

Fit|Echnic®
Glass Fitting System



VEA – STRUCTURAL GLAZING



PT

As fachadas agraçadas (VEA) fazem já parte, tanto da arquitectura contemporânea como na reabilitação, como forma elegante de alcançar o máximo de transparência de uma fachada. Estas fachadas podem já servir como fachadas ventiladas ou fachadas estruturais. Através do desenvolvimento inovador de soluções do Sistema **FITECHNIC** com vidros especiais, obtém-se a máxima protecção contra poluição ambiental e sonora, assim como protecção solar e térmica.

Trata-se de um simples, mas engenhoso sistema para fixar painéis de vidro (monolítico temperado, laminado temperado e duplo temperado), que permite realizar projectos limpos e esteticamente singulares.

A sua maior vantagem é a grande capacidade de regulação na instalação e potencialidades tridimensionais de desenho.

A nossa experiência e equipa técnica oferecem a melhor assistência na supervisão dos projectos, para que o nosso sistema possa otimizar o máximo desempenho da fachada e das estruturas metálicas de suporte.

EN

Structural glazing (VEA) makes part of forward coming architecture as well as rehabilitation, as an elegant way of designing with most transparency. These facades can be ventilated or structural. Through the innovative development of **FITECHNIC** fitting solutions and special glasses we can get the maximum protection against ambient and noise pollution as well as solar and thermal protection.

This intelligent system is made of glass panels (monolithic tempered, laminated tempered e double glazing), which allows to construct single and visually clean projects.

It's big advantage is the great capacity of regulation in installing and great possibilities in three-dimensional designing.

Our team experience will offer you best assistance in supervision of all projects so that our system can optimize the facade performance as well as the metallic structures.



CE EN 10283: 2010
DIN 1.4401 / 1.4408
ASTM A240 - AISI 316

Introdução técnica / Technical introduction	04
Aranhas / Spiders	07
Rótulas / Rotules	10
Complementos / Complements	14
Fachadas especiais / Special Facades	16
Sistemas / Mounting Systems	17
Obras / Project references	20



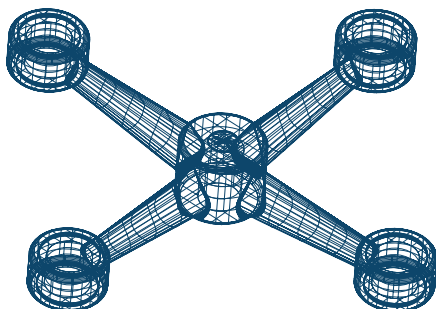
INTRODUÇÃO TÉCNICA / TECHNICAL INTRODUCTION



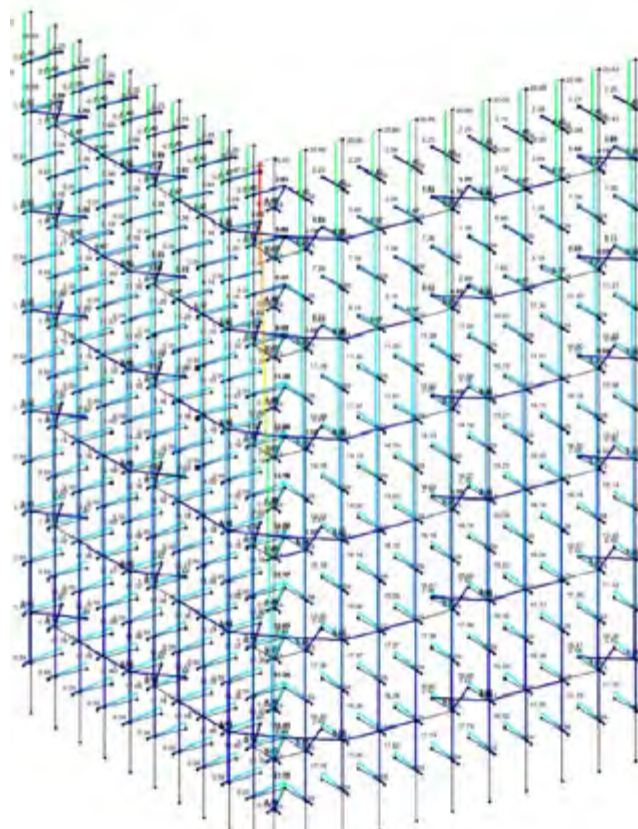
Inspeção e Controlo de Qualidade.
Inspection and Quality Control.



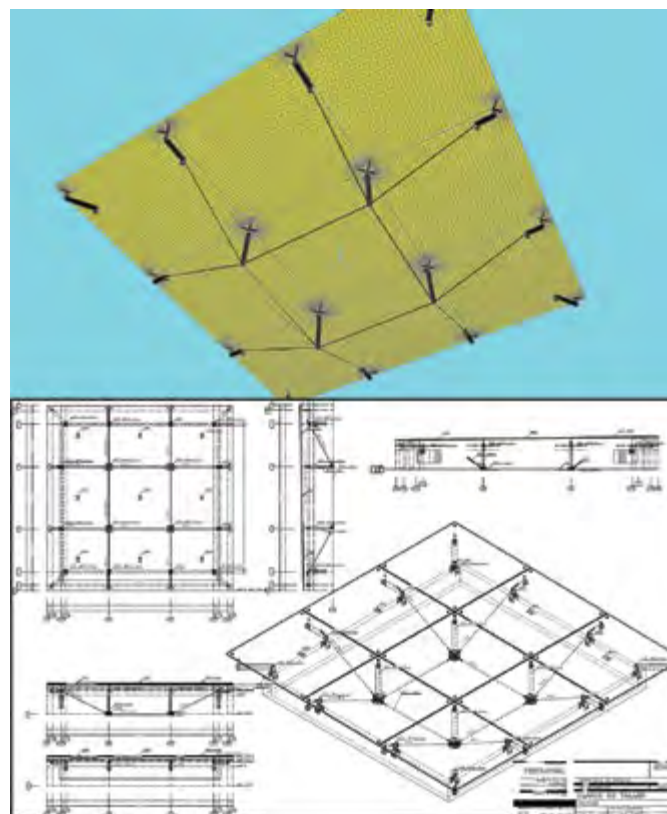
Certificado de Conformidade CE.
CE Certificate of Conformity.



