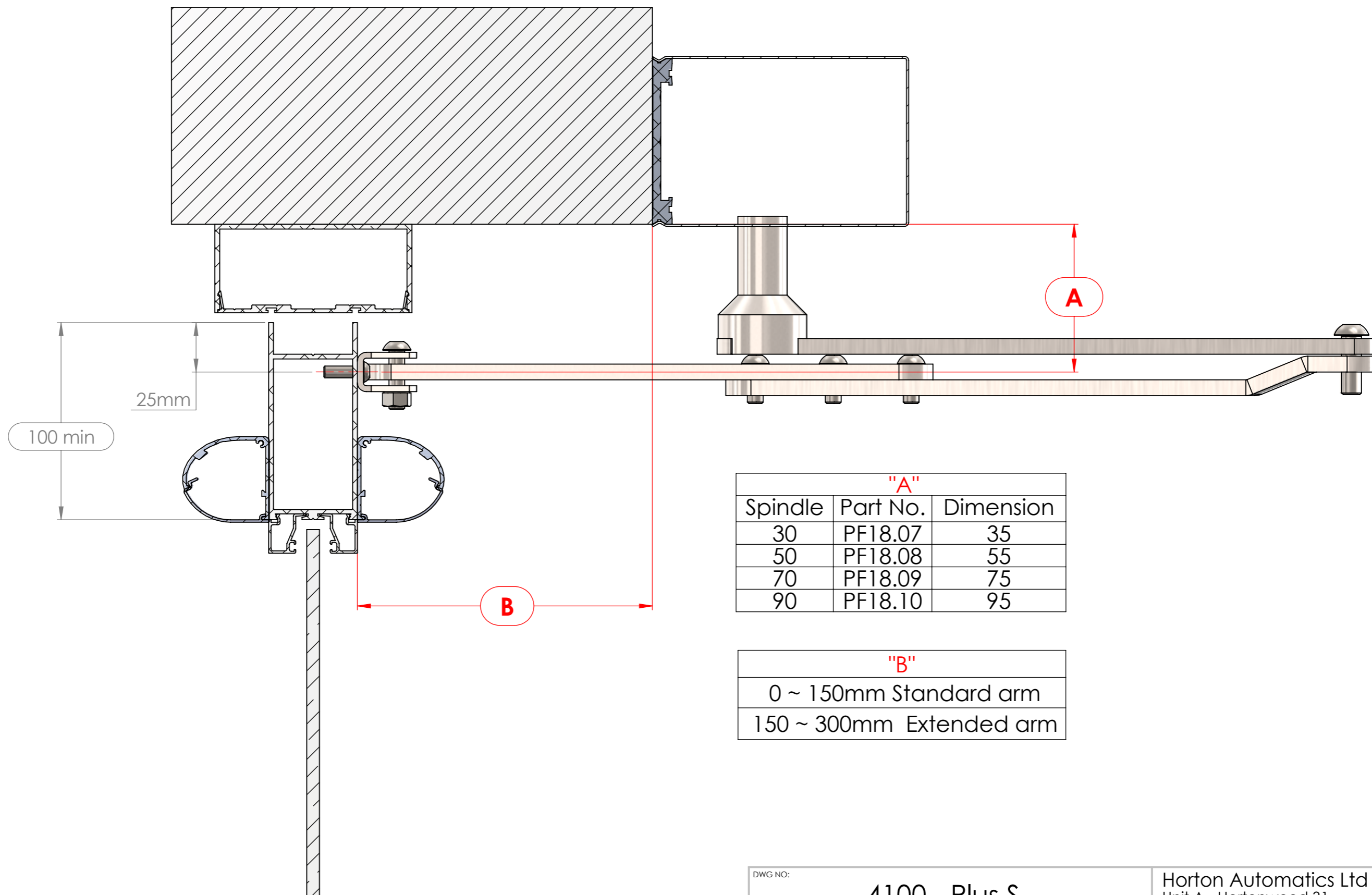


4100- PLUS

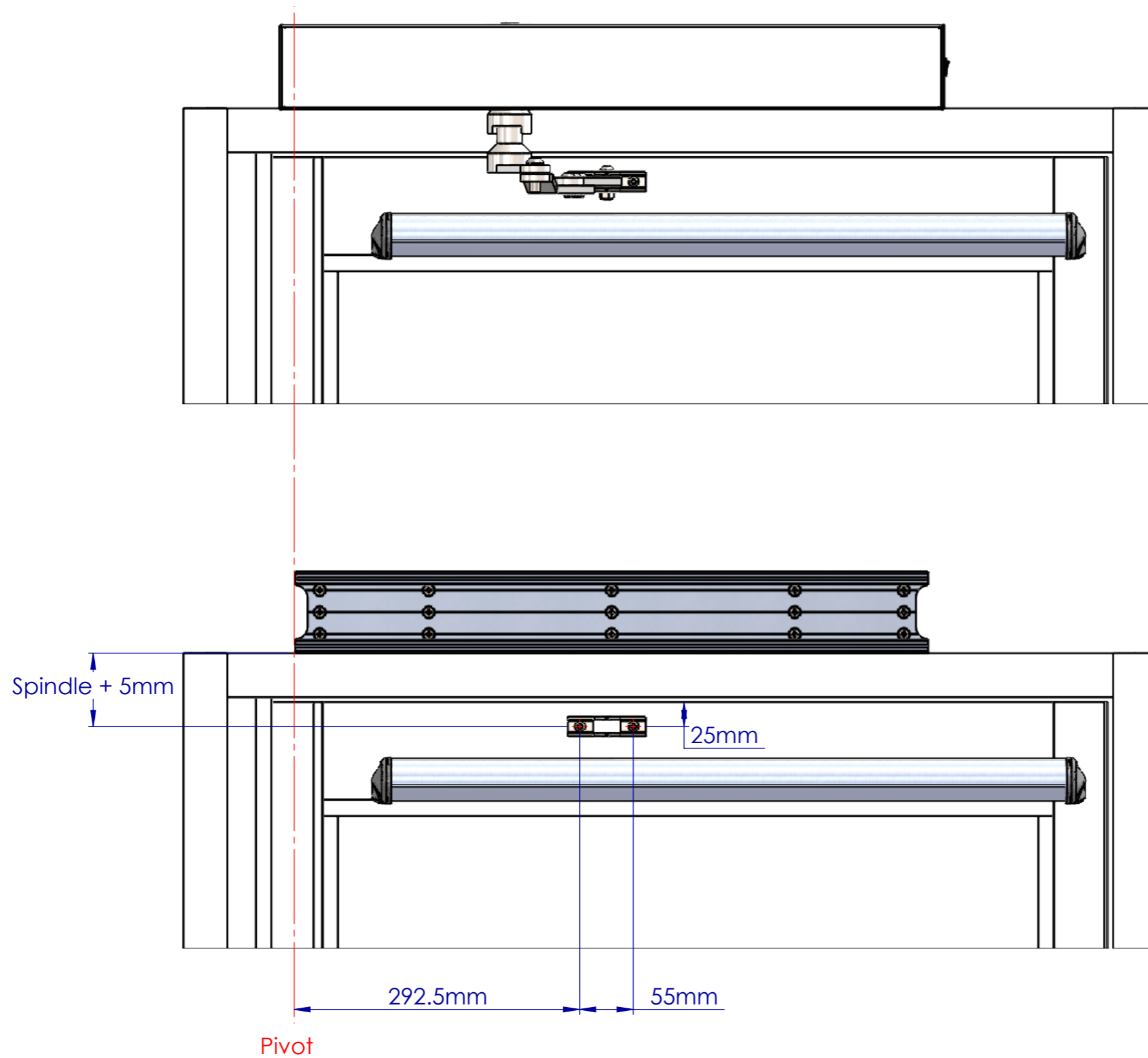
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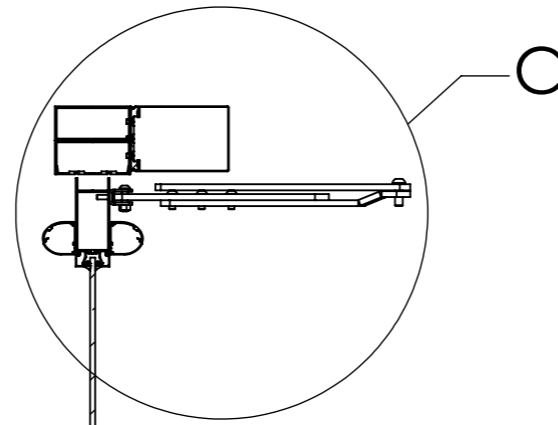
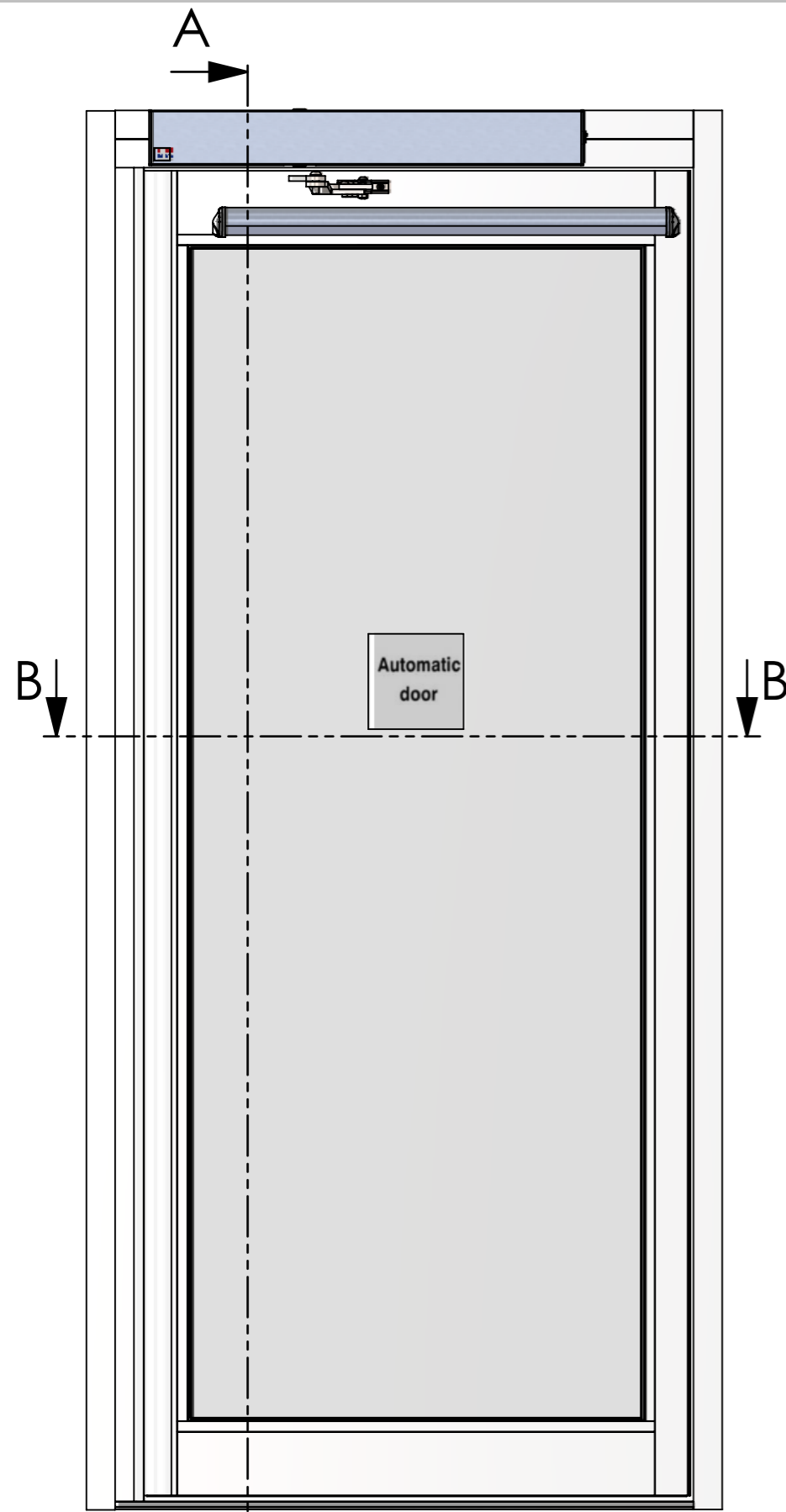
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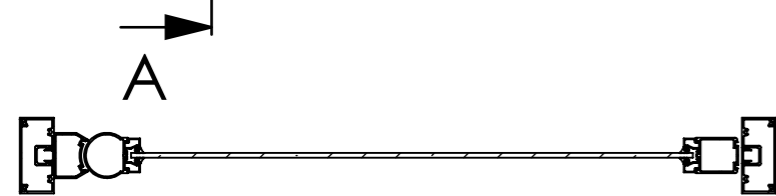
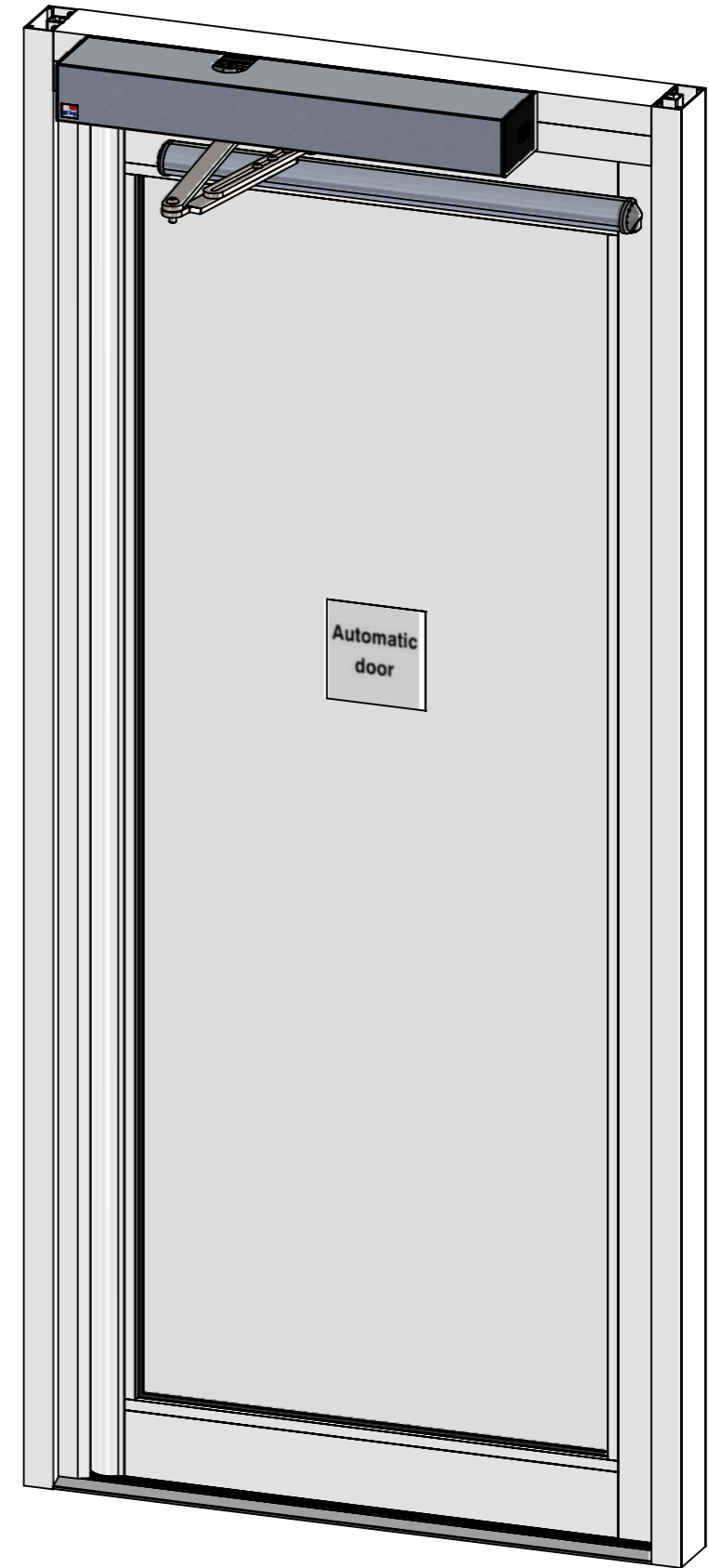
DWG NO:	4100 - Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 1 OF 2	Push Arm Section View				
DESCRIPTION:					
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 07/11/2016	SCALE: 1:2	REVISION 0



DWG NO:	4100 - Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 2 OF 2	Push Arm Elevation View				
DESCRIPTION:					
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 07/11/2016	SCALE: 1:5	REVISION 0



SECTION A-A



SECTION B-B

DWG NO:

0101.4100-Plus S

Horton Automatics Ltd
Unit A - Hortonwood 31
Telford, Shropshire TF1 7YZ



SHEET 1 OF 3

DESCRIPTION:

