



Eletrocalhas - Perfilados - Leito para cabos



Catálogo de produtos



Eletrocalhas - Perfilados - Leito para cabos

ÍNDICE

INDEX

PERFILADOS E ACESSÓRIOS
SHAPES AND ACESSORIES

03

ACESSÓRIOS PARA FIXAÇÃO
INSTALATION ACCESSORIES

17

LEITOS PARA CABOS E ACESSÓRIOS
CABLES TRAYS AND ACCESSORIES

18

ELETROCALHAS E ACESSÓRIOS
RACEWAYS AND ACCESSORIES

31

ACABAMENTOS
Finishes

41

INTRODUCTION

PERFILADOS E FERRAGENS

A linha de PERFILADOS E FERRAGENS fabricada pela Inbraell é composta por uma vasta quantidade de peças padronizadas, inter-relacionadas quanto ao sistema de aplicação, porém de utilizações as mais variadas.

O Emprego dessas peças permite a formação de um sistema completo, que será empregado na condução e derivação de fiação, sustentação de luminárias e também na sua auto sustentação garantindo assim, versatilidade, rapidez de montagem e economia.

Os Perfilados são utilizados para sustentação de luminárias e condução de fios e cabos elétricos para alimentação.

SHAPES AND FITTINGS

The SHAPES and FITTINGS line made by Inbraell is composed of a vast quantity of standardized pieces with an interrelated application system, however, with various utilization.

The use of these pieces allows the formation of a complete system, which will be used in the conduction and derivation of spinning, lamp support and also its self-support. These characteristics ensure versatility, fast assembly and economy.

The shapes are used for the support of lamps and the conduction of wires and electric cables for electrical power feeding.

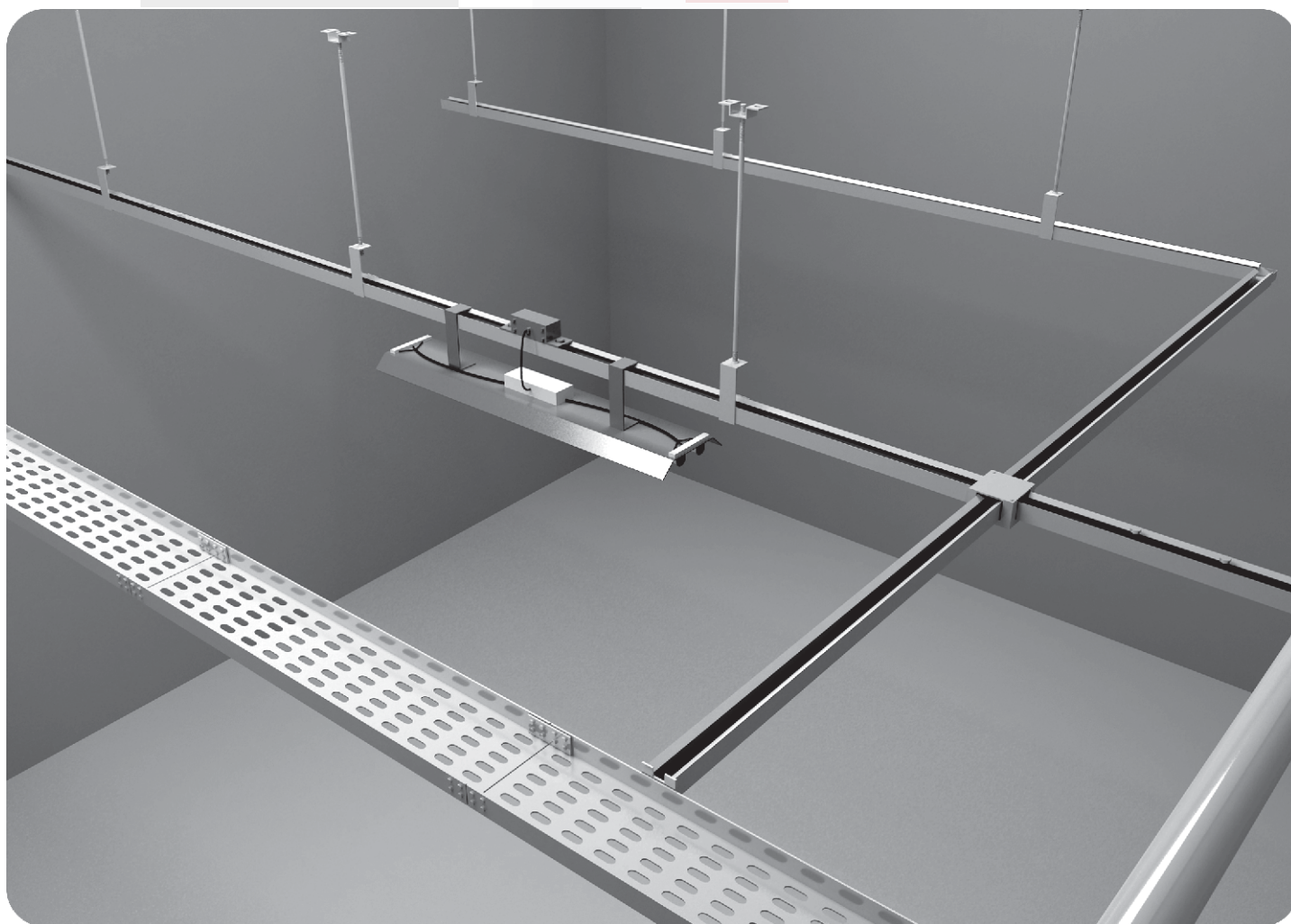


GRÁFICO PARA PERFILADOS
GRAPHICS FOR SHAPES

GRÁFICO DE CARGA DISTRIBUÍDA (kgf/m) - PERFILADOS SIMPLES E CONJUGADOS
GRAPHIC OF DISTRIBUTED LOAD (kg / m) - SIMPLE AND COUPLED SHAPES

S=PERFILADOS SIMPLES (SIMPLE SHAPES) - C=PERFILADOS CONJUGADOS (COUPLED SHAPES)

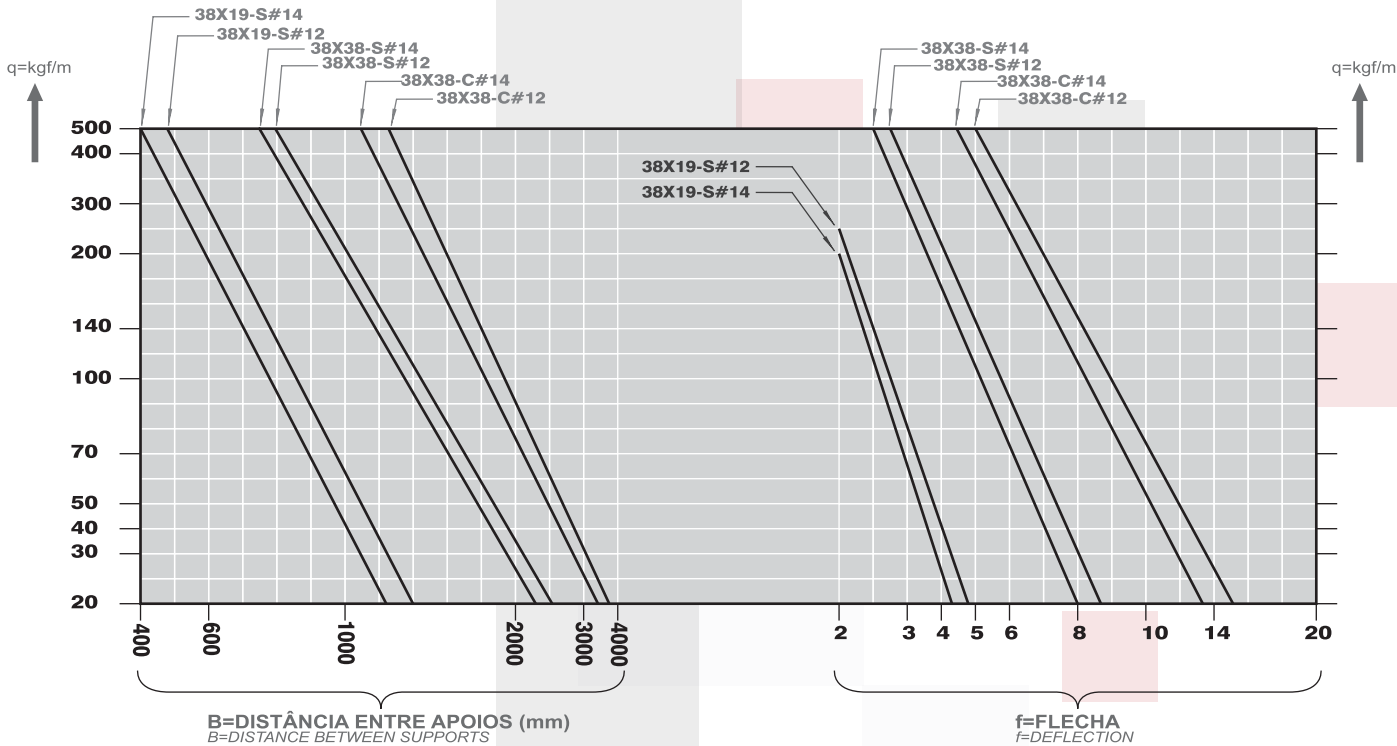
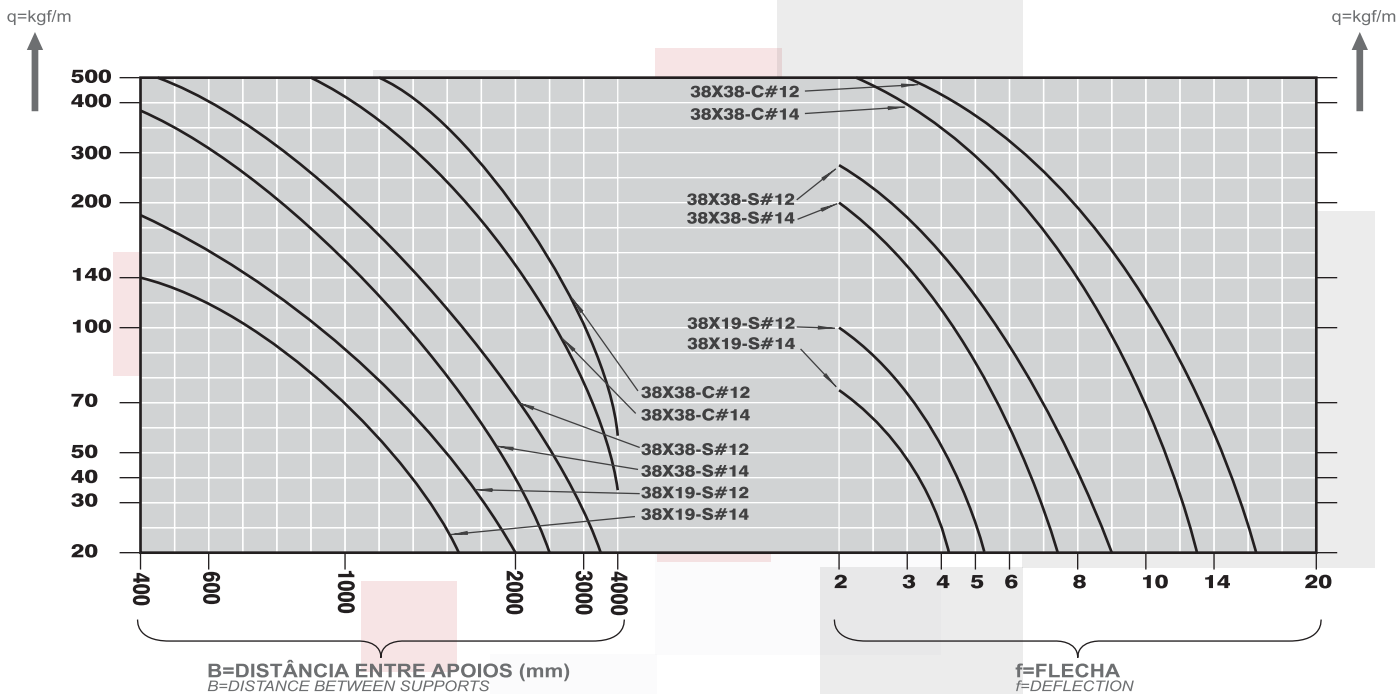


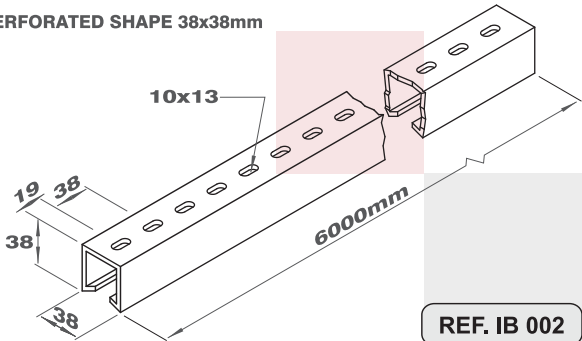
GRÁFICO DE CARGA CONCENTRADA (kgf/m) - PERFILADOS SIMPLES E CONJUGADOS
GRAPHIC OF CONCENTRADED LOAD (kg / m) - SIMPLE AND COUPLED SHAPES

S = PERFILADOS SIMPLES (SIMPLE SHAPES) - C = PERFILADOS CONJUGADOS (COUPLED SHAPES).



**PERFILADO PERFURADO
38x38mm**

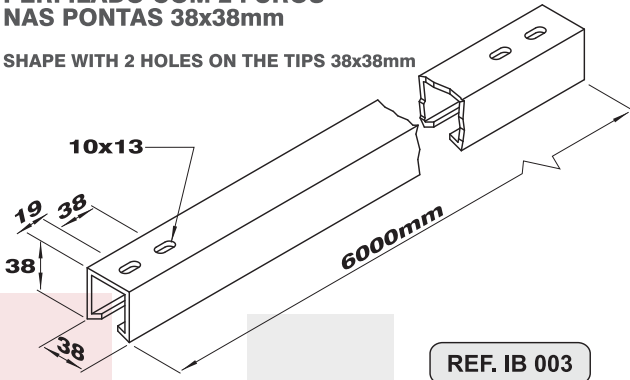
PERFORATED SHAPE 38x38mm



REF. IB 002

**PERFILADO COM 2 FUROS
NAS PONTAS 38x38mm**

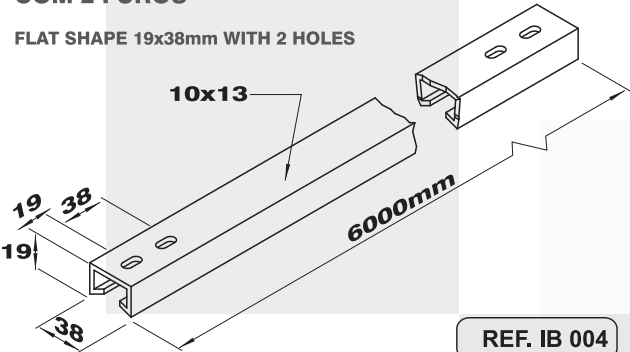
SHAPE WITH 2 HOLES ON THE TIPS 38x38mm



REF. IB 003

**PERFILADO LISO 19x38mm
COM 2 FUROS**

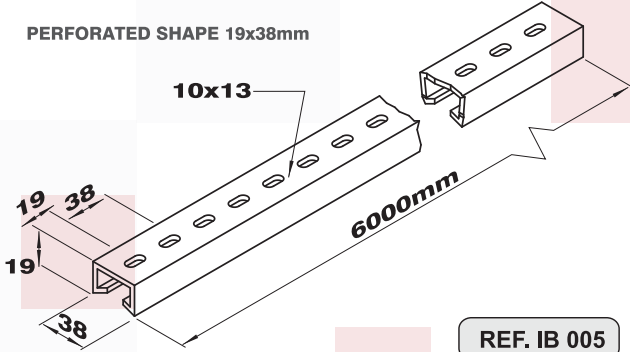
FLAT SHAPE 19x38mm WITH 2 HOLES



REF. IB 004

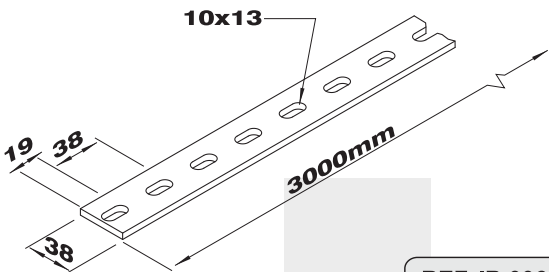
**PERFILADO PERFURADO
19x38mm**

PERFORATED SHAPE 19x38mm



REF. IB 005

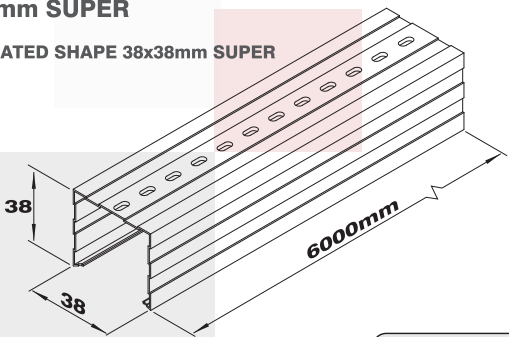
**FITA PERFURADA
PUNCHED TAPE**



REF. IB 006

**PERFILADO PERFURADO
38x38mm SUPER**

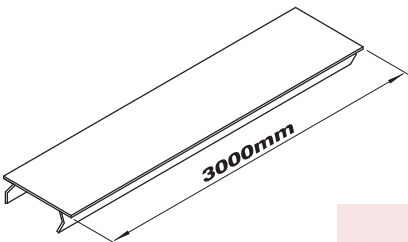
PERFORATED SHAPE 38x38mm SUPER



REF. IB 007

**TAMPA DE PRESSÃO
PARA PERFILADOS**

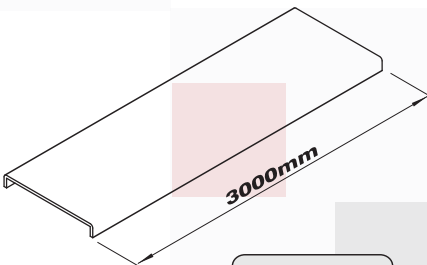
PRESSURE COVER FOR SHAPES



REF. IB 009

**TAMPA DE ENCAIXE
PARA PERFILADOS**

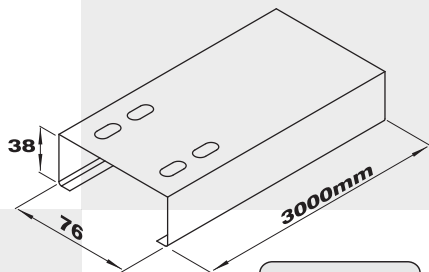
FITTING COVER FOR SHAPES



REF. IB 010

**PERFILADO DUPLO COM 4 FUROS
NAS PONTAS 38x76mm**

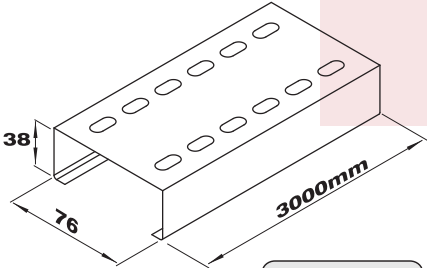
DOUBLE PERFORATED SHAPE
WITH 4 HOLES ON THE TIPS 38x76mm



REF. IB 011

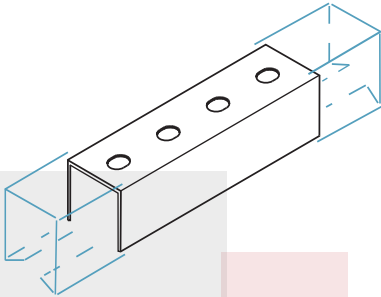
**PERFILADO DUPLO PERFURADO
38x76mm**

DOUBLE PERFORATED SHAPE 38x76mm



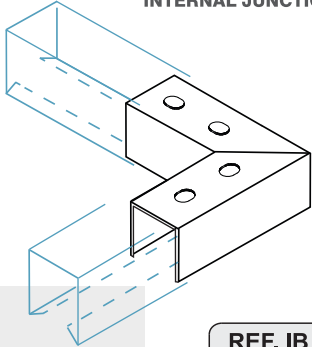
REF. IB 012

**JUNÇÃO RÁPIDA
INTERNAL JUNCTION**



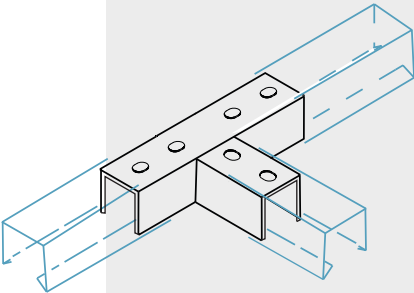
REF. IB 013

**JUNÇÃO RÁPIDA "L"
INTERNAL JUNCTION "L"**



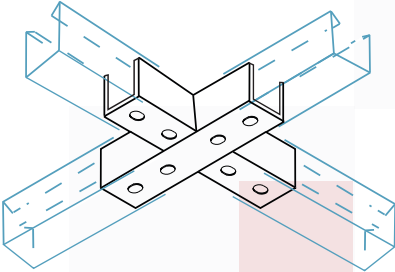
REF. IB 014

**JUNÇÃO RÁPIDA "T"
INTERNAL JUNCTION "T"**



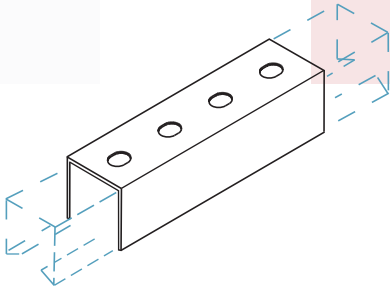
REF. IB 015

**JUNÇÃO RÁPIDA "X"
INTERNAL JUNCTION "X"**



REF. IB 016

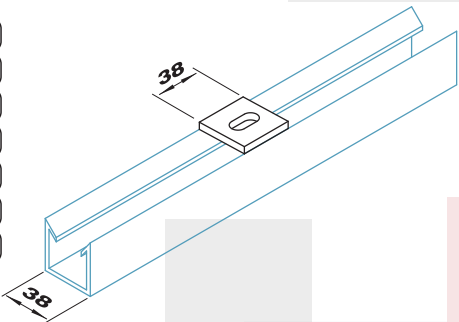
**JUNÇÃO EXTERNA
EXTERNAL JUNCTION**



REF. IB 017

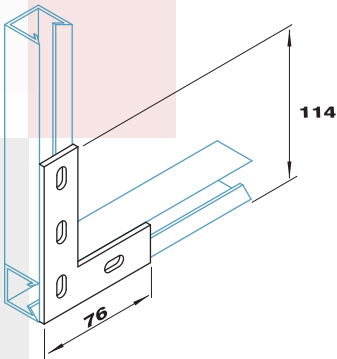
**TALA
SPLICE**

FUROS	REF.
1	IB 011
2	IB 012
3	IB 013
4	IB 014
5	IB 015
6	IB 016

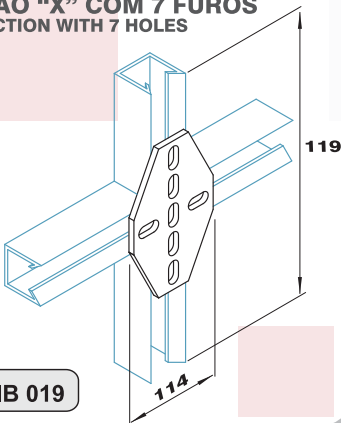


**JUNÇÃO "L" RETA
"L" STRAIGHT JUNCTION**

REF. IB 018

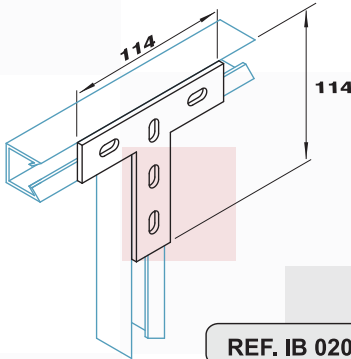


**JUNÇÃO "X" COM 7 FUROS
"X" JUNCTION WITH 7 HOLES**



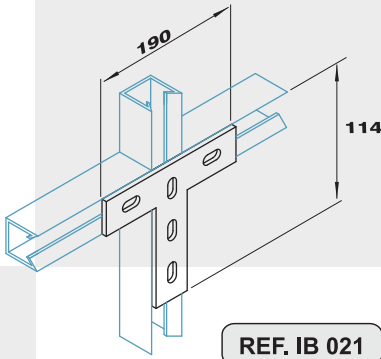
REF. IB 019

**JUNÇÃO "T" RETA
"T" STRAIGHT JUNCTION**



REF. IB 020

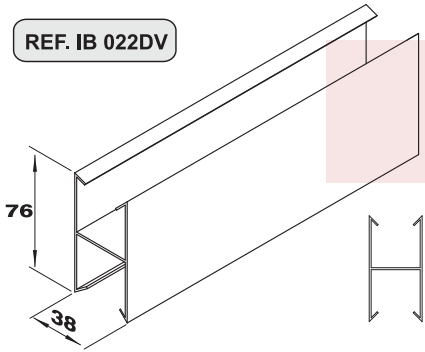
**JUNÇÃO "T" RETA LONGA
"T" LONG STRAIGHT JUNCTION**



REF. IB 021

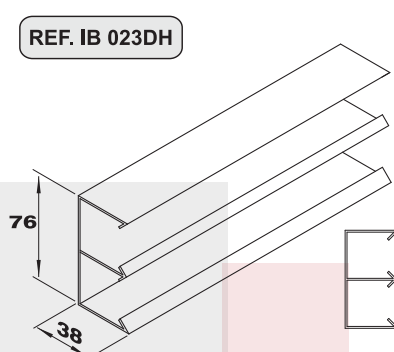
DUPLO VERTICAL
DOUBLE VERTICAL

REF. IB 022DV



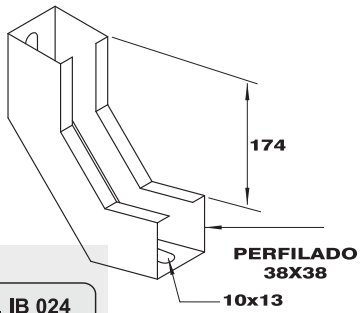
DUPLO HORIZONTAL
DOUBLE HORIZONTAL

REF. IB 023DH



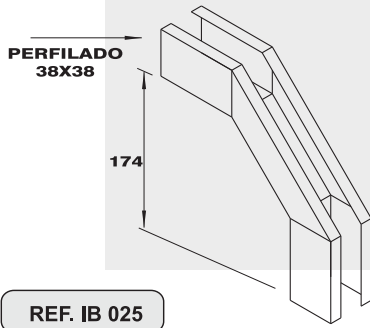
CURVA VERTICAL INTERNA
PARA PERFILADO
INTERNAL VERTICAL BEND FOR SHAPE

REF. IB 024



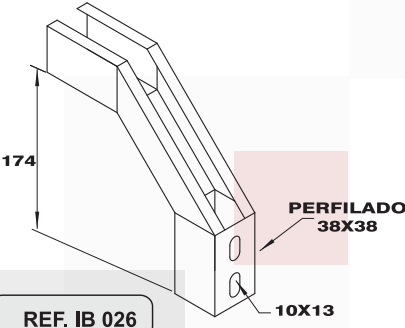
CURVA VERTICAL EXTERNA
PARA PERFILADO
EXTERNAL VERTICAL BEND FOR SHAPE

REF. IB 025



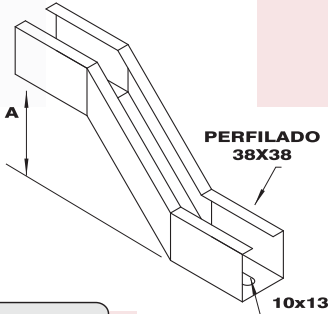
CURVA DE INVERSÃO
PARA PERFILADO
INVERSAL VERTICAL BEND FOR SHAPE

REF. IB 026

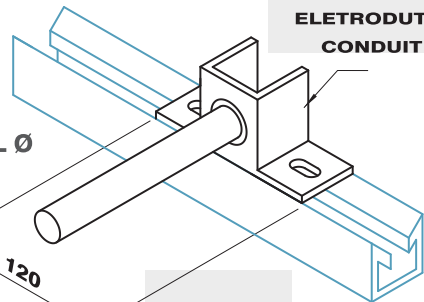


DESNÍVEL PARA PERFILADO
STEPPING FOR PROFILED

REF. IB 027

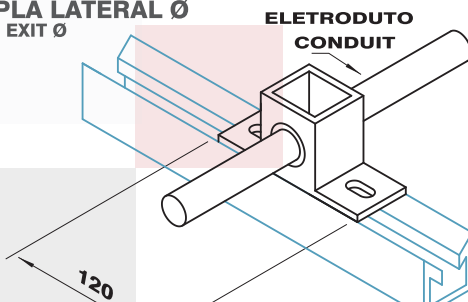


SAÍDA LATERAL Ø
SIDE EXIT Ø



FUROS	REF.	FUROS	REF.	FUROS	REF.
1/2"	IB 063A	3/4"	IB 063B	1"	IB 063C

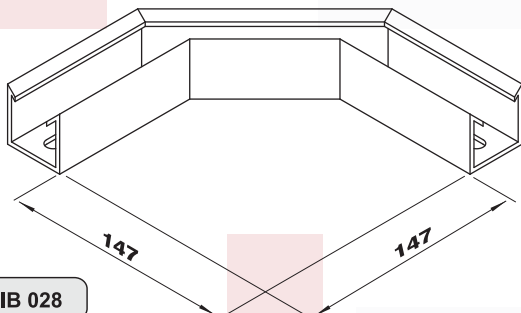
SAÍDA DUPLA LATERAL Ø
DOUBLE SIDE EXIT Ø



