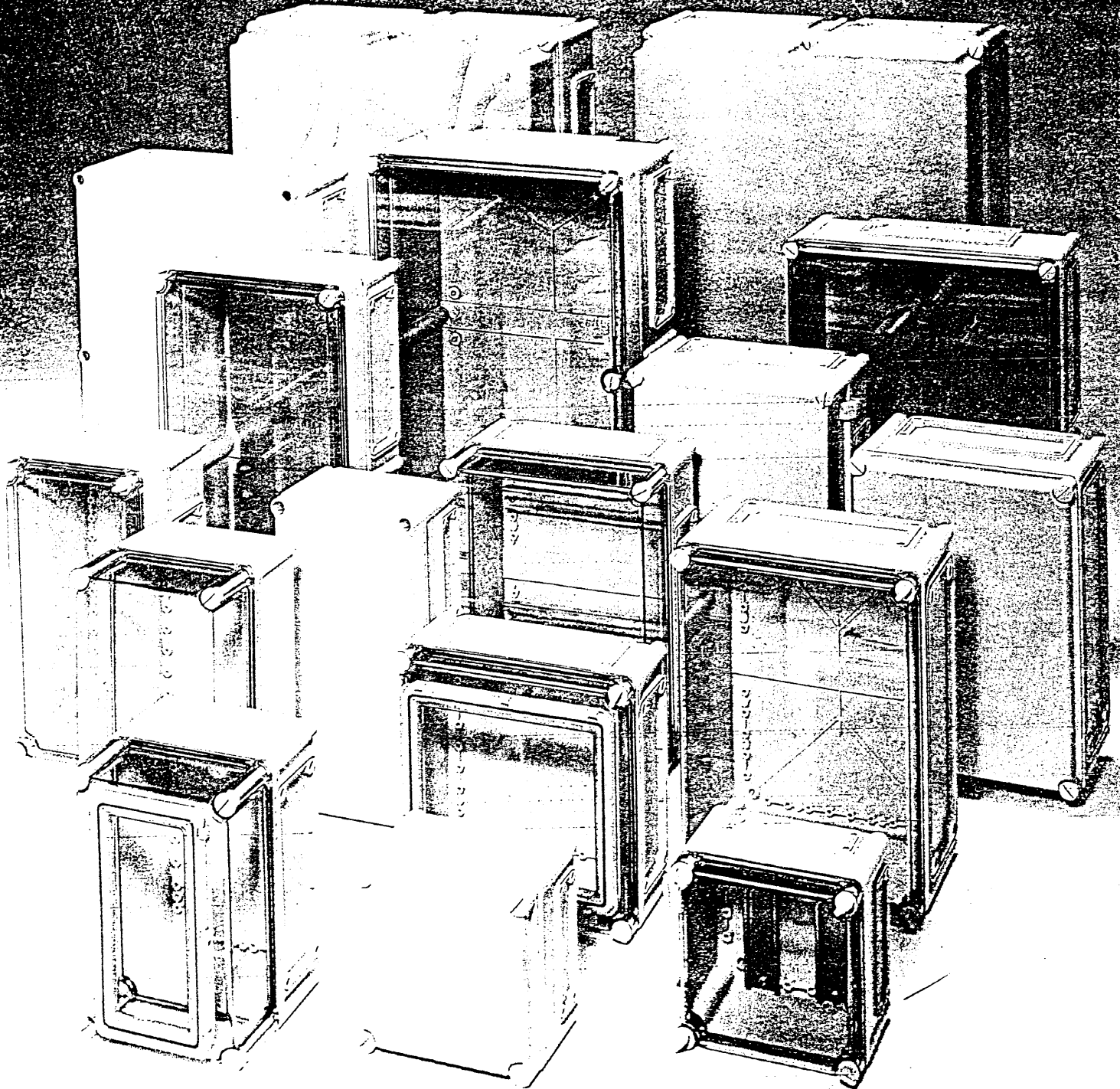


# EK ENCLOSURES



High quality all purpose electrical enclosures, suitable for single use and modular board assemblies.

**FISKARS** 208-504 to 590

# EK ENCLOSURES, DESCRIPTION AND TECHNICAL PROPERTIES

## DESCRIPTION

High quality all purpose polycarbonate enclosures suitable for single or modular board assemblies. Impact resistant. Designed and manufactured to IP 67 giving complete protection to enclosed apparatus against dust and moisture.

## DIMENSIONS

8 sizes on a modular basis using 190 — 280 — 380 — 560 — 760 mm dimensions. Base depth 100 or 150 mm, lid depth 30 or 80 mm, total depth 130 — 180 mm.

## DEPTH EXTENSION

All sizes other than H and W can be increased in depth by use of one or more 50 mm depth extensions.

## KNOCKOUTS

All bases have large prepressed knockouts. By using these assembly into panels is possible, also a variety of gland plates are available.

## LID SCREWS

Robust dimensioned solid plastic lid screws, located outside gasketed area. Many different types of screws available: wing, head, slotted, triangular or sealable slotted head, normal screw or 1/4 turn quicklocking; there is a 'hinged' screw as well.

## WALL MOUNTING

Directly through enclosed base in lid screw cavity outside gasketed area, or with separate mounting lugs.

## EQUIPMENT MOUNTING

Mounting panels can be attached to heavy duty M6 threaded brass bushings in the enclosure base corners. For direct mounting of DIN rails, the sizes H, J, M, O and P have additional mounting pods for selfcutting 4.9 x 9.5 mm screws pitched at 25 mm (throughout) along the sides.

## HINGES

Can be mounted on all sides. There is a choice of PC, PA or metal hinges, depending upon location and purpose.

## MATERIALS

Bases: rigid 20% glass reinforced PC, colour RAL 7035 (Europe grey)  
Covers: tough unfilled PC, crystal clear transparent or grey RAL 7035  
Extensions and gland plates: same as bases  
Cover screws: Tough, low friction PA6, colour RAL 7035  
Cover gaskets: oil and acid resistant chloroprene rubber  
Mounting panels: Heavy gauge galvanized steel sheet.

## SPECIFICATIONS

Degree of protection: IP 67 (acc. to IEC 529/DIN 40050)  
Dust and jet water tight, submersible (IP 679 acc. to NFC 20010)  
Safety: Total insulation (acc. to IEC 439).  
The enclosures comply with the relative requirements in VDE 0660-5, VDE 0110/11.72 and VDE 0304.  
Rated voltages: 660 V A.C. and 800 V D.C.  
Voltage test 4500 V/1 min.  
Rated currents: 200 A, 400 A, 630 A, 800 A.  
Short circuit strength:  
on 200 A busbars I dgn. 50 KA  
on 400 A busbars I dgn. 100 KA  
on 630 A busbars I dgn. 100 KA

## APPROVALS

- Electrical Inspectorate Finland to E3-70, SFS 2972, IEC 529
- Lloyd's Register of Shipping, London
- USSR Register of Shipping
- Germanischer Lloyd
- BASEEFA Ex N Zone II to BS
- TÜV and ÖVE, Austria
- KEMA, Netherlands

## TEMPERATURE RANGE

The tough and elastic properties of the polycarbonate enclosure material are retained to very high (+130) and down to very low (-150) temperatures; meaning that enclosure properties like impact resistance and stability only vary marginally in a practical temperature range from +120 to -50.

For long term (years) exposure we recommend though not to exceed 80 degr. C.

## CHEMICAL RESISTANCE

Polycarbonate is resistant to mineral acids up to high concentrations, many organic acids (e.g. carbon dioxide, lactic, oleic and citric acids), oxidants and reducing agents, neutral and acid salt solutions, greases and oils, saturated aliphatic and cycloaliphatic hydrocarbons and alcohols, except for methyl alcohol.

Polycarbonate is destroyed by alkaline solutions, ammonia gas and its solution and amines.

Polycarbonate is soluble in a number of commercial solvents. Other organic compounds such as benzene, acetone and carbon tetrachloride have a superficial swelling effect.

