

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-17/0328**  
**of 18 July 2018**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Multi-axis concealed hinges

"PIVOTA DX 12x 3-D ...", "PIVOTA DX 18x 3-D ...",  
"PIVOTA DX 19x 3-D ...", "PIVOTA DXA 20x 3-D ...",  
"PIVOTA DX 20x 3-D ...", "PIVOTA DX 30x 3-D ..."

Product family  
to which the construction product belongs

Multi-axis concealed hinges

"PIVOTA DX 12x 3-D ...", "PIVOTA DX 18x 3-D ...",  
"PIVOTA DX 19x 3-D ...", "PIVOTA DXA 20x 3-D ...",  
"PIVOTA DX 20x 3-D ...", "PIVOTA DX 30x 3-D ..."

Manufacturer

Bartels Systembeschläge GmbH  
Gewerbegebiet Echternhagen 2  
32689 Kalletal  
DEUTSCHLAND

Manufacturing plant

Bartels Systembeschläge GmbH  
Gewerbegebiet Echternhagen 2  
32689 Kalletal  
DEUTSCHLAND

This European Technical Assessment  
contains

13 pages including 8 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 020001-01-0405

This version replaces

ETA-17/0328 issued on 9 May 2017

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## Specific Part

### 1 Technical description of the product

This European Technical Assessment applies to the variable concealed multi-axis hinges made of steel and aluminium with the designation "PIVOTA DX 12x 3-D ...", "PIVOTA DX 18x 3-D ...", "PIVOTA DX 19x 3-D ...", "PIVOTA DXA 20x 3-D ...", "PIVOTA DX 20x 3-D ..." and "PIVOTA DX 30x 3-D ...".

Each product consists of three parts, one part a mounting plate for the door frame, one part a mounting plate for the door leaf with segmented plates connected laterally in such a way as to allow the door to swing freely and to maintain the leaf in the same horizontal and vertical plane during the full operational cycle. Between the two mounting plates provide a variable geometry moving axis within a concealed hinge assembly.

In accordance of geometry and the used materials the hinges are summarised in product/hinge families. The hinge families and the associated hinges are specified in Annex 1. Several hinges have a labelling according to Annex 8.

The system setup of the products is given in Annexes 2 to 7.

### 2 Specification of the intended use in accordance with the applicable European assessment Document

The hinges are intended for use on doors of timber and metal. The doors could be made of synthetic materials if there is no requirement on resistance to fire.

They are invisible (concealed) hinges to allow single and double swing door leaves to be mounted flush to its door leaf and frame, forming a flush panel surface when the door is closed, and allowing the door to open to 180°.

The hinges are available for uses on doors with door mass up to 180 kg ("PIVOTA DX 12x 3-D ..." and "PIVOTA DXA 20x 3-D ..."), 200 kg ("PIVOTA DX 18x 3-D ...", "PIVOTA DX 19x 3-D ..." and "PIVOTA DX 20x 3-D ...") and 300 kg ("PIVOTA DX 30x 3-D ..." each door leaf.

The verifications and assessment methods on which this European Technical Assessment is based lead the assumption of working life of the hinges of 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Mechanical resistance and stability (BWR 1)

Not applicable

#### 3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	A1
Resistance to fire	El2 30

#### 3.3 Hygiene, health and the environment (BWR 3)

Not applicable

#### 3.4 Safety and accessibility in use (BWR 4)

Not applicable

### 3.5 Protection against noise (BWR 5)

Not applicable

### 3.6 Energy economy and heat retention (BWR 6)

Not applicable

### 3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

### 3.8 General aspects

The verification of durability is part of testing the essential characteristics.