Frame Mounted Standard Push Arm Sht.1

DO NOT SCALE DRAWING

DIMENSIONS IN MM

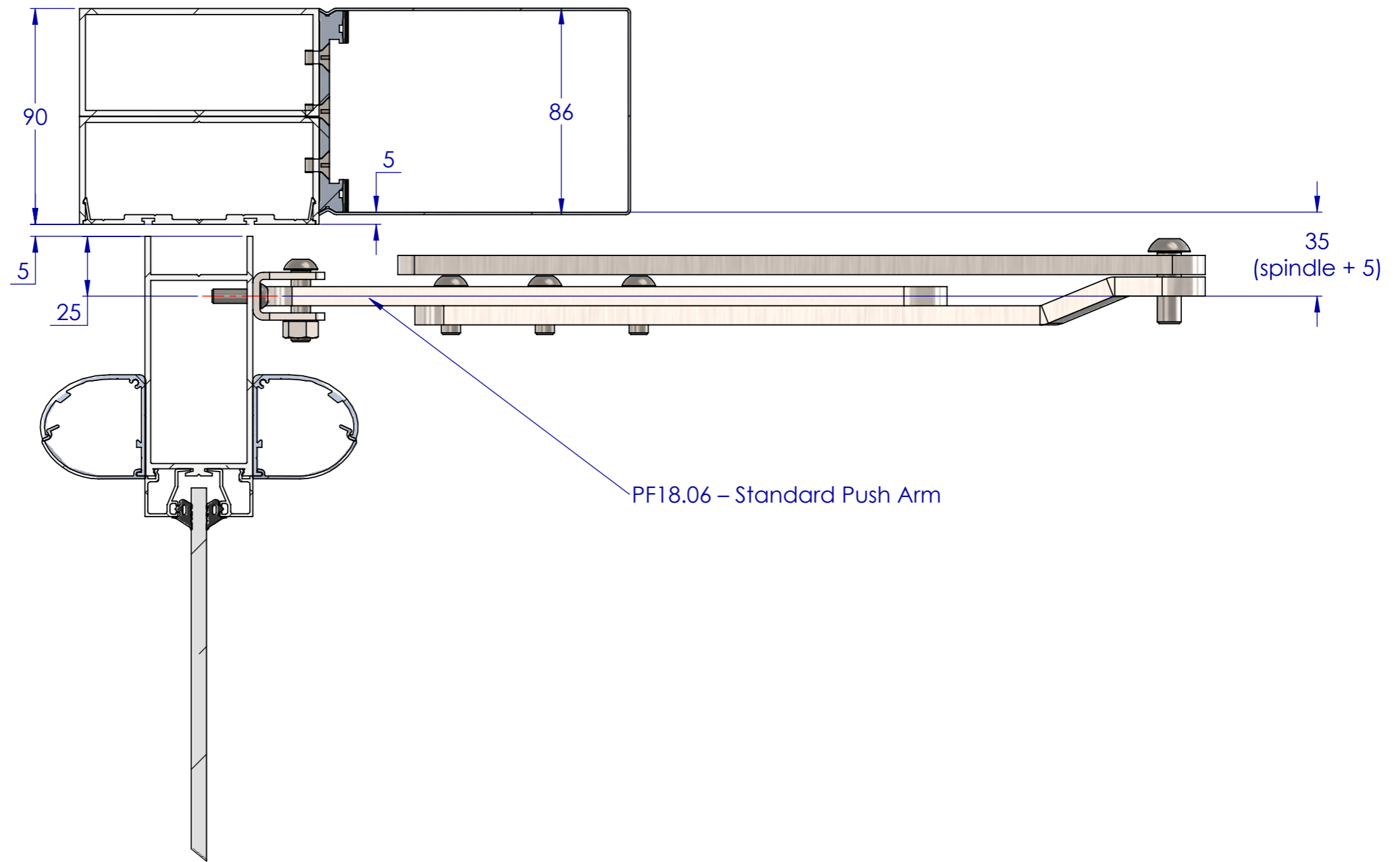
DRAWN Adam Wiggans

DATE: 03/11/2016

SCALE:1:10

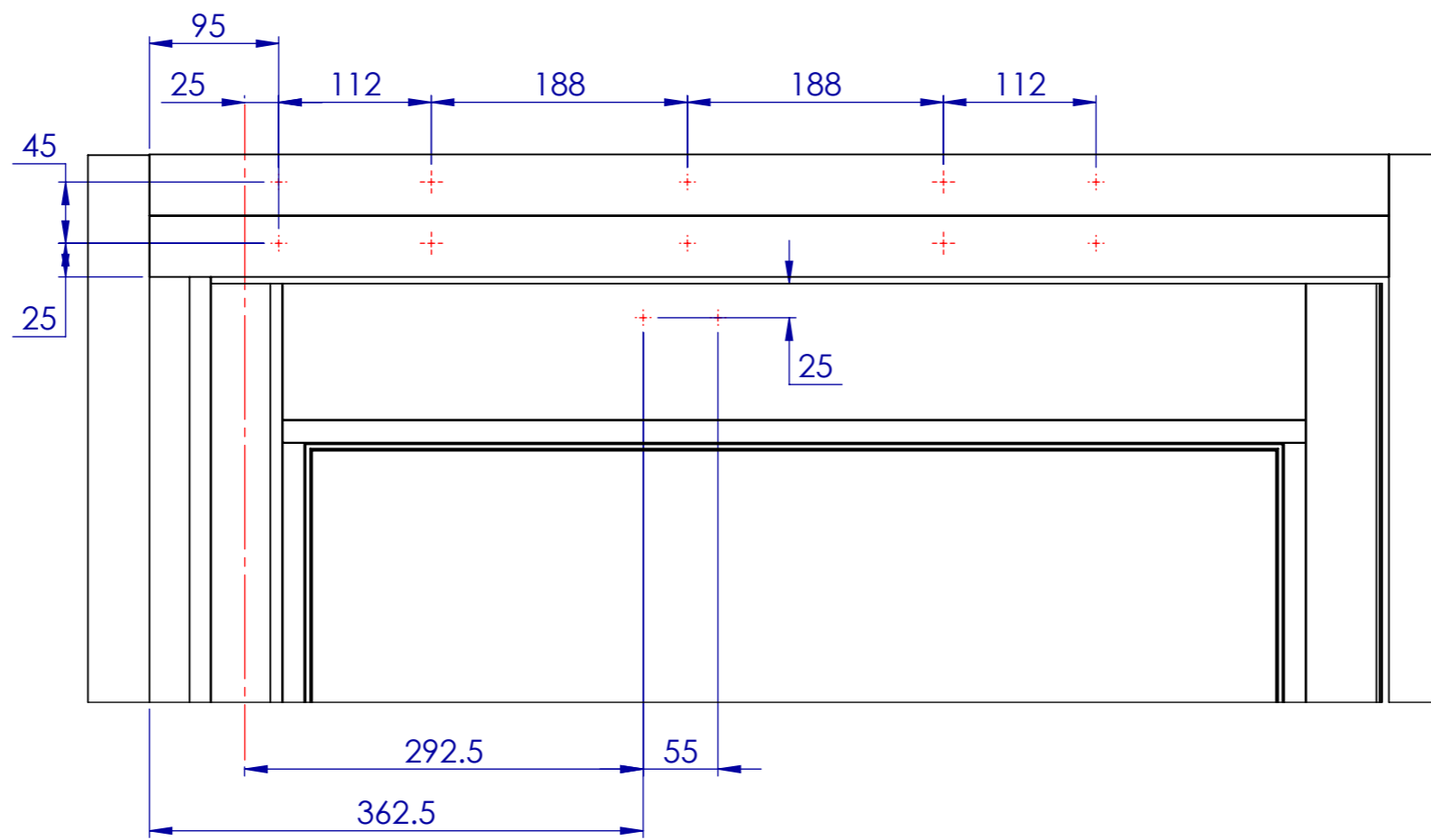
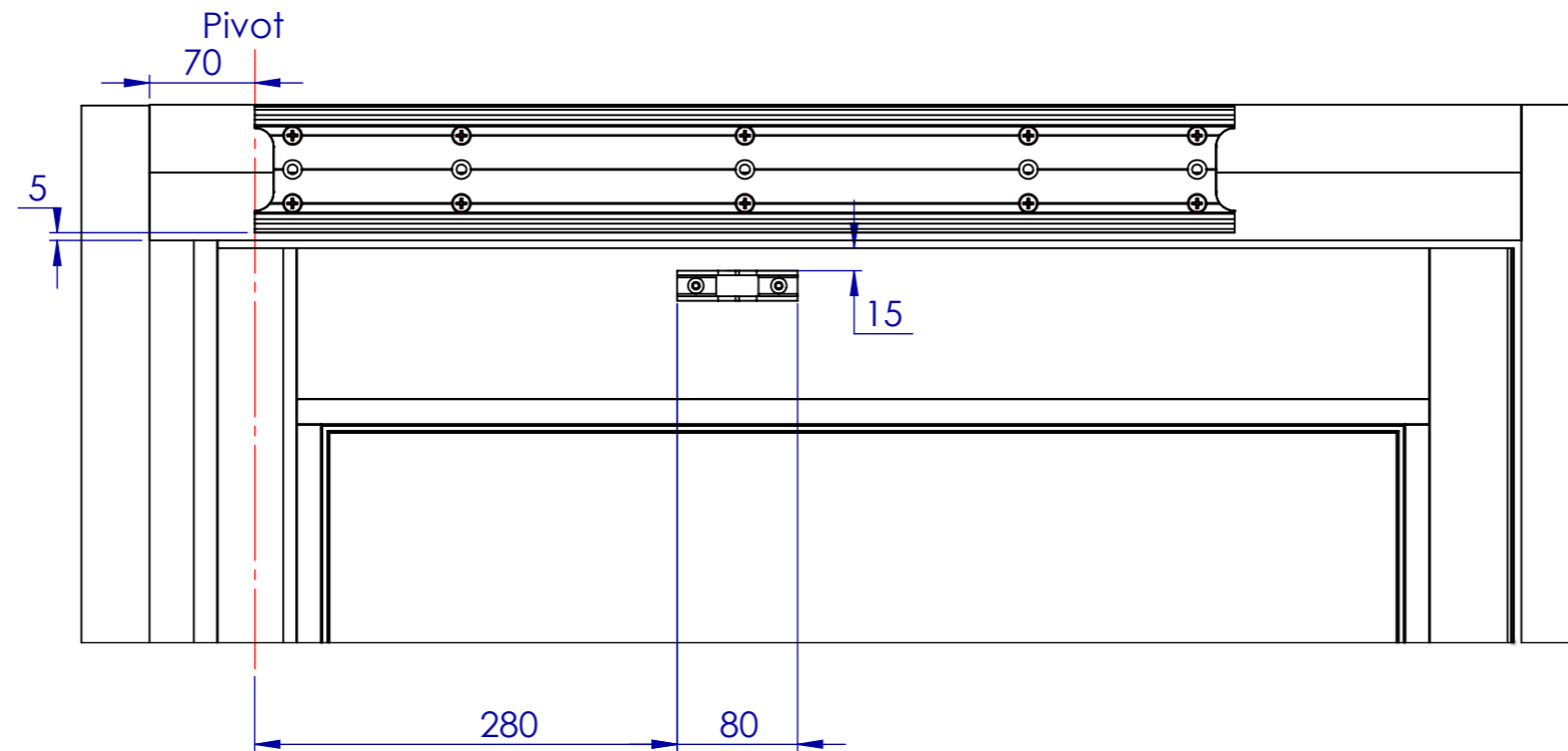
REVISION 1

DETAIL C

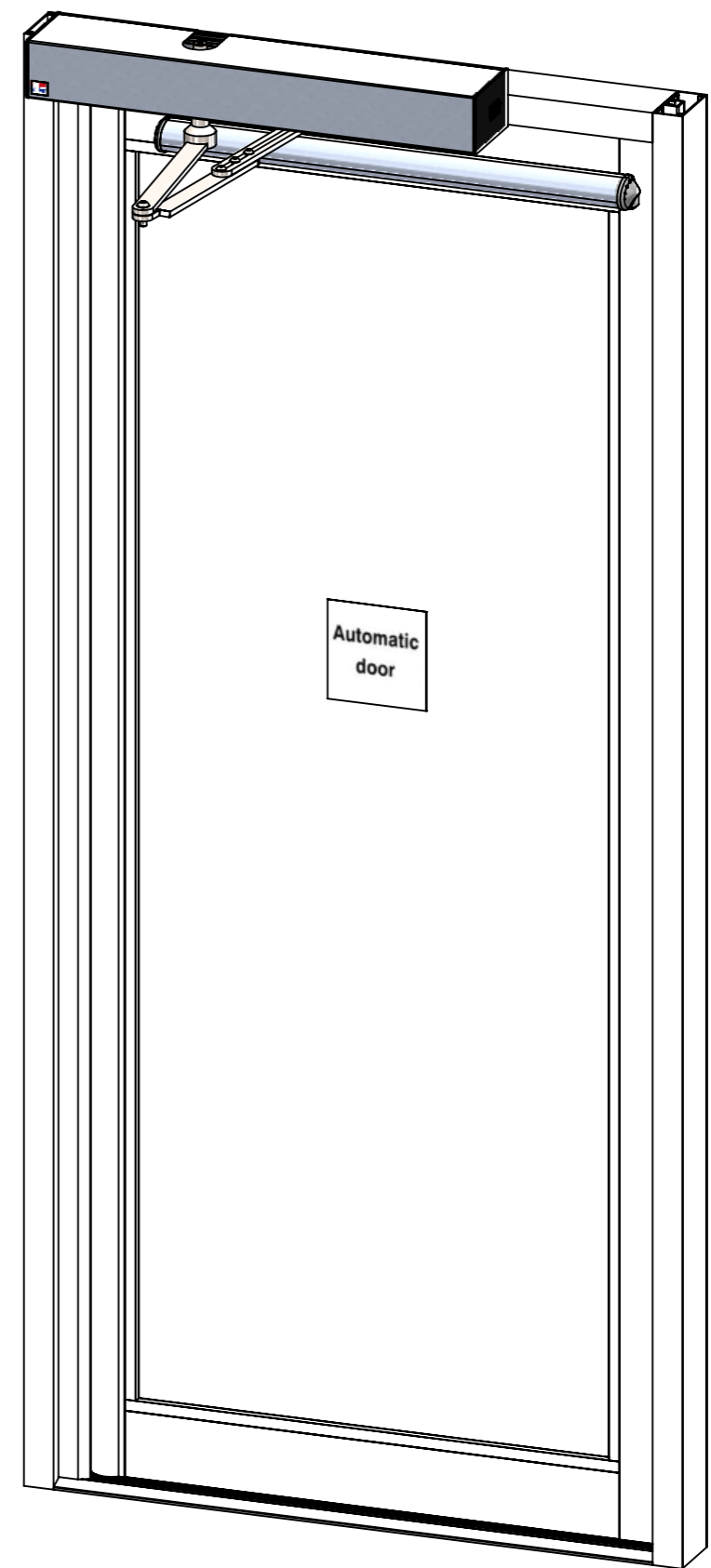
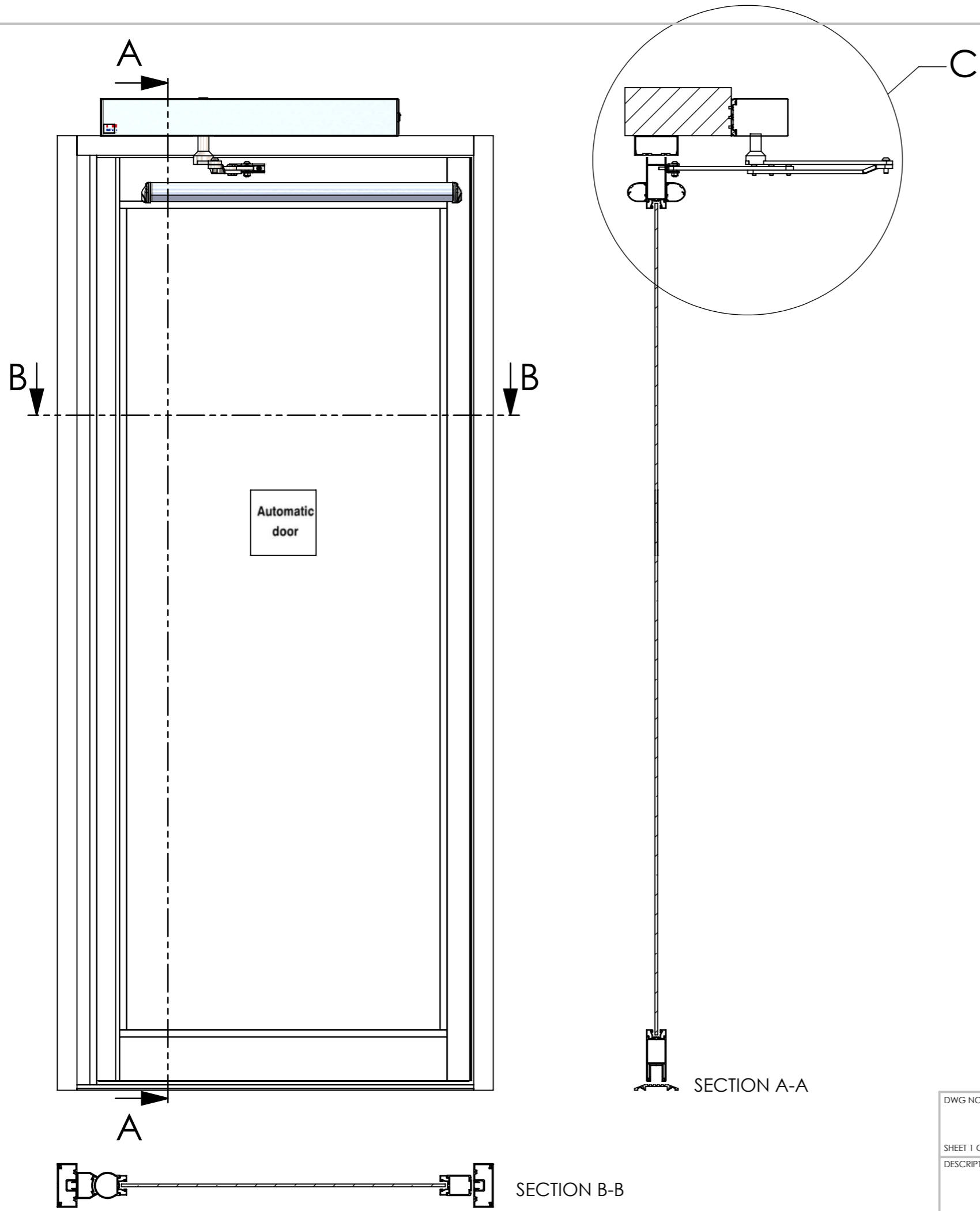


PF18.06 - Standard Push Arm

DWG NO:	0101.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 2 OF 3 Sht.2	DESCRIPTION: Frame Mounted Standard Push Arm Sht.2				
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016	SCALE: 1:2	REVISION 1

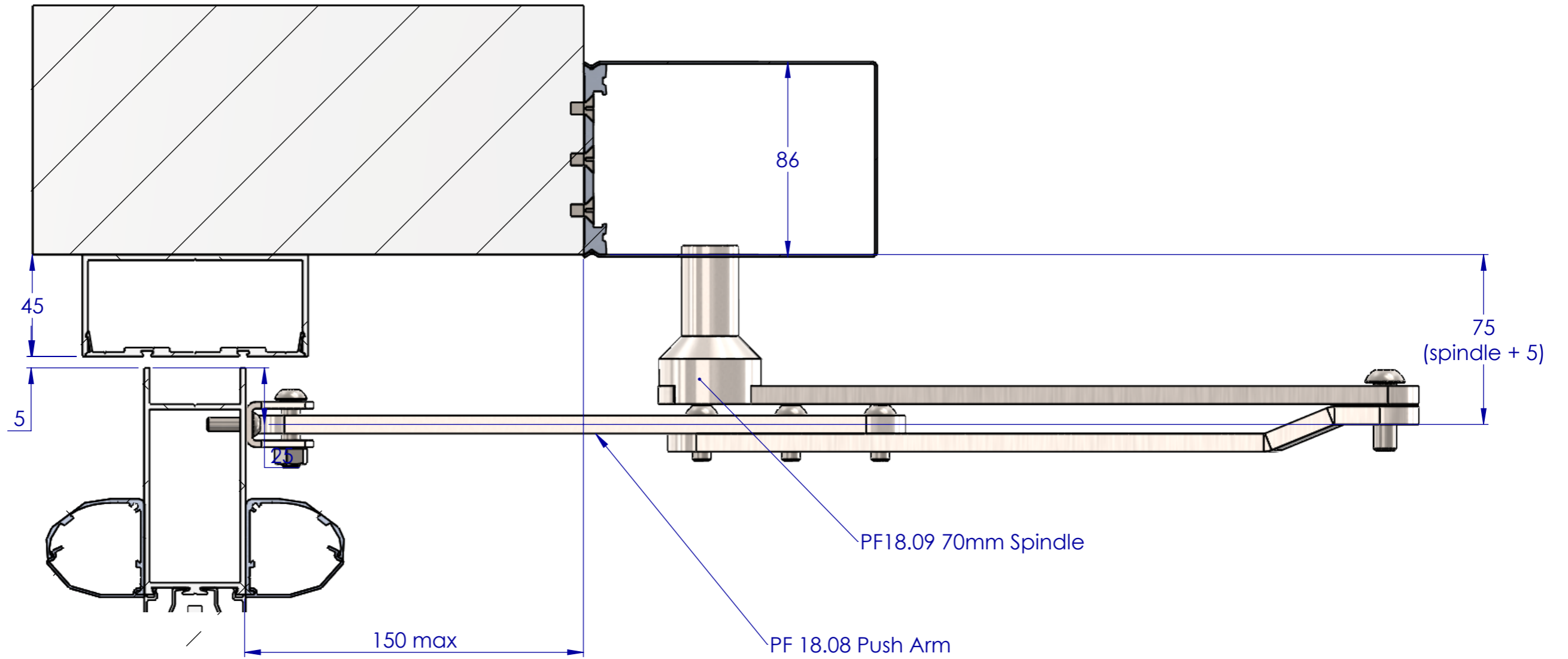



DWG NO:	0101.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 3 OF 3 Sht.3	DESCRIPTION: Frame Mounted Standard Push Arm Sht.3		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
SCALE: 1:5		REVISION 1	

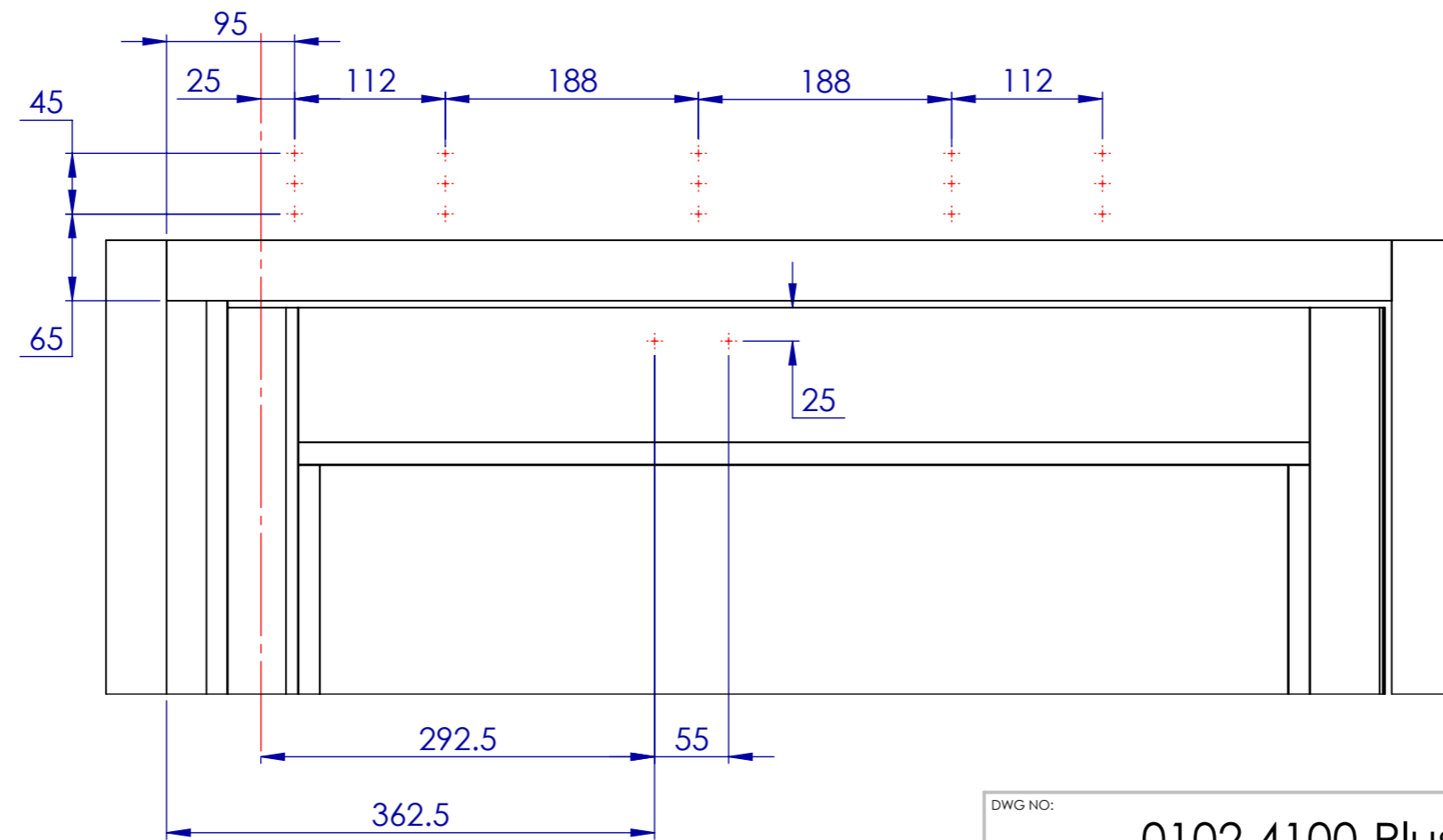
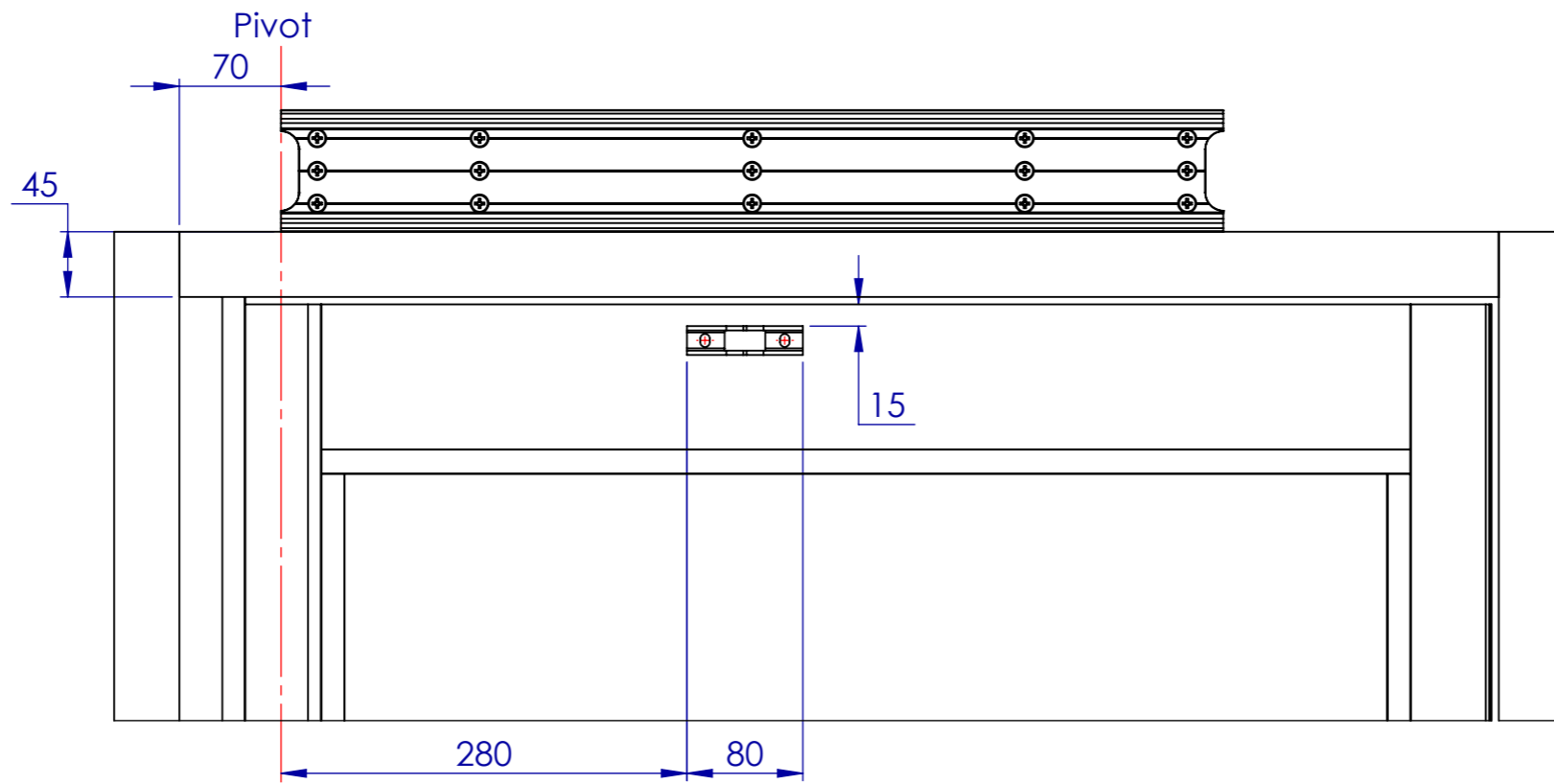


DWG NO:	0102.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 1 OF 3 Sht.1	Lintel Mounted Push Arm Sht.1		
DESCRIPTION:	DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans
			DATE: 03/11/2016
			SCALE: 1:10
			REVISION 1

DETAIL C



DWG NO:	0102.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 2 OF 3 Sht.2	DESCRIPTION: Lintel Mounted Push Arm Sht.2		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggins	DATE: 03/11/2016
		SCALE: 1:2	REVISION 1



DWG NO:

0102.4100-Plus S

Horton Automatics Ltd
Unit A - Hortonwood 31
Telford, Shropshire TF1 7YZ



SHEET 3 OF 3 Sht.3

DESCRIPTION:

