



**MP-H  
SERISI  
160A-600A**

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## GENEL ÖZELLİKLER

MP-H Busbar kanal sistemleri alçak gerilim enerji dağıtım hatlarında iletkenleri havalı tipte olan sistemlerdir. Plug-in üretim standart olarak dört çıkışlı olarak üretilir. 160A- 600A e kadar Alüminyum veya bakır iletkenli olarak üretilir. 5 kutuplu tam nötr konfigürasyonda işletme gerilimi 1000 V'tur. Kasa galvanizli sac olarak IP 55 koruma sınıfında üretilir.

### Kullanım Yerleri

Ticari merkezler, orta ölçekli sanayi tesisleri, yüksek binalar, data merkezleri olan yerlerde kullanılır.

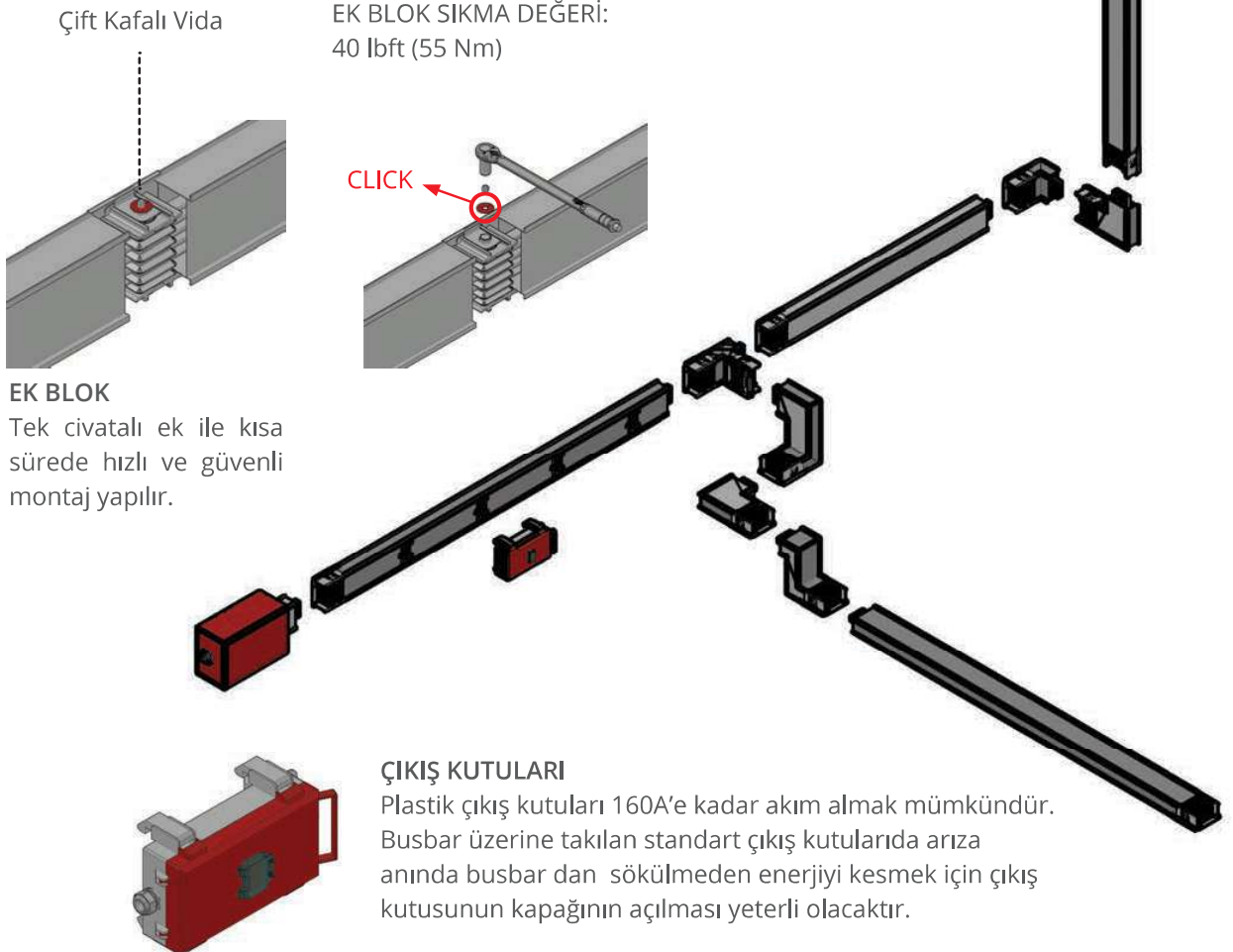
### Boyama

RAL 7038

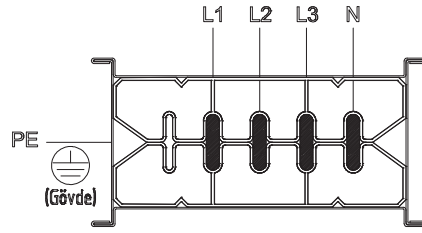
### Koruma

Plug-inler V2 yanmamazlık özelliğine sahip, oluşan olumsuz çevre koşullarına karşı ve yüksek sıcaklıklara dayanıklıdır. Ağır darbeye karşı direnme gösterir. Alev geciktirme sertikalı malzemeden üretilen contalı koruma kapağı IP 55'dir.

MP-H



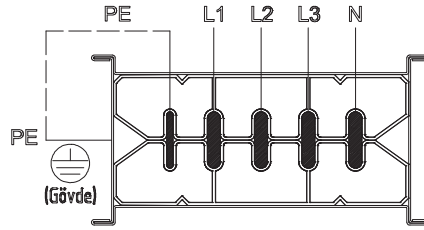
## 3P+N+PE (4 İLETKEN) T1



GALVENİZLİ SAC GÖVDE

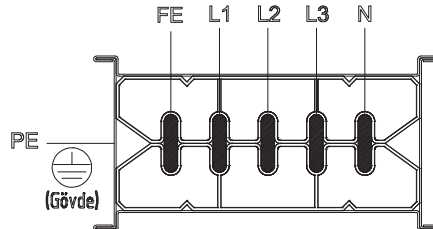
Nötr iletken kesiti faz iletkeni ile aynıdır. Topraklama iletken kesiti aynı olarak kasa içerisine konulur.

## 3P+N+PE+PE (4,5 İLETKEN) T3



GALVENİZLİ SAC GÖVDE

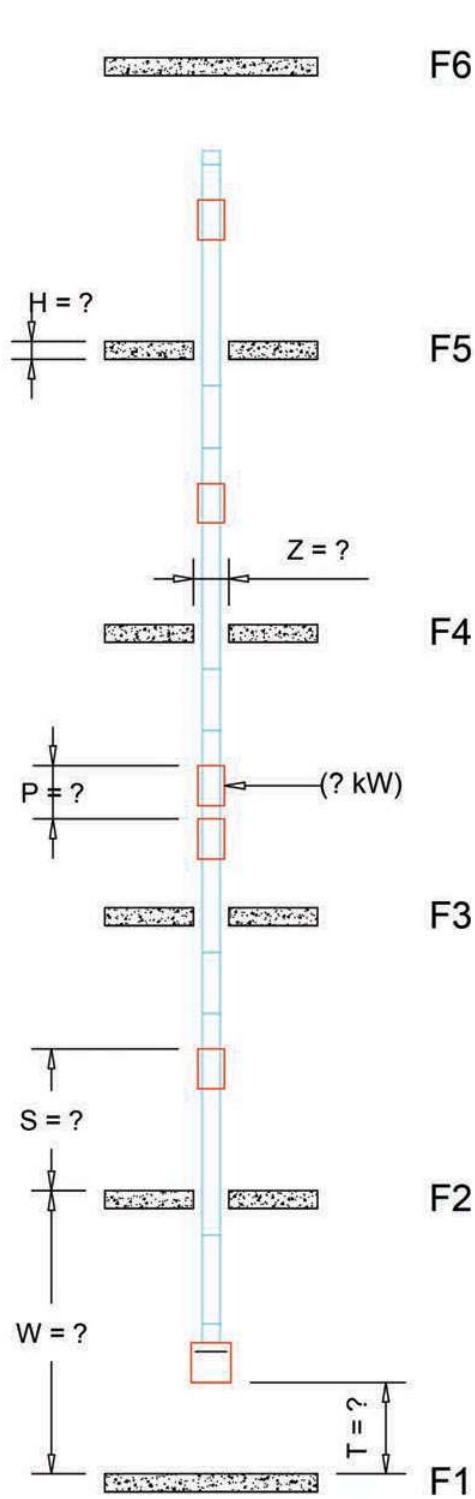
## 3P+N+PE+FE2 (5 İLETKEN) T2



GALVENİZLİ SAC GÖVDE

Nötr iletken kesiti faz iletkeni ile aynı topraklama için kullanılan iletken kesiti faz iletkenin kesitinin yarısıdır.

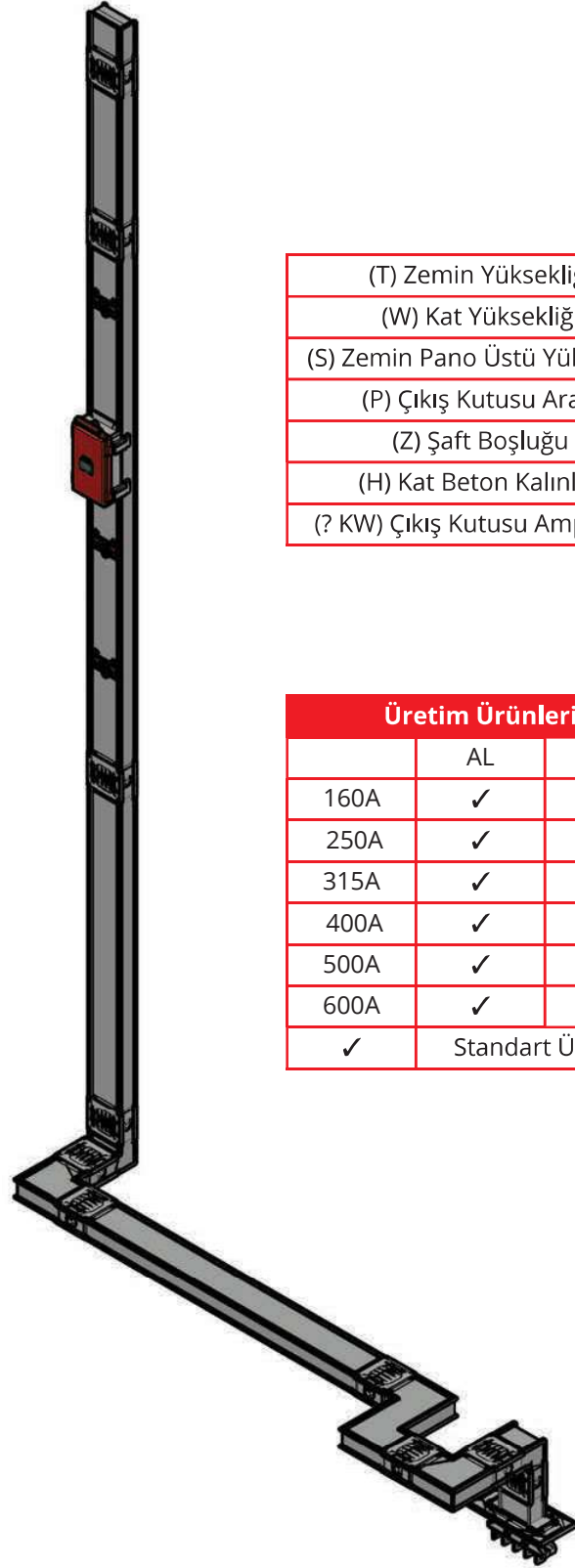
## DİKEY DAĞITIM PROJESİ



(T) Zemin Yüksekliği
(W) Kat Yüksekliği
(S) Zemin Pano Üstü Yüksekliği
(P) Çıkış Kutusu Arası
(Z) Şaft Boşluğu
(H) Kat Beton Kalınlığı
(? KW) Çıkış Kutusu Amperleri