Essential characteristic	Performance
Category of use	Grade 4
Durability	Grade 7
Test door mass	Grade 7
Fire resistance	Grade 0 - "PIVOTA DX 12x 3-D ..." Grade 1 - "PIVOTA DX 18x 3-D ..." "PIVOTA DX 19x 3-D ..." "PIVOTA DXA 20x 3-D ..." "PIVOTA DX 20x 3-D ..." "PIVOTA DX 30x 3-D ..."
Safety	Grade 1
Corrosion resistance	Grade 4
Security	Grade 1
Hinge grade	Grade 14

## 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

According to Decision of the Commission 1999/93/EC (OJ L 29/51 of 26.01.1999 p. 51), as amended by Decision of the Commission 2011/246/EU (Letter of the European commission of 15/10/2004), the system of assessment and verification of constancy of performance (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use	Level or class	System
"PIVOTA DX 12x 3-D ..." "PIVOTA DX 18x 3-D ..." "PIVOTA DX 19x 3-D ..." "PIVOTA DXA 20x 3-D ..." "PIVOTA DX 20x 3-D ..." "PIVOTA DX 30x 3-D ..."	use doors in fire resisting and/or smoke compartmentation and/or escape routes	1	1

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 18 July 2018 by Deutsches Institut für Bautechnik