## RESISTANCE AGAINST CORROSION

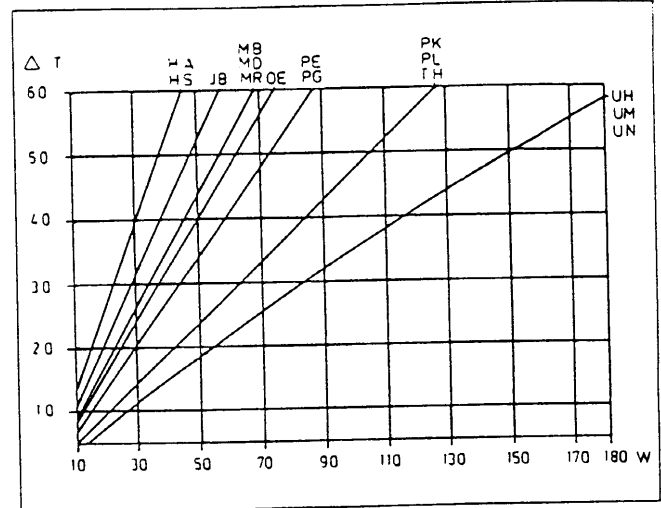
These enclosures are moulded from a homogenous thermoplastic polycarbonate. Even if abused they do neither dent nor chip, there is no paint to flake off. They behave well for years in environments where sheet steel would rust after months. The surface does not powder, the material is non-hygroscopic and there are no long glassfibre strands embedded which could suck in moisture.

## RESISTANCE TO U.V. RADIATION

The outdoor stability of the polycarbonates used is generally adequate. The enclosures have been tested in practice in tropical latitudes. We recommend though to avoid excessive exposure when using transparent covers.

## BEHAVIOUR IN FIRE

The enclosures are of selfextinguishing material; i.a. the material does not sustain combustion, and



Rise in temperature of enclosed air volume in relation to installed heat capacity. Enclosure freely suspended on wall.

even in complete burning no poisonous products are released.

## MACHINING

Machining is easy with normal tools. Punching, drilling, filing and sawing pose no problems as long as properly sharpened tools are used. The enclosures can be painted, varnished or glued with colourants and binding agents developed for this purpose. They can also be welded with ultrasonic apparatus.

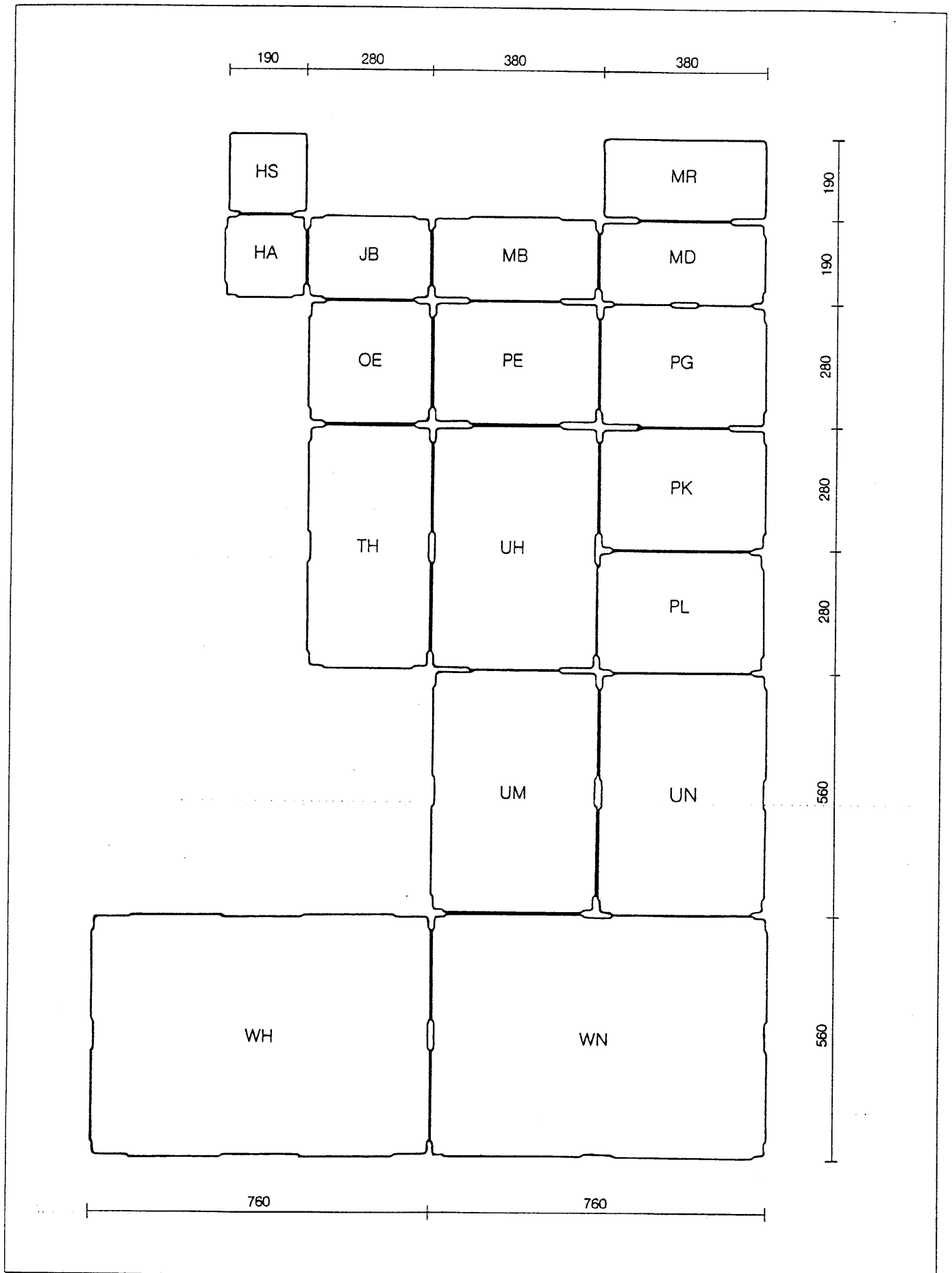
## MAINTENANCE

The enclosures do not need any particular maintenance. Dusty enclosures can be cleaned with soap and water. If a detergent is used the enclosure should be rinsed well with clean water. SOLVENTS SHOULD NOT BE USED.

