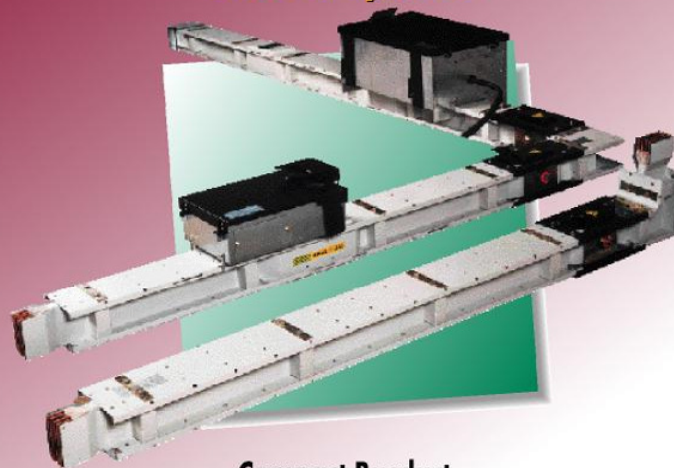




Headquarters: 6 Bagh Sara Drive, Shad Street, Molla Sadra Avenue, Tehran 19936, Iran
Tel: (+98 21) 888 0967-72 Fax: (+98 21) 888 0940 Email: gital@mail.da.co.ir
Factory: Fifth Street, Kaveh Industrial Park, Savah, Iran Tel: (+98 256234) 2601 Fax: (+98 256234) 2602



Electrical Prefabricated Busduct Systems

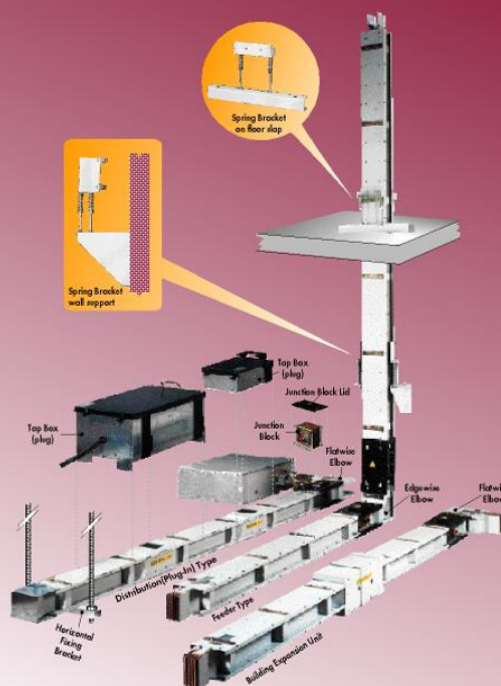


Compact Busduct

BC

400 to 5000 A

Busduct Elements



Busduct Systems

Busducts (busbar trunking or busway) are rapidly replacing conventional systems of cable, cable tray and distribution panels combination in many industries, high rise buildings and other applications. Among different types, the compact type is the most modern one with main advantages such as:

- Modularity
- Safety
- Long life
- Easy design
- Rapid installation
- Quick rearrangement to suit new demands

Busducts are available in **feeder** and **distribution** types with top-off windows at regular spacing, enabling supply of electrical power loads by means of different ranges of available top-off boxes.

Gital's Compact Busducts:

- Metal housing with compact design results in a better and easier thermal exchange providing higher current carrying capacity with less conductor cross sectional area.

- With low impedance of compact busduct, voltage drop is reduced, resulting in longer power transmission and distribution.

- Insulation used in compact busducts are class B (130° C) polyester films with longer life than normal insulations.

- Passing through anti-fire walls or ceilings, due to non presence of air gaps between conductors and the main housing, there is no need to use fire barrier elements.

- Minimum protection degree of compact busducts are IP52 and can rise to IP54 on order.

- Power transmission and distribution is easily possible vertically, horizontally, edgewise or flatwise by compact busduct in industrial, commercial and residential buildings without any derating.