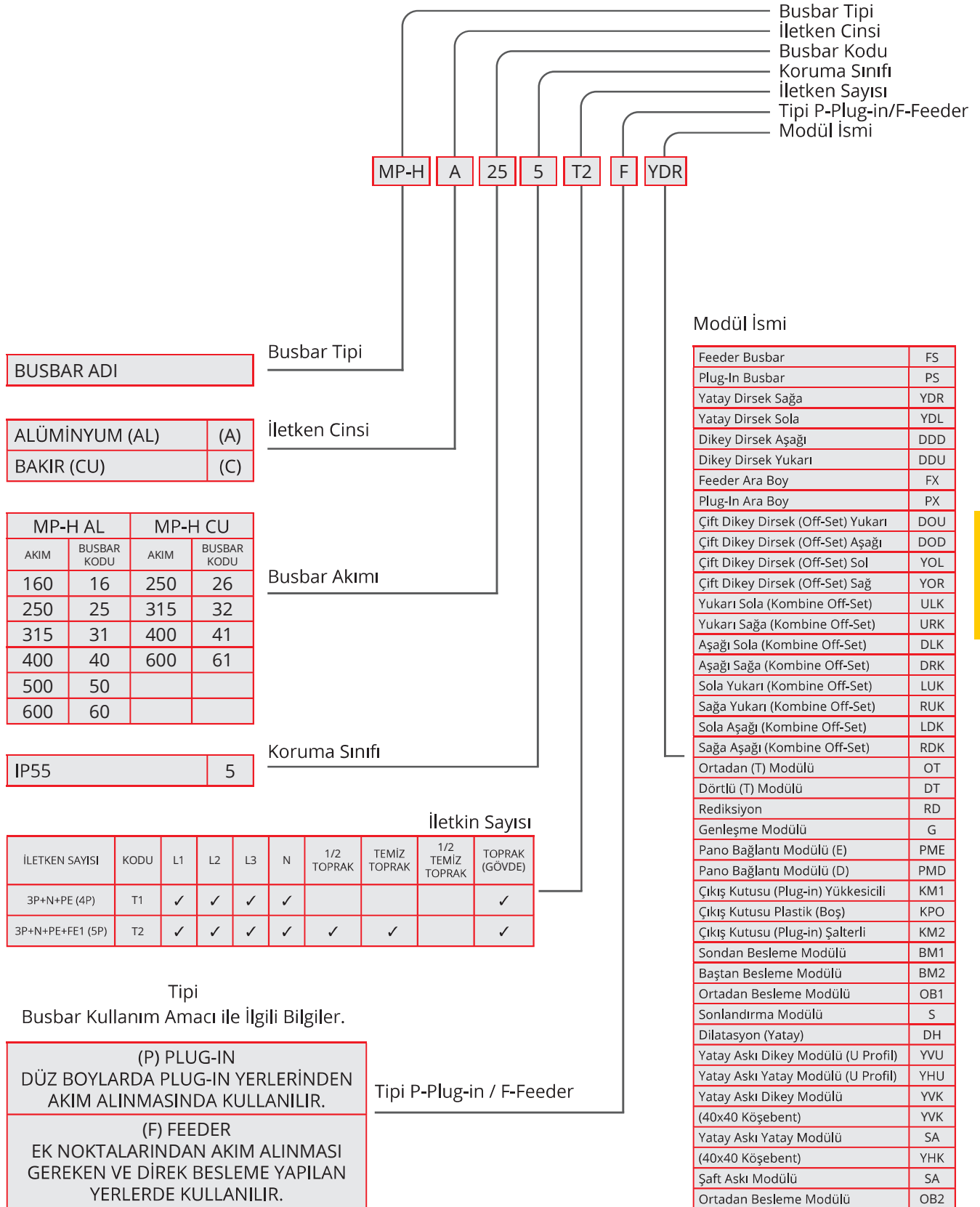
## Üretim Ürünleri

	AL	CU
160A	✓	-
250A	✓	✓
315A	✓	✓
400A	✓	✓
500A	✓	-
600A	✓	✓
✓	Standart Üretim	

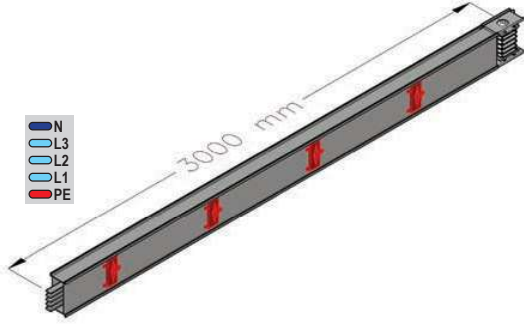


MP-H

## SİPARİŞ KOD SİSTEMİ



## Standart Boy



MP-H

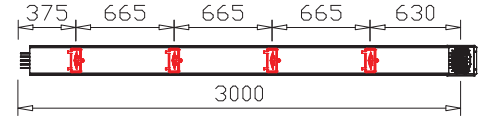
Plug-in Busbar PS

**ÖRNEK SİPARİŞ**  
250 A Alüminyum,  
Plug-in IP 55 5 İletken  
**MP-HA255T2PS**

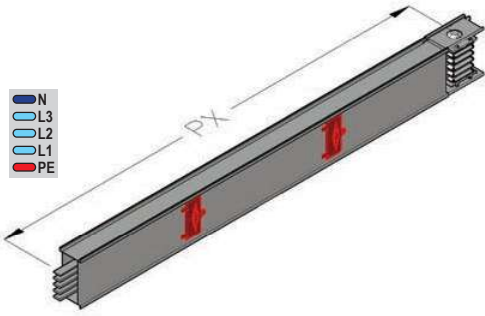
Busbar Tipi  
İletken Cinsi  
Busbar Kodu  
Koruma Sınıfı  
İletken Sayısı  
Tipi P-Plug-in/F-Feeder  
Modül İsmi

## PLUG-IN BUSBAR

Plug-in boylarda standart üretim 4 çıkışlıdır. İstek üzerine çıkış sayısı değiştirilebilir.



MP-H



Plug-in Ara Boy PX

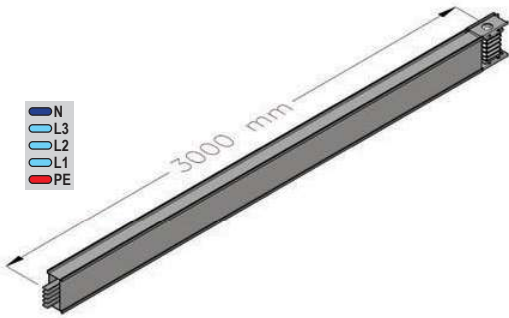
**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Plug-in IP 55 5 İletken  
**MP-HA405T2PX**

Feeder Busbar FS

**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Feeder IP 55 5 İletken  
**MP-HA405T2FS**

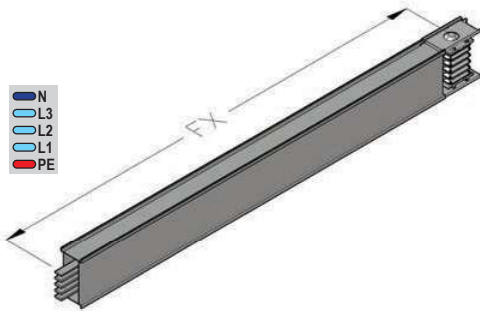
## FEEDER BUSBAR

Güç iletiminde direk beslemeyi sağlar. Standart üretim 3000 mm, istek üzerine minimum 500 mm den başlayan farklı ölçülerde imal edilebilir.

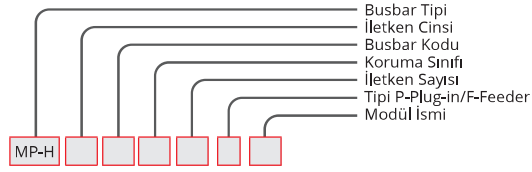
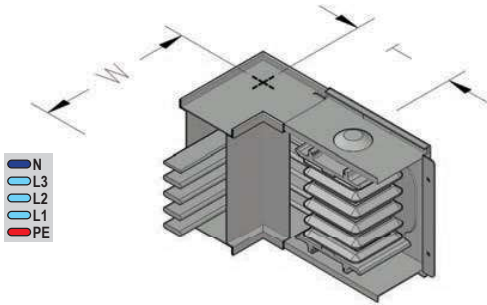


Feeder Ara Boy FX

**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Dirsek IP 55 5 İletken  
**MP-HA405T2FX**

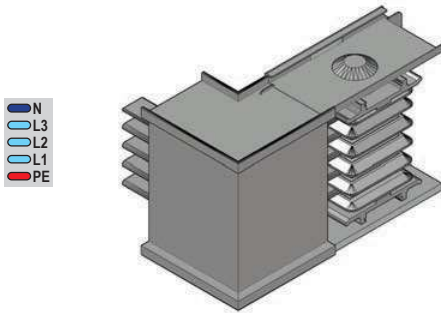


## Dönüş Modülleri



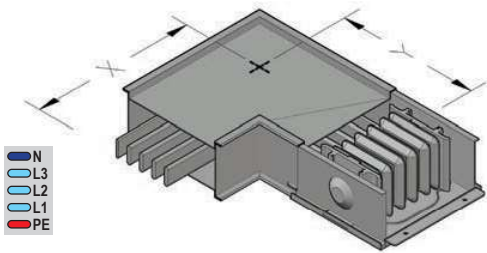
Yatay Dirsek Sağa	YDR
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**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Dirsek IP 55 5 İletken  
**MP-HA405T2FYDR**



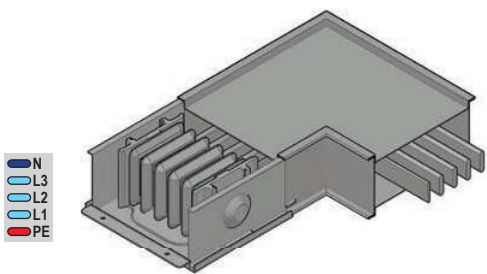
Yatay Dirsek Sola	YDL
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**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Dirsek IP 55 5 İletken  
**MP-HA405T2FYDL**



Dikey Dirsek Aşağı	DDD
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**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Dirsek IP 55 5 İletken  
**MP-HA405T2FDDD**



Dikey Dirsek Yukarı	DDU
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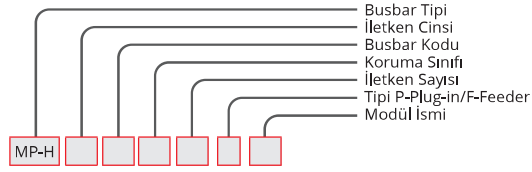
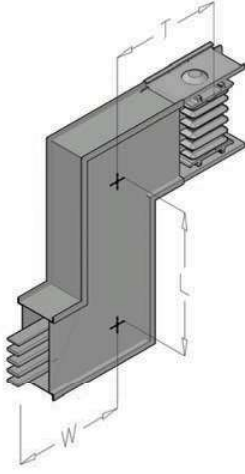
**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Dirsek IP 55 5 İletken  
**MP-HA405T2FDDU**

