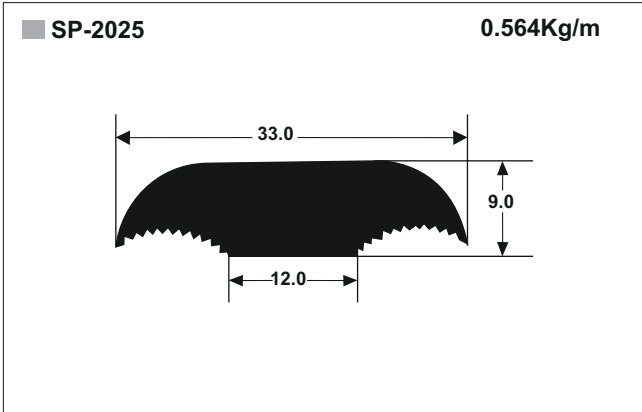


Electrical Accessories



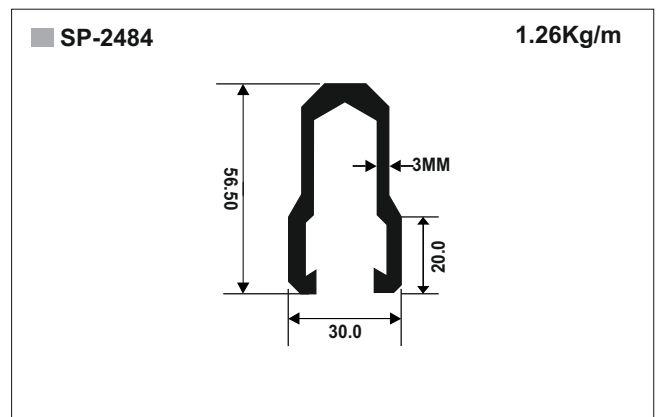
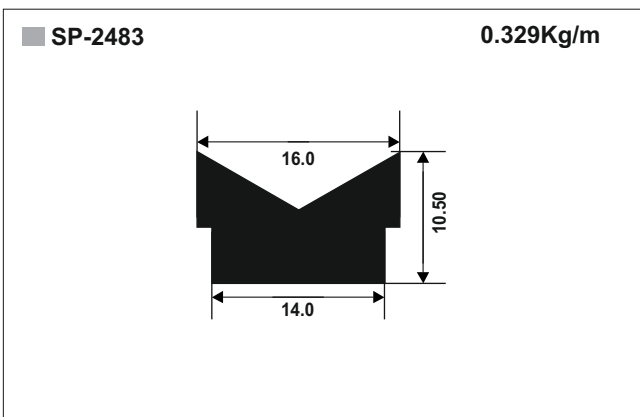
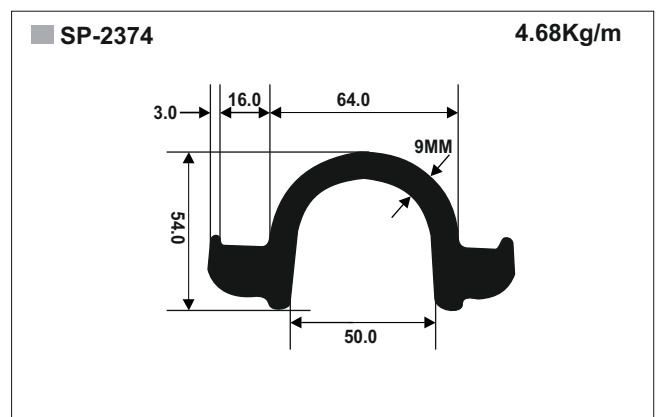
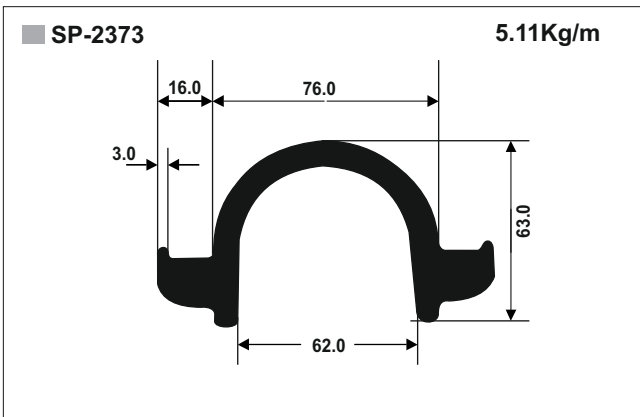
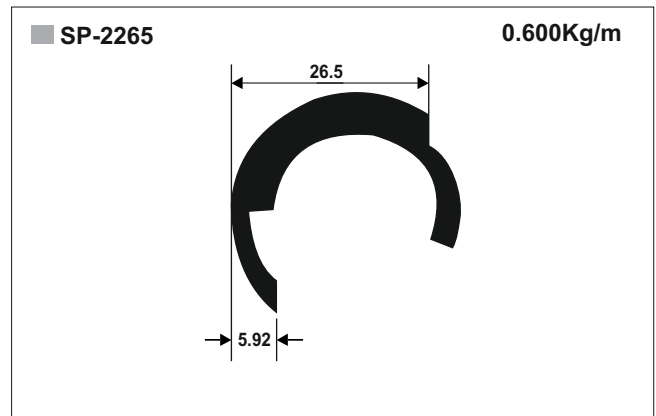
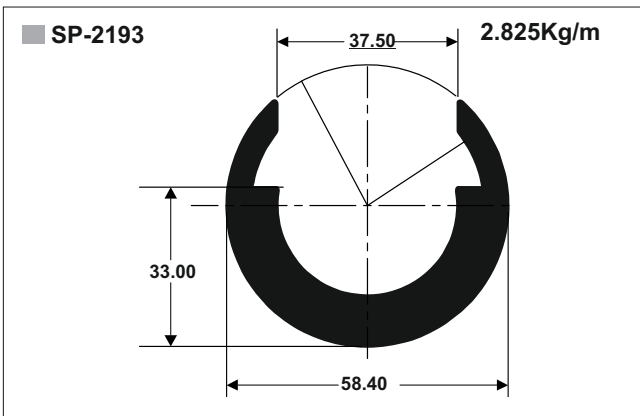
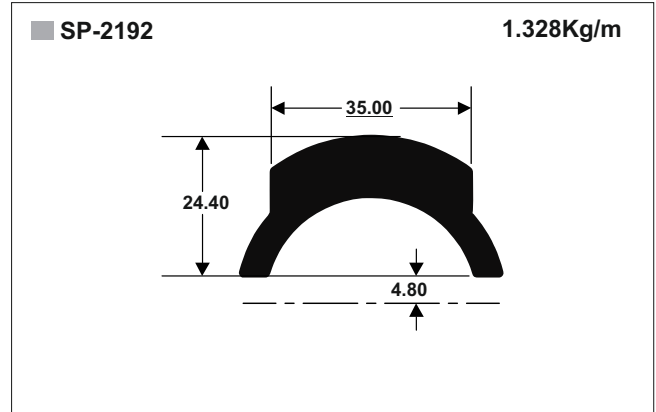
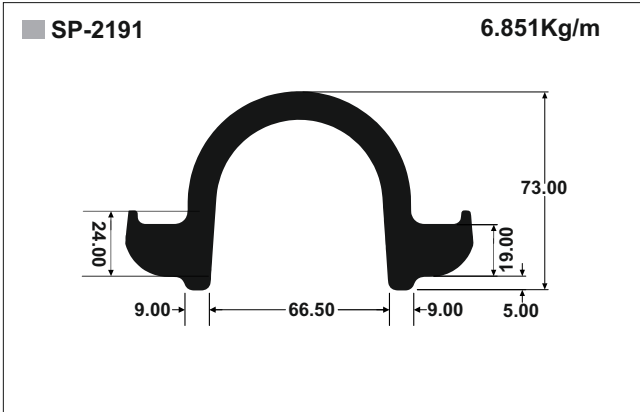


Electrical Accessories





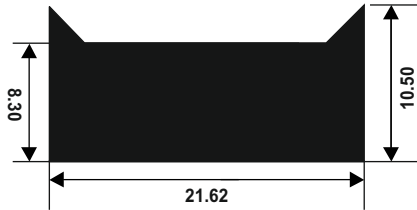
Electrical Accessories



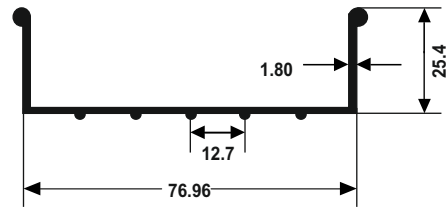


Electrical Accessories

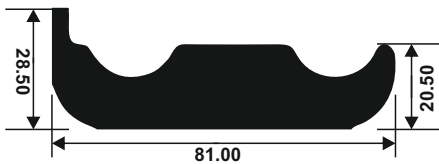
■ SP-2485 0.491Kg/m



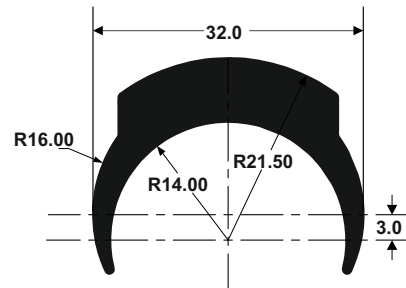
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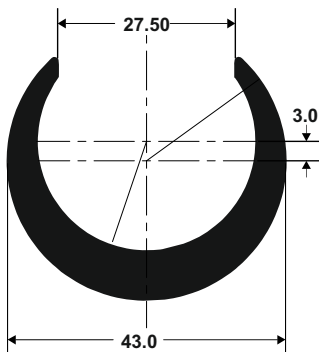
■ SP-3445 3.73Kg/m



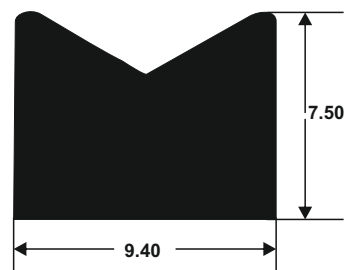
■ SP-4096 0.761Kg/m



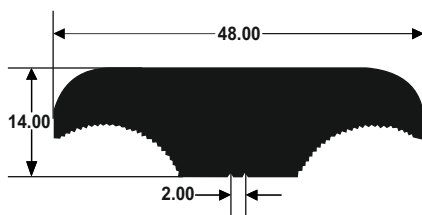
■ SP-4097 1.322Kg/m



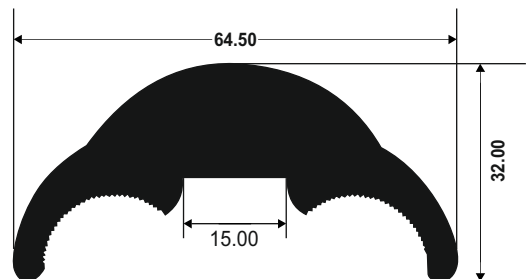
■ SP-4190 0.165Kg/m



■ SP-4289 1.296Kg/m

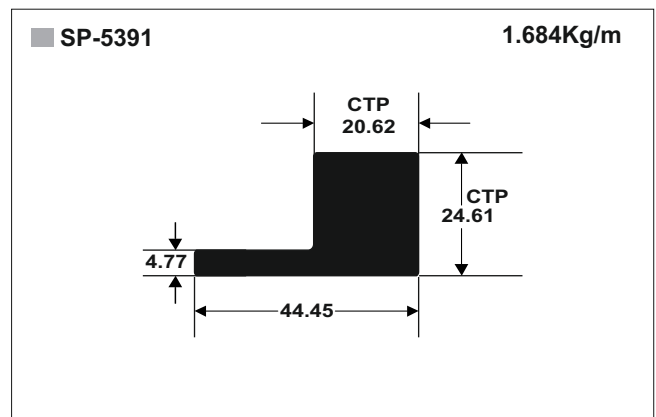
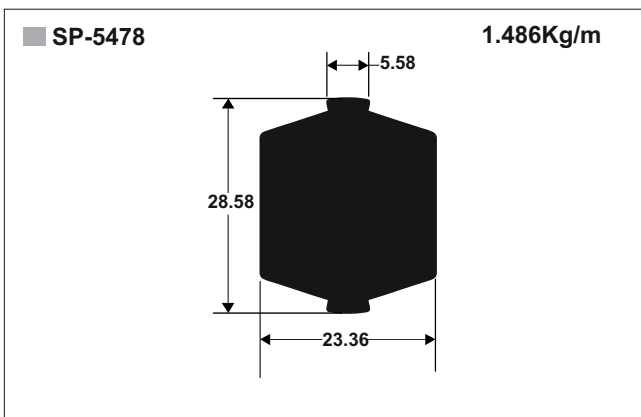
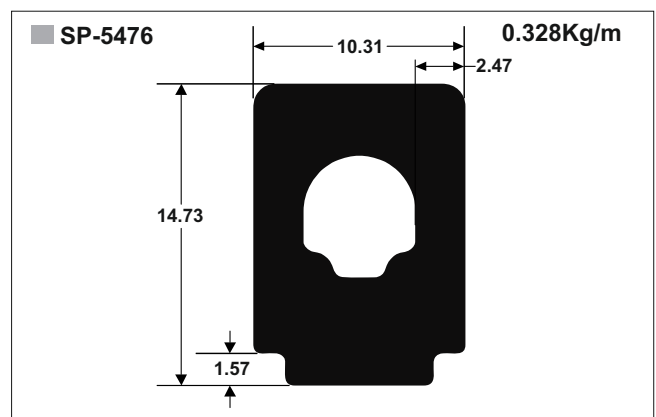
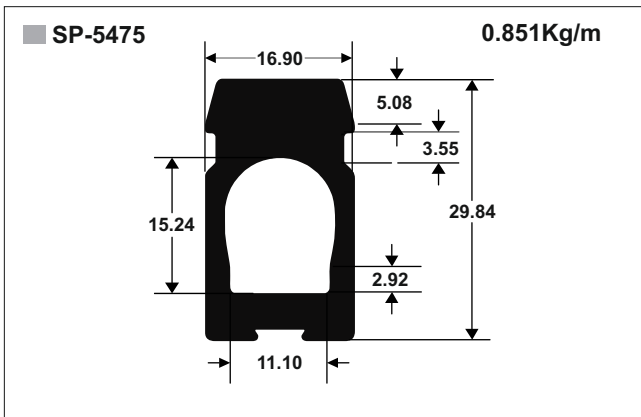
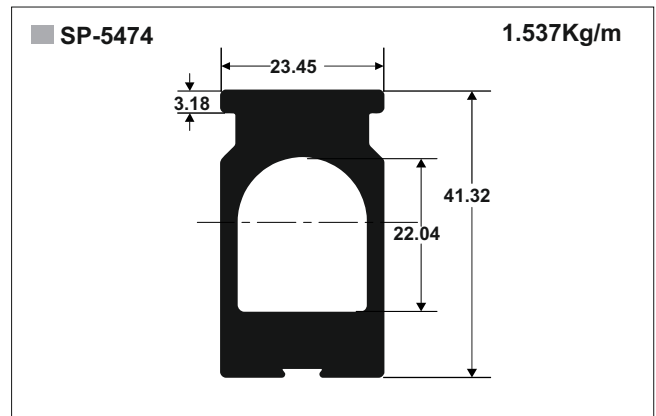
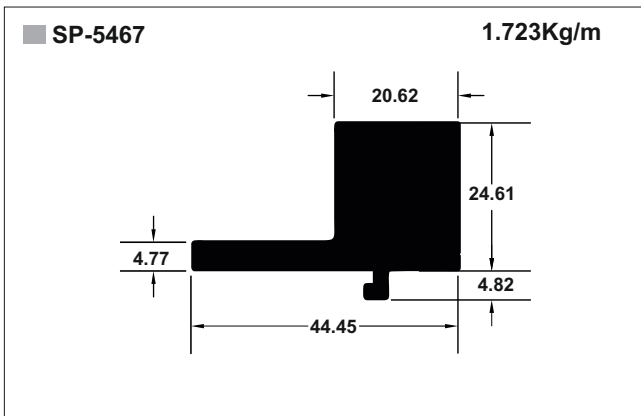
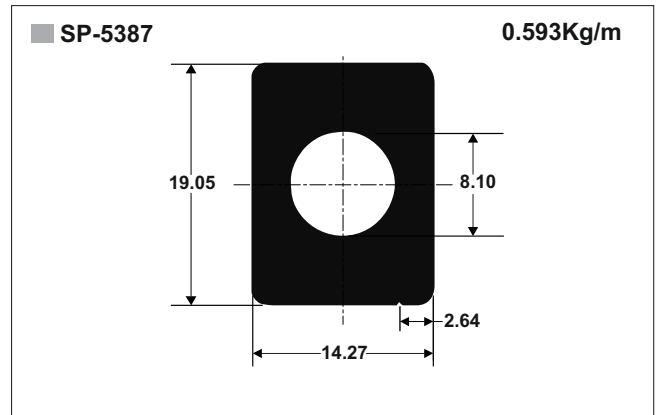
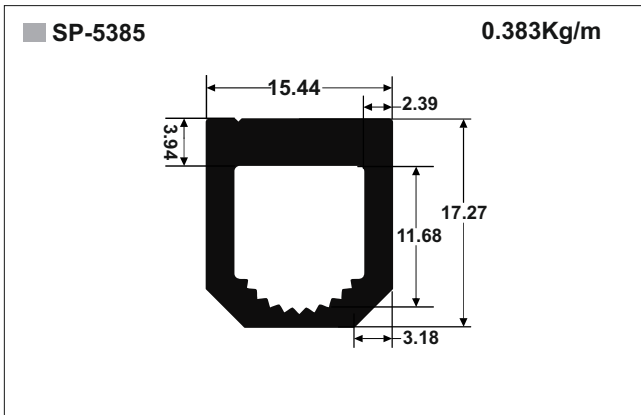


■ SP-4290 2.316Kg/m



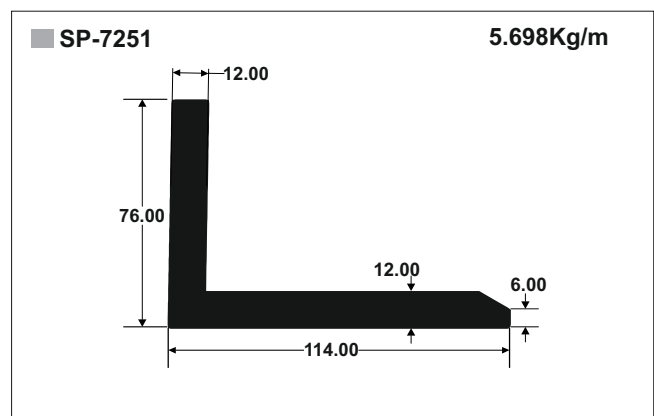
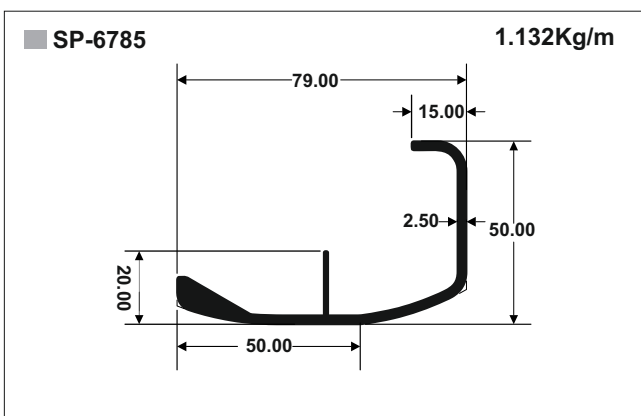
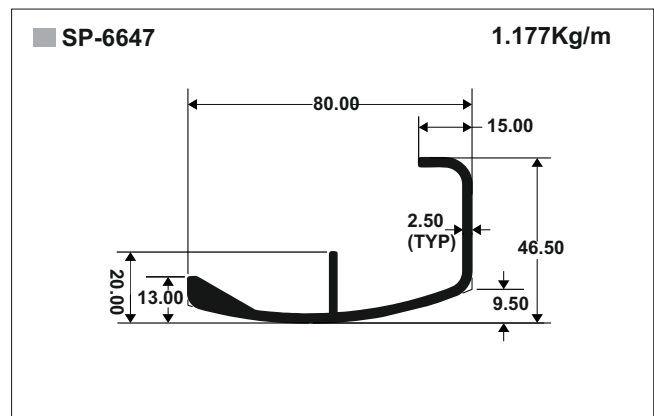
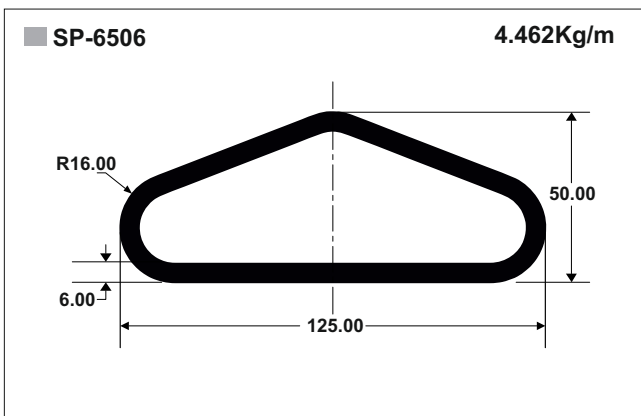
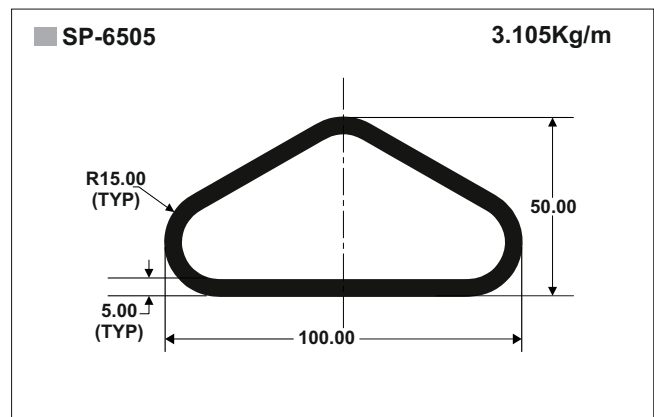
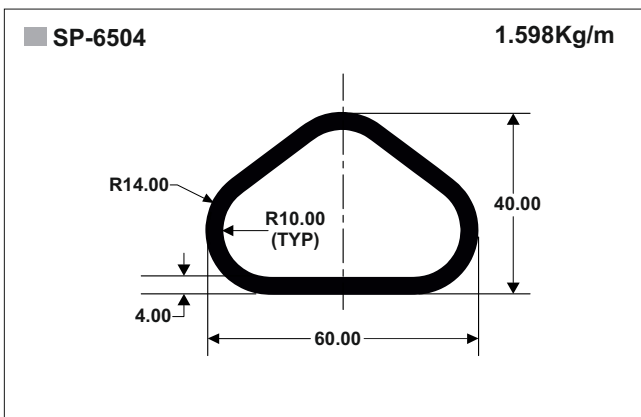
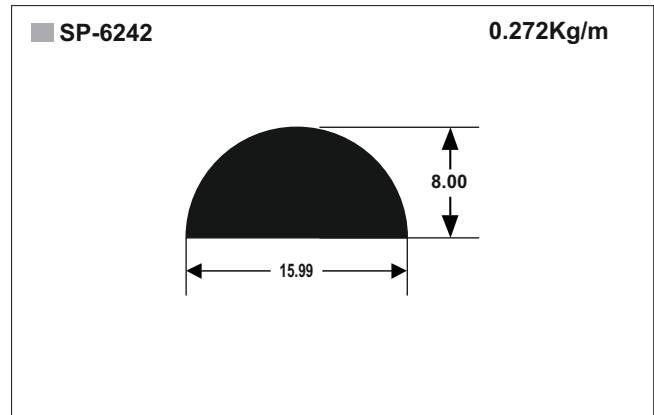
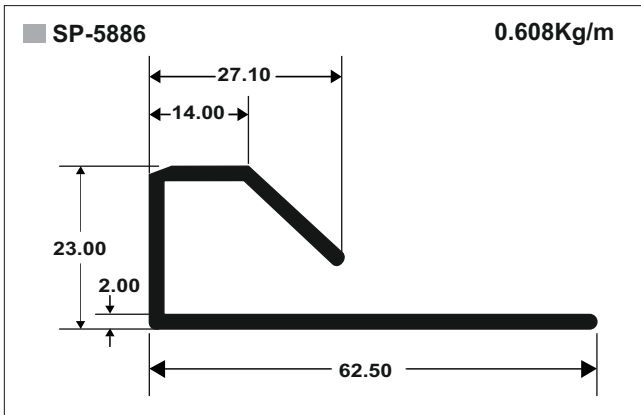