FUROS	REF.	FUROS	REF.	FUROS	REF.
1/2"	IB 064A	3/4"	IB 064B	1"	IB 064C

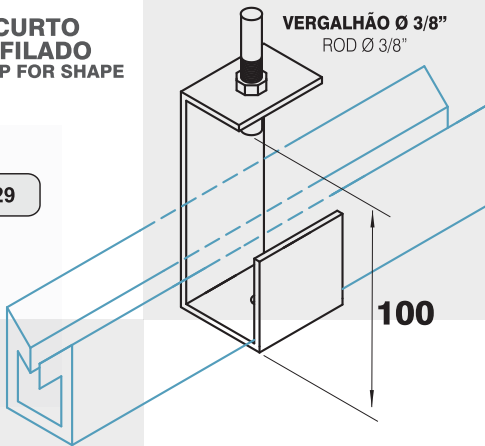
CURVA HORIZONTAL
HORIZONTAL BEND

REF. IB 028

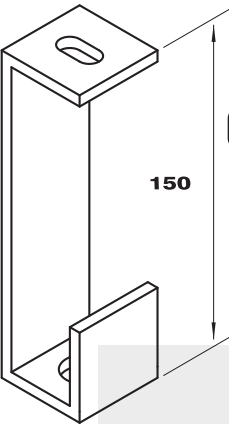


GANCHO CURTO
PARA PERFILADO
SHORT CLAMP FOR SHAPE

REF. IB 029



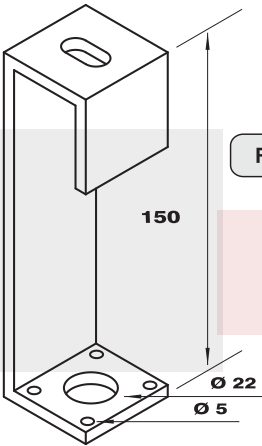
**GANCHO LONGO PARA
PERFILADO**
LONG CLAMP FOR SHAPE



REF. IB 030

150

**GANCHO LONGO
PARA LUMINARIA**
LONG CLAMP FOR LAMP

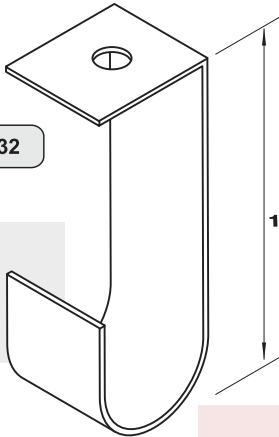


REF. IB 031

150

Ø 22
Ø 5

**SUPORTE J PARA
TUBO Ø 3/8", 1/2"
, 3/4" E 1"**

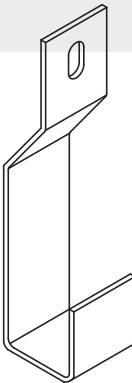


REF. IB 032

150

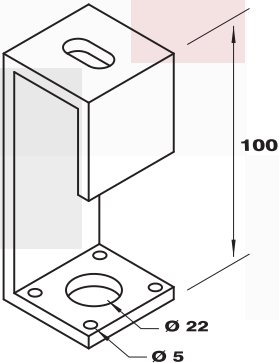
**GANCHO PARA
PERFILADO
38x38mm
SUSPENSO
ATRAVÉS DE
CABO DE AÇO**

CLAMP FOR SHAPE
38x38 (SUSPENDED
BY STEEL CABLE)



REF. IB 033

**GANCHO CURTO
PARA LUMINARIA**
SHORT CLAMP FOR LAMP



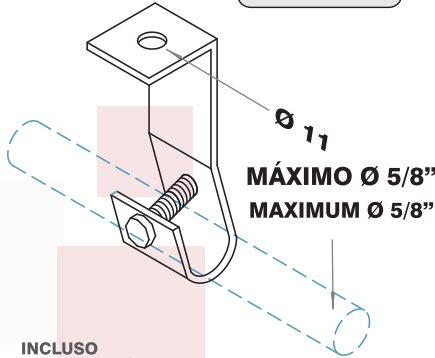
REF. IB 034

100

Ø 22
Ø 5

GANCHO PARA CABO DE AÇO
CLAMP FOR STEEL CABLE

REF. IB 035

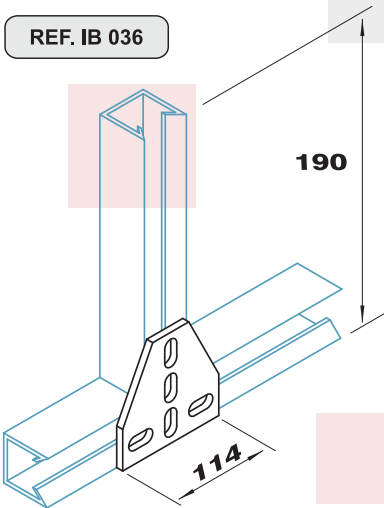


INCLUSO
PARAFUSO Ø 3/8" x 1 1/4"
PORCA SEXTAVADA - Ø 3/8"

INCLUDES
SCREW Ø 3/8" x 1 1/4"
AND HEXAGONAL NUT - Ø 3/8"

JUNÇÃO "T"
"T" JUNCTION

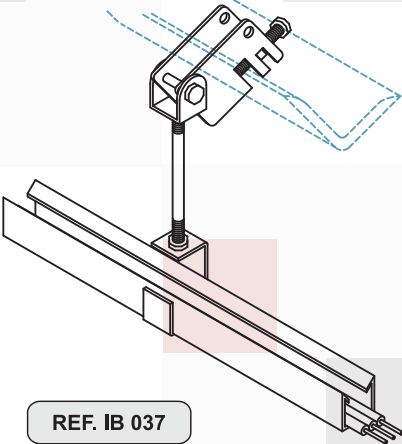
REF. IB 036



190

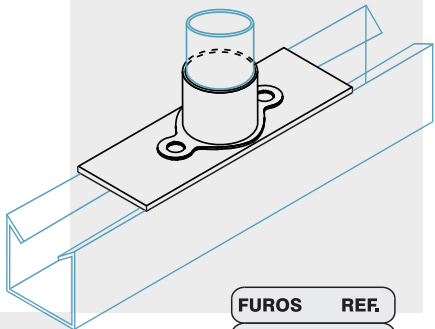
114

**DEMONSTRATIVO
DE MONTAGEM**
EXAMPLE OF ASSEMBLY



REF. IB 037

SAÍDA COM LULA
OUTLET WITH COUPLING PIPE



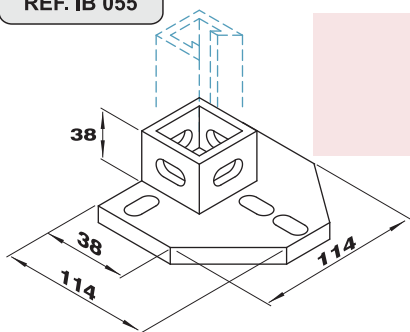
FUROS REF.

1/2" IB 038A

3/4" IB 039B

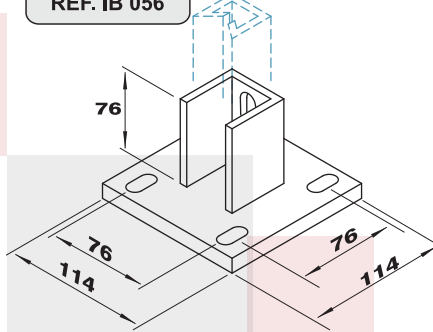
SAPATA REFORÇADA
REINFORCED SHOE

REF. IB 055



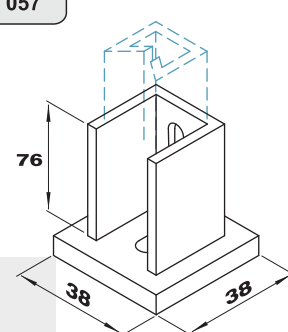
SAPATA INTERNA 4 FUROS
REINFORCED SHOE WITH 4 HOLES

REF. IB 056



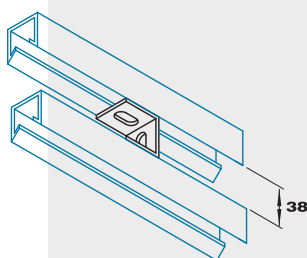
SAPATA RÁPIDA 1 FURO
FAST SHOE WITH 1 HOLE

REF. IB 057



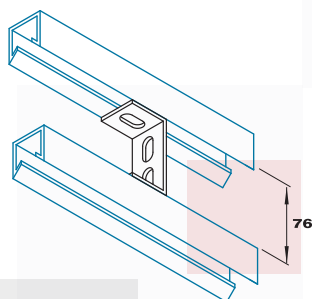
DISTANCIADOR "U" SIMPLES
SIMPLE "U" SEPARATOR

REF. IB 058



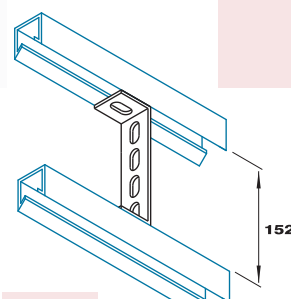
DISTANCIADOR "U" DUPLO
DOUBLE "U" SEPARATOR

REF. IB 059



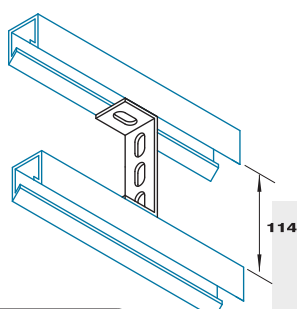
DISTANCIADOR "U" QUÁDRUPLO
QUADRUPLE "U" SEPARATOR

REF. IB 060



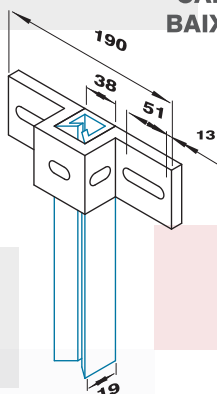
DISTANCIADOR "U" TRIPLO
TRIPLE "U" SEPARATOR

REF. IB 061



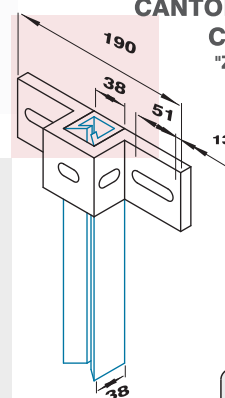
CANTONEIRA "ZZ" BAIXA COM RASGO
LOW "ZZ" ANGLE BAR WITH SLOT

REF. IB 062



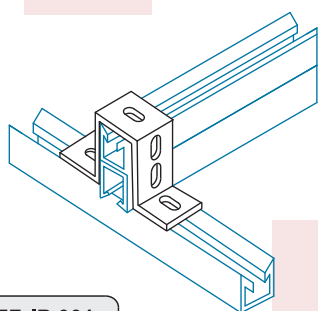
CANTONEIRA "ZZ" COM RASGO
"ZZ" ANGLE BAR WITH SLOT

REF. IB 063



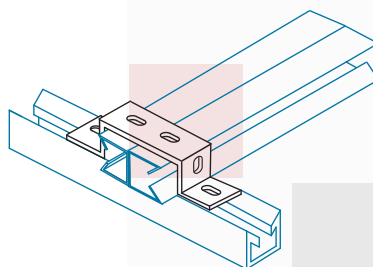
CANTONEIRA "ZZ" DUPLA VERTICAL
DOUBLE VERTICAL "ZZ" ANGLE BAR

REF. IB 064



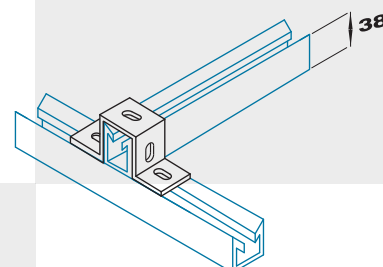
CANTONEIRA "ZZ" DUPLA HORIZONTAL
DOUBLE HORIZONTAL "ZZ" ANGLE BAR

REF. IB 065



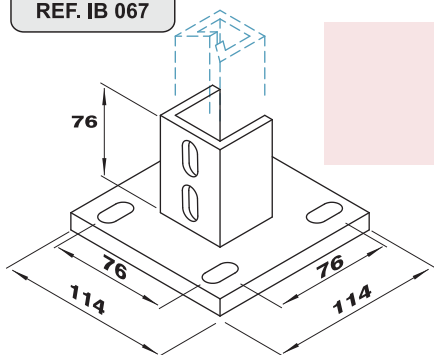
CANTONEIRA "ZZ" "ZZ" ANGLE BAR

REF. IB 066



SAPATA EXTERNA 4 FUROS
EXTERNAL SHOE WITH 4 HOLES

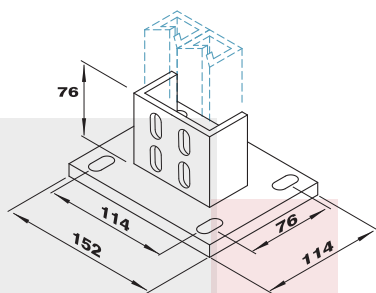
REF. IB 067



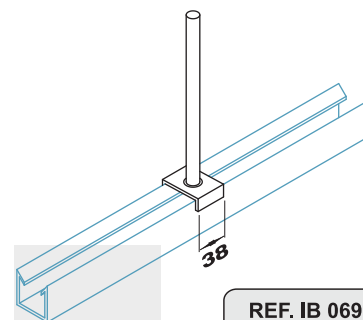
SAPATA EXTERNA DUPLA 4 FUROS

REF. IB 068

DOUBLE EXTERNAL SHOE WITH 4 HOLES



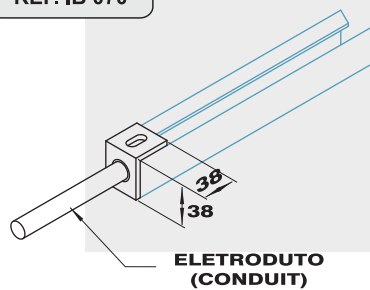
ARRUELA ADAPTADORA
ADAPTER WASHER



REF. IB 069

SAÍDA FINAL Ø 3/4"
FINAL EXIT Ø 3/4"

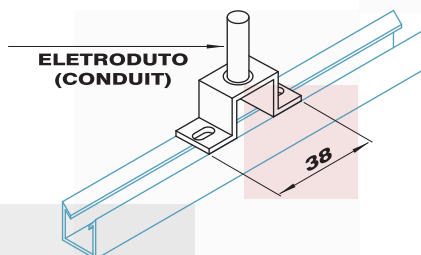
REF. IB 070



ELETRODUTO
(CONDUIT)

SAÍDA SUPERIOR Ø 3/4"
UPPER EXIT Ø 3/4"

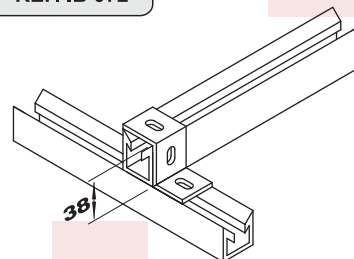
REF. IB 071



ELETRODUTO
(CONDUIT)

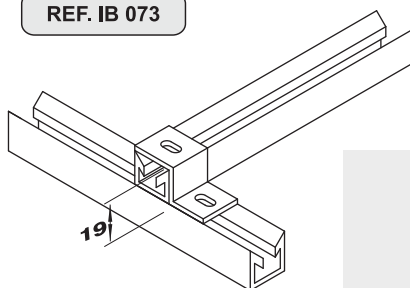
CANTONEIRA "Z"
"Z" ANGLE BAR

REF. IB 072



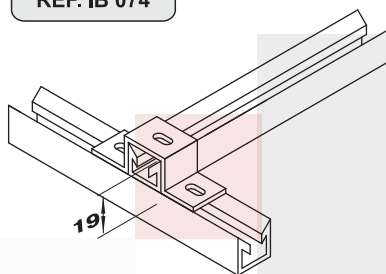
CANTONEIRA "Z" BAIXA
LOW "Z" ANGLE BAR

REF. IB 073



CANTONEIRA "ZZ" BAIXA
LOW "ZZ" ANGLE BAR

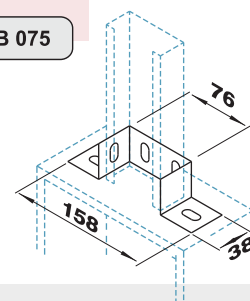
REF. IB 074



BASE DUPLA
PARA LIGAÇÃO EM PAINEL

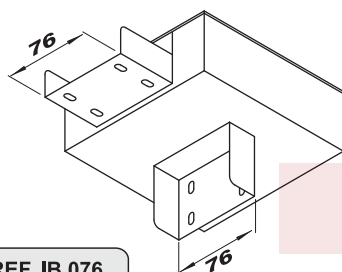
DOUBLE BASE FOR CONNECTION IN PANEL

REF. IB 075



CAIXA DE DERIVAÇÃO "I"
PARA PERFILADO DUPLO
COM 1 SAÍDA INFERIOR

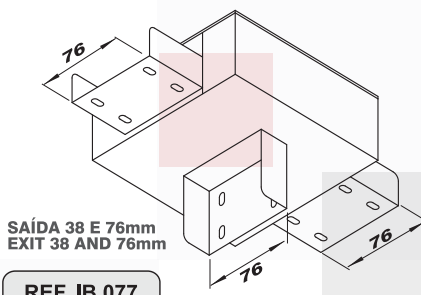
"I" JUNCTION BOX FOR DOUBLE SHAPE
WITH 1 LOWER EXIT



REF. IB 076

CAIXA DE DERIVAÇÃO "C" PARA
PERFILADO DUPLO COM 1 SAÍDA
INFERIOR

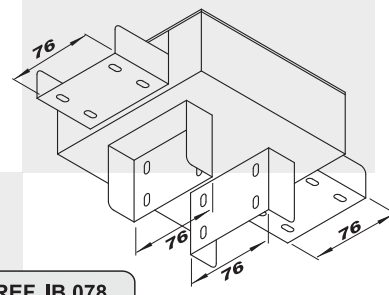
"C" JUNCTION BOX FOR DOUBLE SHAPE
WITH 1 LOWER EXIT



REF. IB 077

CAIXA DE DERIVAÇÃO "C" PARA
PERFILADO DUPLO
COM 2 SAÍDAS INFERIORES

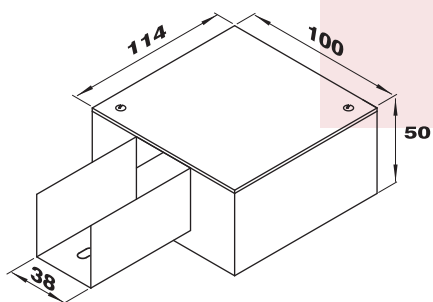
"C" JUNCTION BOX FOR DOUBLE
SHAPE WITH 2 LOWER EXITS



REF. IB 078

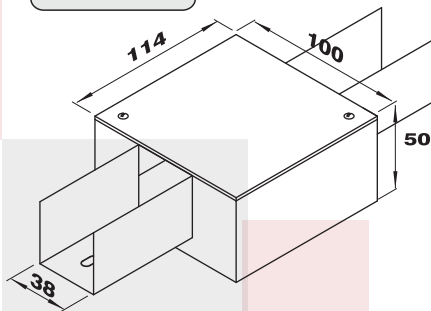
CAIXA DE DERIVAÇÃO "I"
"I" JUNCTION BOX

REF. IB 079



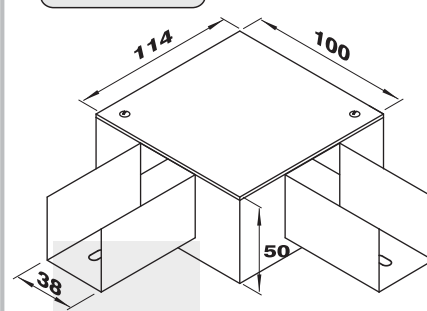
CAIXA DE DERIVAÇÃO "C"
"C" JUNCTION BOX

REF. IB 080



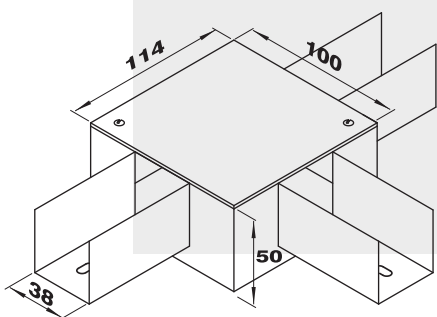
CAIXA DE DERIVAÇÃO "L"
"L" JUNCTION BOX

REF. IB 081



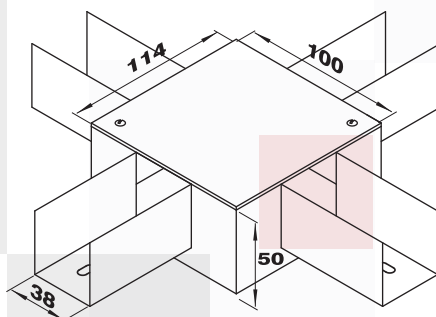
CAIXA DE DERIVAÇÃO "T"
"T" JUNCTION BOX

REF. IB 082



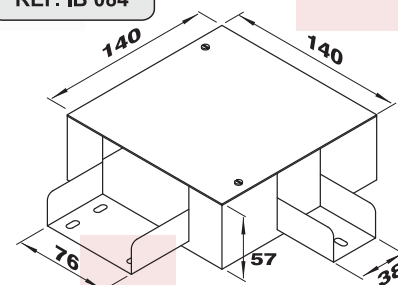
CAIXA DE DERIVAÇÃO "X"
"X" JUNCTION BOX

REF. IB 083



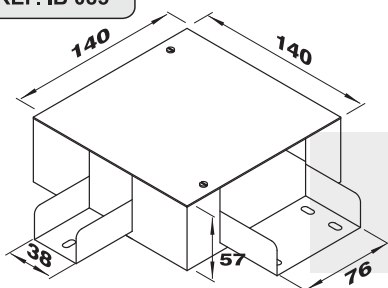
CAIXA DE DERIVAÇÃO "L" DIREITA
PARA PERFILADOS DE 38 E 76
RIGHT SIDE "L" JUNCTION BOX
FOR SHAPES OF 38 AND 76

REF. IB 084



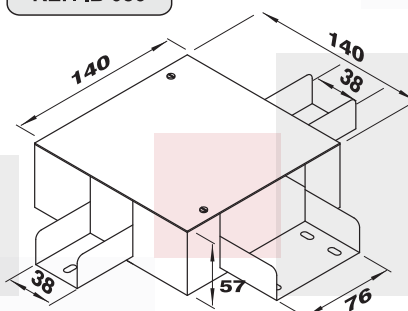
CAIXA DE DERIVAÇÃO "L" ESQUERDA
PARA PERFILADOS DE 38 E 76 mm
LEFT SIDE "L" JUNCTION BOX FOR
PROFILES OF 38 AND 76

REF. IB 085



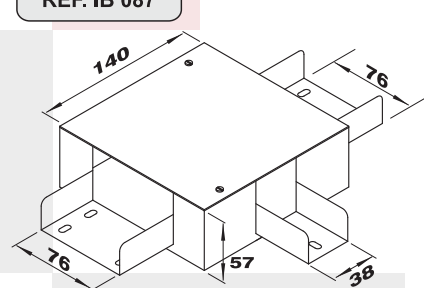
CAIXA DE DERIVAÇÃO "T" PARA
2 PERFILADOS DE 38 E 1 DE 76
"T" JUNCTION BOX FOR 2
PROFILES OF 38 AND 1 OF 76

REF. IB 086



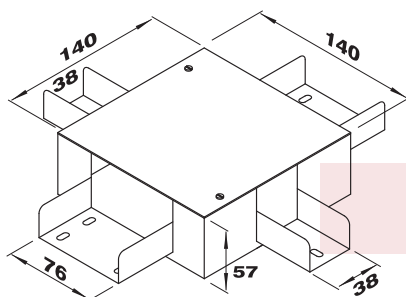
CAIXA DE DERIVAÇÃO "T" PARA
2 PERFILADOS DE 76 COM
SAÍDA PARA 38
"T" JUNCTION BOX FOR
2 SHAPES OF 76 WITH EXIT TO 38

REF. IB 087



CAIXA DE DERIVAÇÃO "X" PARA
2 PERFILADOS DE 38 E 2 DE 76
"X" JUNCTION BOX FOR 2
SHAPES OF 38 AND 2 OF 76

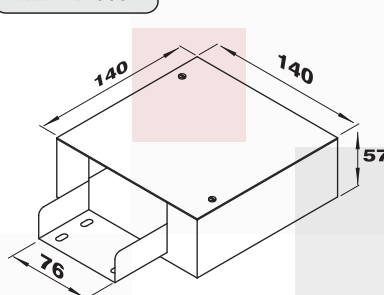
REF. IB 088



CAIXA DE DERIVAÇÃO "I" PARA
PERFILADO DUPLO

"I" JUNCTION BOX FOR DOUBLE SHAPE

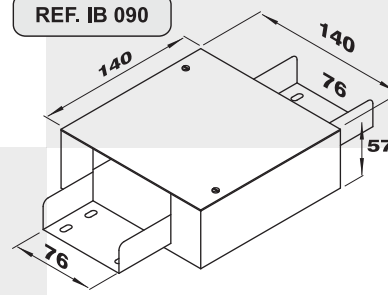
REF. IB 089



CAIXA DE DERIVAÇÃO "C" PARA
PERFILADO DUPLO

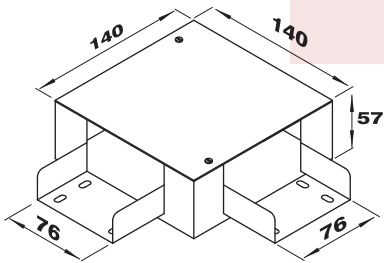
"C" JUNCTION BOX FOR DOUBLE SHAPE

REF. IB 090



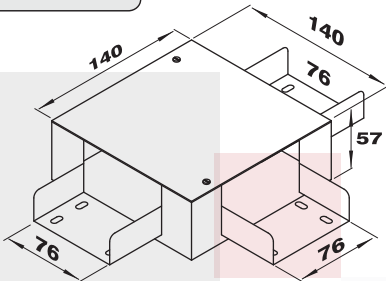
**CAIXA DE DERIVAÇÃO "L"
PARA PERFILADO DUPLO**
"L" JUNCTION BOX FOR DOUBLE SHAPE

REF. IB 091



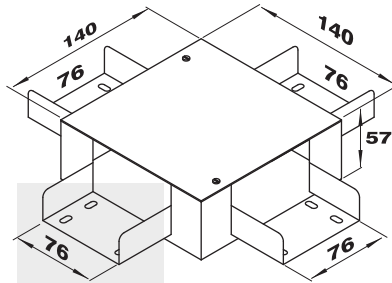
**CAIXA DE DERIVAÇÃO "T"
PARA PERFILADO DUPLO**
"T" JUNCTION BOX FOR DOUBLE SHAPE

REF. IB 092



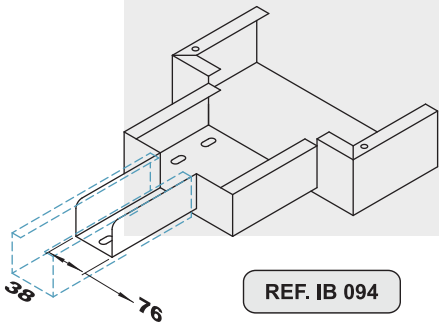
**CAIXA DE DERIVAÇÃO "X"
PARA PERFILADO DUPLO**
"X" JUNCTION BOX FOR DOUBLE SHAPE