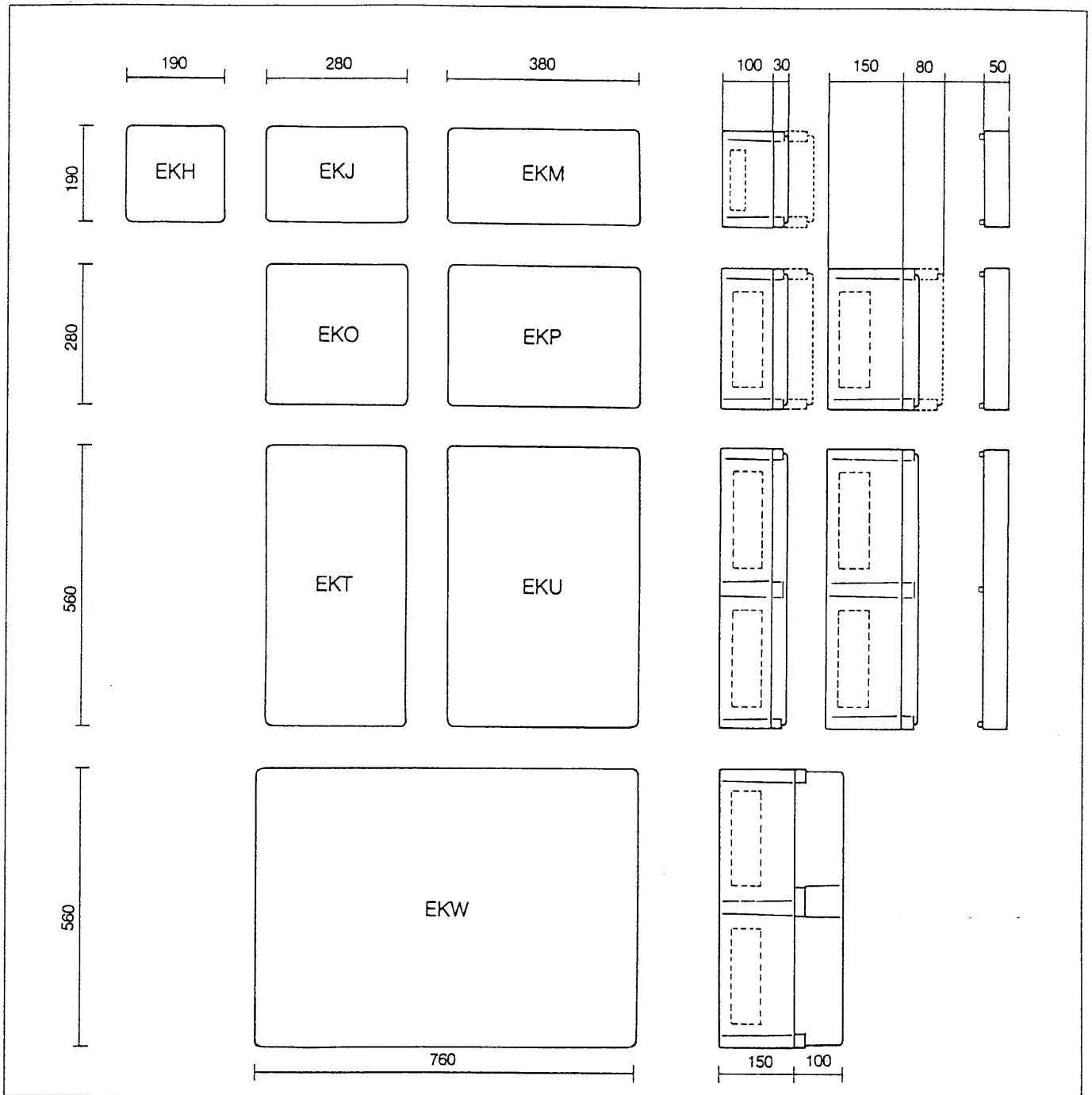
## POLYCARBONATE PROPERTIES

Specification	Norm	Base	Cover
Density g/cm <sup>3</sup>	DIN 53479 ISO/R 483	1.33	1.20
Impact strength +23°C (kJ/m <sup>2</sup> )	DIN 53453 ISO/R 179	50	no failure
Impact strength -40°C (kJ/m <sup>2</sup> )	DIN 53453 ISO/R 179	50	no failure
Flexural strength (N/mm <sup>2</sup> )	DIN 53452 ISO/R 178	160	—
Vicat softening point (°C) VST/B	DIN 53460 ISO/R 306	150	148
Glow wire test (°C)	IEC 695-2-1/VDE 0471/2	960	850
Flammability	UL 94	V-1	V-2
Flammability	ASTM-D 635	self-extinguishing	self-extinguishing
Max. service temperature (°C)			
short term exposure		140	130
long term exposure		125	115
Dielectric strength (kV/mm)	DIN 53481	>30	>30
Surface resistance Roc ohm	DIN 53482	>10 <sup>14</sup>	>10 <sup>15</sup>
Tracking resistance KC test solution F	DIN 53480	150—175	200—225

# COMBINATION POSSIBILITIES



# ASSORTMENT OF ENCLOSURES



BASE	COVER			EXTENSION	MOUNTING PLATE
	30 mm	80 mm	100 mm		
EKH__	+	+	—	—	+
EKJB	+	+	—	+	+
EKM__	+	+	—	+	+
EKOE	+	+	—	+	+
EKP__	+	+	—	+	+
EKTH	+	—	—	+	+
EKU__	+	—	—	+	+
EKW__	—	—	+	—	— *)

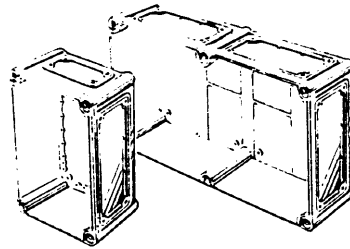
\*) Use two EKUVT!

# EK ENCLOSURES

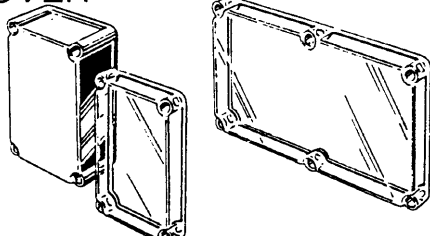
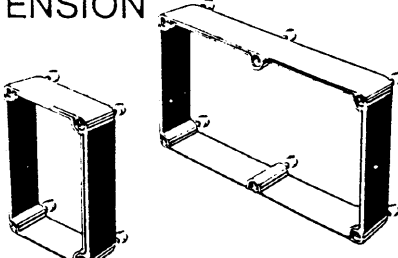
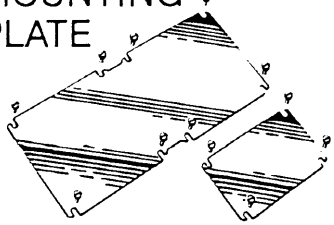


IP 67  
RAL 7035

## BASE

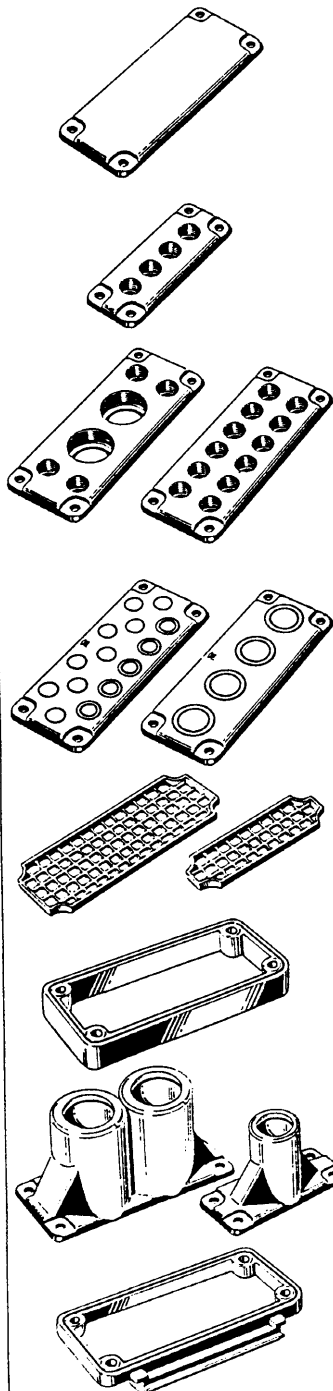
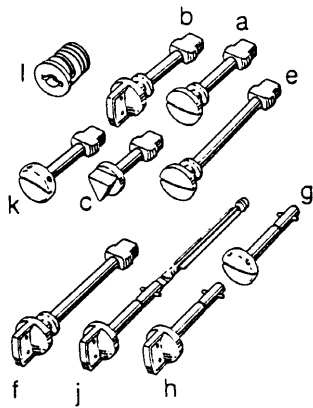


	Ordering symbol	Flange openings	Measurements	Code
	EKHA	4 × I	190 × 190 × 100	73530139
	EKHS	1 × I	190 × 190 × 100	73530543
	EKJB	2 × I 2 × II	280 × 190 × 100	73530140
	EKMB	2 × I 2 × II	380 × 190 × 100	73530136
	EKMD	4 × I 1 × I	380 × 190 × 100	73530137
	EKMR	1 × II	380 × 190 × 100	73530542
	EKOE	4 × II	280 × 280 × 100	73530095
	EKPE	4 × II	380 × 280 × 100	73530133
	EKPG	2 × I 3 × II	380 × 280 × 100	73530134
	EKPK	3 × II 1 × III	380 × 280 × 150	73530315
	EKPL	2 × II 2 × III	380 × 280 × 150	73530316
	EKTH	6 × II	560 × 280 × 100	73530132
	EKUH	6 × II	560 × 380 × 150	73530317
	EKUM	5 × II 1 × III	560 × 380 × 150	73530319
	EKUN	4 × II 2 × III	560 × 380 × 150	73530318
	EKWH	8 × II	760 × 560 × 150	7353062
	EKWN	4 × II 4 × III	760 × 560 × 150	7353062