Lintel Mounted Push Arm Sht.3

DO NOT SCALE DRAWING

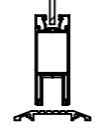
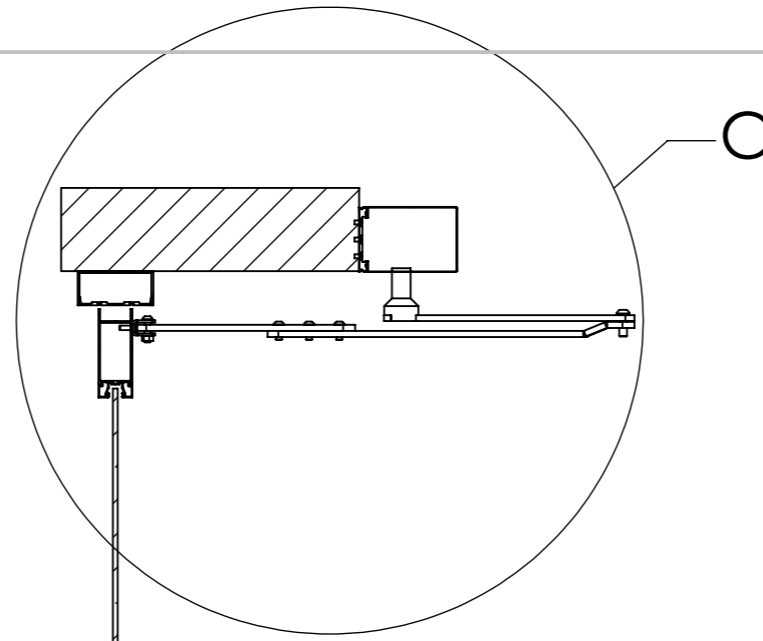
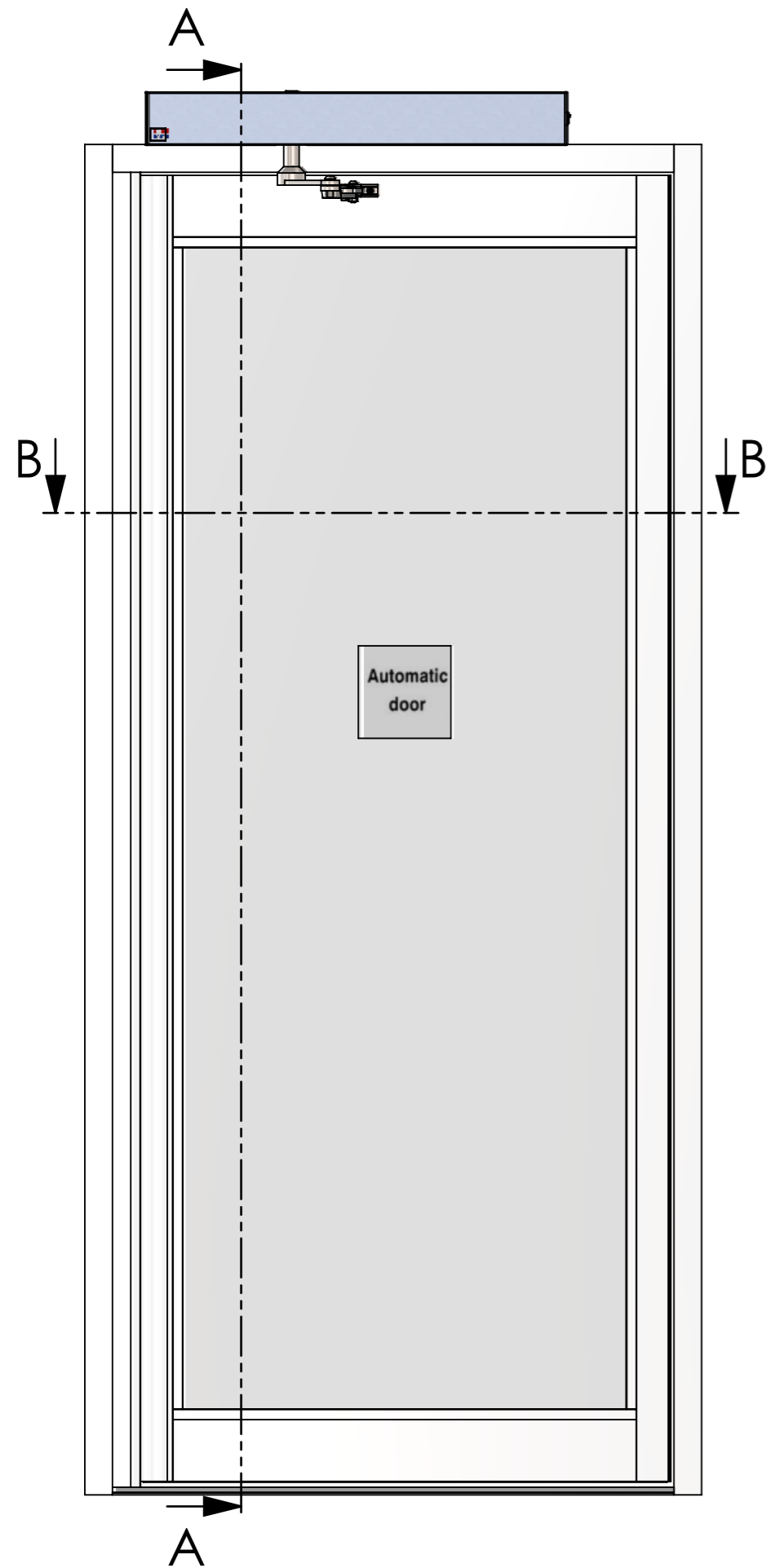
DIMENSIONS IN MM

DRAWN Adam Wiggans

DATE: 03/11/2016

SCALE:1:5

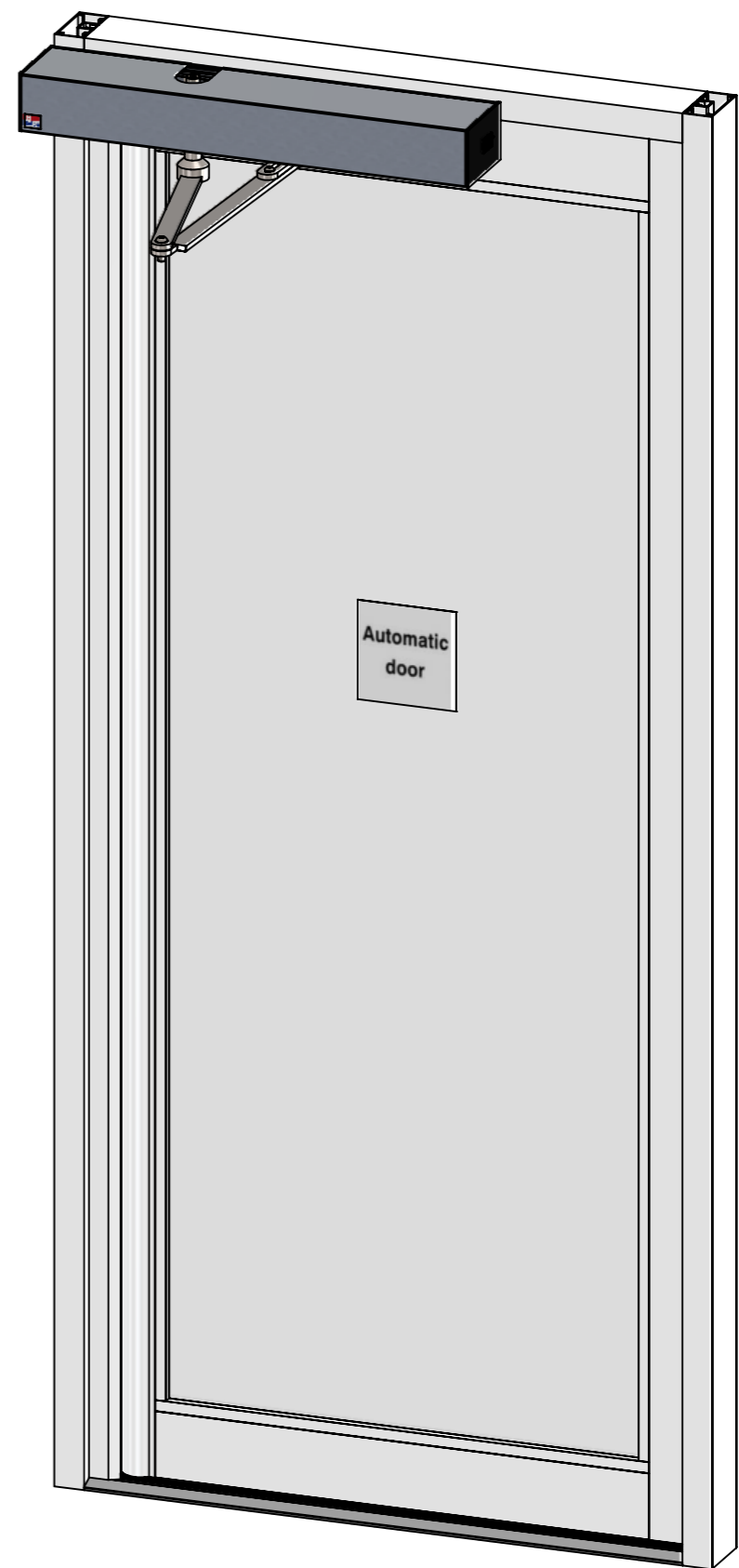
REVISION 1



SECTION A-A



SECTION B-B



DWG NO:

0103.4100-Plus S

Horton Automatics Ltd
Unit A - Hortonwood 31
Telford, Shropshire TF1 7YZ



SHEET 1 OF 3 Sht.1

DESCRIPTION:

Lintel Mounted Extended Push Arm Sht.1

DO NOT SCALE DRAWING

DIMENSIONS IN MM

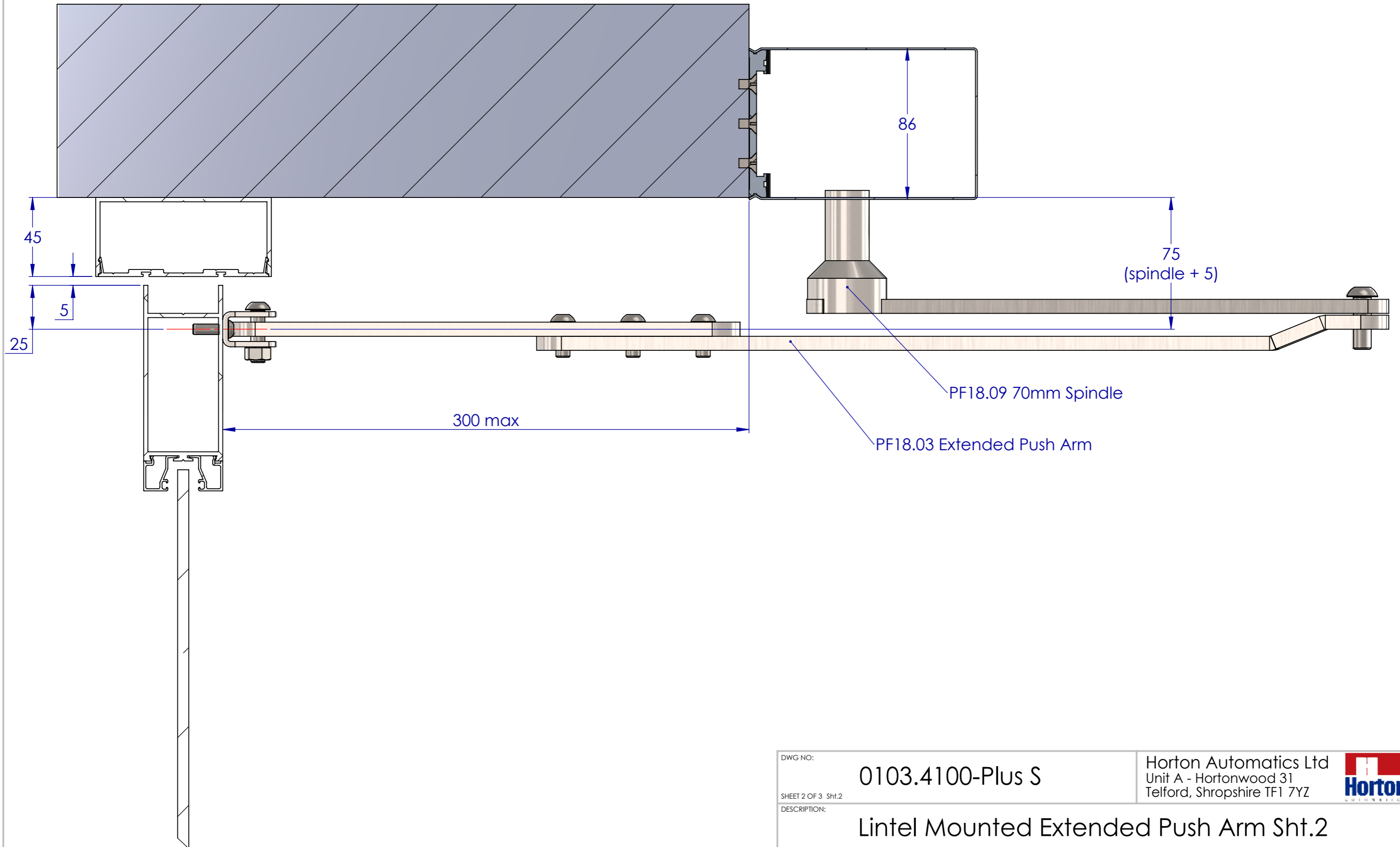
DRAWN Adam Wiggins


DATE: 03/11/2016

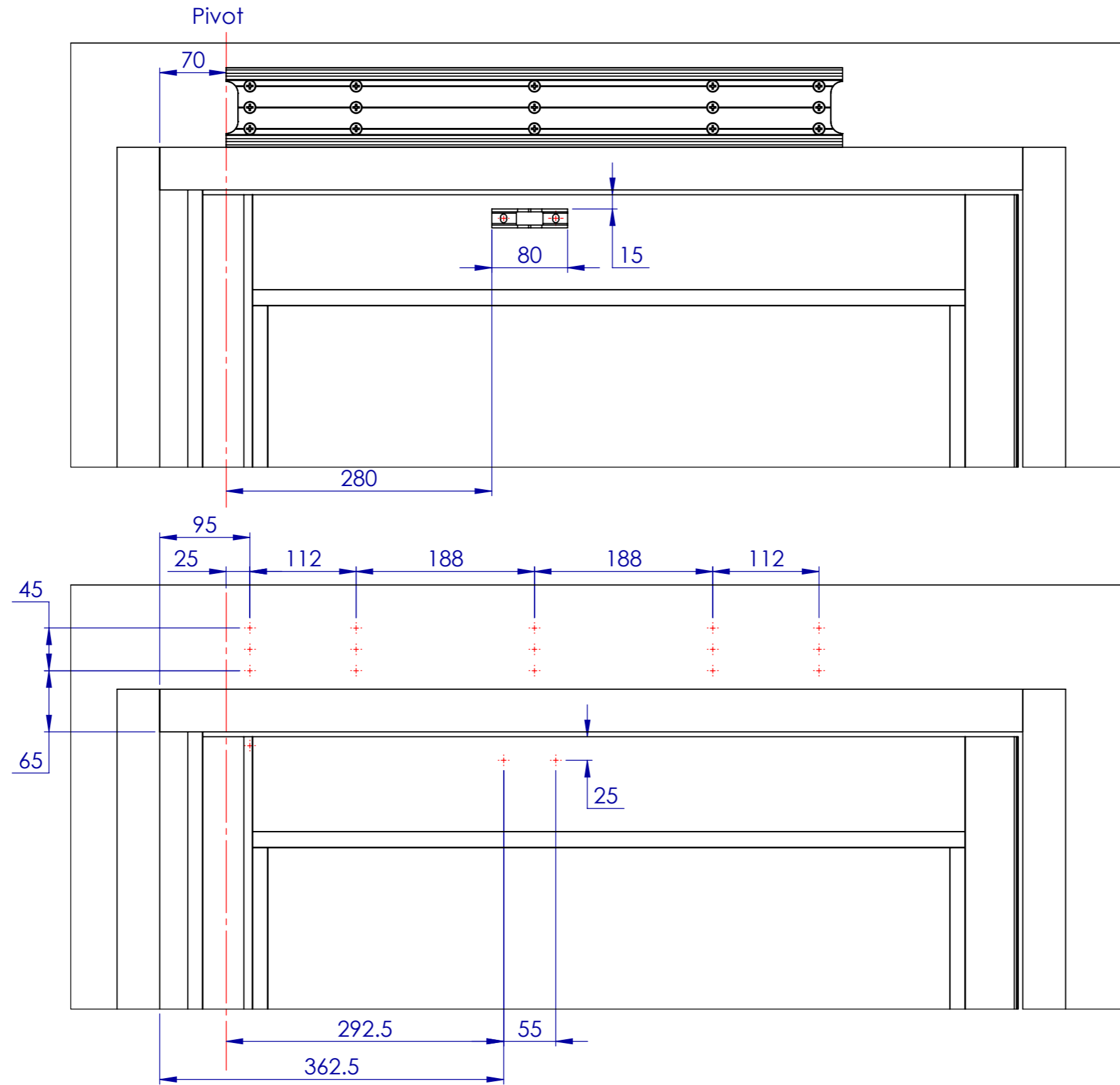
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REVISION 1

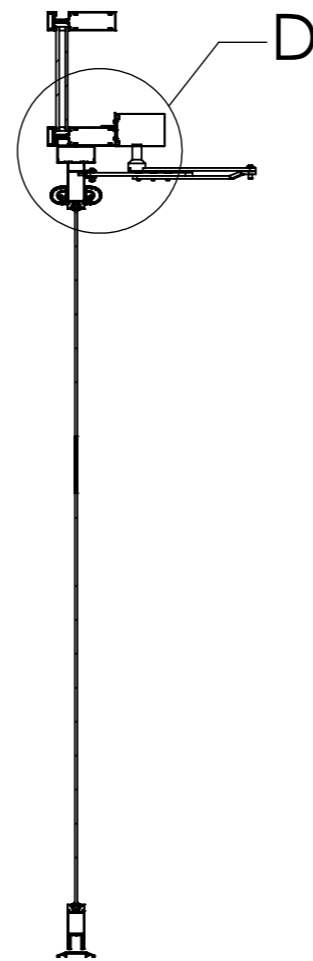
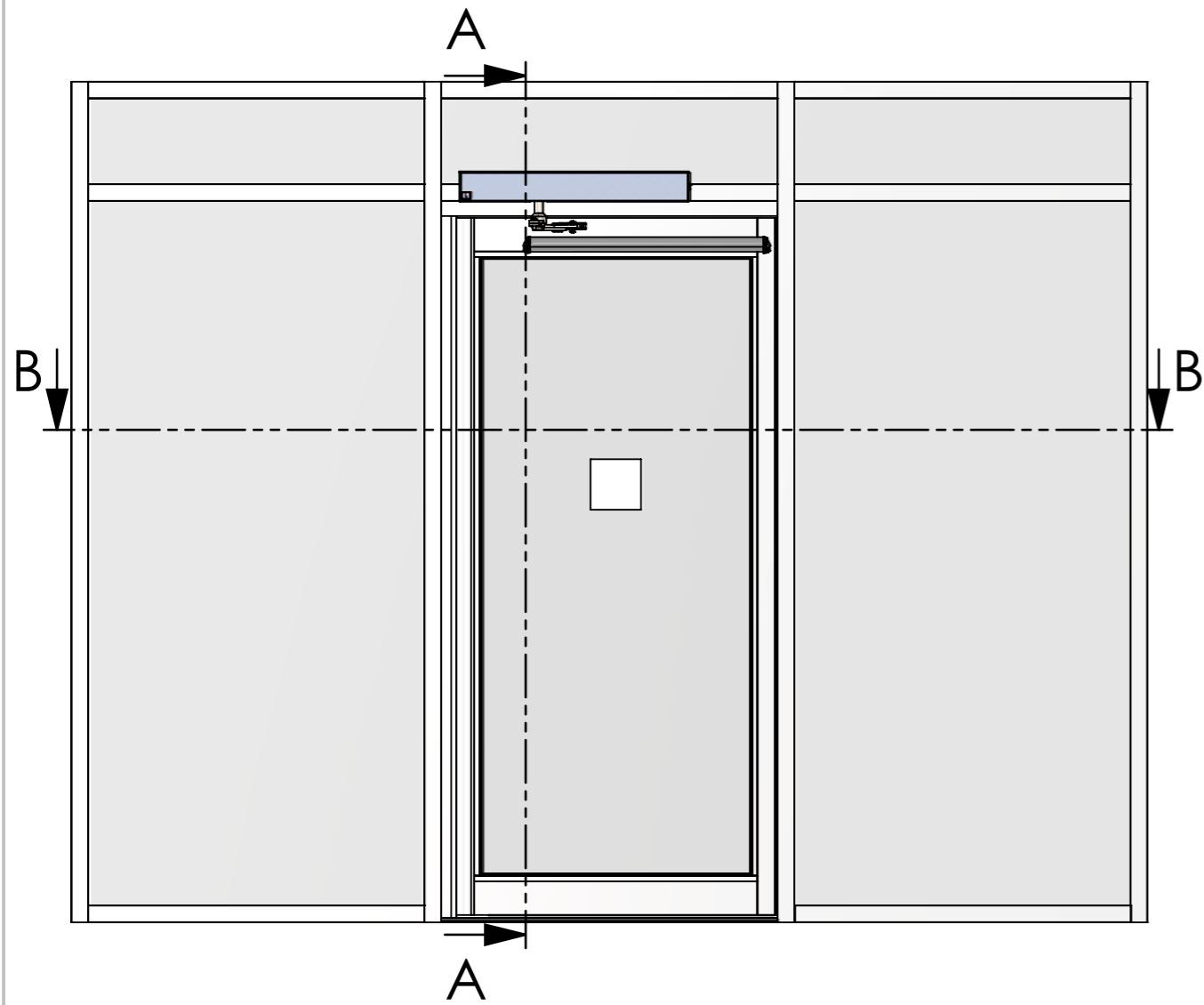
DETAIL C



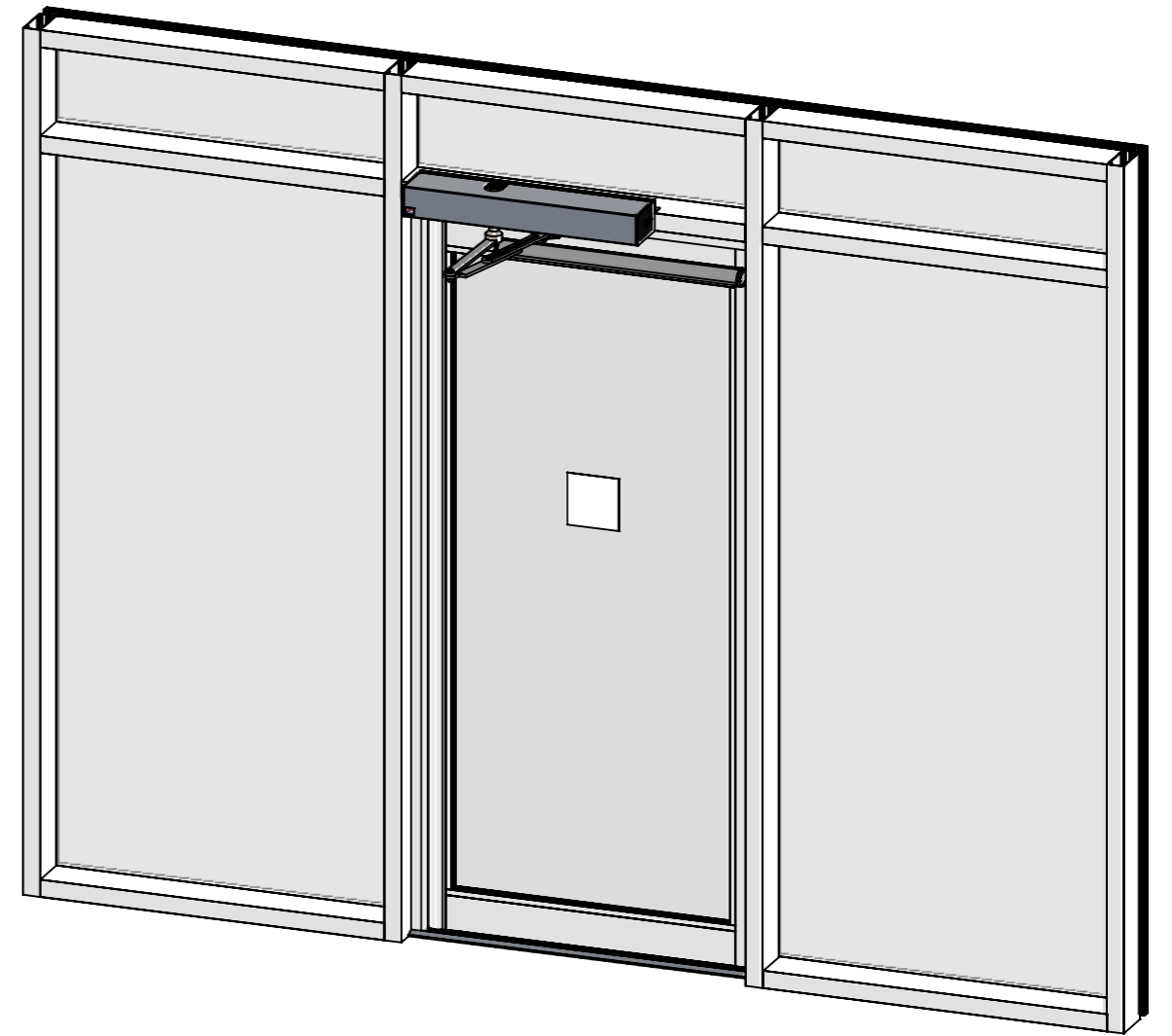
DWG NO:	0103.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 2 OF 3 Sht.2	DESCRIPTION: Lintel Mounted Extended Push Arm Sht.2				
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016	SCALE: 1:2	REVISION 1