REF. IB 093



**REDUÇÃO DA CAIXA PARA
PERFILADO 38x38mm**

BOX REDUCTION FOR SHAPE OF 38x38mm



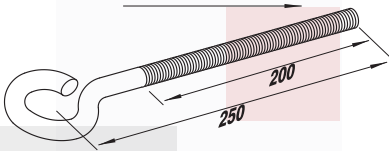
REF. IB 094

**PARAFUSO OLHAL
EYE BOLT**

REF. IB 095

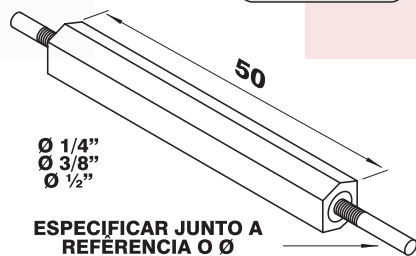
Ø 1/4" - A=Ø 13 Ø 1/4"
Ø 3/8" - A=Ø 18 Ø 3/8"
Ø 1/2" - A=Ø 21 Ø 1/2"

ESPECIFICAR JUNTO A REFERÊNCIA Ø



**PROLONGADOR PARA
SUSPENSÃO**
90° CROSSING

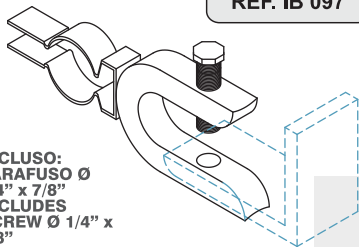
REF. IB 096



ESPECIFICAR JUNTO A
REFERÊNCIA Ø

GRAMPO "C" ROSCA Ø 1/4"
"C" CLIP WITH THREAD Ø 1/4"

REF. IB 097



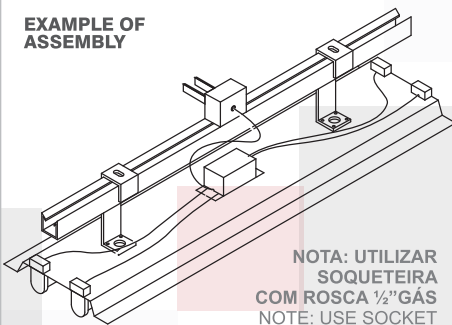
INCLUSO:
PARAFUSO Ø
1/4" x 7/8"
INCLUDES
SCREW Ø 1/4" x
7/8"

BRACEIRA "D"
NÃO INCLUSA
"D" PIPE CLAMP
NOT INCLUDED

**DEMONSTRATIVO
DE MONTAGEM**

REF. IB 098

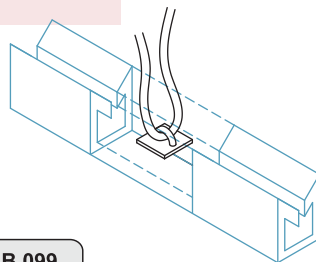
EXAMPLE OF
ASSEMBLY



NOTA: UTILIZAR
SOQUETEIRA
COM ROSCA 1/2" GAS
NOTE: USE SOCKET
WITH THREAD OF 1/2" GAS

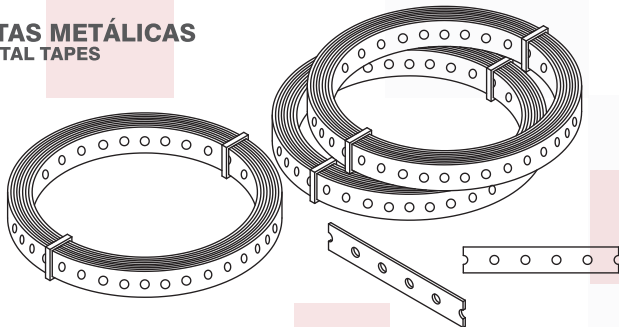
**SUSPENSOR PARA
CABO DE AÇO Ø 1/8"**

SUSPENSOR FOR STEEL CABLE Ø 1/8"



REF. IB 099

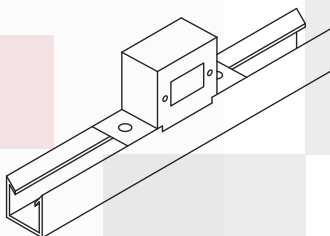
**FITAS METÁLICAS
METAL TAPES**



REF.	LARGURA (mm)	ESPESSURA (mm)	DIÂMETRO DO FURO (mm)	DISTÂNCIA ENTRE FUROS (mm)	ROLOS (m)
IB 100	19	0,50	7	10	30

**CAIXA PARA TOMADA
EM PERFILADO**

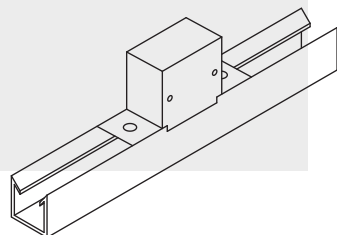
BOX FOR OUTLET IN SHAPE



REF. IB 101

**CAIXA PARA LIGAÇÃO
EM PERFILADO**

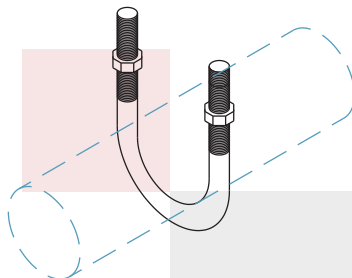
BOX FOR CONNECTION IN SHAPE



REF. IB 102

BRAÇADEIRA "U" DE VERGALHÃO
"U" PIPE CLAMP FOR ROD

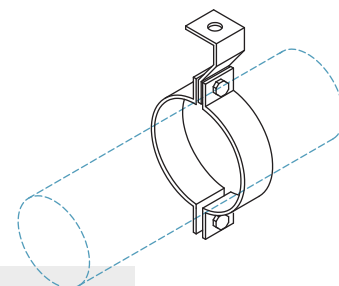
REF.	Ø NOM.
IB-103	3/8"
IB-104	1/2"
IB-105	3/4"
IB-106	1"
IB-107	1 1/4"
IB-108	1 1/2"
IB-109	2"
IB-110	2 1/2"
IB-111	3"
IB-112	4"
IB-113	5"
IB-114	6"
IB-115	8"
IB-116	10"
IB-117	12"



INCLUSOS 2 PORCAS E 2 ARRUELAS
DE PRESSÃO
INCLUDES 2 NUTS AND 2 LOCK
WASHERS

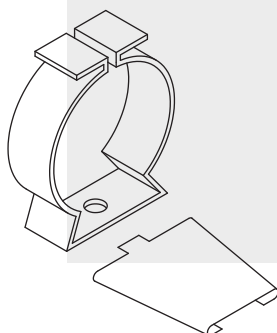
BRAÇADEIRA UNIÃO VERTICAL
VERTICAL UNION PIPE CLAMP

REFERÊNCIA	Ø NOM.
IB-118	1/2"
IB-119	3/4"
IB-120	1"
IB-121	1 1/4"
IB-122	1 1/2"
IB-123	2"
IB-124	2 1/2"
IB-125	3"
IB-126	4"
IB-127	5"
IB-128	6"
IB-129	8"
IB-130	10"
IB-131	12"



PARAFUSOS E PORCAS INCLUSO (DIMENSÕES CONFORME TABELA PARA
BRAÇADEIRA VERTICAL)
NUTS AND BOLTS INCLUDED (SIZE AS TABLE FOR VERTICAL CLAMP)

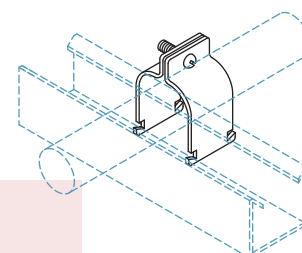
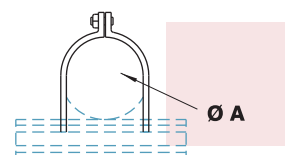
BRAÇADEIRA "D" COM CUNHA
"D" PIPE CLAMP WITH WEDGE



REF.	Ø NOM.
IB-134/01	1/2"
IB-135/02	3/4"
IB-136/03	1"
IB-137/04	1 1/4"
IB-138/05	1 1/2"
IB-139/06	2"
IB-140/07	2 1/4"
IB-141/08	3"
IB-142/09	3 1/4"
IB-143/10	4"

BRAÇADEIRA "U" PERFIL
"U" PIPE CLAMP / PROFILE

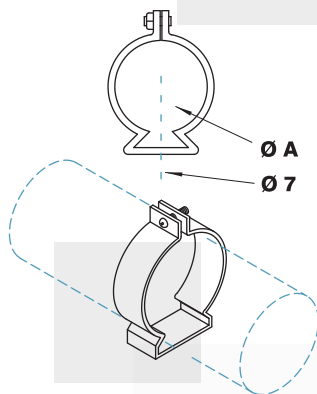
REF.	Ø NOM.
IB-144	3/8"
IB-145	1/2"
IB-146	3/4"
IB-147	1"
IB-148	1 1/4"
IB-149	1 1/2"
IB-150	2"
IB-151	2 1/2"
IB-151	3"
IB-152	4"



PARAFUSOS E PORCAS INCLUSO
NUTS AND BOLTS INCLUDED

BRAÇADEIRA "D" COM PARAFUSO
"D" PIPE CLAMP WITH BOLT

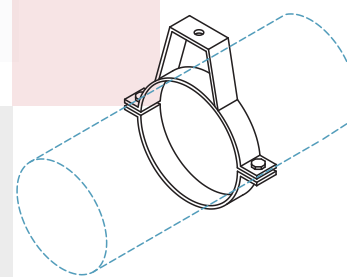
REF.	Ø NOM.
IB-153	3/8"
IB-154	1/2"
IB-155	3/4"
IB-156	1"
IB-157	1 1/4"
IB-158	1 1/2"
IB-159	2"
IB-160	2 1/2"
IB-161	3"
IB-162	4"



PARAFUSOS E PORCAS INCLUSO
NUTS AND BOLTS INCLUDED

BRAÇADEIRA UNIÃO HORIZONTAL
HORIZONTAL UNION PIPE CLAMP

REFERÊNCIA	Ø NOM.
IB-163	1/2"
IB-164	3/4"
IB-165	1"
IB-166	1 1/4"
IB-167	1 1/2"
IB-168	2"
IB-169	2 1/2"
IB-170	3"
IB-171	4"
IB-172	5"
IB-173	6"
IB-174	8"
IB-175	10"
IB-176	12"

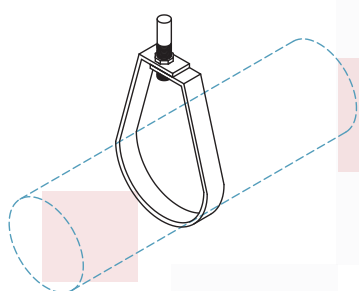


PARAFUSOS E PORCAS INCLUSO (DIMENSÕES CONFORME TABELA PARA
BRAÇADEIRA VERTICAL)
NUTS AND BOLTS INCLUDED (SIZE AS TABLE FOR VERTICAL CLAMP)

SUPOORTE DE TUBULAÇÃO
TIPO "ECONÔMICO"

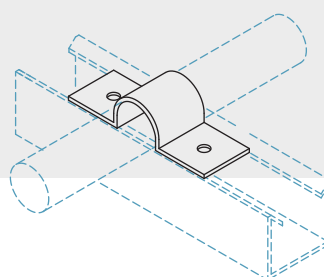
"ECONOMICAL" TYPE PIPING SUPPORT

REF.	Ø NOM.
IB-178	1/2"
IB-179	3/4"
IB-180	1"
IB-181	1 1/4"
IB-182	1 1/2"
IB-183	2"
IB-184	2 1/2"
IB-185	3"
IB-186	3 1/2"
IB-187	4"
IB-188	5"
IB-189	6"
IB-190	8"



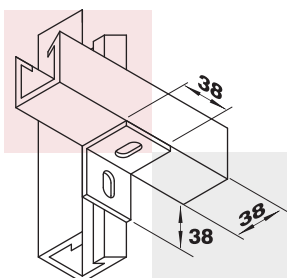
BRAÇADEIRA OMEGA
OMEGA PIPE CLAMP

REF.	Ø NOM.
IB-191	1/2"
IB-192	3/4"
IB-193	1"
IB-194	1 1/4"
IB-195	1 1/2"
IB-196	2"
IB-197	2 1/2"
IB-198	3"
IB-199	3 1/2"
IB-200	4"
IB-201	5"
IB-202	6"
IB-203	8"
IB-204	10"



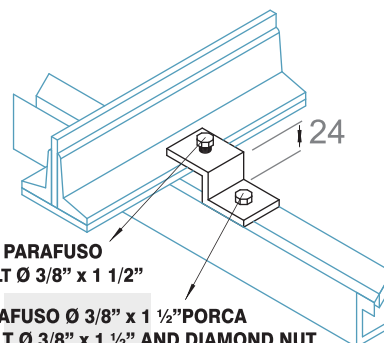
CANTONEIRA
ANGLE BAR

HOLES FUROS	2	REF. IB 204
	3	REF. IB 205
	4	REF. IB 206
	5	REF. IB 207
	6	REF. IB 208
	6	REF. IB 208



TALA COMPRESSORA
COMPRESSIVE SPLICE

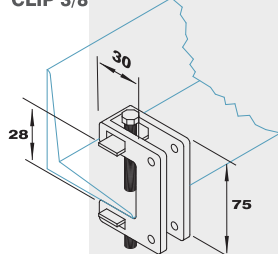
REF. IB 209



INCLUSO PARAFUSO
INCLUDES BOLT Ø 3/8" x 1 1/2"

NÃO INCLUSO PARAFUSO Ø 3/8" x 1 1/2" PORCA
LOSANGULAR Ø 3/8" - BOLT Ø 3/8" x 1 1/2" AND DIAMOND NUT

GRAMPO "C" 3/8"
"C" CLIP 3/8"

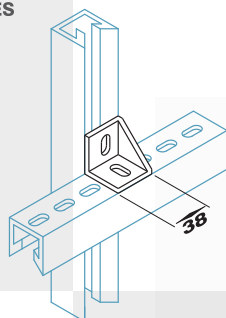


REF. IB 210

INCLUSO
01 PARAFUSO Ø 3/8" x 2"
02 PORCAS LOSANGULAR Ø 3/8"

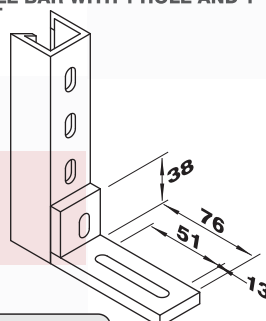
INCLUDES
01 SCREW Ø 3/8" x 2"
02 SQUARE NUTS Ø 3/8"

CANTONEIRA REFORÇADA
COM 2 FUROS
REINFORCED ANGLE BAR WITH 2 HOLES



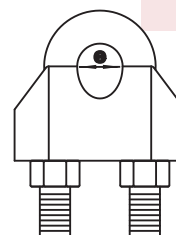
REF. IB 211

CANTONEIRA COM
1 FURO E RASGO
ANGLE BAR WITH 1 HOLE AND 1 SLOT



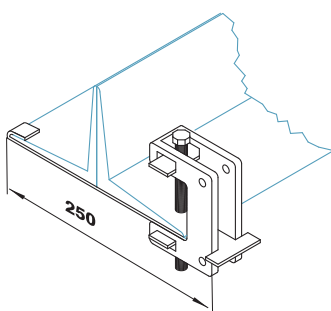
REF. IB 212

CONECTOR DE PRESSÃO
PARA CABO DE AÇO Ø 1/8
PRESSURE CONNECTOR FOR STEEL CABLE Ø 1/8



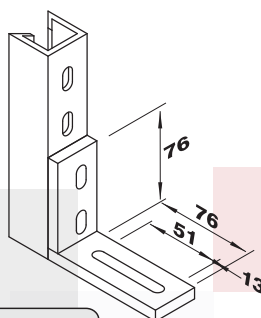
REF. IB 213

PRESILHA COM
GRAMPO "C"
CLAMP WITH "C" CLIP



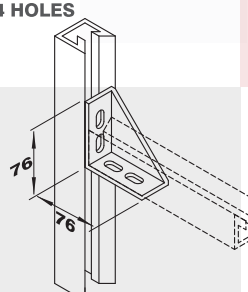
REF. IB 214

CANTONEIRA COM
2 FUROS E RASGO
ANGLE BAR WITH 2 HOLES AND SLOT



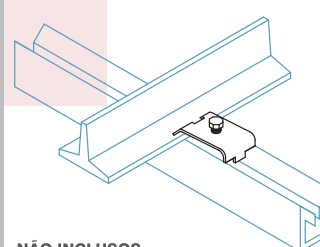
REF. IB 215

CANTONEIRA REFORÇADA COM 4 FUROS
REINFORCED ANGLE BAR WITH 4 HOLES



REF. IB 216

GRAPA FIXA
FIXED GRAPA

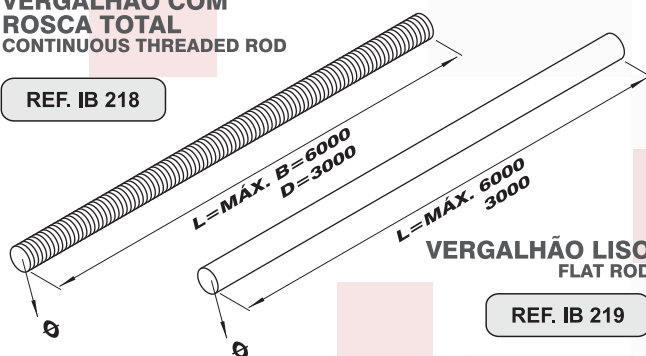


NÃO INCLUSOS
PARAFUSOS Ø 3/8" x 1 1/2"
PORCA LOSANGULAR Ø 3/8"
SCREW 3/8" x 1 1/2"
NUT Ø 3/8" NOT INCLUDED

REF. IB 217

VERGALHÃO COM
ROSCA TOTAL
CONTINUOUS THREADED ROD

REF. IB 218



VERGALHÃO LISO
FLAT ROD

REF. IB 219

ESPECIFICAR JUNTO À REFERÊNCIA O Ø E O COMPRIMENTO "L"
SPECIFY IN THE REFERENCE THE Ø AND "L" LENGHT

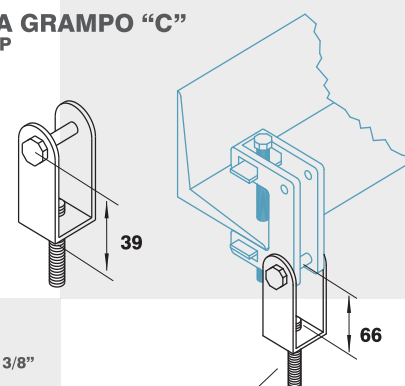
BALANCIM PARA GRAMPO "C"
ROCKER FOR "C" CLIP

PEQUENO
SMALL

REF. IB 220

GRANDE
BIG

REF. IB 221

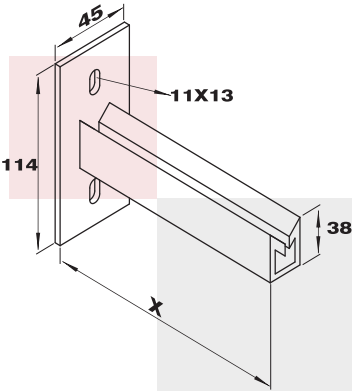


INCLUSO
PARAFUSO Ø 3/8" 1 1/2"
PORCAS SEXTAVADAS Ø 3/8"
INCLUDES
BOLT Ø 3/8" 1 1/2"
AND HEXAGONAL NUT Ø 3/8"

VERGALHÃO Ø 3/8"
ROD Ø 3/8"

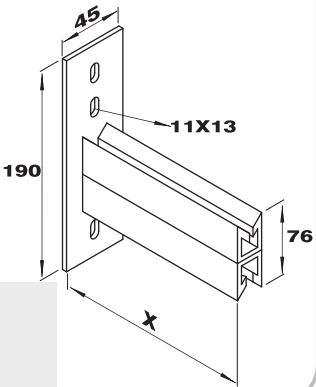
**MÃO FRANCESA
SIMPLES**
SIMPLE KNEE BRACE

REF	
IB 222	X=100
IB 223	X=150
IB 224	X=200
IB 225	X=300
IB 226	X=400
IB 227	X=500
IB 228	X=600



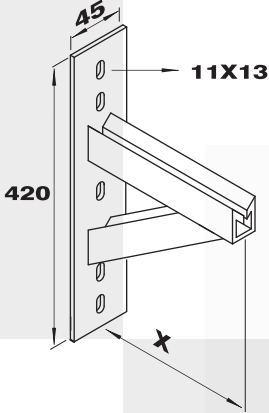
MÃO FRANCESA DUPLA
DOUBLE KNEE BRACE

REF	
IB 229	X=200
IB 224	X=300
IB 225	X=400
IB 226	X=500
IB 227	X=600
IB 228	X=650
IB 229	X=700
IB 230	X=500
IB 231	X=900

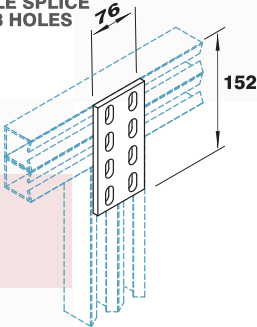


**MÃO FRANCESA
REFORÇADA**
REINFORCED KNEE BRACE

REF	
IB 232	X=200
IB 233	X=300
IB 234	X=400
IB 235	X=500
IB 236	X=600
IB 237	X=700
IB 238	X=800
IB 239	X=900
IB 240	X=1000

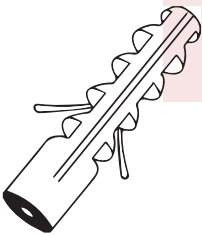


**TALA DUPLA
COM 8 FUROS**
DOUBLE SPLICE
WITH 8 HOLES



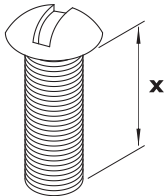
REF. IB 466

BUCHA DE NYLON



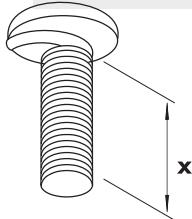
TIPO	ARRUELA LISA	BROCA
S- 6	BF - 046	1/4"
S- 8	BF - 047	5/16"
S- 10	BF - 048	3/8"
S- 12	BF - 049	1/2"

**PARAFUSO CABEÇA
LENTILHA**



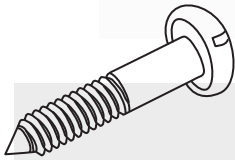
REF.	ROSCA	X
IB 241	3/8"	1/2"
IB 242	5/16"	5/8"
IB 243	1/4"	3/4"
		1"

**PARAFUSO CABEÇA
LENTILHA AUTO TRAVANTE**



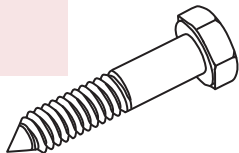
REF.	ROSCA	X
IB 244	3/8"	1/2"
IB 245	5/16"	5/8"
IB 246	1/4"	3/4"
		1"

**PARAFUSO
CABEÇA REDONDA
ROSCA SOBERBA**



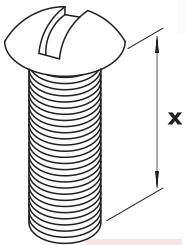
REF.	TIPO	PARA BUCHA
IB 247	3,8x20	S-6
IB 248	4,8x45	S-8
IB 249	6,1x50	S-10

**PARAFUSO CABEÇA
SEXTAVADA ROSCA
SOBERBA**



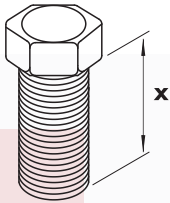
REF.	TIPO	PARA BUCHA
IB 250	1/4"x1 3/4"	S-6
IB 251	5/16"x2"	S-8
IB 252	3/8"x2 1/2"	S-10

**PARAFUSO CABEÇA REDONDA
ROUND HEAD BOLT**



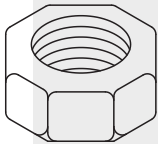
X	
1/2"	
5/8"	
3/4"	
1"	
REF.	ROSCA
IB 253	3/8"
IB 254	5/16"
IB 255	1/4"

**PARAFUSO SEXTAVADO
HEXAGONAL BOLT**

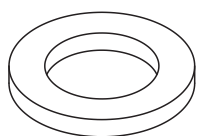


REF.	ROSCA	X
IB 256	1/4"	1/2"
IB 257	3/8"	1 3/4"
IB 258	1/2"	2"
		2 1/2"
		3"

**PORCA
SEXTAVADA
HEX NUT**



REF.	ROSCA
IB 259	3/16"
IB 260	1/4"
IB 261	5/16"
IB 262	3/8"
IB 263	1/2"



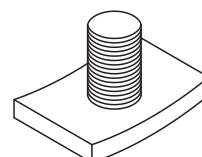
ARRUELA LISA
FLAT WASHER

REF.	DIÂMETRO NOMINAL INTERNO
IB 264	3/16"
IB 265	1/4"
IB 266	5/16"
IB 267	3/8"
IB 268	1/2"



ARRUELA DE PRESSÃO
PRESSURE WASHER

REF.	DIÂMETRO NOMINAL INTERNO
IB 269	3/16"
IB 270	1/4"
IB 271	5/16"
IB 272	3/8"
IB 273	1/2"

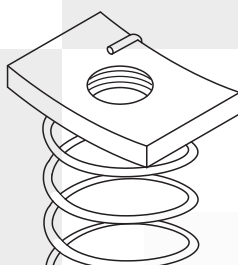


PORCA LOSANGULAR COM PINO ROSQUEADO
TABLE CUT WITH NUT BOLT

REF.	ROSCA	ESPESSURA
IB 274	1/2"	1/8"
IB 275	1/4"	1/4"
IB 276	3/8"	1/4"
IB 277	5/16"	1/4"

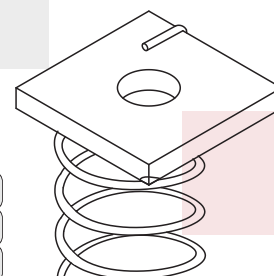
PORCA LOSANGULAR COM MOLA
DIAMOND NUT WITH SPRING

REF.	ROSCA	ESPESSURA
IB 278	1/4"	1/8"
IB 279	5/16"	3/16"
IB 280	3/8"	1/4"
IB 281	1/2"	5/16"



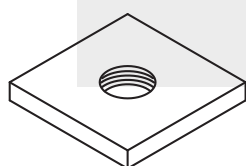
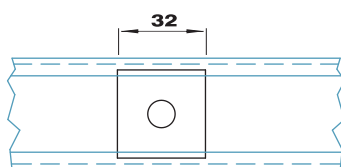
PORCA QUADRADA COM MOLA
SQUARE NUT WITH SPRING

REF.	ROSCA	ESPESSURA
IB 282	1/4"	3/8"
IB 283	3/8"	3/8"
IB 284	1/2"	3/8"



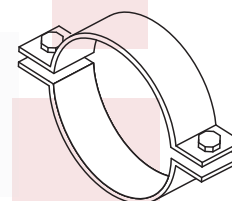
PORCA QUADRADA SEM MOLA
SQUARE NUT WITHOUT SPRING

REF.	ROSCA	ESPESSURA
IB 285	1/4"	3/8"
IB 286	3/8"	3/8"
IB 287	1/2"	3/8"



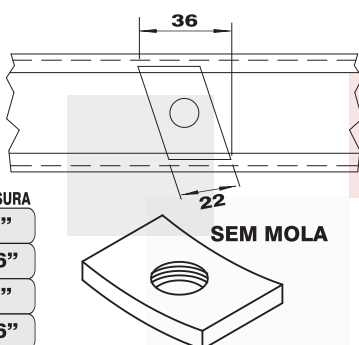
BRAÇADEIRA "D" COPO
"D" PIPE CLAMP CUP

REF.	Ø NOM.
IB 288	1/2"
	3/4"
	1"
	1 1/4"
	1 1/2"
	2"
	2 1/4"
	3"
	3 1/4"
	4"



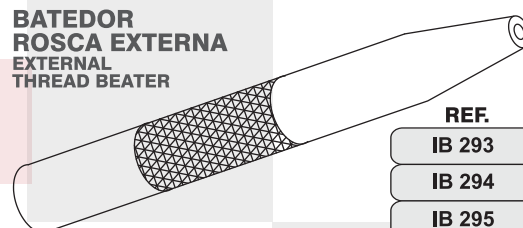
PORCA LOSANGULAR COM ROSCA
DIAMOND NUT WITH THREAD

REF.	ROSCA	ESPESSURA
IB 289	1/4"	1/8"
IB 290	5/16"	3/16"
IB 291	3/8"	1/4"
IB 292	1/2"	5/16"



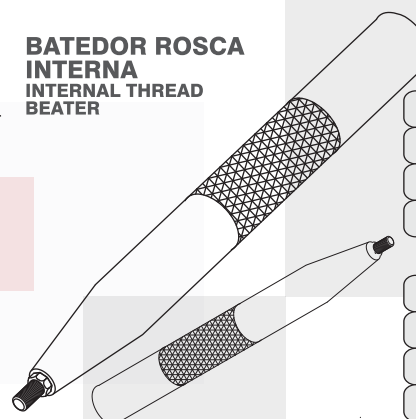
SEM MOLA

BATEDOR ROSCA EXTERNA
EXTERNAL THREAD BEATER



REF.	Ø
IB 293	1/4"
IB 294	5/16"
IB 295	3/8"
IB 296	1/2"