COVER			EXTENSION			MOUNTING PLATE	
							
Ordering symbol	Height	Code	Ordering symbol	Height	Code	Ordering symbol	Code
EKHZK 1—30	30 mm	73720147	—	—	—	EKHVT	73770548
EKHZK 2—30	30 mm	73730147					
EKHZK 1—80	80 mm	73720555					
EKHZK 2—80	80 mm	73730555					
EKJZK 1—30	30 mm	73720146	EKJZR	50 mm	73730153	EKJVT	73770549
EKJZK 2—30	30 mm	73730146					
EKJZK 1—80	80 mm	73720556					
EKJZK 2—80	80 mm	73730556					
EKMZK 1—30	30 mm	73720145	EKMZR	50 mm	73730152	EKMVT	73770550
EKMZK 2—30	30 mm	73730145					
EKMZK 1—80	80 mm	73720557					
EKMZK 2—80	80 mm	73730557					
EKOZK 1—30	30 mm	73720096	EKOZR	50 mm	73730093	EKOVT	73770551
EKOZK 2—30	30 mm	73730096					
EKOZK 1—80	80 mm	73720558					
EKOZK 2—80	80 mm	73730558					
EKPZK 1—30	30 mm	73720143	EKPZR	50 mm	73730141	EKPVT	73770552
EKPZK 2—30	30 mm	73730143					
EKPZK 1—80	80 mm	73720559					
EKPZK 2—80	80 mm	73730559					
EKTZK 1—30	30 mm	73720144	EKTZR	50 mm	73730142	EKTVT	73770553
EKTZK 2—30	30 mm	73730144					
EKUZK 1—30	30 mm	73720320	EKUZR	50 mm	73730323	EKUVT	73770554
EKUZK 2—30	30 mm	73730320					
EKWZK 2—100	100 mm	73730630	—	—	—	—	—

1 = transp. 2 = grey

# ACCESSORIES

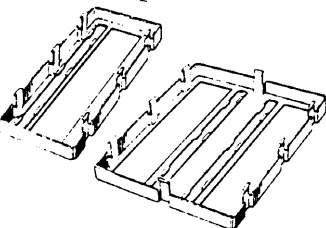
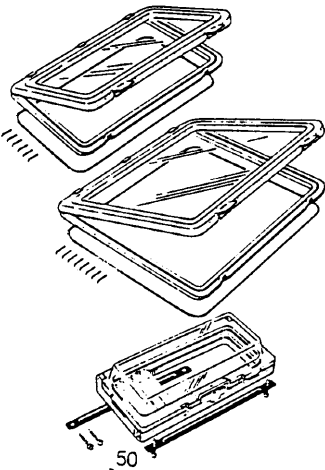
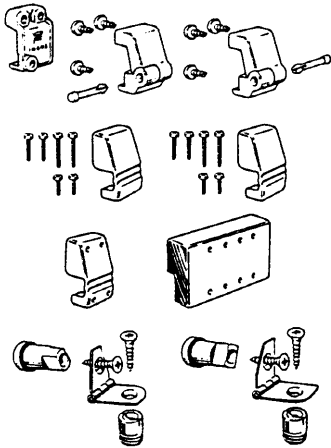
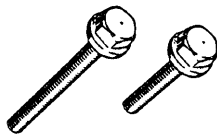
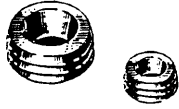


Ordering symbol	Ref.	Remarks	For cover	Code
<b>COVER SCREWS (S = slotted, W = Wing, T = triangle)</b>				
MB 10256	a	S	30/100 mm	73540256
MB 10255	b	W	30 mm	73540255
MB 10581	c	T	30/80 mm	73540581
MB 10563	e	S	80 mm	73540563
MB 10562	f	W	80 mm	73540562
MB 10544	g	S, quick-lock	30/100 mm	73570544
MB 10533	h	W, quick-lock	30 mm	73570533
MB 10532	j	W, hinged	30 mm	73570532
MB 10535	k	S, sealable	30/100 mm	73550435
MB 10534	l	Threaded bushing for g, h and j		73540534
<b>COVER PLATE</b>				
MB 10215	I	No openings.		73530215
MB 10546	II	"		73530546
MB 10324	III	"		73530324
<b>CABLE GLAND PLATE</b>				
MB 10151	I	4 × Pg 13,5		73530151
MB 10149	I	4 × Pg 16		73530149
MB 10214	I	3 × Pg 21		73530214
MB 10537	I	1 × Pg 29		73530537
MB 10014	II	12 × Pg 16		73530014
MB 10015	II	12 × Pg 13,5		73530015
MB 10016	II	6 × Pg 16 + 4 × Pg 21		73530016
MB 10017	II	4 × Pg 16 + 3 × Pg 29		73530017
MB 10019	II	4 × Pg 16 + 2 × Pg 36		73530019
<b>KNOCK-OUT PLATE</b>				
MB 10593	II	9 × Pg 11 + 5 × Pg 9/16		73530593
MB 10594	II	4 × Pg 21/29		73530594
MB 10595	II	13 × Pg 16		73530595
MB 10596	II	4 × Pg 11/21 + 7 × Pg 16		73530596
<b>CONDUCTOR SUPPORT PLATE</b>				
MB 10025	II	Opening to be made ac- cording to requirements.		73560025
MB 10026	I			73560026
<b>PLATE EXTENSION</b>				
MB 10391	II	To be mounted with MB 10392 + size II plate.		73530391
<b>CABLE SPREADER</b>				
EPA 1130	I	1 × Ø 15 ... 30		73550385
EPA 1230	I	2 × Ø 15 ... 30		73550386
EPA 2160	II	1 × Ø 30 ... 60		73550387
EPA 2260	II	2 × Ø 30 ... 60		73550388
<b>EXTENSION FOR CABLE SPREADER</b>				
MB 10529	II	See page 11 ill. 5!		73530529

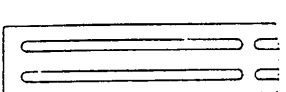
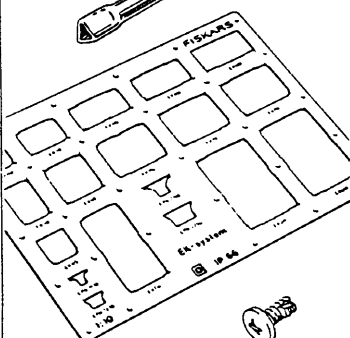
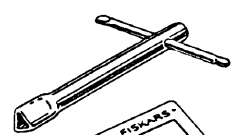
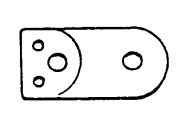
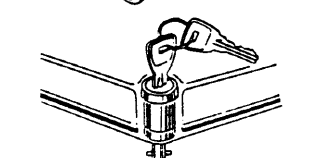
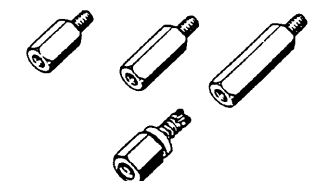
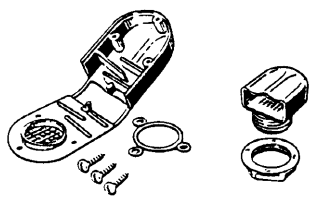
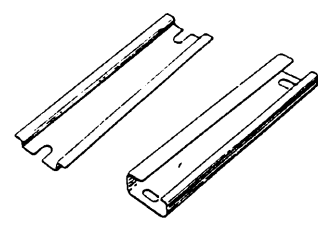