Modelação 3D.
3D modelling.



Cálculo de engenharia.
Engineering calculation.



Detalhes de projecto.
Project details.

PT

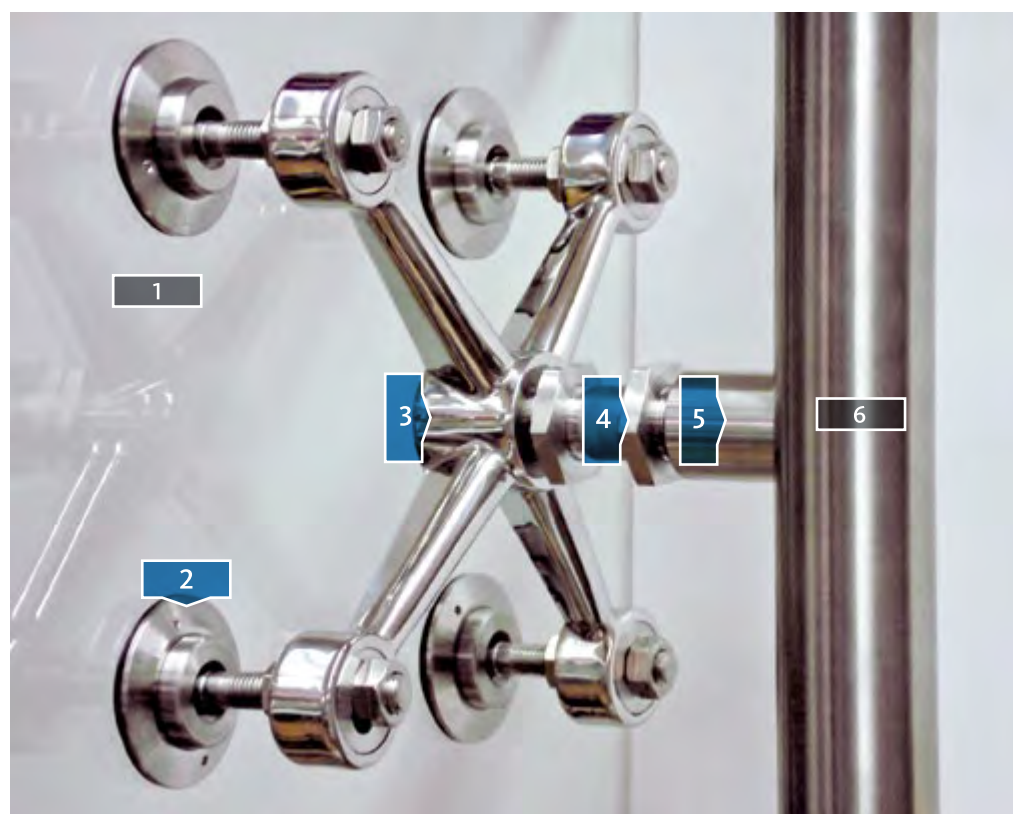
O sistema articulado **FITECHNIC®** está patenteado e foi estudado e desenhado por meio de análise fisicamente não linear com elementos finitos e posteriormente comprovadas através de ensaios de resistência mecânica em laboratórios independentes. A análise matemática e testes de cargas verificam a resistência necessária em força combinada, tanto na vertical como na horizontal.

Explicação funcional do sistema **FITECHNIC®**

Functional explanation for the **FITECHNIC®** System

EN

The registered articulated system **FITECHNIC®** has been studied and designed by nonlinear dynamic analysis and afterward confirmed through mechanical destructive tests in independent laboratories. All tests prove strong resistance to a combined force in vertical as well as in horizontal.



- 1 Vidro
Glass
- 2 Rótula
Articulated bolt
[refª RE1015/M12](#)
- 3 Aranha
Spider
[refª FI-X 4V](#)
- 4 Conector
Threaded union screw
[refª FI-C71](#)
- 5 Teton
Base support
[refª FI-TT](#)
- 6 Estrutura
Main structure



Busgate, Aeroporto Lisboa



ARANHAS / SPIDERS

PT

Aranhas

Aranhas FI-X para união de vidros em aço inox AISI 316 fabricada em microfusão a cera perdida com acabamento superficial polido brilhante-espelho e mecanizada em linha CNC.
Distância entre eixo 170 mm.