Prof. Gunter Hoppe  
Head of Department

*beglaubigt:*  
Pritzkow

## Multi-axis concealed hinges

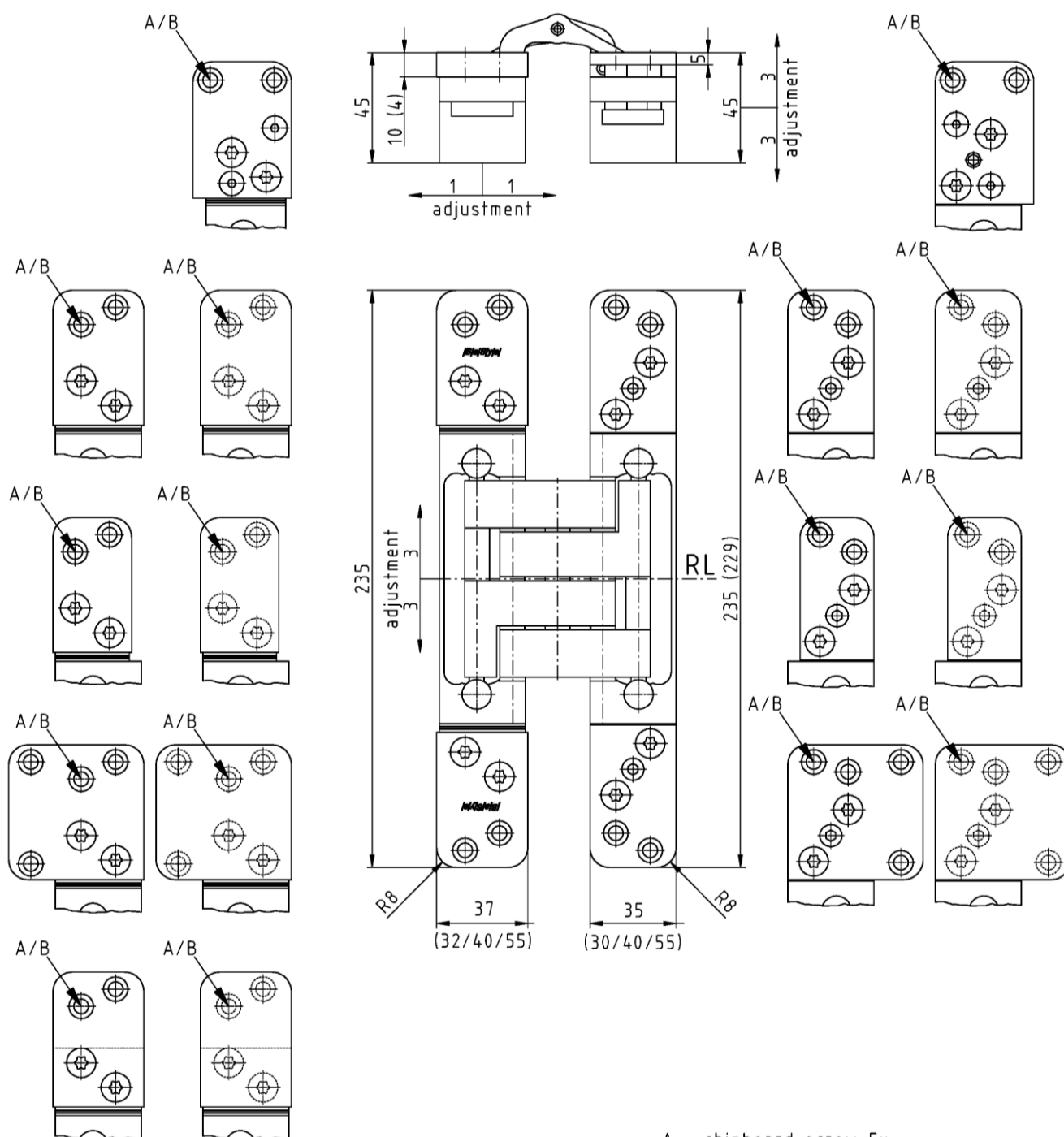
## Annex 1

"PIVOTA DX 12x 3-D ...", "PIVOTA DX 18x 3-D ...",  
"PIVOTA DX 19x 3-D ...", "PIVOTA DXA 20x 3-D ...",  
"PIVOTA DX 20x 3-D ...", "PIVOTA DX 30x 3-D ..."

Hinges and hinge families:

"PIVOTA DX 12x 3-D ..."	PIVOTA	DX 120 3-D, DX 120 3-D Design, DX 120 3-D (ZL), DX 120 3-D 33mm, DX 120 3-D 33 mm Design, DX 120 3-D Safe
	PIVOTA	DFX 120 3-D
"PIVOTA DX 18x 3-D ..."	PIVOTA	DX 180 3-D, DX 180 3-D Design, DX 180 3-D (ZL), DX 180 3-D 33mm, DX 180 3-D 33 mm Design, DX 180 3-D Design Sonder-Frontplatte, DX 180 3-D Safe, DX 180 3-D Safe Design
	PIVOTA	DXS 180 3-D Steel, DXS 180 3-D Steel Design
"PIVOTA DX 19x 3-D ..."	PIVOTA	DX 190 3-D, DX 190 3-D Design, DX 190 3-D Safe
"PIVOTA DXA 20x 3-D ..."	PIVOTA	DXA 200 3-D Alu, DXA 200 3-D Design, DXA 200 3-D Alu (ZL)
"PIVOTA DX 20x 3-D Steel ..."	PIVOTA	DX 200 3-D, DX 200 3-D Design, DX 200 3-D Safe
	PIVOTA	DXS 200 3-D Steel, DXS 200 3-D Steel Design, DXS 200 3-D Steel Safe
"PIVOTA DX 30x 3-D ..."	PIVOTA	DX 300 3-D, DX 300 3-D Design, DX 300 3-D Safe
	PIVOTA	DXS 300 3-D Steel, DXS 300 3-D Steel Design, DXS 300 3-D Steel Safe

The several hinges of the product families are only different in front plate geometry and if so in material (Annexes 2 to 7).