# ACCESSORIES

Ordering symbol	Size	Remarks	Code
<b>PLATE GASKET</b>			
MK 10437	I	Rubber	73510437
MK 10438	II	"	73510438
MK 10439	III	"	73510439
<b>CUSHIONS FOR CABLE SPREADER</b>			
MK 10425	I	For cable Ø 15...20	73510425
MK 10426	I	For cable Ø 20...30	73510426
MK 10427	II	For cable Ø 30...45	73510427
MK 10428	II	For cable Ø 45...60	73510428
<b>GLAND PLATE AND MOUNTING SCREWS</b>			
MB 10345	I	M6 × 25 for plate I	73570345
MB 10472	I	M6 × 30 base to base	73570472
MB 10346	II	M8 × 25 for plate II	73570346
MB 10474	II	M8 × 30 base to base	73570474
MB 10392	II	M8 × 50 MB 10391 + plate	73570392
MB 10347	III	M10 × 30 for plate III	73570347
<b>HINGES</b>			
MB 10622		polycarbonate, one pair, includes drill template.	73530622
MB 10547		polyamide, set of two.	73570547
PA 11001		template for MB 10547 in plastic (for single use).	73540660
FA 10547		template for MB 10547 in metal (for serial use).	73770547
EKZKS 1		metal, set of two.	73570570
<b>INSPECTION WINDOWS</b>			
L2	248 × 128	for 11 modules	73730589
L3	248 × 218	for 2 × 11 modules	73730588
L04	96 × 77	for 4 modules	73730661
L03	130 × 77	for 6 modules	73730662
L02	162 × 77	for 8 modules	73730663
L01	199 × 77	for 10 modules	73730664
<b>COVER PLATES FOR WINDOWS L2 AND L3</b>			
B2/10621—45		For L2 window	73730621
B2/10621—50		For L2 window	73735621
B3/10620—45		For L3 window	73730620
B3/10620—50		For L3 window	73735620

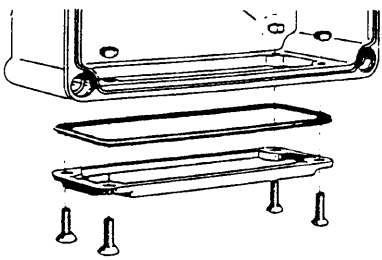
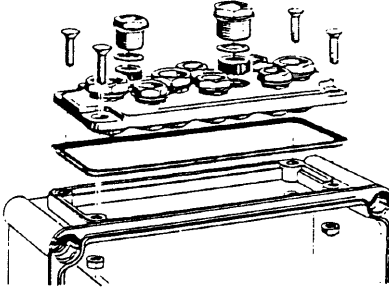
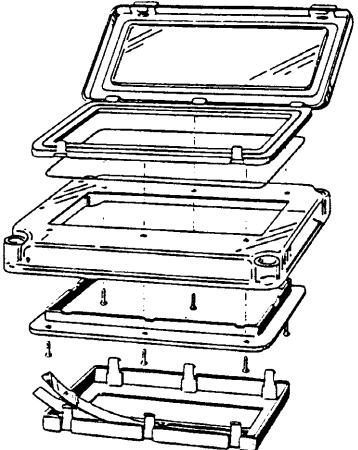
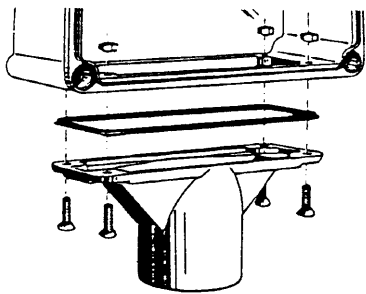
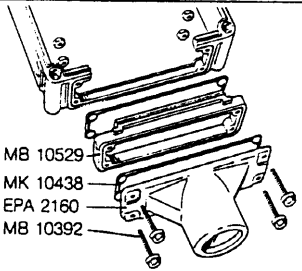
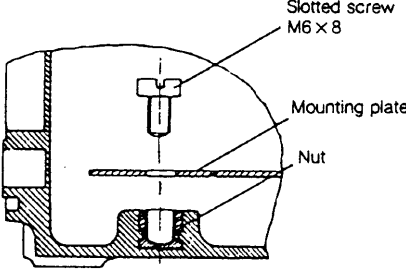
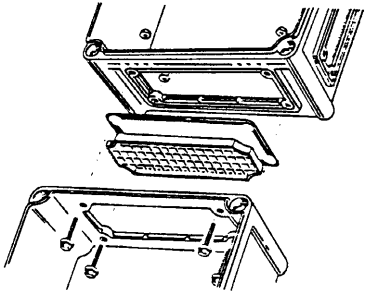
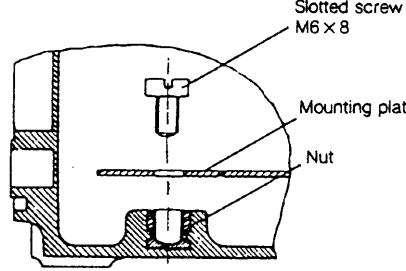
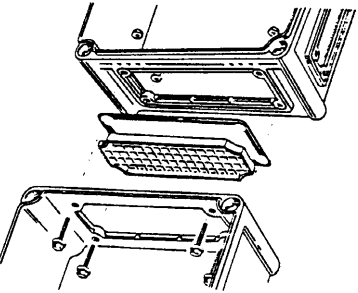
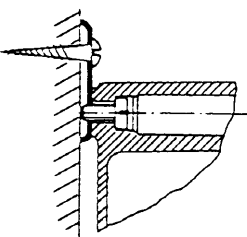
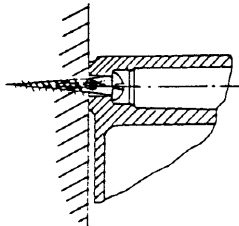
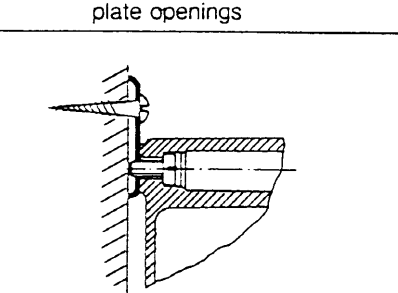
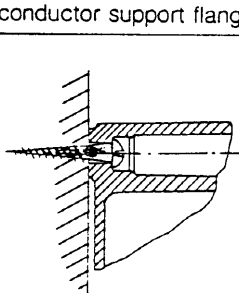
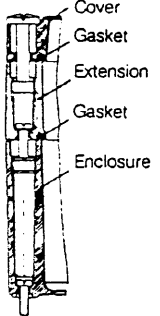


# ACCESSORIES



Ordering symbol	Size	Remarks	Code
<b>MOUNTING RAILS</b>			
EKV 12	160 mm	DIN 46277/1	73770647
EKV 22	235 mm		73770648
EKV 32	335 mm		73770649
EKV 14	164 mm	DIN 46277/3	73770644
EKV 24	239 mm		73770645
EKV 34	339 mm		73770646
<b>VENTILATION DEVICE</b>			
MB 10564	Large	IP 44	73540564
MB 10631	Small	IP 33	73540631
<b>SPACERS</b>			
HR 15	15 mm	mounted onto metal inserts.	73570656
HR 20	20 mm		73570657
HR 30	30 mm		73570658
FA 12052	42 mm	mounted onto fastening pods.	74712052
FA 12053	14 mm		74712053
<b>LOCK</b>			
MB 10597		Two keys included in one set.	73570597
<b>FASTENING LUG</b>			
MB 10674		4 lugs + bolts and nuts	73570674
<b>BLIND PLUG</b>			
MB 10523		for cover corner on hinged side when cover screws not used.	73560523
<b>TRIANGULAR KEY</b>			
FA 10673		for cover screw MB 10581	73570673
<b>DRAWING TEMPLATE</b>			
EK—1:10		Scale 1:10	73530659
<b>SELF CUTTING SCREW</b>			
MSM		4.8 x 9.5 for EKV-rails	74712049
<b>CONNECTING RAIL</b>			
EKZKK 1	2 m	See dim. page 12.	73770573