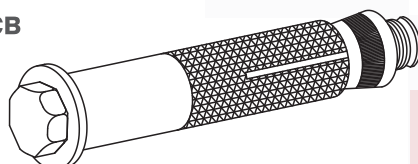
BATEDOR ROSCA INTERNA
INTERNAL THREAD BEATER



REF.	Ø
IB 297	1/4"
IB 298	5/16"
IB 299	3/8"
IB 300	1/2"

REF.	Ø
IB 301	1/4"
IB 302	5/16"
IB 303	3/8"
IB 304	1/2"

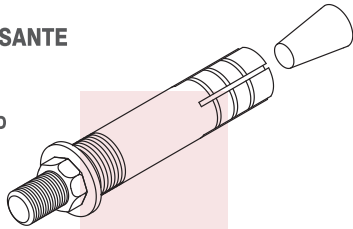
CHUMBADOR CB
CB ANCHOR BOLT



REF.	DIÂMETRO DA ROSCA CHUMBADOR	COMPDO CHUMBADOR	COMP. DA ROSCA (mm)	PROFUND. MINIMA DO FURO (mm)	ESPESSURA MÁXIMA A SER FIXADA (mm)	ALTURA DA PORCA E ARRUELA	ESPESSURA MÁXIMA PERFURADA (mm)
IB 305	1/4"	3/8"	2"	35	25	50	8
IB 306	5/16"	1/2"	2.1/4"	38	28	57	7
IB 307	3/8"	9/16"	2.1/2"	40	30	68	16
IB 308	1/2"	3/4"	3"	50	49	75	18

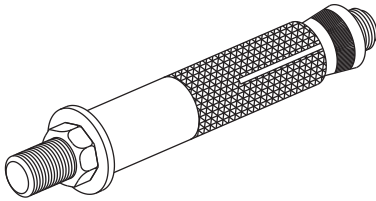
CHUMBADOR PASSANTE
ROSCA EXTERNA

PASSING ANCHOR BOLT
WITH EXTERNAL THREAD



REF.	DIÂMETRO DA ROSCA CHUMBADOR	COMP.DO CHUMBADOR	COMP. DA ROSCA (mm)	PROFUND. MIN/MAX DO FURO (mm)	ESPESSURA MÁXIMA A SER FIXADA (mm)
IB 305	1/4"	1.3/4"	20	30-38	8
IB 306	5/16"	2.3/8"	25	35-52	17
IB 307	3/8"	2.1/4"	30	45-47	2
IB 308	1/2"	2.3/4"	35	55-57	2

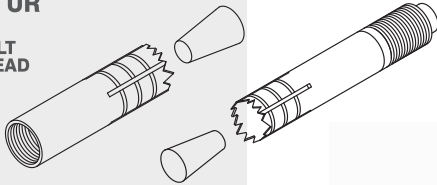
PRISIONEIRO
TAP BOLT



REF.	DIÂMETRO DA ROSCA	DIÂMETRO DO FURO	COMP. DO PRISIONEIRO (mm)	COMP. DA JAQUETA (mm)	COMP. DO PROLONG. (mm)	PROF. MINIMA DO FURO (mm)	ESPESSURA MÁX. SER FIXADA (mm)
IB 309	1/4"	3/8"	65	35	25	41	16
IB 310	5/16"	1/2"	75	38	28	44	22
IB 311	3/8"	9/16"	80	40	30	47	24
IB 312	1/2"	3/4"	95	50	40	60	26

CHUMBADOR AUTO PERFURANTE
ROSCA INTERNA UR

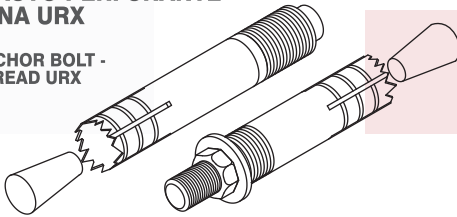
PASSING ANCHOR BOLT
WITH EXTERNAL THREAD



REF.	DIÂMETRO DA ROSCA	COMP. DA ROSCA (mm)	DIÂMETRO EXTERNO (mm)	PROFUND. DO FURO (mm)	ESPESSURA MÁXIMA DO CONCRETO (mm)
IB 313	1/4"	12	11	29	70
IB 314	5/16"	14	12,7	35	80
IB 315	3/8"	16	14	37	90
IB 316	1/2"	21	18	51	100

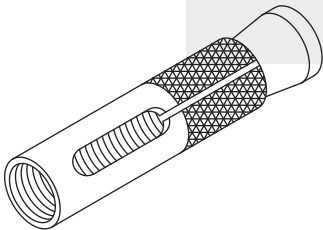
CHUMBADOR AUTO PERFURANTE
ROSCA EXTERNA URX

SELF-DRILLING ANCHOR BOLT -
URX EXTERNAL THREAD URX



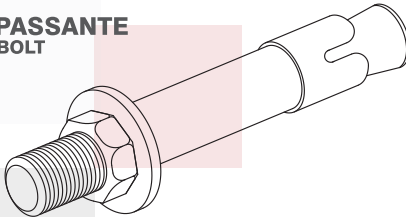
REF.	DIÂMETRO DA ROSCA	COMP. DA ROSCA	COMP. DA ROSCA	PROFUND. DO FURO (mm)	ESPESSURA MÁXIMA A SER FIXADA (mm)
IB 317	1/4"	1.1/4"	12	12	31
IB 318	5/16"	1.1/2"	14	14	37
IB 319	3/8"	3"	30	45	20
IB 320	1/2"	3.1/2"	35	55	20

JAQUETA E CONE
JACKET AND CONE



REF.	DIÂMETRO DA ROSCA	DIÂMETRO DO FURO	COMP. DA JAQUETA	PROFUND. MINIMA DO FURO (mm)	ESPESSURA MÁXIMA A SER FIXADA (mm)
IB 467	1/4"	3/8"	35	50	8
IB 321	5/16"	1/2"	38	57	7
IB 322	3/8"	9/16"	40	63	16
IB 323	1/2"	3/4"	50	75	18

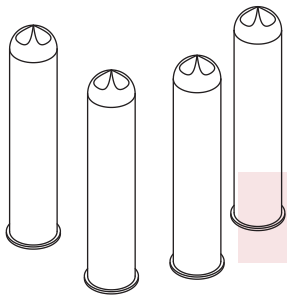
CHUMBADOR PASSANTE
PASSING ANCHOR BOLT



REF.	DIÂMETRO DA ROSCA CHUMBADOR	COMP.DO CHUMBADOR	COMP. DA ROSCA (mm)	PROFUND. MINIMA DO FURO (mm)	ESPESSURA MÁXIMA A SER FIXADA (mm)	ALTURA DA PORCA E ARRUELA
IB 324	1/4"	1.3/4"	19	35	6	6.3
IB 325	5/16"	2"	22	40	6	7.9
IB 326	3/8"	2.1/4"	24	45	6	9.9
IB 327	1/2"	2.3/4"	30	55	6	14.2

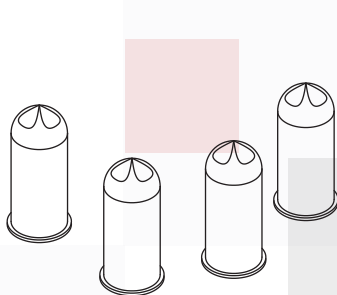
CARTUCHO LONGO 22 - FINCA PINO
LONG CARTRIDGE 22 - PIN FIXER

REF.	DESCRIÇÃO
IB 335	LONGO 22

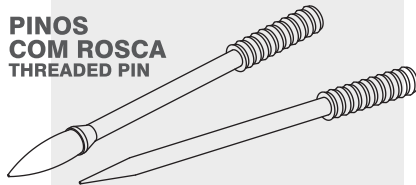


CARTUCHO CURTO 22-FINCA PINO
SHORT CARTRIDGE 22-PIN FIXER

CÓDIGO	DESCRIÇÃO
IB 336	CURTO 22



PINOS
COM ROSCA
THREADED PIN



REF.	DIAMETRO ROSCA	HASTE ROSCA(mm)	HASTE PENETRAÇÃO (mm)
IB 328	1/4"	12	20
IB 329	1/4"	20	20
IB 330	1/4"	12	30
IB 331	1/4"	20	30
IB 332	1/4"	30	30
IB 333	1/4"	52	30
IB 334	1/4"	20	40



LEITOS PARA CABOS E ACESSÓRIOS

CABLES TRAYS AND ACCESSORIES

Os **LEITOS PARA CABOS** fabricados pela **INBRAELL** são recomendados para a condução e distribuição de cabos leves e pesados, com características dimensionais projetadas para diversas cargas e vãos, cujos gráficos são fornecidos nas páginas seguintes.

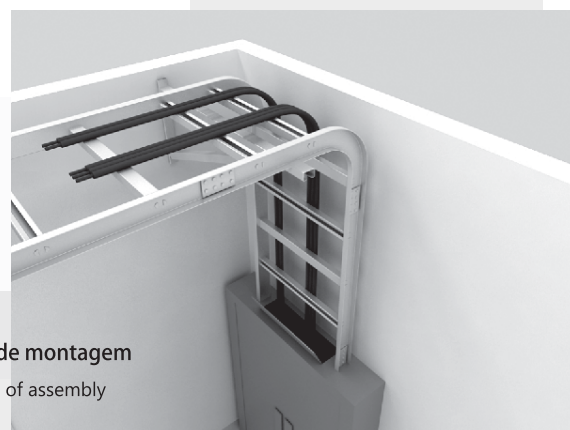
Como principais vantagens do uso dos leitos, podemos citar a completa ventilação dos cabos, inspeção visual permitida pela instalação aparente e fácil acesso para manutenção.

Contando com uma variada linha de derivações e acessórios para união, fixação e sustentação, permitem qualquer tipo de ramificação, oferecendo segurança, estética, funcionabilidade e uma rápida montagem.

The Cables Trays made by INBRAELL are recommended for conduction and distribution of light and heavy cables, with dimensional characteristics projected for various loads and gaps, whose graphics are shown on next page.

As the main advantages of using the cables trays we could mention are the total ventilation of cables, visual inspection possible by visible installation and easy access for maintenance.

Comprised of a varied line of derivations and accessories for union, fixation and support, it allows any kind of branching, offering safety, beauty, functionality and fast assembly.



• Exemplo de montagem
• Example of assembly

OS CRITÉRIOS NA ELABORAÇÃO DA MATÉRIA CONTIDA NESTA SEÇÃO FORAM: EXATIDÃO, ASSEGURADA ATRAVÉS DE PESQUISAS, CÁLCULOS E ENSAIOS PRÁTICOS; INFORMAÇÃO APRESENTANDO O QUE DE MAIS IMPORTANTE NECESSITAM OS PROJETISTAS E ESPECIFICADORES, FÁCIL INTERPRETAÇÃO, MOSTRANDO OS GRÁFICOS DENTRO DE UM SISTEMA MODERNO DE COLOCAÇÃO, COM USO DE ESCALA LOGARÍTMICA.

THE CRITERIA IN THE ELABORATION OF THE PRODUCTS CONTAINED IN THIS SECTION WERE: ACCURACY, ASSURED THROUGH RESEARCHES, CALCULATIONS AND PRACTICAL TESTS. INFORMATION PRESENTING WHAT IS MOST IMPORTANT TO DESIGNERS AND SPECIFIERS ; EASY UNDERSTANDING, SHOWING THE GRAPHICS IN A MODERN SYSTEM OF PLACEMENT, WITH THE USE OF LOGARITHMIC SCALE.

OFERECEMOS AINDA, TABELAS ACESSÓRIAS E UM INFORMATIVO SOBRE AS CARACTERÍSTICAS DOS ACABAMENTO DOS MATERIAIS.

WE ALSO OFFER ACCESSORIZED TABLES AND A REPORT ABOUT THE CHARACTERISTICS OF THE MATERIAL FINISHING.

EXEMPLO DE LEITURA DOS GRÁFICOS

EXAMPLE OF THE GRAPHICS READING

LEITO PAR ACABOS TIPO MÉDIO - REF.
MEDIUM TYPE CABLES TRAY - REF.

$q = 230 \text{ kgf/m}$
 $B = 2,9 \text{ m}$
 $A = 1040 \text{ mm}$
 $f = 12 \text{ mm}$

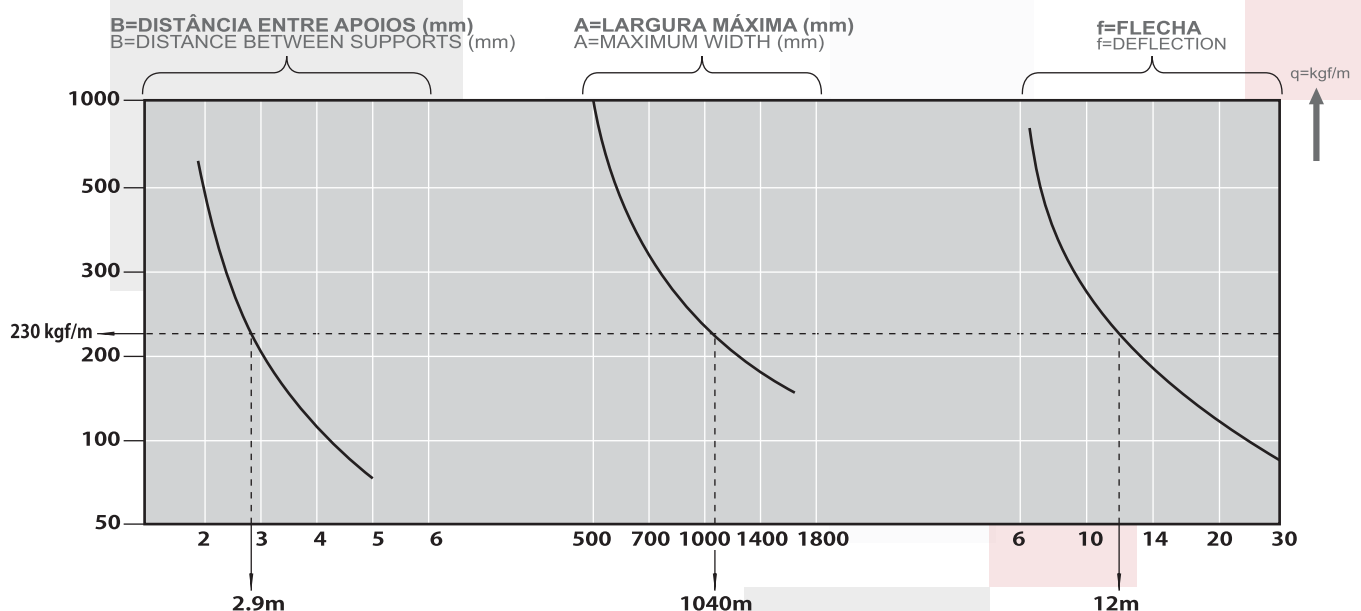


GRÁFICO DE CARGA DISTRIBUIDA (kgf/m)-LEITOS PARA CABOS
GRAPHIC OF DISTRIBUTED LOAD (kg / m)-CABLES TRAYS

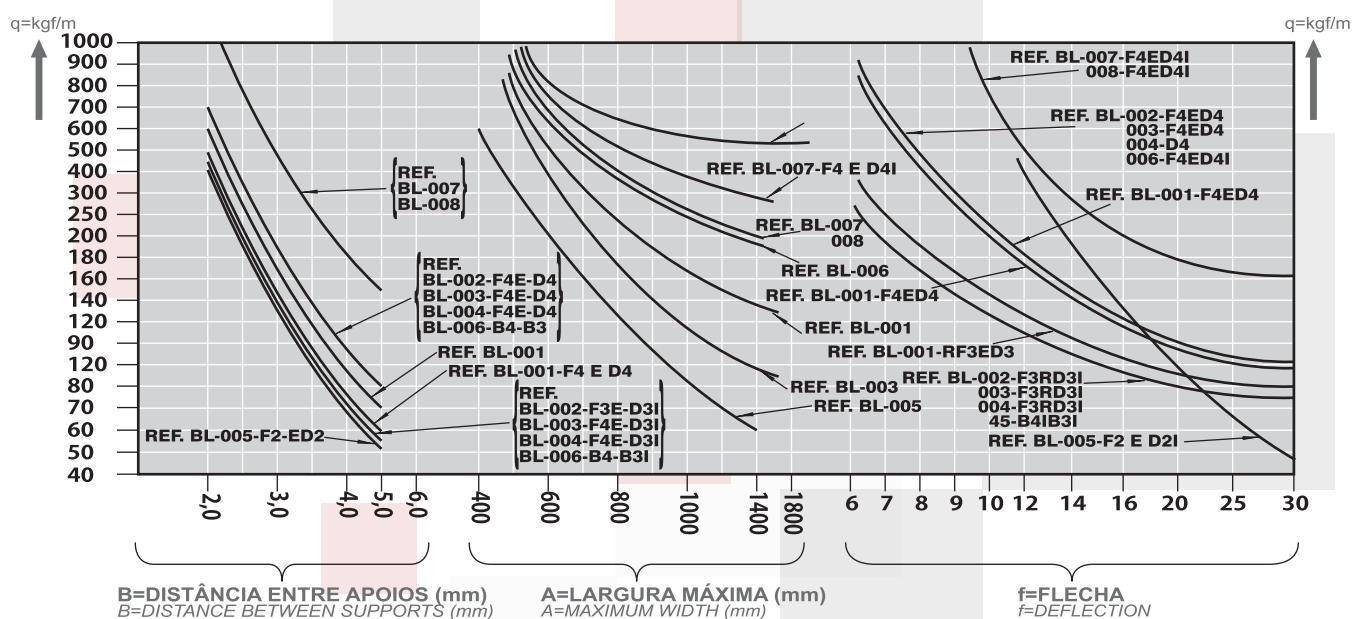


TABELA DE DIMENSÕES DE LEITOS PARA CABOS
TABLE OF CABLES TRAYS DIMENSIONS

*NOTA: PARA MEDIDAS ESPECIAIS CONSULTE-NOS
*NOTE: FOR SPECIAL DIMENSIONS PLEASE CONSULT US

LINHA LINE	LARGURA WIDTH	ALTURA HEIGHT
LEVE LIGHT	100 mm	60 mm
	150 mm	60 mm
	200 mm	60 mm
	250 mm	60 mm
	300 mm	60 mm
	350 mm	60 mm
	400 mm	60 mm
	450 mm	60 mm
	500 mm	60 mm
	550 mm	60 mm
MÉDIO E MÉDIO ESPECIAL MEDIUM TYPE AND SPECIAL MEDIUM TYPE	100 mm	75 mm
	150 mm	75 mm
	200 mm	75 mm
	250 mm	75 mm
	300 mm	75 mm
	350 mm	75 mm
	400 mm	75 mm
	450 mm	75 mm
	500 mm	75 mm
	550 mm	75 mm
MÉDIO ESPECIAL E PESADO SPECIAL MEDIUM TYPE AND HEAVY TYPE	100 mm	100 mm
	150 mm	100 mm
	200 mm	100 mm
	250 mm	100 mm
	300 mm	100 mm
	350 mm	100 mm
	400 mm	100 mm
	450 mm	100 mm
	500 mm	100 mm
	550 mm	100 mm

LEITO PARA CABOS TIPO LEVE
LIGHT TYPE CABLES TRAY

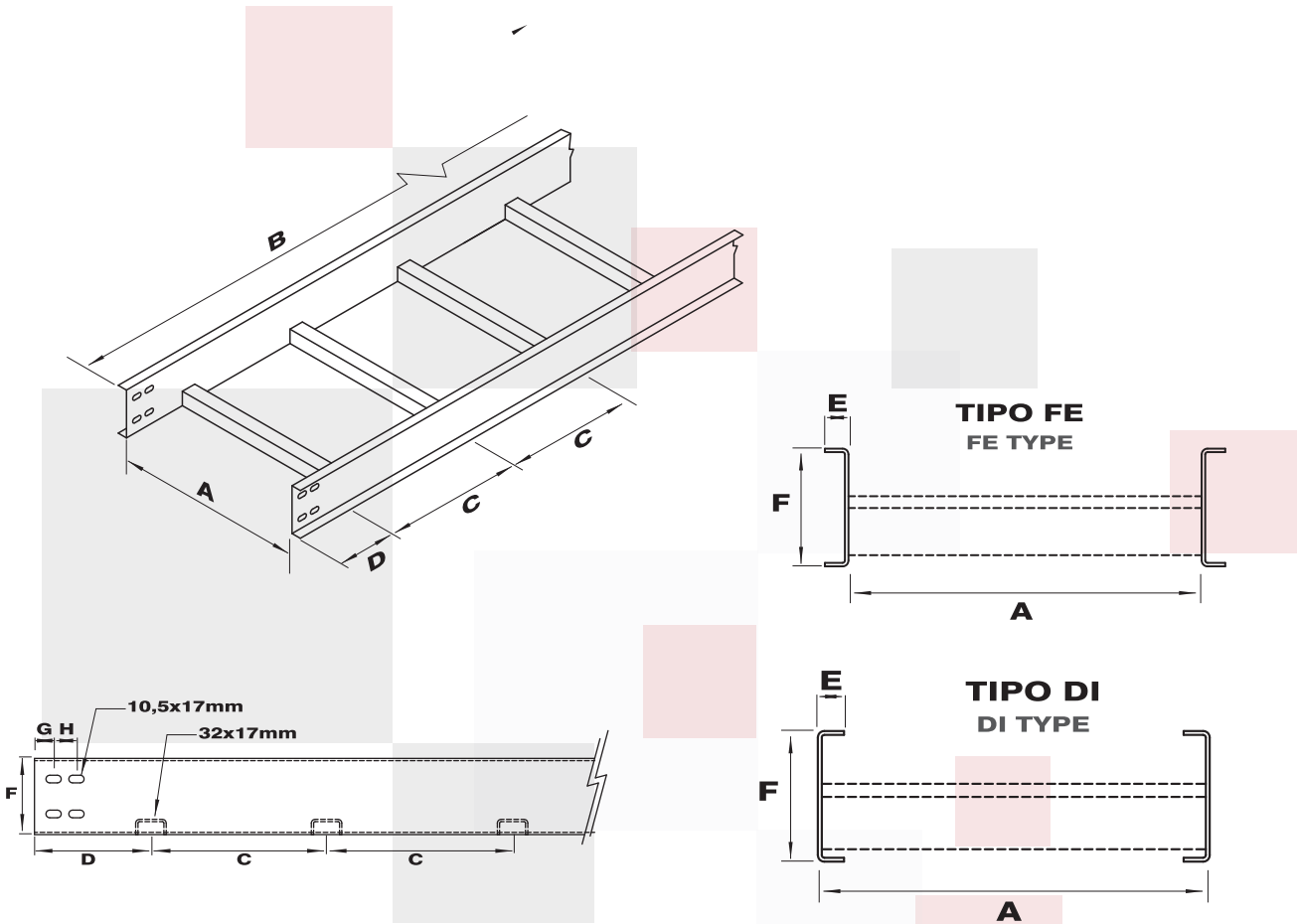


TABELA DE CARGA PARA LEITO #12/14 LOAD CHART TO CABLES TRAY #12/14											
005											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	792	565	402	289	203	145	103	72	50	35	25
300	777	553	394	281	200	142	100	71	50	35	24
400	777	553	394	281	200	142	100	71	50	35	24
500	760	542	387	275	195	140	99	70	48	35	24
600	760	542	387	275	195	140	99	70	48	35	24
700	744	531	378	269	191	136	96	68	47	33	23
800	744	531	378	269	191	136	96	68	47	33	23
1000	730	521	378	264	188	133	94	67	47	33	22
1200	730	521	371	264	188	133	94	67	47	33	22

TABELA EM MILÍMETROS / TABLE IN MILLIMETERS								
REF.	A	B	C	D	E	F	G	H
005	VER PÁG 23	3000e6000	200	100	19	60	19	38

LEITO PARA CABOS TIPO MÉDIO ESPECIAL SPECIAL MEDIUM TYPE CABLES TRAY

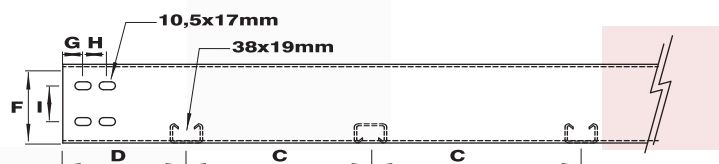
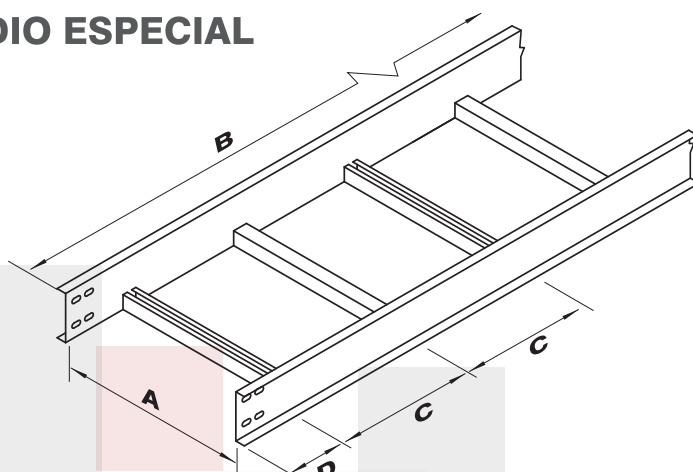
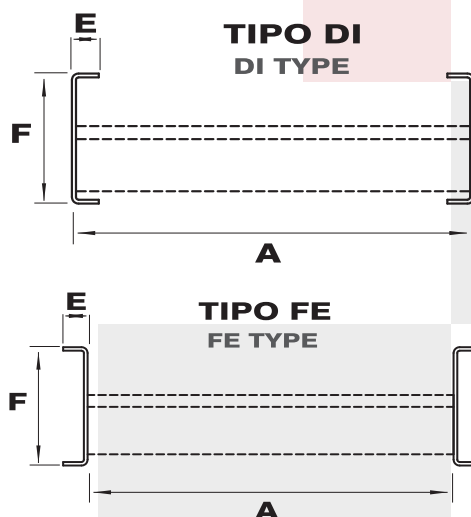


TABELA DE CARGA PARA LEITO #12/14
LOAD CHART TO CABLES TRAY #12/14

002(aba 75mm)											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	1388	976	696	498	355	252	179	127	89	63	45
300	1341	956	681	486	347	247	175	124	88	62	43
400	1341	956	681	486	347	247	175	124	88	62	43
500	1313	937	669	477	339	243	173	122	85	62	43
600	1313	937	669	477	339	243	173	122	85	62	43
700	1285	917	654	466	331	236	167	119	84	59	41
800	1285	917	654	466	331	236	167	119	84	59	41
1000	1261	901	642	457	326	232	165	117	83	58	40
1200	1261	901	642	457	326	232	165	117	83	58	40

TABELA DE CARGA PARA LEITO #12/14
LOAD CHART TO CABLES TRAY #12/14

002(aba 100mm)											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	1126	803	573	409	291	207	147	104	73	52	37
300	1103	787	560	399	285	202	144	102	72	51	34
400	1103	787	560	399	285	202	144	102	72	51	34
500	1080	771	550	392	278	219	141	100	70	51	34
600	1080	771	550	392	278	219	141	100	70	51	34
700	1057	755	537	383	272	194	137	98	69	48	33
800	1057	755	537	383	272	194	137	98	69	48	33
1000	1037	741	528	376	268	191	135	95	68	47	32
1200	1037	741	528	376	268	191	135	95	68	47	32

TABELA EM MILÍMETROS / TABLE IN MILLIMETERS

REF.	A	B	C	D	E	F	G	H	I
002	VER PÁG 23	3000e6000	200	125	19	75	24	32	39
002	VER PÁG 23	3000e6000	200	125	19	100	24	32	64

TABELA DE CARGA PARA LEITO #12/14
LOAD CHART TO CABLES TRAY #12/14

003 (aba 75mm)											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	1388	976	696	498	355	252	179	127	89	63	45
300	1341	956	681	486	347	247	175	124	88	62	43
400	1341	956	681	486	347	247	175	124	88	62	43
500	1313	937	669	477	339	243	173	122	85	62	43
600	1313	937	669	477	339	243	173	122	85	62	43
700	1285	917	654	466	331	236	167	119	84	59	41
800	1285	917	654	466	331	236	167	119	84	59	41
1000	1261	901	642	457	326	232	165	117	83	58	40
1200	1261	901	642	457	326	232	165	117	83	58	40

TABELA DE CARGA PARA LEITO #12/14
LOAD CHART TO CABLES TRAY #12/14

003 (aba100mm)											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	1052	750	535	382	272	193	137	97	68	48	34
300	1031	735	523	373	266	189	134	95	67	47	32
400	1031	735	523	373	266	189	134	95	67	47	32
500	1009	720	514	366	260	186	132	93	65	47	32
600	1009	720	514	366	260	186	132	93	65	47	32
700	988	705	502	359	254	181	128	91	64	45	31
800	988	705	502	359	254	181	128	91	64	45	31
1000	969	692	493	351	250	178	126	89	63	44	30
1200	969	692	493	351	250	178	126	89	63	44	30