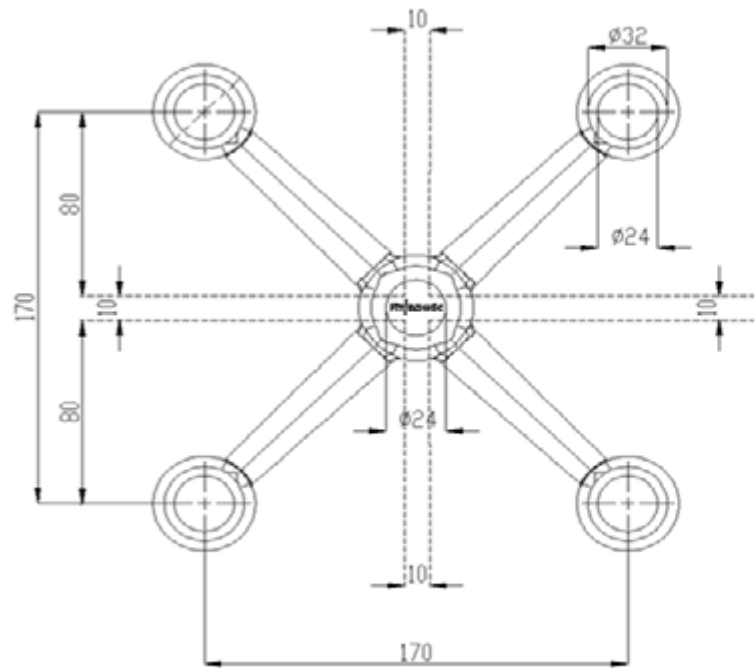
EN

Spiders

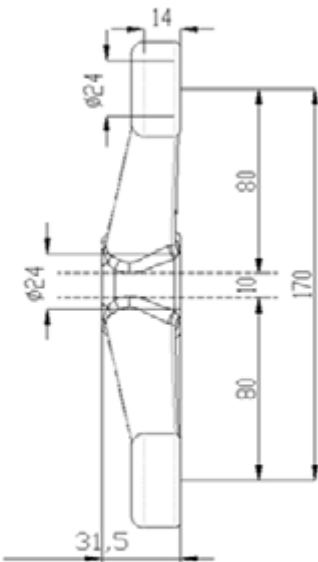
Spider FI-X for 4 glasses in stainless steel AISI 316, made in a micro fusion process with polished finishing and mechanized in CNC line.
Arm distance between hole and central axis 170 mm.



Dimensões / Dimensions

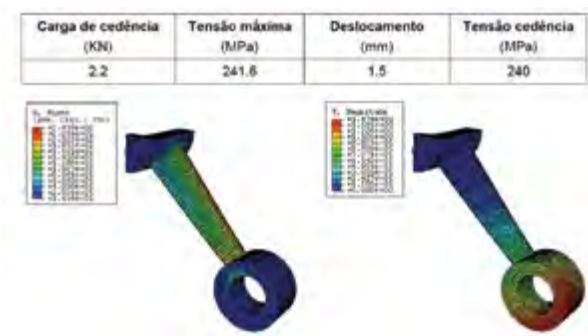


Top / Exterior view

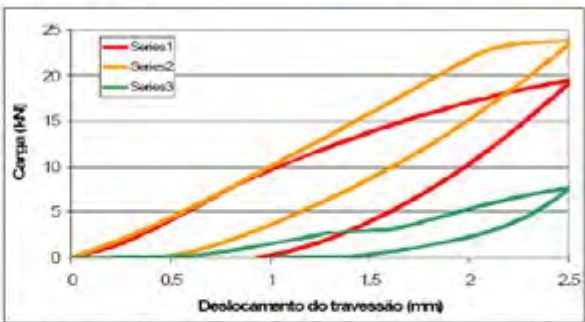


Front / Exterior

Resistência Mecânica / Mechanical resistance



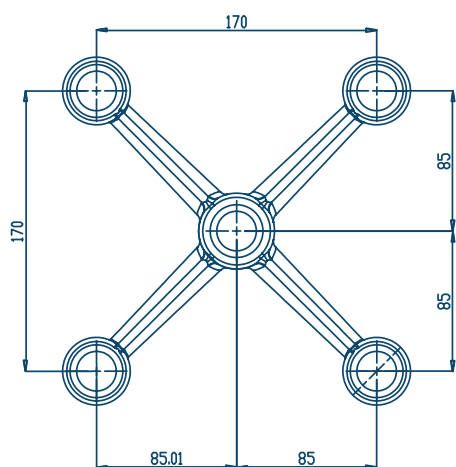
▲ Cálculos FEM.
FEM calculations.



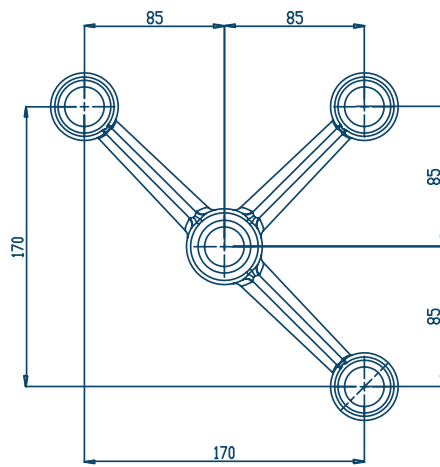
▲ Ensaios mecânicos destrutivos (carga a 1mm deformação).
Destructive mechanical test according to 1mm deformation.