- When compact busduct is used in humid atmospheres and locations, there is no need for anti condensation heater due to non presence of air gaps in the busduct housing.

- No need for anti condensation in tropical areas, due to non presence of air gaps in BC busduct.

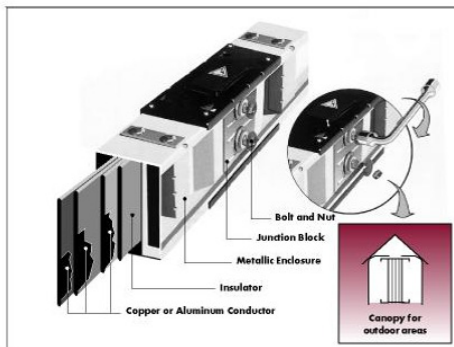
Compact Busduct BC





General Technical Specifications

- Production is according to IEC 60439-2 standards.
- It has a test certificate from CESI.
- Protection degree is IP52 or IP54.
- Double housing is applied for outdoor.
- Insulation class B polyester film.
- Busducts capacity with copper conductors are from 400 to 5000 amps and with nickel coated aluminum conductors are from 400 to 4000 amps.
- Number of conductors are 3 or 4.
- Housing of galvanized steel 1.5 mm thickness.
- Housing can be used as earth conductor according to NFC 15-100 standards.
- If required, earth protection conductor can be supplied, conductor is equal to half cross sectional area of phase conductors.
- Busduct parts are connected together by junction blocks, where by tightening special nuts, reliable electrical and mechanical connections are ensured. (Tightening torque = 6 KN).
- BC busducts are available in three types:
 - 1- Feeder type (suitable for power transmission) with no tap-off window.
 - 2- Plug-in type (suitable for power distribution) with tap-off windows.
 - 3- Bolt-on type (suitable for heavy power distribution) used for disconnectable fixed tap-off boxes.
- Drawable tap-off boxes from 25 to 400 amps are manufactured with clip on brackets.
- Disconnectable fixed-off boxes are produced from 400 to 1250 amps.



Electrical Specifications

Copper Conductors

Rating	h conductor	H junction block	Dimensions of feeder type	Dimensions of plug-in type
400-1000 A	74	104		
1350 A	104	134		
1600 A	124	154		
2000 A	164	194		
2500 A	204	234		
3000 A	244	274		
4000 A	324	354		
5000 A	404	434		

Rated current in amps	400	600	800	1000	1250	1600	2000	2500	3000	4000	5000
Rated insulation voltage in volts	600										
Number of active conductors	2 or 4										
Protection degree	IP52 or IP54										
Section of conductors in mm²	204	204	410	410	590	710	960	1190	1420	1900	2380
Section of neutral in mm²	204	204	410	410	590	710	960	1190	1420	1900	2380
Short circuit withstand peak current	25	25	42	42	62	75	100	125	150	190	238
Capacity in KA RMS for 1 sec.	21	21	35	35	50	60	80	100	125	160	200
Average weight 3P+N	14	14	21	21	28	34	48	57	66	82	99
In kg per meter 3P	11	11	18	18	22	26	40	47	53	68	79
Area of PE casing (Cu equivalent)/mm²	150	150	150	150	150	150	150	150	150	150	150
Area of PE extra cond. (Cu equivalent)/mm²	70	70	210	210	200	260	480	800	720	980	1200
R per phase in mΩ/m at 20°C	0.284	0.284	0.042	0.042	0.025	0.019	0.013	0.010	0.008	0.005	0.003
R per phase in mΩ/m not under 1 th	0.170	0.170	0.025	0.025	0.015	0.011	0.008	0.006	0.005	0.003	0.002
W per phase in mW/m	0.025	0.025	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Impedance per phase in mΩ/m under 1 th	0.175	0.175	0.026	0.026	0.015	0.011	0.008	0.006	0.005	0.003	0.002
Voltage drop of 3 phase 50 Hz supply in mV per amp. under evenly distributed load.	cosφ=0.7 0.265 0.265 0.048 0.048 0.027 0.027 0.021 0.017 0.013 0.010 0.009 cosφ=0.8 0.102 0.102 0.021 0.021 0.012 0.012 0.007 0.006 0.005 0.003 0.002 cosφ=0.9 0.034 0.034 0.007 0.007 0.004 0.004 0.002 0.002 0.001 0.001 0.001 cosφ=1 0.006 0.006 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001										

The following is busduct derate coefficient [K] table for different ambient temperatures.