Electrical Accessories



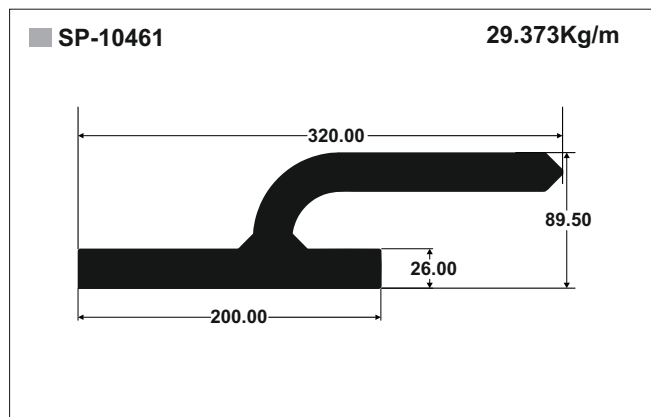
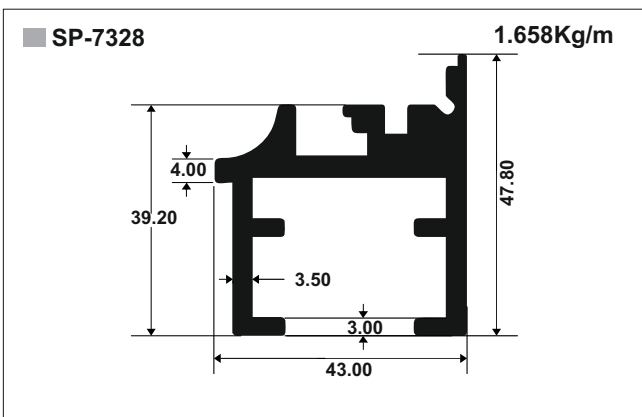
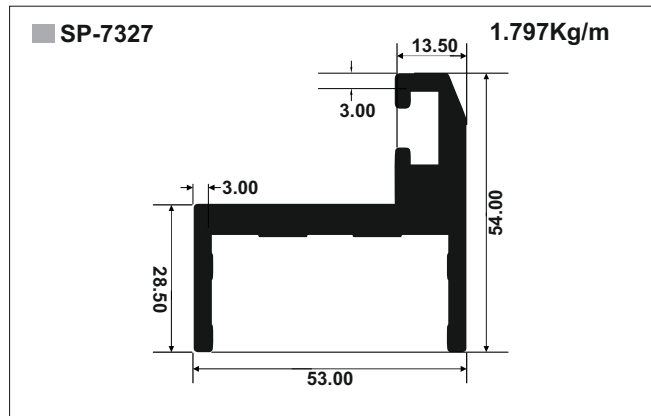
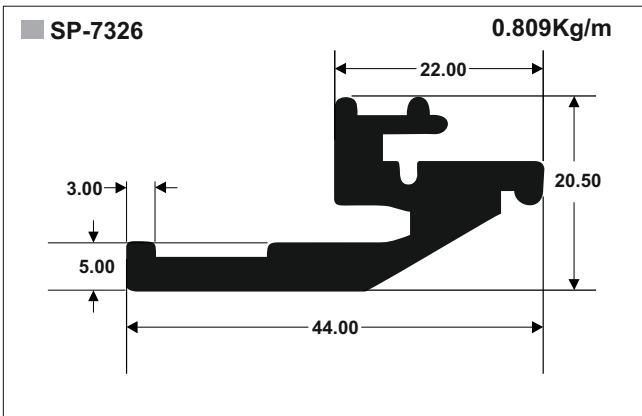
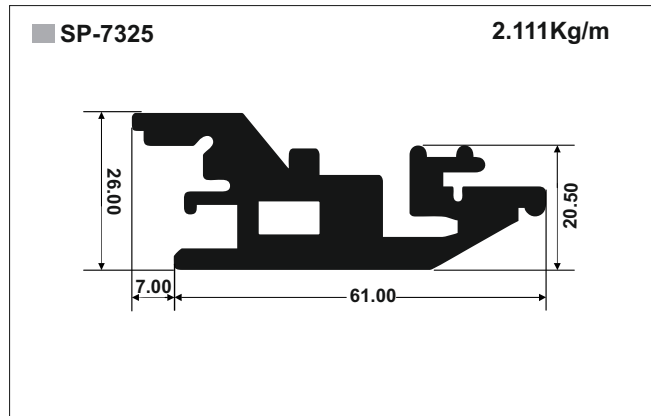
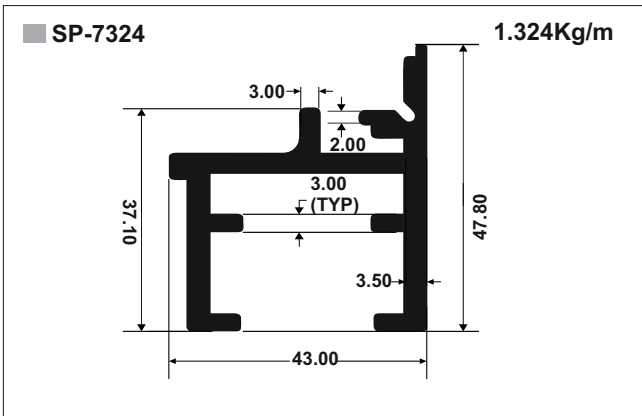
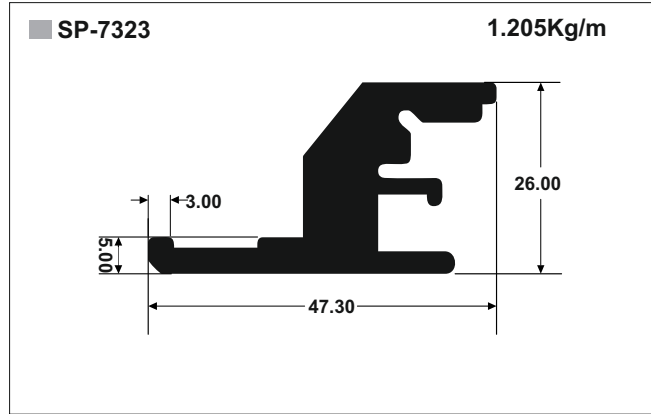
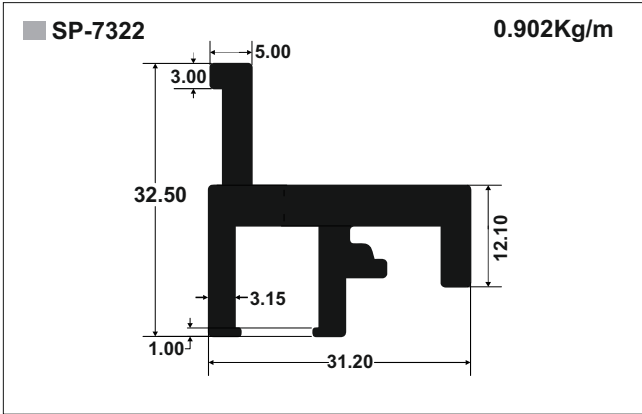


Electrical Accessories



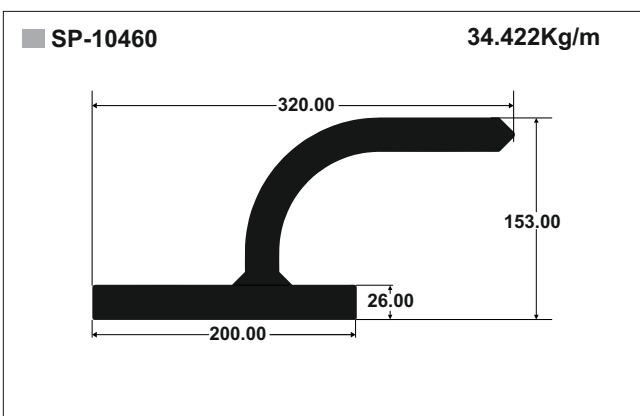
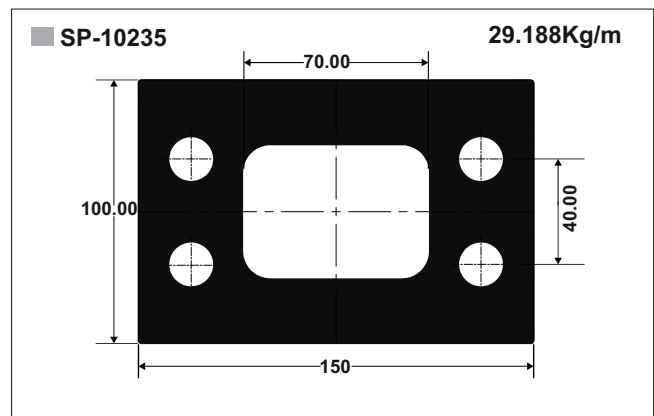
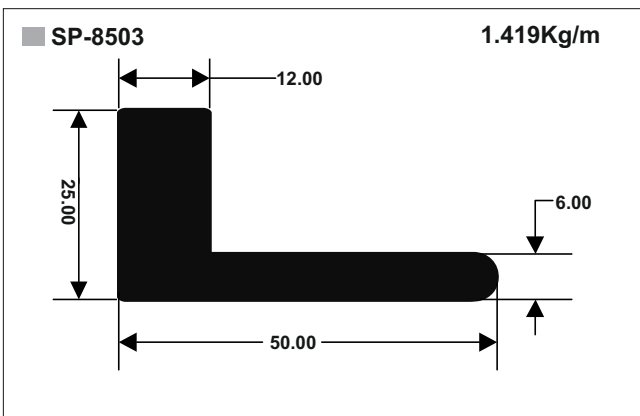
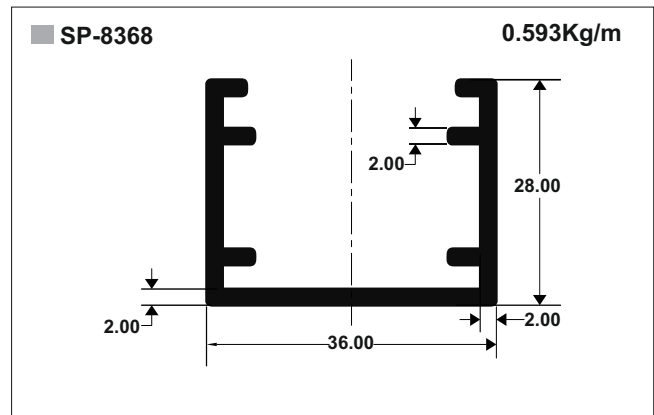
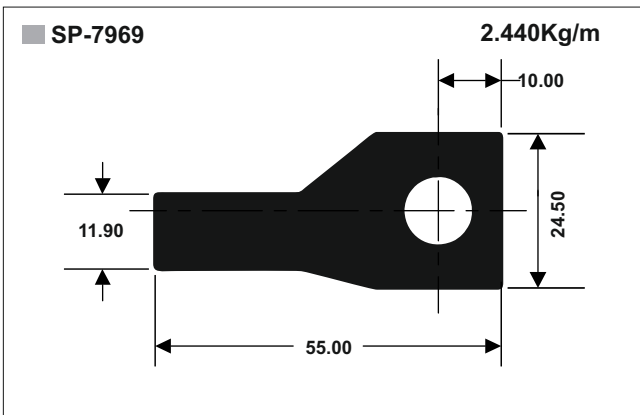
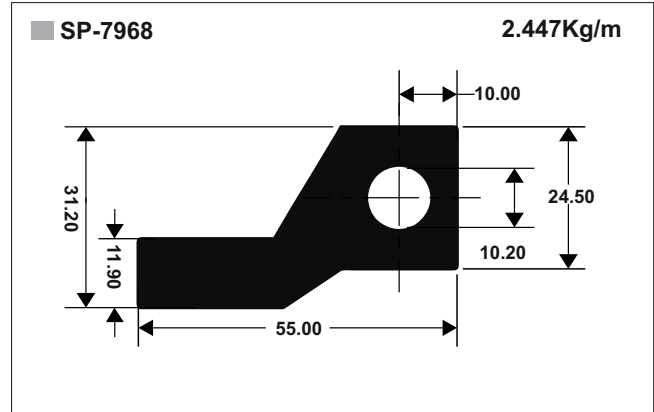
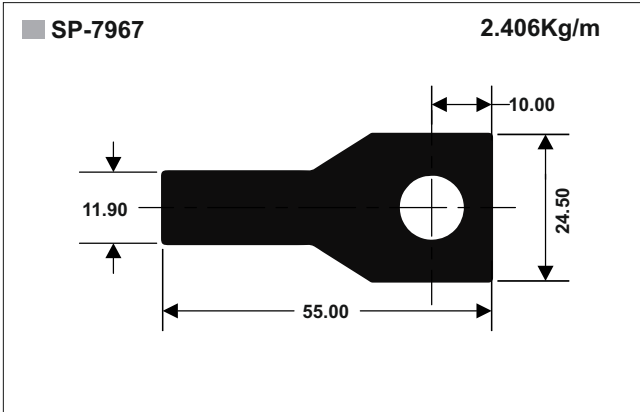


Electrical Accessories



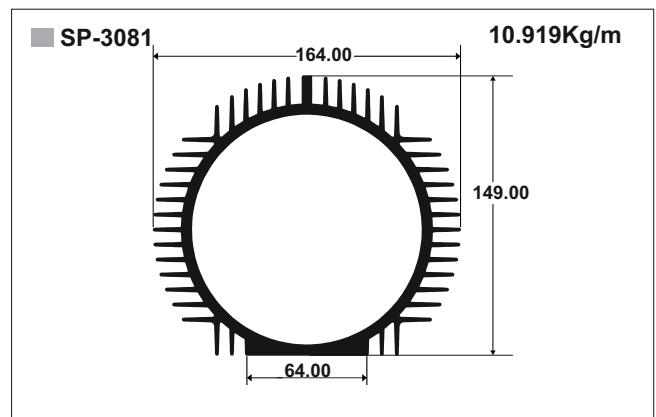
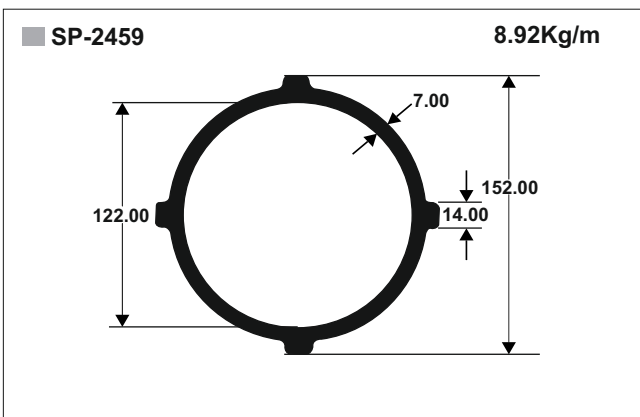
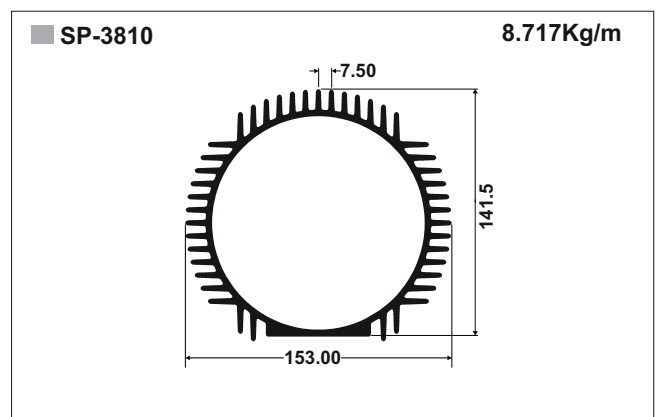
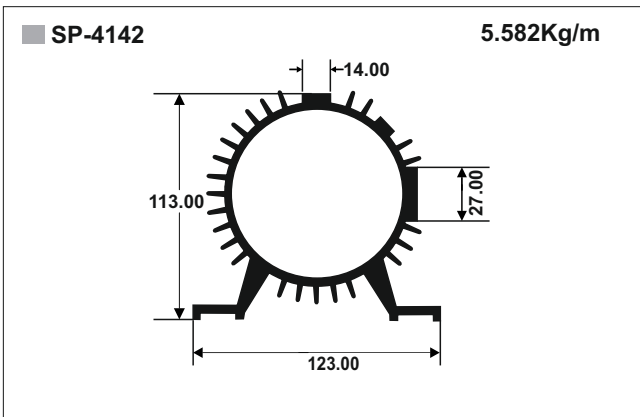
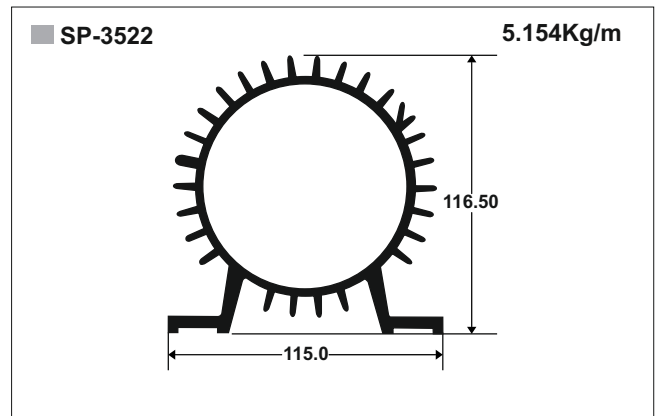
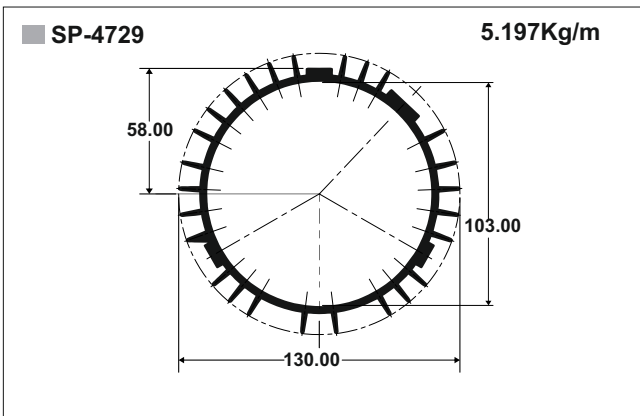
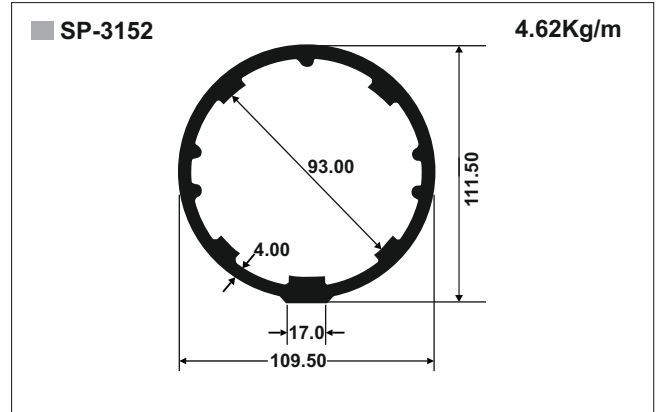
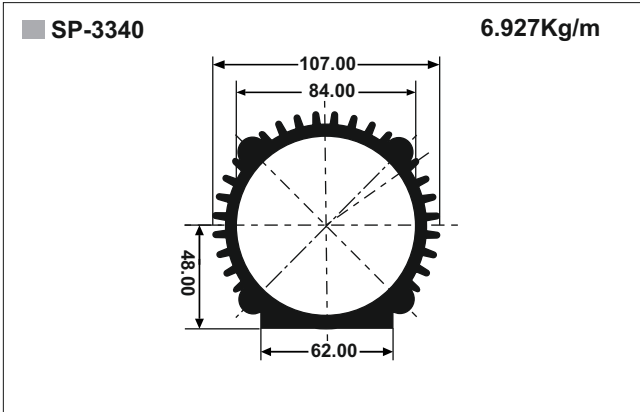


Electrical Accessories



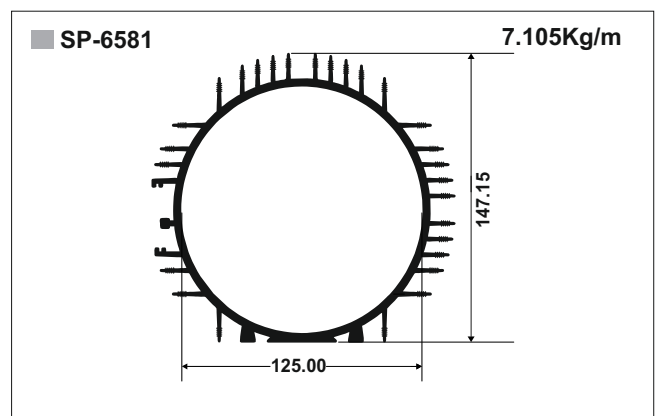
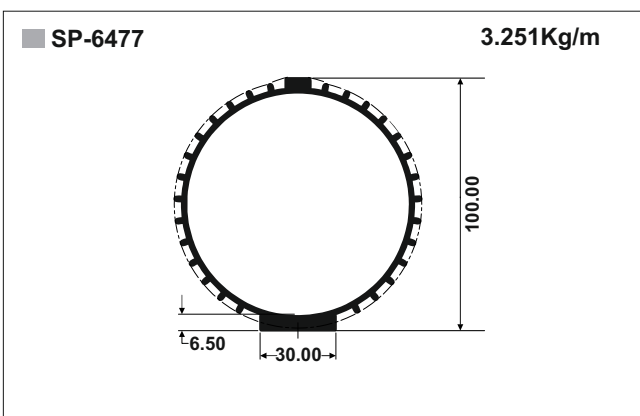
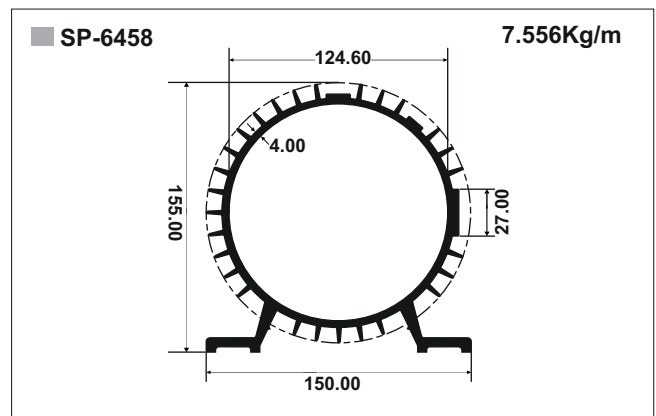
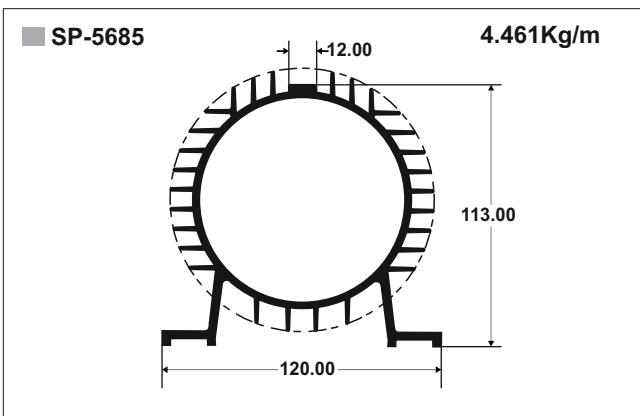
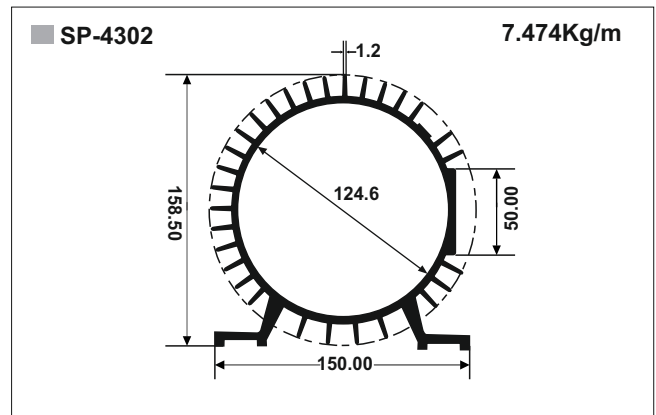
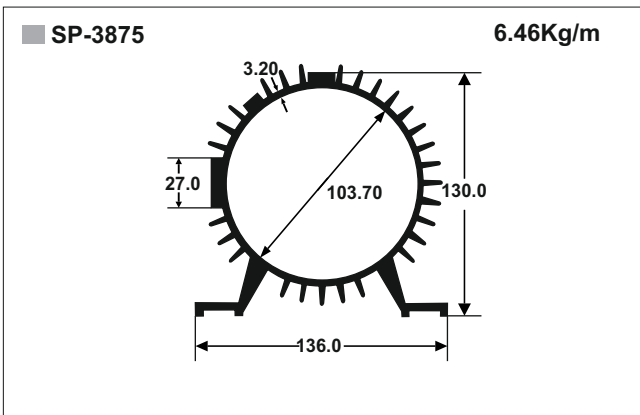
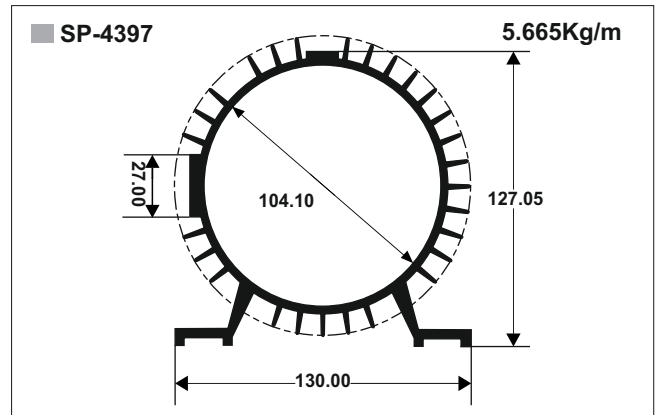
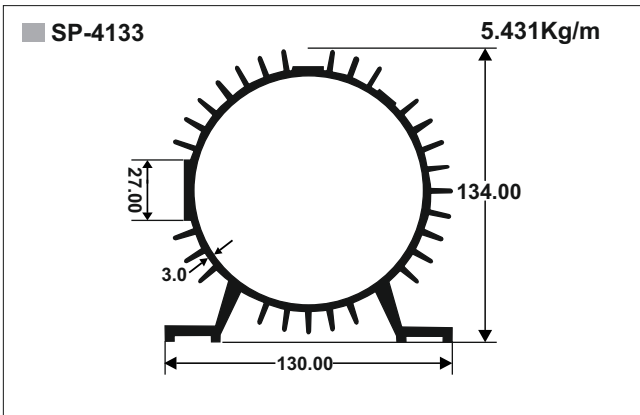