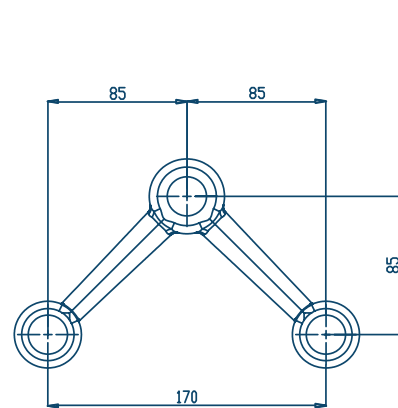
FIX 4V braços / FIX 4V arms



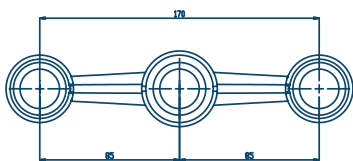
FIX 3V braços / FIX 3V arms



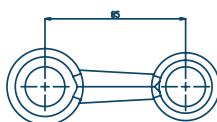
FIX 2V braços / FIX 2V arms



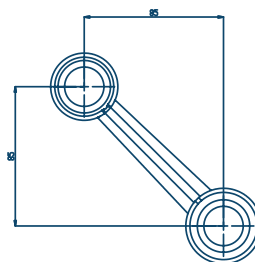
FIX 2H braços / FIX 2H arms



FIX 1H braço / FIX 1H arm

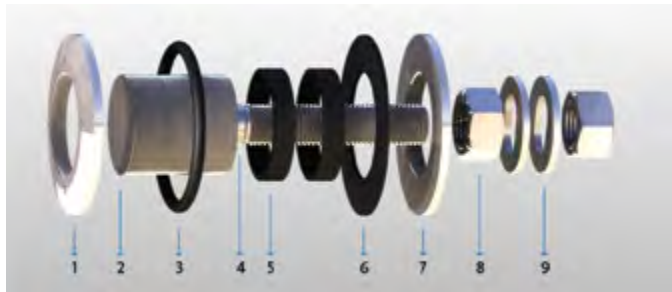


FIX 1V braço / FIX 1V arm

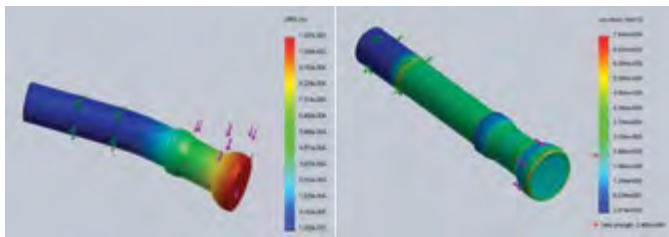
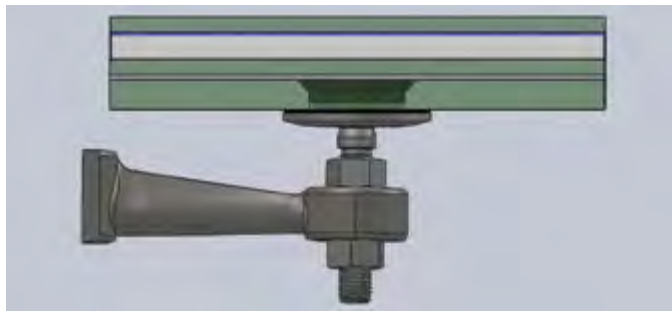




RÓTULAS / ROTULES



1. SS AISI316 Washer exterior cap Ø60mm (tighten aprox.10~15N/m)
2. SS AISI316 body
3. O´ring or Contact washer Polyethylene
4. M14 rotulated thread
5. Contact washer Polyethylene
6. Contact washer Polyethylene
7. SS AISI316 Washer interior cap Ø60mm (tighten aprox.10~15N/m)
8. Nut DIN 934 A4 //
9. SS AISI316 Washer



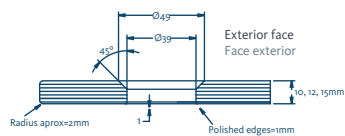
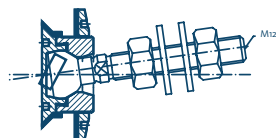
	Perpendicular Force			Negative Wind
	D (mm)	ELT (N)	DM - ELT (mm)	ELU (N)
M12	45	970	1.096	15.000
	60	435	1.091	
M14	45	1750	1.097	15.000
	60	795	1.094	

D – Distance in spider fixing
ELT – Service Limit State– load at 1mm
ELU – Ultimate Limit State
DM – Maximum Deflection

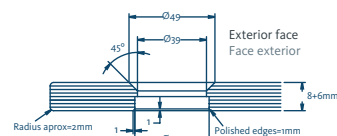
◀ RCE1021 -FTL PATENT M.U. nº 104993

Biblioteca Câmara Pestana.
Câmara Pestana Library.





▲ Detalhe do furo para vidro temperado rótula RE10-15/M12.
Hole detail for tempered glass rotule RE10-15/M12.

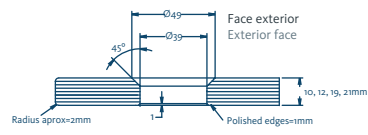
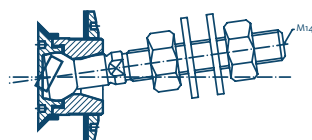


▲ Detalhe do furo para vidro laminado rótula RE10-15/M12.
Hole detail for laminated tempered glass rotule RE10-15/M12.