DWG NO:	0103.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 3 OF 3 Sht.3	DESCRIPTION: Lintel Mounted Extended Push Arm Sht.3		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
SCALE: 1:5		REVISION 1	



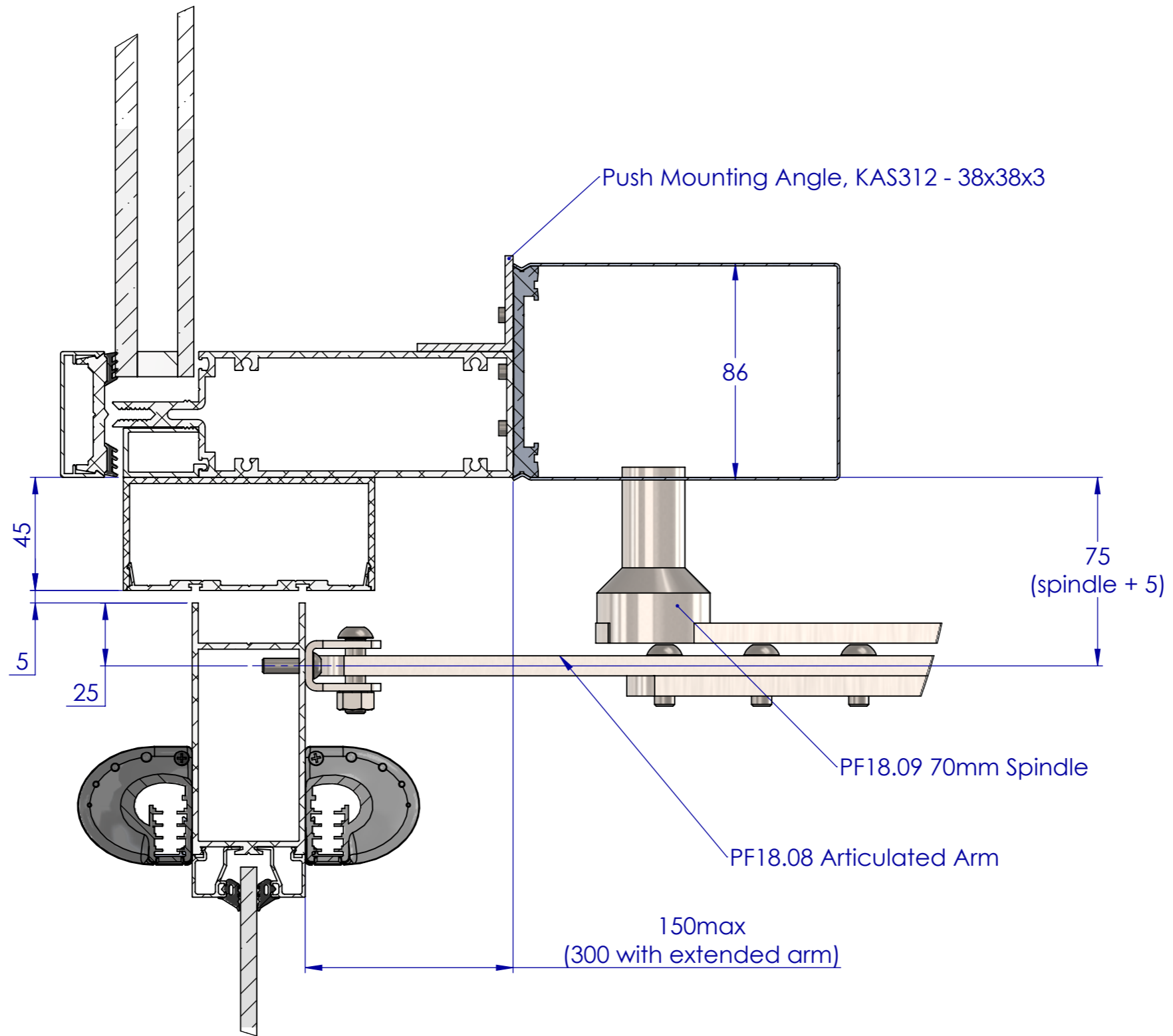
SECTION A-A




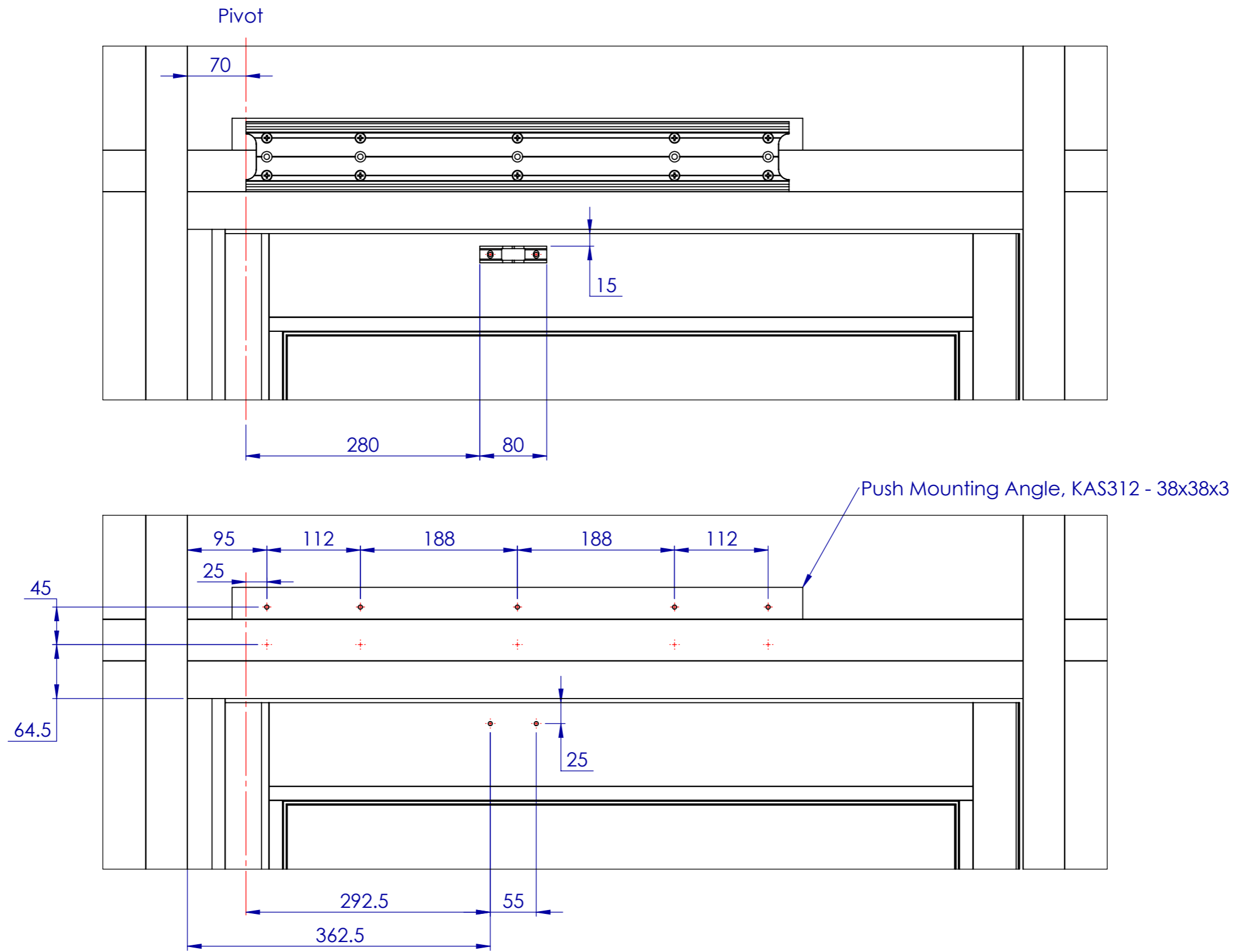
SECTION B-B


DWG NO:	0104.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 1 OF 3 Sht.1	CW Mount Push Sht.1				
DESCRIPTION:					
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggins	DATE: 03/11/2016	SCALE: 1:20	REVISION 1

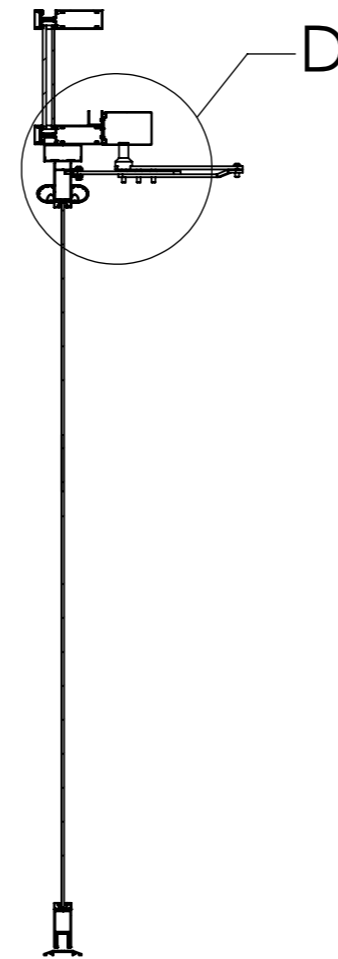
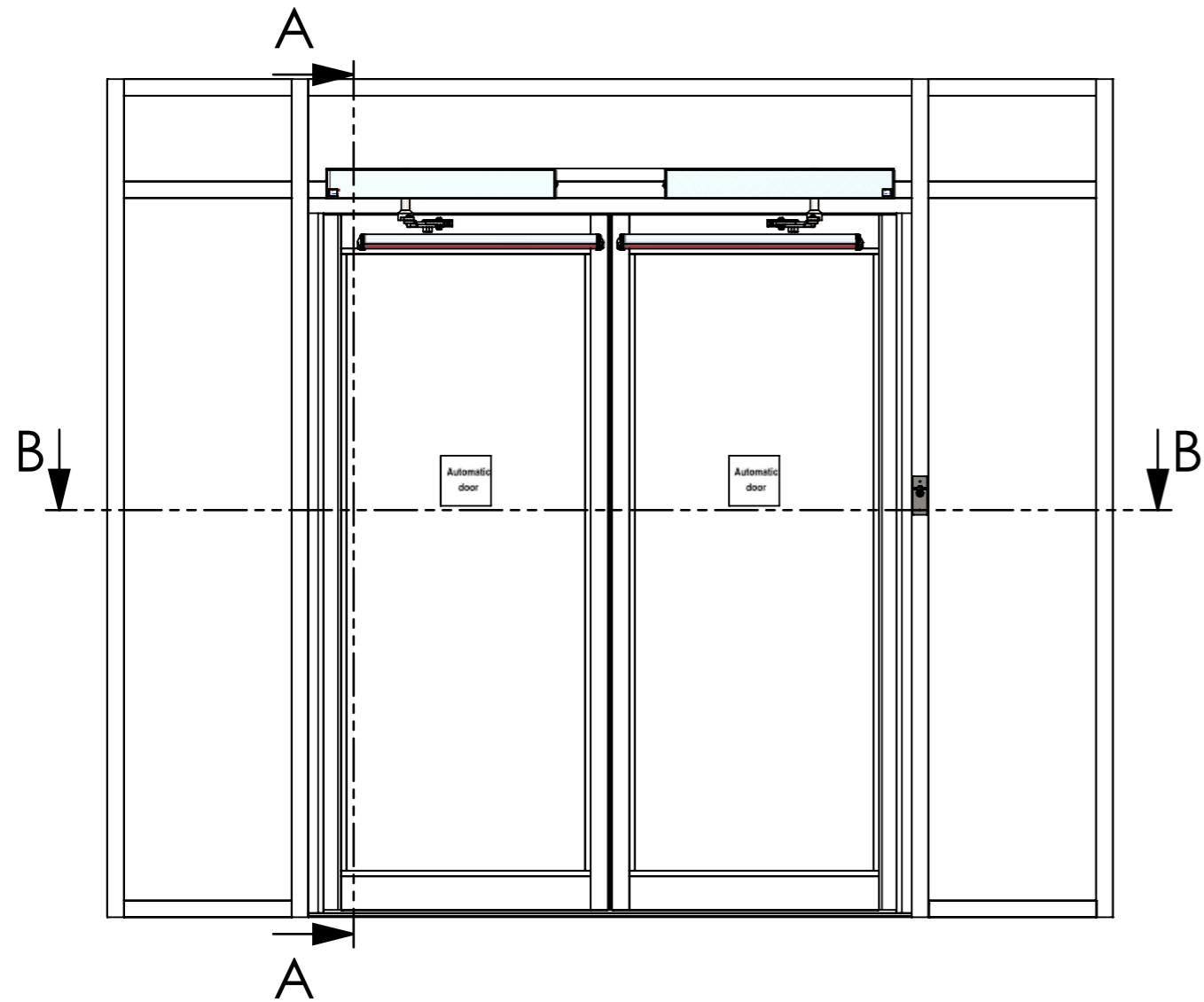
DETAIL D



DWG NO:	0104.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 2 OF 3 Sht.2	DESCRIPTION: CW Mount Push Sht.2		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
		SCALE: 1:2	REVISION 1



DWG NO:	0104.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 3 OF 3 Sht.3	CW Mount Push Sht.3				
DESCRIPTION:					
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016	SCALE: 1:5	REVISION 1



SECTION A-A



SECTION B-B

DWG NO:

0104P.4100-Plus S

Horton Automatics Ltd
Unit A - Hortonwood 31
Telford, Shropshire TF1 7YZ



SHEET 1 OF 3 Sht.1

DESCRIPTION:

Curtain Wall Mount Push Pair Sht.1

DO NOT SCALE DRAWING

DIMENSIONS IN MM

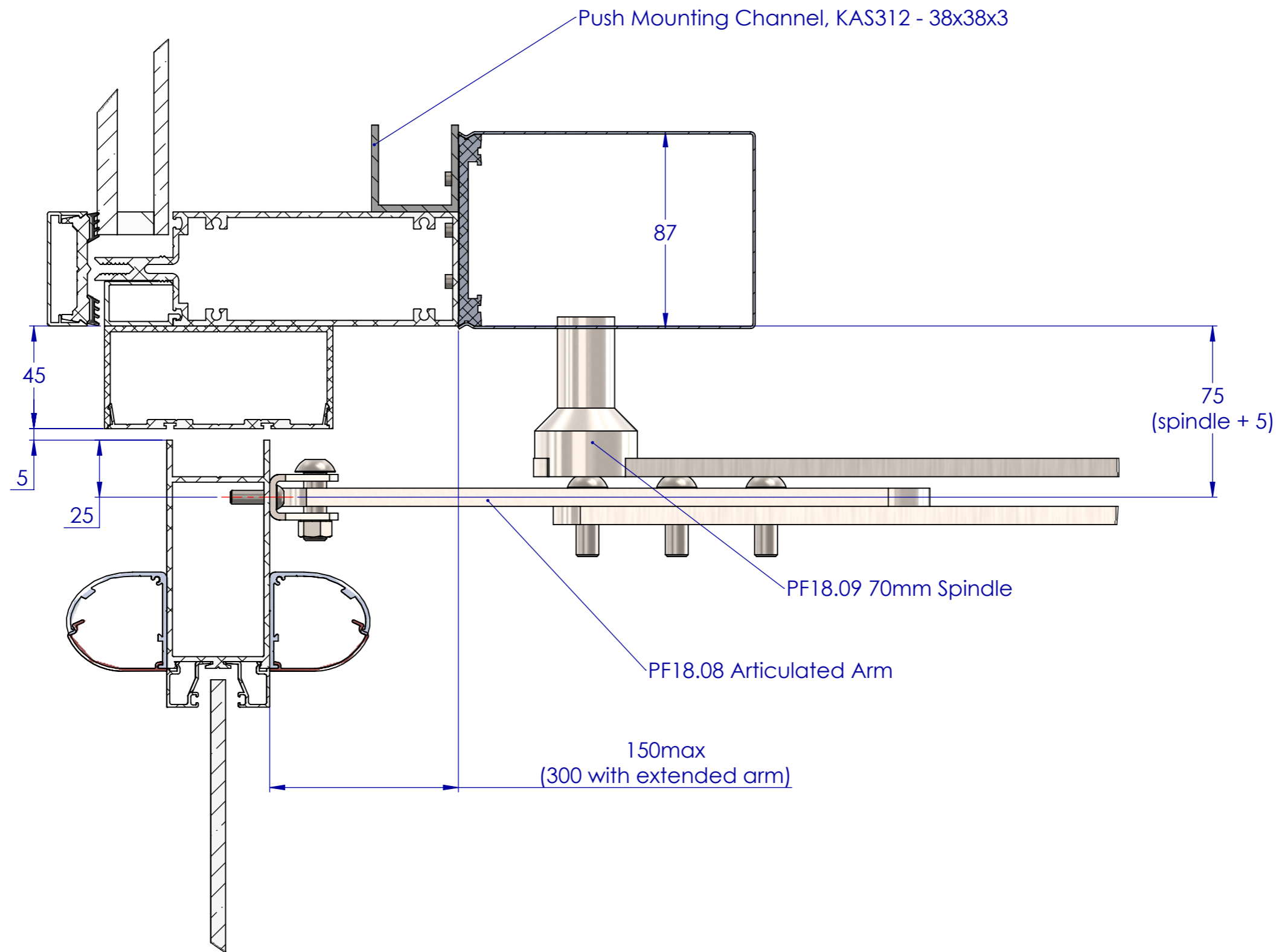
DRAWN Adam Wiggans


DATE: 03/11/2016

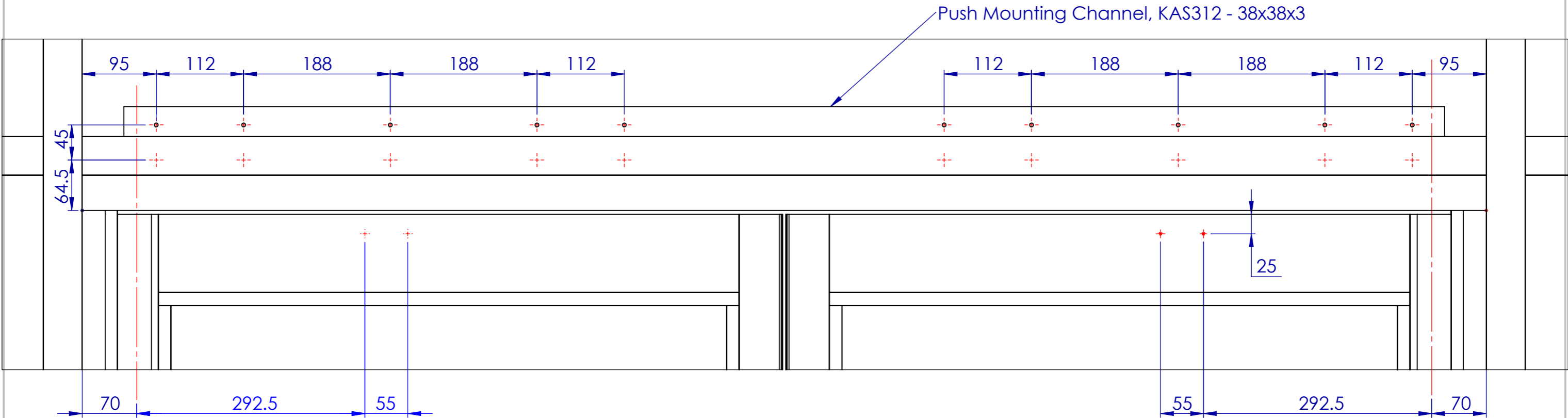
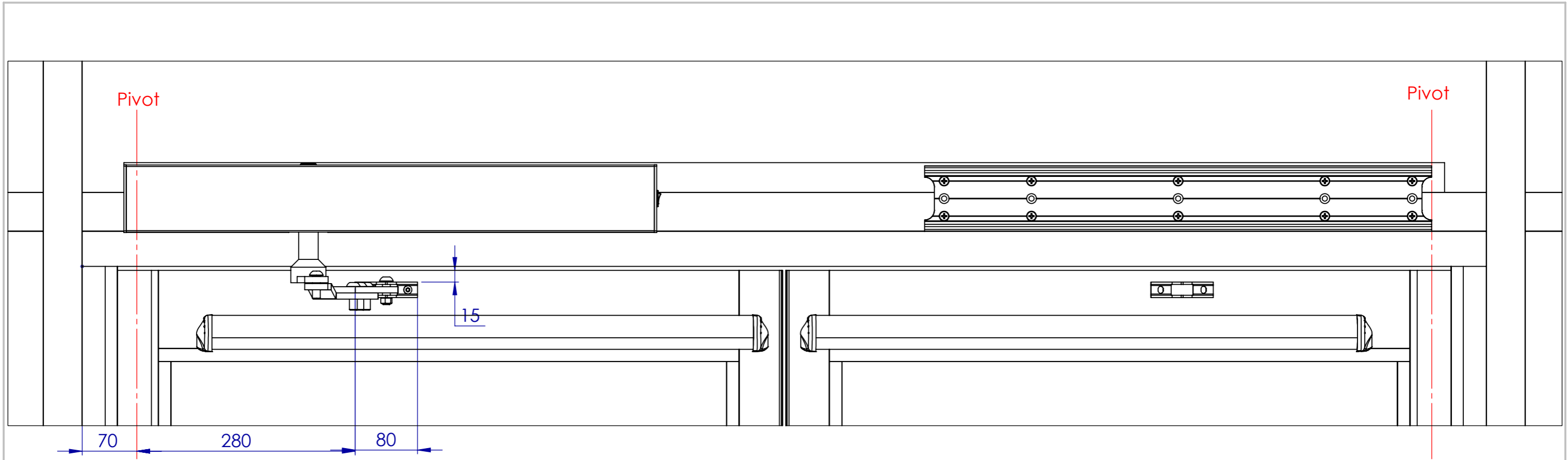
SCALE: 1:20