Motor Body



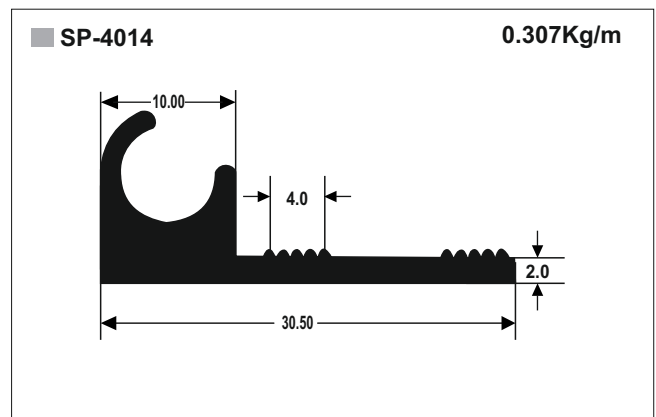
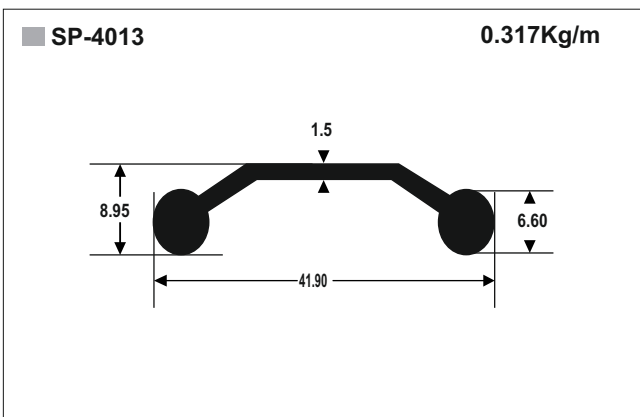
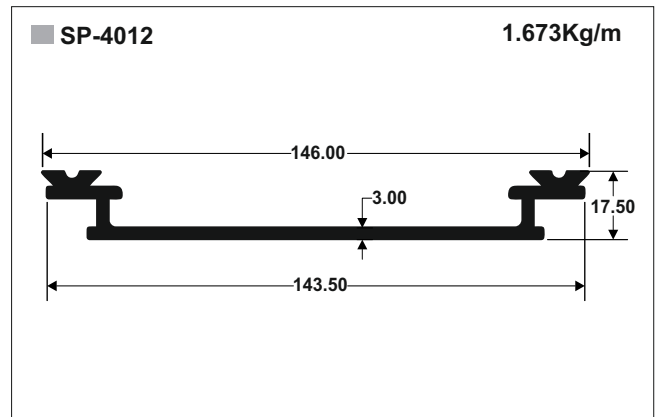
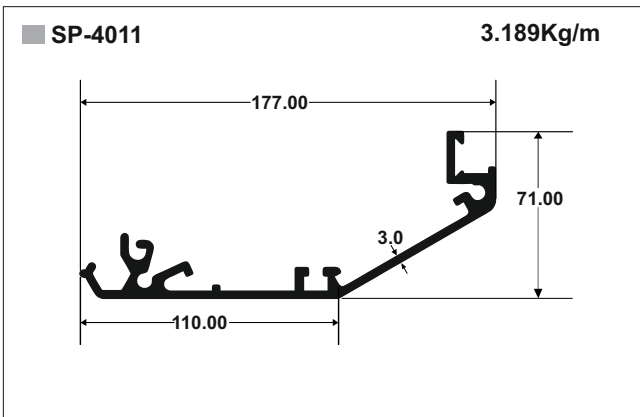
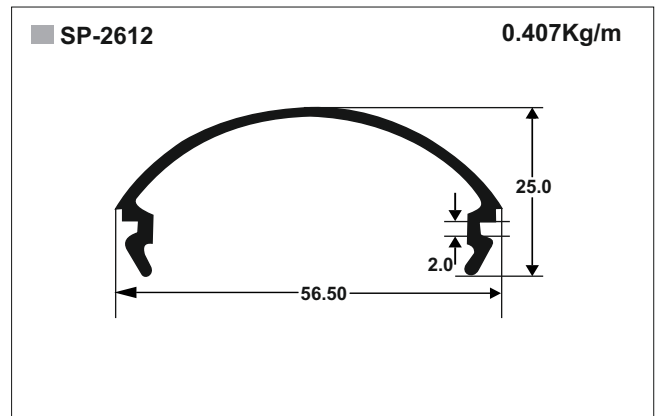
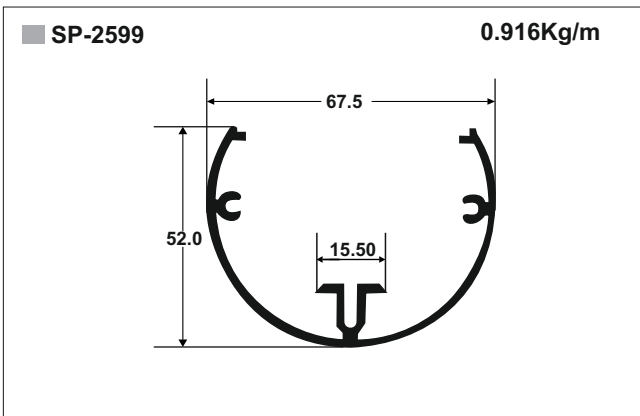
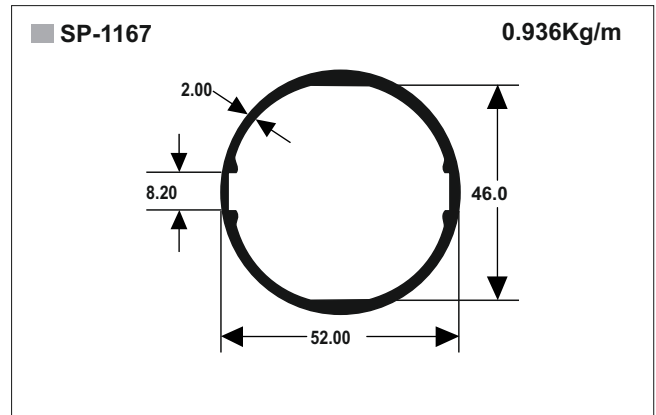
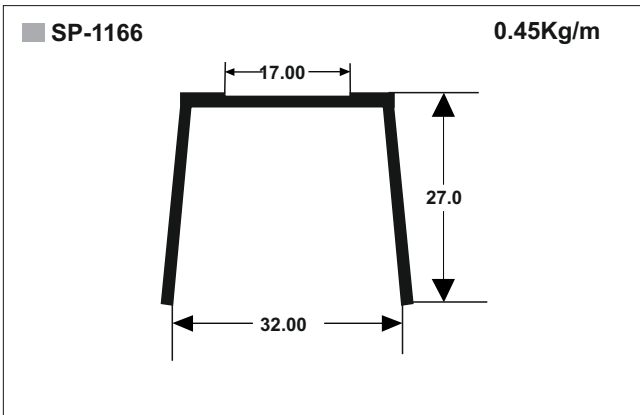


Motor Body



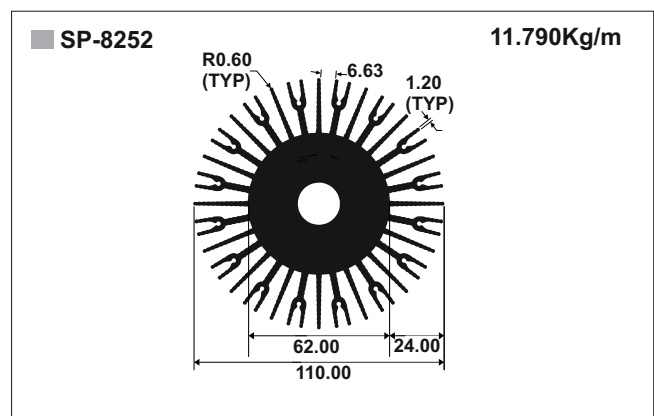
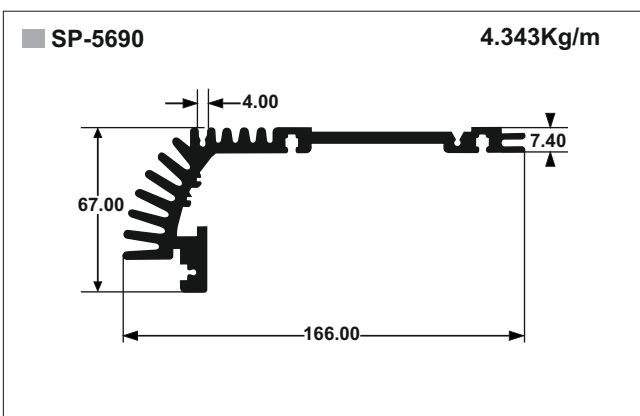
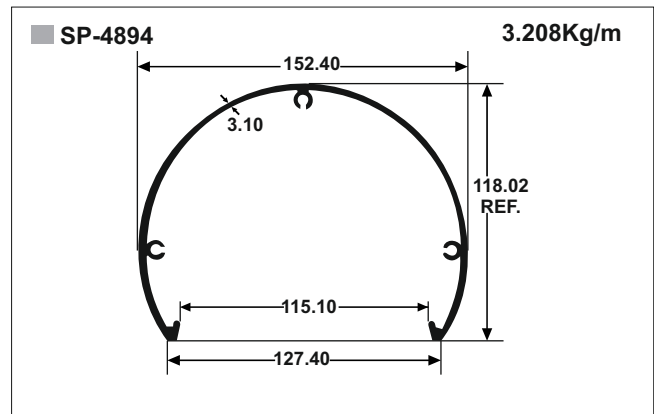
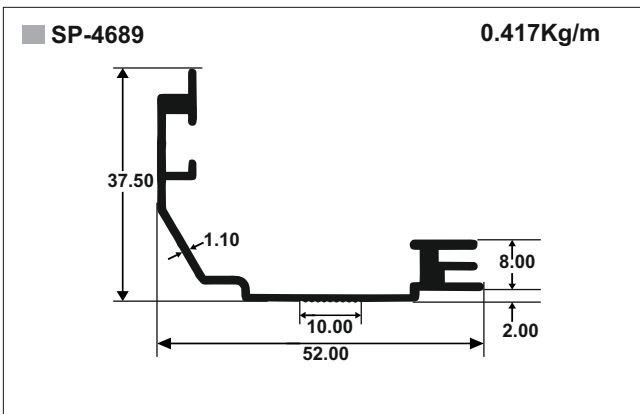
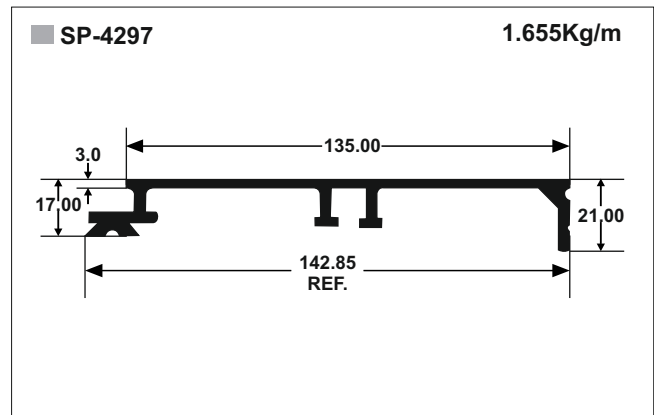
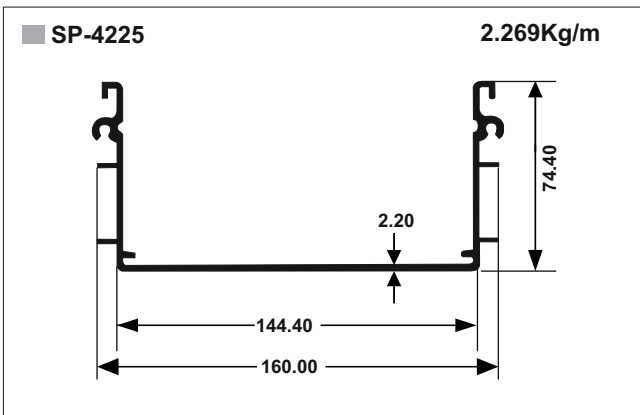
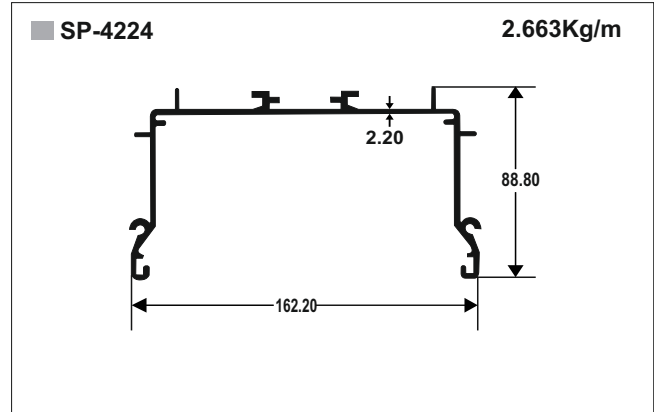
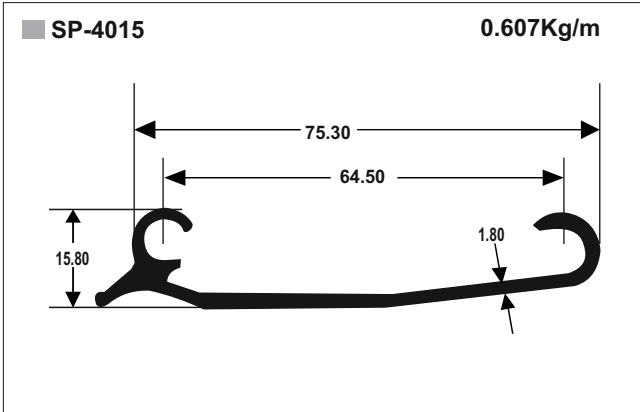


Light Fixtures



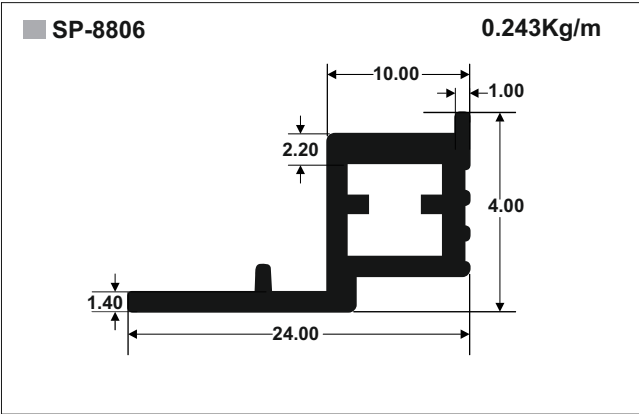


Light Fixtures

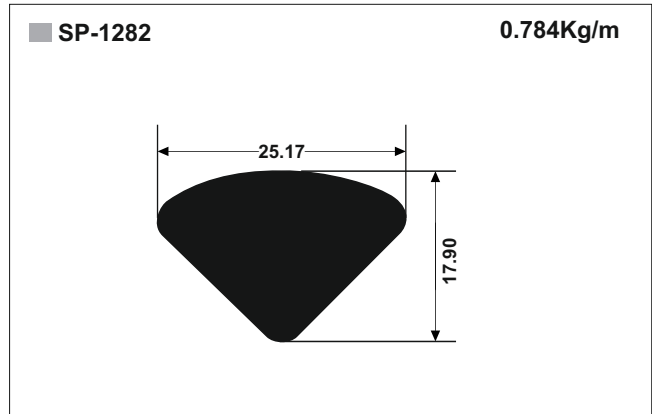
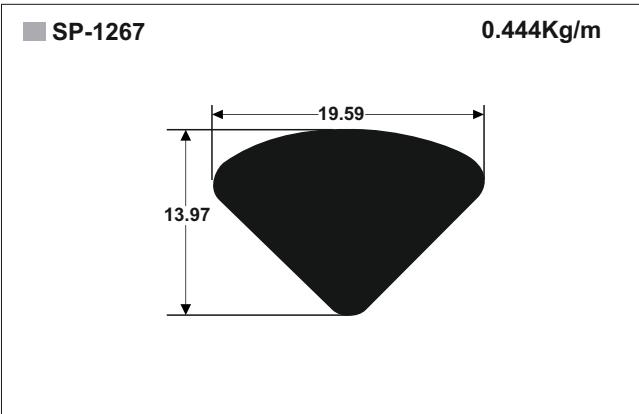




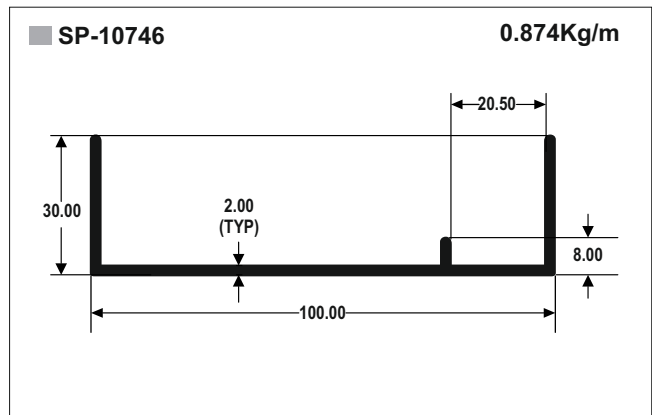
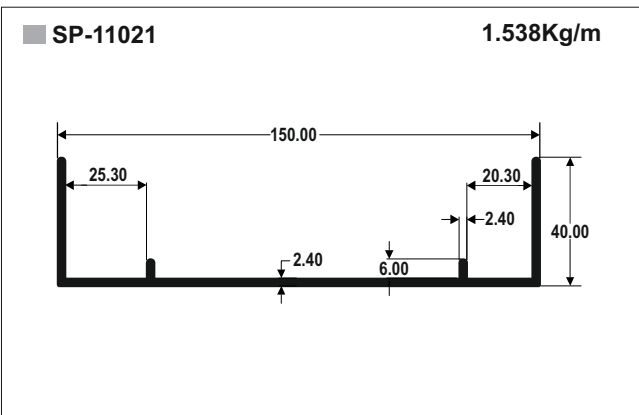
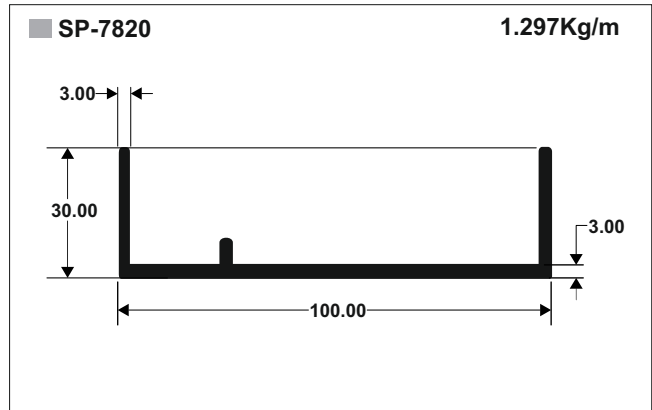
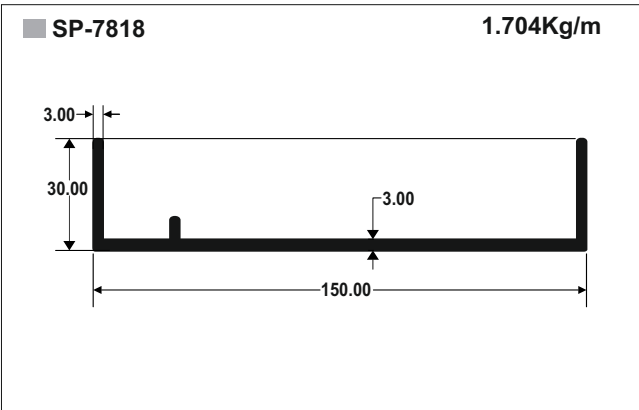
Light Fixtures



Cable Core



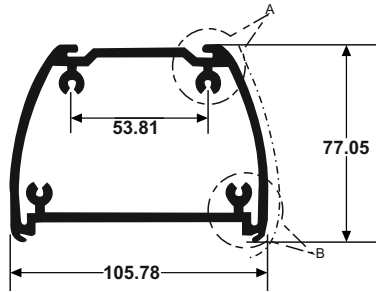
Cable Tray



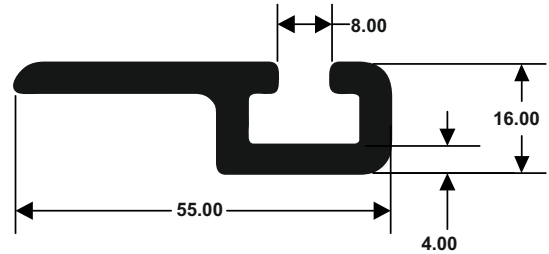


Electronic Components

■ SP-5479 3.502Kg/m



■ SP-466 0.963Kg/m



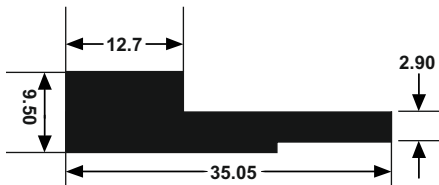
■ SP-882 1.458Kg/m



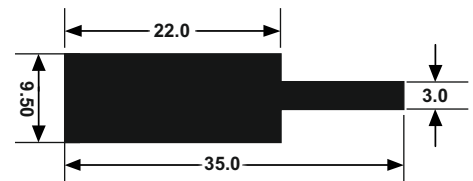
■ SP-1248 0.1944Kg/m



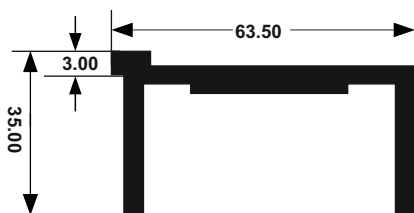
■ SP-1262 0.54Kg/m



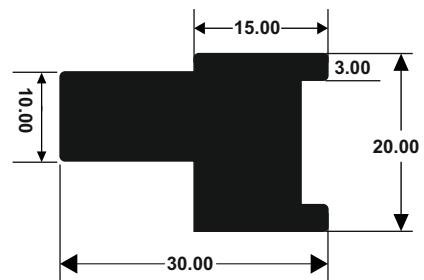
■ SP-1263 0.669Kg/m



■ SP-1268 1.47Kg/m

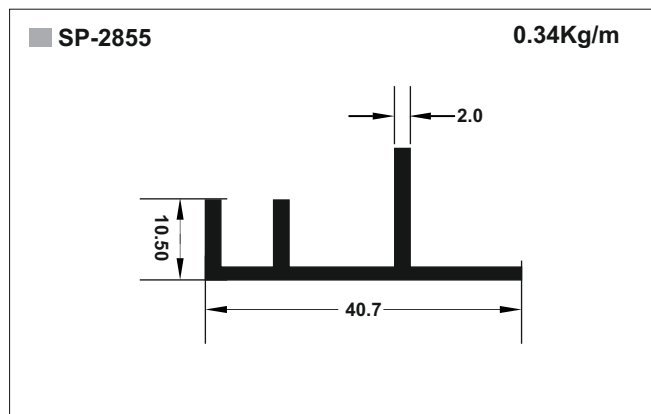
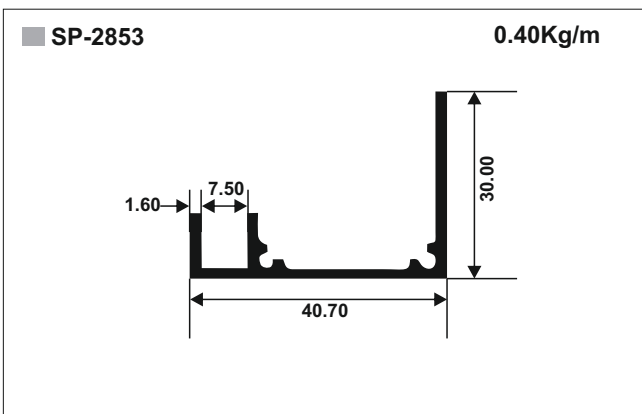
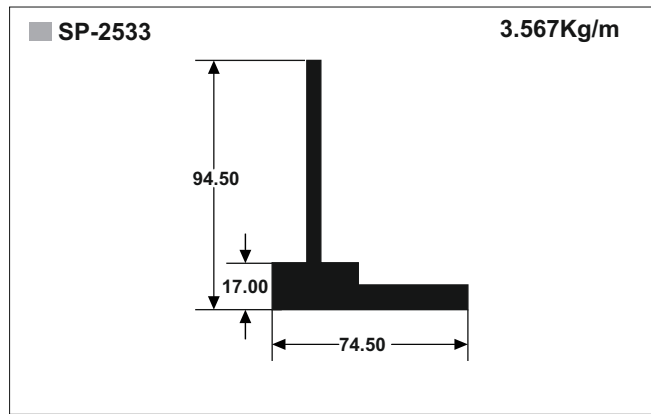
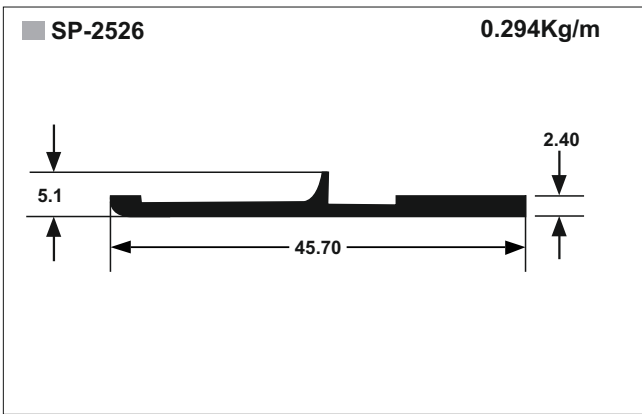
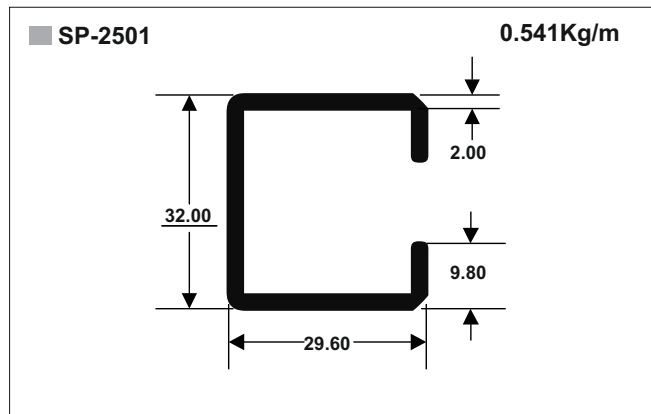
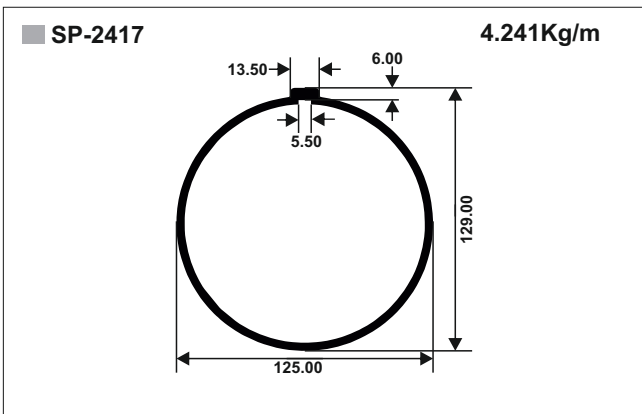
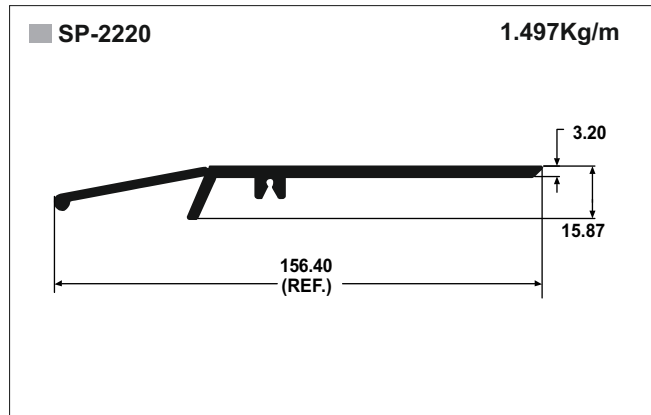
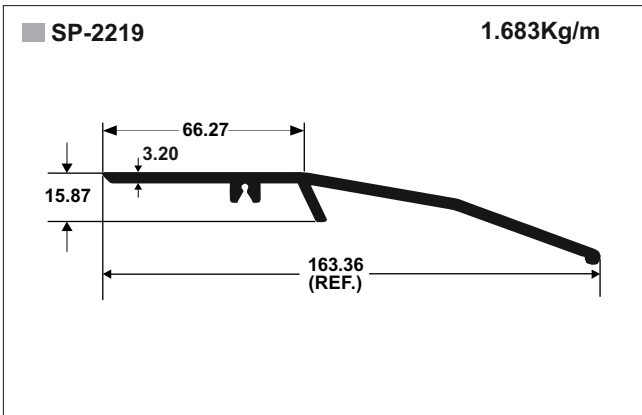