	(AL)		(CU)		
AMR.	W mm	T mm	AMR.	W mm	T mm
160A	145	145	250A	150	150
250A	150	150	315A	155	155
315A	155	155	400A	165	165
400A	165	165	600A	180	180
500A	170	170			
600A	180	180			
AMP.	X mm	Y mm	AMP.	X mm	Y mm
160A	240	240	250A	240	240
250A	240	240	315A	240	240
315A	240	240	400A	240	240
400A	240	240	600A	240	240
500A	240	240			
600A	240	240			



## Dönüş Modülleri

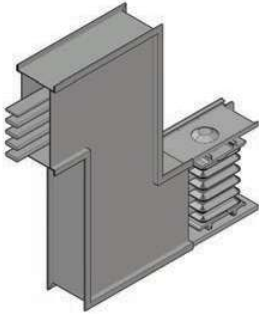
N  
L3  
L2  
L1  
PE



Çift Dikey Dirsek  
Yukarı Off-set DOU

**ÖRNEK SİPARİŞ**  
250 A Bakır  
Ofset IP 55 5 İletken  
**MP-HC265T2FDOU**

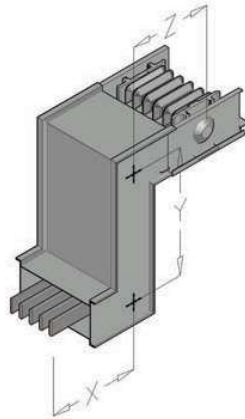
N  
L3  
L2  
L1  
PE



Çift Dikey Dirsek  
Aşağı Off-set DOD

**ÖRNEK SİPARİŞ**  
400 A Bakır  
Ofset IP 55 5 İletken  
**MP-HC415T2FDOD**

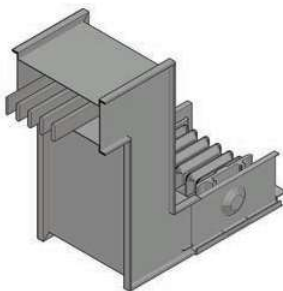
N  
L3  
L2  
L1  
PE



Çift Yatay Dirsek  
Sağa Off-set YOR

**ÖRNEK SİPARİŞ**  
600 A Bakır  
Ofset IP 55 5 İletken  
**MP-HC615T2FYOR**

N  
L3  
L2  
L1  
PE

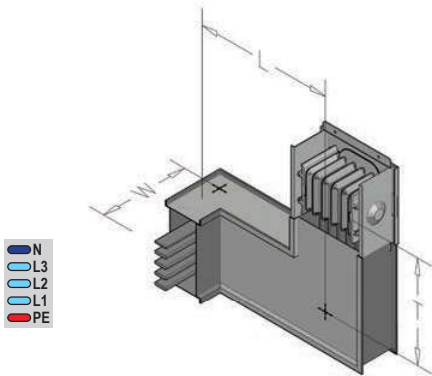


Çift Yatay Dirsek  
Sola Off-set YOL

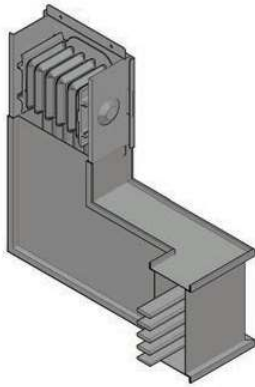
**ÖRNEK SİPARİŞ**  
250 A Bakır  
Ofset IP 55 5 İletken  
**MP-HC265T2FYOL**

(AL)				(CU)			
AMR.	W mm	T mm	L mm	AMR.	W mm	T mm	L mm
160A	240	240	240	250A	240	240	240
250A	240	240	240	315A	240	240	240
315A	240	240	240	400A	240	240	240
400A	240	240	240	600A	240	240	240
500A	240	240	240				
600A	240	240	240				
AMR.	X mm	Y mm	Z mm	AMR.	X mm	Y mm	Z mm
160A	145	145	145	250A	150	150	150
250A	150	150	150	315A	155	155	155
315A	155	155	155	400A	165	165	165
400A	165	165	165	600A	180	180	180
500A	170	170	170				
600A	180	180	180				

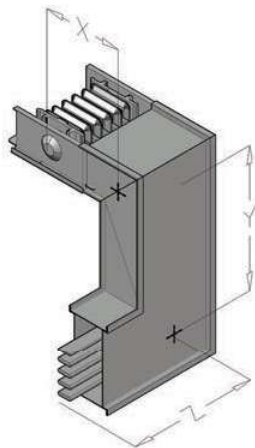
## Dönüş Modülleri



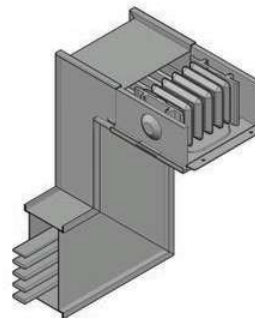
N  
L3  
L2  
L1  
PE



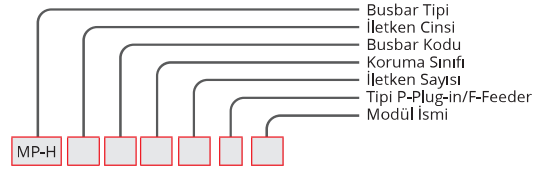
N  
L3  
L2  
L1  
PE



N  
L3  
L2  
L1  
PE



N  
L3  
L2  
L1  
PE



Yukarı Sağa  
Kombine Off-set URK

**ÖRNEK SİPARİŞ**  
600 A Bakır  
Ofset IP 55 5 İletken  
**MP-HC615T2FURK**

Yukarı Sola  
Kombine Off-set ULK

**ÖRNEK SİPARİŞ**  
400 A Alüminyum  
Ofset IP 55 5 İletken  
**MP-HA405T2FULK**

Aşağı Sağa  
Kombine Off-set DRK

**ÖRNEK SİPARİŞ**  
250 A Bakır  
Ofset IP 55 5 İletken  
**MP-HC265T2FDRK**

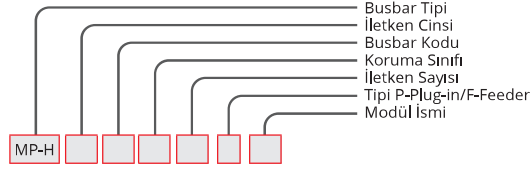
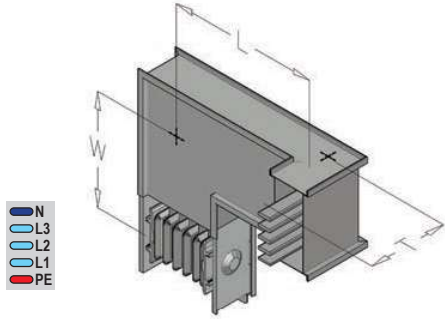
Aşağı Sola  
Kombine Off-set DLK

**ÖRNEK SİPARİŞ**  
400 A Alüminyum  
Ofset IP 55 5 İletken  
**MP-HA405T2FDLK**

MP-H

(AL)				(CU)			
AMR.	W mm	T mm	L mm	AMR.	W mm	T mm	L mm
160A	145	240	240	250A	150	240	240
250A	150	240	240	315A	155	240	240
315A	155	240	240	400A	165	240	240
400A	165	240	240	600A	180	240	240
500A	170	240	240				
600A	180	240	240				
AMR.	X mm	Y mm	Z mm	AMR.	X mm	Y mm	Z mm
160A	145	240	240	250A	150	240	240
250A	150	240	240	315A	155	240	240
315A	155	240	240	400A	165	240	240
400A	165	240	240	600A	180	240	240
500A	170	240	240				
600A	180	240	240				

## Dönüş Modülleri



Sağa Yukarı  
Kombine Off-set RUK

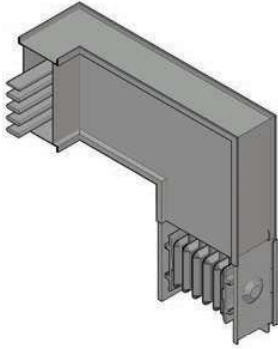
## ÖRNEK SİPARİŞ

250 A Bakır

Kombine Off-set IP 55 5 iletken

MP-HC265T2FRUK

N  
L3  
L2  
L1  
PE



Sola Yukarı  
Kombine Off-set LUK

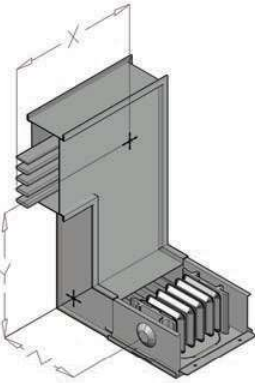
## ÖRNEK SİPARİŞ

250 A Bakır

Kombine Off-set IP 55 5 iletken

MP-HC265T2FLUK

N  
L3  
L2  
L1  
PE



Sağa Aşağı  
Kombine Off-set RDK

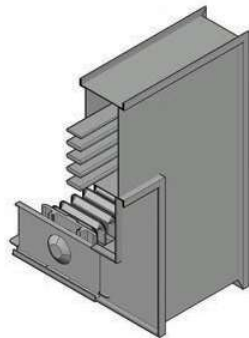
## ÖRNEK SİPARİŞ

250 A Alüminyum

Kombine Off-set IP 55 5 iletken

MP-HA255T2FRDK

N  
L3  
L2  
L1  
PE



Sola Aşağı  
Kombine Off-set LDK

## ÖRNEK SİPARİŞ

250 A Alüminyum

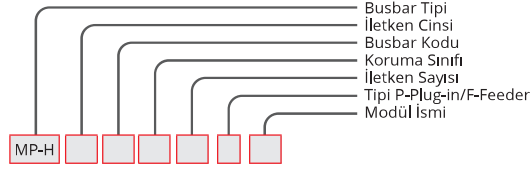
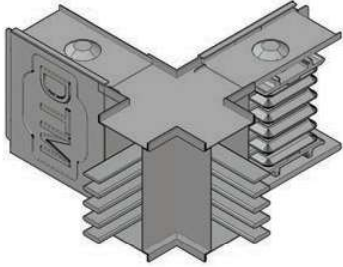
Kombine Off-set IP 55 5 iletken

MP-HA255T2FLDK

(AL)				(CU)			
AMR.	W mm	T mm	L mm	AMR.	W mm	T mm	L mm
160A	240	145	240	250A	240	150	240
250A	240	150	240	315A	240	155	240
315A	240	155	240	400A	240	165	240
400A	240	165	240	600A	240	180	240
500A	240	170	240				
600A	240	180	240				
AMR.	X mm	Y mm	Z mm	AMR.	X mm	Y mm	Z mm
160A	240	240	145	250A	240	240	150
250A	240	240	150	315A	240	240	155
315A	240	240	155	400A	240	240	165
400A	240	240	165	600A	240	240	180
500A	240	240	170				
600A	240	240	180				

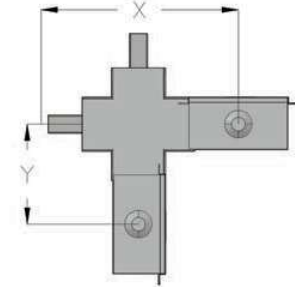
## Dönüş Modülleri

N  
L3  
L2  
L1  
PE

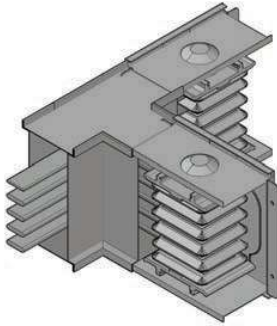


Dörtlü (T) Modülü	DT
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**ÖRNEK SİPARİŞ**  
250 A Alüminyum,  
Dörtlü T Modül IP 55 5 İletken  
**MP-HA255T2FDT**