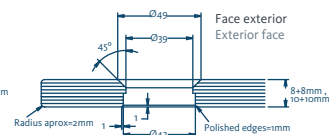
RE10-15M12

Rótula em aço inox AISI316 para fachada de vidro temperado entre 10 e 15mm - tronco cônico.

Articulated bolt in stainless steel AISI316 for facade in monolithic tempered glass 10 to 15mm - conic hole.



▲ Detalhe do furo para vidro temperado rótula RE12-21/M14.
Hole detail for tempered glass rotule RE12-21/M14.

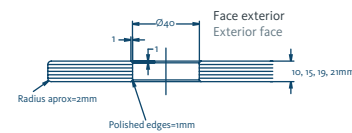
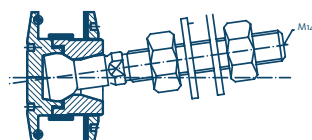


▲ Detalhe do furo para vidro laminado rótula RE12-21/M14.
Hole detail for laminated tempered glass rotule RE12-21/M14.

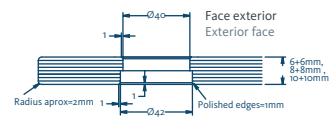
RE12-21M14

Rótula em aço inox AISI316 para fachada de vidro temperado entre 12 e 21mm - tronco cônico.

Articulated bolt in stainless steel AISI316 for facade in monolithic tempered glass 12 to 21mm - conic hole.



▲ Detalhe do furo para vidro temperado rótula RT12-21/M14.
Hole detail for tempered glass rotule RT12-21/M14.

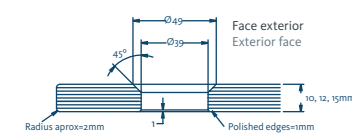
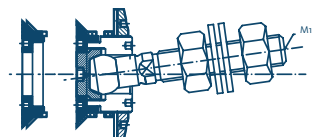


▲ Detalhe do furo para vidro laminado rótula RT12-21/M14.
Hole detail for laminated tempered glass rotule RT12-21/M14.

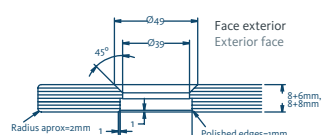
RT12-21M14

Rótula em aço inox AISI316 de tampa para fachadas/coberturas em vidro laminado e temperado 12 a 21mm - furo cilíndrico.

Articulated bolt in stainless steel AISI316 with cap for facades/roof glazing in laminated tempered glass 12 to 21mm - cylindrical hole.



▲ Detalhe do furo para vidro temperado rótula RCE10-21/M14.
Hole detail for tempered glass rotule RCE10-21/M14.



▲ Detalhe do furo para vidro laminado rótula RCE10-21/M14.
Hole detail for laminated tempered glass rotule RCE10-21/M14.

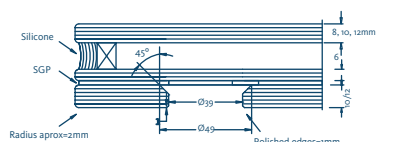
RCE 10-21 M14

Rótula em aço inox AISI316 de tampa cônica de aperto exterior para fachada em vidro temperado 10 a 16mm - tronco cônico.

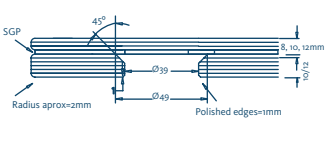
Articulated bolt in stainless steel AISI316 with conic cap for exterior installation for facades in tempered or laminated tempered glass 10 to 16mm - conic hole.



▲ Patent: nº104993
Sistema RCE-FTL embutido no laminado.
Laminate Embedded system RCE-FTL.



▲ Detalhe do furo para vidro duplo rótula RCE10-21-FTL-M14.
Hole detail for IGU glass rotule RCE10-21-FTL-M14.

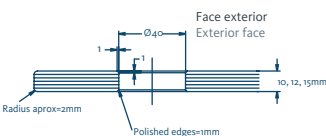
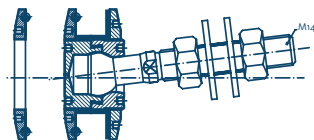


▲ Detalhe do furo para vidro laminado rótula RCE10-21-FTL-M14.
Hole detail for laminated glass rotule RCE10-21-FTL-M14.

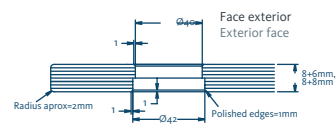
RCE-FTL-M14

Rótula em aço inox AISI316 de tampa cônica para embutir em laminado e em vidro duplo - furo tronco cônico no viro interior.

Articulated bolt in stainless steel AISI316 with conic cap to be embedded in laminated glass and IGU for facades - conic hole in the inner glass.



Detalhe do furo para vidro temperado rótula RCT 10-21/M14.
Hole detail for tempered glass rutule RCT 10-21/M14.

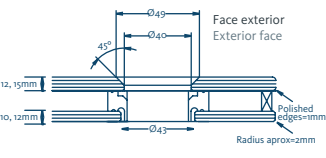
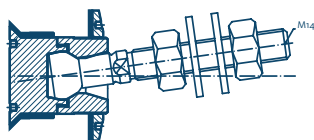


Detalhe do furo para vidro laminado rótula RCT 10-21/M14.
Hole detail for laminated tempered glass rutule RCT 10-21/M14.