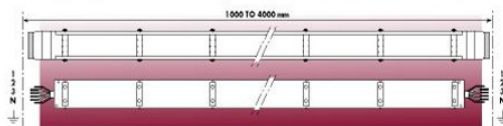
Max. ambient temp.	40°	45°	50°	55°
Average ambient temp. over 24 h.	35°	40°	45°	50°
Derate coefficient [K]	1	0.95	0.90	0.84

When the ambient temperature is different from reference temperature, coefficient [K] is multiplied by the rating values.

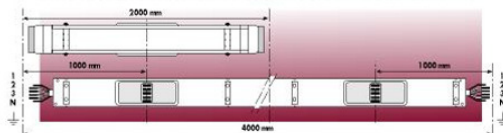


Straight Lengths

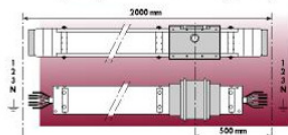
Straight length busducts of feeder type are produced in 1, 2, 3 and 4 meter lengths.



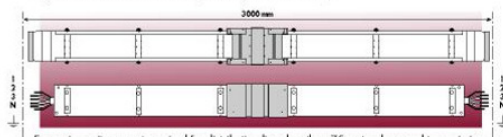
Straight length busducts of plug-in type are produced in 2, 3 and 4 meter lengths.



Straight length busducts of bolt-on type are produced in 2 meter lengths.

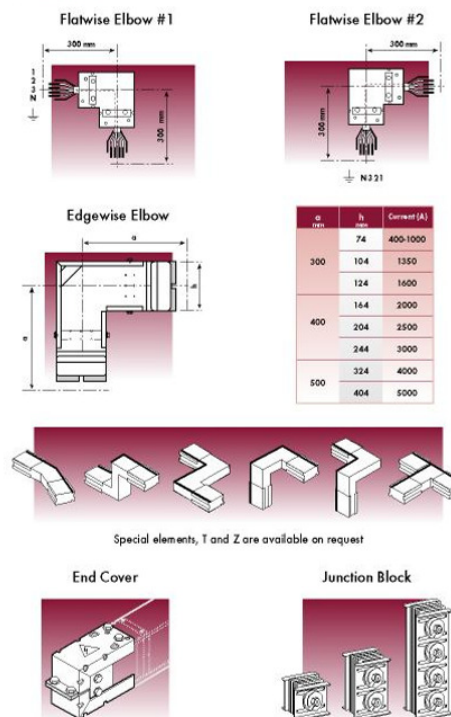


Expansion units are used in expansion joints of buildings.



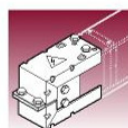
Expansion units are not required for distribution lines less than 75 meters long and transmission lines less than 50 meters long. If these lengths are to be exceeded, please consult us.

Fittings



Special elements, T and Z are available on request

End Cover



Junction Block

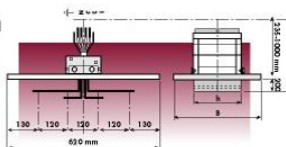


End Feed Units

Flanged end feed unit type 1

Dimensions (mm)

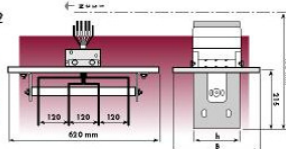
Copper	125A	150A	160A	200A	250A	315A	400A
h (mm)	74	104	124	164	204	244	284
B (mm)	230	230	230	350	350	510	510