TABELA EM MILÍMETROS / TABLE IN MILLIMETERS

REF.	A	B	C	D	E	F	G	H	I
003	VER PÁG 23	3000e6000	250	125	19	75	24	32	39
003	VER PÁG 23	3000e6000	250	125	19	100	24	32	64

LEITO PARA CABOS TIPO VENTILADO
VENTILATED TYPE CABLES TRAY

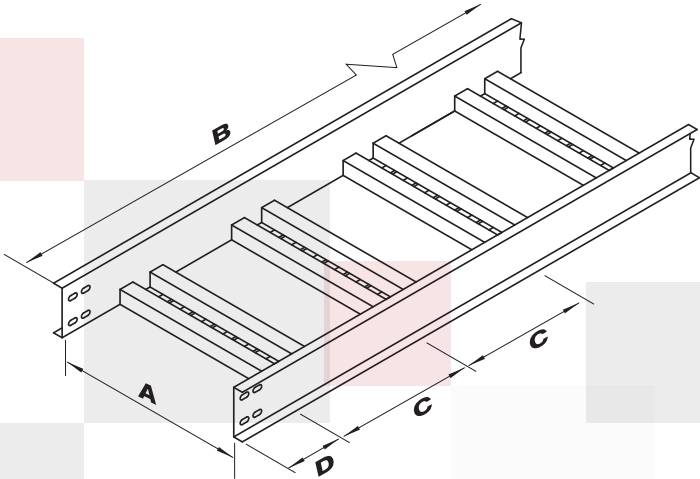


TABELA DE CARGA PARA LEITO #12/14 LOAD CHART TO CABLES TRAY #12/14											
006-DI											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	1544	1101	786	561	400	285	203	144	101	72	52
300	1512	1079	768	548	392	278	198	141	100	71	48
400	1512	1079	768	548	392	278	198	141	100	71	48
500	1481	1057	755	538	384	274	194	138	97	71	48
600	1481	1057	755	538	384	274	194	138	97	71	48
700	1449	1035	737	526	375	267	189	135	96	67	46
800	1449	1035	737	526	375	267	189	135	96	67	46
1000	1422	1016	724	516	368	263	186	131	94	66	45
1200	1422	1016	724	516	368	263	186	131	94	66	45

TABELA DE CARGA PARA LEITO #12/14 LOAD CHART TO CABLES TRAY #12/14											
006-FE											
"A" LARGURA WIDTH	CARGA MÁX. (KGF/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT										
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
200	2007	1433	1022	731	522	371	264	187	131	94	67
300	1967	1403	1000	714	511	364	257	183	130	93	64
400	1967	1403	1000	714	511	364	257	183	130	93	64
500	1927	1375	982	701	498	357	255	181	126	93	64
600	1927	1375	982	701	498	357	255	181	126	93	64
700	1885	1345	960	685	486	348	246	176	124	87	61
800	1885	1345	960	685	486	348	246	176	124	87	61
1000	1849	1322	942	671	479	341	244	172	123	86	60
1200	1849	1322	942	671	479	341	244	172	123	86	62

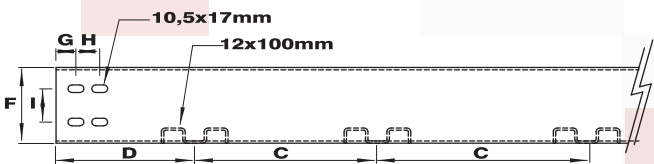
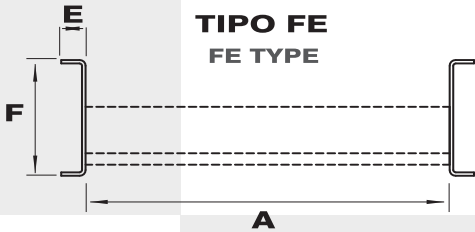
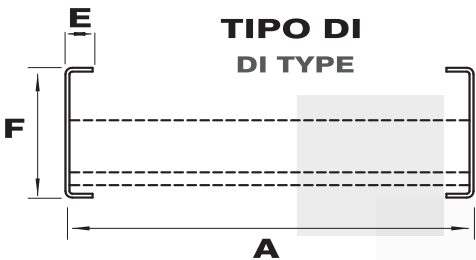


TABELA EM MILÍMETROS / TABLE IN MILLIMETERS									
REF.	A	B	C	D	E	F	G	H	I
006 VER PÁG 23	3000e6000	200	100	19	75	24	32	39	
006 VER PÁG 23	3000e6000	200	100	19	100	24	32	64	

LEITO PARA CABOS TIPO PESADO
HEAVY TYPE CABLES TRAY

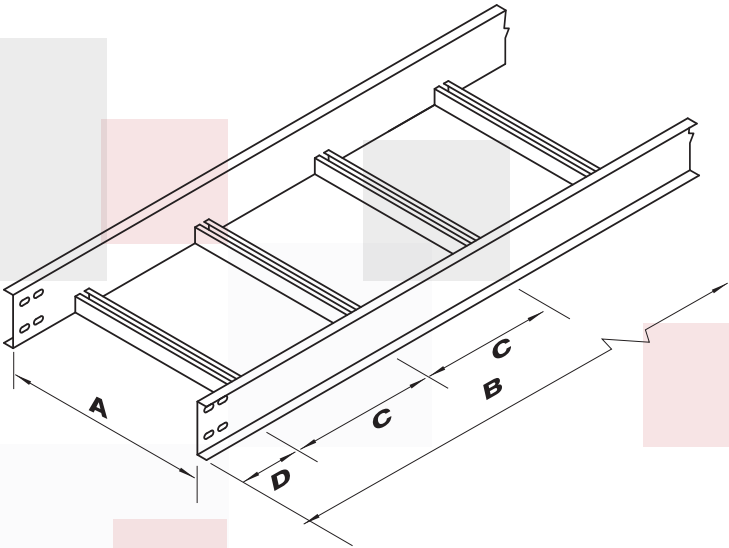
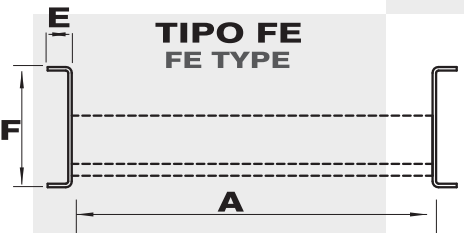
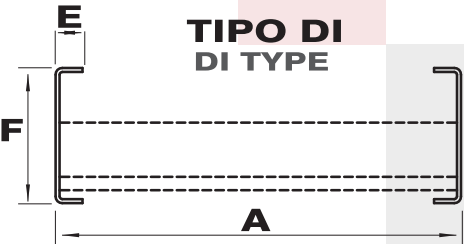
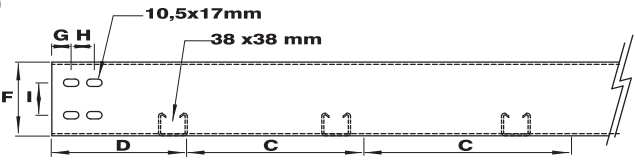


TABELA DE CARGA PARA LEITO #12/14
LOAD CHART TO CABLES TRAY #12/14

IB 468

"A" LARGURA WIDTH	CARGA MÁX. (KG/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT											
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	
200	2036	1451	1036	740	529	375	269	191	134	95	67	
300	1994	1423	1013	724	517	369	261	187	131	93	65	
400	1994	1423	1013	724	517	369	261	187	131	93	65	
500	1953	1395	995	711	506	362	257	182	129	93	65	
600	1953	1395	995	711	506	362	257	182	129	93	65	
700	1912	1365	973	694	494	352	250	179	127	91	63	
800	1912	1365	973	694	494	352	250	179	127	91	63	
1000	1876	1340	955	681	485	346	245	175	124	87	61	
1200	1876	1340	955	681	485	346	245	175	124	87	61	

TABELA DE CARGA PARA LEITO #12/14
LOAD CHART TO CABLES TRAY #12/14

IB 469

"A" LARGURA WIDTH	CARGA MÁX. (KG/M) EM FUNÇÃO DA DISTÂNCIA ENTRE APOIOS MAXIMUM LOAD (kgf/m) RELATED TO SPAN LENGHT											
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	
200	2885	2059	1469	1049	750	533	381	272	191	136	97	
300	2826	2017	1437	1027	733	524	371	266	187	133	94	
400	2826	2017	1437	1027	733	524	371	266	187	133	94	
500	2768	1977	1411	1009	718	514	366	259	184	133	94	
600	2768	1977	1411	1009	718	514	366	259	184	133	94	
700	2710	1935	1379	985	701	500	356	255	181	130	91	
800	2710	1935	1379	985	701	500	356	255	181	130	91	
1000	2659	1899	1354	966	689	492	349	249	177	126	87	
1200	2659	1899	1354	966	689	492	349	249	177	126	87	

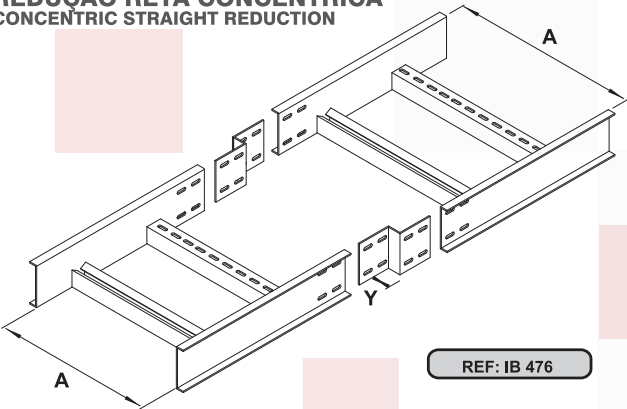
TABELA EM MILÍMETROS / TABLE IN MILLIMETERS

REF.	A	B	C	D	E	F	G	H	I
IB 470	VER PÁG 23	3000e6000	500	250	19 e 45	100	24	32	64
IB 471	VER PÁG 23	3000e6000	500	250	19 e 45	150	24	32	115
IB 472	VER PÁG 23	3000e6000	500	250	19 e 45	200	24	32	115

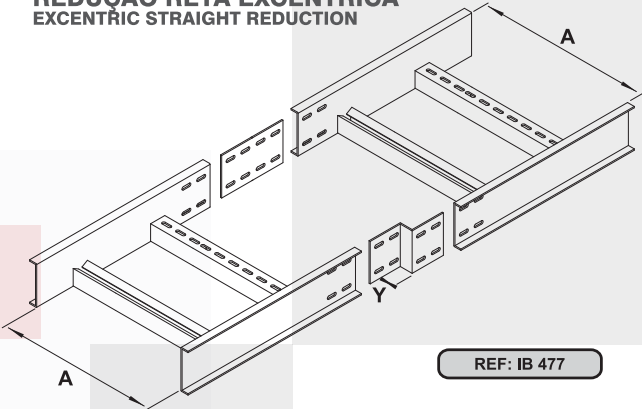
TABELA EM MILÍMETROS / TABLE IN MILLIMETERS

REF.	A	B	C	D	E	F	G	H	I
IB 473	VER PÁG 23	3000e6000	250	125	19 e 45	100	24	32	64
IB 474	VER PÁG 23	3000e6000	250	125	19 e 45	150	24	32	115
IB 475	VER PÁG 23	3000e6000	250	125	19 e 45	200	24	32	115

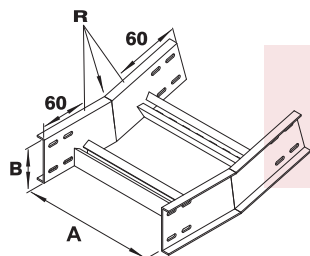
REDUÇÃO RETA CONCÊNTRICA
CONCENTRIC STRAIGHT REDUCTION



REDUÇÃO RETA EXCÊNTRICA
EXCENTRIC STRAIGHT REDUCTION

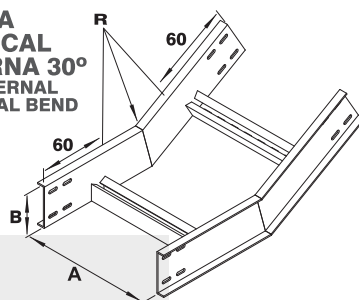


CURVA VERTICAL INTERNA 15°
15° INTERNAL VERTICAL BEND



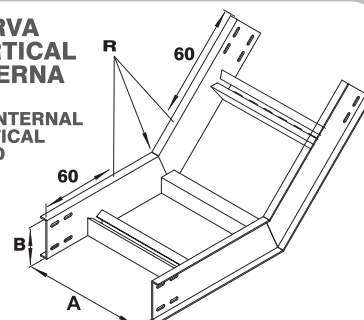
REF. IB 337				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL INTERNA 30°
30° INTERNAL VERTICAL BEND



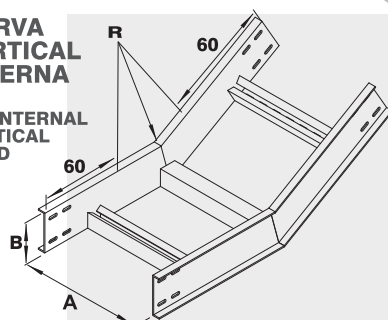
REF. IB 338				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL INTERNA 45°
45° INTERNAL VERTICAL BEND



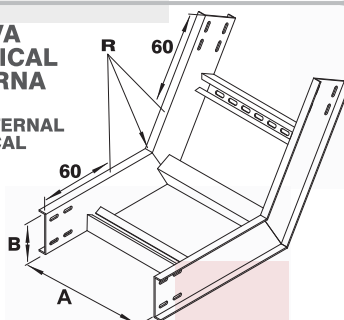
REF. IB 339				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL INTERNA 60°
60° INTERNAL VERTICAL BEND



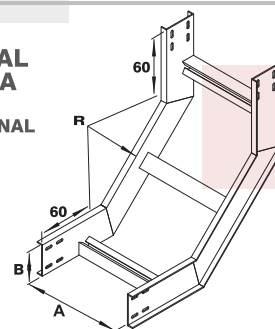
REF. IB 340				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL INTERNA 75°
75° INTERNAL VERTICAL BEND



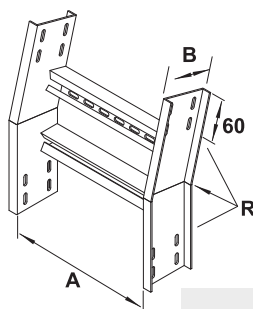
REF. IB 341				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL INTERNA 90°
90° INTERNAL VERTICAL BEND

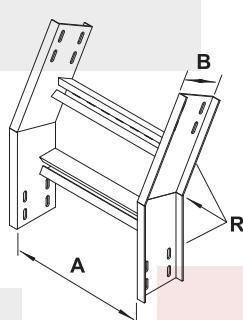


REF. IB 342				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL EXTERNA 15°
15° EXTERNAL VERTICAL BEND



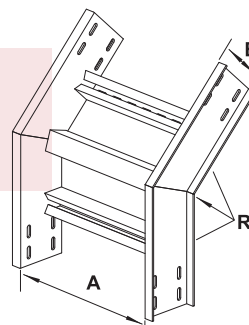
REF. IB 343				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	



CURVA VERTICAL EXTERNA 30°
30° EXTERNAL VERTICAL BEND

REF. IB 344				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL EXTERNA 45°
45° EXTERNAL VERTICAL BEND



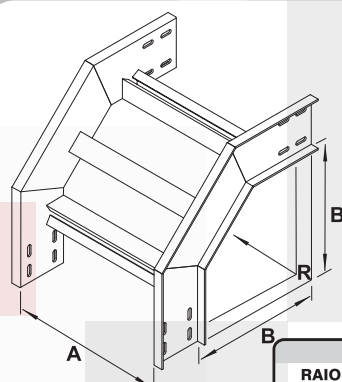
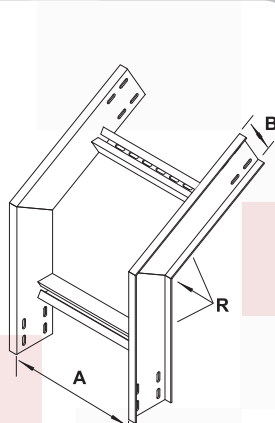
REF. IB 345				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL EXTERNA 75°
75° EXTERNAL VERTICAL BEND

REF. IB 346				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA VERTICAL EXTERNA 60°
60° EXTERNAL VERTICAL BEND

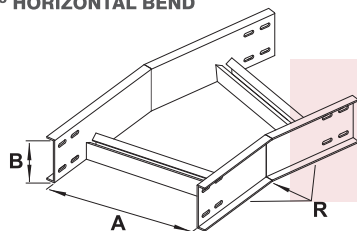
REF. IB 347				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	



CURVA VERTICAL EXTERNA 90°
90° EXTERNAL VERTICAL BEND

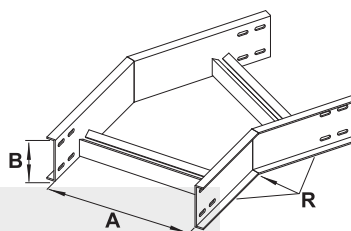
REF. IB 348				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA HORIZONTAL 15°
15° HORIZONTAL BEND



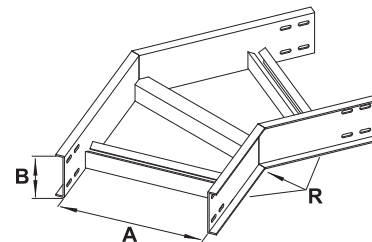
REF. IB 349				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA HORIZONTAL 30°
30° HORIZONTAL BEND



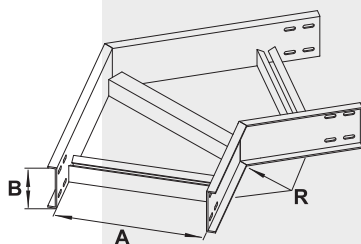
REF. IB 350				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA HORIZONTAL 45°
45° HORIZONTAL BEND



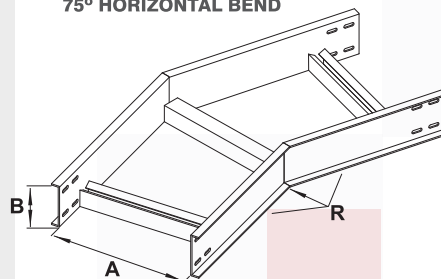
REF. IB 351				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA HORIZONTAL 60°
60° HORIZONTAL BEND



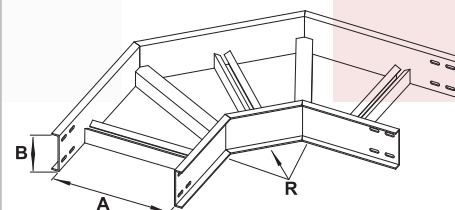
REF. IB 352				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA HORIZONTAL 75°
75° HORIZONTAL BEND



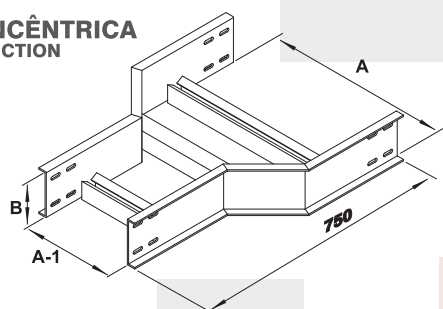
REF. IB 353				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

CURVA HORIZONTAL 90°
90° HORIZONTAL BEND



REF. IB 354				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

REDUÇÃO CONCÊNTRICA
CONCENTRIC REDUCTION

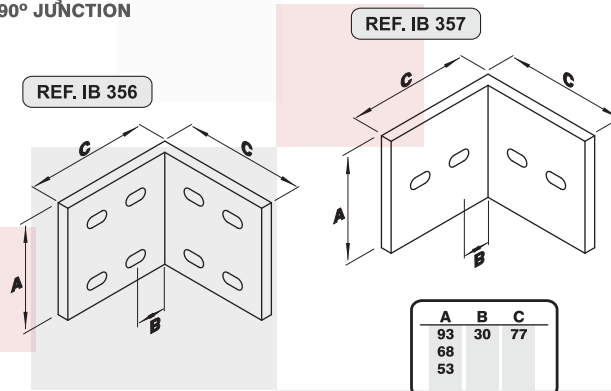


MENTIONAR NO PEDIDO,
AS COTAS "A" E "A1"

IN THE ORDER, MENTION
THE COTAS A E A1

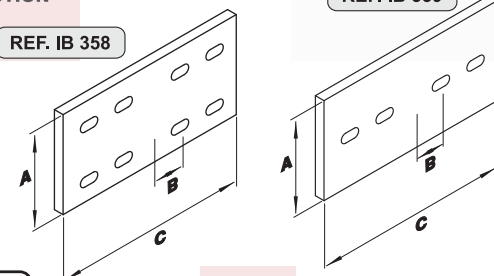
REF. IB 355				
A	A1	B		
100	500	900	50	400 800
200	600	1000	100	500 900
300	700	1100	200	600 1000
400	800	1200	300	700

JUNÇÃO 90°
90° JUNCTION



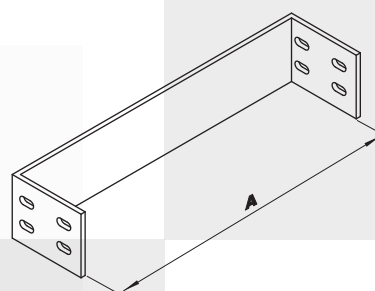
A	B	C
93	30	77
68		
53		

JUNÇÃO SIMPLES
SIMPLE JUNCTION



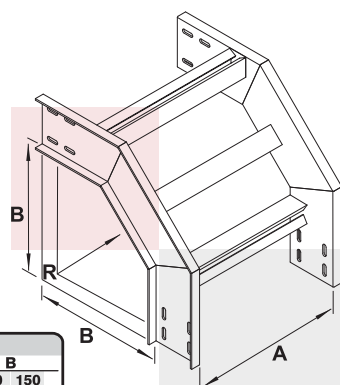
A	B	C
93	22	154
68		
53		

TERMINAL
TERMINAL



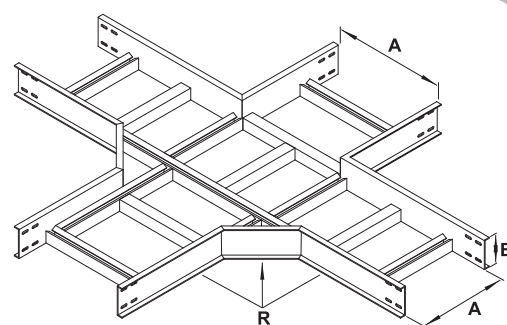
REF. IB 360

**CURVA DE
INVERSÃO
90°
90°
INVERSION
BEND**



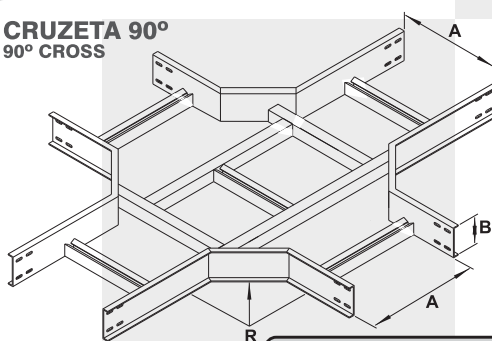
REF. IB 361					
RAIO	A			B	
320	100	500	900	60	150
520	200	600	1000	75	200
645	300	700	1100	100	
895	400	800	1200		

**CRUZETA
COM UMA
SAÍDA
RETA 90°
CROSS WITH
ONE 90°
STRAIGHT
EXIT**



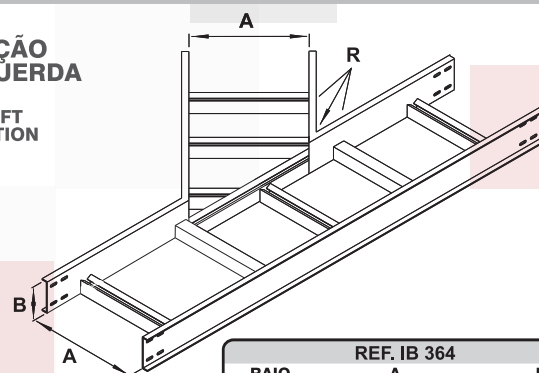
REF. IB 362					
RAIO	A			B	
320	100	500	900	60	150
520	200	600	1000	75	200
645	300	700	1100	100	
895	400	800	1200		

**CRUZETA 90°
90° CROSS**



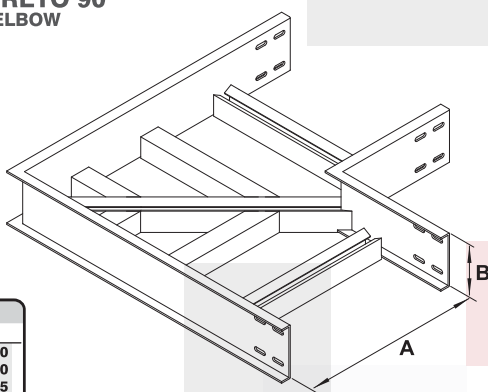
REF. IB 363					
RAIO	A			B	
320	100	500	900	60	150
520	200	600	1000	75	200
645	300	700	1100	100	
895	400	800	1200		

**JUNÇÃO
ESQUERDA
45°
45° LEFT
JUNCTION**



REF. IB 364					
RAIO	A			B	
320	100	500	900	60	150
520	200	600	1000	75	200
645	300	700	1100	100	
895	400	800	1200		

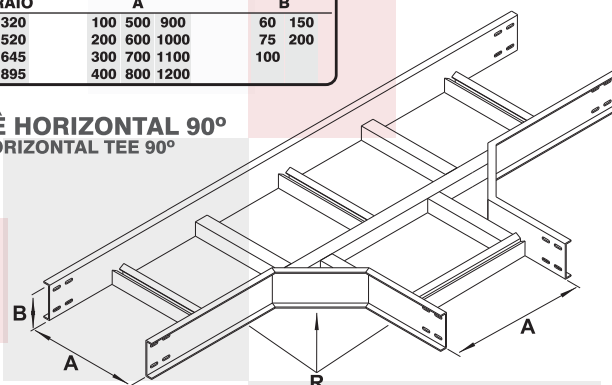
**COTOVELO RETO 90°
90° STRAIGHT
ELBOW**



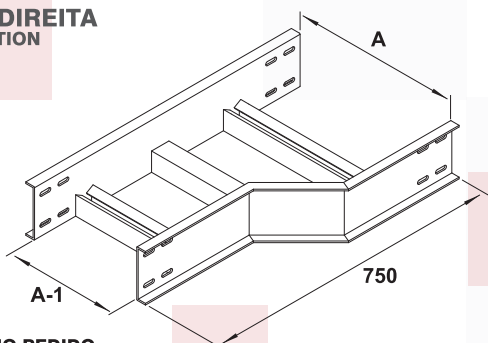
REF. IB 365					
LARGURA "A"					
100	500	900	320		
200	600	1000	520		
300	700	1100	645		
400	800	1200	895		

REF. IB 366					
RAIO	A			B	
320	100	500	900	60	150
520	200	600	1000	75	200
645	300	700	1100	100	
895	400	800	1200		

**TÊ HORIZONTAL 90°
HORIZONTAL TEE 90°**



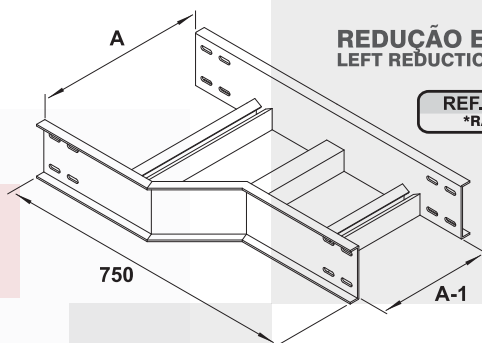
**REDUÇÃO DIREITA
RIGHT REDUCTION**



MENTIONAR NO PEDIDO,
AS COTAS "A" E "A1"
MENTION IN THE ORDER
THE QUOTAS A E A1

REF. IB 367
*RAIO 320

**REDUÇÃO ESQUERDA
LEFT REDUCTION**

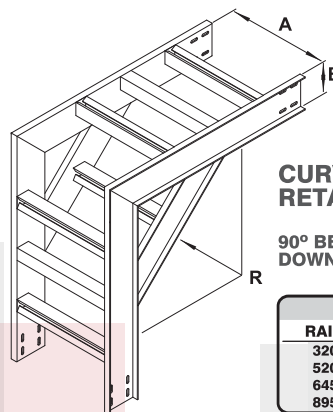
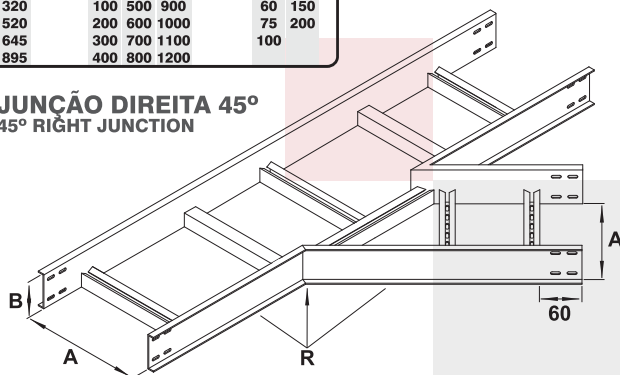