N  
L3  
L2  
L1  
PE

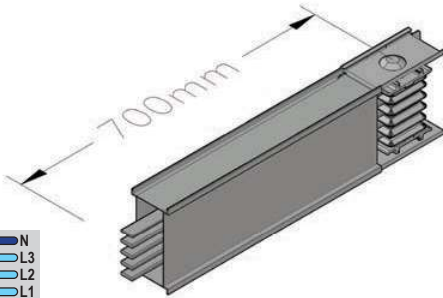


Ortadan (T) Modülü	OT
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**ÖRNEK SİPARİŞ**  
250 A Alüminyum,  
T Modül IP 55 5 İletken  
**MP-HA255T2FOT**

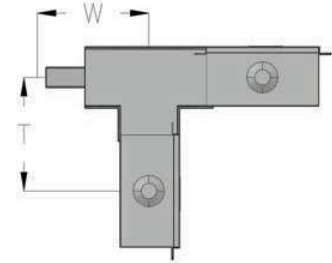
AMR.	(AL)		(CU)		
	X mm	Y mm	AMR.	X mm	Y mm
160A	290	145	250A	300	150
250A	300	150	315A	310	155
315A	310	155	400A	330	165
400A	330	165	600A	360	180
500A	340	170			
600A	360	180			
AMR.	W mm	T mm	AMR.	W mm	T mm
160A	145	145	250A	150	150
250A	150	150	315A	155	155
315A	155	155	400A	165	165
400A	165	165	600A	180	180
500A	170	170			
600A	180	180			

N  
L3  
L2  
L1  
PE

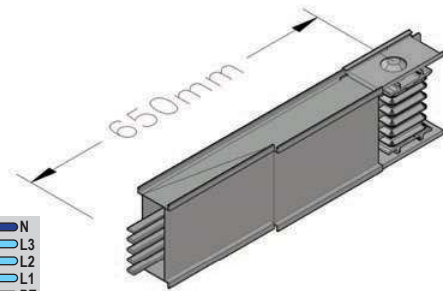


Genleşme Modülü	G
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**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Genleşme Modül IP 55 5 İletken  
**MP-HA405T2FG**



N  
L3  
L2  
L1  
PE



Redüksiyon Modülü	RD
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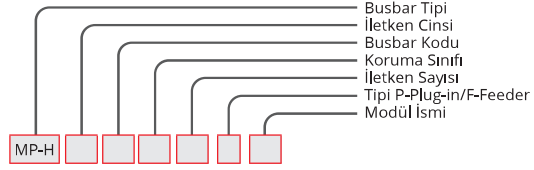
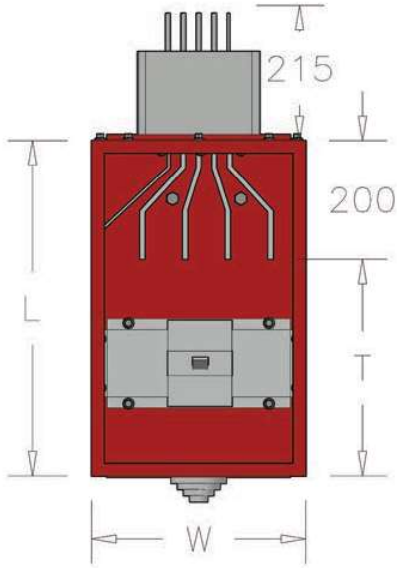
**ÖRNEK SİPARİŞ**  
400A-250A Alüminyum,  
Redüksiyon Modül IP 55 5 İletken  
**MP-HA405T2FRD**

Alma Akımı	MP-H AL İletkenli RD				
	Busbar Kodu				
	16	25	31	40	50
	Düşülen Alma Akımı				
	160	250	315	400	500
250A	✓	-	-	-	-
315A	✓	✓	-	-	-
400A	-	✓	✓	-	-
500A	-	-	✓	✓	-
600A	-	-	-	✓	✓

Alma Akımı	MP-H CU İletkenli RD			
	Busbar Kodu			
	26	32	41	51
	Düşülen Alma Akımı			
	250	315	400	500
315A	✓	-	-	-
400A	✓	✓	-	-
500A	-	✓	✓	-
600A	-	-	✓	✓

MP-H

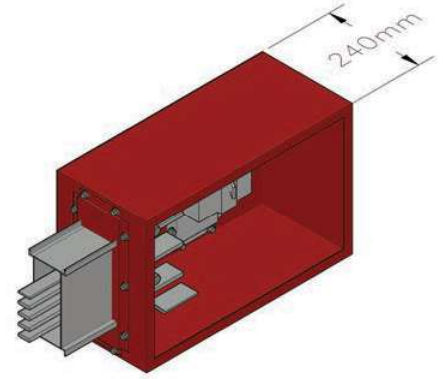
## Besleme Kutuları



Baştan Besleme Modülü	BM1
-----------------------	-----

ÖRNEK SİPARİŞ  
400 A Alüminyum,  
Besleme IP 55 5 İletken

**MP-HA405T2BM1**

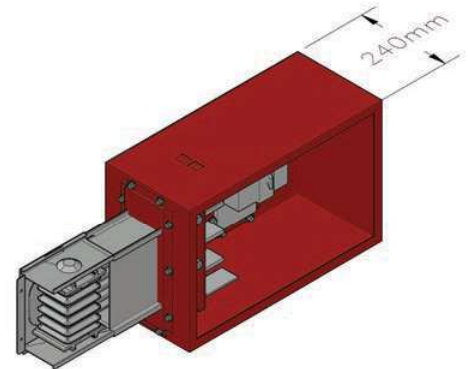
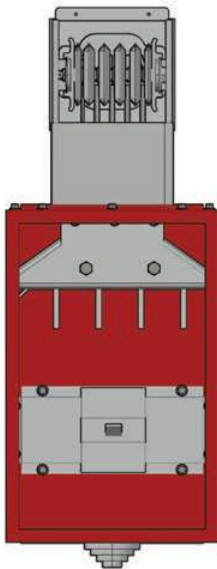


Sondan Besleme Modülü	BM2
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ÖRNEK SİPARİŞ  
400 A Alüminyum,  
Besleme IP 55 5 İletken

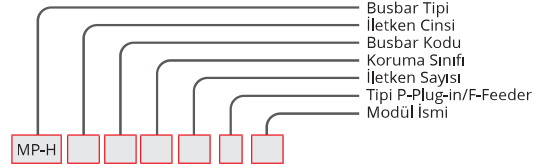
**MP-HA405T2BM2**

(AL)				(CU)			
AMR.	W mm	T mm	L mm	AMR.	W mm	T mm	L mm
160A	350	360	560	250A	350	360	560
250A	350	360	560	315A	350	360	560
315A	350	360	560	400A	350	360	560
400A	350	360	560	600A	350	360	560
500A	350	360	560				
600A	350	360	560				



Standart dışı kutu için lütfen firmamızı arayınız.

## Besleme Kutuları

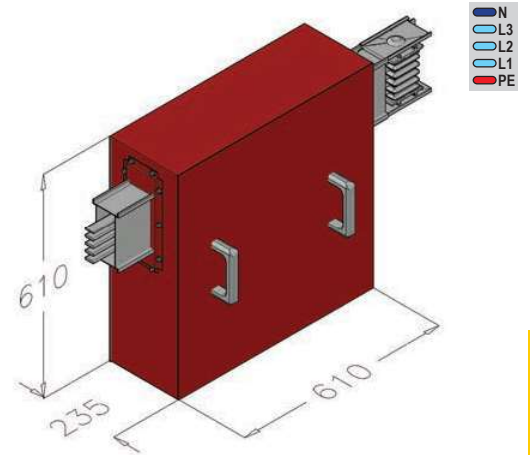
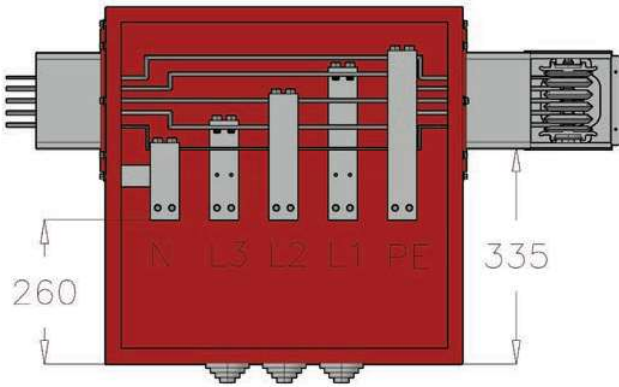


Ortadan Besleme Modülü Sol	OB1
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## ÖRNEK SİPARİŞ

250 A Alüminyum,  
Ortadan Besleme IP 55 5 İletken

## MP-HA255T2OB1

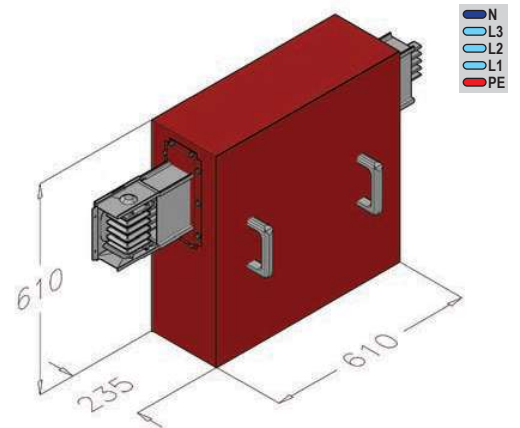
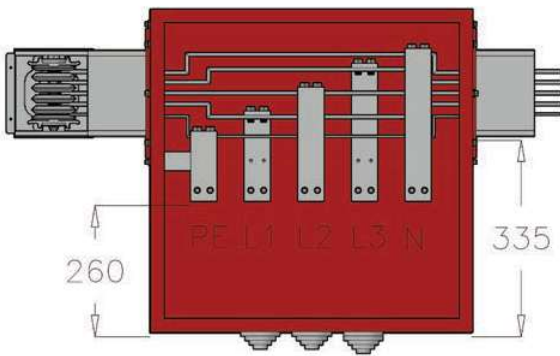


Ortadan Besleme Modülü Sağ	OB2
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## ÖRNEK SİPARİŞ

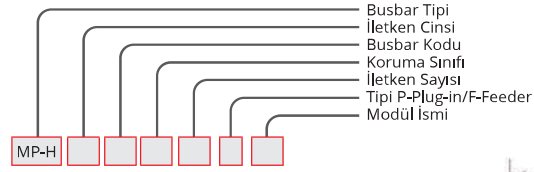
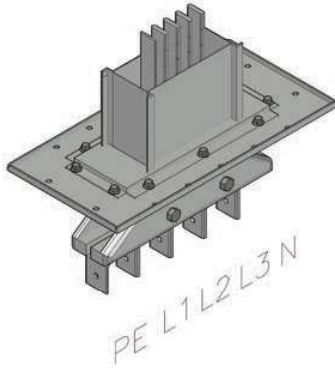
250 A Alüminyum,  
Ortadan Besleme IP 55 5 İletken

## MP-HA255T2OB2



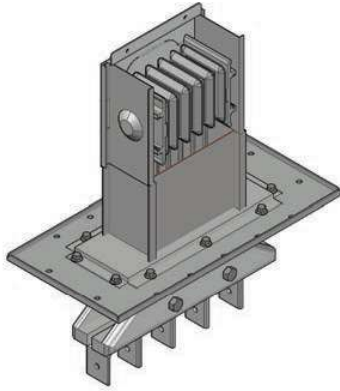
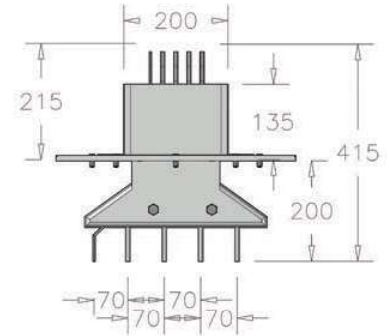
Standart dışı kutu için lütfen firmamızı arayınız.