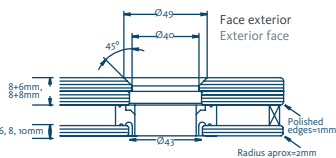
RCT 10-21/M14

Rótula em aço inox AISI316 de tampa de aperto exterior para fachadas/coberturas em vidro laminado e temperado 12 a 16mm - furo cilíndrico.

Articulated bolt in stainless steel AISI316 with cap for exterior installation facades/roof glazing in laminated tempered glass 12 to 16mm - cylindrical hole.



Detalhe do furo para vidro temperado com camara rótula RD28-36/M14.
Hole detail for double glazing tempered glass rutule RD28-36/M14.

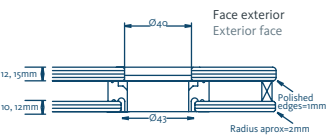
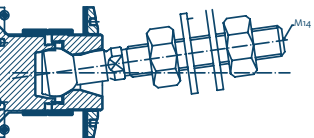


Detalhe do furo para vidro laminado com camara rótula RD28-36/M14.
Hole detail for double glazing laminated tempered glass rutule RD28-36/M14.

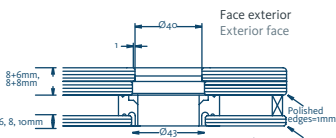
RD28-36M14

Rótula em aço inox AISI316 para fachadas em vidro duplo temperado 28 a 36mm – tronco cônico.

Articulated bolt in stainless steel AISI316 for double glazing facade in tempered glass 28 to 36mm – conic hole.



Detalhe de furo para vidro temperado com camara rótula RDT28-36/M14.
Hole detail for doble glazing tempered glass rutule RDT28-36/M14.

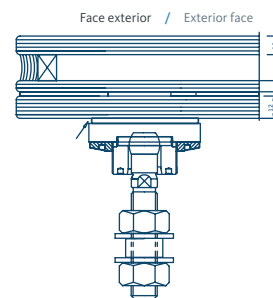
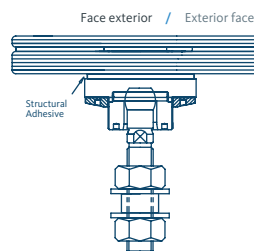


Detalhe de furo para vidro laminado com camara rótula RDT28-36/M14.
Hole detail for doble glazing laminated glass rutule RDT28-36/M14.

RDT28-36M14

Rótula em aço inox AISI316 de tampa para fachadas/coberturas em vidro duplo temperado 28 a 36mm - furo cilíndrico.

Articulated bolt in stainless steel AISI316 with cap for double glazing facades/roof glazing in tempered glass 28 to 36mm - cylindrical hole.



RCEGL-M14

Rótula aço inox AISI316 para aplicação com adesivo estrutural tipo Dp490 ou TSSA (sob consulta). Sem necessidade de furo.

Articulated bolt stainless steel AISI316 for structural adhesive application DP490 or TSSA (to consult). No drilling necessary.



COMPLEMENTOS / COMPLEMENTS



FIC-71

Conector em aço inox AISI 316 M24 para ligação a estrutura montante.
Thread union screw in stainless steel AISI 316 M24 to be fixed to main structure.



FI-TT

Teton em aço inox AISI 316 M24 para ligação a estrutura montante para modelo 1.

Base support in stainless steel AISI 316 M24 to be fixed to main structure for model 1.



FIRL

Aranha / Adaptador lateral em aço inox AISI 316 para ligação lateral a estrutura. Possibilidade de usar qualquer rótula Fitechnic.

Spider / adaptor sideways to structure in stainless steel AISI 316. Possible to use any rotule Fitechnic.



RSE12-21M10

Rótula fixa em aço inox AISI 316 de aperto exterior para aplicação interior de vidro temperado 12 a 21mm.

Fixed bolt in stainless steel AISI 316 for interior application in tempered glass 12 to 21mm.



FIHL / FI2VL

Aranha aço inox 316 para fixação lateral a parede/viga de vidro. Adapta-se a qualquer rótula do catálogo Fitechnic.

Spider stainless steel 316 for sideways connection to glass beam or wall. To adapt any rotule from the Fitechnic catalogue.



RCTF-M14 / FITM14

Rótula fixa com teton aço inox 316 para aplicação de guardas de vidro a betão ou aço.

Fixed bolt in stainless steel for balustrade application to concrete or steel.



FI-OMG

Base Ómega em aço inox AISI 316 M24 para ligação a estrutura montante para modelo 2 e 3.

Omega Base support in stainless steel AISI 316 M24 to be fixed to main structure for model 2 and 3.



FIX-AR / FIEM14

Fixador e adaptador em aço inox AISI 316 interior oculto para modelo instalação 2.

Interior fixing and adaptor in stainless steel AISI 316 for model installation 2.

Complementos para modelos 1, 2 e 3
Complements for models 1, 2 and 3

Model 1



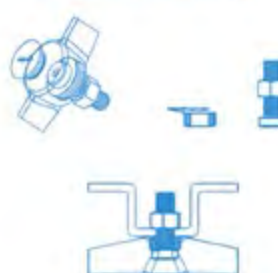
Model 1: FITT + FIC71 + CAP



Model 2



Model 2: FIX-AR + FIEM14 + CAP



Model 3



Model 3: FIEM16 + Washer





FACHADAS ESPECIAIS / SPECIAL FACEDES

PT

Fachadas em cabos estruturais em aço inox AISI 316 permitem vencer vãos sem recurso a estruturas montantes. Através de aranhas ligadas a bielas e por sua vez entrelaçadas por cabos rígidos tencionados obtém-se a máxima transparência e óptima aparência estética.