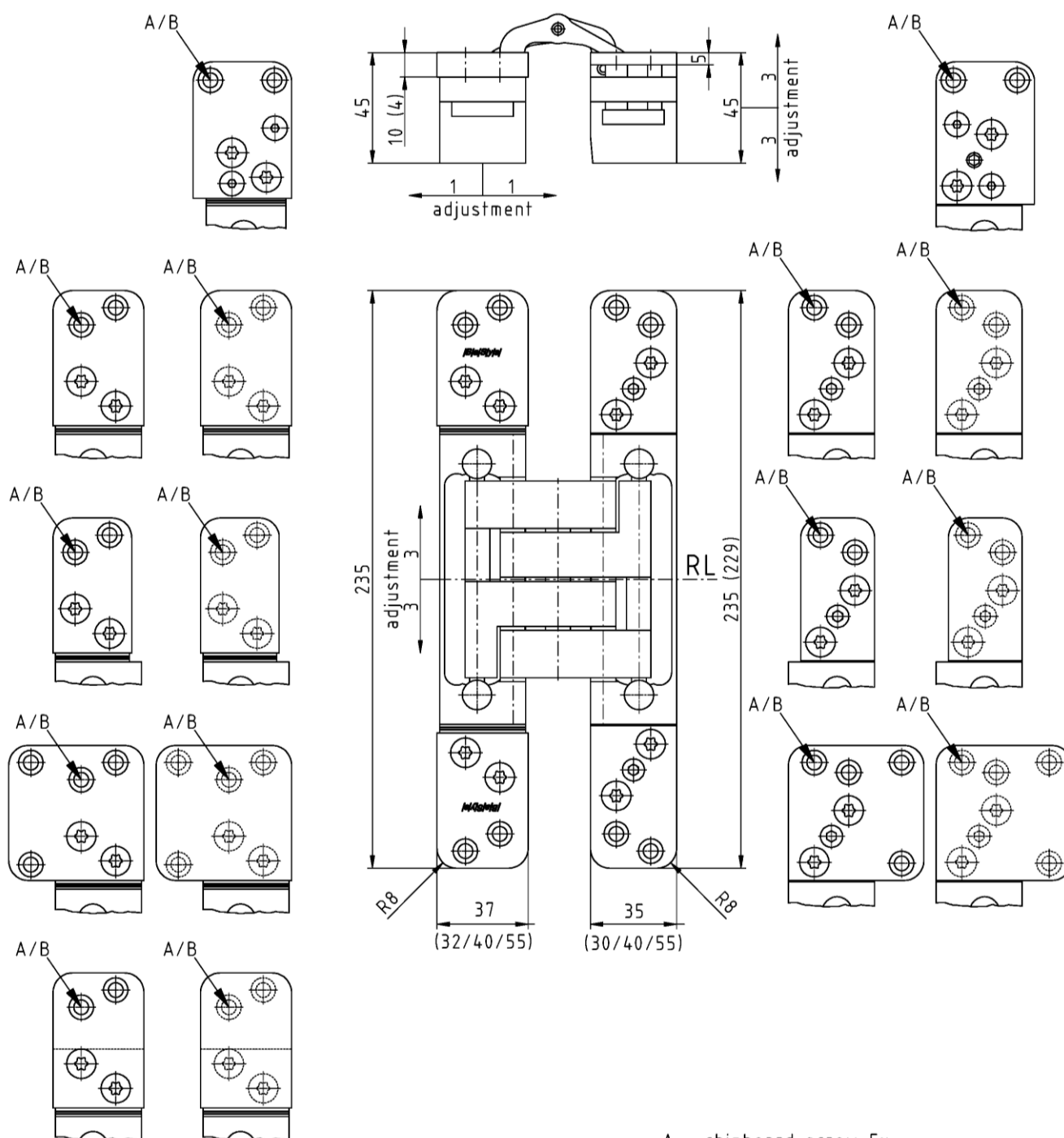


A = chipboard screw 5x...  
B = countersunk screw DIN 7991-M5x...-8.8  
RL = reference line  
Dimensions in mm.

Multi-axis concealed hinges "PIVOTA DX 12x 3-D ..."