REVISION 0

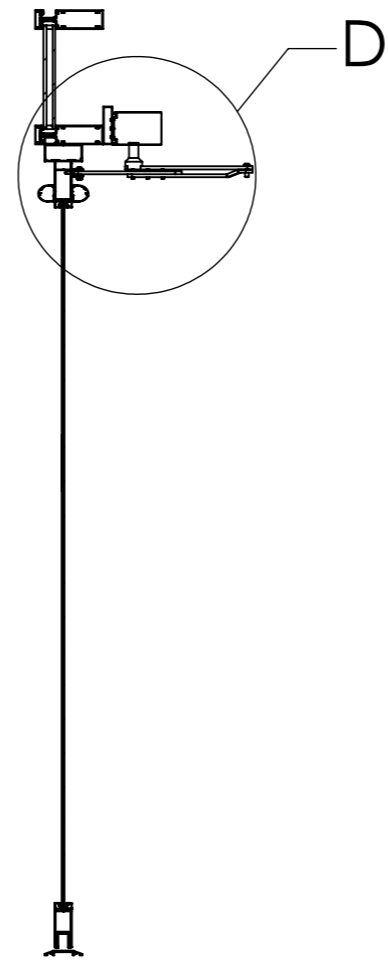
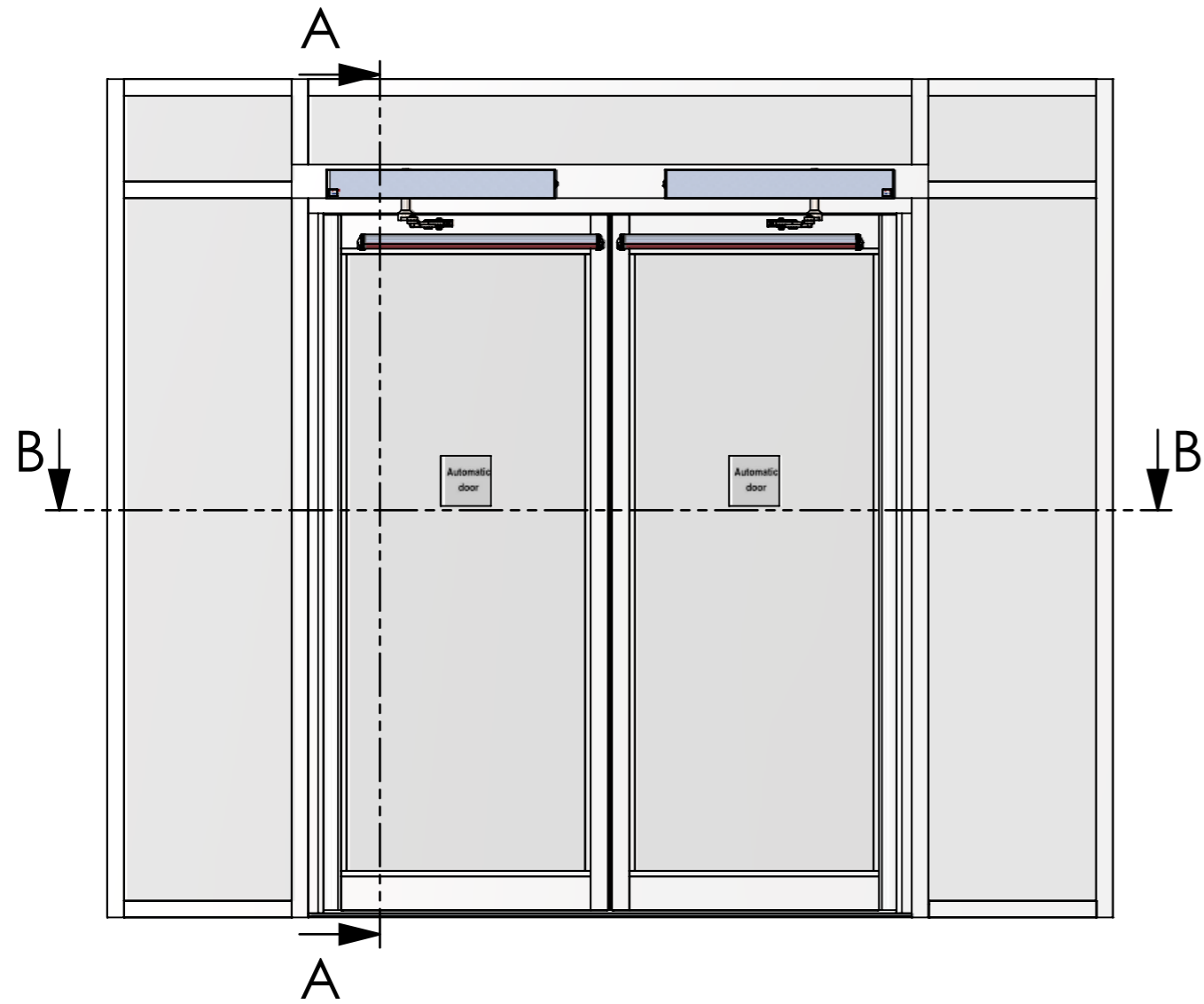
DETAIL D



DWG NO:	0104P.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 2 OF 3 Sht.2			
DESCRIPTION:	Curtain Wall Mount Push Pair Sht.2		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggins	DATE: 03/11/2016
		SCALE: 1:2	REVISION 0



DWG NO:	0104P.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 3 OF 3 Sht.3	DESCRIPTION: Curtain Wall Mount Push Pair Sht.3		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
SCALE: 1:5		REVISION 0	



SECTION B-B

DWG NO:

0104Pa.4100-Plus S

Horton Automatics Ltd
Unit A - Hortonwood 31
Telford, Shropshire TF1 7YZ



SHEET 1 OF 3 Sht.1

DESCRIPTION:

4100 CW Mount Push Pair with beam Sht.1

DO NOT SCALE DRAWING

DIMENSIONS IN MM

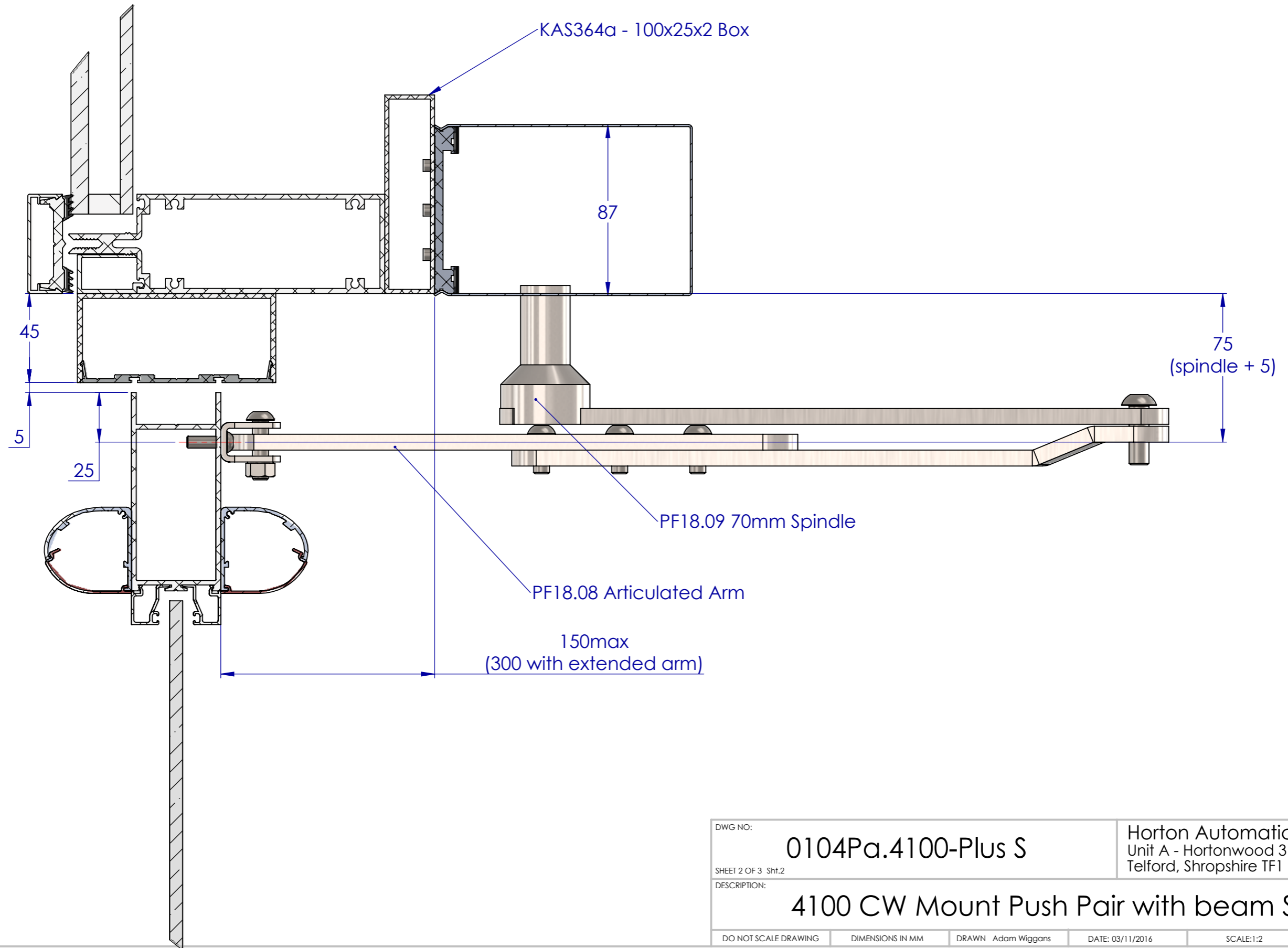
DRAWN Adam Wiggans


DATE: 03/11/2016

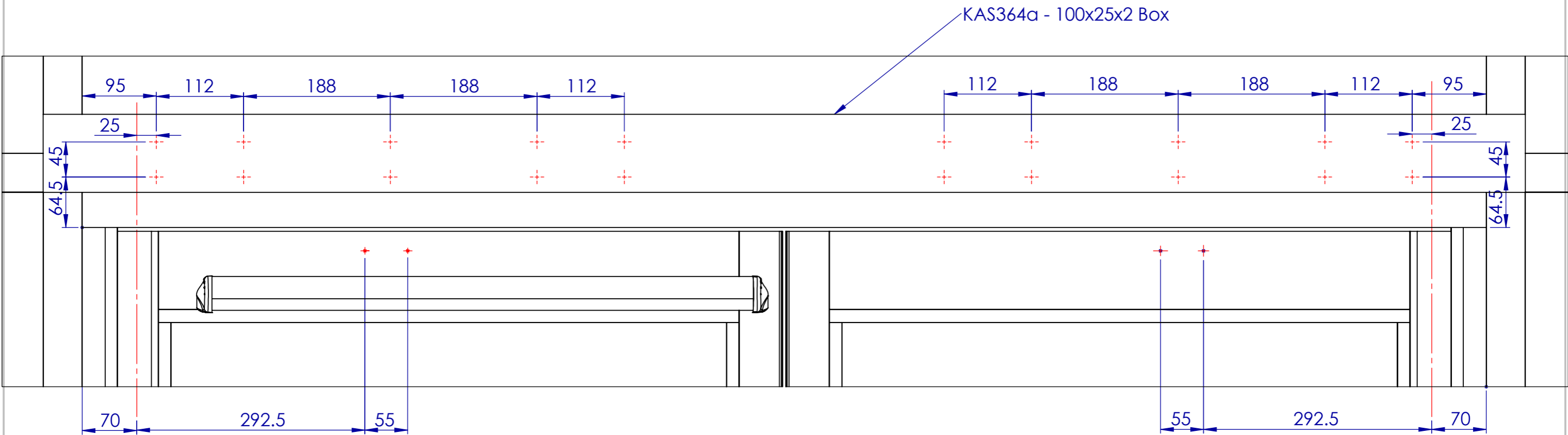
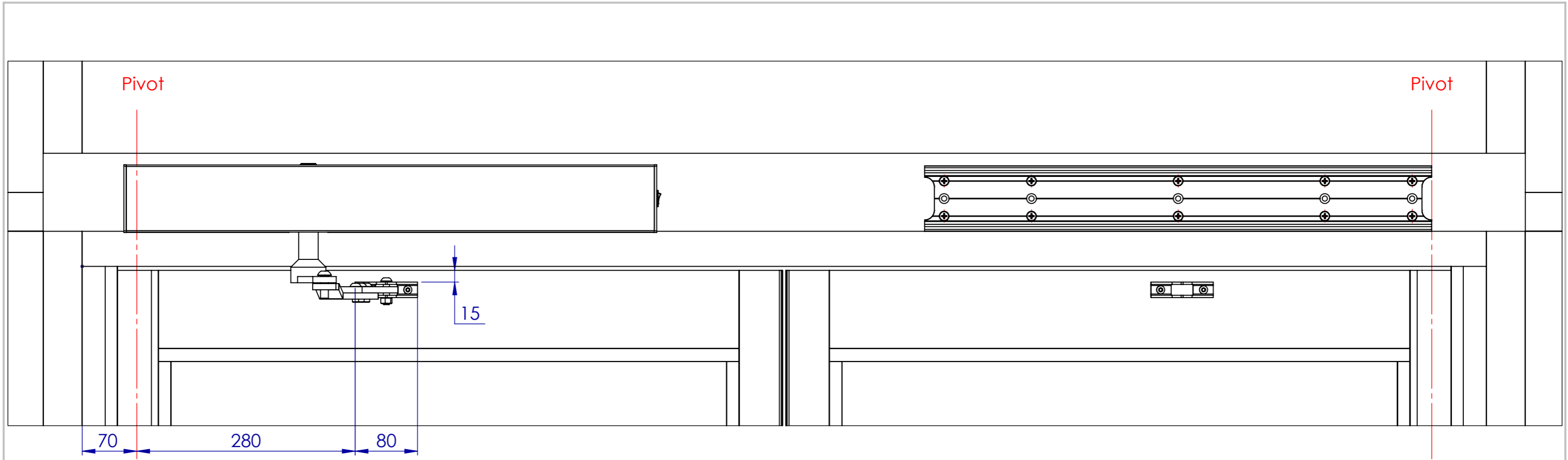
SCALE: 1:20

REVISION 1

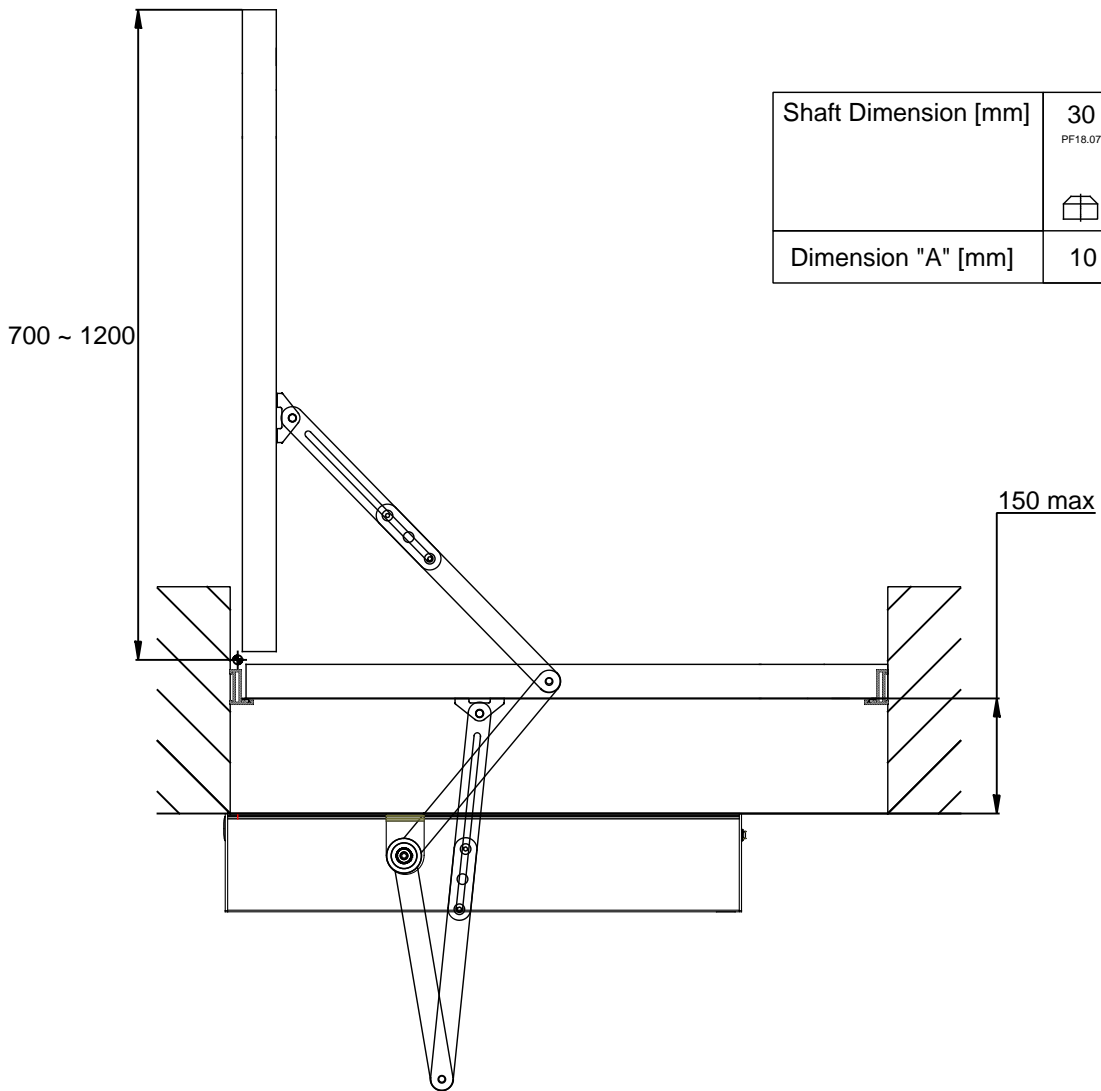
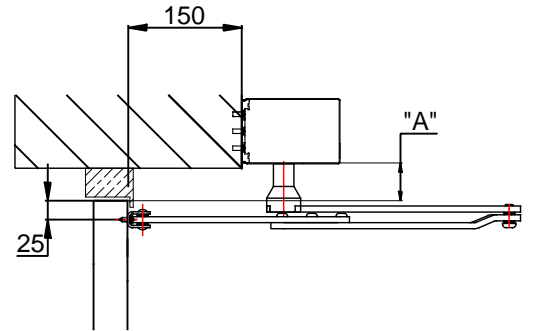
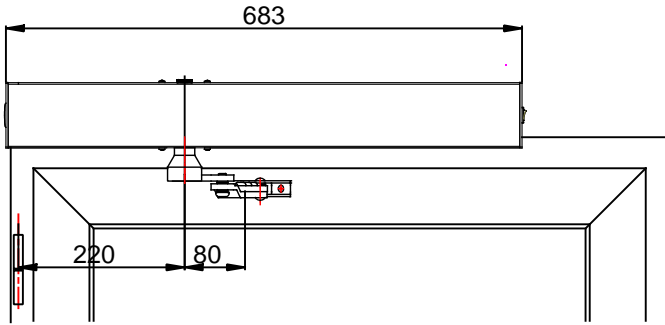
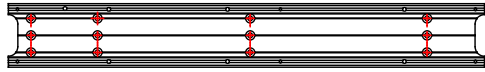
DETAIL D







DWG NO:	0104Pa.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ			
SHEET 2 OF 3 Sht.2	DESCRIPTION: 4100 CW Mount Push Pair with beam Sht.2				
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016	SCALE: 1:2	REVISION 1



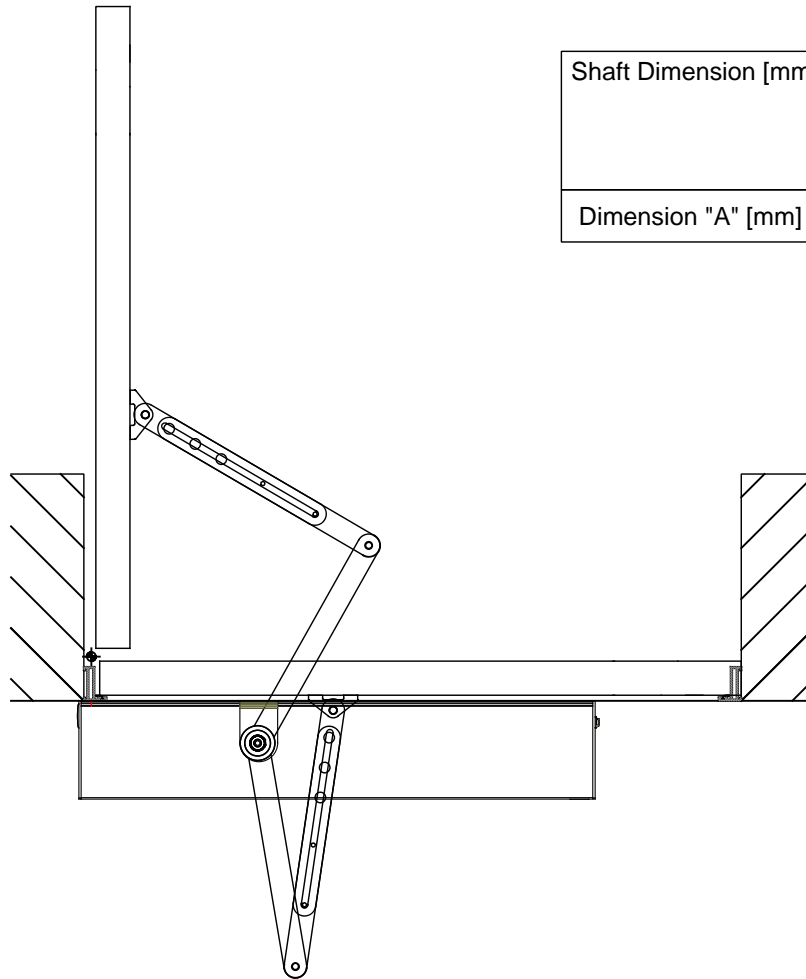
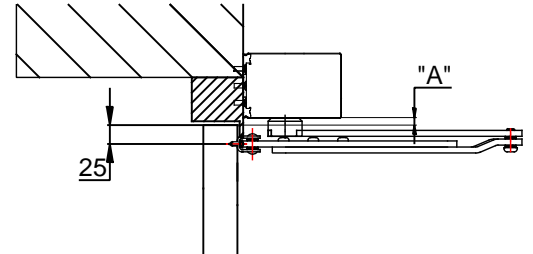
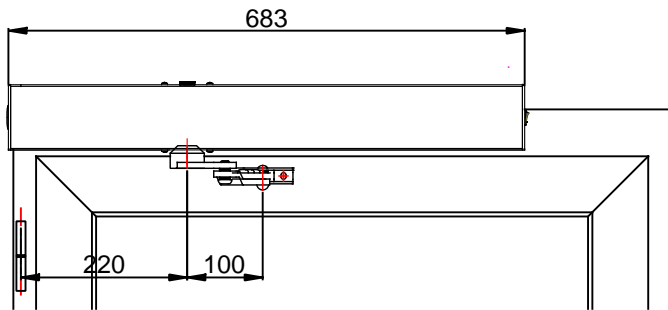
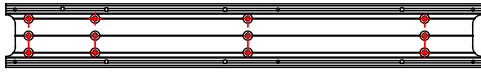
DWG NO:	0104Pa.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 3 OF 3 Sht.3			
DESCRIPTION:	4100 CW Mount Push Pair with beam Sht.3		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
		SCALE: 1:5	REVISION 1