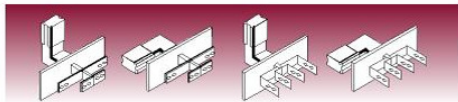
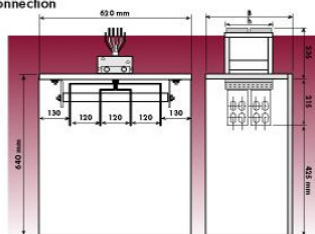
Flanged end feed unit type 2

Dimensions (mm)

Copper	125A	150A	160A	200A	250A	315A	400A
h (mm)	74	104	124	164	204	244	284
B (mm)	230	230	230	350	350	510	510

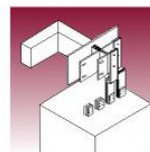
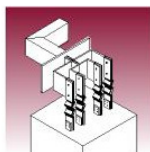
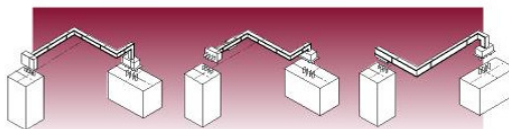


Feed unit for cable connection

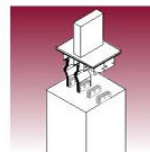


Different types of feed unit will be produced on request.

Flexible Units



Based on transformer-panel layouts, different types of flexible units and tap boxes (hoods) are designed and produced.



The flexible units are applied:

- to avoid any transfer of transformer's vibrations to adjacent equipments.
- to avoid any transfer of earthquake shakes to panel or transformer.
- to adjust installation tolerances.

Tap-Off Boxes

Tap-off boxes are produced in two types:

- 1- Drawable plug-in type from 25 to 400 amps.
- 2- Disconnectable fixed type from 400 to 1250 amps.

All tap-off boxes provide IP52 and are supplied with cylindrical, diazed or blade types of fuses.

Automatic switches may also be installed on request.

On connecting the tap-off boxes to the loads or secondary lines, null can be supplied in any required form (IT, TT, TNC or TNS).

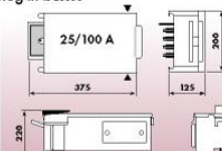
For safety reasons, tap-off box's earth protection jack is connected prior to the phase connections.

Drawable plug-in box with fuse holder	Box			Fuse	Connection	
	Current (A)	Size	Weight (kg)	Size	P/N mm	PE mm
Diazed Fuse	25	1	3	E 27	6	10
	63	1	3	E 33	16	10
	125	2	13	NH 00	35	60
Blade Fuse	160	2	13	0	70	60
	250	3	28.2	1	6x25	95
	400	3	32	2	6x25	95
Drawable Plug-In Box Without Automatic Switch	100	1	8		50	60
	160	2	13		70	60
	250	3	30		6x25	95
	400	3	30		6x25	95
Disconnectable Fixed Box						
Disconnectable Fixed Box Without Automatic Switch	400				240	120
	500	A	25		240	120
	630				240	120
	800					
	1000	B	30			
	1250					

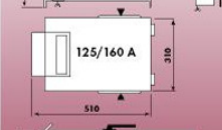
Tap-Off Boxes

A- Drawables plug-in boxes

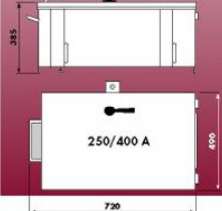
Tap-off box size 1



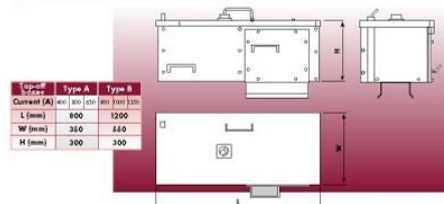
Tap-off box size 2



Tap-off box size 3



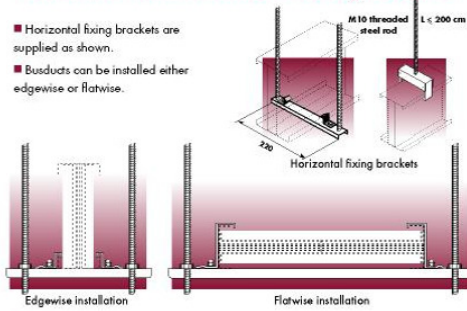
B- Disconnectable fixed boxes



Box type	Type A	Type B
Current (A)	400	1250
L (mm)	800	1200
W (mm)	350	550
H (mm)	300	300