### Construction

Annex 2



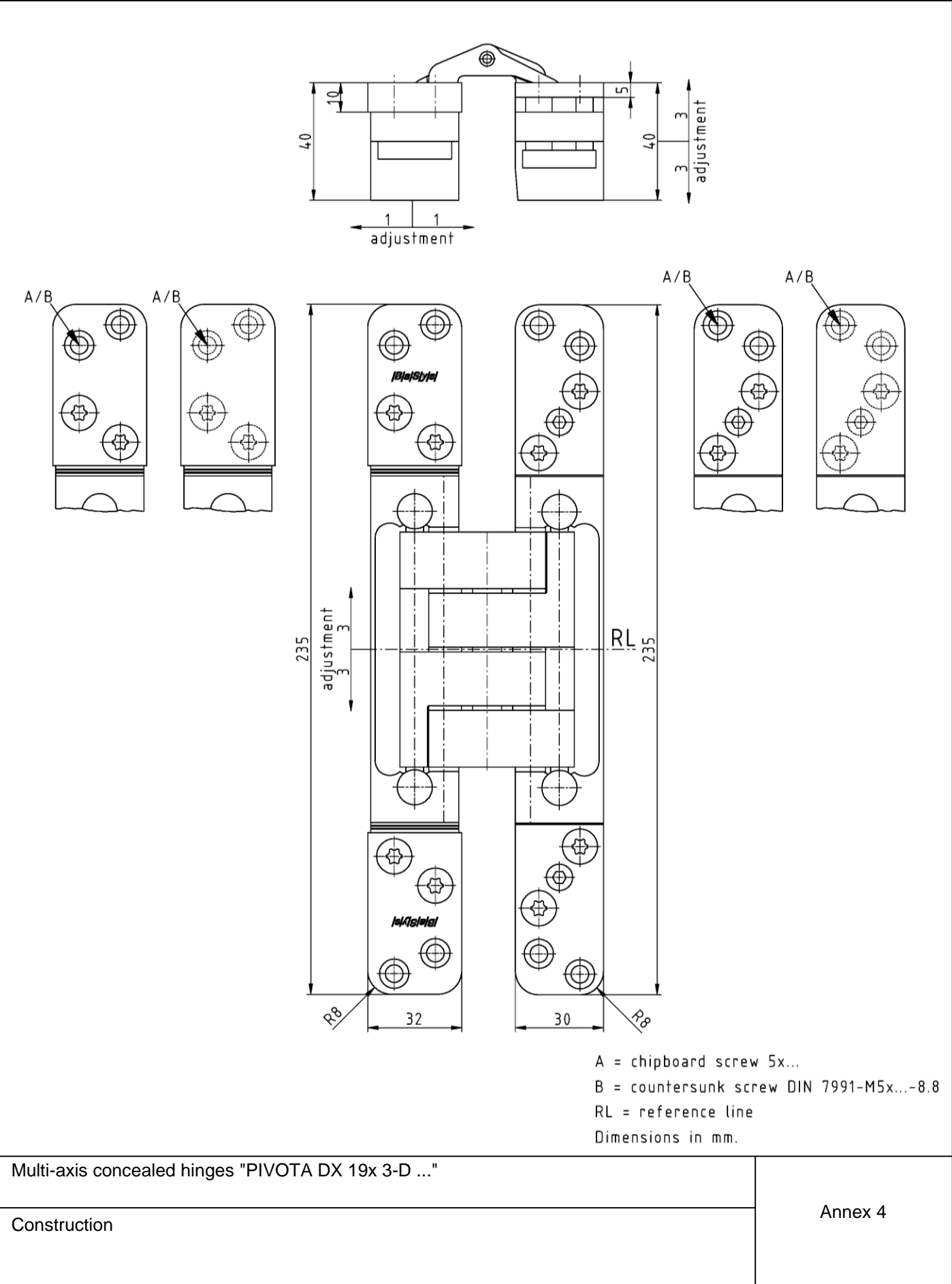
A = chipboard screw 5x...  
B = countersunk screw DIN 7991-M5x...-8.8  
RL = reference line  
Dimensions in mm.