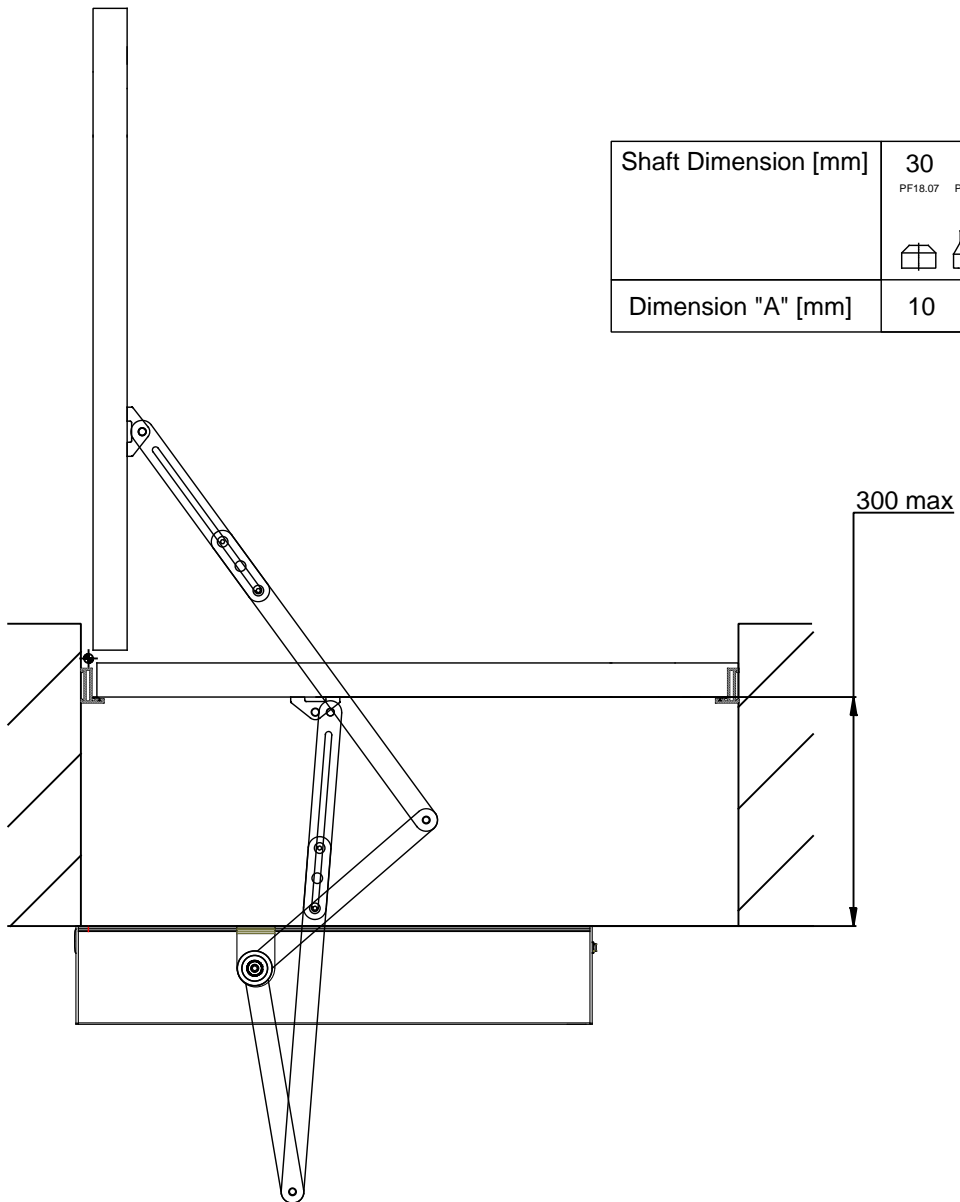
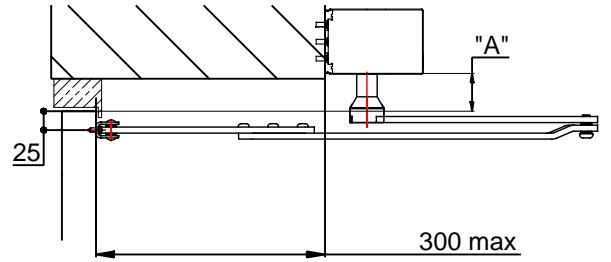
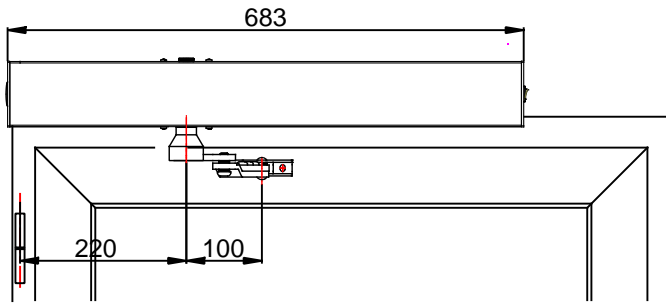
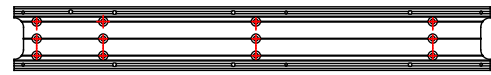
Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
				
Dimension "A" [mm]	10	30	50	70





4100-Plus S

Installation
Articulated Push Arm (PF18.06 Standard) Maximum Reveal



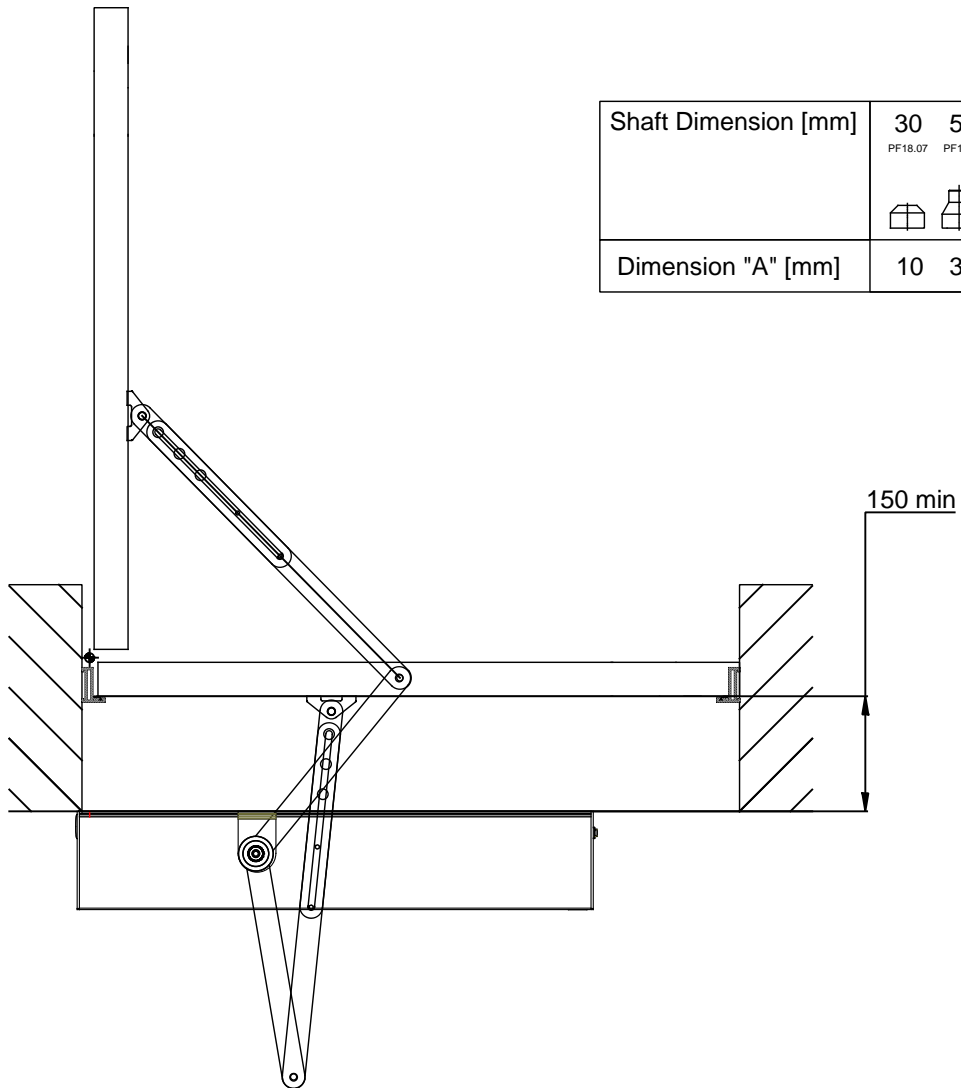
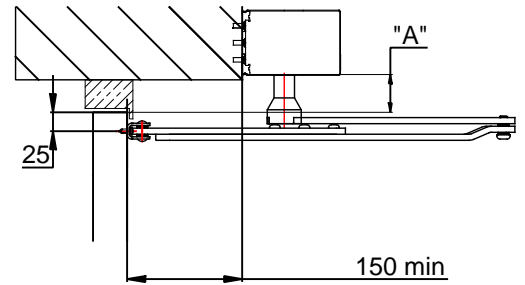
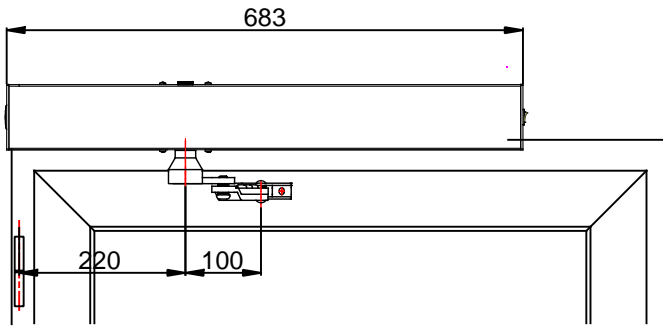
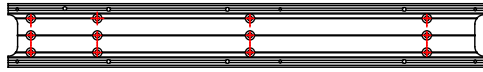
Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
Dimension "A" [mm]	10	30	50	70







Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
				
Dimension "A" [mm]	10	30	50	70

4100-Plus S

Installation
 Extended Articulated Push Arm (PF18.13) Maximum Reveal



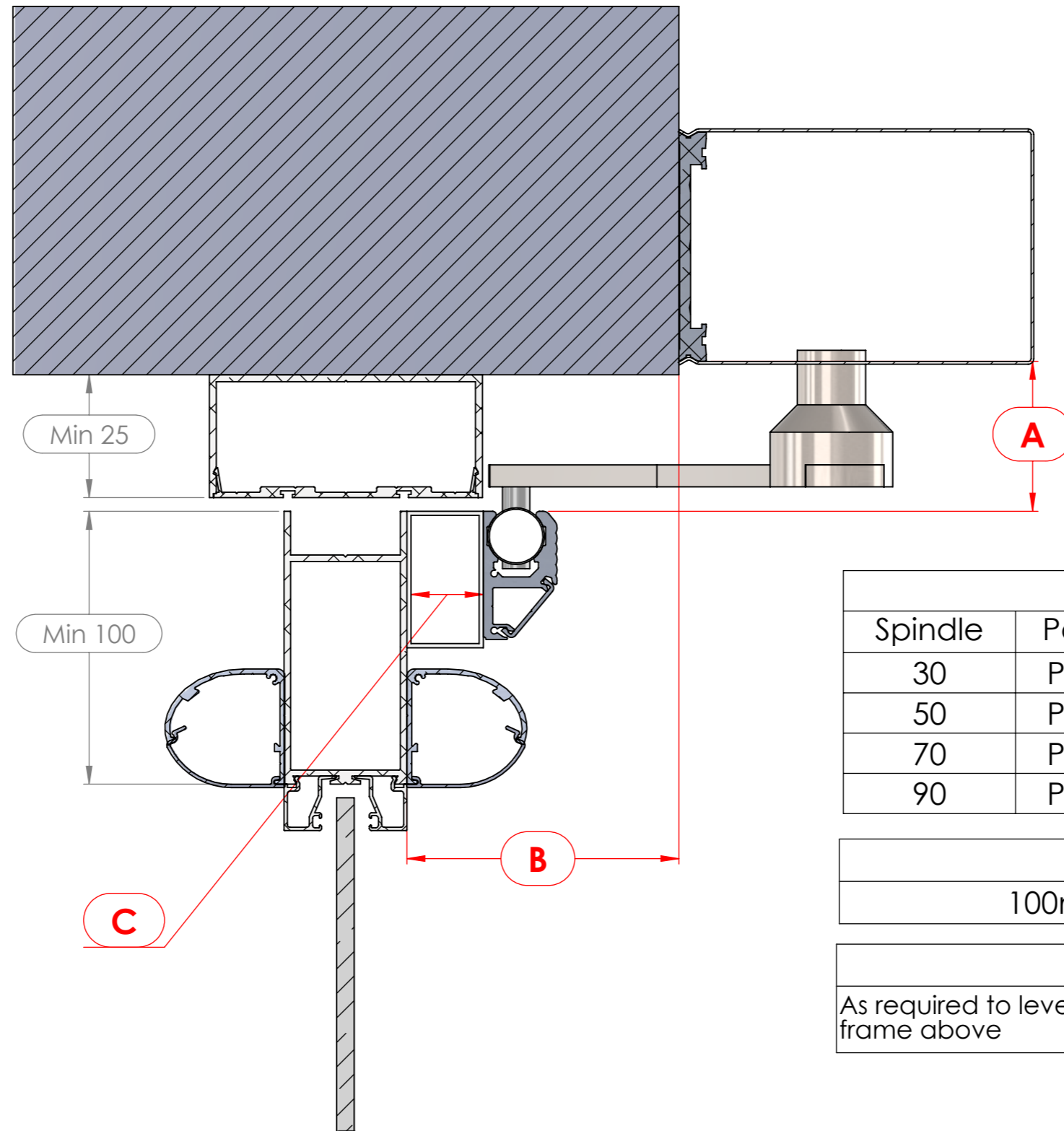
Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
				
Dimension "A" [mm]	10	30	50	70

4100-Plus S

Installation
Extended Articulated Push Arm (PF18.13) Minimum Reveal

4100- PLUS


PULL

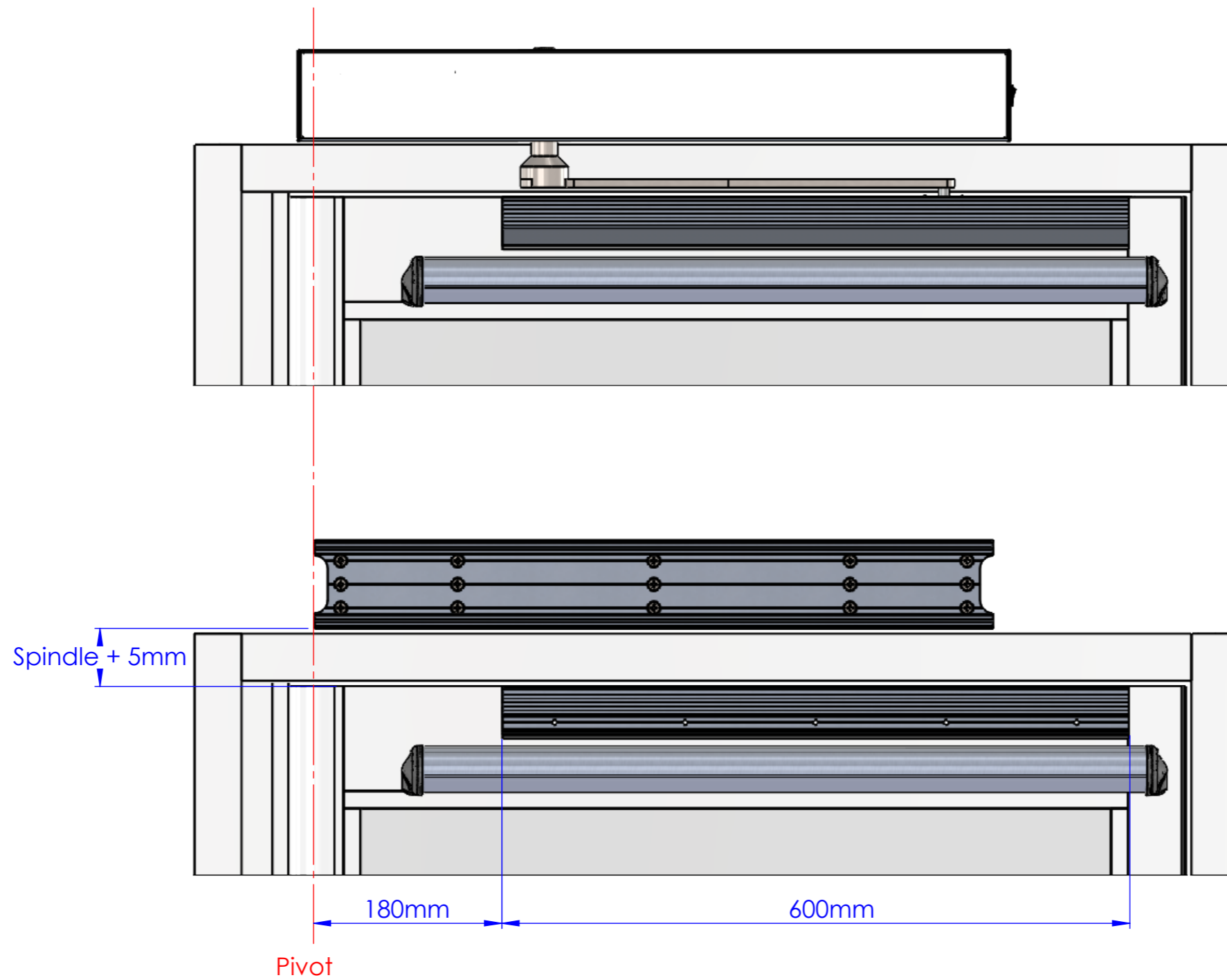


"A"		
Spindle	Part No.	Dimension
30	PF18.07	35
50	PF18.08	55
70	PF18.09	75
90	PF18.10	95

"B"
100mm Max

"C"
As required to level slide arm flush with frame above

DWG NO:	4100 - Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 1 OF 2			
DESCRIPTION:	Pull Arm Section View		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 07/11/2016
		SCALE: 1:2	REVISION 0



DWG NO:

4100 - Plus S

Horton Automatics Ltd
 Unit A - Hortonwood 31
 Telford, Shropshire TF1 7YZ



SHEET 2 OF 2

DESCRIPTION:

Pull Arm Elevation View

DO NOT SCALE DRAWING

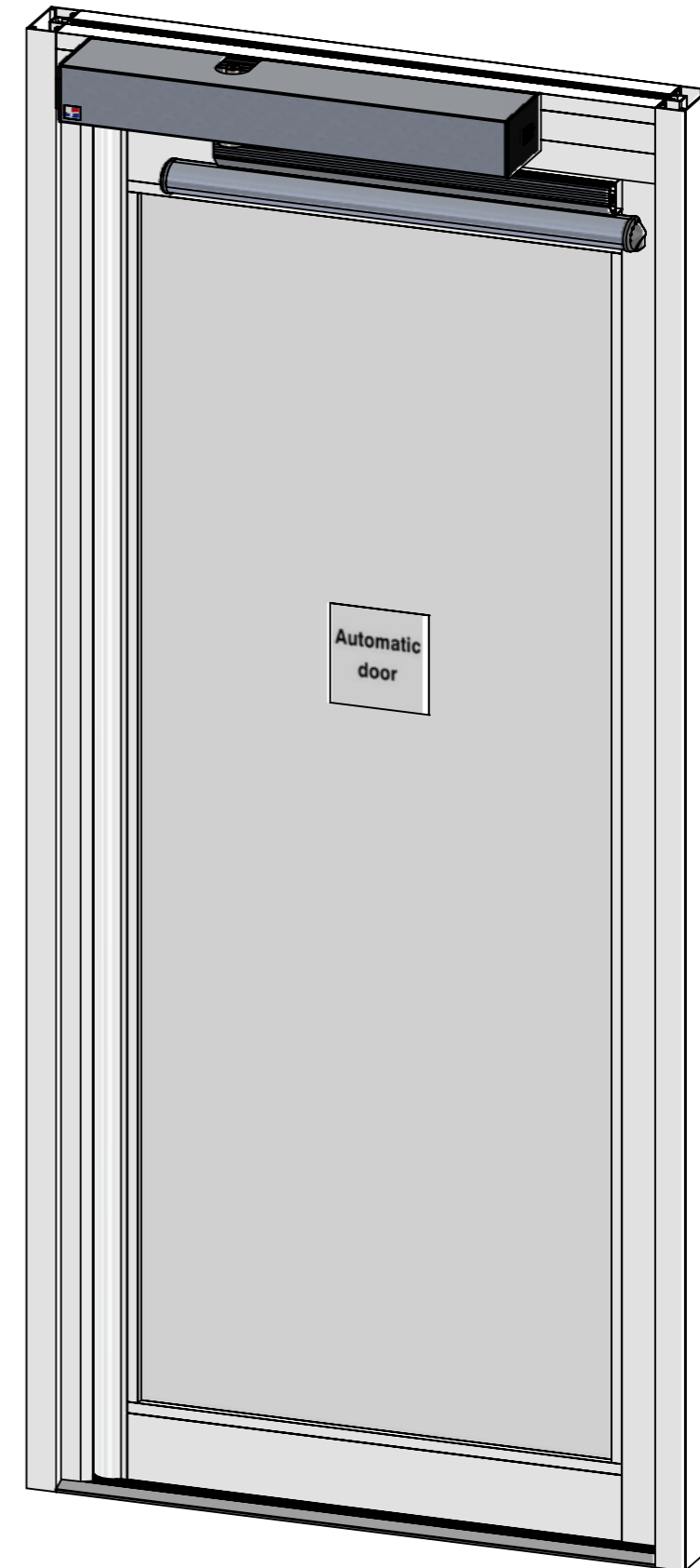
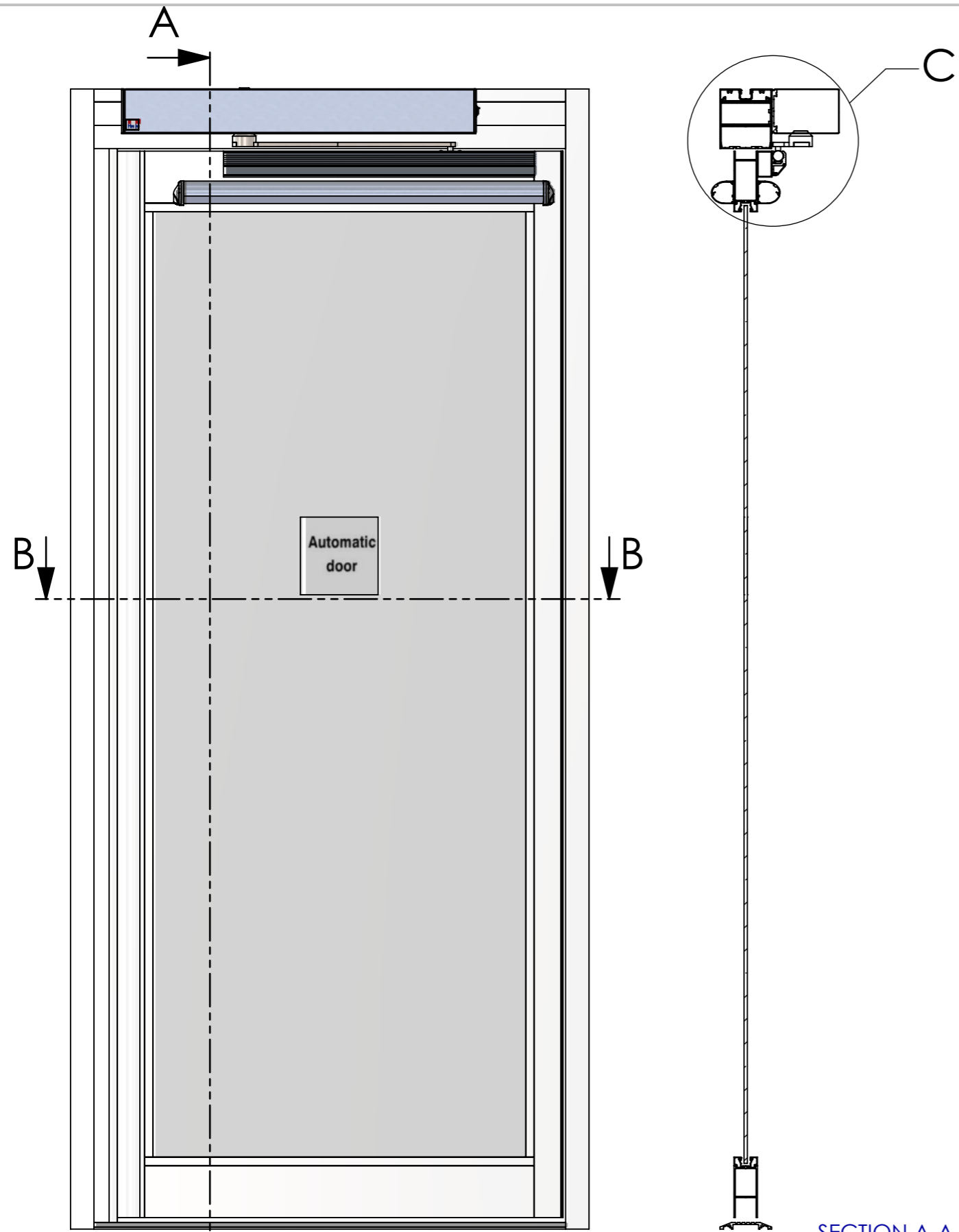
DIMENSIONS IN MM