MENTIONAR NO PEDIDO,
AS COTAS "A" E "A1"
IN THE ORDER, MENTION
THE COTAS A E A1

REF. IB 368
*RAIO 320

REF. IB 369				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

JUNÇÃO DIREITA 45°
45° RIGHT JUNCTION

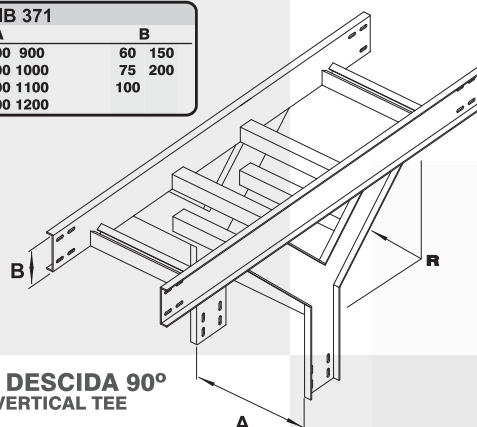


**CURVA COM PASSAGEM
RETA DESCIDA**

90° BEND WITH STRAIGHT
DOWNWARD PASSAGE

REF. IB 370				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

REF. IB 371				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

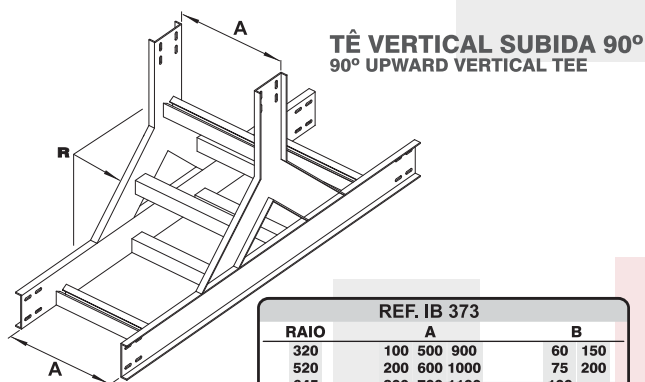
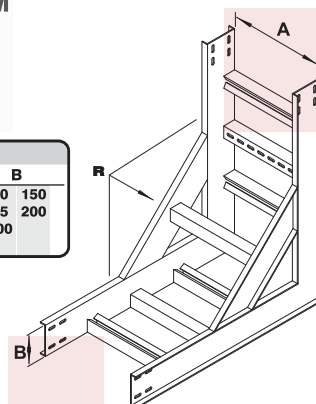


TÊ VERTICAL DESCIDA 90°
90° DOWNWARD VERTICAL TEE

**CURVA COM PASSAGEM
RETA SUBIDA**

90° BEND WITH STRAIGHT
UPWARD PASSAGE

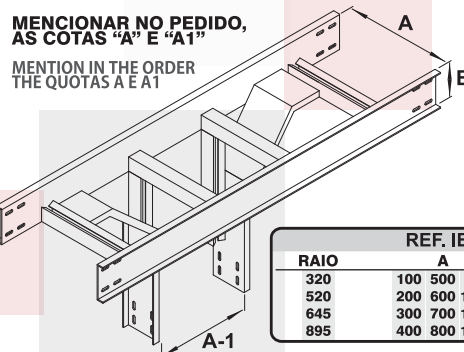
REF. IB 372				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	



TÊ VERTICAL SUBIDA 90°
90° UPWARD VERTICAL TEE

REF. IB 373				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

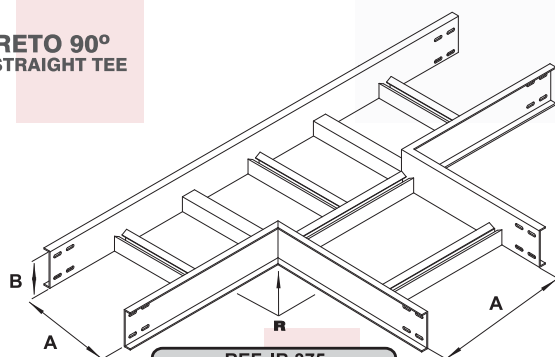
TÊ VERTICAL DESCIDA LATERAL 90°
90° LATERAL DOWNWARD VERTICAL TEE



**MENCIONAR NO PEDIDO,
AS COTAS "A" E "A1"**
MENTION IN THE ORDER
THE QUOTAS A E A1

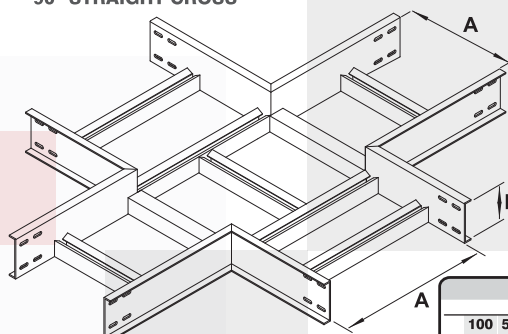
REF. IB 374				
RAIO	A			B
320	100	500	900	60 150
520	200	600	1000	75 200
645	300	700	1100	100
895	400	800	1200	

TÊ RETO 90°
90° STRAIGHT TEE



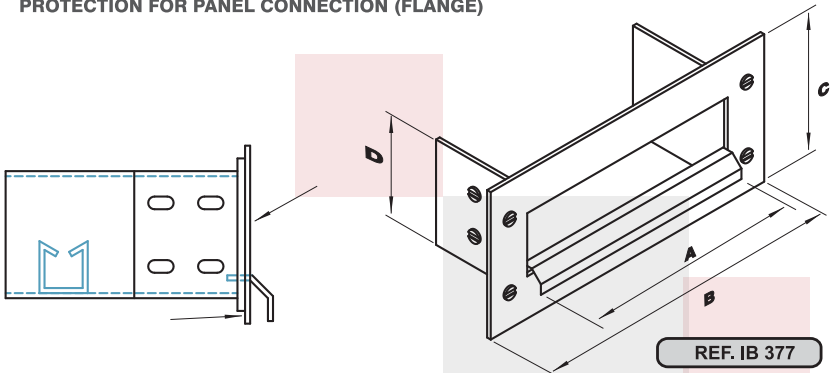
REF. IB 375				
A		B		
100	500	900	60	150
200	600	1000	75	200
300	700	1100	100	
400	800	1200		

CRUZETA RETA 90°
90° STRAIGHT CROSS



REF. IB 376				
A		B		
100	500	900	60	150
200	600	1000	75	200
300	700	1100	100	
400	800	1200		

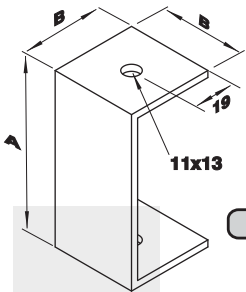
PROTEÇÃO PARA LIG. EM PAINEL-(FLANGE)
PROTECTION FOR PANEL CONNECTION (FLANGE)



REF. IB 377

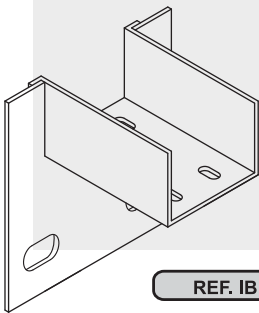
SUPORTE DE SUSPENSÃO PARA LEITO
SUSPENSION SUPPORT FOR TRAY

SUSPENSION SUPPORT FOR TRAY



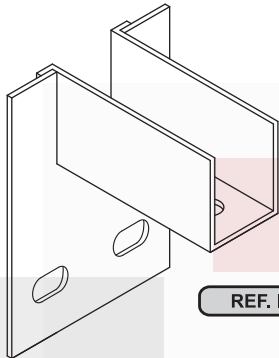
REF. IB 378

SAÍDA HORIZONTAL PARA PERFILADO 38x78mm
HORIZONTAL EXIT FOR SHAPE 38x76mm



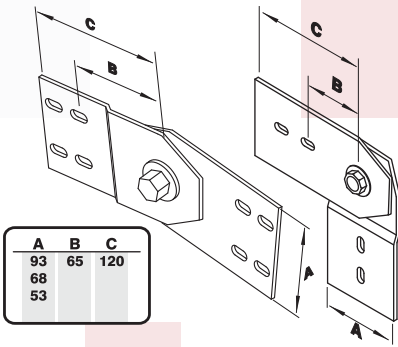
REF. IB 379

SAÍDA HORIZONTAL PARA PERFILADO 38x38mm
HORIZONTAL EXIT FOR SHAPE 38x38mm



REF. IB 380

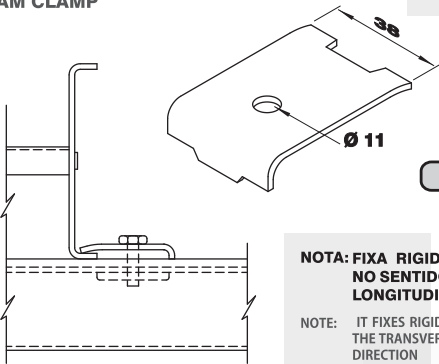
JUNÇÃO ARTICULADA
ARTICULATED JUNCTION



REF. IB 381

REF. IB 382

GRAPA FIXA
BEAM CLAMP

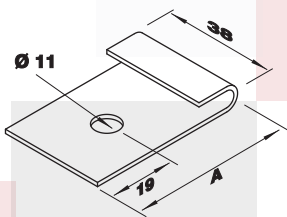


REF. IB 383

NOTA: FIXA RIGIDAMENTE O LEITO NO SENTIDO TRANSVERSAL E LONGITUDINAL

NOTE: IT FIXES RIGIDLY THE CABLE TRAY IN THE TRANSVERSE AND LONGITUDINAL DIRECTION

PRESILHA GUIA
GUIDE CLIP



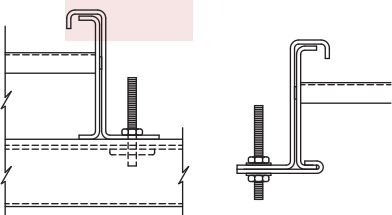
REF. IB 384

A	91	65
REF. PARA LEITOS	IB 007	IB 001
	IB 008	IB 003
		IB 005
		IB 006
		IB 007
		IB 008

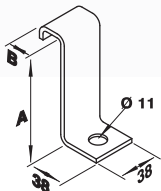
NOTA: FIXA RIGIDAMENTE O LEITO NO SENTIDO TRANSVERSAL E LONGITUDINAL

NOTE: IT FIXES RIGIDLY THE CABLE TRAY IN THE TRANSVERSE AND LONGITUDINAL

SUPORTE SIMPLES
SIMPLE SUPPORT



NOTA: SOMENTE PARA LEITOS COM VIOLA DE 19MM
NOTE: ONLY FOR CABLES TRAY WITH FERRULE 19 MM

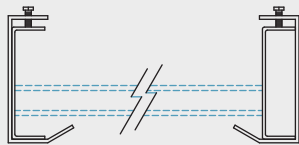
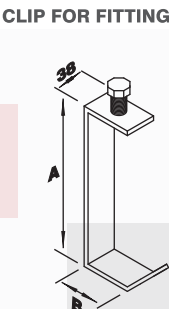


REF. IB 385

LONGARINA DO LEITO
SIDE SILL OF CABLES TRAY

A	B	
57	22	60 X 19
75	22	75 X 19
97	22	100 X 19
97	48	100 X 45

PRESILHA PARA TAMPA DE ENCAIXE
CLIP FOR FITTING COVER

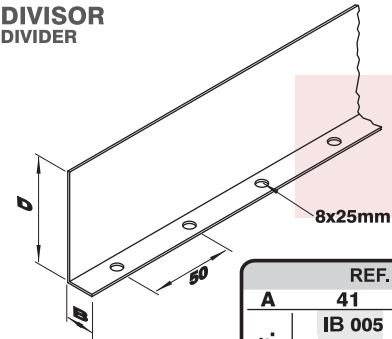


REF. IB 386

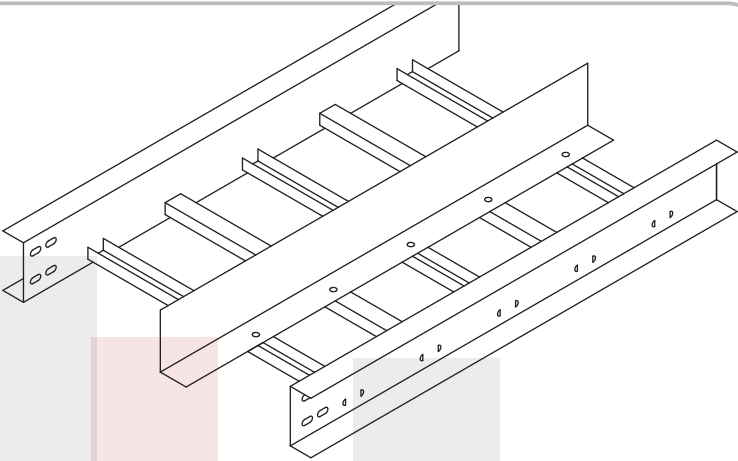
LONGARINA DO LEITO
SIDE SILL OF CABLES TRAY

A	B	
65	25	60 X 19
80	25	75 X 19
105	25	100 X 19
105	50	100 X 45

DIVISOR
DIVIDER

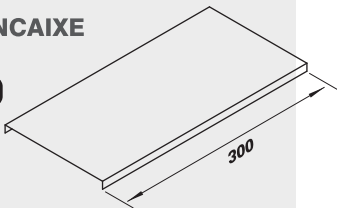


REF. IB 387			
A	41	81	62
REF.	IB 005	IB 001	IB 008
		IB 003	IB 007
		IB 006	



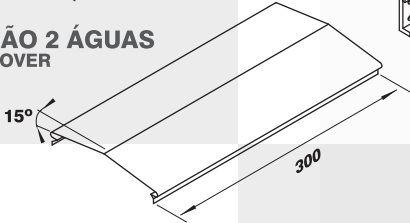
TAMPA DE ENCAIXE
FITTING COVER

REF. IB 388

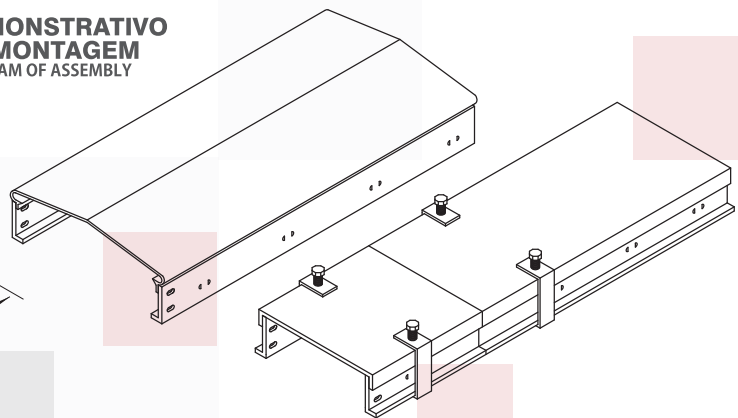


TAMPA DE PRESSÃO 2 ÁGUAS
ANGULAR PRESSURE COVER

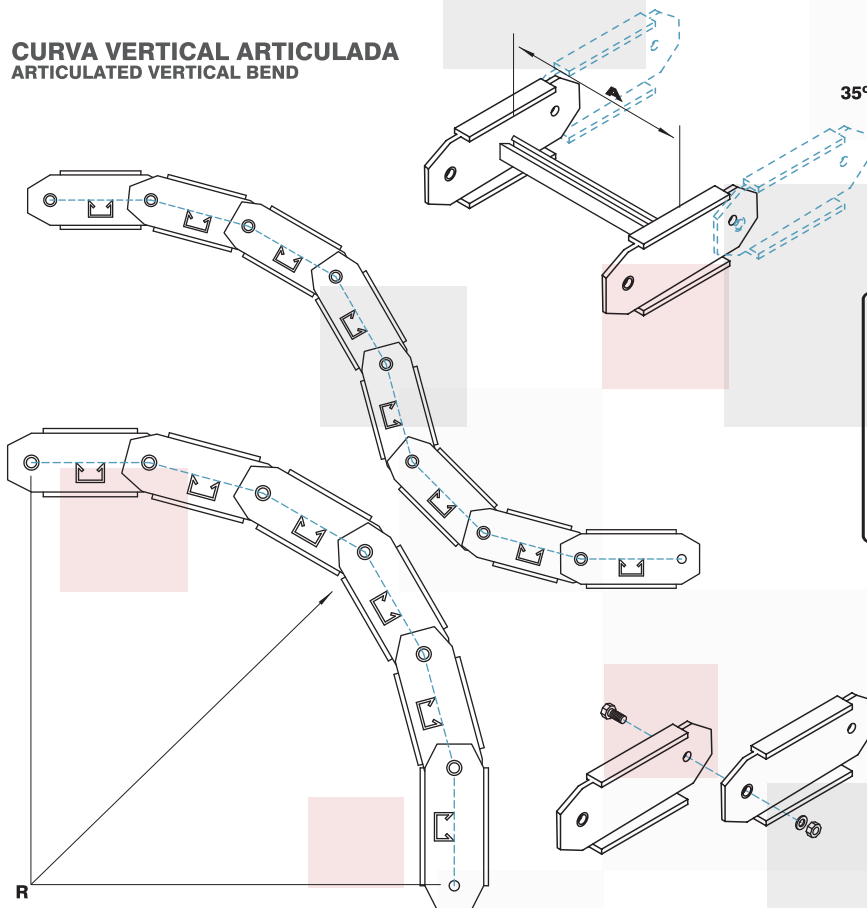
REF. IB 389



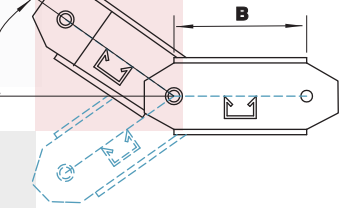
DEMONSTRATIVO
DE MONTAGEM
DIAGRAM OF ASSEMBLY



CURVA VERTICAL ARTICULADA
ARTICULATED VERTICAL BEND



35° MAX.



NÚMEROS DE GOMOS / CURVA
NUMBER OF PIECES / BEND

REF.	GRAUS	R-320	R-520	R-320	R-520	R-645	R-895
41	15°	-	1	-	1	1	1
42	22°	1	-	-	-	1	-
43	30°	2	2	1	-	2	2
44	45°	2	3	-	2	2	3
45	60°	3	4	2	-	3	4
46	67°	3	-	-	3	3	5
47	75°	-	5	-	-	-	5
48	90°	5	6	3	4	4	6

REF. IB 390

DIMENSÕES PARA REFERÊNCIA
DIMENSIONS FOR REFERENCE

A	B	A	B	A	B
200	140	200	200	250	250
300		300		500	
400		400		750	
500		500		1000	
600		600		600	
200		700		1250	
800		800		1500	
1000					
1200					

TABELA DE DIMENSÕES PARA ELETROCALHAS
TABLE OF DIMENSIONS FOR RACEWAYS

CÓDIGO	BASE	ALTURA	CÓDIGO	BASE	ALTURA
001	50 mm	50 mm	021	300 mm	100 mm
002	75 mm	50 mm	022	300 mm	150 mm
003	75 mm	75 mm	023	350 mm	50 mm
004	100 mm	50 mm	024	350 mm	75 mm
005	100 mm	75 mm	025	350 mm	100 mm
006	100 mm	100 mm	026	350 mm	150 mm
007	150 mm	50 mm	027	400 mm	50 mm
008	150 mm	75 mm	028	400 mm	75 mm
009	150 mm	100 mm	029	400 mm	100 mm
010	150 mm	150 mm	030	400 mm	150 mm
011	200 mm	50 mm	031	500 mm	50 mm
012	200 mm	75 mm	032	500 mm	75 mm
013	200 mm	100 mm	033	500 mm	100 mm
014	200 mm	150 mm	034	500 mm	150 mm
015	250 mm	50 mm	035	600 mm	50 mm
016	250 mm	75 mm	036	600 mm	75 mm
017	250 mm	100 mm	037	600 mm	100 mm
018	250 mm	150 mm	038	600 mm	150 mm
019	300 mm	50 mm	039	700 mm	100 mm
020	300 mm	75 mm	040	800 mm	100 mm

AL - ALUMÍNIO

IN - AÇO INOX 304 / 316

AC - AÇO CARBONO

GF - GALVANIZADO A FOGO

GE - GALVANIZADO ELETROLÍTICO

PZ - PRÉ ZINCADO

PT - PINTURA EPÓX

AL - ALUMINUM

AI - STAINLESS STEEL 304 / 316

AC - CARBON STEEL

GF - HOT GALVANIZED

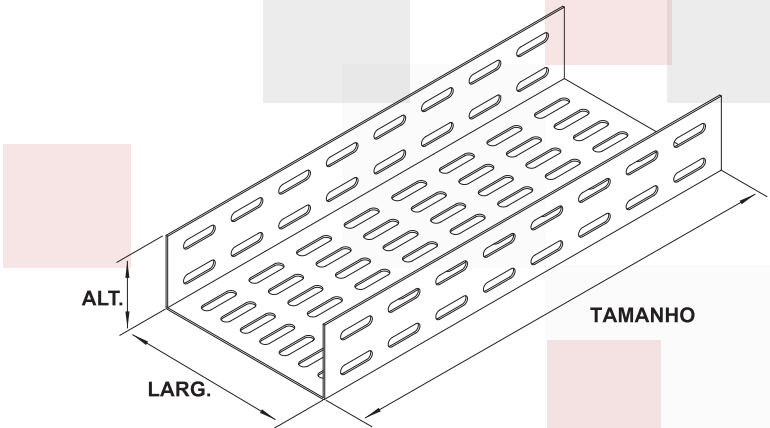
GE - ELECTROLYTIC GALVANIZED

PZ - PRE GALVANIZED

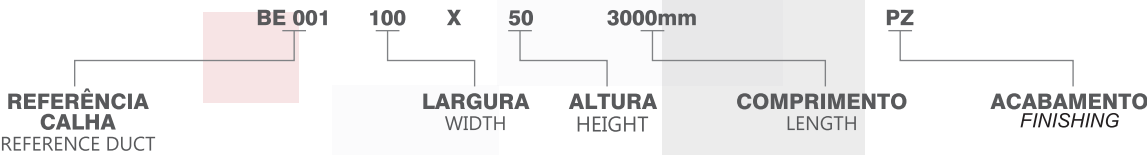
PE - EPOX PAINTING

OBS.: AS ELETROCALHAS
SÃO FABRICADAS EM
CHAPAS DE:
REMARK: THE RACEWAYS ARE
MANUFACTURED IN PLATES OF:

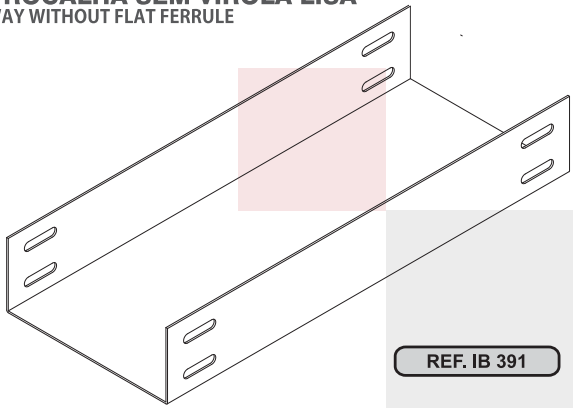
NOTA: COMPRIMENTO É
PADRÃO 3000MM
NOTE: THE STANDARD LENGTH IS
3000MM



COMO SOLICITAR
HOW TO ORDER

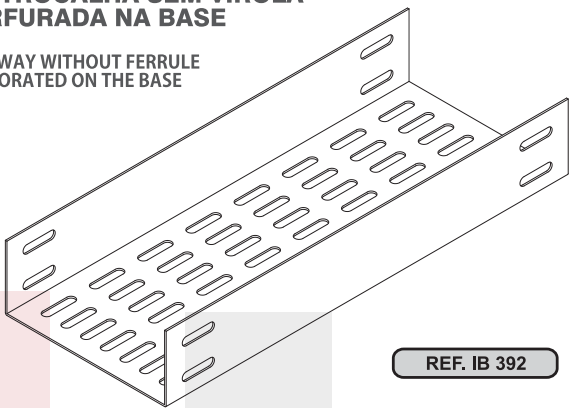


ELETRICAL RACK WITHOUT FLAT FERRULE
RACEWAY WITHOUT FLAT FERRULE



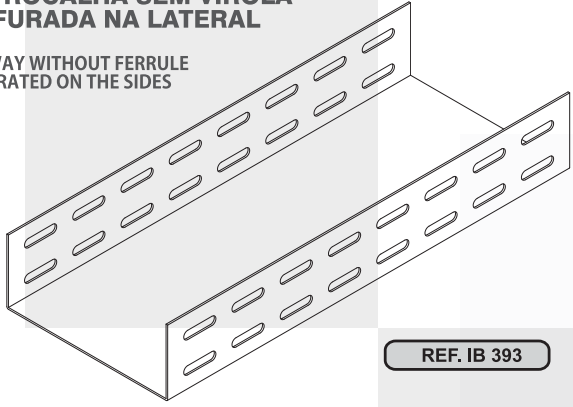
REF. IB 391

ELETRICAL RACK WITHOUT FERRULE PERFORATED ON THE BASE
RACEWAY WITHOUT FERRULE PERFORATED ON THE BASE



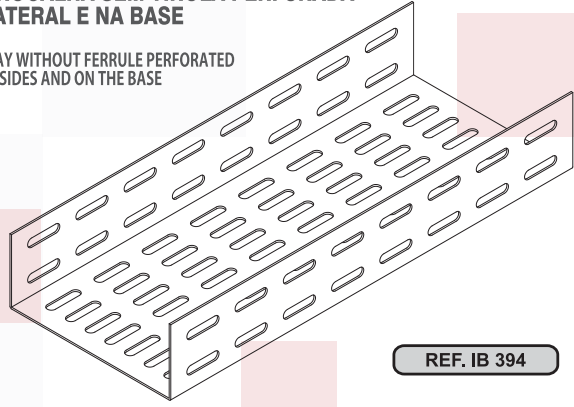
REF. IB 392

ELETRICAL RACK WITHOUT FERRULE PERFORATED ON THE SIDES
RACEWAY WITHOUT FERRULE PERFORATED ON THE SIDES



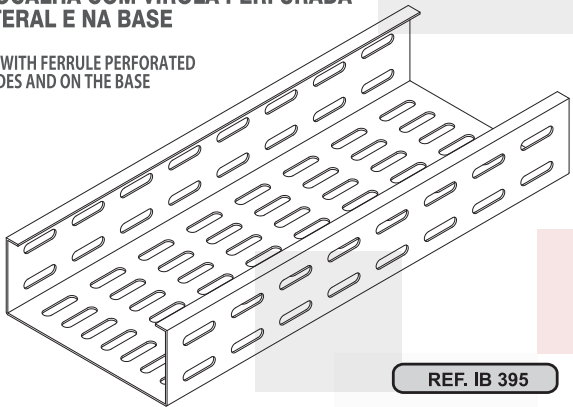
REF. IB 393

ELETRICAL RACK WITHOUT FERRULE PERFORATED ON THE SIDES AND ON THE BASE
RACEWAY WITHOUT FERRULE PERFORATED ON THE SIDES AND ON THE BASE



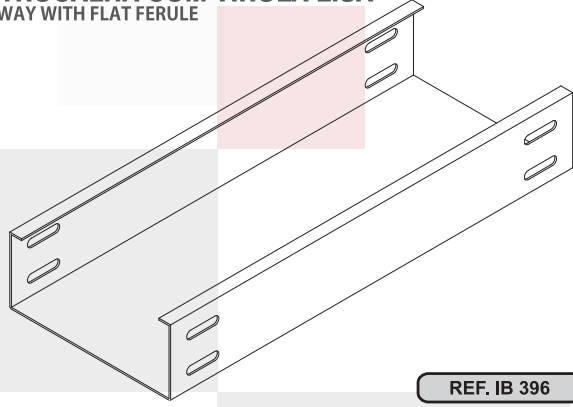
REF. IB 394

ELETRICAL RACK WITH FERRULE PERFORATED ON THE SIDES AND ON THE BASE
RACEWAY WITH FERRULE PERFORATED ON THE SIDES AND ON THE BASE