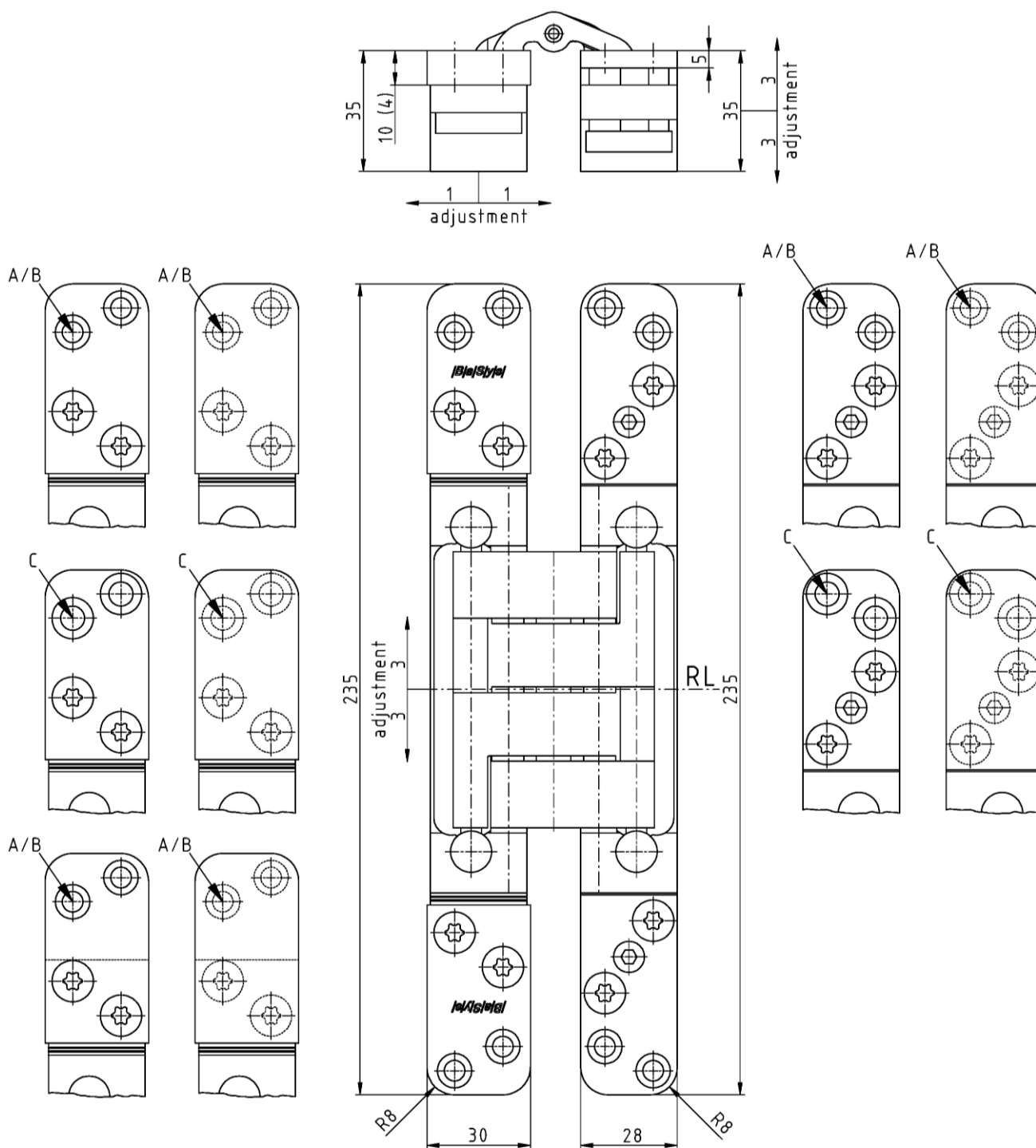
Multi-axis concealed hinges "PIVOTA DX 18x 3-D ..."