DRAWN Adam Wiggans

DATE: 07/11/2016

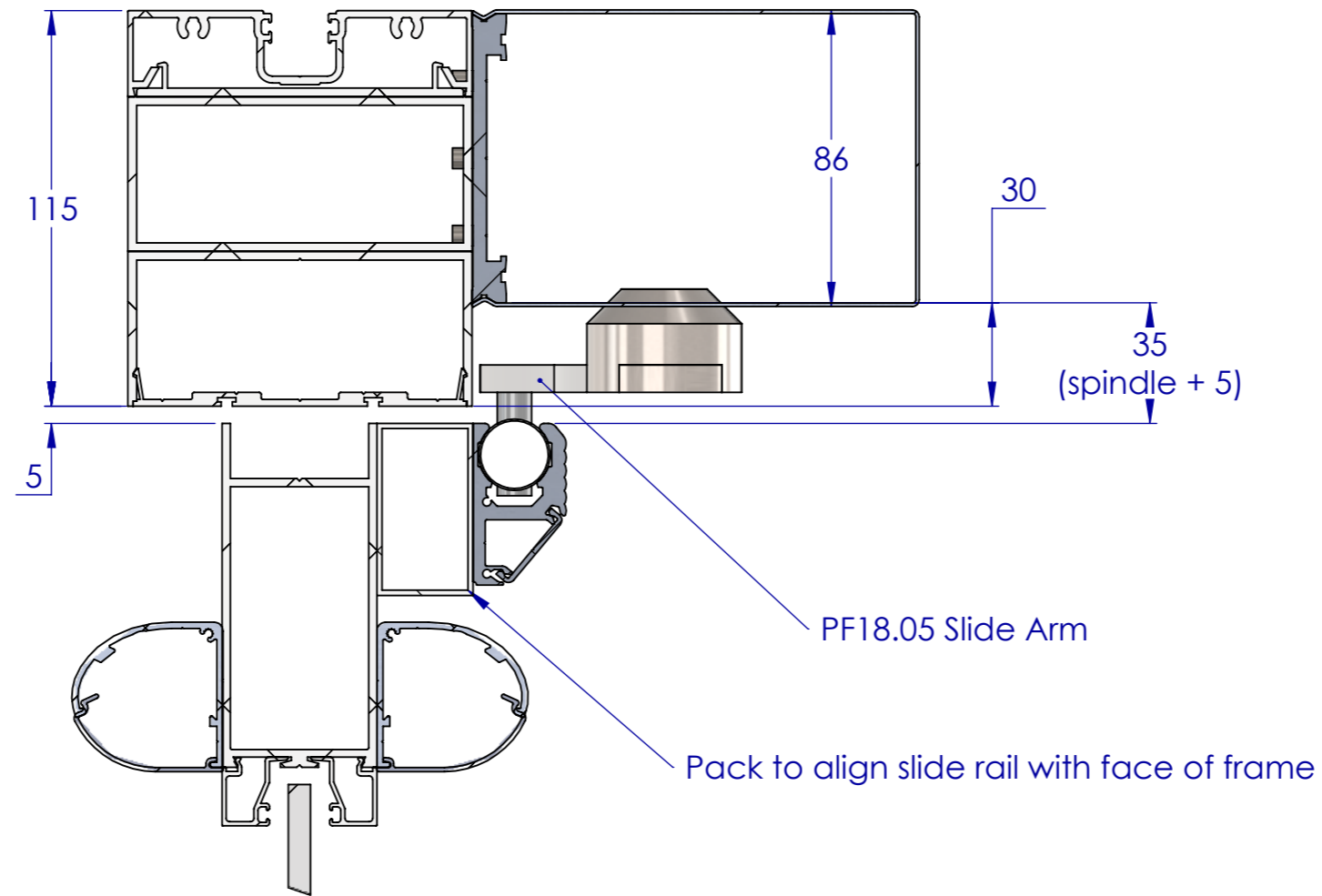
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REVISION 0

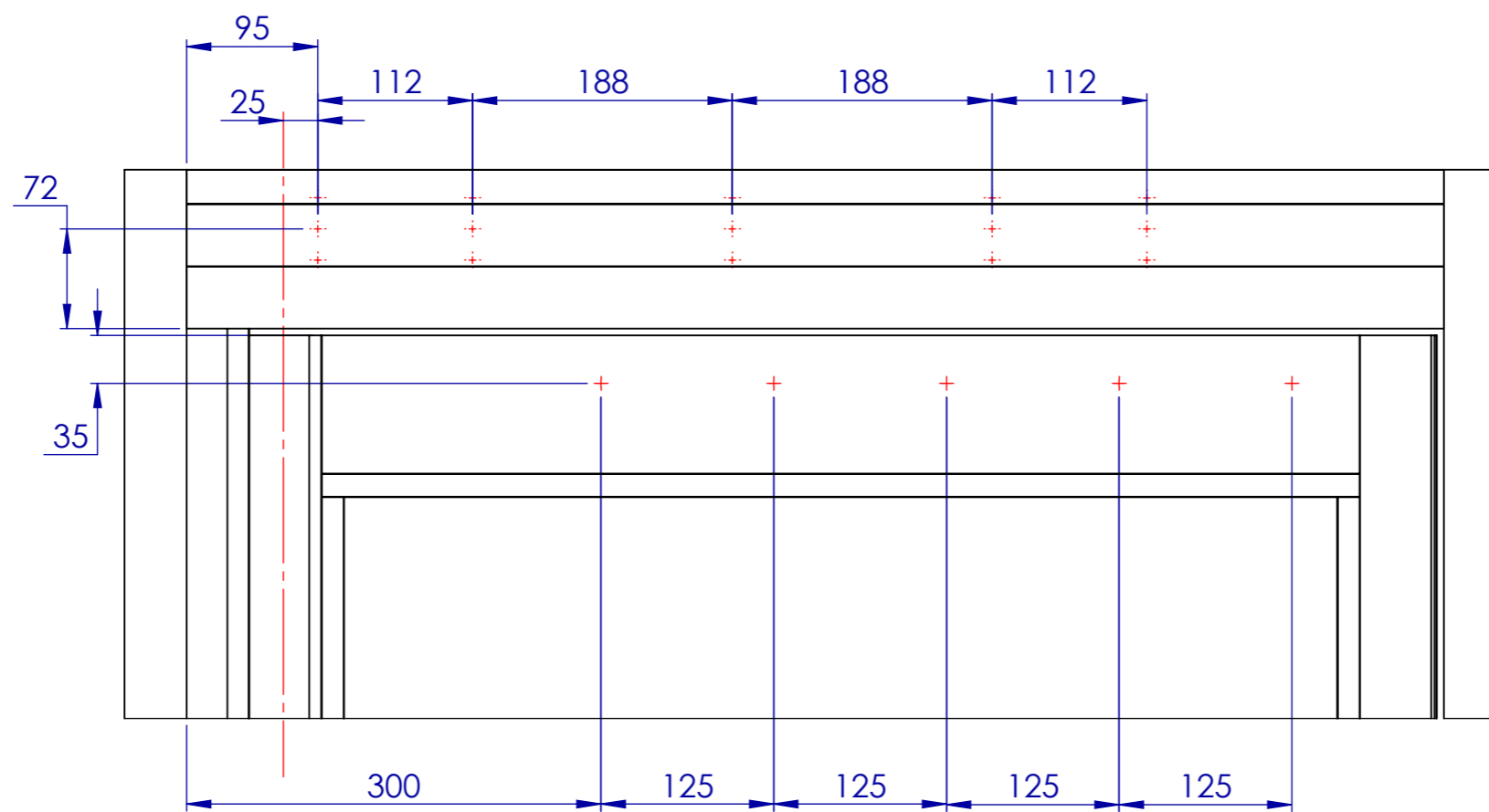
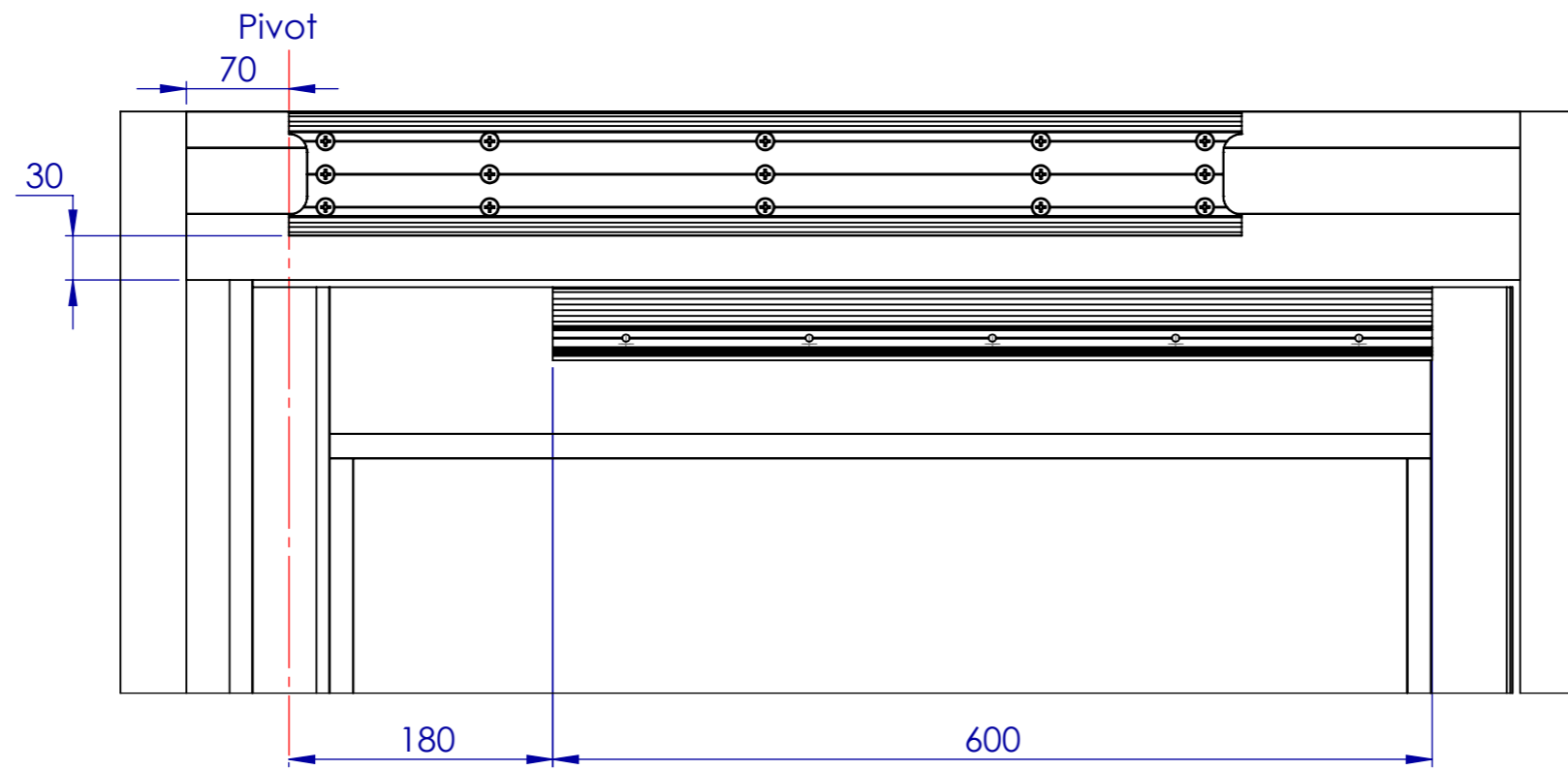


DWG NO:	0201.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 1 OF 3 Sht.1	DESCRIPTION: Frame Mounted - Pull Arm Sht.1		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
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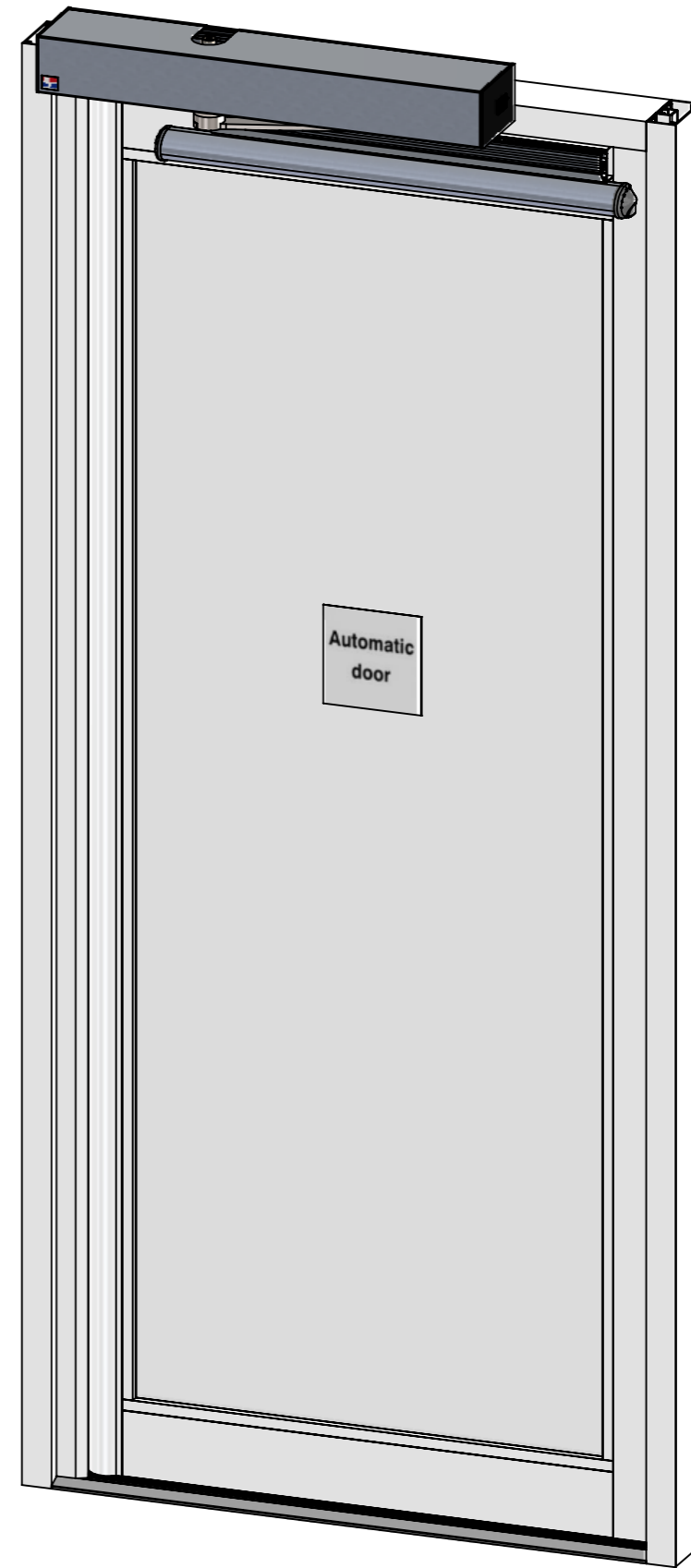
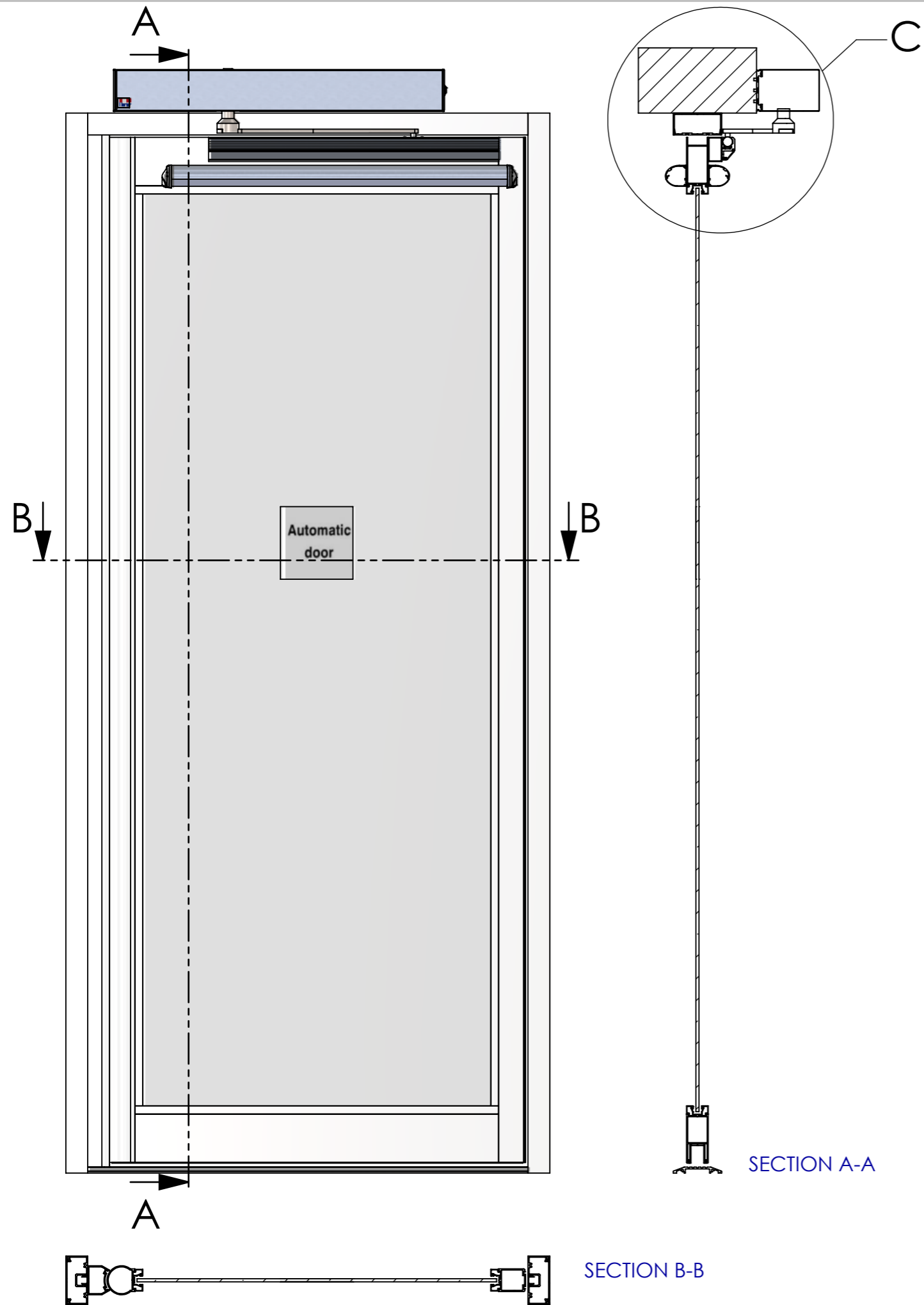
DETAIL C



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SHEET 2 OF 3 Sht.2	DESCRIPTION: Frame Mounted - Pull Arm Sht.2				
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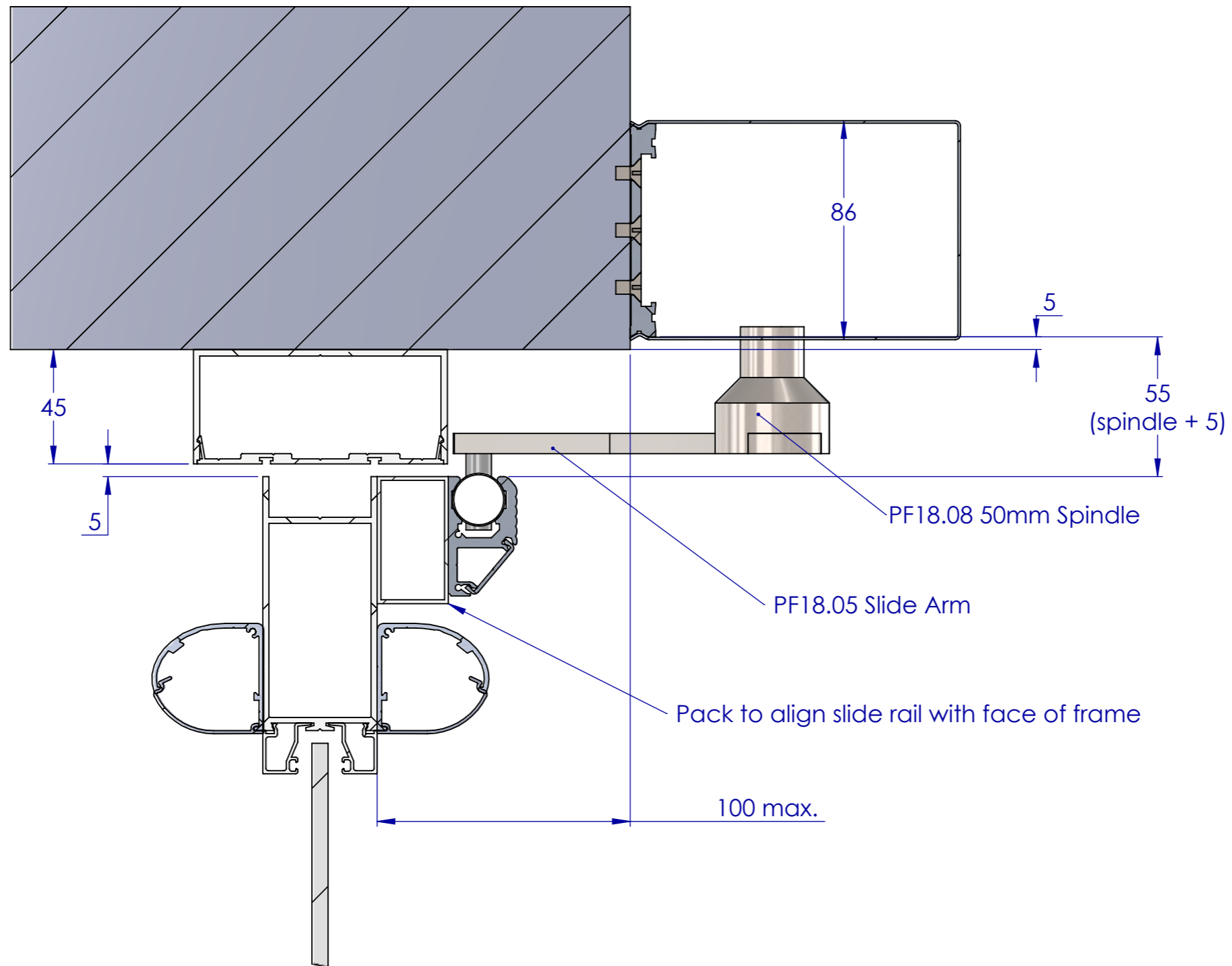