■ SP-2035 1.104Kg/m



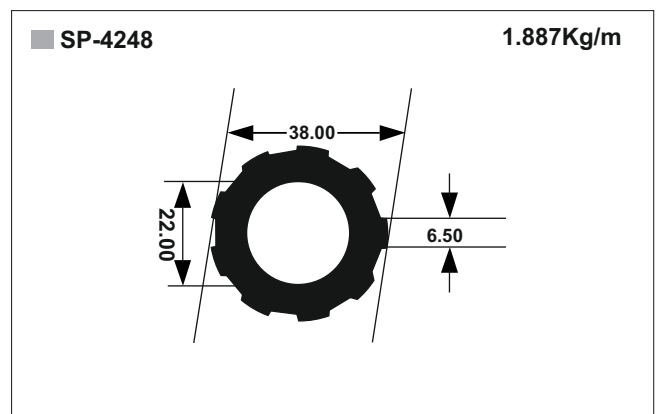
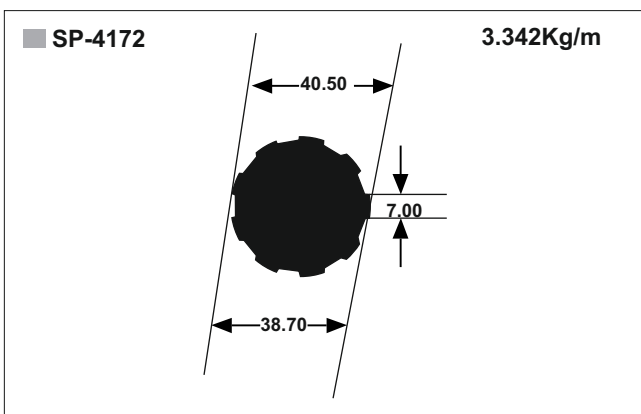
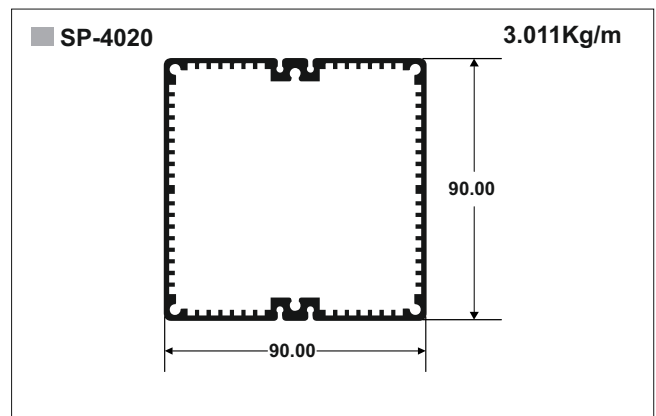
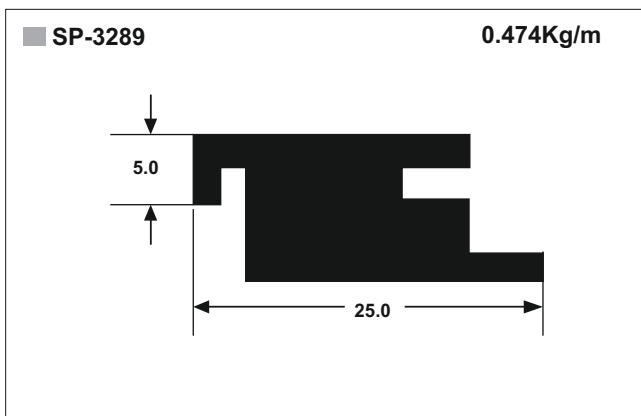
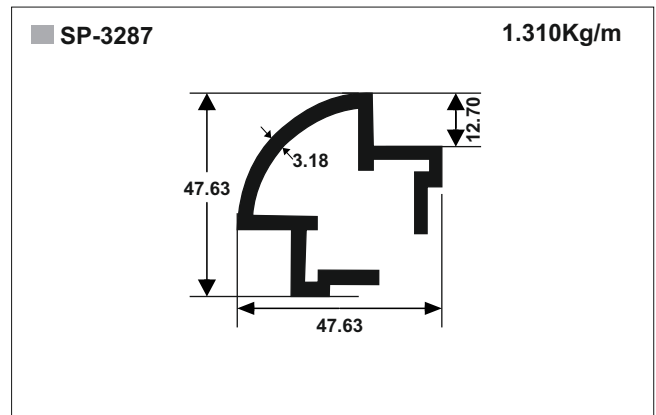
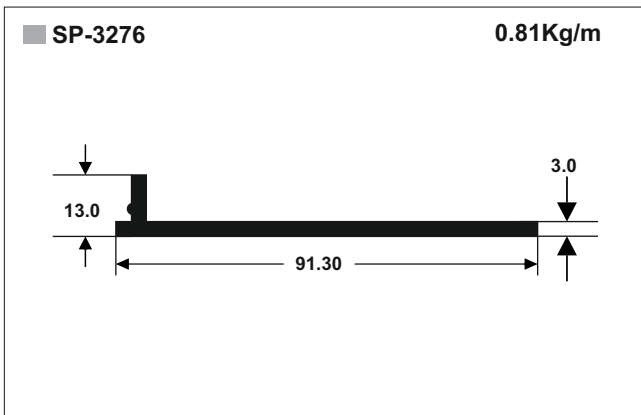
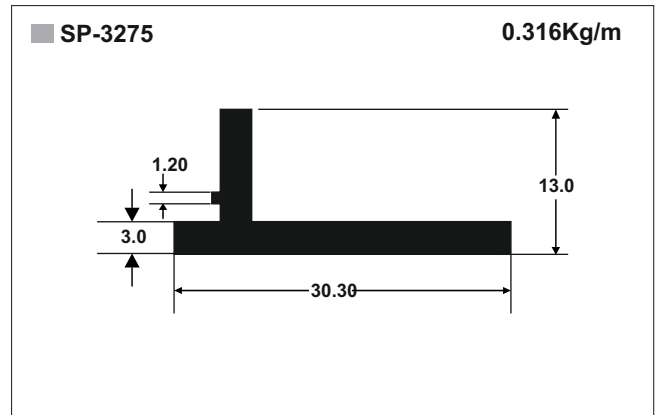
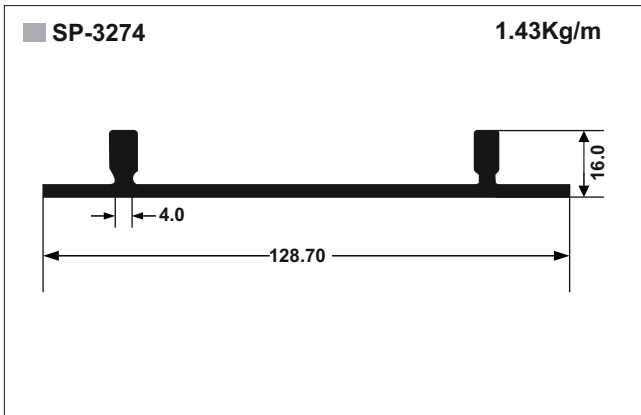


Electronic Components



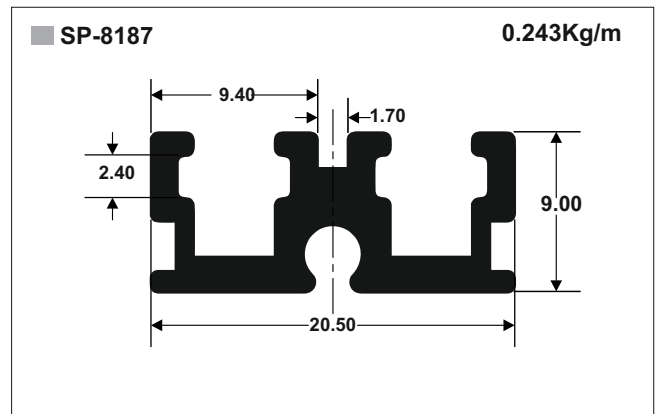
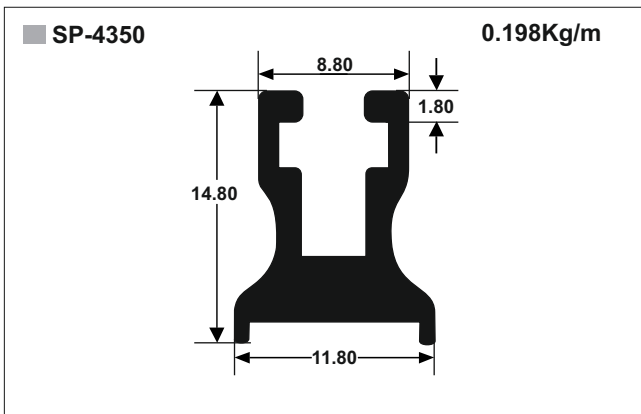
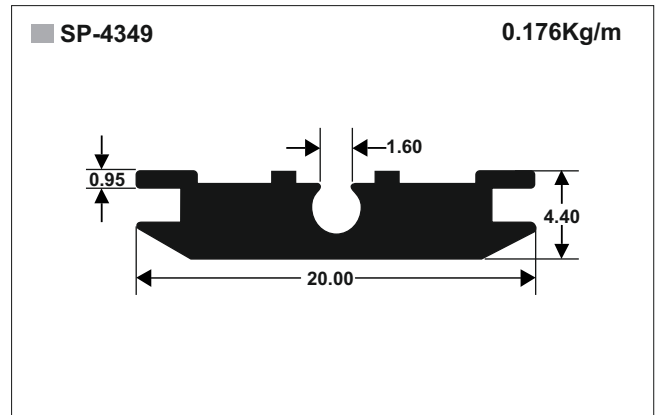
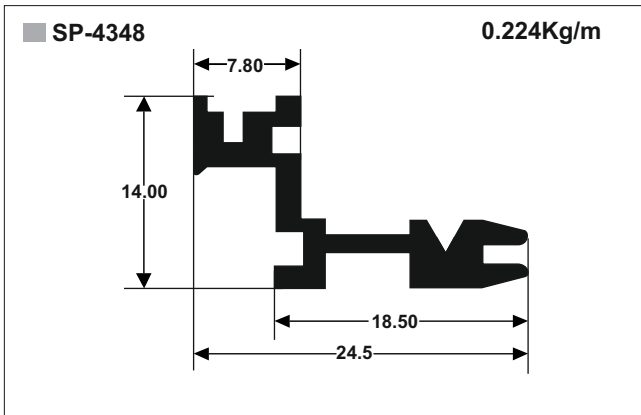


Electronic Components



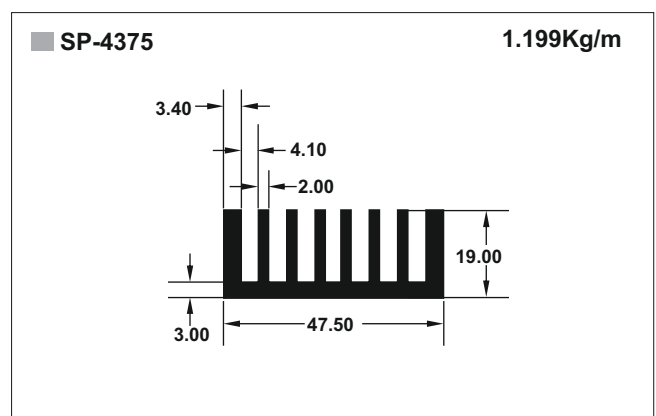
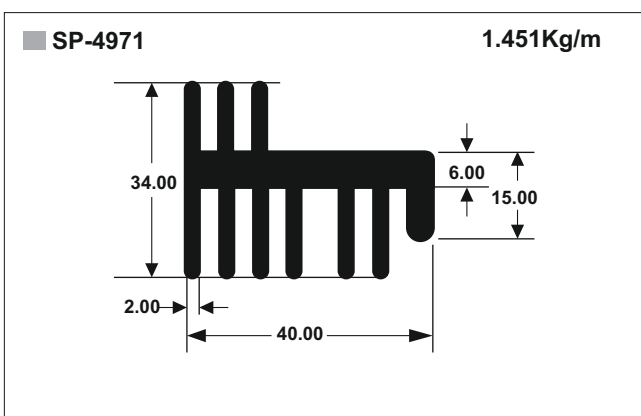
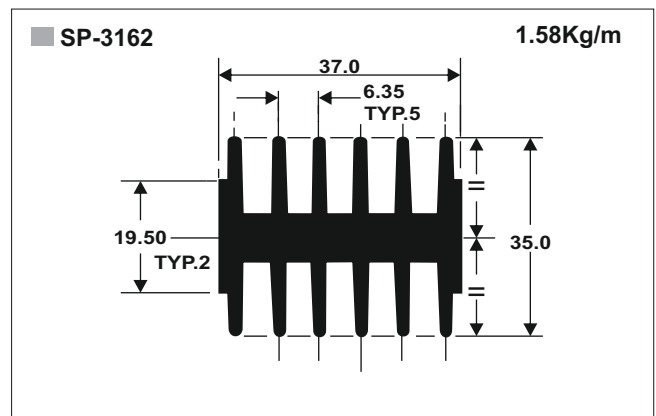
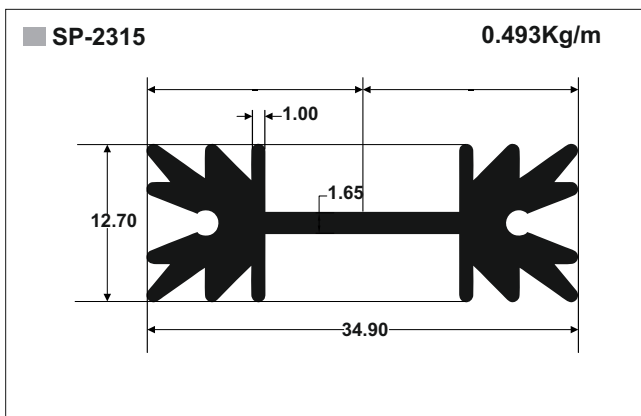
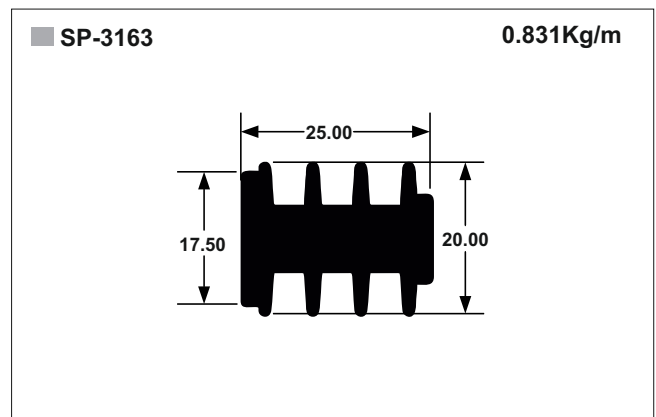
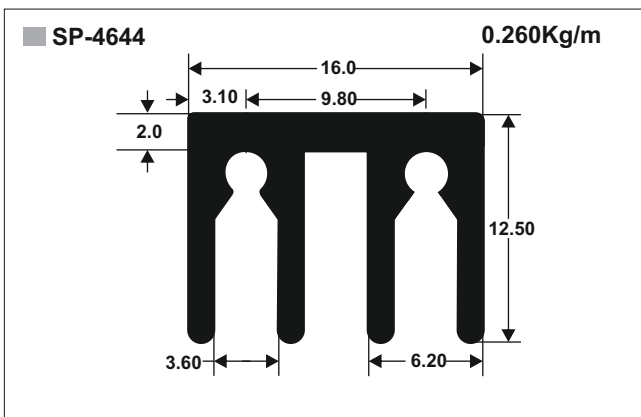
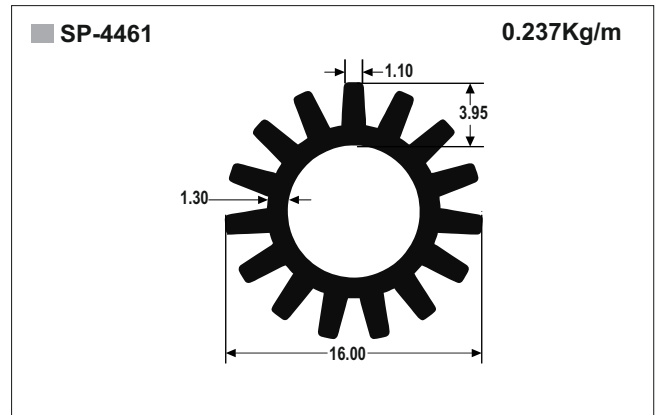
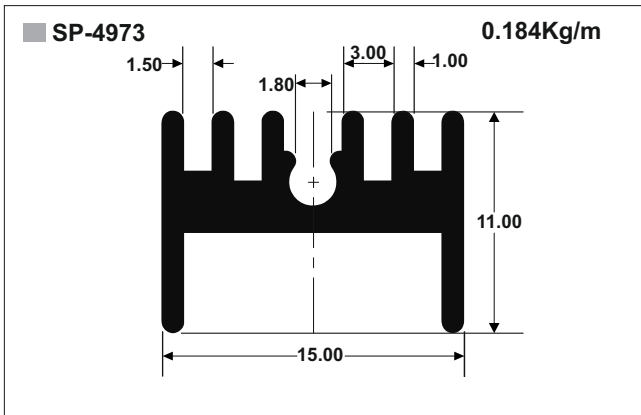


Electronic Components



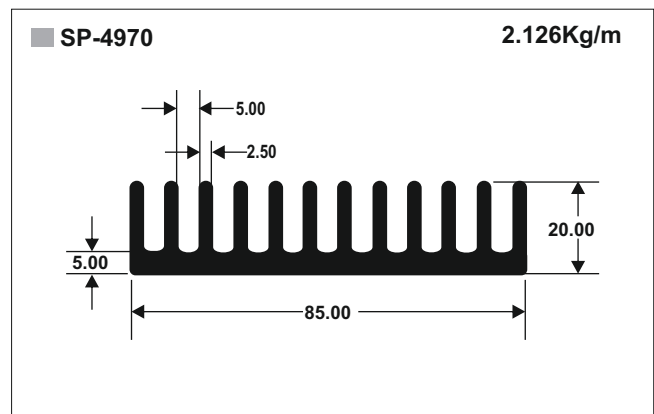
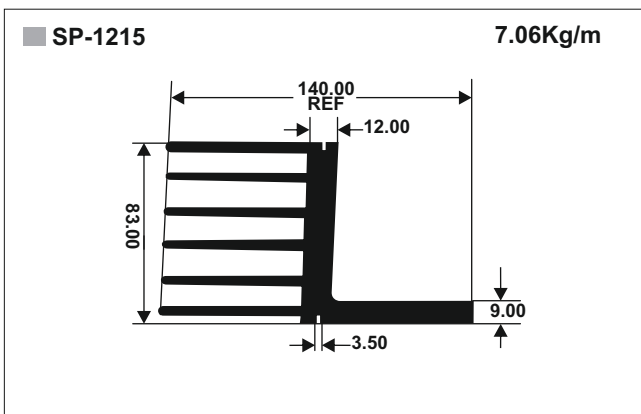
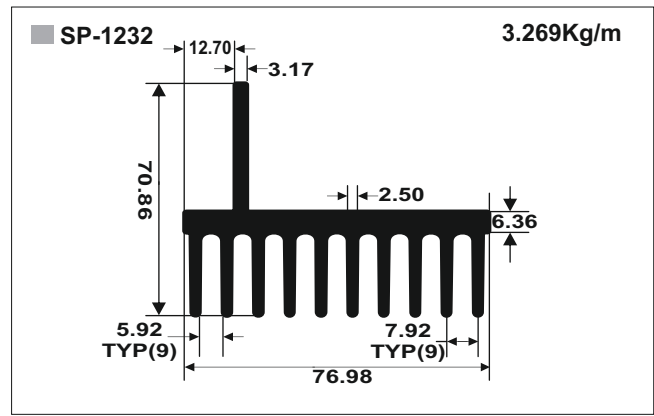
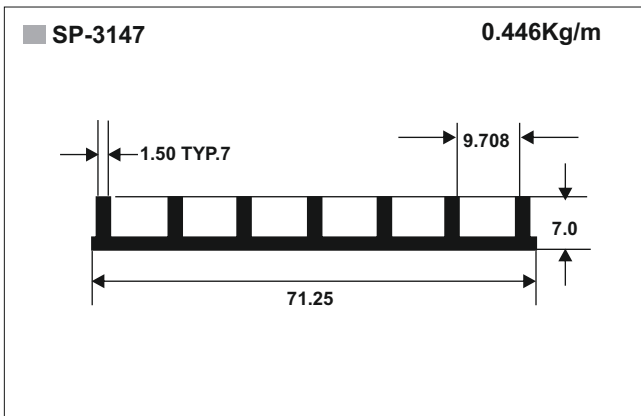
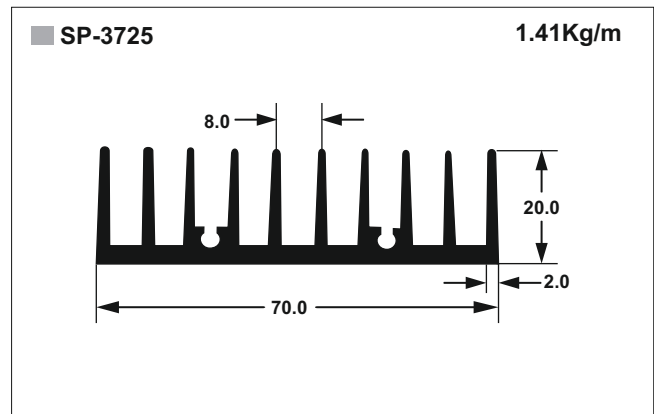
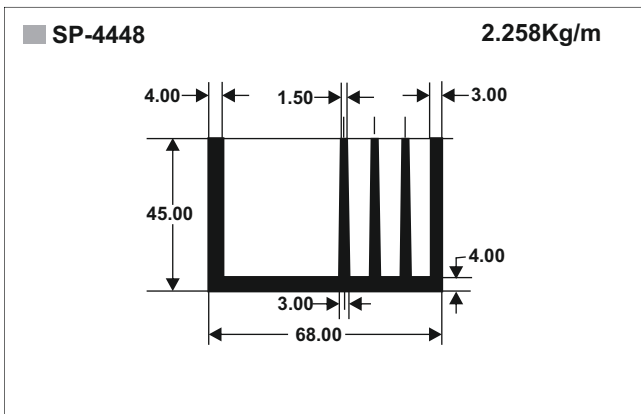
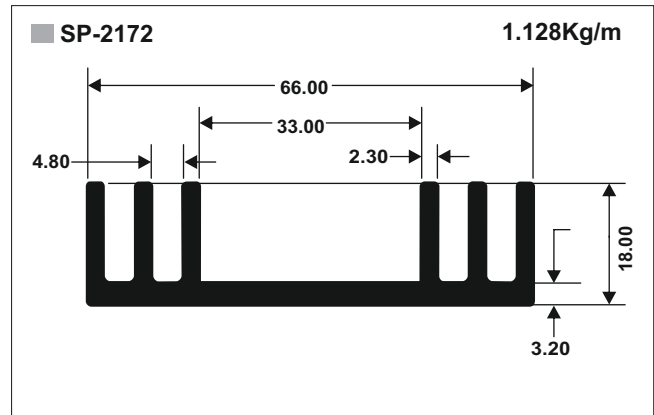
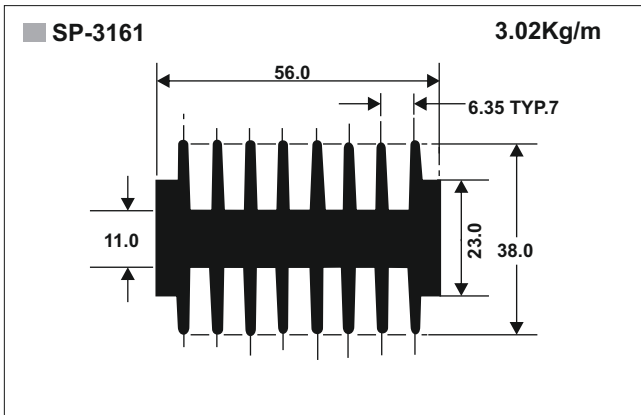