Construction

Annex 3





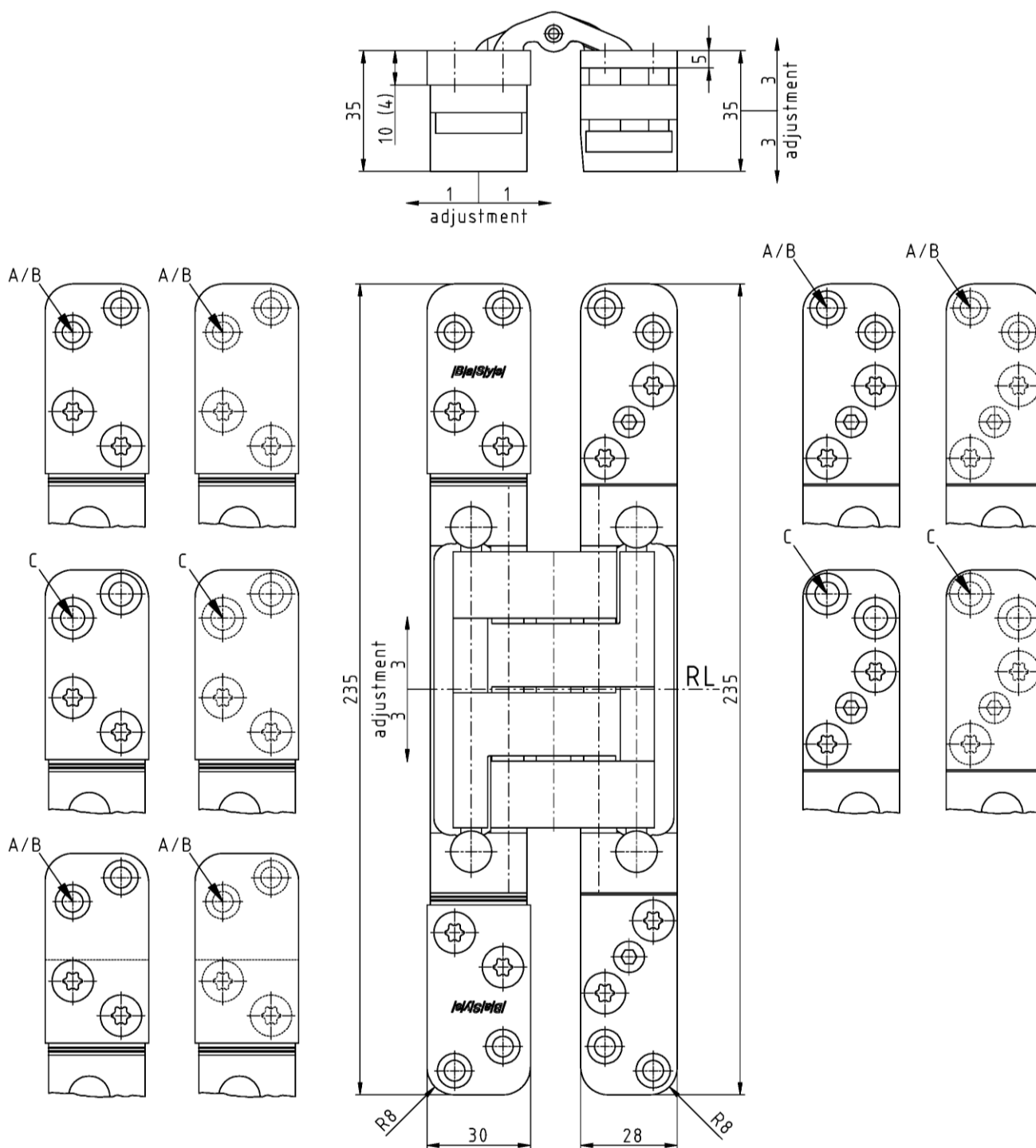


A = chipboard screw 5x...  
B = countersunk screw DIN 7991-M5x...-8.8  
C = chipboard screw 6x...  
RL = reference line  
Dimensions in mm.

Multi-axis concealed hinges "PIVOTA DXA 20x 3-D ..."