## Pano Modülleri



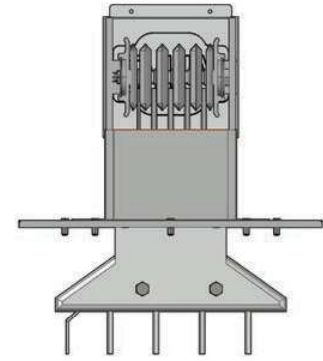
Pano Modülü (E)	PME
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**ÖRNEK SİPARİŞ**  
250 A Alüminyum,  
Pano Modülü IP 55 5 İletken  
**MP-HA255T2PME**

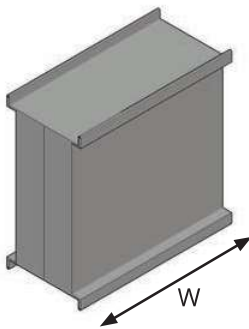


Pano Modülü (D)	PMD
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**ÖRNEK SİPARİŞ**  
400 A Alüminyum,  
Pano Modülü IP 55 5 İletken  
**MP-HA405T2PMD**



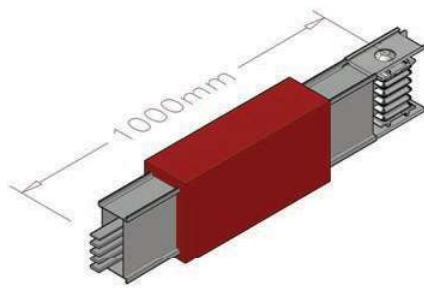
## Standart Modülleri



Sonlandırma Modülü	S
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**ÖRNEK SİPARİŞ**  
250 A Alüminyum,  
Sonlandırma IP 55 5 İletken  
**MP-HA255T2S**

SONLANDIRMA			
(AL)		(CU)	
AMR.	W mm	AMR.	W mm
160A	200	250A	200
250A	200	315A	200
315A	200	400A	200
400A	200	600A	200
500A	200		
600A	200		



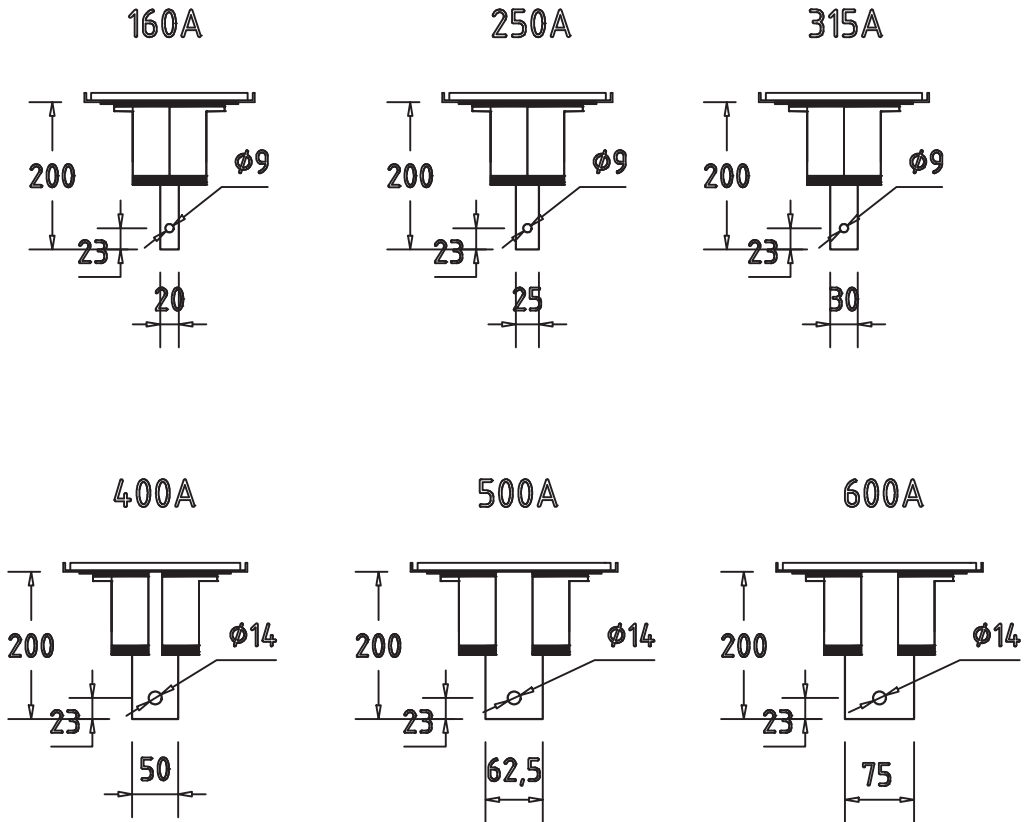
Yatay Dilatasyon Modülü	DH
-------------------------	----

**ÖRNEK SİPARİŞ**  
250 A Alüminyum,  
Dilatasyon IP 55 5 İletken  
**MP-HA255T2DH**

**Yatay Dilatasyon Bilgisi:**  
Uzun yatay hatlarda 40 MT bir kullanılır.

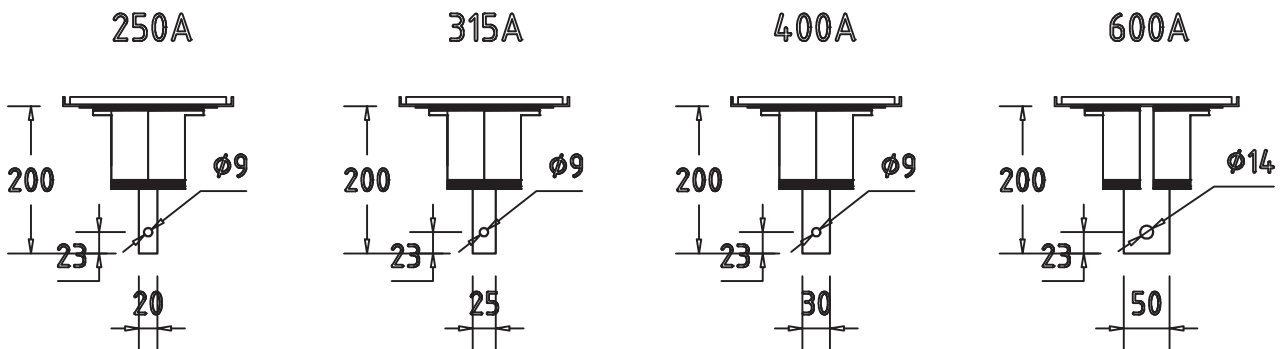


## Pano Modülleri (AL)



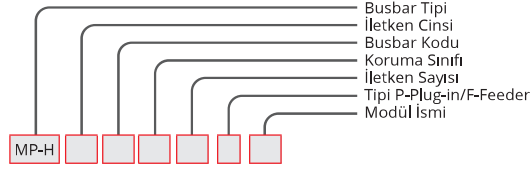
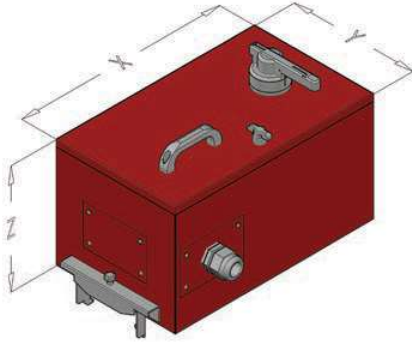
MP-H

## Pano Modülleri (CU)





## Çıkış Kutuları



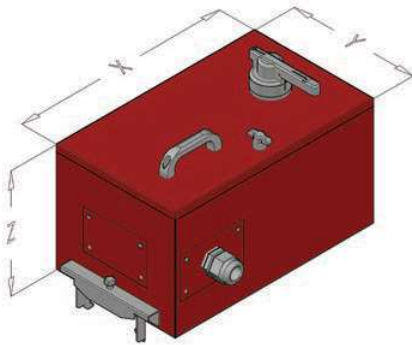
Çıkış Kutusu Otomatik Şalterli	KM1
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ÖRNEK SİPARİŞ  
250 A Çıkış Kutusu Boş  
IP 55 5 İletken

**MPKM125T2KM1B**

ÇIKIŞ KUTUSU OTOMATİK ŞALTERLİ				
AMP.	Kutu Kodu	X (mm)	Y (mm)	Z (mm)
160	MPKM116	530	300	220
250	MPKM125	530	300	220
400	MPKM140	710	300	220

ŞALTER TİPİ KOD	
ŞALTERLİ	BOŞ
S	B



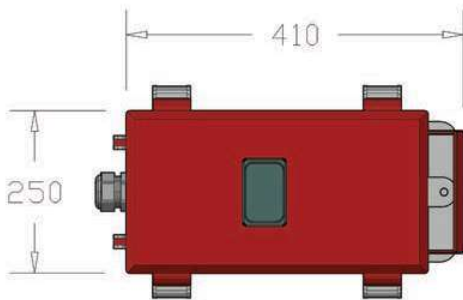
Çıkış Kutusu DTM Mekanizmalı	KM2
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ÖRNEK SİPARİŞ  
160 A Çıkış Kutusu Şalterli  
IP 55 5 İletken

**MPKM216T2KM2S**

ÇIKIŞ KUTUSU DTM MEKANİZMALI OTOMATİK ŞALTERLİ				
AMP.	Kutu Kodu	X (mm)	Y (mm)	Z (mm)
160	MPKM216	530	300	220
250	MPKM225	530	300	220
400	MPKM240	710	300	220

MP-H

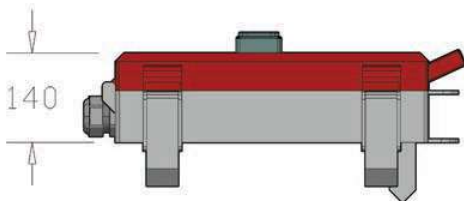


Çıkış Kutusu Plastik	KPO
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ÖRNEK SİPARİŞ  
80 A Çıkış Kutusu  
IP 55 5 İletken

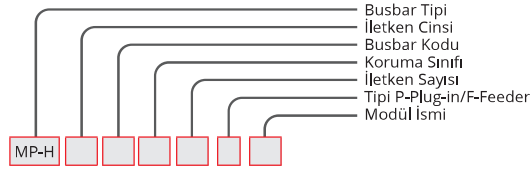
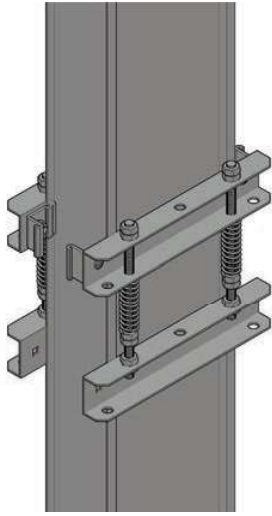
**MPH0805T2KPO**

ÇIKIŞ KUTUSU OTOMATİK ŞALTERLİ VEYA SİGORTALI	
Kutu Kodu	AMP.
MPH025	25
MPH032	32
MPH040	40
MPH063	63
MPH080	80
MPH100	100
MPH125	125
MPH160	160



Standart dışı kutu için lütfen firmamızı arayınız.