Heatsink



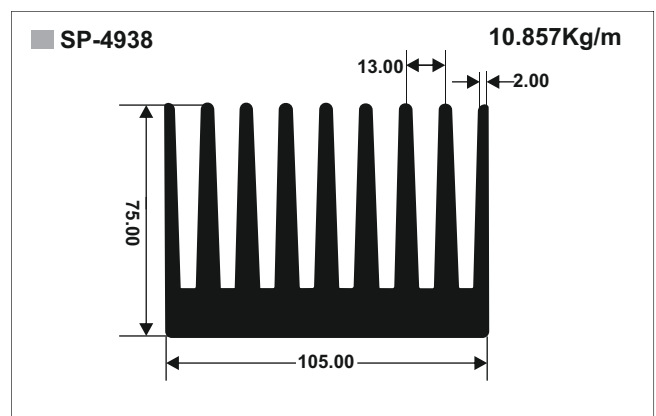
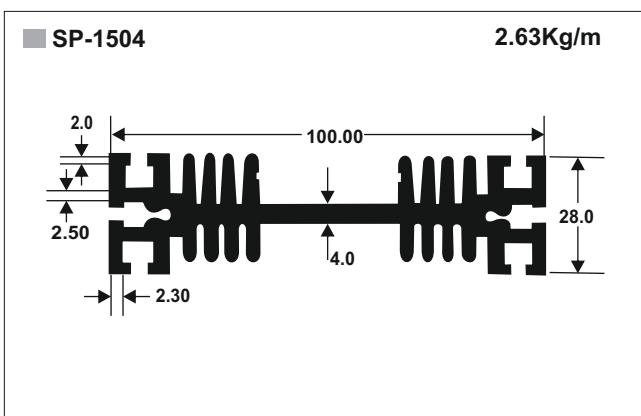
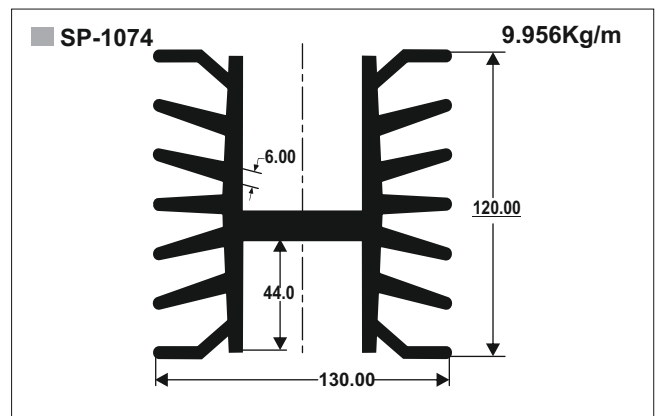
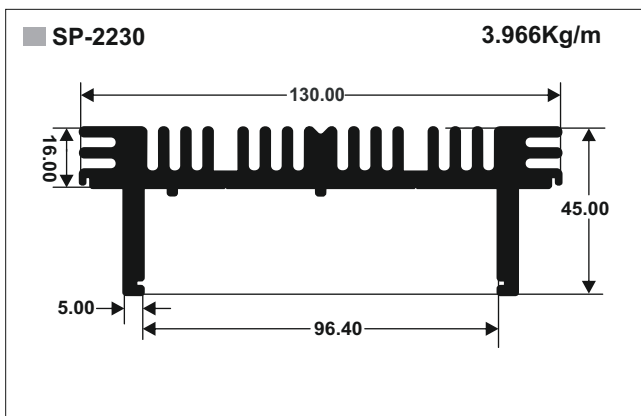
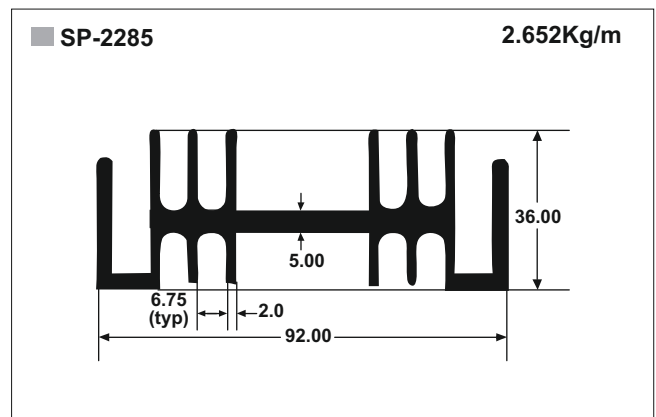
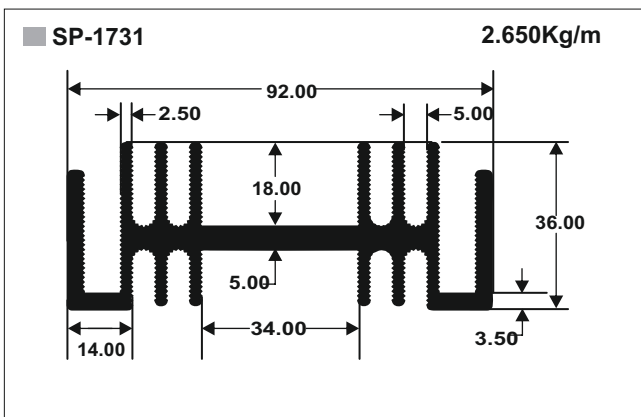
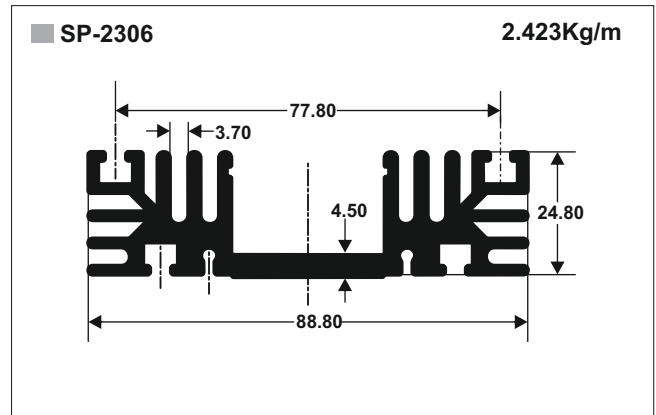
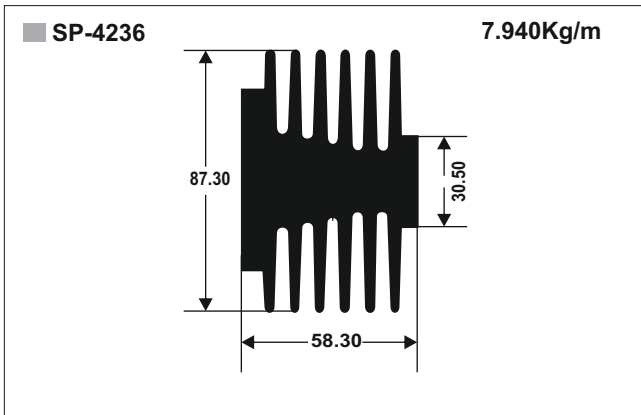


Heatsink



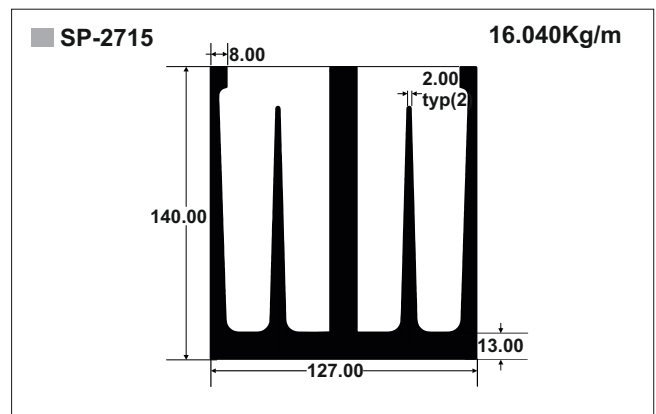
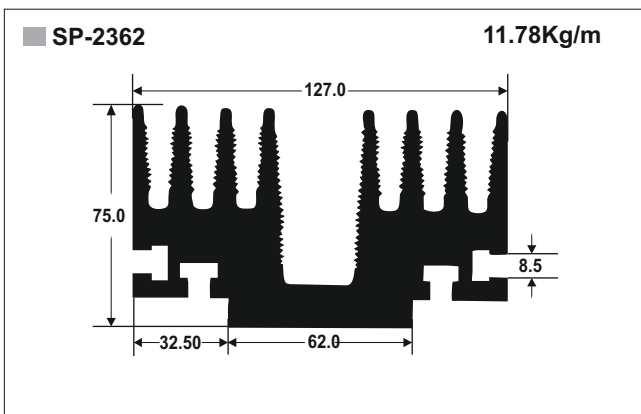
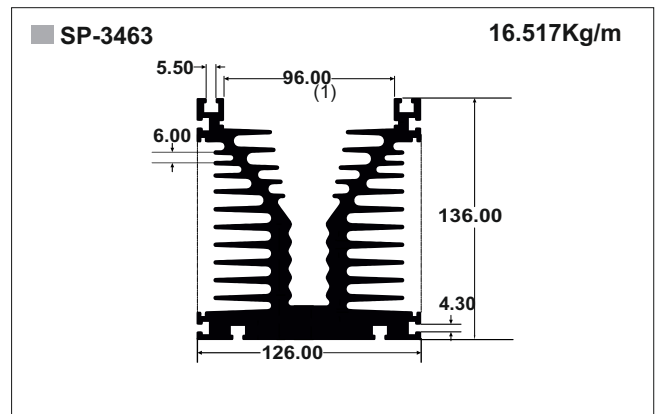
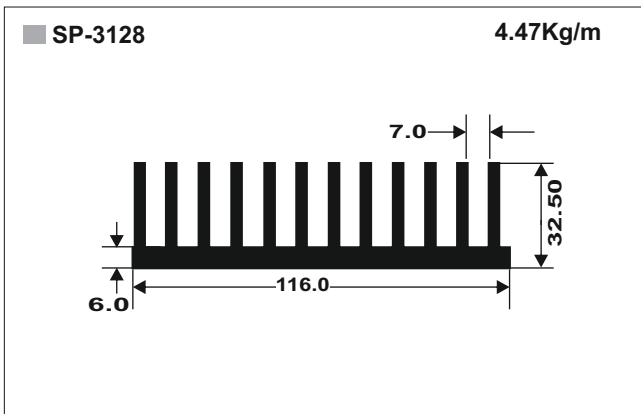
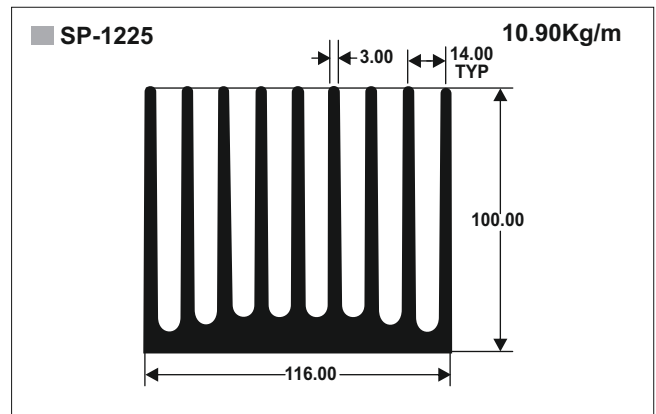
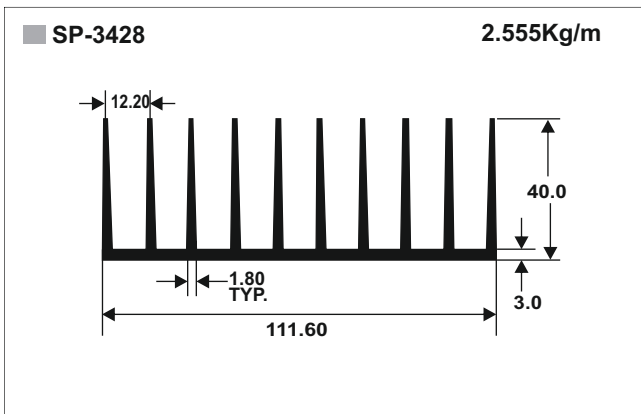
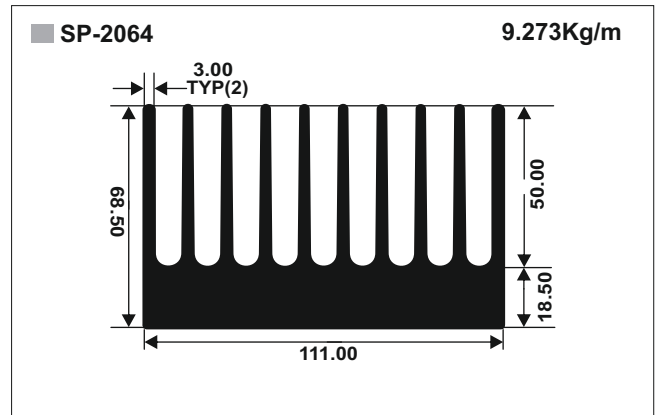
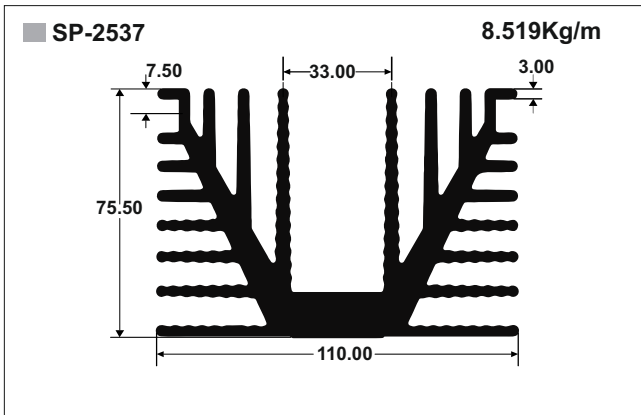


Heatsink



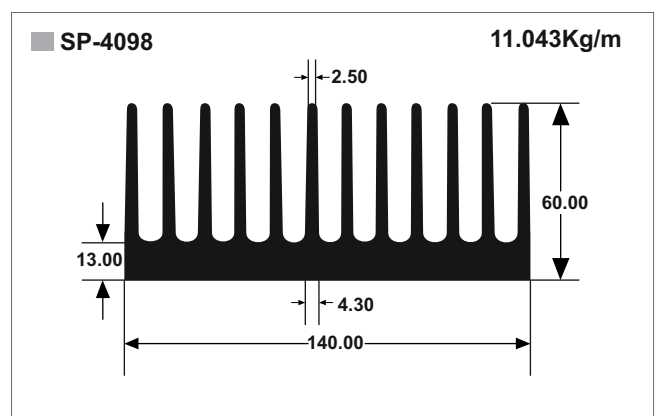
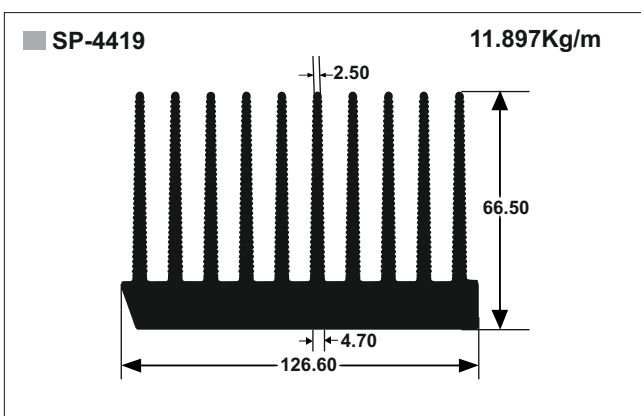
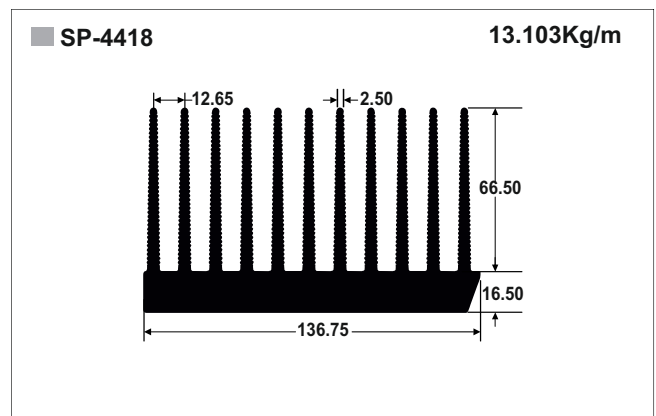
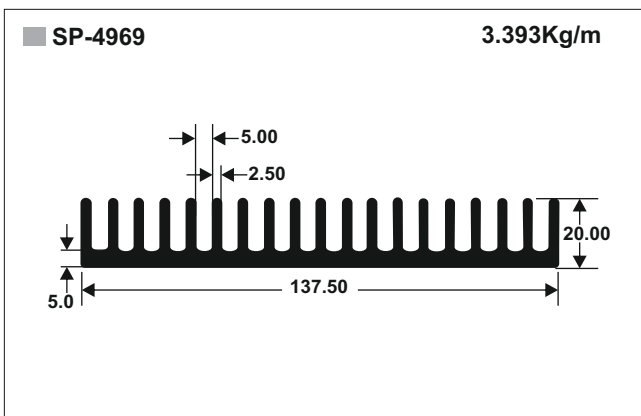
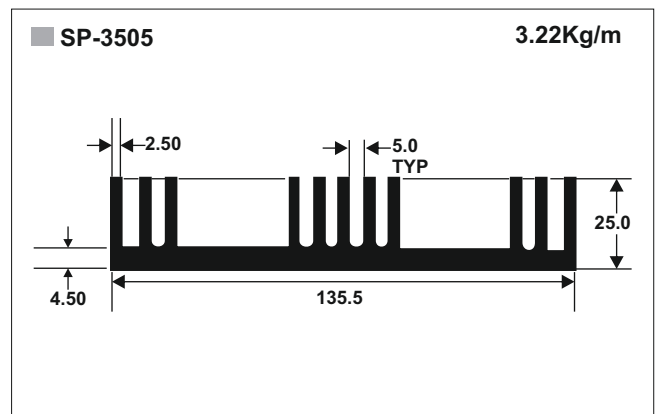
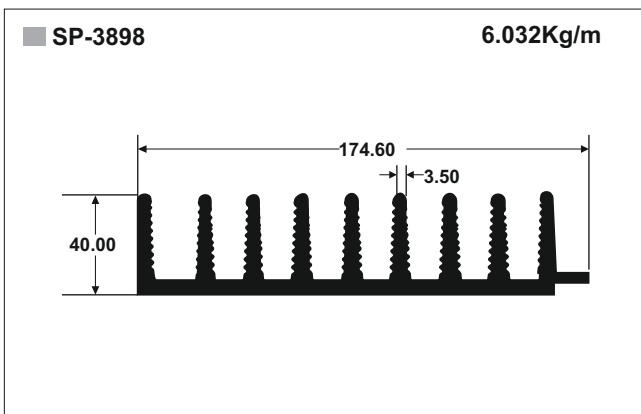
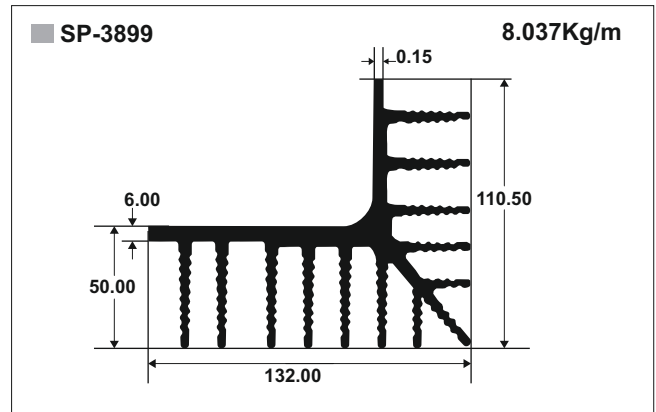
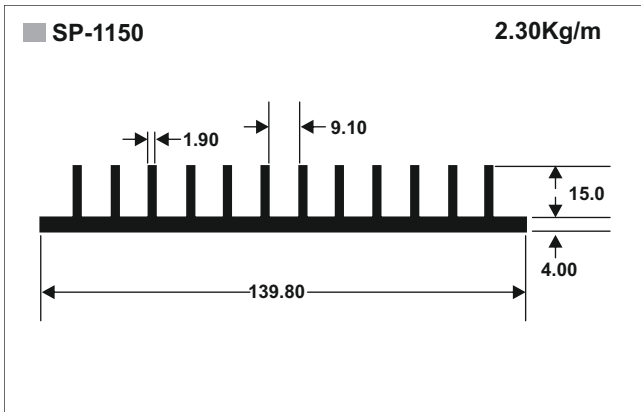


Heatsink



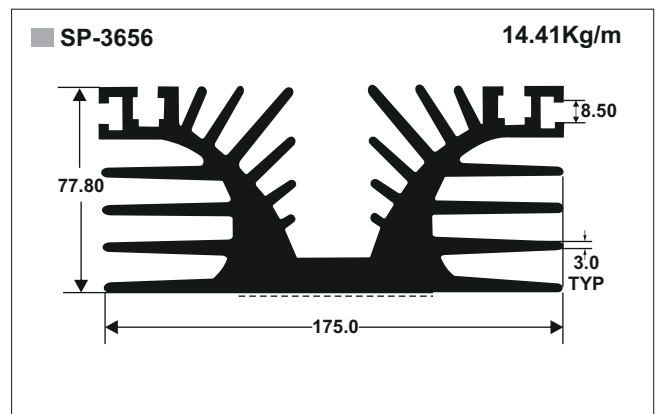
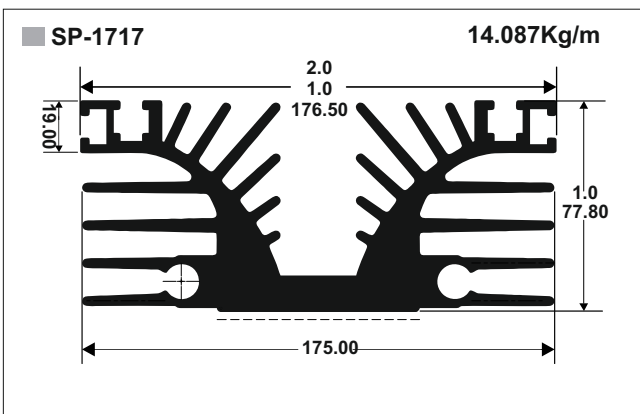
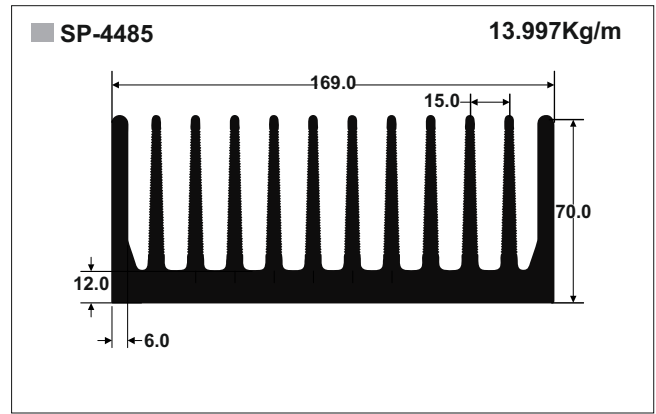
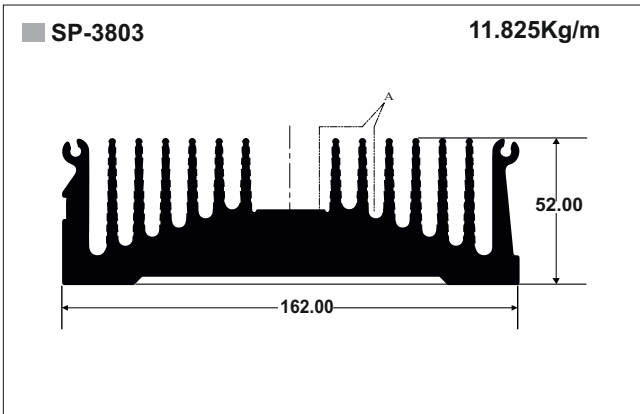
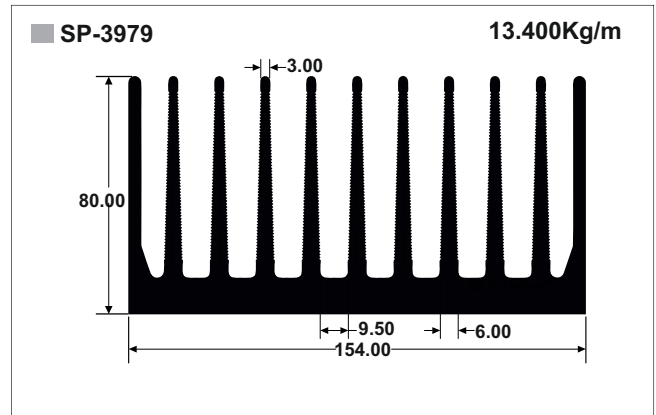
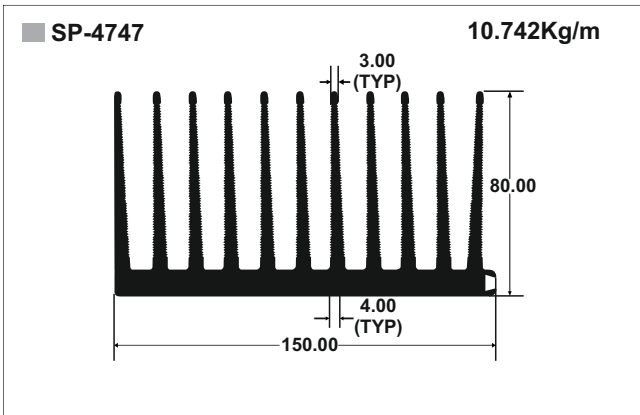
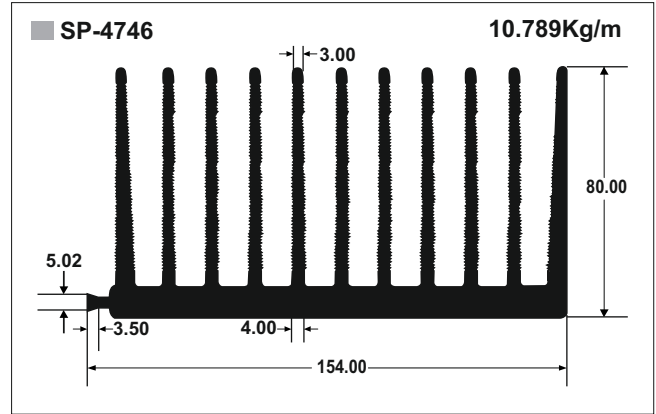
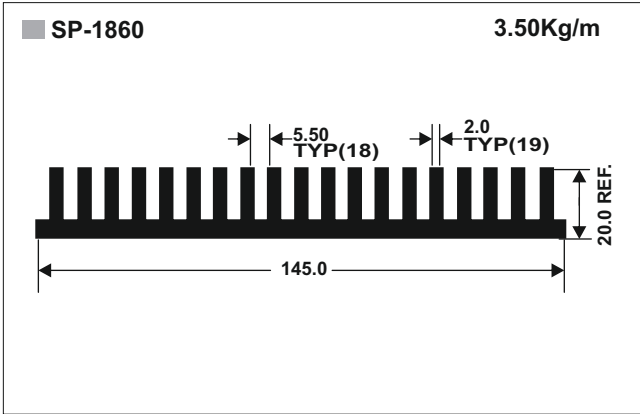