Horizontal Installation and Fixing Brackets

- Horizontal fixing brackets are supplied as shown.
- Busducts can be installed either edgewise or flatwise.

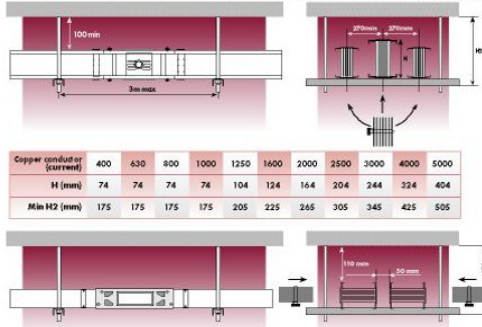


- Supports should be installed at maximum 3 meters intervals.

Minimum Clearance

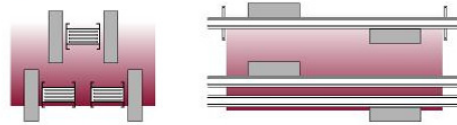
1- Feeder Busducts

- Minimum clearances between busduct and ceiling for feeder busducts are shown below:

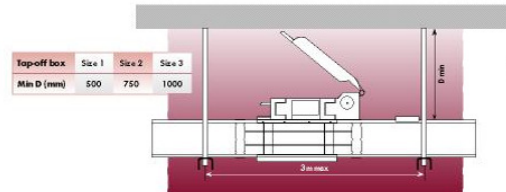
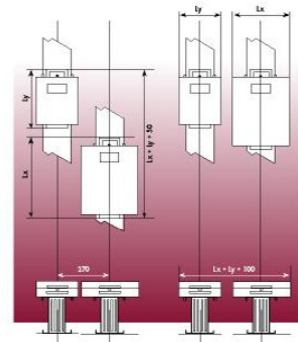


2- Distribution Busducts

A- Flatwise installation

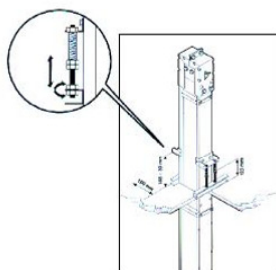


B- Edgewise installation



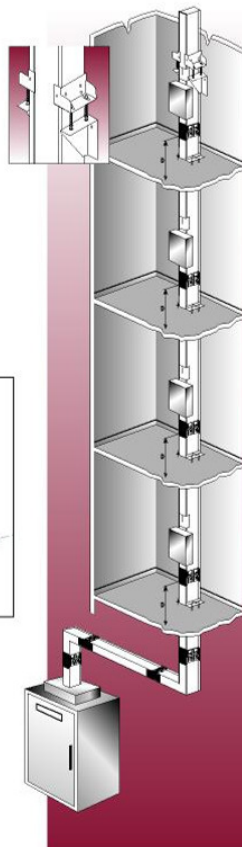
Vertical Installation (riser form)

- Special spring brackets on floor slabs or wall supports are available for riser installations.
- Distance "D" should be at least 500 mm to enable the use of installation brackets.
- For convenient access to top-off boxes on busduct vertical installation, null conductor should be placed on the left.



Advantages of using spring brackets:

1. High adjustment to installation tolerances.
2. Spring adjustment to ensure even load distribution at levels.
3. Avoid the transference of building movements to busduct.



Industrial



Multistory Buildings



Substation - Transformer Side



Substation - Panel Side