## Askı Elemanları

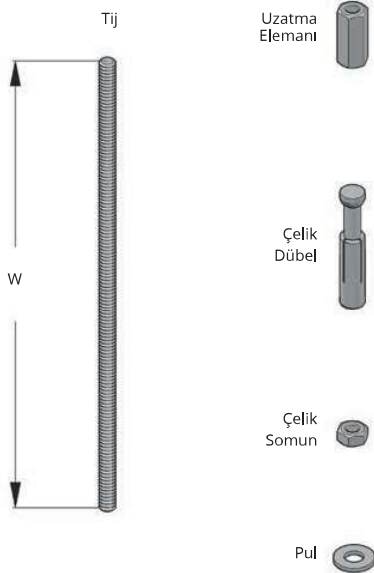


Dikey Askı (L) Şaft	SA
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## ÖRNEK SİPARİŞ

400 A Şaft Askı  
IP 55 5 İletken

**MP-HA405T2SA**



Bağlantı Elemanları	RE
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## ÖRNEK SİPARİŞ

M8 Tij  
500 mm

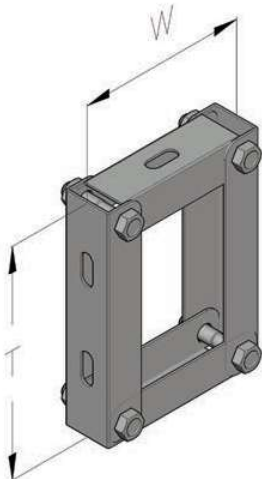
**MP-HRE101**

Matkap Ucu Çapı:

M8.....Ø12  
M10.....Ø14

BAĞLANTI ELEMANLARI		
Açıklama	W(mm)	Kodu
B-E 8 Tij Askı (M8)	500	RE101
B-E 8 Tij Askı (M8)	1000	RE102
B-E 10 Tij Askı (M10)	500	RE103
B-E 10 Tij Askı (M10)	1000	RE104
(M8) Uzatma Elemanı	-	RE105
(M10) Uzatma Elemanı	-	RE106
M 8 Çekmeli Dübél	-	RE107
M 10 Çekmeli Dübél	-	RE108
M 8 Çelik Somun	-	RE109
M 10 Çelik Somun	-	RE110
M 8 Pul	-	BE111
M 10 Pul	-	RE112

MP-H



Yatay Askı Elemanı (KELEPÇE)	YA
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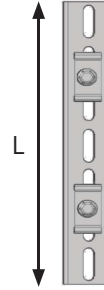
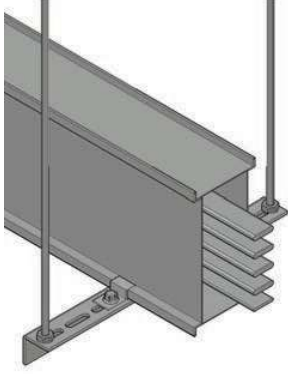
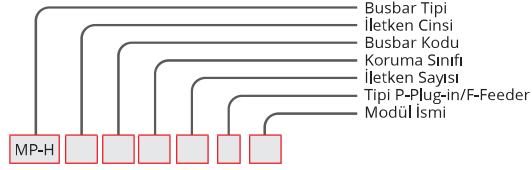
## ÖRNEK SİPARİŞ

250 A Alüminyum  
Yatay Askı IP 55 5 İletken

**MP-H255T2YA**

YATAY ASKI TAKIMI			
AL			
AMP.	Kod	T (mm)	W (mm)
160	MP-HA16	240	120
250	MP-HA25	240	125
315	MP-HA31	240	130
400	MP-HA40	240	150
500	MP-HA50	240	163
600	MP-HA60	240	175
CU			
AMP.	Kod	T (mm)	W (mm)
250	MP-HC26	240	120
315	MP-HC32	240	125
400	MP-HC41	240	130
600	MP-HC61	240	150

## Askı Elemanları



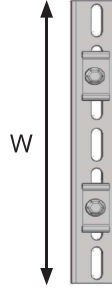
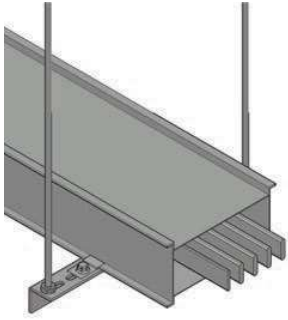
Yatay Askı Dikey Modülü (L) Köşebent	YVK
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## ÖRNEK SİPARİŞ

400 A Alüminyum,  
Askı Elemanı IP 55 5 İletken

**MP-HA405T2YVK**

YATAY ASKI ÜNİTESİ DİKEY (40X40 KÖŞEBENT)			
(AL)		(CU)	
AMP.	L (mm)	AMP.	L (mm)
160A	280	250A	280
250A	285	315A	285
315A	290	400A	290
400A	310	600A	310
500A	325		
600A	335		



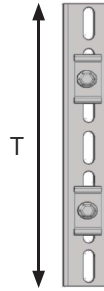
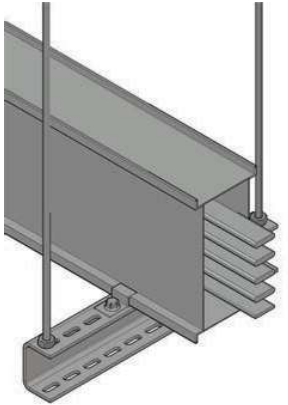
Yatay Askı Yatay Modülü (L) Köşebent	YHK
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## ÖRNEK SİPARİŞ

400 A Alüminyum,  
Askı Elemanı IP 55 5 İletken

**MP-HA405T2YHK**

YATAY ASKI ÜNİTESİ YATAY (40X40 KÖŞEBENT)			
(AL)		(CU)	
AMP.	W (mm)	AMP.	W (mm)
160A	400	250A	400
250A	400	315A	400
315A	400	400A	400
400A	400	600A	400
500A	400		
600A	400		



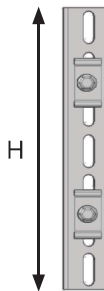
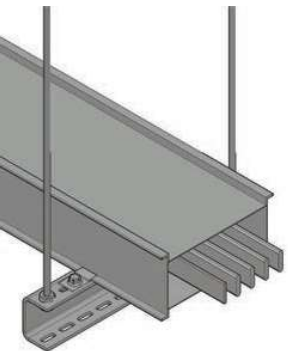
Yatay Askı Dikey Modülü (U) Profil	YVU
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## ÖRNEK SİPARİŞ

250 A Alüminyum,  
Askı Elemanı IP 55 5 İletken

**MP-HA255T2YVU**

YATAY ASKI ÜNİTESİ DİKEY (U PROFİL) 45X45			
(AL)		(CU)	
AMP.	T (mm)	AMP.	T (mm)
160A	280	250A	280
250A	285	315A	285
315A	290	400A	290
400A	310	600A	310
500A	325		
600A	335		



Yatay Askı Yatay Modülü (U) Profil	YHU
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## ÖRNEK SİPARİŞ

250 A Alüminyum,  
Askı Elemanı IP 55 5 İletken

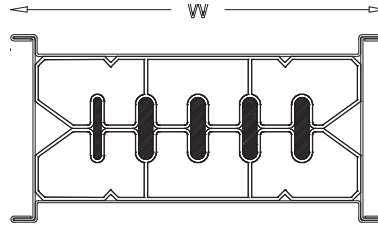
**MP-HA255T2YHU**

YATAY ASKI ÜNİTESİ YATAY (U PROFİL) 45X65			
(AL)		(CU)	
AMP.	H (mm)	AMP.	H (mm)
160A	400	250A	400
250A	400	315A	400
315A	400	400A	400
400A	400	600A	400
500A	400		
600A	400		

## Busbar Teknik Bilgiler

ALÜMİNYUM BUSBAR EBAT VE AĞIRLIKLARI									
AL									
AMPER SINIFI	BUSBAR MM			İLETKEN/KESİT			FEDER KG/M		
	W	X	H	MM			3P+N+PE	3P+N+PE+PE	3P+N+PE+FE2
160	198		80	6	X	20	6,5	6,65	6,8
250	198		85			25	7	7,25	7,5
315	198		90			30	7,5	7,85	8,3
400	198		110			50	9,5	9,85	10,5
500	198		122,5			62,5	10,5	10,85	11,5
600	198		135			75	11,5	11,85	12,5

BAKIR BUSBAR EBAT VE AĞIRLIKLARI									
CU									
AMPER SINIFI	BUSBAR MM			İLETKEN/KESİT			FEDER KG/M		
	W	X	H	MM			3P+N+PE	3P+N+PE+PE	3P+N+PE+FE2
250	198		80	6	X	20	9,5	9,85	10,5
315	198		85			25	10,5	10,85	12
400	198		90			30	12	12,8	13,5
600	198		110			50	15,5	16,5	18,5



GALVENİZLİ SAC GÖVDE

MP-H

## ELEKTRİKSEL TEKNİK VERİLER

Akım Değeri	Direnç R (mohm/m)	Reaktans X (mohm/m)	Empedans Z (mohm/m)
<b>Alüminyum</b>			
160	0,29	0,29	0,41
250	0,33	0,33	0,47
315	0,27	0,27	0,39
400	0,25	0,25	0,36
500	0,12	0,12	0,17
600	0,10	0,10	0,14
<b>Bakır</b>			
250	0,22	0,18	0,28
315	0,18	0,16	0,24
400	0,15	0,15	0,21
600	0,10	0,12	0,15

Gerilim düşümü  $\Delta V\%$  hesabı aşağıdaki formüle göre yapınız.

$$\Delta V\% = \sqrt{3} \times (R \times \cos \varphi + X \times \sin \varphi) \times I_b \times L / U_e \times 100$$

R: Direnç ( mohm/m) (Elektriksel teknik veriler tablosundan bulunur)

X: Reaktans ( mohm/m) (Elektriksel teknik veriler tablosundan bulunur)

 $I_b$ : Tüm ekstra etkili yüklerin toplamı

L: Busbar hattının toplam uzunluğu

 $U_e$ : Besleme gerilimi

Örnek: 160 A Busbara ait hesaplama aşağıdaki gibidir.

(L) Hat uzunluğu 100 mt

 $(I_b)$  Etkili yük 144 A $U_e$ : Besleme gerilimi 400 V $\cos \varphi$  0,80R değeri tablodan  $0,29 \times 10^{-3}$  ohm/m ve X değeri tablodan  $0,29 \times 10^{-3}$  ohm/m $(\Delta V)$  Maksimum izin verilen gerilim düşümü 3%

$$\Delta V\% = \sqrt{3} \times (R \times \cos \varphi + X \times \sin \varphi) \times I_b \times L / U_e \times 100$$

$$1,73 \times (0,29 \times 0,8 + 0,29 \times 0,6) \times 10^{-3} \times 144 \times 100 \times 100$$

$$\Delta V\% = \frac{400}{400} = 2,53\%$$

Bulunan değer %3'ten küçüktür. 160 A Busbar seçimi gerilim düşümü hesabına göre uygundur.