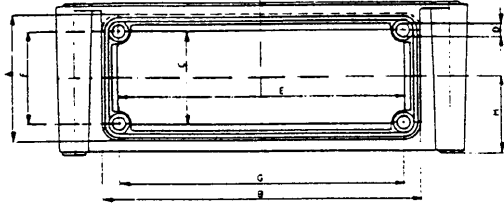
# ASSEMBLY OF ENCLOSURES AND PLATES

 <p>1 Fastening of cover plate</p>	 <p>2 Fastening of cable gland plate</p>	 <p>3 Mounting of L2 window with B2/10621 cover.</p>	
 <p>4 Terminal box</p>	 <p>5 MB 10529 extension together with EPA 2160</p>	 <p>6 Fastening of mounting plate</p>	 <p>7 Base to base mounting together with MB 10026</p>
 <p>8 Assembly of enclosures with knocked-out plate openings</p>	 <p>9 Assembly with conductor support flange</p>	 <p>10 Fastening with lug</p>	 <p>11 Single box fastened with screws</p>
 <p>12 Fastening of extension</p>	 <p>13 Fastening of extension</p>	 <p>14 Fastening of extension</p>	

# DIMENSIONAL DRAWINGS

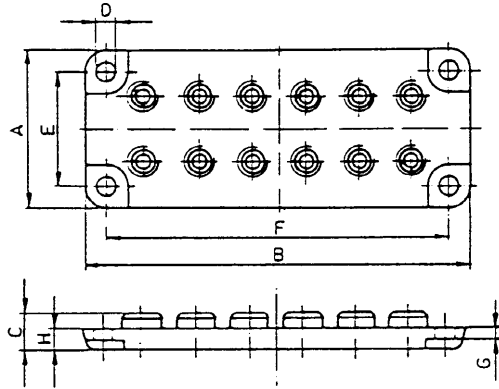
## GLAND PLATE OPENINGS

Plate size	Measurements							
	A	B	C	D	E	F	G	M
I	48	138	33	7	121	30	120	31
II	86	217	63	9,5	195	62	194	52
III	127	332	101	11,5	306	81	294	71



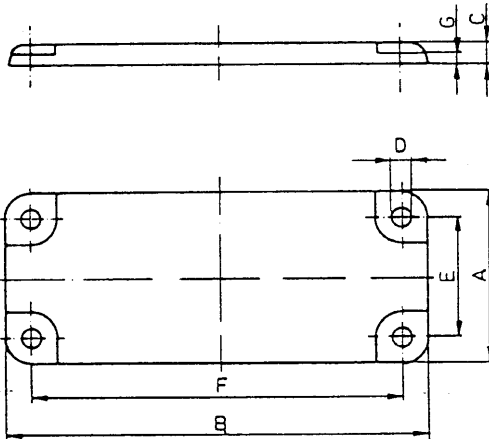
## CABLE GLAND PLATES

Ordering symbol	Plate size	Measurements								Gland fittings pcs. x size
		A	B	C	D	E	F	G	H	
MB 10149	I	49	140,5	20	7	30	120	5	10	4 x 16
MB 10151	I	49	140,5	18	7	30	120	5	10	4 x 13,5
MB 10214	I	49	140,5	24	7	30	120	5	10	3 x 21
MB 10537	I	49	140,5	35	7	30	120	5	10	1 x 29
MB 10014	II	85	216	20	9,5	62	193	5	10	12 x 16
MB 10015	II	85	216	18	9,5	62	193	5	10	12 x 13,5
MB 10016	II	85	216	24	9,5	62	193	5	10	6 x 16 + 4 x 21
MB 10017	II	85	216	28	9,5	62	193	5	10	4 x 16 + 3 x 29
MB 10019	II	85	216	32	9,5	62	193	5	10	4 x 16 + 2 x 36



## COVER PLATES

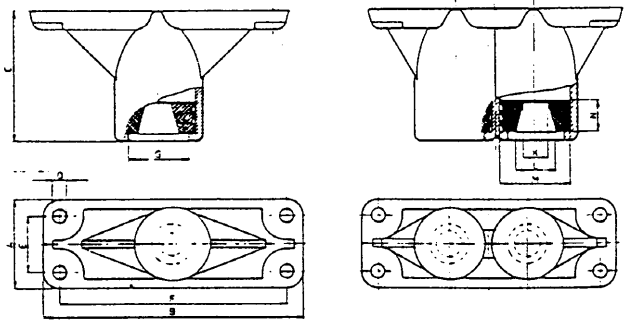
Ordering symbol	Plate size	Measurements						
		A	B	C	D	E	F	G
MB 10215	I	49	140,5	10	7	30	120	5
MB 10546	II	85	217	10	9,5	62	193	5
MB 10324	III	127	332	15	11,5	80	292	8



## TERMINAL BOXES AND RUBBER CUSHIONS

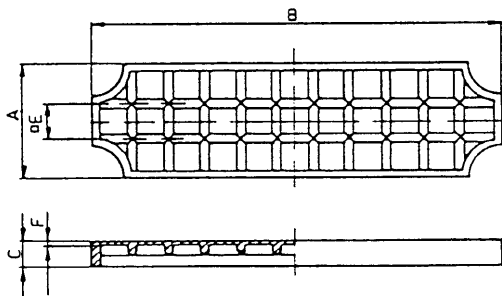
Ordering symbol	Plate size	Number of cables	Measurements							
			A	B	C	D	E	F	G	H
EPA 1130	I	1	48	138	70	7	30	120	31	—
EPA 1230	I	2	48	138	70	7	30	120	31	42
EPA 2160	II	1	85	216	100	9,5	62	193	61	—
EPA 2260	II	2	85	216	100	9,5	62	193	61	78

Ordering symbol	Measurements				Diam. of cables	Fits
	K	L	M	N		
MK 10425	12	22	38	18	15—20	EPA 1130
MK 10426	20	30	38	18	20—30	EPA 1230
MK 10427	28	48	72	27	30—45	EPA 2160
MK 10428	45	60	72	27	45—60	EPA 2260

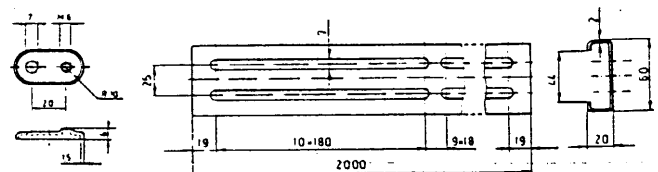


## CONDUCTOR SUPPORTS

Ordering symbol	Plate size	Measurements				
		A	B	C	□ E	F
MB 10025	II	70	201	7	13	0,2
MB 10026	I	36	126	7	11	0,2