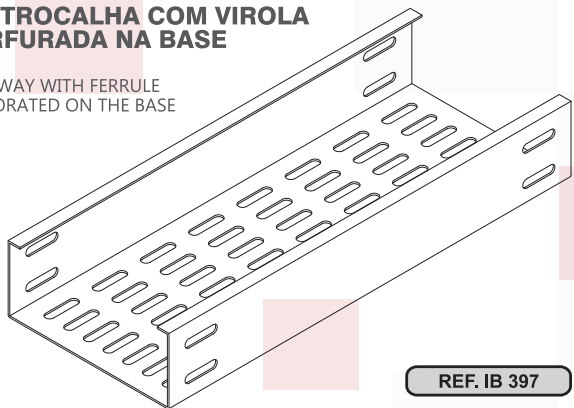
REF. IB 395

ELETRICAL RACK WITH FLAT FERRULE
RACEWAY WITH FLAT FERRULE



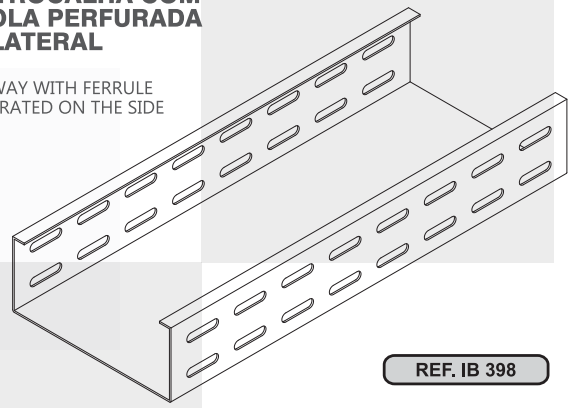
REF. IB 396

ELETRICAL RACK WITH FERRULE PERFORATED ON THE BASE
RACEWAY WITH FERRULE PERFORATED ON THE BASE



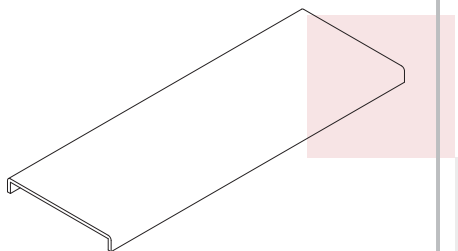
REF. IB 397

ELETRICAL RACK WITH FERRULE PERFORATED ON THE SIDE
RACEWAY WITH FERRULE PERFORATED ON THE SIDE



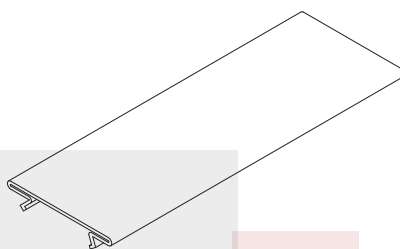
REF. IB 398

TAMPA DE ENCAIXE
FITTING COVER



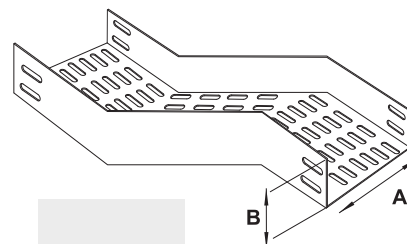
REF. IB 399

TAMPA DE PRESSÃO
PRESSURE COVER



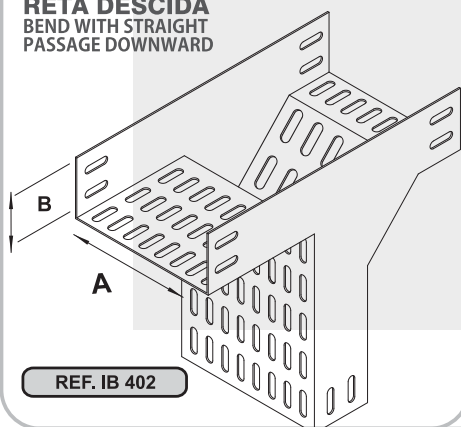
REF. IB 400

DESVIO À ESQUERDA



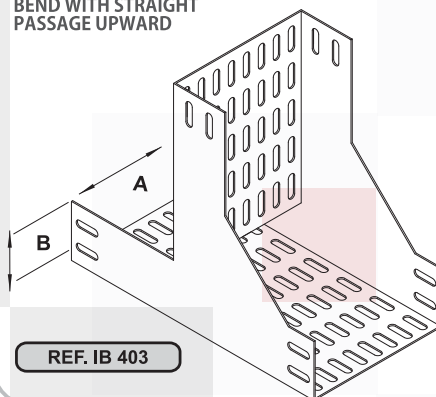
REF. IB 401

**CURVA COM PASSAGEM
RETA DESCIDA**
BEND WITH STRAIGHT
PASSAGE DOWNWARD



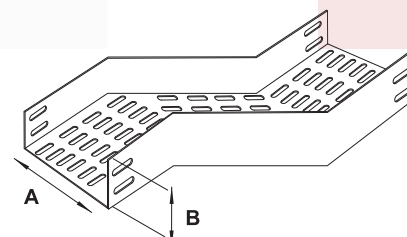
REF. IB 402

**CURVA COM PASSAGEM
RETA SUBIDA**
BEND WITH STRAIGHT
PASSAGE UPWARD



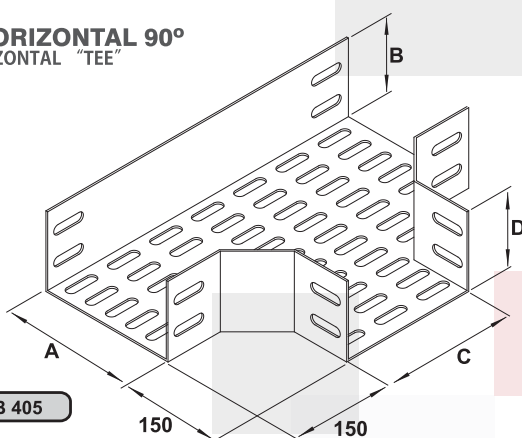
REF. IB 403

DESVIO À DIREITA



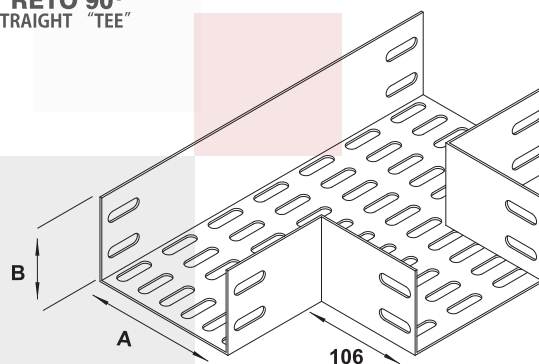
REF. IB 404

"TE" HORIZONTAL 90°
90° HORIZONTAL "TEE"



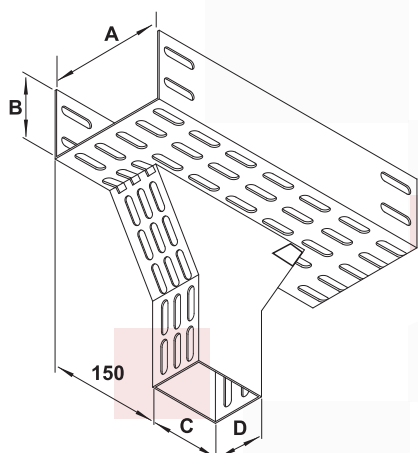
REF. IB 405

"TE" RETO 90°
90° STRAIGHT "TEE"



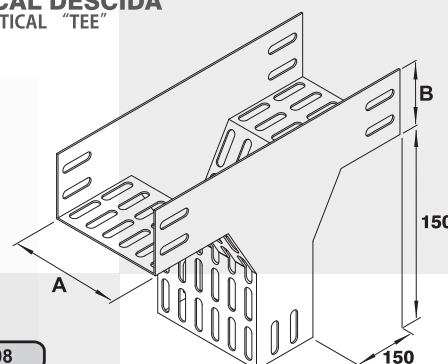
REF. IB 406

**"TE" VERTICAL
LATERAL**
LATERAL VERTICAL
"TEE"



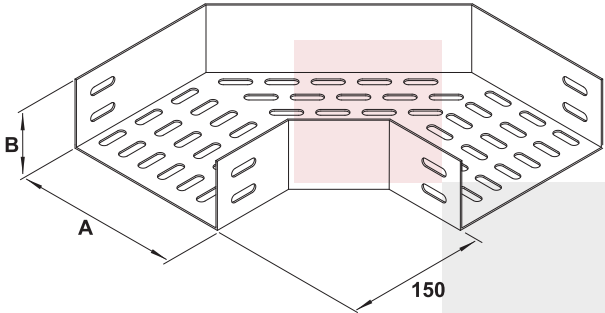
REF. IB 407

"TE" VERTICAL DESCIDA
DOWNWARD VERTICAL "TEE"



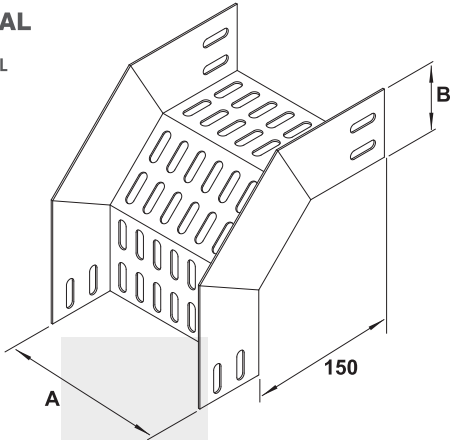
REF. IB 408

CURVA HORIZONTAL 90°
90° HORIZONTAL BEND



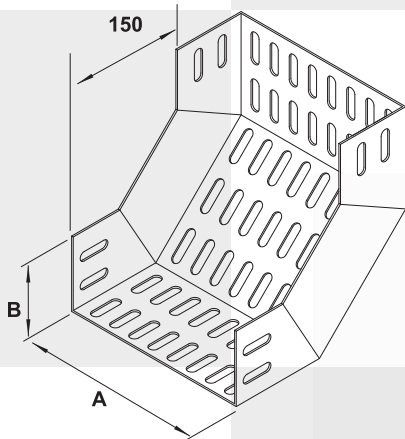
REF. IB 409

CURVA VERTICAL EXTERNA 90°
90° EXTERNAL VERTICAL BEND



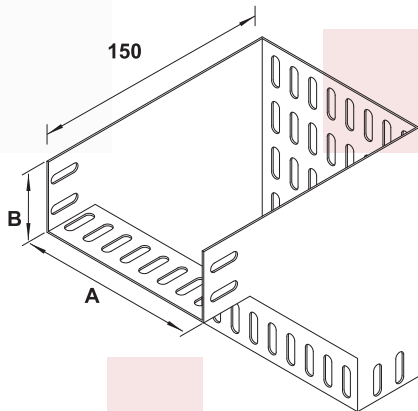
REF. IB 410

CURVA VERTICAL INTERNA 90°
90° INTERNAL VERTICAL BEND



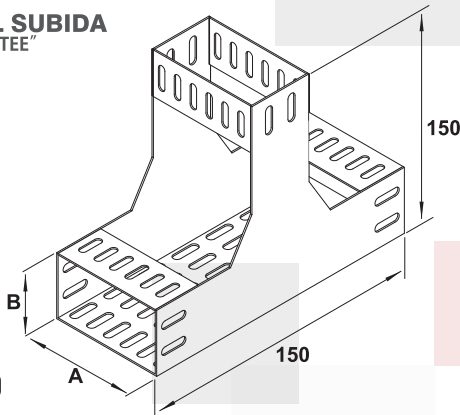
REF. IB 411

CURVA DE INVERSAO 90°
90° INVERSAL BEND



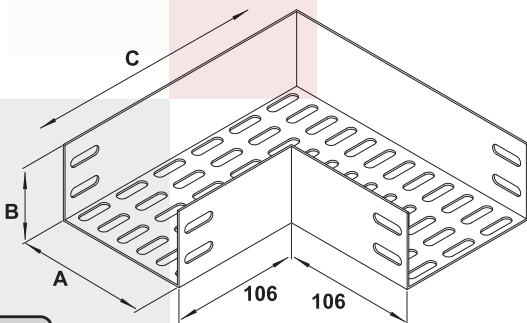
REF. IB 412

“TE” VERTICAL SUBIDA
UPWARD VERTICAL “TEE”



REF. IB 413

COTOVELO RETO
STRAIGHT ELBOW



REF. IB 414

DIVISOR LISO
FLAT DIVIDER

REF. IB 478

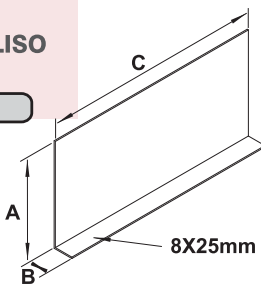
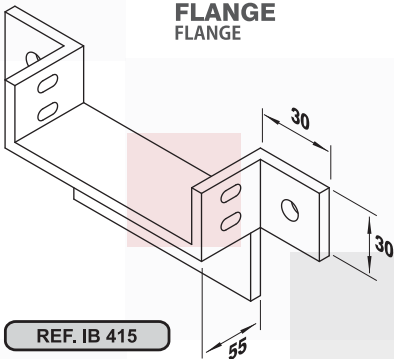


TABELA EM MILIMETROS/TABLE IN MILLIMETERS

REF.	A	B	C
BE 014	50	25	3000
BE 014	75	25	3000
BE 014	100	25	3000

FLANGE
FLANGE



REF. IB 415

DIVISOR PERFURADO
PERFORATED DIVIDER

REF. IB 479

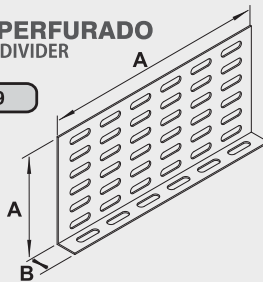
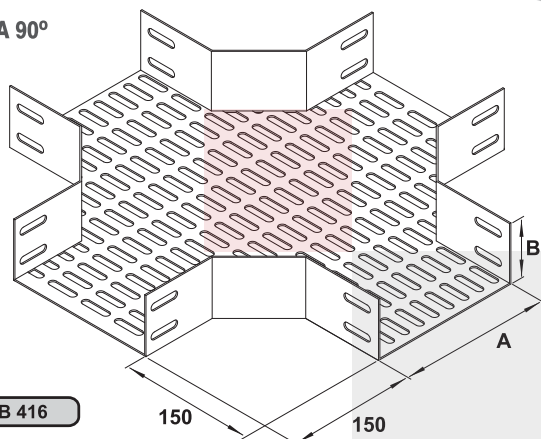


TABELA EM MILIMETROS/TABLE IN MILLIMETERS

REF.	A	B	C
BE 014	50	25	3000
BE 014	75	25	3000
BE 014	100	25	3000

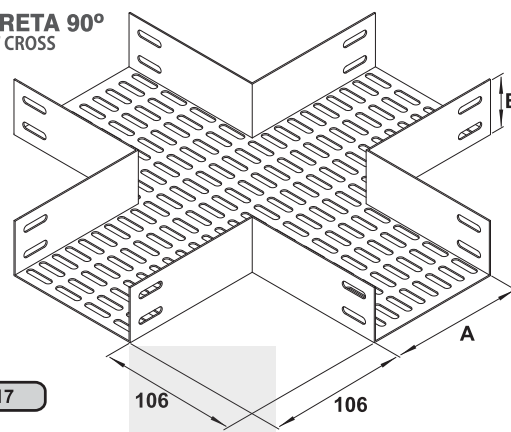
CRUZETA 90°
90° CROSS

REF. IB 416



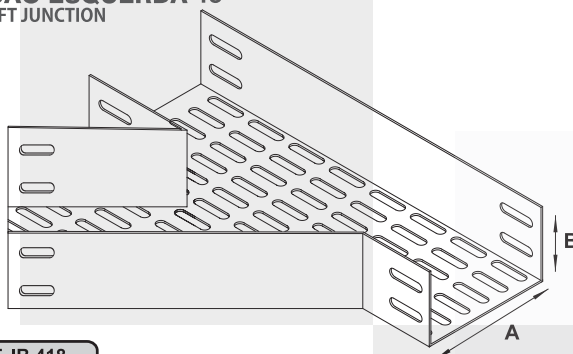
CRUZETA RETA 90°
90° STRAIGHT CROSS

REF. IB 417



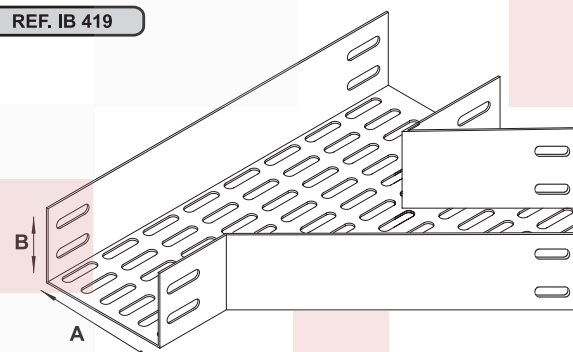
JUNÇÃO ESQUERDA 45°
45° LEFT JUNCTION

REF. IB 418



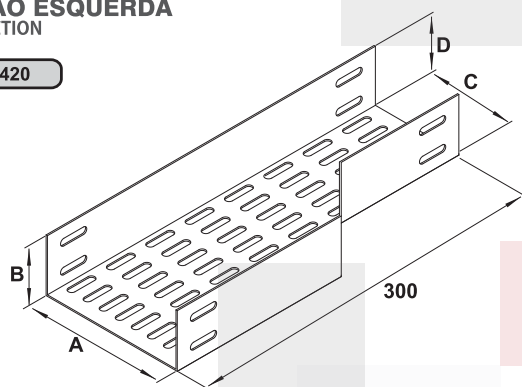
JUNÇÃO DIREITA 45°
45° RIGHT JUNCTION

REF. IB 419



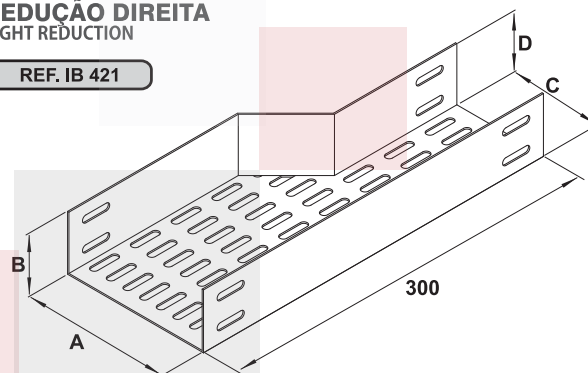
REDUÇÃO ESQUERDA
LEFT REDUCTION

REF. IB 420



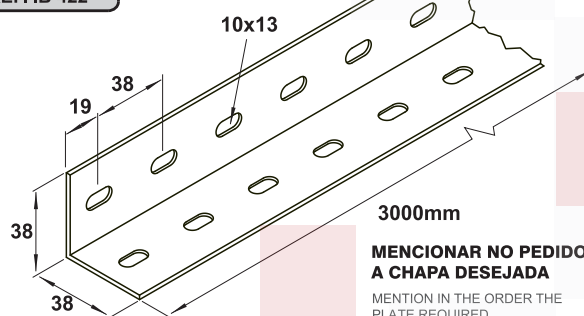
REDUÇÃO DIREITA
RIGHT REDUCTION

REF. IB 421



CANTONEIRA PERFURADA
PERFORATED ANGLE BAR

REF. IB 422

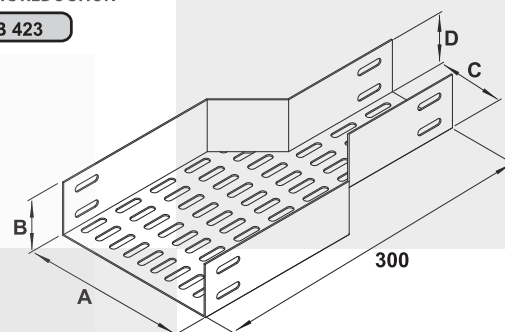


**MENTIONAR NO PEDIDO
A CHAPA DESEJADA**

MENTION IN THE ORDER THE
PLATE REQUIRED
#14 #12 #11

REDUÇÃO CONCÊNTRICA
CONCENTRIC REDUCTION

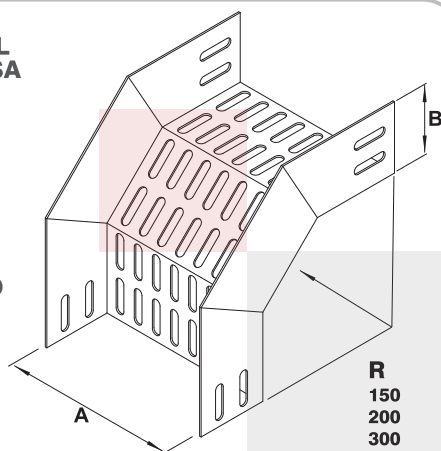
REF. IB 423



**CURVA VERTICAL
EXTERNA 90° LISA**
90° FLAT VERTICAL
EXTERNAL BEND

**RAIO
SEGMENTADO
FORNECIMENTO
NORMAL**

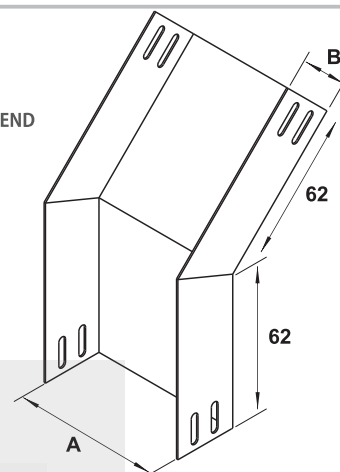
REF. IB 424



**CURVA VERTICAL
EXTERNA 45° LISA**

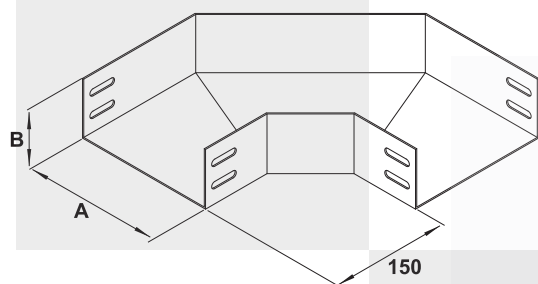
45° FLAT EXTERNAL VERTICAL BEND

REF. IB 425



CURVA HORIZONTAL 90° LISO
90° FLAT HORIZONTAL BEND

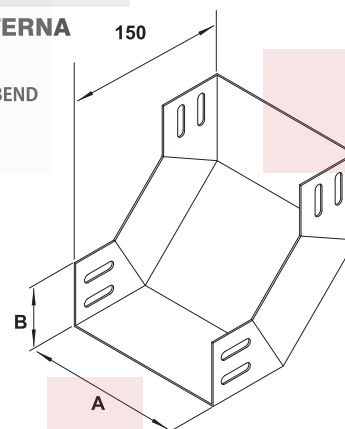
REF. IB 426



**CURVA VERTICAL INTERNA
90° LISO**

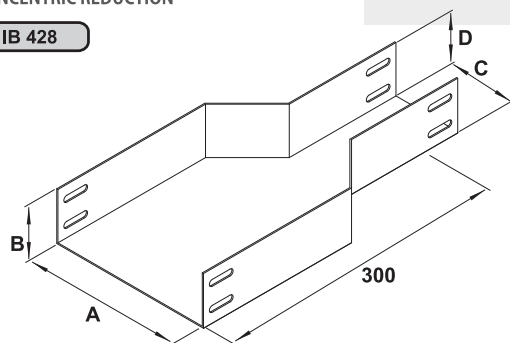
90° FLAT INTERNAL VERTICAL BEND

REF. IB 427



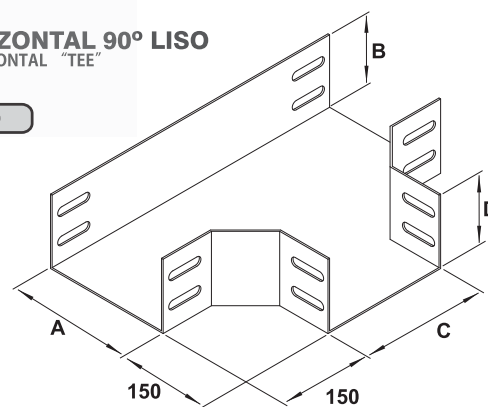
REDUÇÃO CONCÊNTRICA LISO
FLAT CONCENTRIC REDUCTION

REF. IB 428



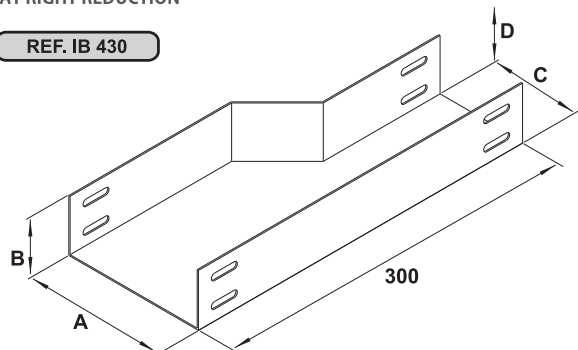
“TE” HORIZONTAL 90° LISO
90° FLAT HORIZONTAL “TEE”

REF. IB 429



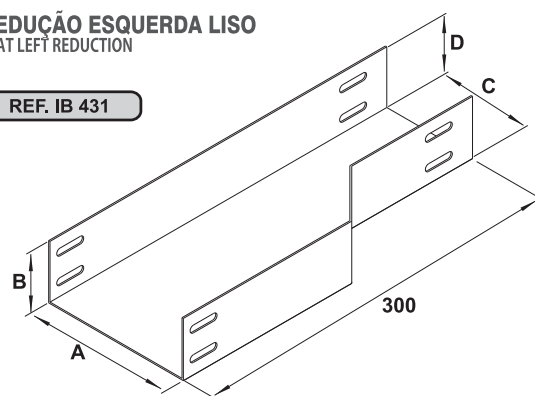
REDUÇÃO DIREITA LISO
FLAT RIGHT REDUCTION

REF. IB 430

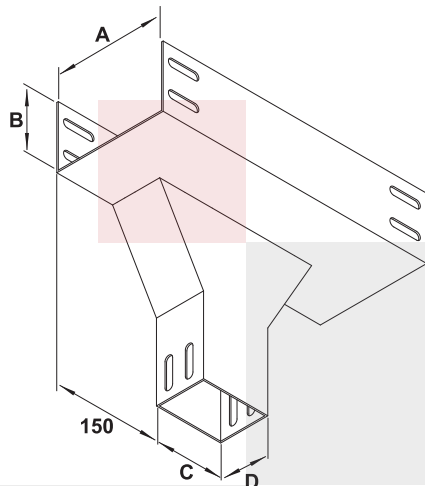


REDUÇÃO ESQUERDA LISO
FLAT LEFT REDUCTION

REF. IB 431

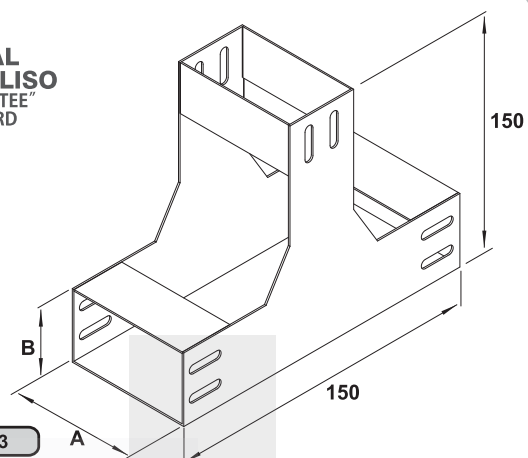


**"TE" VERTICAL
DESCIDA
LATERAL
LISO**
VERTICAL "TEE"
FLAT LATERAL
DOWNWARD



REF. IB 432

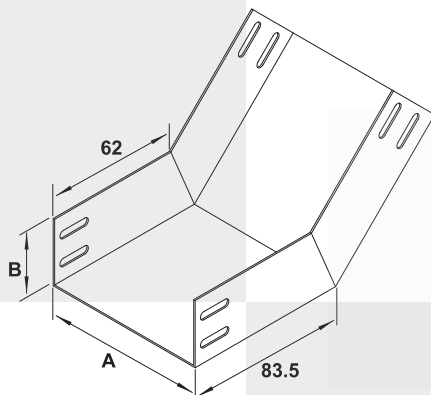
**"TE" VERTICAL
SUBIDA LISO**
VERTICAL "TEE"
FLAT UPWARD