## Busbar Teknik Bilgiler

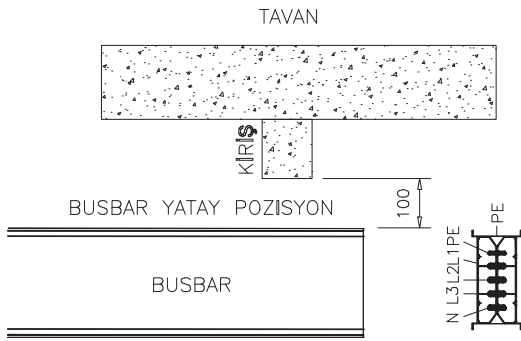
## TEKNİK TABLO &amp; TECHNICAL TABLE (MP-H AL)

ALÜMİNYUM İLETKEN (AL)								
Beyan Akımı	In	A	160	250	315	400	500	600
Busbar Kodu			MP-HA16	MP-HA25	MP-HA31	MP-HA40	MP-HA50	MP-HA60
Koruma Sınıfı	IP55							
Standartlar	IEC 61439-6 TS EN 61439-6 IEC 61439-1 TS EN 61439-1							
Maks.Beyan Çalışma Gerilimi	Ue	Vac	1000					
Beyan Frekansı	f	Hz	50					
Beyan Yalıtım Gelirimi	Ui	V	1000	Kategori IV				
Mekanik Darbe Dayanımı (IK Kodu)	Plug-in Busbar IK09							
İnsanların Korunması İçin Tedbirler	Temel Koruma (TS HD 60364-4-41, madde A1)							
Beyan Kısa Süreli Akım (1s)	Icw	kA	10	15	15	30	30	35
Beyan Tepe Dayanma Akımı	Ipk	kA	17	30	30	63	63	73,5
Nötr İletkeni İçin Beyan Kısa Süreli Akım (1s)	Icw	kA	6	9	9	18	18	21
Nötr İletkeni İçin Beyan Tepe Dayanma Akımı	Ipk	kA	9,18	15,3	15,3	36	36	44,1
Koruma Devresi İçin Beyan Kısa Süreli Akım (1s)	Icw	kA	6	9	9	18	18	21
Koruma Devresi İçin Beyan Tepe Dayanma Akımı	Ipk	kA	9,18	15,3	15,3	36	36	44,1

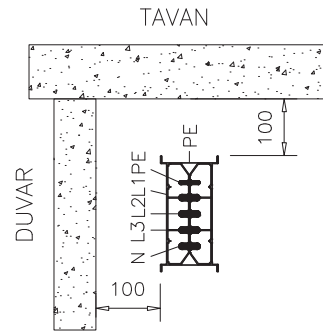
## TEKNİK TABLO &amp; TECHNICAL TABLE (MP-H CU)

BAKIR İLETKEN (CU)							
Beyan Akımı	In	A	250	315	400	600	
Busbar Kodu			MP-HC26	MP-HC32	MP-HC41	MP-HC61	
Koruma Sınıfı	IP55						
Standartlar	IEC 61439-6 TS EN 61439-6 IEC 61439-1 TS EN 61439-1						
Maks.Beyan Çalışma Gerilimi	Ue	Vac	1000				
Beyan Frekansı	f	Hz	50				
Beyan Yalıtım Gelirimi	Ui	V	1000		Kategori		
Mekanik Darbe Dayanımı (IK Kodu)	Plug-in Busbar IK09						
İnsanların Korunması İçin Tedbirler	Temel Koruma (TS-HD 60364-4-41, madde A1)						
Beyan Kısa Süreli Akım (1s)	Icw	kA	18	18	26	35	
Beyan Tepe Dayanma Akımı	Ipk	kA	36	36	52	72	
Nötr İletkeni İçin Beyan Kısa Süreli Akım (1s)	Icw	kA	10,5	10,5	14,5	20	
Nötr İletkeni İçin Beyan Tepe Dayanma Akımı	Ipk	kA	21	21	31	44,3	
Koruma Devresi İçin Beyan Kısa Süreli Akım (1s)	Icw	kA	10,5	10,5	14,5	20	
Koruma Devresi İçin Beyan Tepe Dayanma Akımı	Ipk	kA	21	21	31	44,3	

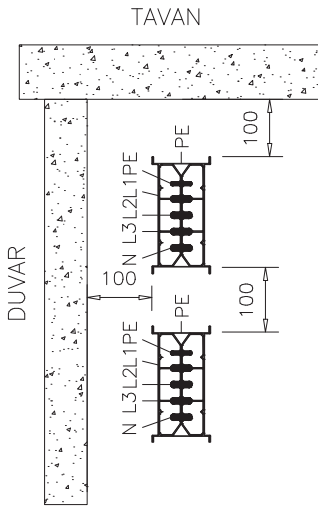
## Dikey ve Yatay Busbar Uygulamaları



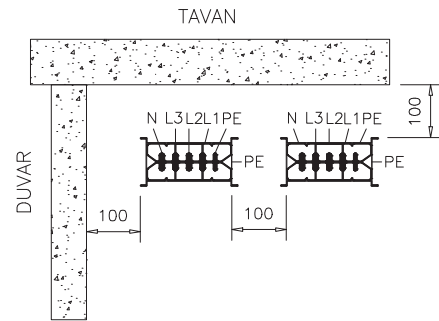
ŞEKİL-1 KIRIŞ GEÇİŞİ



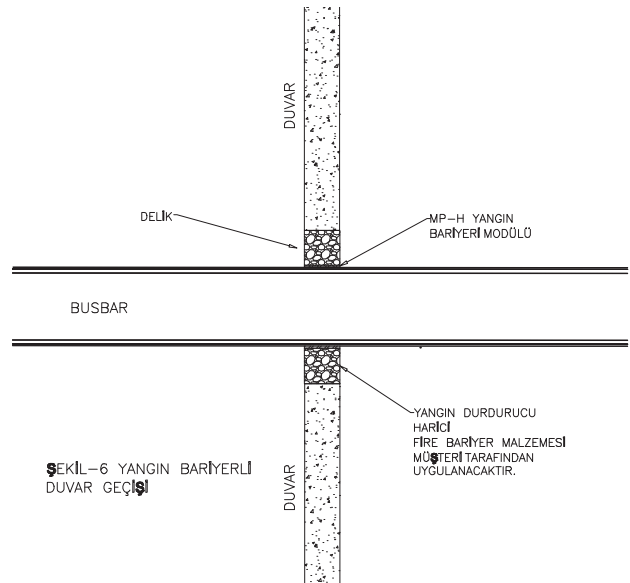
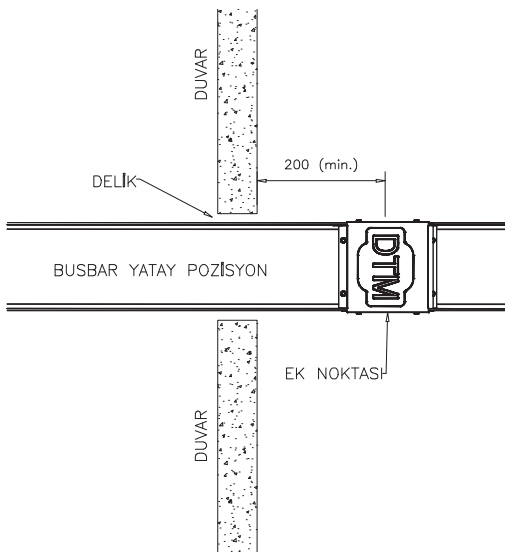
ŞEKİL-2 YATAY POZİSYON



ŞEKİL-3 YATAY POZİSYON İKİLİ



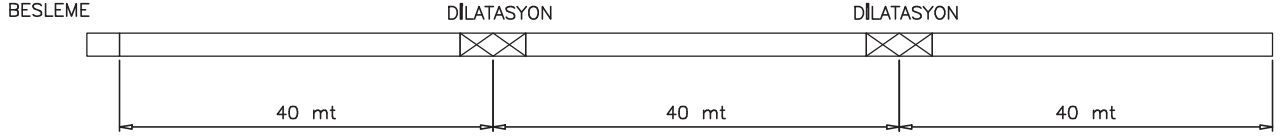
ŞEKİL-4 DİK POZİSYON



ŞEKİL-6 YANGIN BARIYERLİ DUVAR GEÇİŞİ

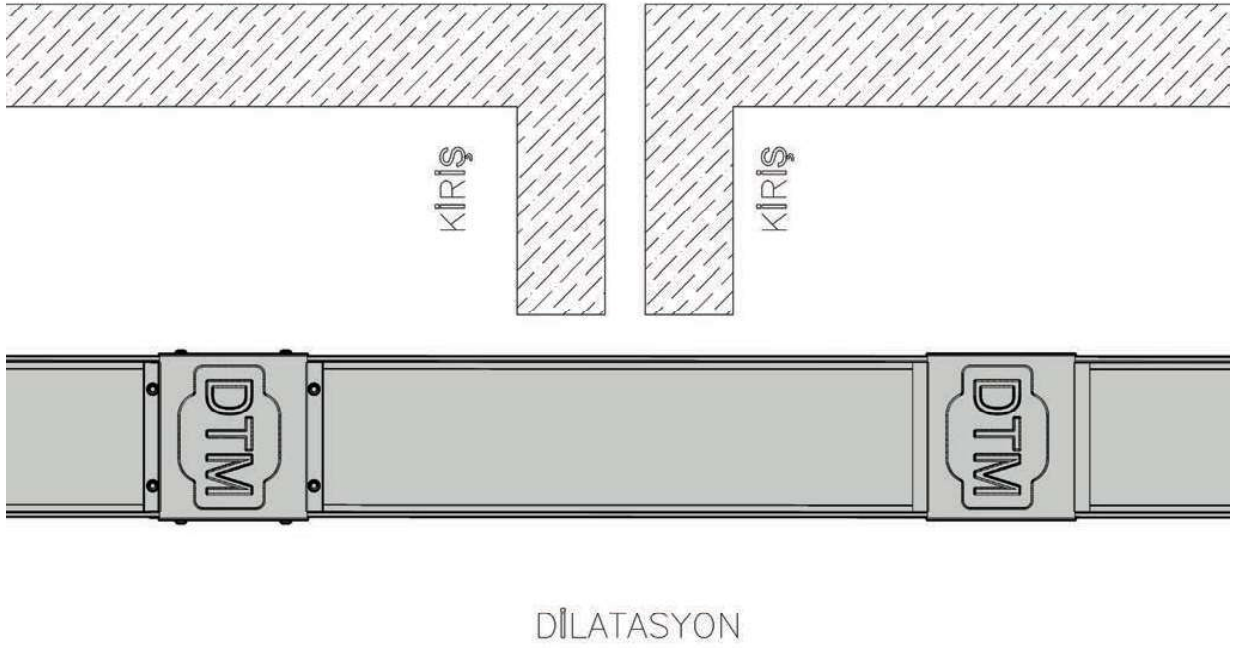
■ Tüm ölçüler mm cinsinden verilmiştir. Yukarıda verilen ölçüler minimum değerlerdir.

## Yatay Dilatasyon Modül Uygulamaları



Şekil 1. Yatay dilatasyon uygulaması

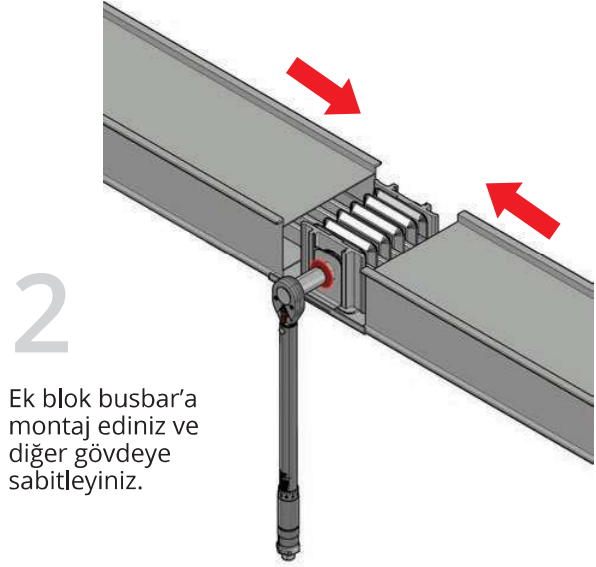
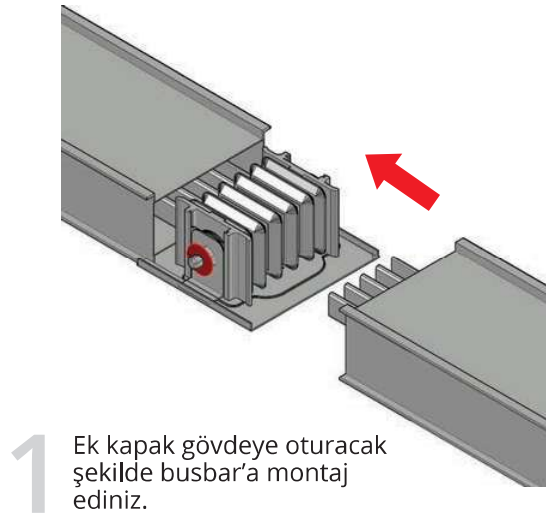
## BİNA DİLATASYONU



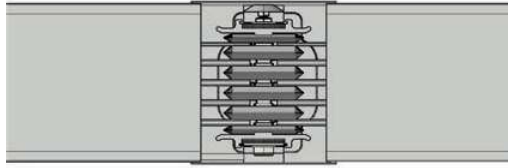
Şekil 2. Yatay bina dilatasyon uygulaması

Yatay dilatasyon iki bina arası geçişlerinde kullanılır.  
Ayrıca yatay busbar hattı 40 mt 'de bir kullanılmalıdır.