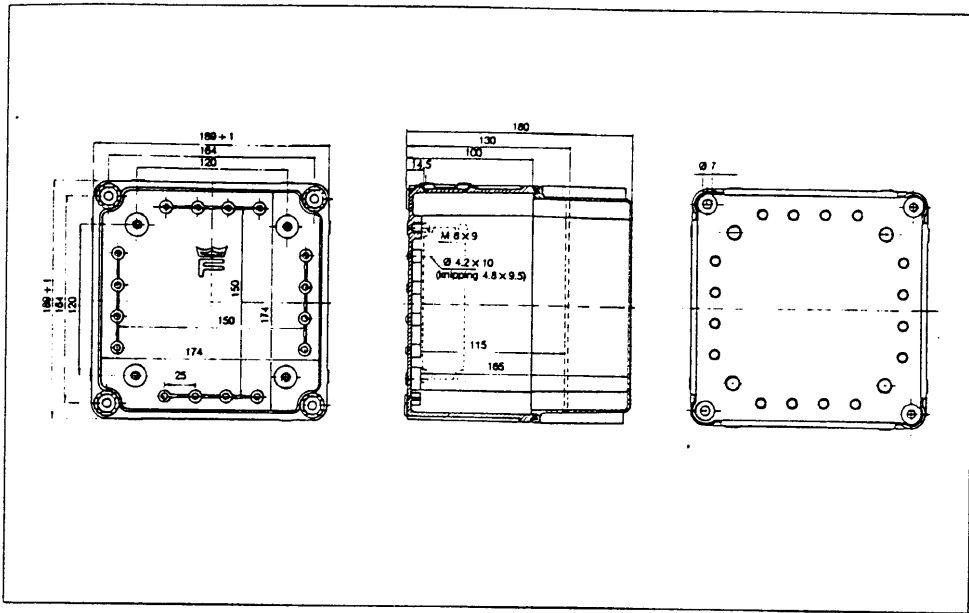


## ACCESSORIES FOR MOUNTING

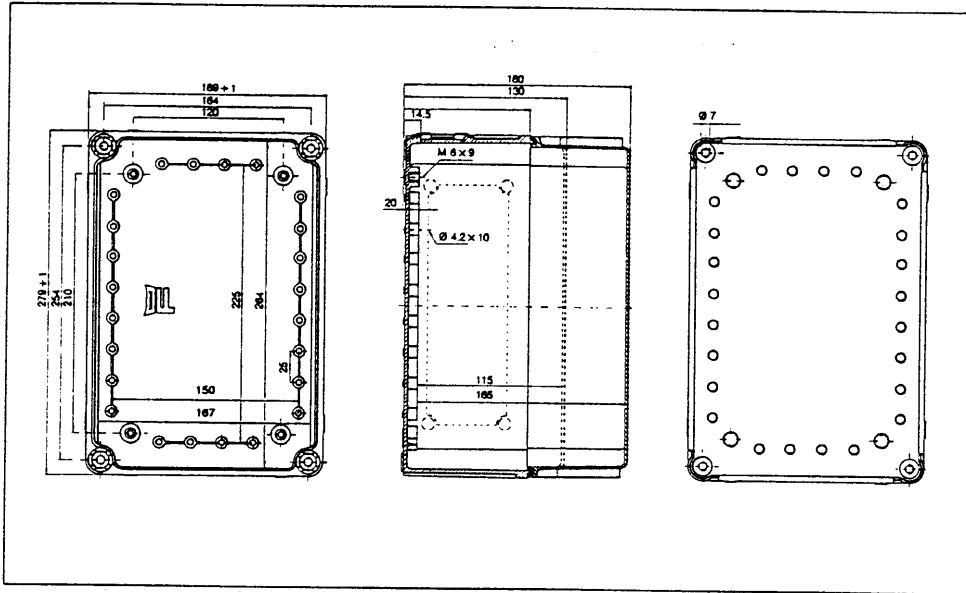


EKZKR 1

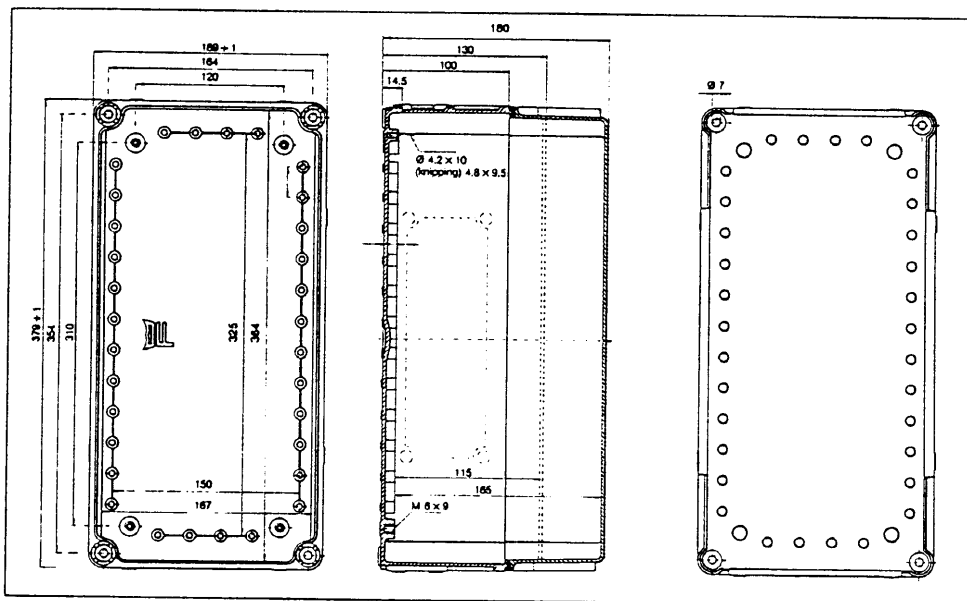
EKZKK 1



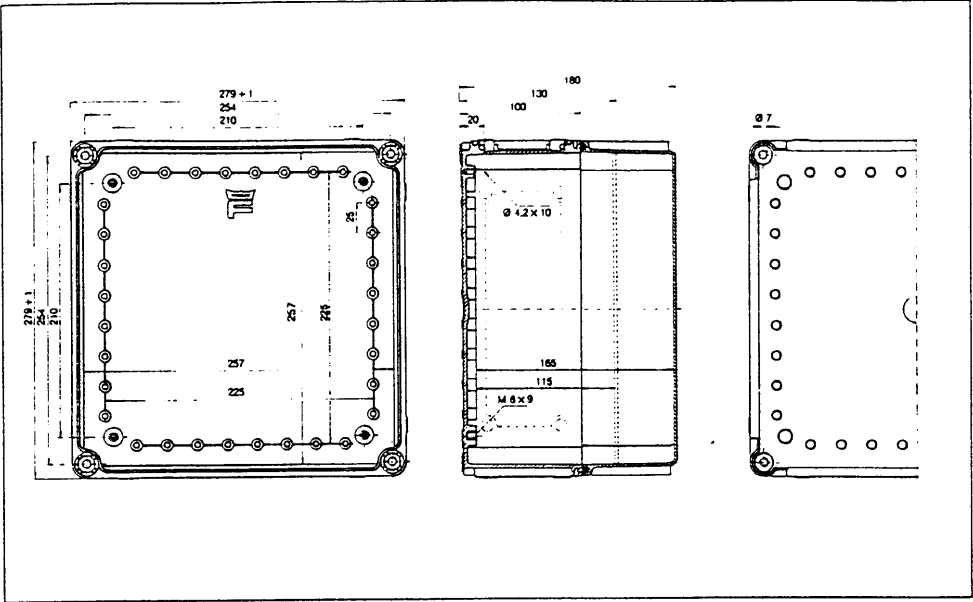
EKHA  
EKHS



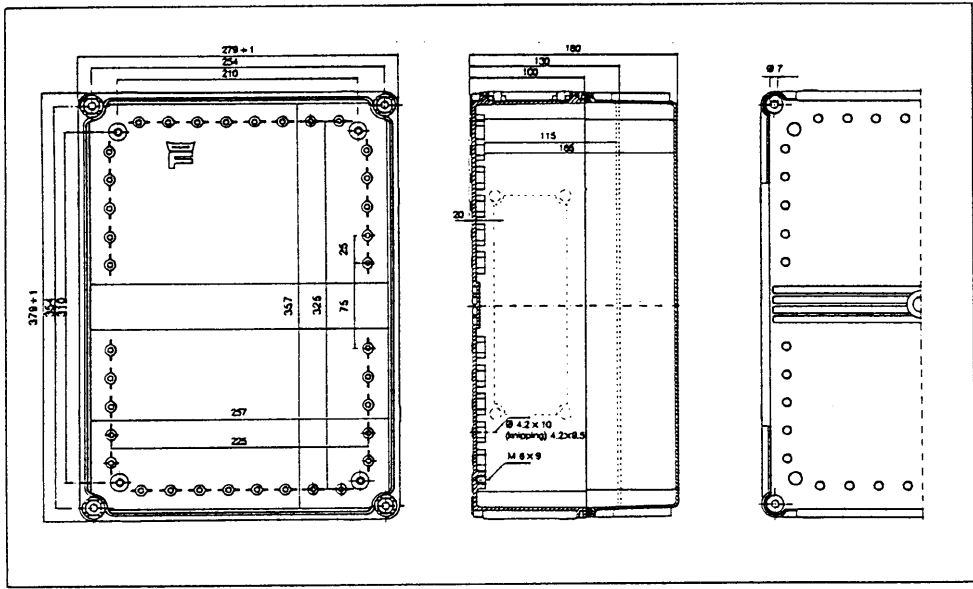