Heatsink



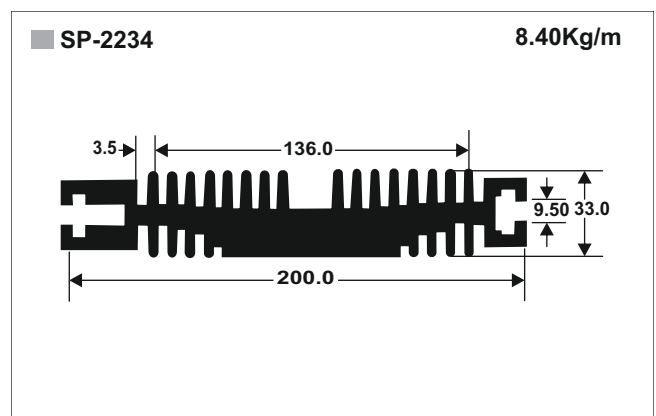
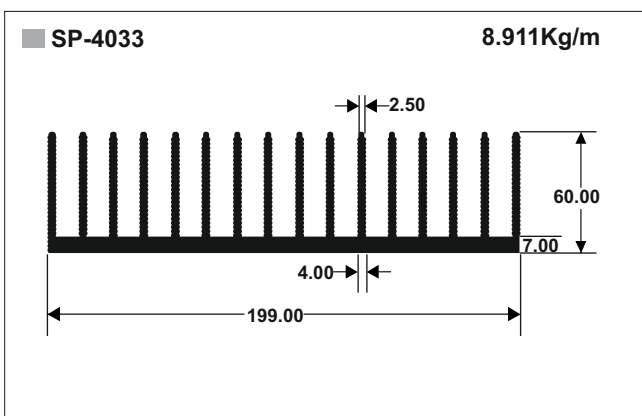
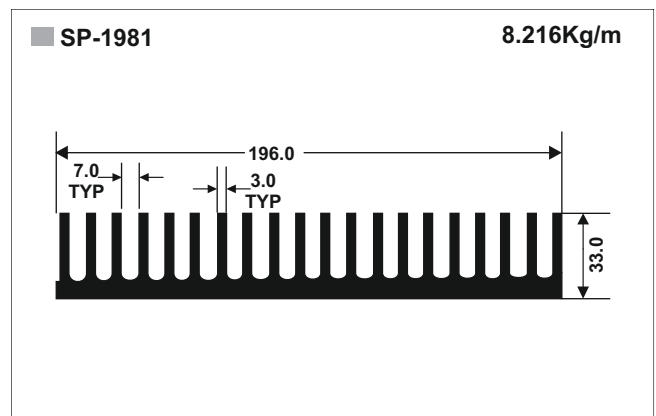
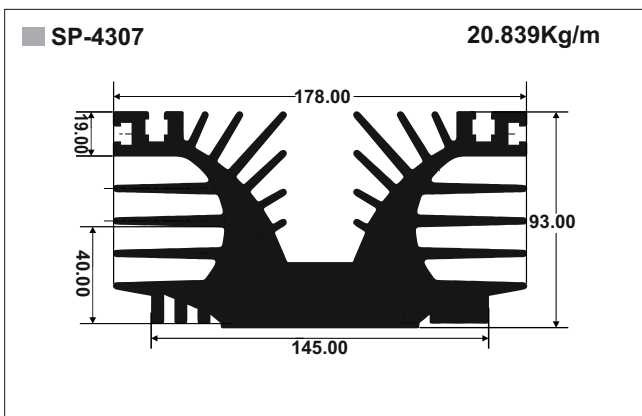
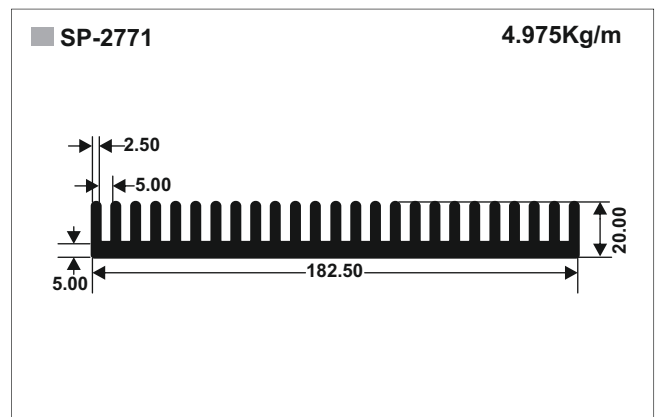
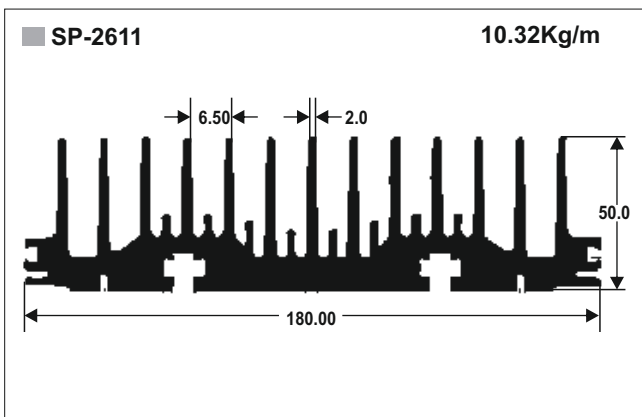
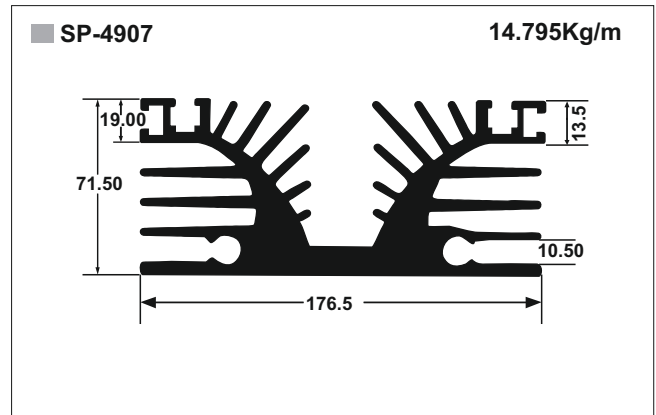
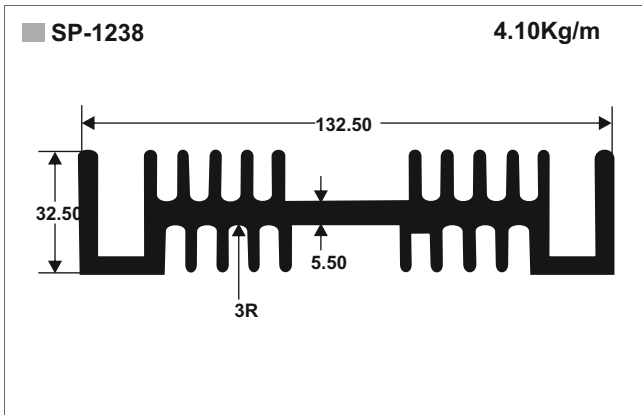


Heatsink



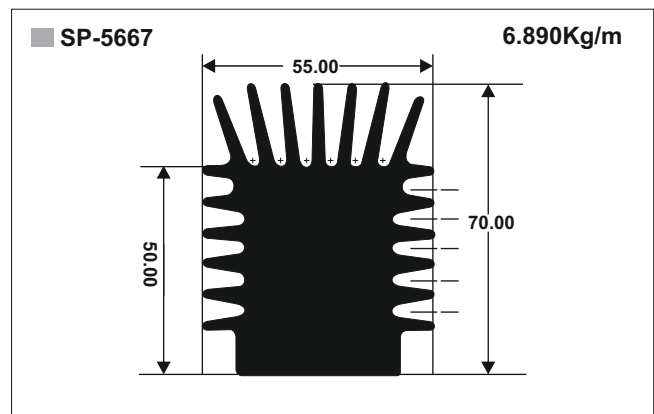
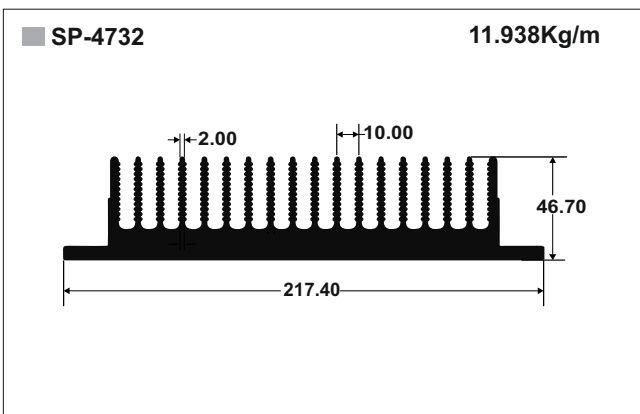
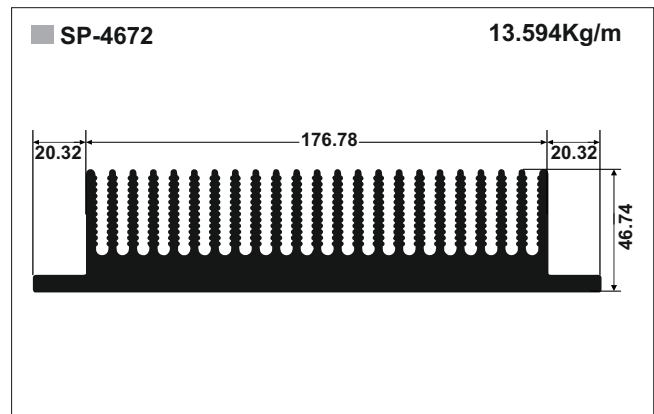
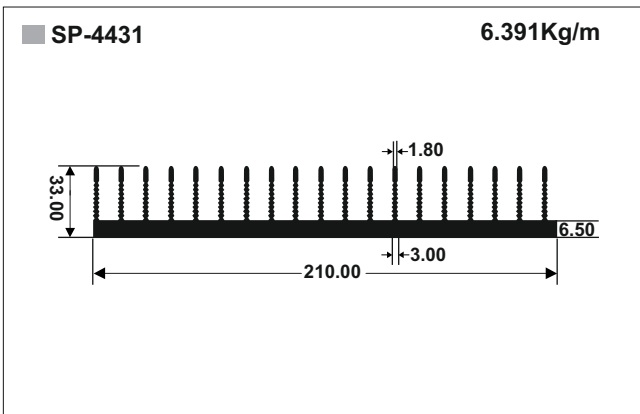
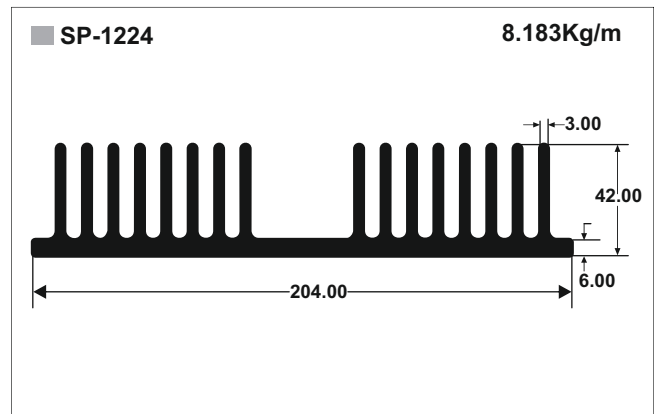
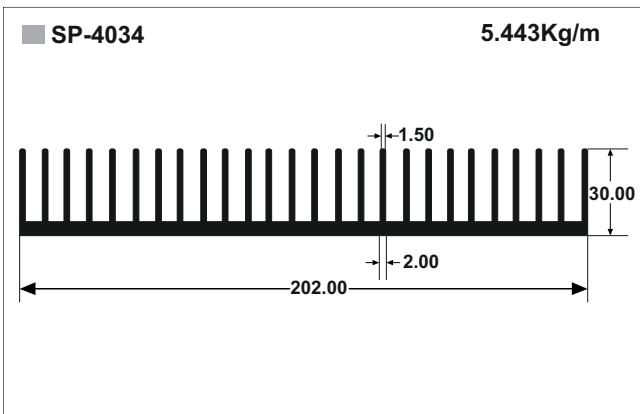
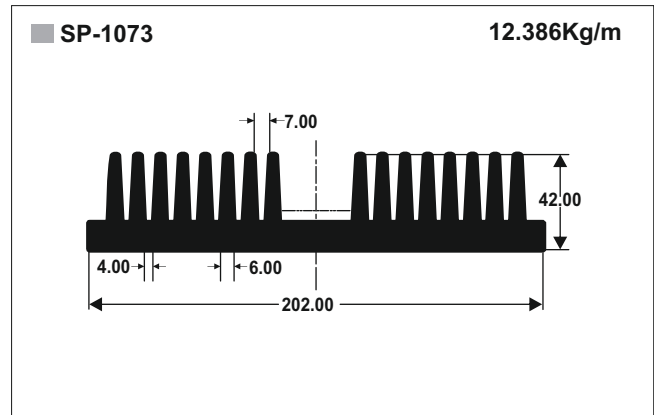
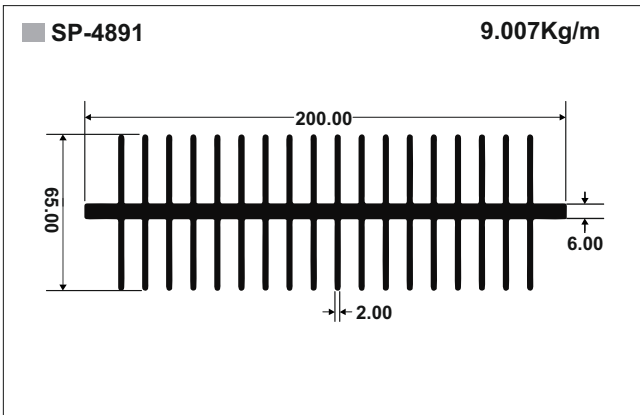


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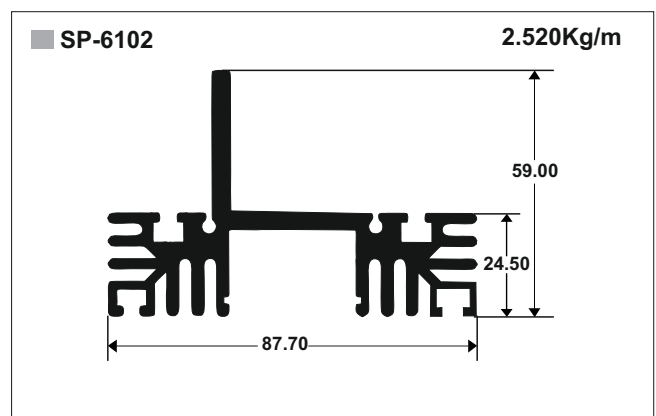
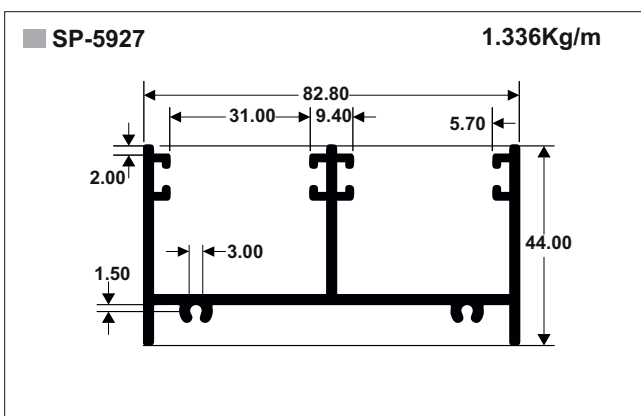
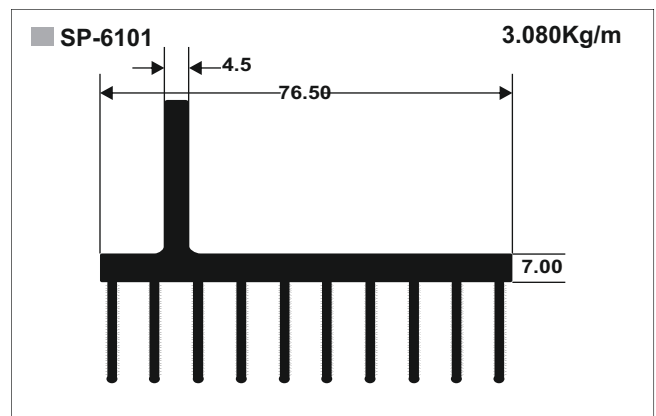
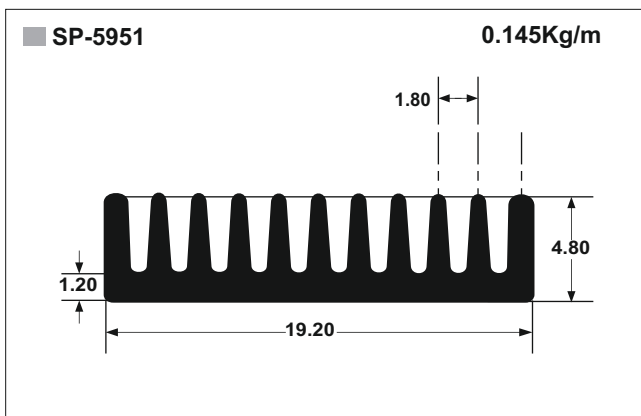
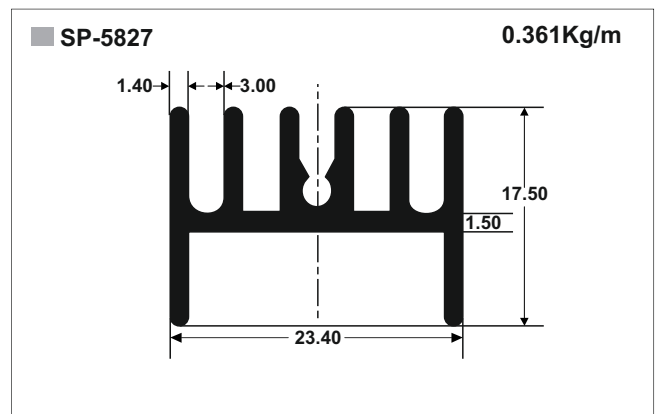
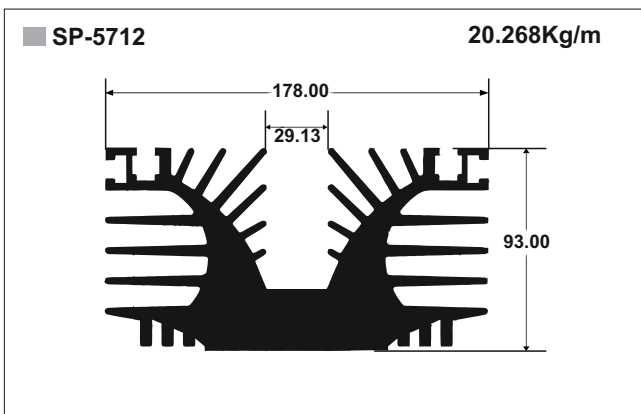
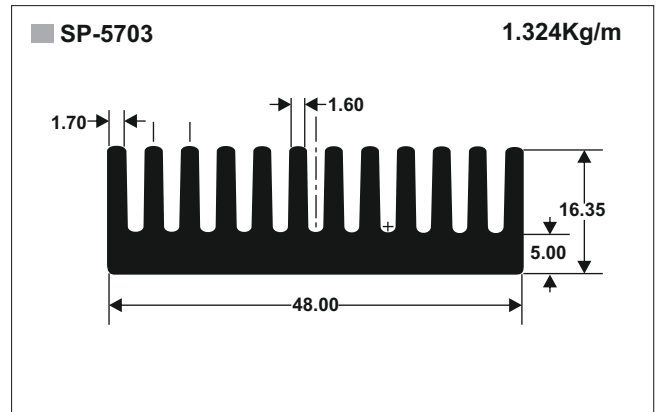
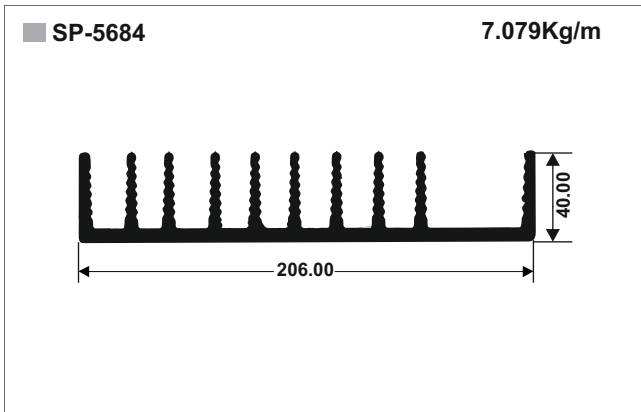


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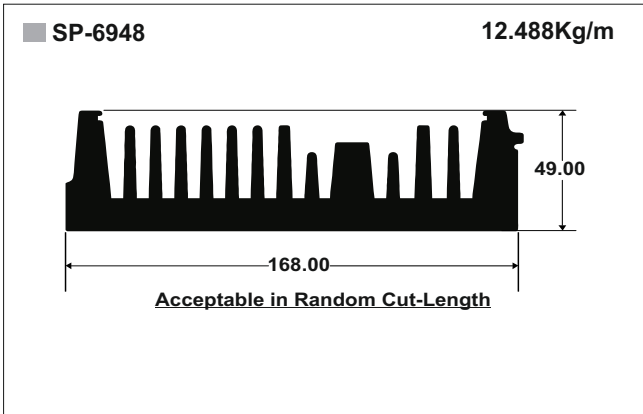
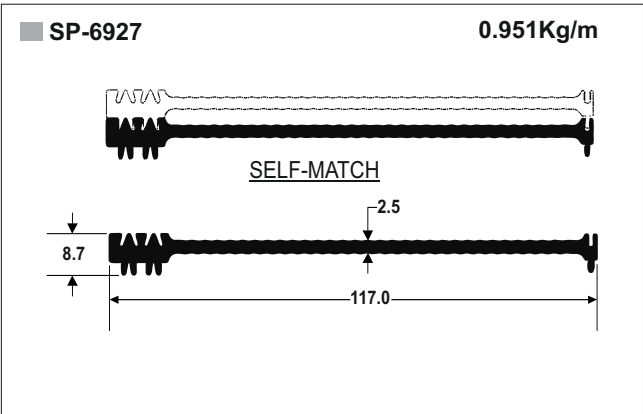
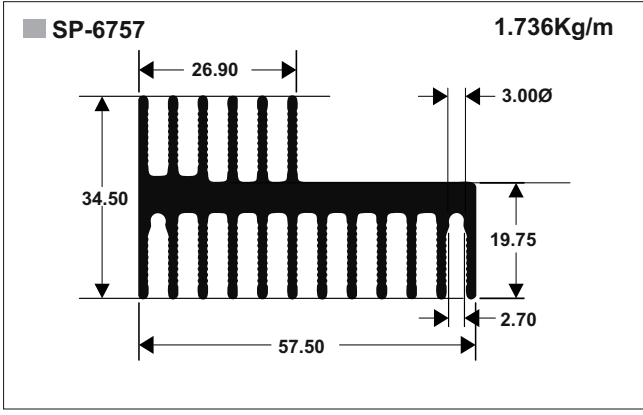
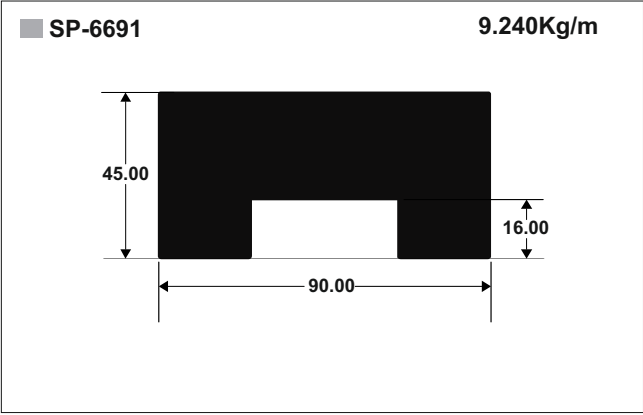
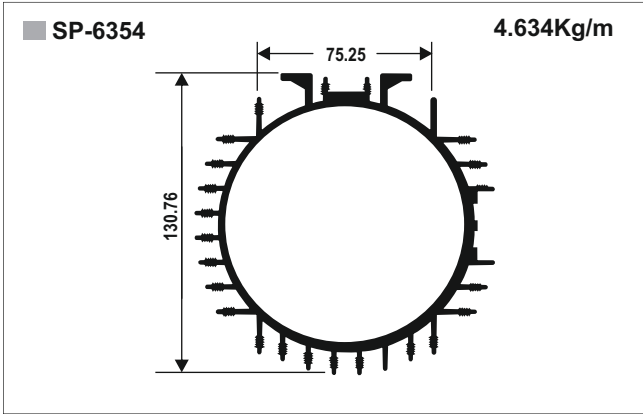
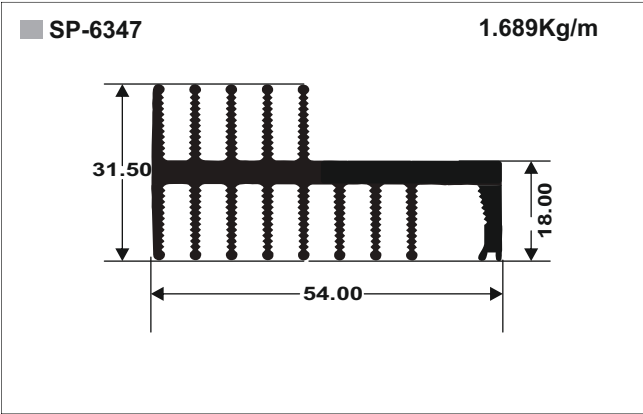
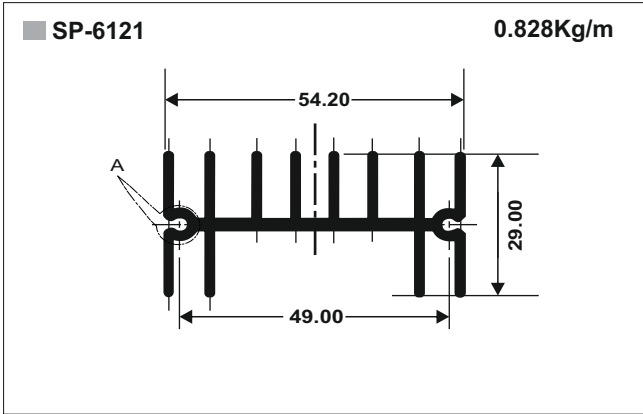
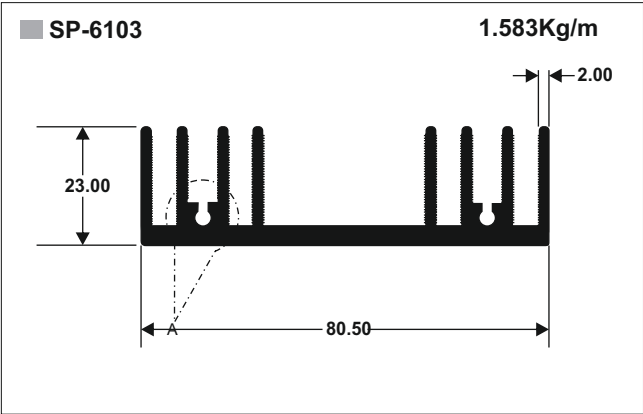