Construction

Annex 5

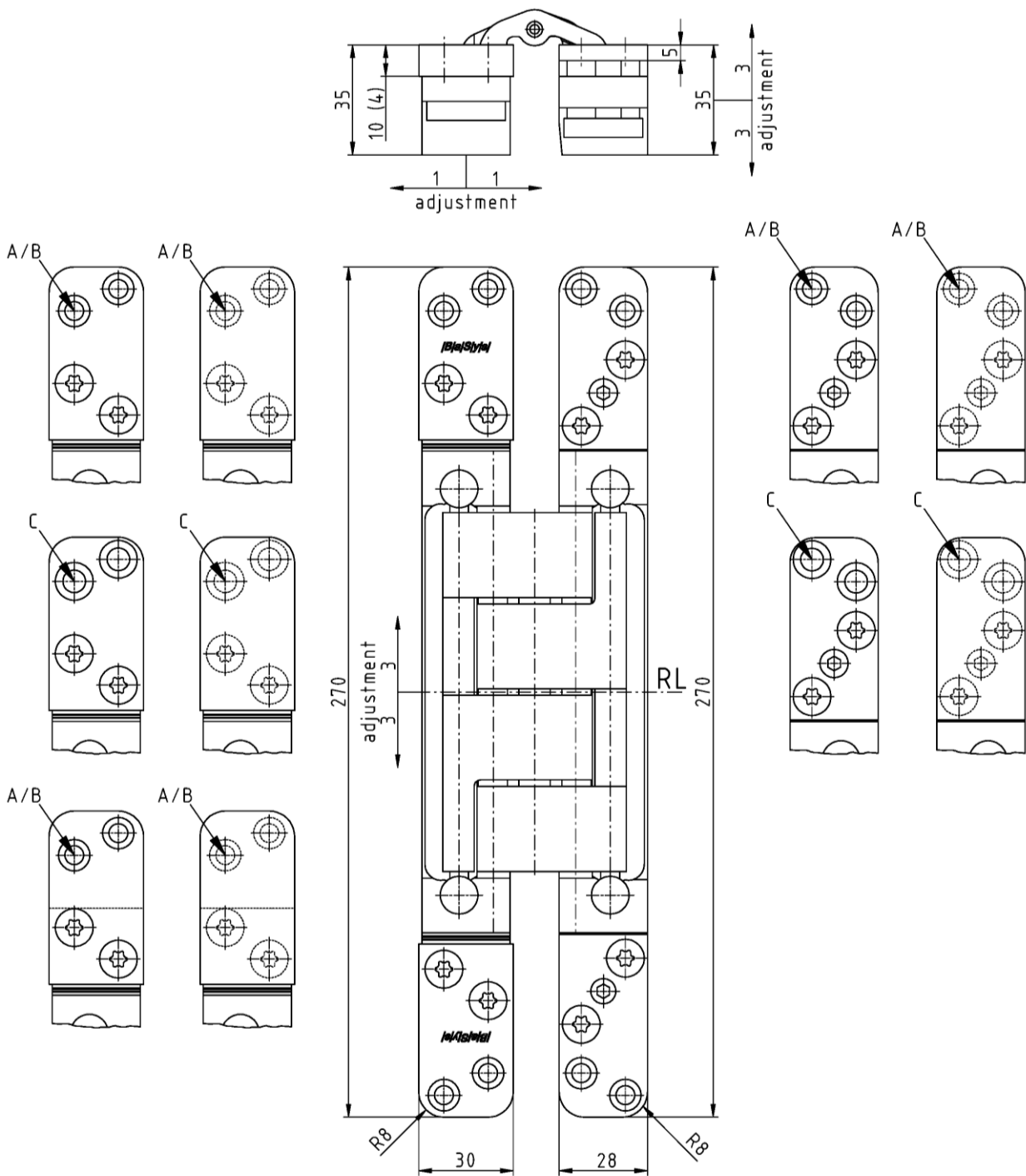


A = chipboard screw 5x...  
B = countersunk screw DIN 7991-M5x...-8.8  
C = chipboard screw 6x...  
RL = reference line  
Dimensions in mm.

Multi-axis concealed hinges "PIVOTA DX 20x 3-D ..."

Construction

Annex 6



A = chipboard screw 5x...  
B = countersunk screw DIN 7991-M5x...-8.8  
C = chipboard screw 6x...  
RL = reference line  
Dimensions in mm.

Multi-axis concealed hinges "PIVOTA DX 30x 3-D ..."	Annex 7
Construction	

**Multi-axis concealed hinges**

"PIVOTA DX 12x 3-D ...", "PIVOTA DX 18x 3-D ...",  
"PIVOTA DX 19x 3-D ...", "PIVOTA DXA 20x 3-D ...",  
"PIVOTA DX 20x 3-D ...", "PIVOTA DX 30x 3-D ..."

**Annex 8**

Further labelling of individual hinges according to the statement of applicant:

PIVOTA DX 200 3-D	VLB 200 3D
PIVOTA DX 120 3-D Design	Design Concealeo CH 150 3D
PIVOTA DX 180 3-D Design	Design Concealeo CH 200 3D
PIVOTA DXS 180 3-D Steel Design	Steel Design Concealeo CS 300 3D
PIVOTA DX 200 3-D Design	Design Concealeo BH 200 3D
PIVOTA DXS 200 3-D Steel Design	Steel Design Concealeo BS 250 3D
PIVOTA DX 300 3-D Design	Design Concealeo AH 300 3D
PIVOTA DXS 300 3-D Steel Design	Steel Design Concealeo AS 350 3D
PIVOTA DXA 200 3-D Design	GU C 618 3D Concealed