EKJB



EKMB  
EKMD  
EKMR

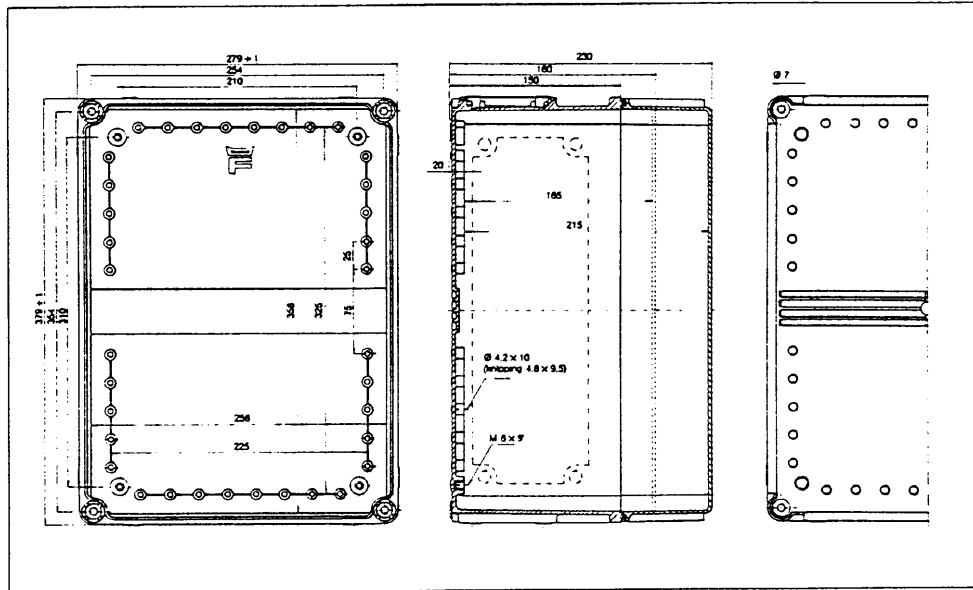


EKOE



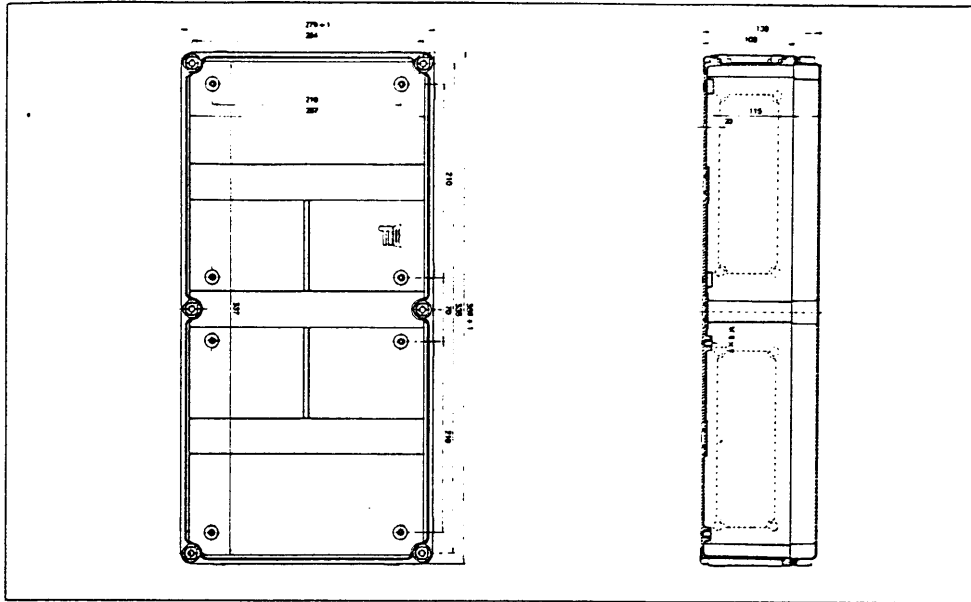
EKPE

EKPG

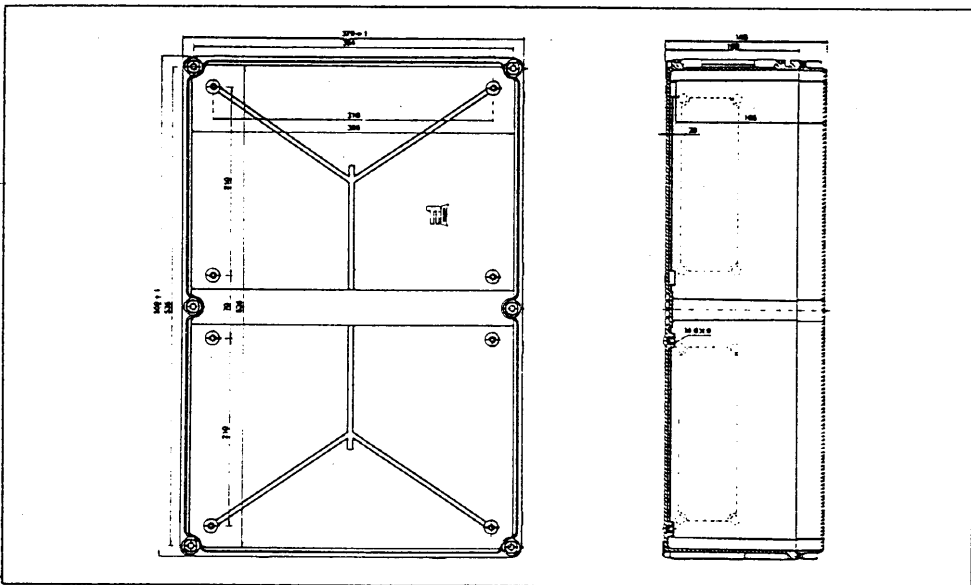


EKPK

EKPL



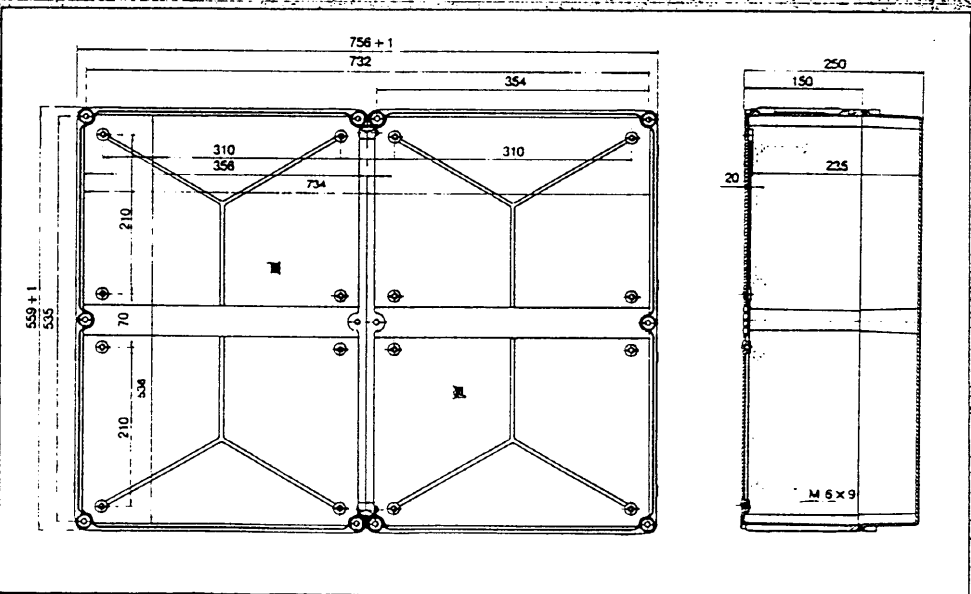
EKTH



EKUH

EKUM

EKUN



EKWH

EKWN