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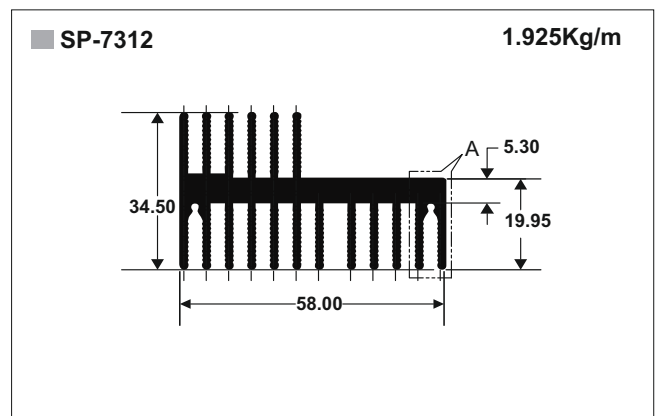
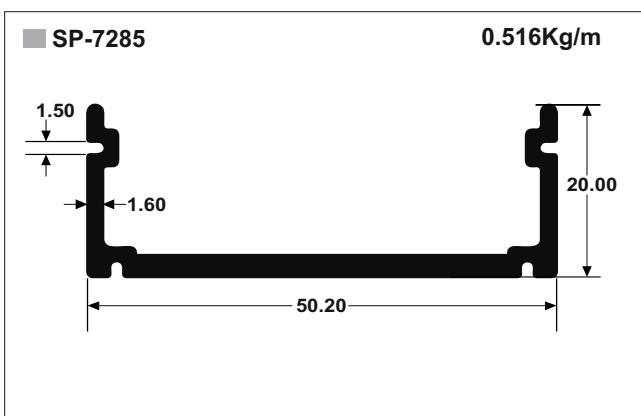
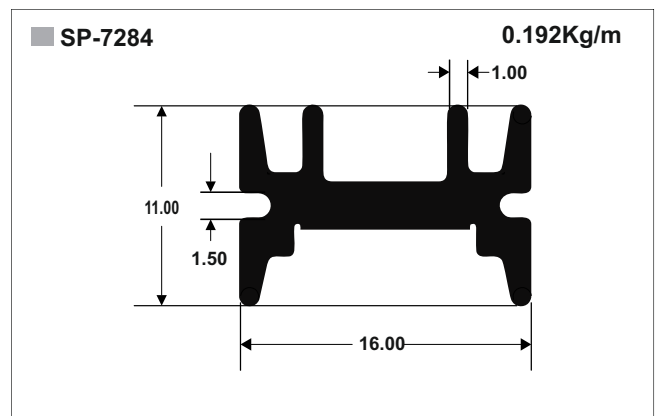
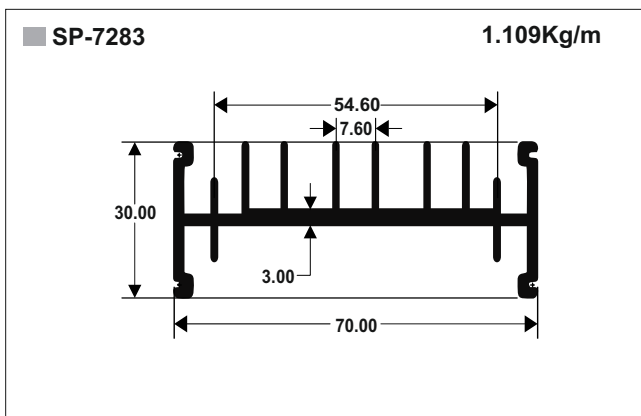
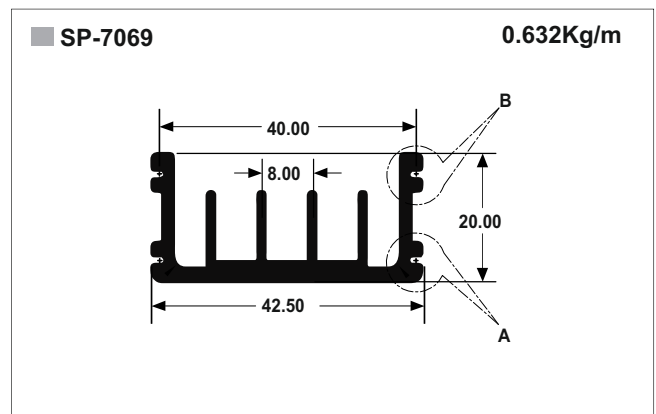
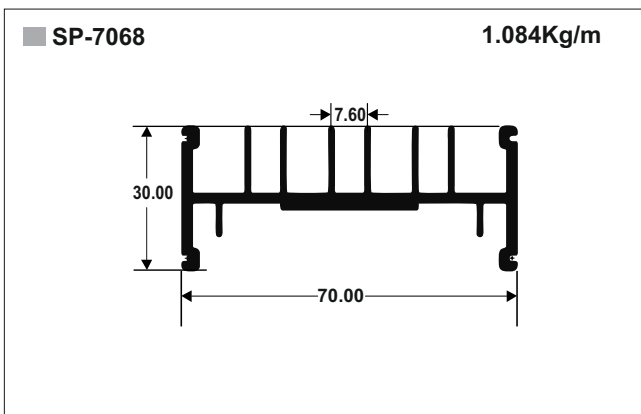
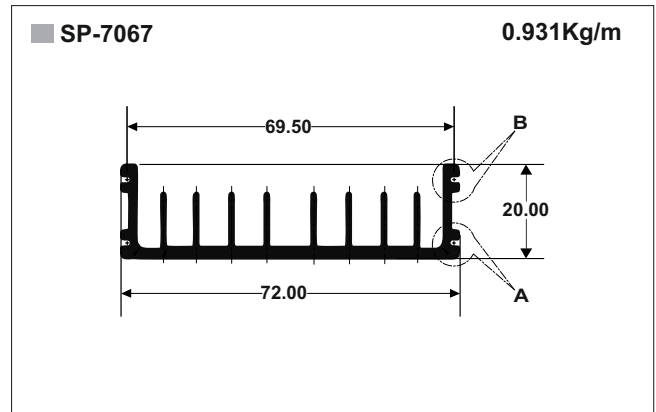
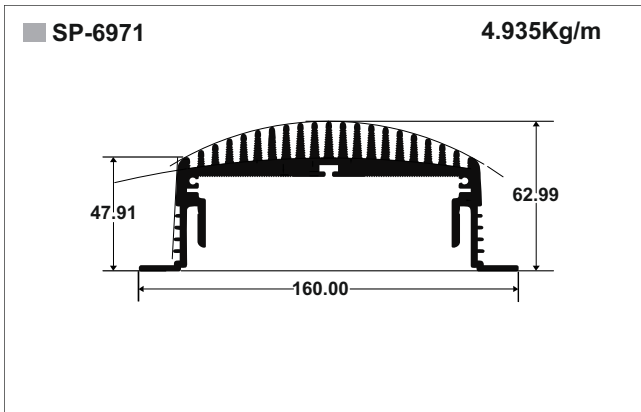


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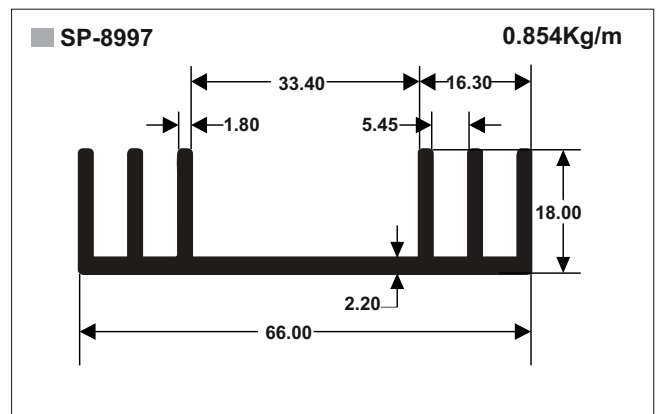
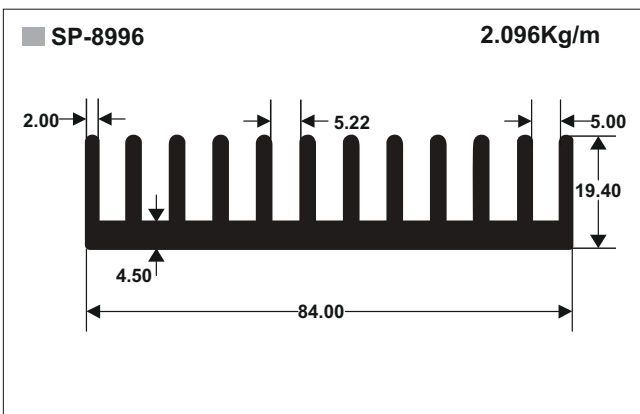
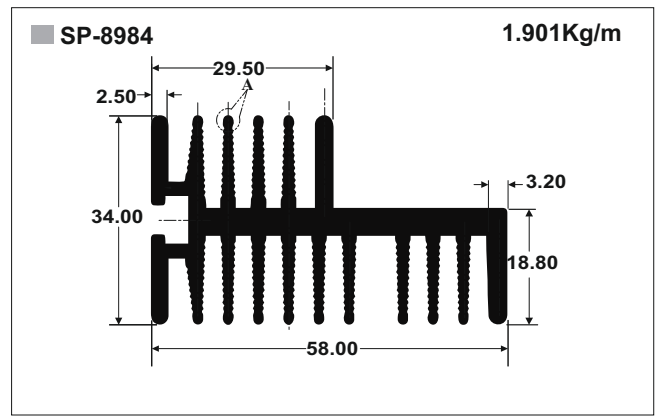
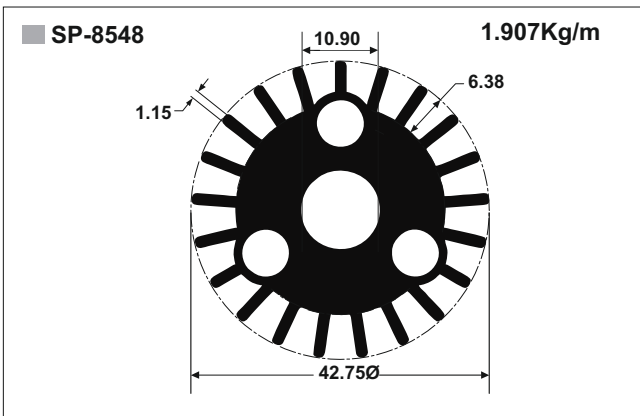
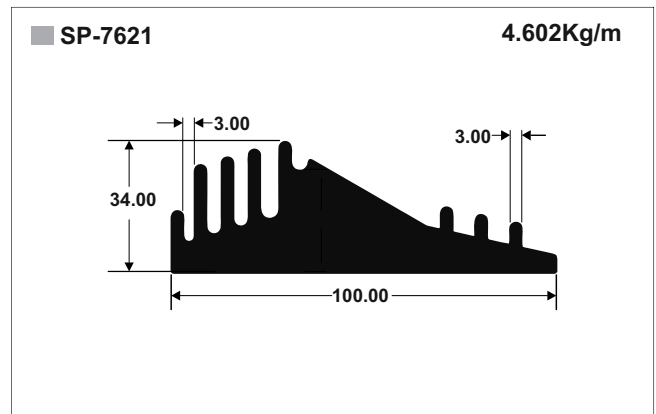
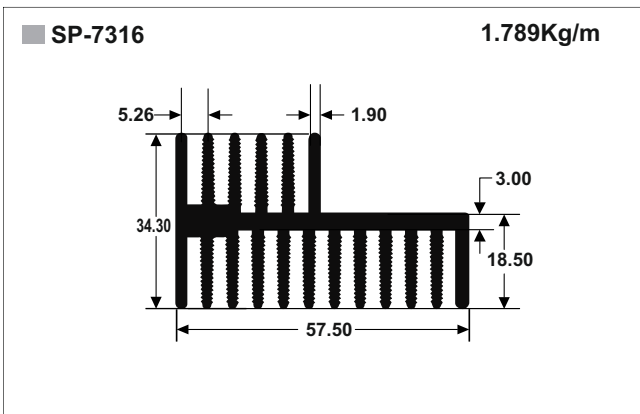
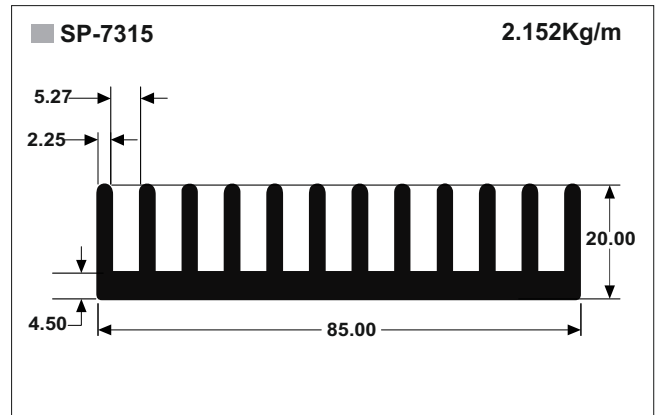
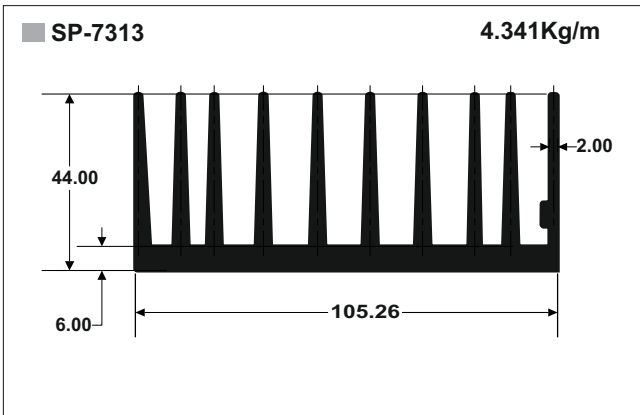


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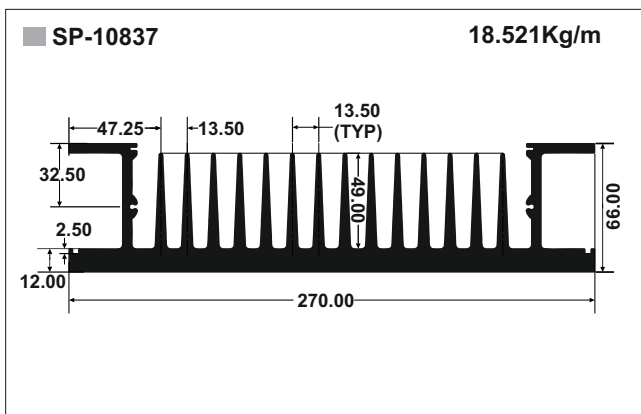
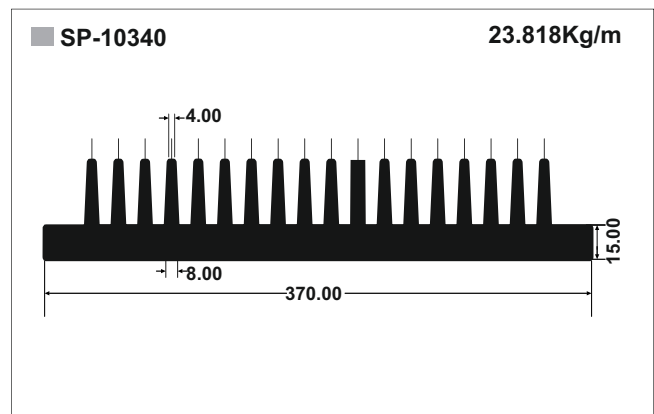
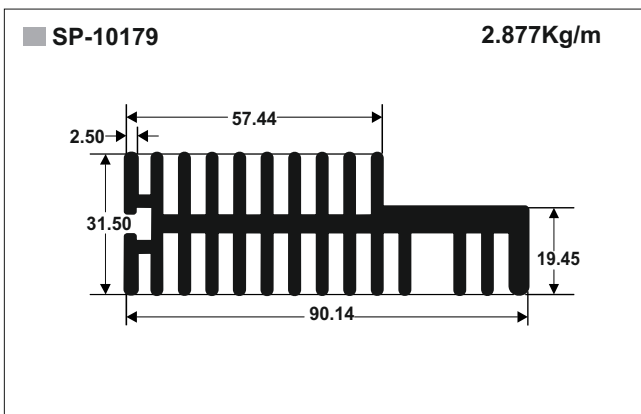
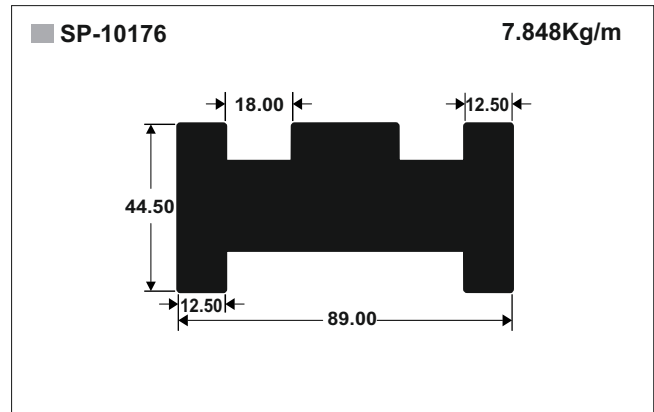
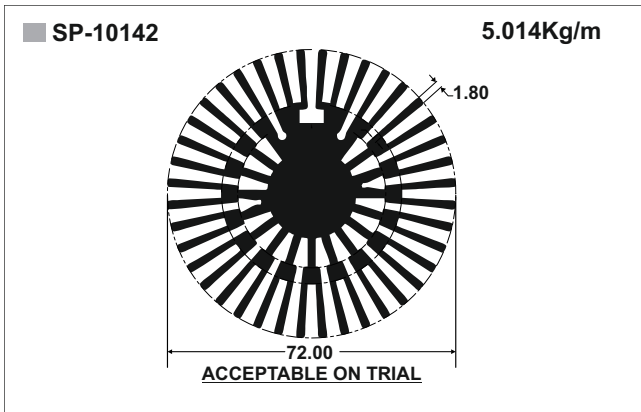


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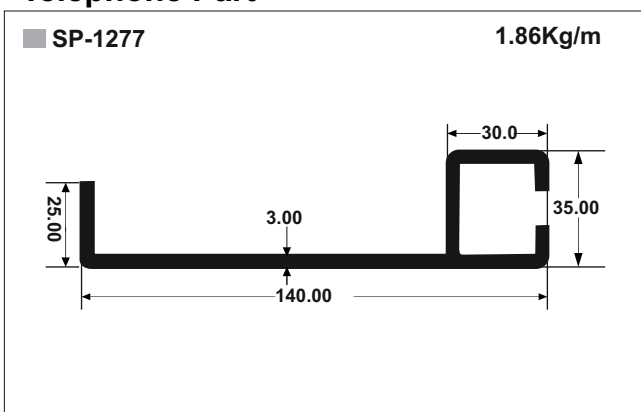




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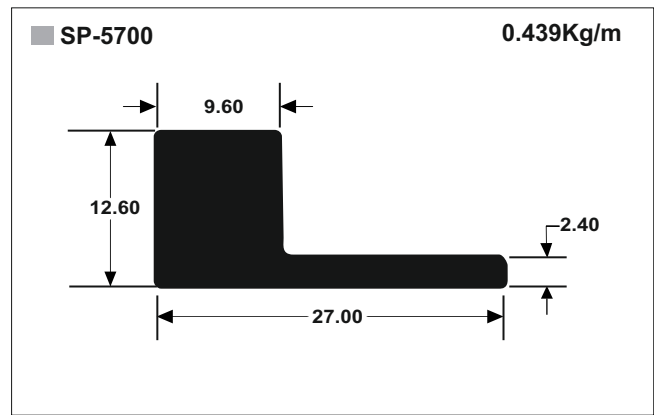
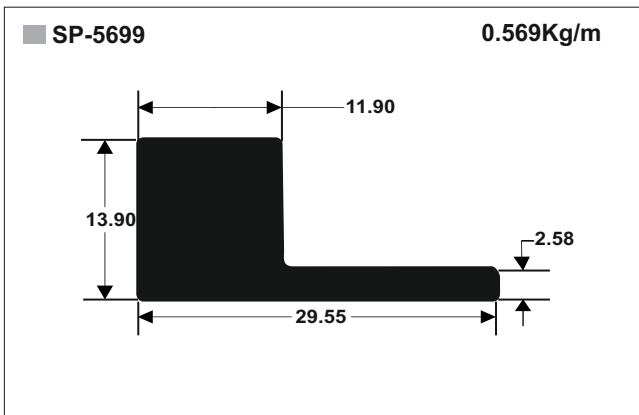
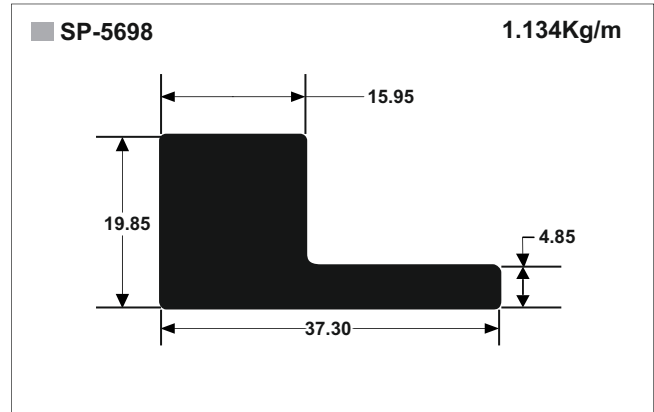
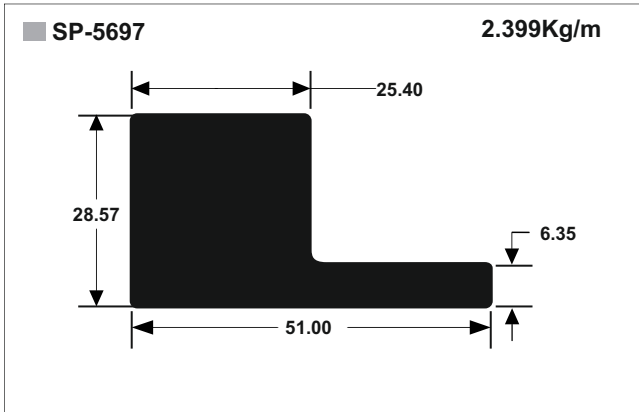


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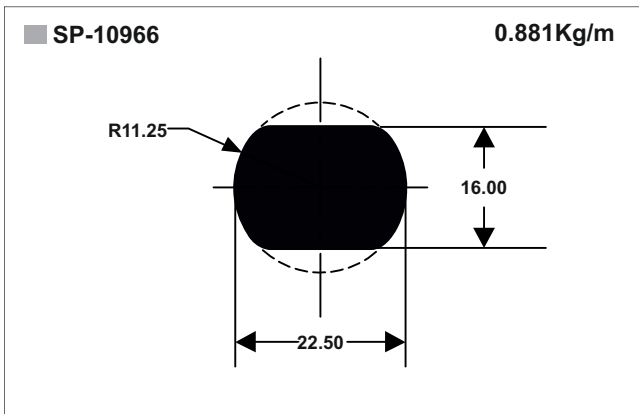