FI-CAB

Cabo rígido 1x19 em aço inox AISI316 com tensor e 2 garfos de diâmetro variável.

Cable in Stainless steel AISI316 with turnbuckle and 2 forks variable diameter.

FI-VAR

Varão roscado em aço inox AISI316 com tensor e 2 garfos de diâmetro variável.

Rod in Stainless steel AISI316 with turnbuckle and 2 forks variable diameter.

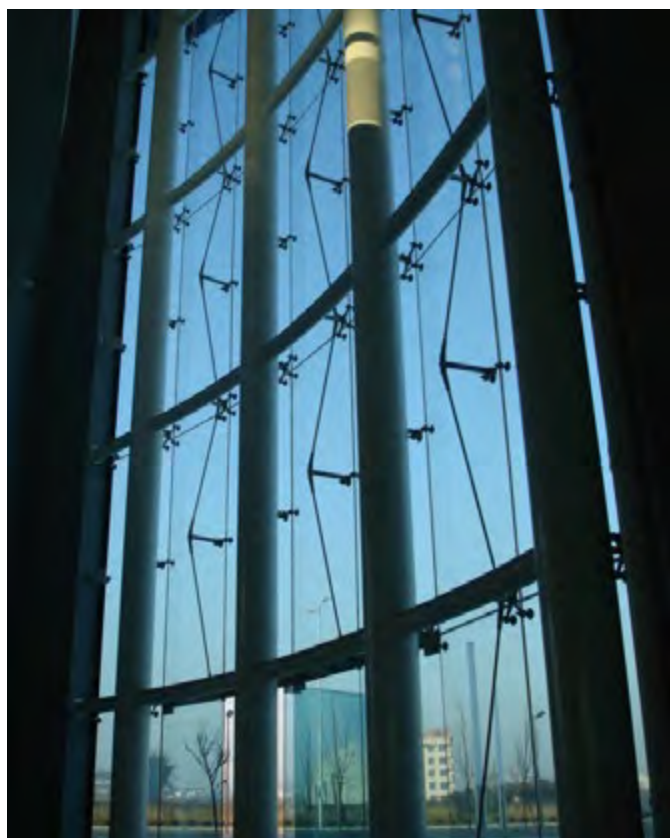
FI-BR

Biela em aço inox AISI316 com orelhas para ligação a FI-VAR ou FI-CAB.

Rod in Stainless steel AISI316 with turnbuckle and steel plates for forks variable diameter.

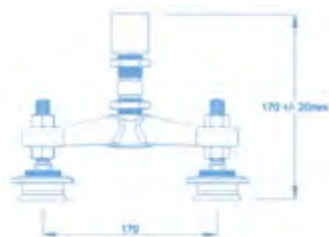
EN

A structural glazing facade with stainless steel cables allows cleaner facades without metallic structures. Using spiders connected with rod and through the tensioned cables we can obtain maximum transparency and optimum visual aesthetical appearance.

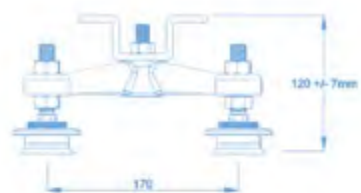


SISTEMAS / MOUNTING SYSTEMS

Model 1



Model 2



Model 3



Panoramic, Lisboa.



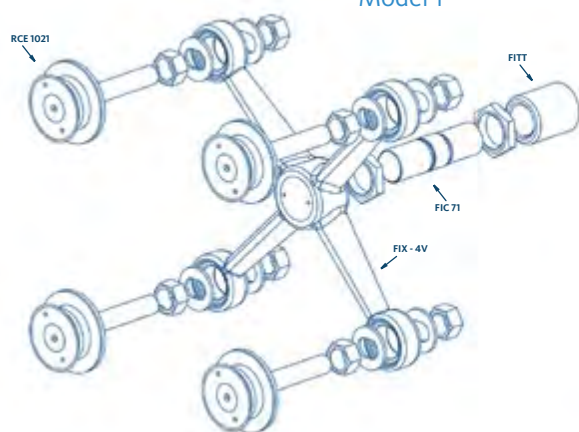
Quinta Bellos, S.J. Madeira.



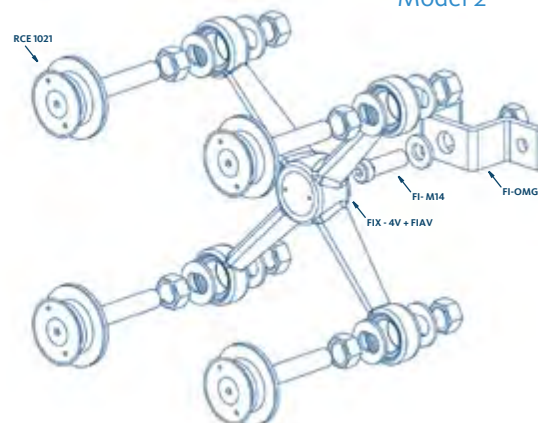
Aeroporto de Lisboa.