REF. IB 433

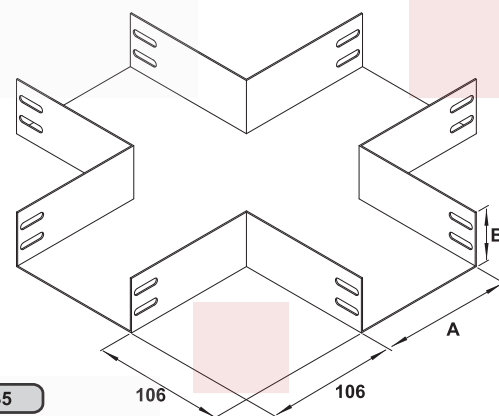
**CURVA
VERTICAL
INTERNA
45° LISA**

45° FLAT
INTERNAL
VERTICAL BEND



REF. IB 434

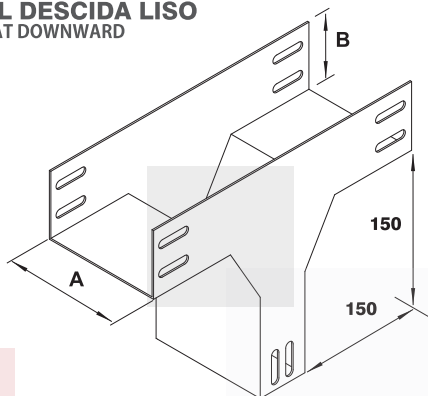
**CRUZETA
RETA 90°
LISA**
90° FLAT
STRAIGHT
CROSS



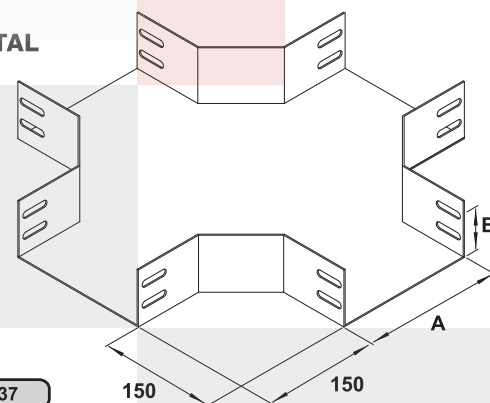
REF. IB 435

"TE" VERTICAL DESCIDA LISO
VERTICAL "TEE" FLAT DOWNWARD

REF. IB 436

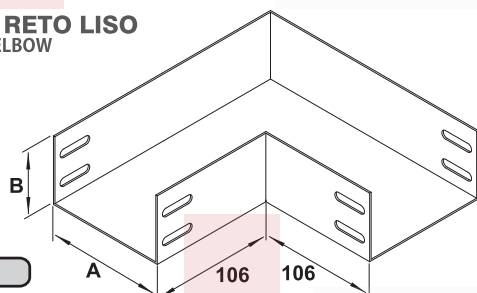


**CRUZETA
HORIZONTAL
90° LISA**
90° FLAT
HORIZONTAL
CROSS



REF. IB 437

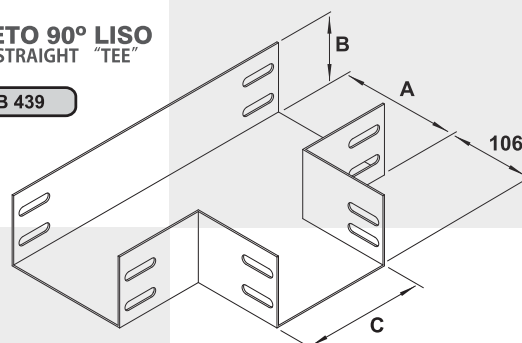
COTOVELO RETO LISO
FLAT STRAIGHT ELBOW



REF. IB 438

"TE" RETO 90° LISO
90° FLAT STRAIGHT "TEE"

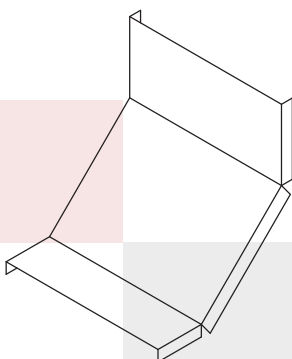
REF. IB 439



TAMPA PARA CURVA VERTICAL INTERNA 90°

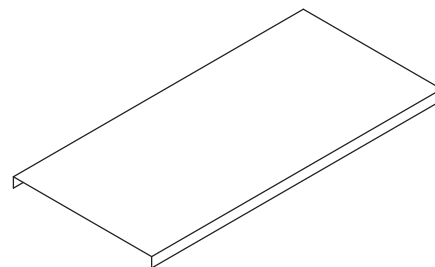
90° INTERNAL VERTICAL BEND COVER

REF. IB 440



TAMPA PARA CURVA DE INVERSÃO INVERSAL BEND COVER

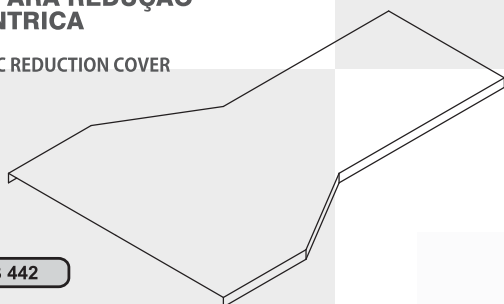
REF. IB 441



TAMPA PARA REDUÇÃO CONCÊNTRICA

CONCENTRIC REDUCTION COVER

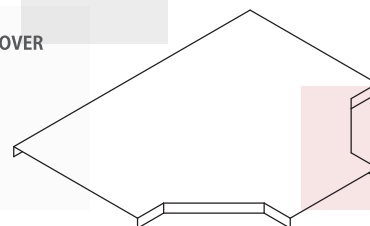
REF. IB 442



TAMPA PARA "TE" HORIZONTAL 90°

90° HORIZONTAL "TEE" COVER

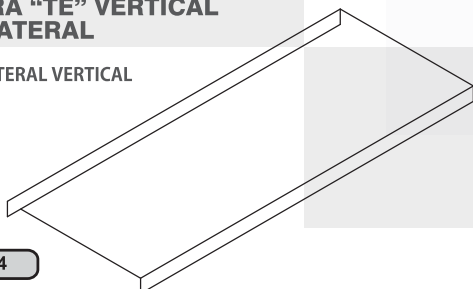
REF. IB 443



TAMPA PARA "TE" VERTICAL DESCIDA LATERAL

DOWNWARD LATERAL VERTICAL "TEE" COVER

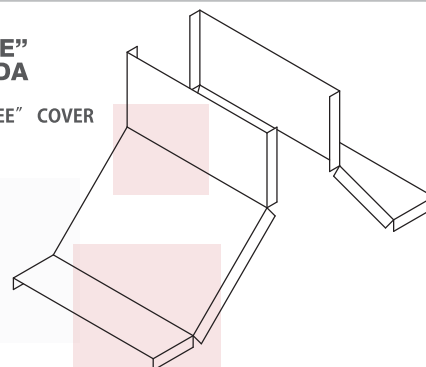
REF. IB 444



TAMPA PARA "TE" VERTICAL SUBIDA

UPWARD VERTICAL "TEE" COVER

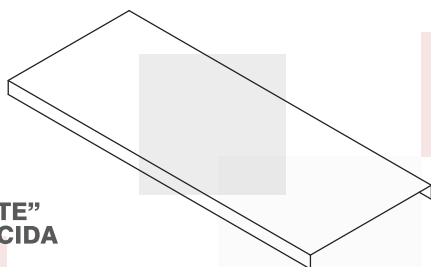
REF. IB 445



REF. IB 446

TAMPA PARA "TE" VERTICAL DESCIDA

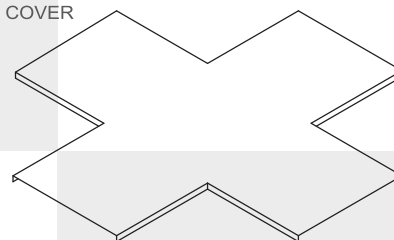
COVER FOR "TEE" VERTICAL DOWNWARD



TAMPA PARA CRUZETA RETA 90°

90° STRAIGHT CROSS COVER

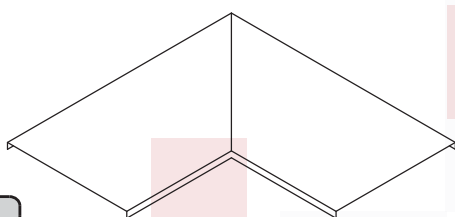
REF. IB 447



TAMPA PARA COTOVELO RETO

STRAIGHT ELBOW COVER

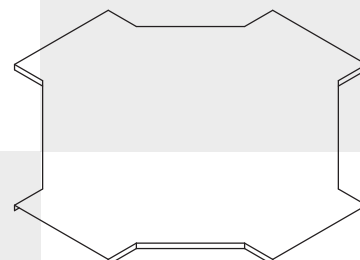
REF. IB 448



TAMPA PARA CRUZETA 90°

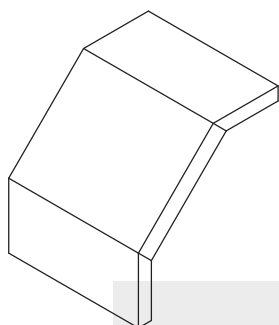
90° CROSS COVER

REF. IB 449



TAMPA PARA CURVA VERTICAL EXTERNA 90°

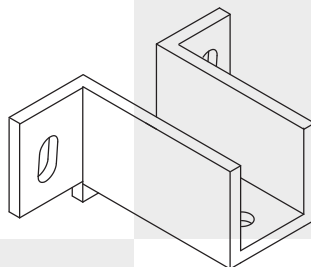
90° EXTERNAL VERTICAL BEND COVER



REF. IB 450

ACOPLAMENTO PARA PERFILADO DE 38x38mm

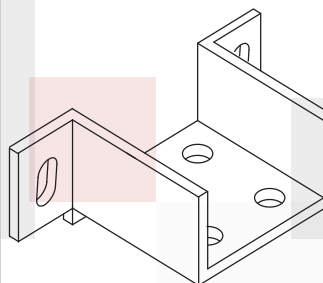
COUPLING FOR SHAPE OF 38 x 38mm



REF. IB 451

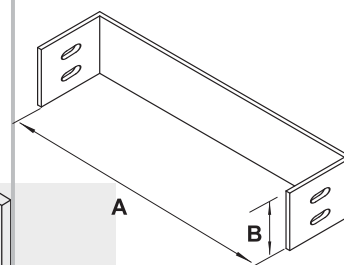
ACOPLAMENTO PARA PERFILADO DE 38x76mm

COUPLING FOR SHAPE OF 38 x 76mm



REF. IB 452

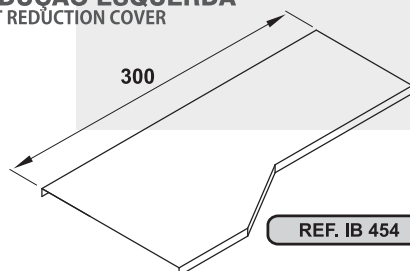
TERMINAL



REF. IB 453

TAMPA PARA REDUÇÃO ESQUERDA

LEFT REDUCTION COVER



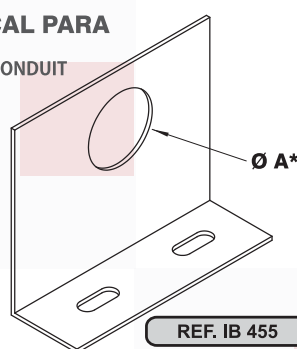
REF. IB 454

SAÍDA VERTICAL PARA ELETRODUTO

VERTICAL EXIT FOR CONDUIT

Ø NOM.

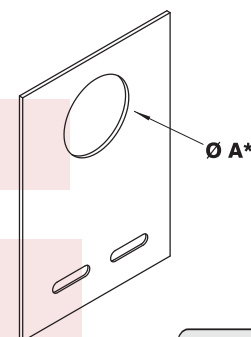
1/2"
3/4"
1"
1 1/4"
1 1/2"
2"
2 1/2"
3"
4"



REF. IB 455

SAÍDA HORIZONTAL PARA ELETRODUTO

HORIZONTAL EXIT FOR CONDUIT



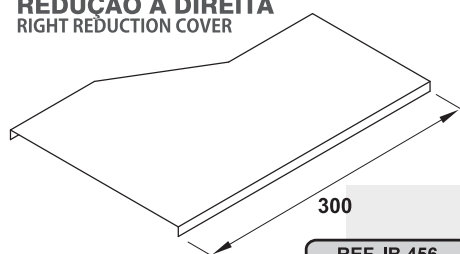
REF. IB 458

Ø NOM.

1/2"
3/4"
1"
1 1/4"
1 1/2"
2"
2 1/2"
3"
4"

TAMPA PARA REDUÇÃO A DIREITA

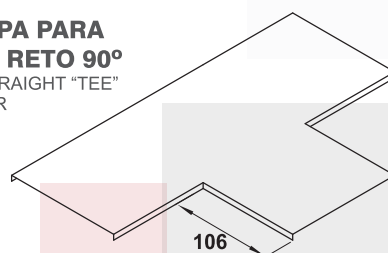
RIGHT REDUCTION COVER



REF. IB 456

TAMPA PARA "TE" RETO 90°

90° STRAIGHT "TEE" COVER

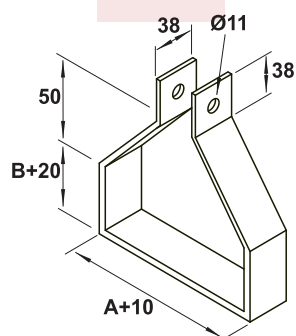


REF. IB 457

SUPORTE BALANÇO VERTICAL

VERTICAL CLAMP SUPPORT

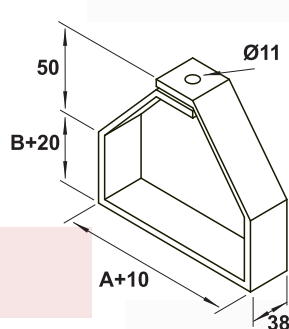
REF. IB 459



SUPORTE BALANÇO HORIZONTAL

HORIZONTAL CLAMP SUPPORT

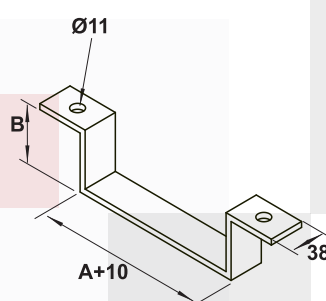
REF. IB 460



SUPORTE ANGULAR TIPO ÔMEGA

ANGULAR SUPPORT OMEGA

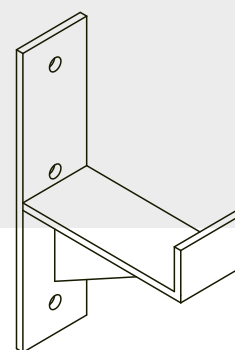
REF. IB 461



SUPORTE REFORÇADO

REINFORCED SUPPORT

REF. IB 462

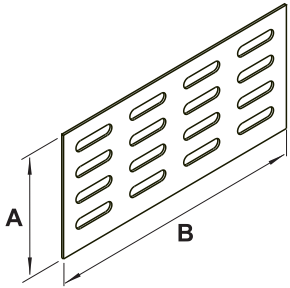


TALA
SPLICE

REF. IB 463

TABELA EM MILÍMETROS
TABLE IN MILLIMETERS

	A	B
Tala Simples 4 Furos	48	76
Tala Simples 8 Furos	98	76
Tala Simples 6 Furos	73	76
Tala Simples 8 Furos	48	152
Tala Simples 12 Furos	73	152
Tala Simples 16 Furos	98	152

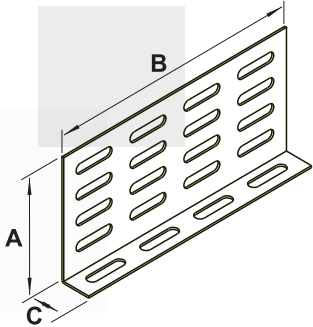


TALA L
"L" SPLINT

REF. IB 464

TABELA EM MILÍMETROS
TABLE IN MILLIMETERS

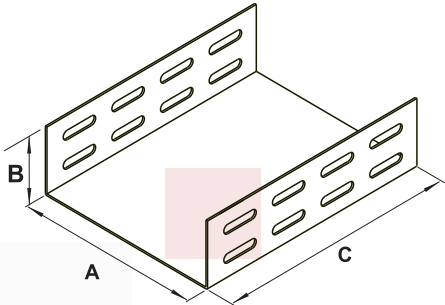
	A	B	C
Tala L 4 Furos	48	76	25
Tala L 8 Furos	98	76	25
Tala L 6 Furos	73	76	25
Tala L 8 Furos	48	152	25
Tala L 12 Furos	73	152	25
Tala L 16 Furos	98	152	25



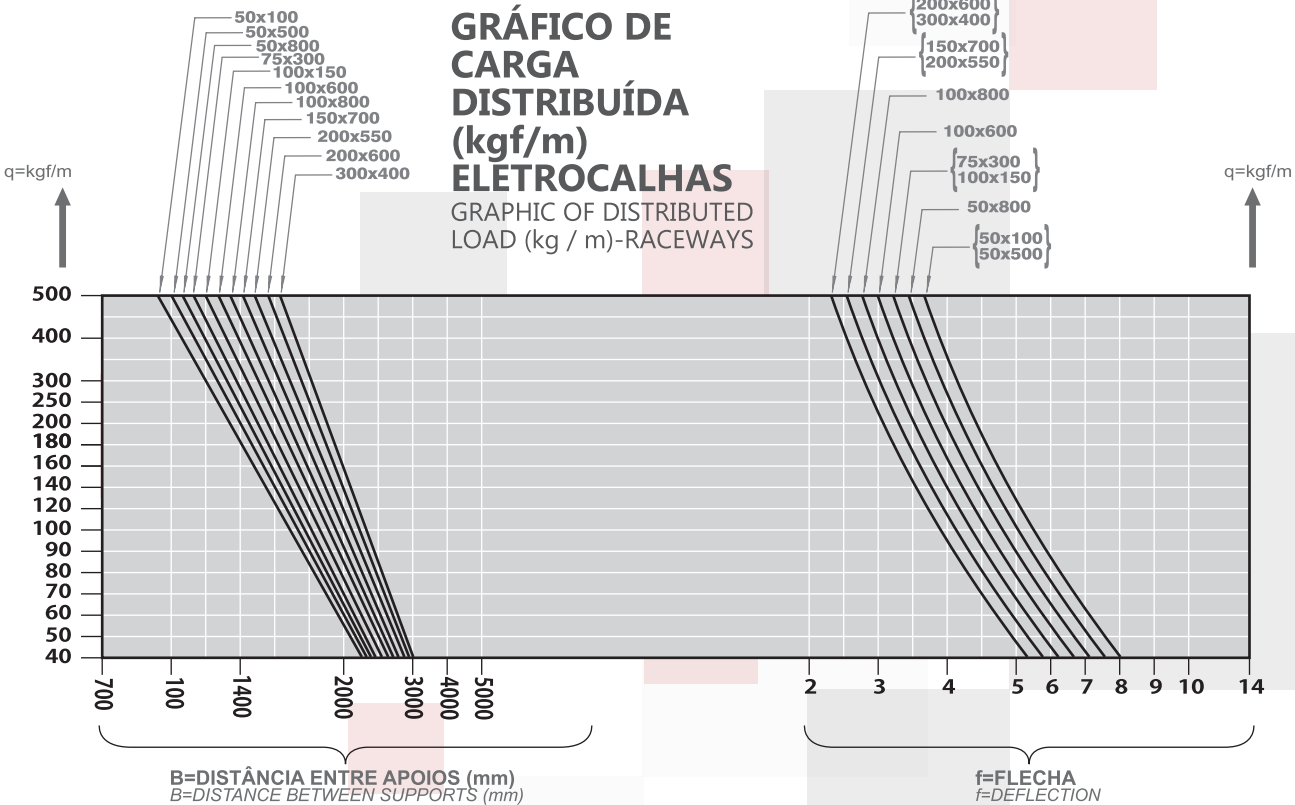
EMENDA INTERNA "U"
INTERNAL JOINT WITH "U"

REF. IB 465

	A	B	C
50 x 50	48	48	80
100 x 50	48	98	80
150 x 50	48	148	80



* TAMBÉM DISPONÍVEL EM MEDIDAS MAIORES.



PROCESSOS DE ACABAMENTO

Galvanização a fogo (zincagem por imersão a quente) - Conforme NBR 6323

O processo de zincagem por imersão a quente é o mesmo que qualquer produto, podendo variar na espessura da camada dependendo da geometria da peça e composição química do aço.

Etapas

- Desengraxante: material imerso em solução desengraxante para a remoção de óleos e graxas provenientes de seu processo produtivo.
- Decapagem: as peças deverão ser imersas em solução decapante para remoção de óxidos metálicos
- Enxágue: remoção de materiais particulados do material, resíduos de ácido e secagem das peças.
- Fluxo: banho em solução com sais que consistem em diminuir a tensão superficial entre o aço e o zinco, tornando a camada de zinco aderida mais uniforme.
- Banho de zinco: imersão das peças em um banho de zinco a uma temperatura média de 445°C.
- Resfriamento: Após o banho de zinco as peças passam por um banho para resfriar o material e protegê-lo contra a corrosão inicial através de um processo de passivação.

A galvanização a fogo destaca-se pela alta resistência a corrosão, menor custo a longo prazo em relação a outros revestimentos do aço e baixa manutenção do período em que os produtos serão utilizados.

PROCESSOS DE ACABAMENTO

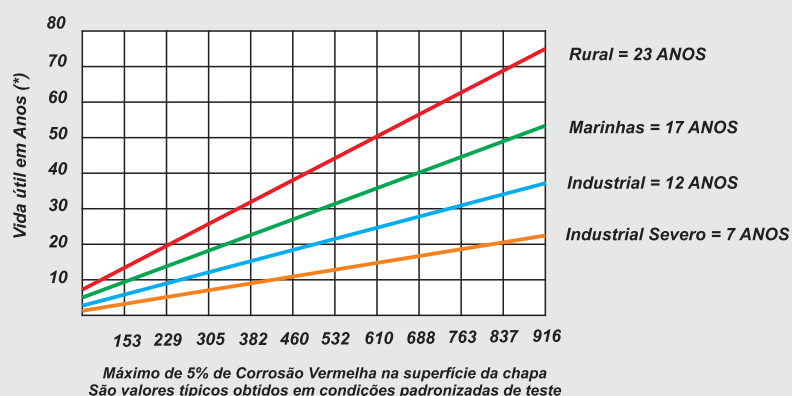
Algumas deformações são normalmente apresentadas por ocasião do banho a 450°C, tais como ondulações e empenamentos. Isso tudo porque a peça mergulhada num banho a 450°C sofre um alívio de tensões internas, resultantes de solda ou deformações a frio (laminação, estampagem, furação, etc).

Algumas medidas podem ser adotadas para minimizar esta ocorrência, como controlar procedimento de soldagem, evitar grandes diferenças de espessuras, projetar e construir uma peça provida de alças e orifícios para ser zincada numa única imersão.

Caso a peça a ser zincada incorpore partes moveis, uma folga de 1mm é suficiente para manter sua livre movimentação após a zincagem.

Em caso de peças rosquiadas normalmente a rosca fêmea é usinada na medida maior que os padrões usuais, sendo repassada após a zincagem. A rosca macho é usinada nos padrões normais e após a zincagem passa a ter uma submedida, devido a camada de zinco, que é absorvida na usinagem de repasse da rosca fêmea, ocasionalmente, nesses repasses, a rosca fêmea pode ficar total ou parcialmente sem o revestimento de zinco, porem não prejudicando a proteção da peça contra a corrosão, pois após o rosqueamento o filete da fêmea se protege catodicamente pelo filete do macho.

AÇO ZINCADO POR IMERSÃO A QUENTE



No gráfico ao lado podemos estimar através do teste realizado pela CSN a taxa de corrosão medida em tempo de exposição.
No gráfico a chapa pré zincada a fogo de revestimento 'B' 18 micra/face 260 g/m² nos mostra essa situação.

PROCESSOS DE ACABAMENTO

Galvanização eletrolítica (zincagem por imersão a frio) - verificar NBR 10476

O processo de galvanização zinco eletrodepositado consiste no tratamento do material de acordo com a norma NBR 10476/88 e tem como finalidade a obtenção de uma camada de zinco eletrolítico sobre a peça de ferro ou aço.

Etapas:

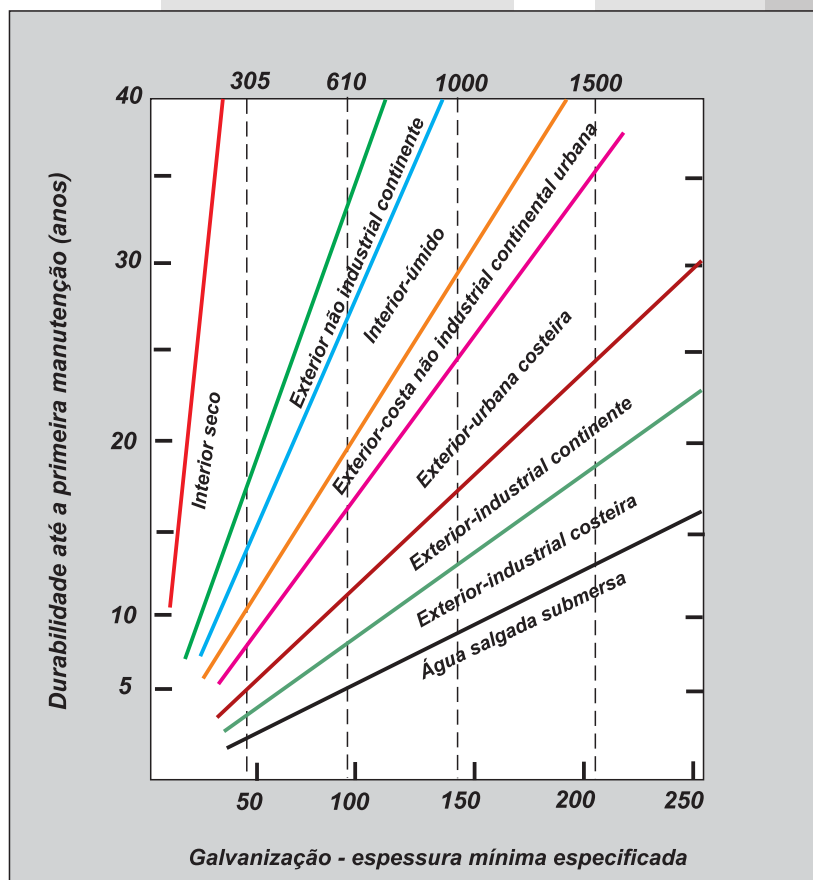
- Desengraxe: remoção de óleos, gorduras, etc.;
- Água: remoção do desengraxante completando a limpeza;
- Decapagem: retirada da camada de oxidação, casca, carepa, etc. por processo químico (ácido muriático);
- Água: remoção de sais do metal formado durante a decapagem e resíduos de ácido;
- Neutralização: proteção do revestimento de zinco, apassivação da camada.
- Zinco: Eletrodeposição de zinco em temperatura ambiente;
- Água: Água corrente ou spray d'água;
- Passivação e lavagem em água corrente;
- Secagem a ar comprimido.

PROCESSOS DE ACABAMENTO

Aço Pré-zincado a fogo (padrão CSN) - NBR 7008 e 7013 - ISO 9000

Com o processo de zincagem continua por imersão no banho de zinco à 460°C se obtém camadas de revestimentos, o material poderá ser dobrado sem causar trincas ou desprendimento da camada de zinco garantindo a conformidade e permitindo sua utilização inclusive em estampagem profunda.

O aço pré-zincado a fogo destaca-se pela praticidade de seu manuseio, pois caso haja eventuais falhas de revestimento como arranhões cortes e perfuração, o zinco atua como em revestimento anodo protegendo catodicamente contra a corrosão. O zinco forma após determinado período produtos de corrosão insolúveis que preenchem as partes descobertas formando uma barreira não permitindo o processo de corrosão. Todas as dobras e cantos do produto possuem proteção uniforme do revestimento.



Conforme o meio em que as peças zincas por imersão a quente são expostas, pode-se prever o tempo de duração do revestimento.

PROCESSOS DE ACABAMENTO

Pintura Eletrostática a pó - NBR

Em linha totalmente automatizada e continua é feita a limpeza e preparação de superfície através de: Desengraxe, lavagem, fosfatização, enxágue e secagem.

O revestimento é obtido pela aplicação da pintura com uma pistola que carrega eletricamente as partículas de pó ionizando o ar a sua volta, tornando-as atraídas pela peça. Depois disso, as peças são transportadas para uma estufa onde chega na temperatura de 200°C. As partículas de pó se fundem na peça, formando uma película protetora com camadas que variam de 60 a 80 micras.

Dentre as vantagens do acabamento em pintura eletrostática a pó incluem-se:

- Alta proteção a corrosão e altas temperaturas.
- Alta resistência mecânica.
- Acabamento e aspecto visual durável.
- É menos agressiva ao meio ambiente.

A pintura eletrostática só pode ser aplicada em materiais fabricados com chapa natural, pré-zincada, galvanizada eletrolítica e galvanizado a fogo.



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