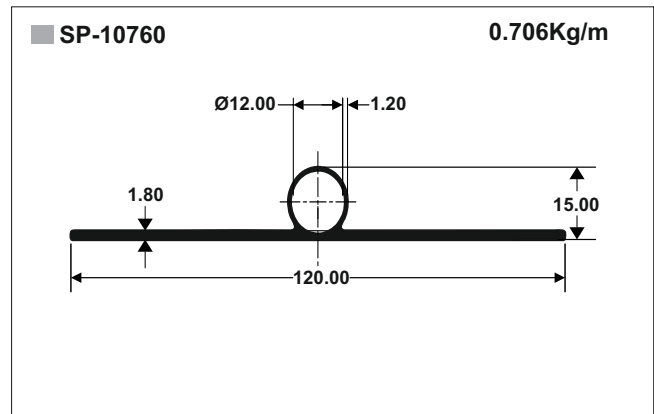
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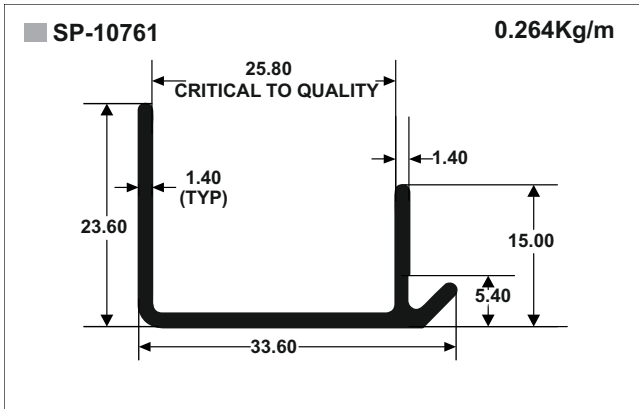
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Solar Water Heater

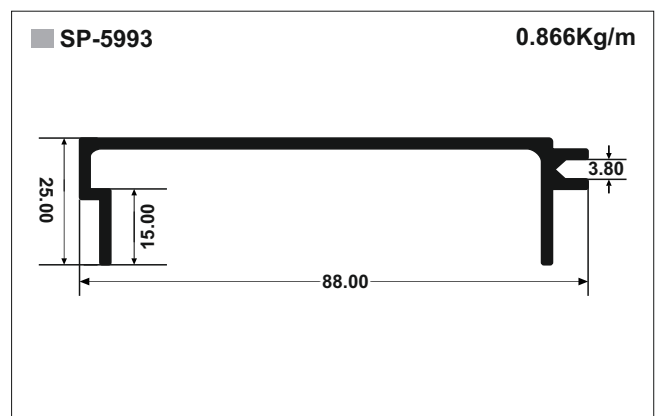
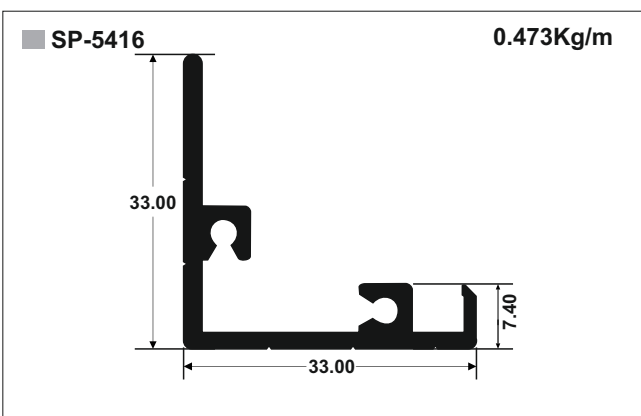
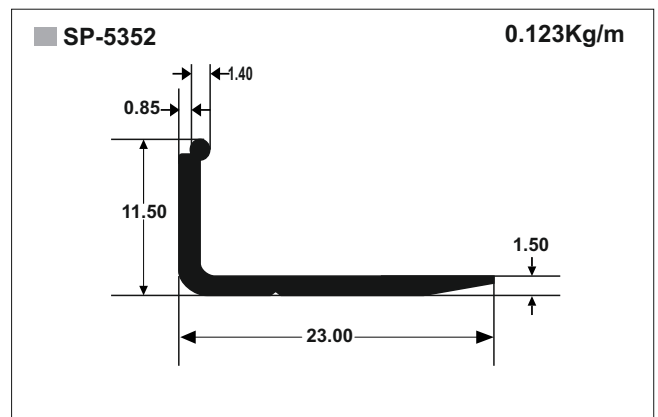
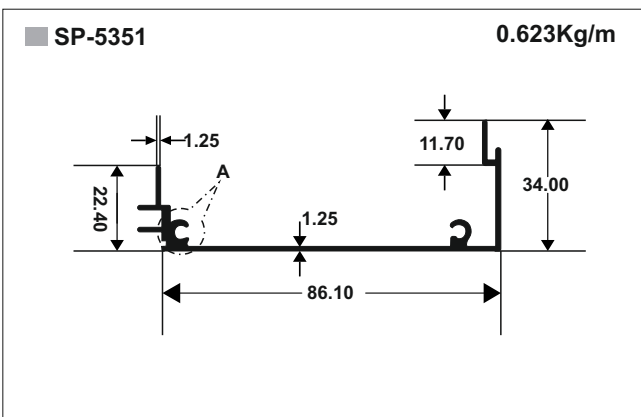
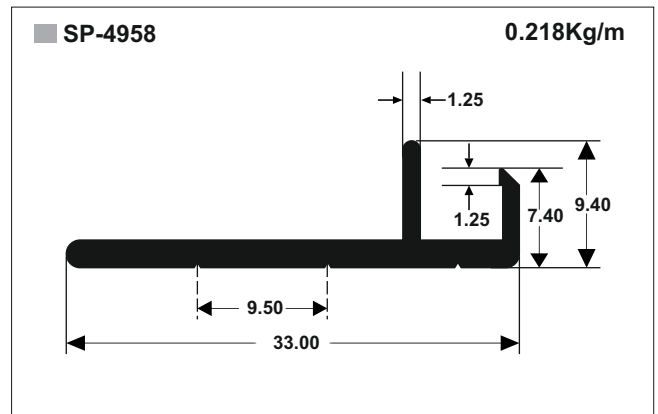
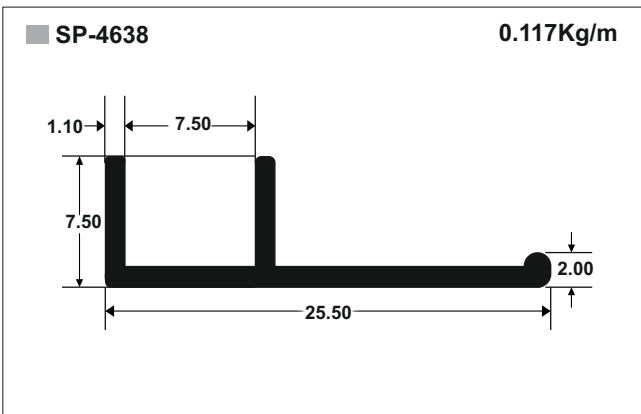
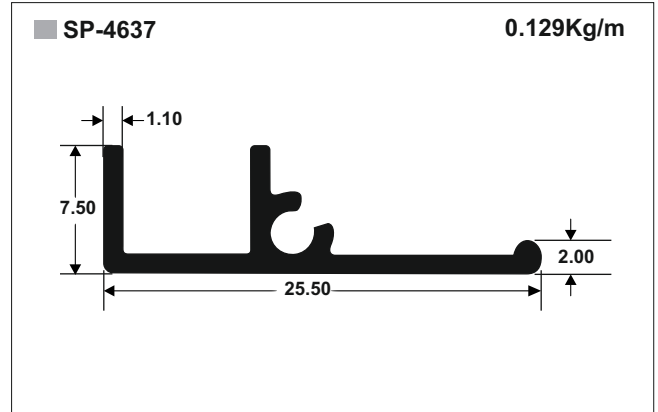
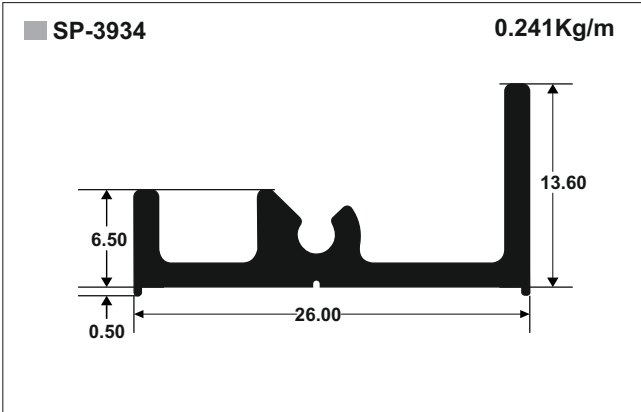


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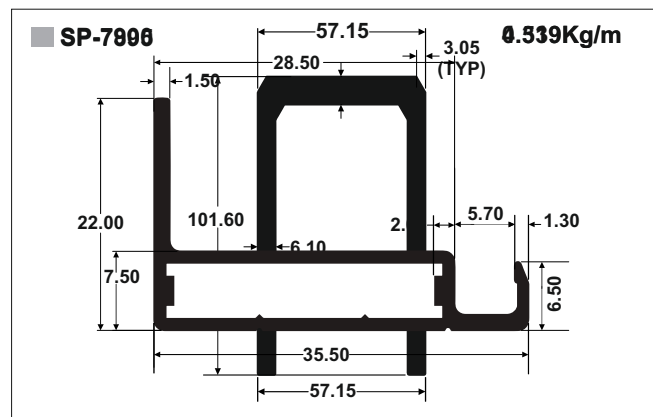
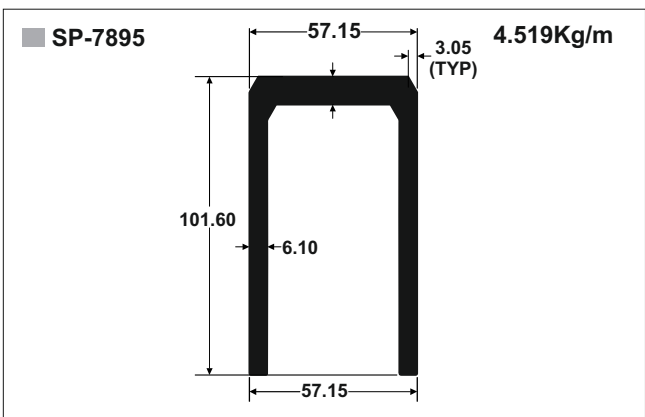
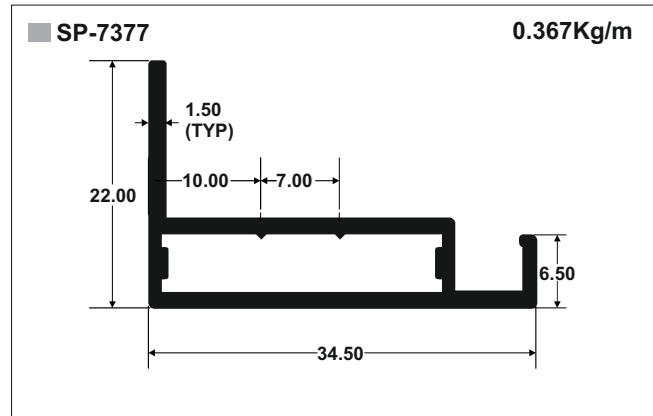
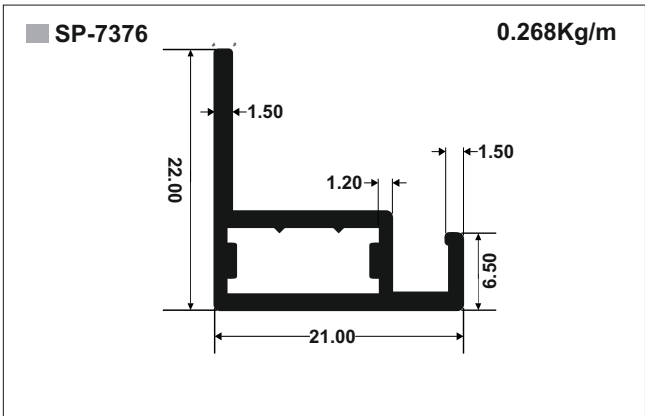
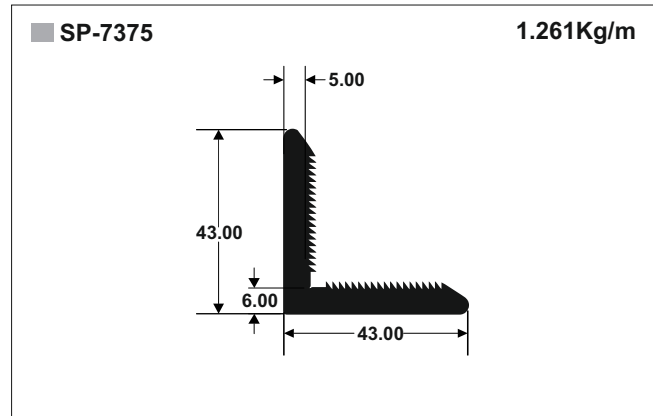
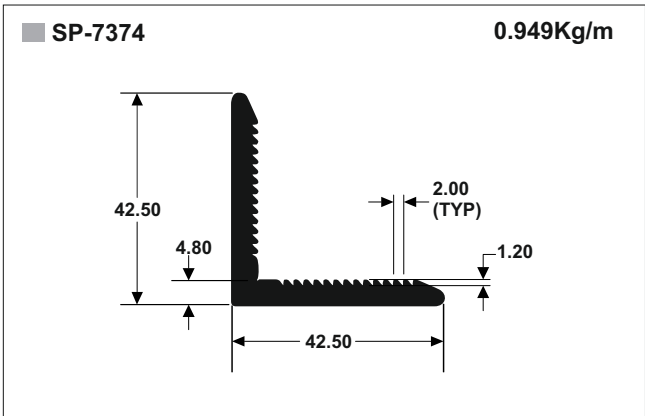
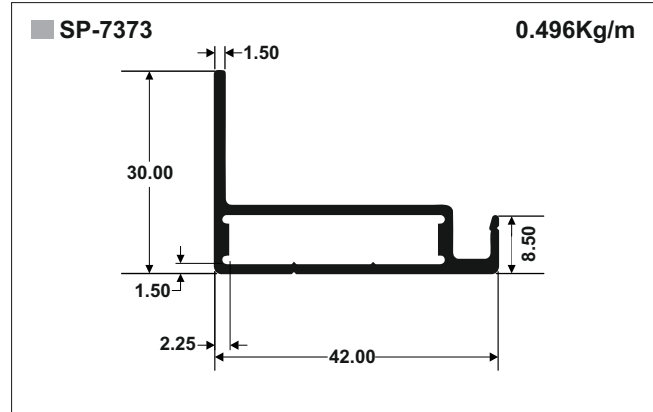
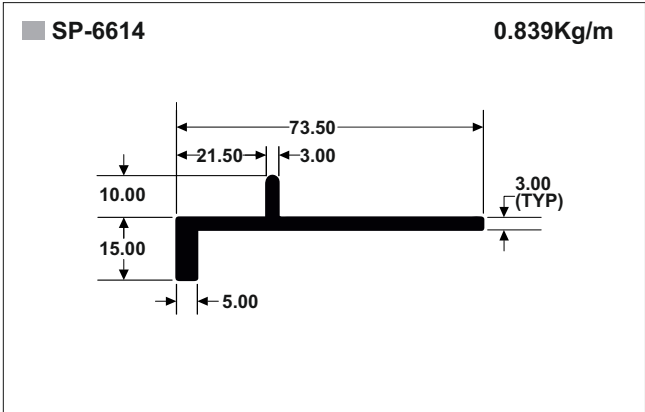


Solar Channel



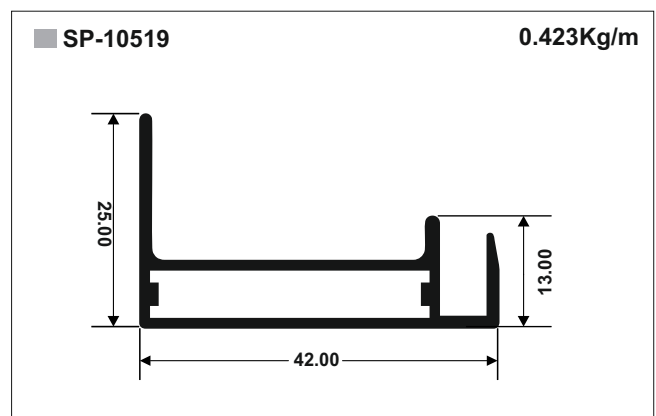
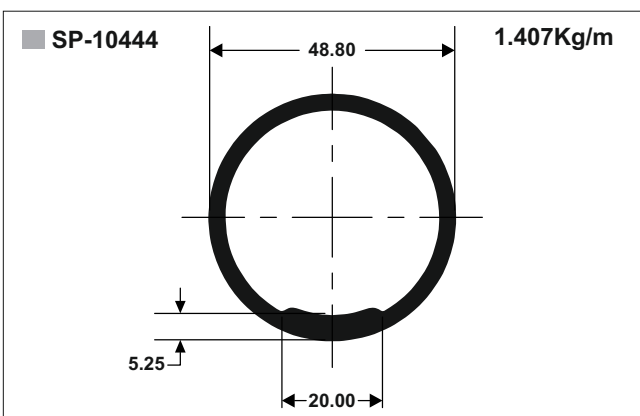
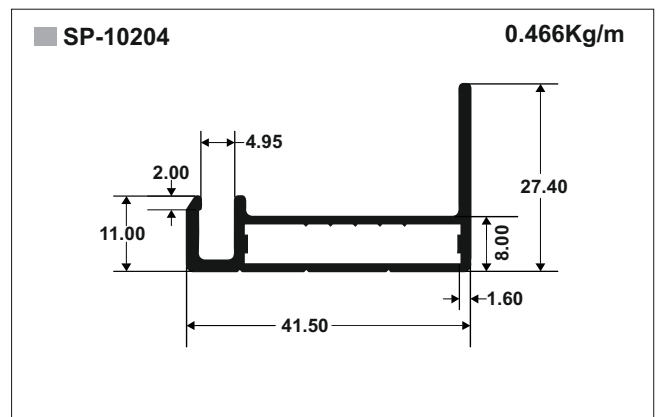
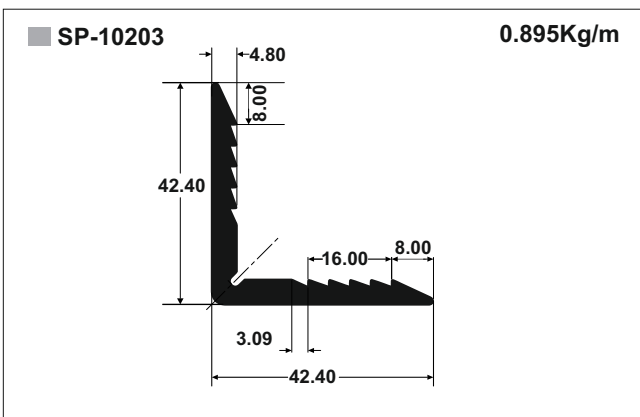
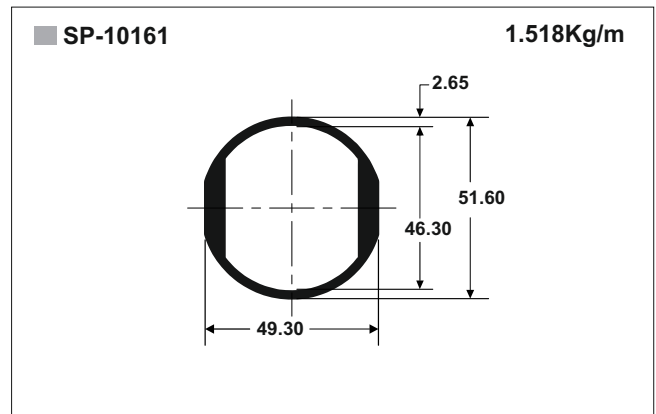
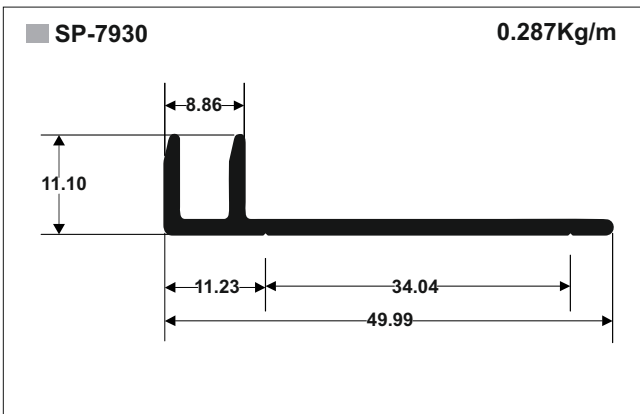
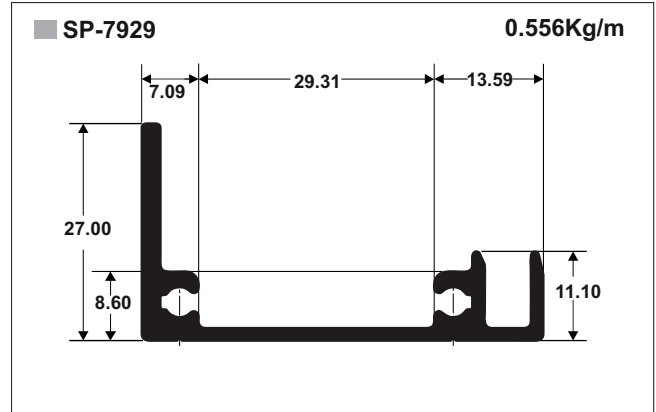
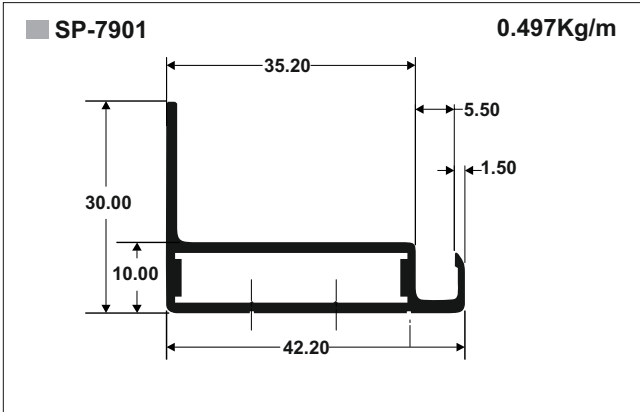


Solar Channels



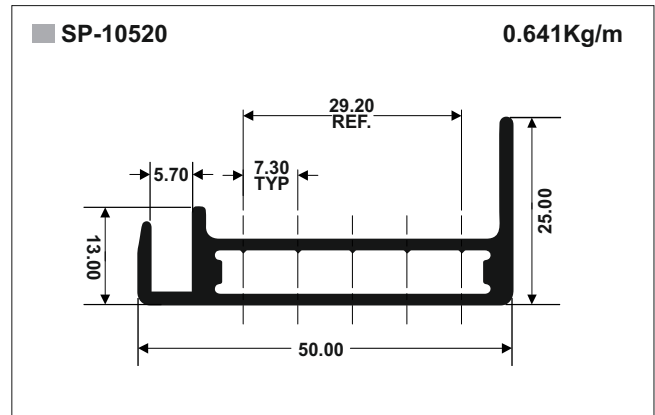
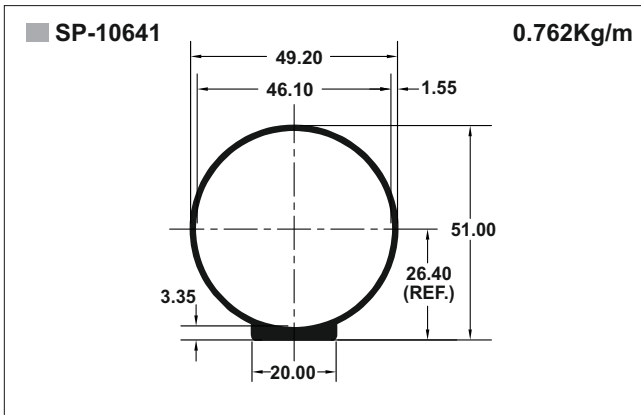


Solar Channel





Solar Channels





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MARKETING HEAD OFFICE

6th & 7th Floor, Birla Centurion,
Pandurang Budhkar Marg,
Worli, Mumbai 400030
Tel : +91-22-6662 6666 / 6662 6609 / 6643
Fax : +91-22-2422 7586 / 2436 2516
Email : rajendra.pareek@adityabirla.com

EXPORTS OFFICE

7th Floor, Birla Centurion,
Pandurang Budhkar Marg,
Worli, Mumbai 400030
Tel : +91-22-6662 6666 / 6662 6630 / 6646
Fax : +91-22-2422 7586 / 2436 2516
Email : manoj.randive@adityabirla.com

WORKS

P.O. Renukoot, Dist Sonbhadra,
Uttar Pradesh - 231 217, India
Tel. : +91-5446-252 079 / 78
Fax : +91-5446-252 107 / 252 427
Email : sanjeev.singh@adityabirla.com

P.B. No. 21 Alupuram, Kalamassery,
Kerala - 683 104, India
Tel.: +91 - 484 - 293 2446
Fax : +91 - 484 - 254 1887
Email : r.sivaramakrishan@adityabirla.com

REGIONAL OFFICES

North

Mindmill Corporate Tower
24a, Film City
Sec- 16 A,
Noida - 201301.up.
Ph. + 91120 6692100
Fax. 91120 6692105
Email : nutan.singh@adityabirla.com

West

1st floor, Ahura Centre,
82, Mahakali Caves Road, Andheri (East),
Mumbai - 400 093, Maharashtra
Tel.: +91-22-6691 7000 / 7031
Fax : +91-22-6691 7070 / 7050
Email : ashish.nema@adityabirla.com

East

Jeevan Deep Building, 1,
Prafulla Chandra Sen Sarani,
Kolkata - 700 071, West Bengal
Tel.: +91-33-2280 9710, 2288 6135
Fax : +91-33-2288 6139
Email : abhijit.chakraborty@adityabirla.com

South

7th Floor, Industry house,
45 Race Course road,
Bengaluru - 560 001, Karnataka
Tel.: +91-80-4041 6000
Fax : +91-80-4041 6060
Email : ashok.k.kumar@adityabirla.com

AREA OFFICES

Kochi

P.B. No. 21 Alupuram, Kalamassery,
Kerala - 683 104, India
Tel.: +91-484-293 2445
Fax : +91-484-254 1887
Email : vivek.jacob@adityabirla.com

Chennai

Flat 2A, 2nd Floor, Apex Plaza, 3,
Nungambakkam High Road, Chennai - 600 034
Tel.: 91-44-2827 2333 / 2343
Fax : 91-44-2827 4756
Email : s.sugunaraj@adityabirla.com



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