Explicação funcional sistemas de instalação **FITECHNIC®**
Functional explanation for **FITECHNIC®** model installation systems

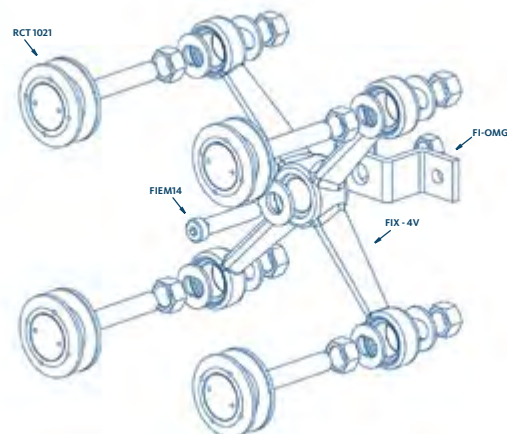
Model 1



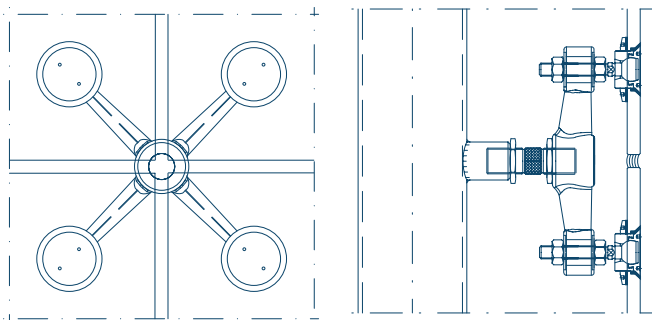
Model 2



Model 3



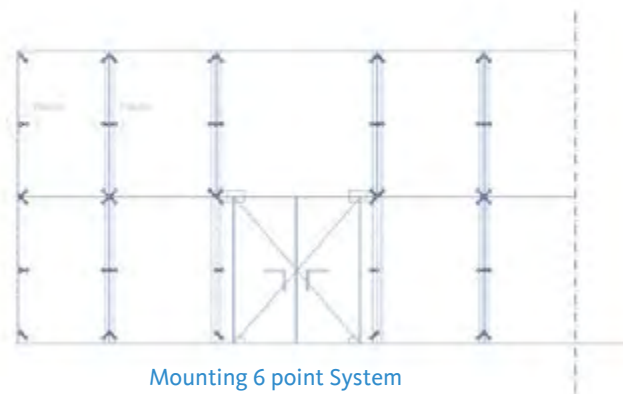
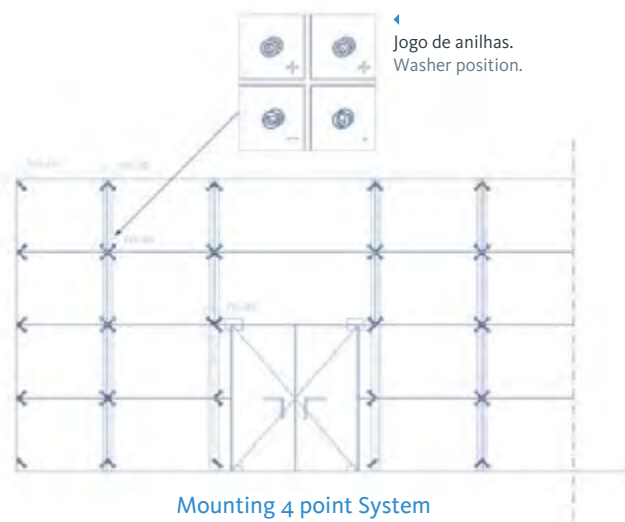
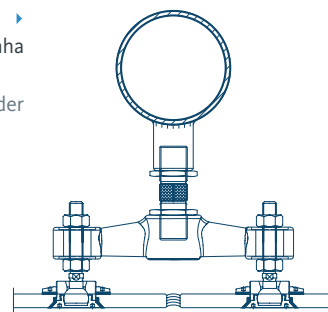
Desenhos CAD CAD Drawings



▲ Vista de frente exterior da aranha **FITECHNIC** com rótula RE10-15.
Exterior front view **FITECHNIC** spider with rotule RE10-15.

▲ Secção vertical da aranha **FITECHNIC** com rótula RE10-15.
Vertical section **FITECHNIC** spider with rotule RE10-15.

▶ Secção horizontal da aranha **FITECHNIC** com rótula RE10-15.
Horizontal section **FITECHNIC** spider with rotule RE10-15.



Izi Oeiras





OBRAS / PROJECT REFERENCES



▲ Bordeaux, France



▲ Leiria, Portugal



▲ Adicaïs, Portugal



▲ Barcelona, Spain



▲ São Paulo, Brazil



▲ Trofa, Portugal



▲ São Paulo, Brazil



▲ Canárias, Spain



▲ Luanda, Angola



▲ Punta Leste, Uruguay

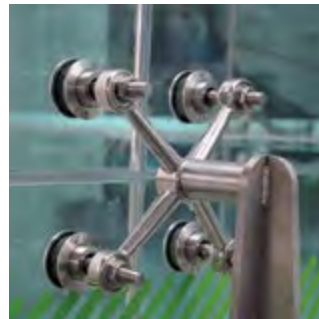


▲ Rabat, Morocco



▲ Mallorca, Spain





Fit|ECHNIC[®]

info@fitechnic.com
www.fitechnic.com



R. Dr Joaquim Manso 10A, Lisboa – Portugal
Tel: (+351) 21 710 07 80
Fax: (+351) 21 711 31 03
pentagonal@pentagonal.com
www.pentagonal.com