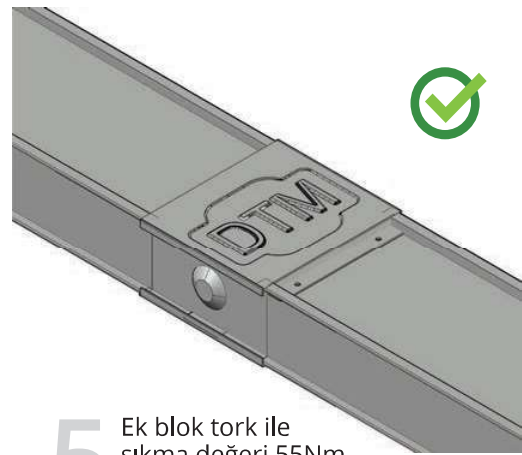
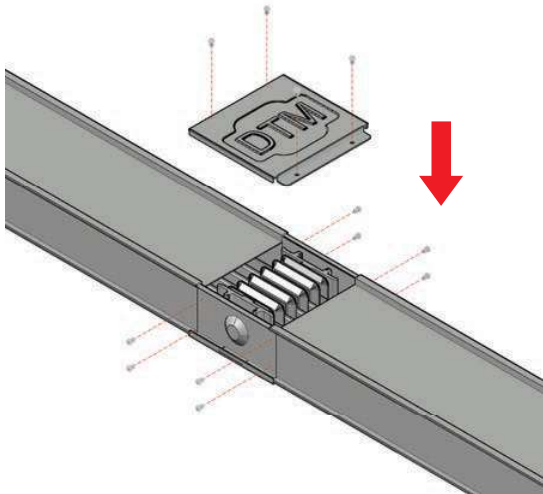
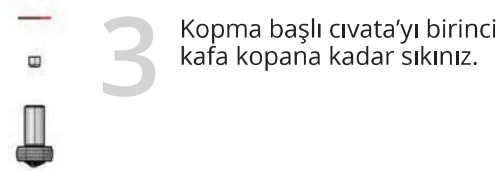
## Montaj Şekli



EK BLOK SIKMA DEĞERİ: 40 lbft (55 Nm)

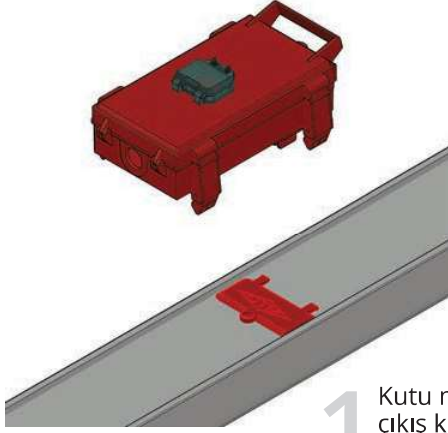


MP-H

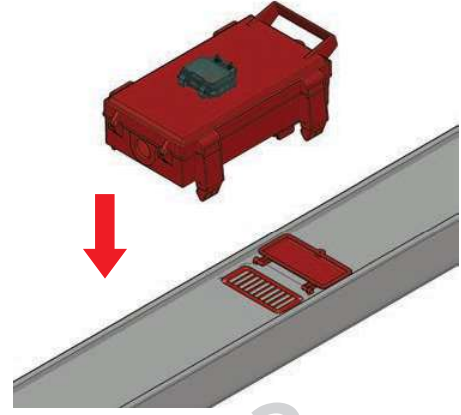




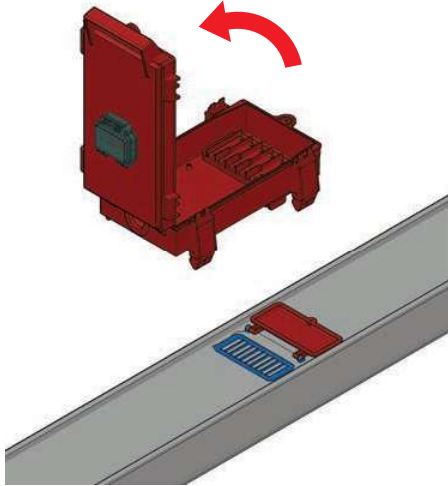
## Plastik Kutu Montaj



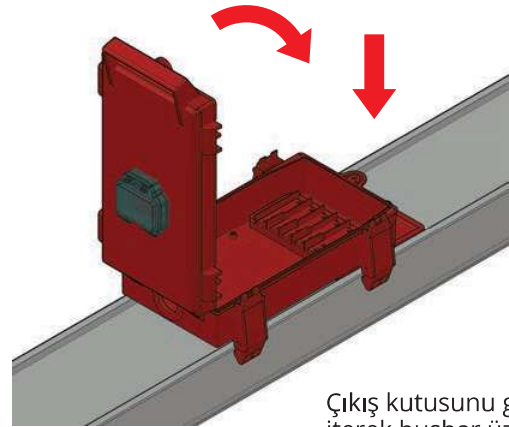
1 Kutu montaj edilirken çıkış kutusunun alt giriş kısmındaki çıkıntıya dikkat ederek prize montaj ediniz.



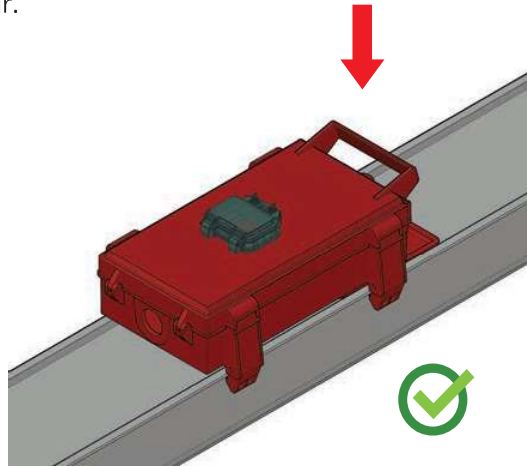
2 Priz kapağını açınız.



3 Çıkış kutusunun kapağını açarak busbar'a oturarak montaj edilmelidir.

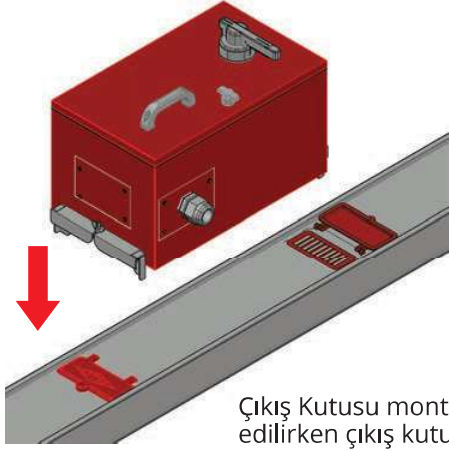


4 Çıkış kutusunu gövdeden iterek busbar üzerine oturmasını sağlayınız. Busbar üzerine oturmasına dikkat ediniz.

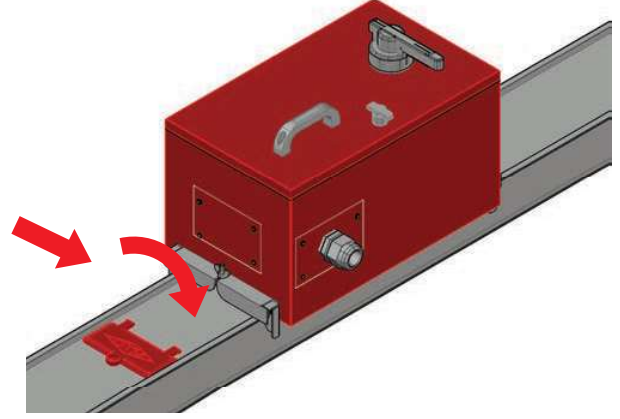


5 Çıkış kutusunun kapağını kapatınız. Özel mekanizmalı kapak yardımı ile kapak kapanması durumunda enerji devreye girer.

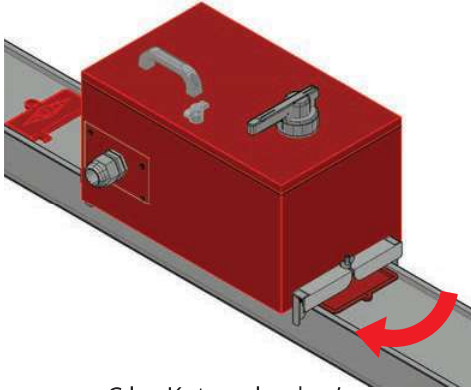
## Metal Kutu Montaj



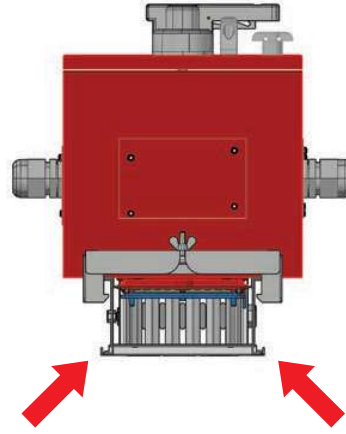
1 Çıkış Kutusu montaj edilirken çıkış kutusunun alt giriş kısmındaki çıkıntıya dikkat ederek prize montaj ediniz.



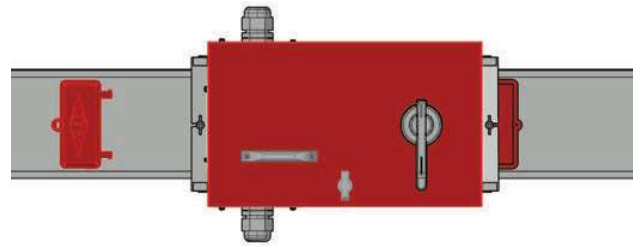
2 Çıkış Kutusu busbar'a montaj edildikten sonra kutu alt kelepçeleri sıkınız.



3 Çıkış Kutusu busbar'a montaj edildikten sonra kutu üst kelepçeleri sıkınız.



4 Çıkış Kutusu busbar'a montajı bittikten sonra kutu alt kelepçelerini busbar gövdesine tamamen oturmasına dikkat ediniz.



5 Çıkış Kutusu özel mekanizma yoluyla devreye alınız. Mekanizma (OFF) da iken Kapak kapatılır (ON) konumunda iken enerji verilir. NOT: Emniyet nedeniyle (ON) Konumunda kutu kapağı mekanizma nedeniyle açılmasını engellenir.

MP-H