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SHEET 3 OF 3 Sht.3			
DESCRIPTION:	Frame Mounted - Pull Arm Sht.3		
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			REVISION 0

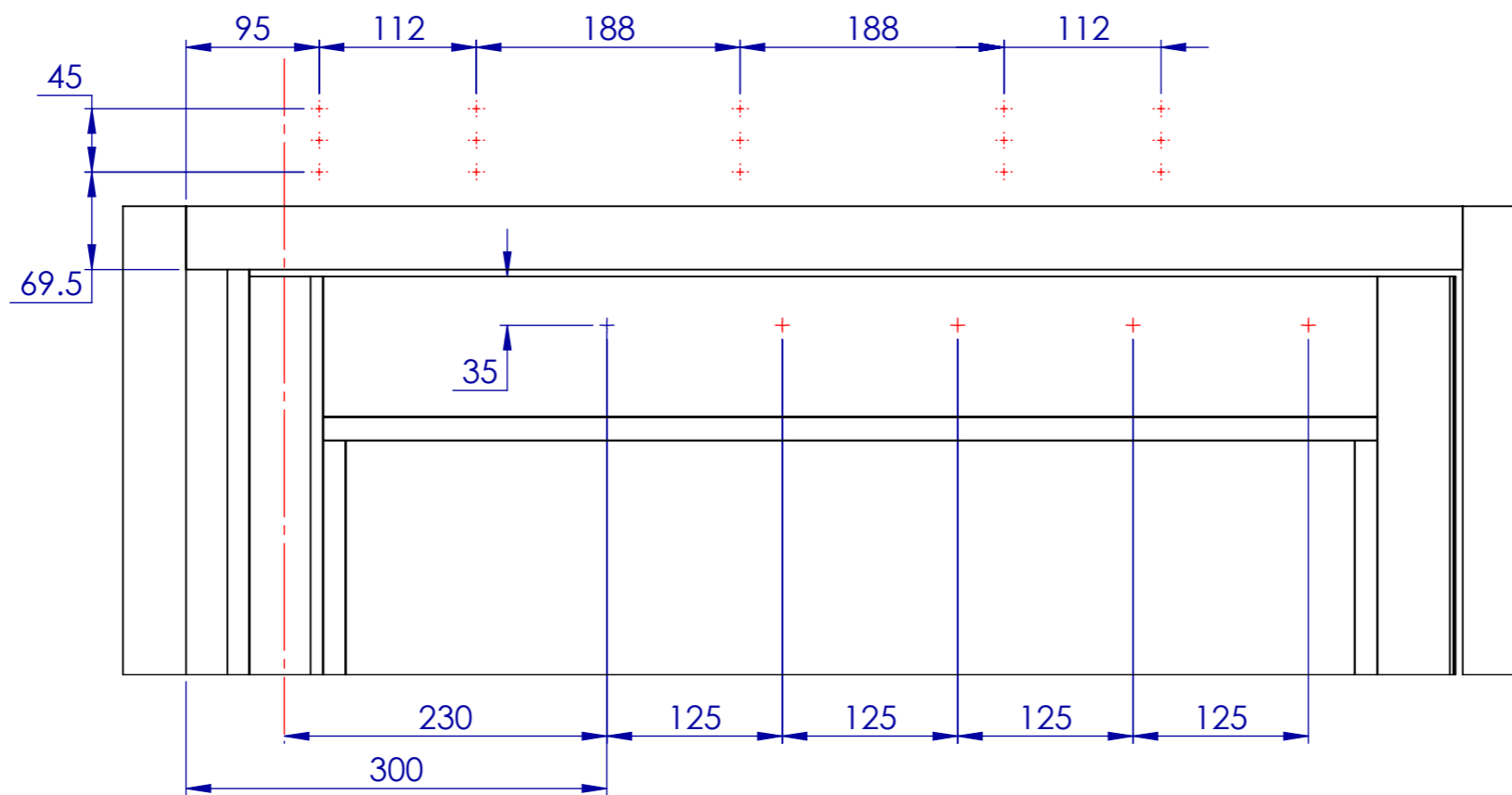
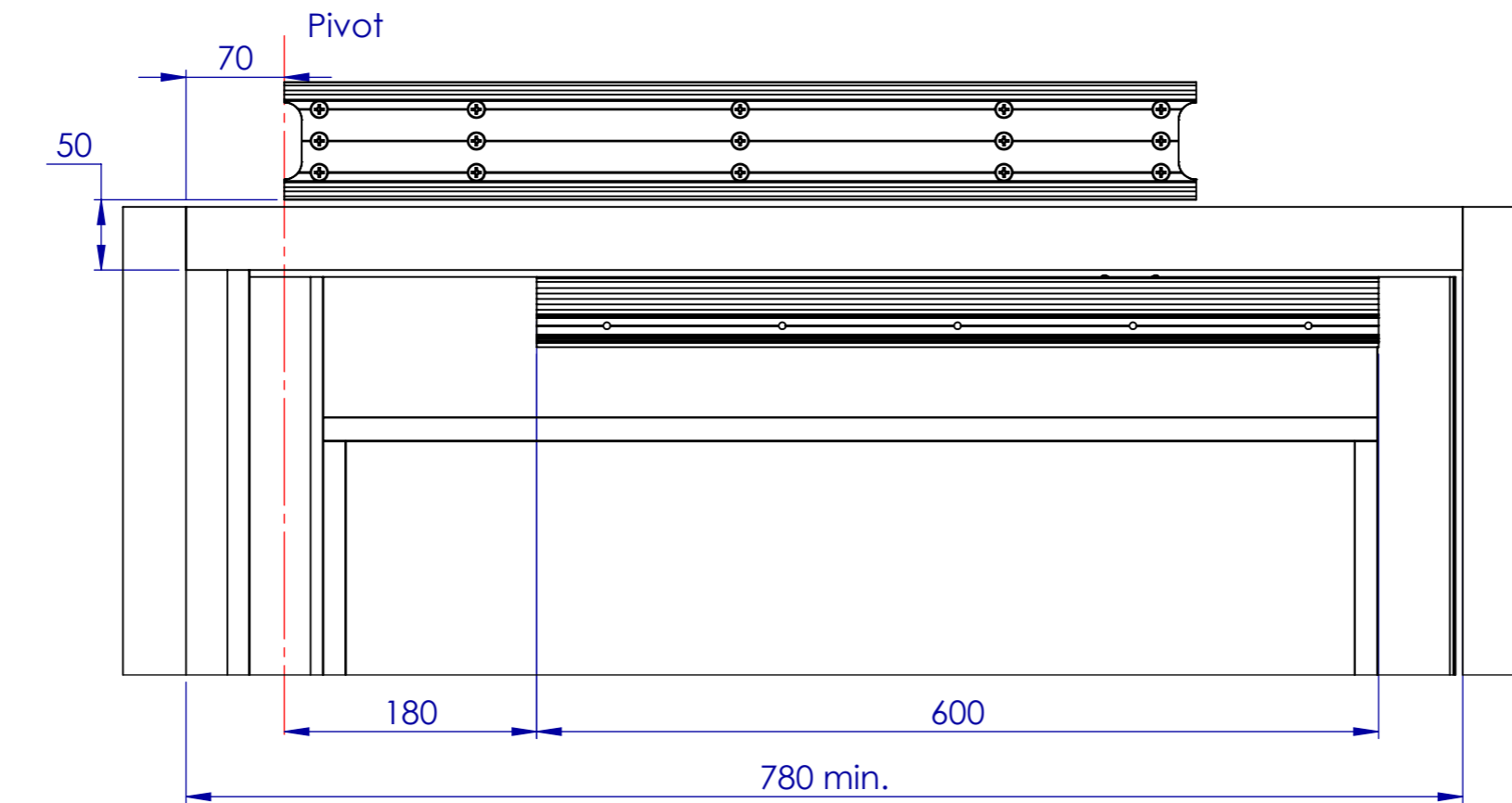



DWG NO:	0202.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 1 OF 3 Sht.1			
DESCRIPTION:	Lintel Mounted Pull Arm Sht.1		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
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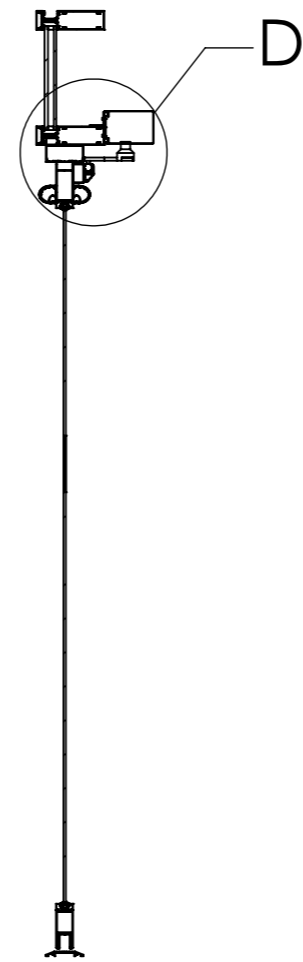
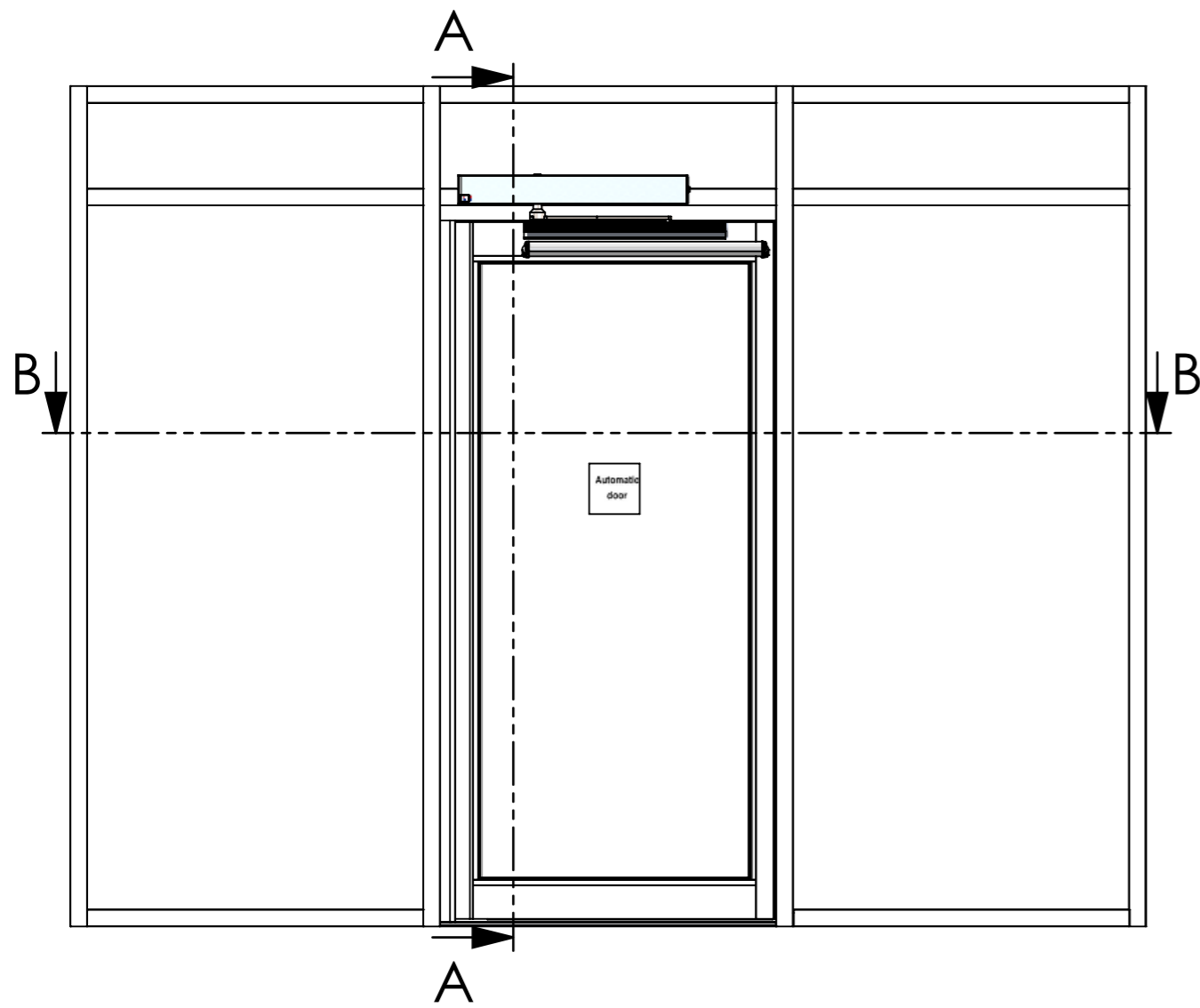
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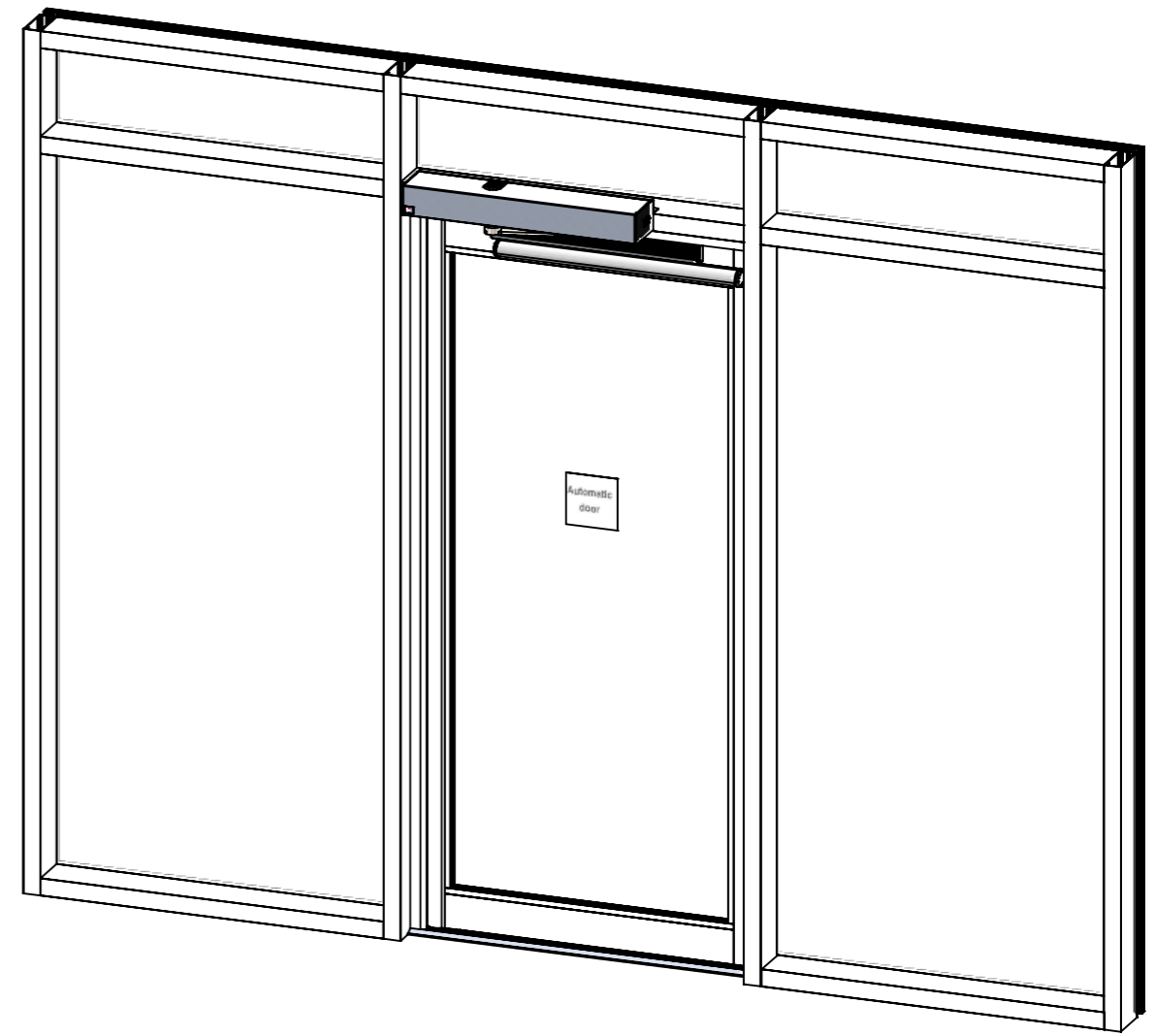
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DESCRIPTION:			
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		SCALE: 1:2	REVISION 0




DWG NO:	0202.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 3 OF 3 Sht.3	DESCRIPTION: Lintel Mounted Pull Arm Sht.3		
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SCALE: 1:5		REVISION 0	



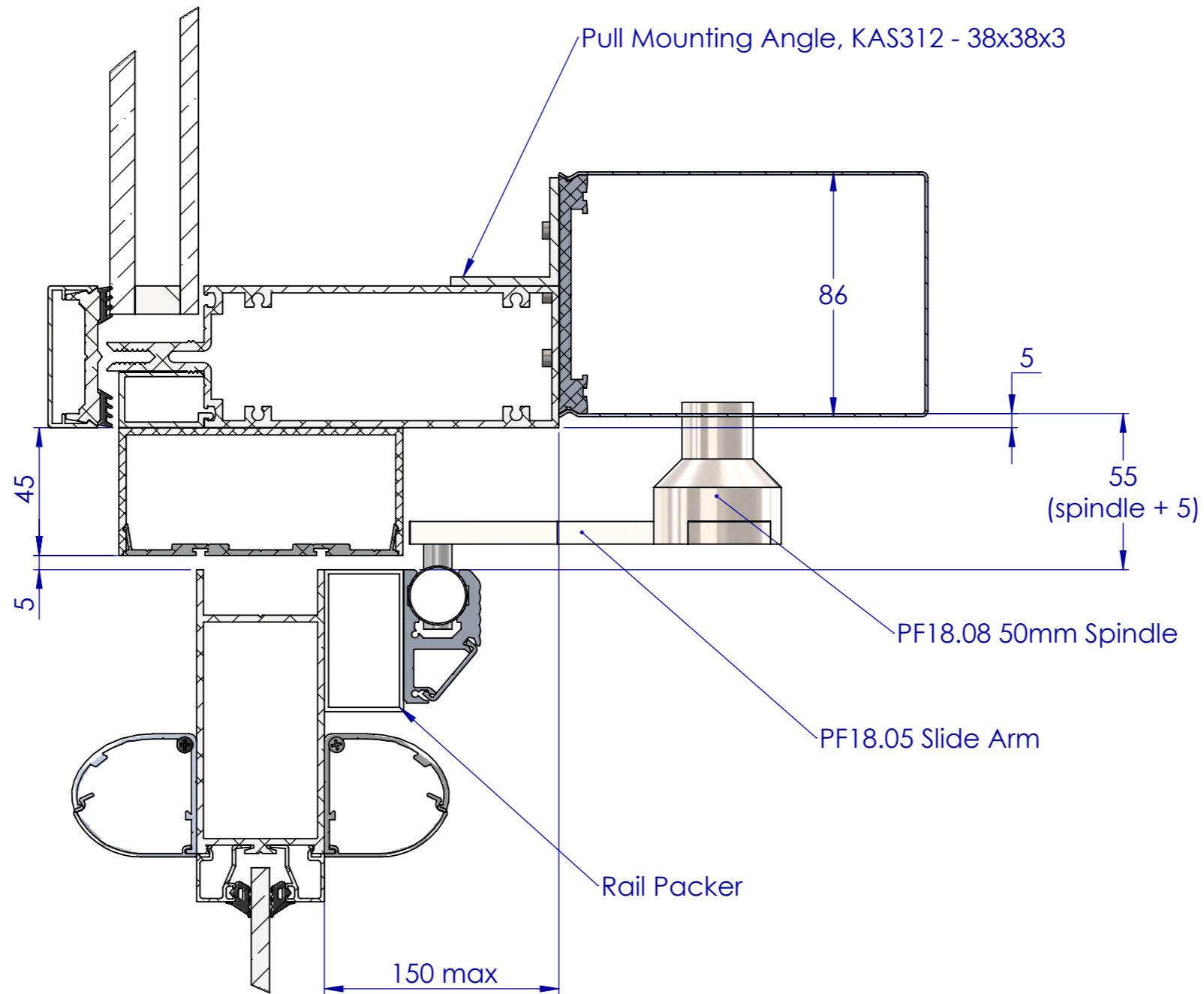
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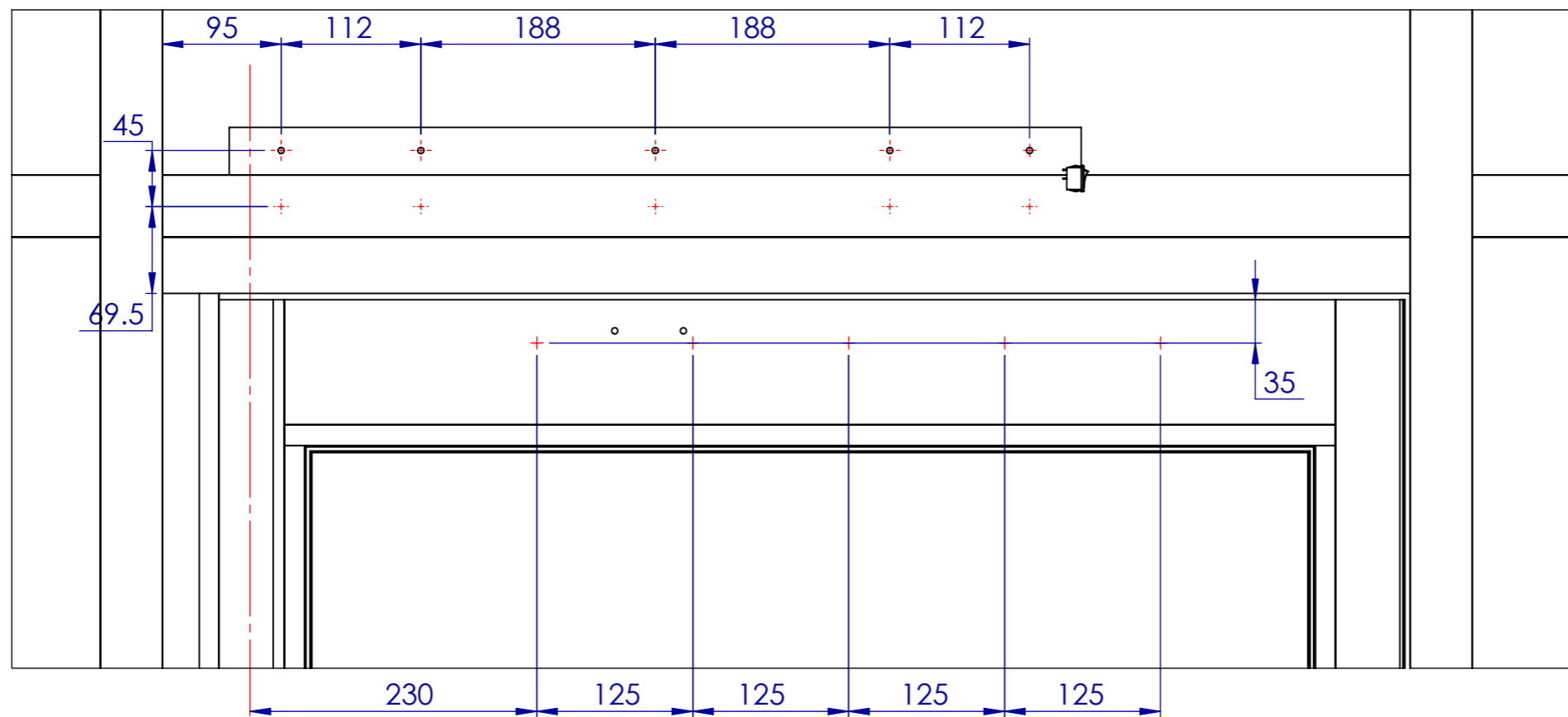
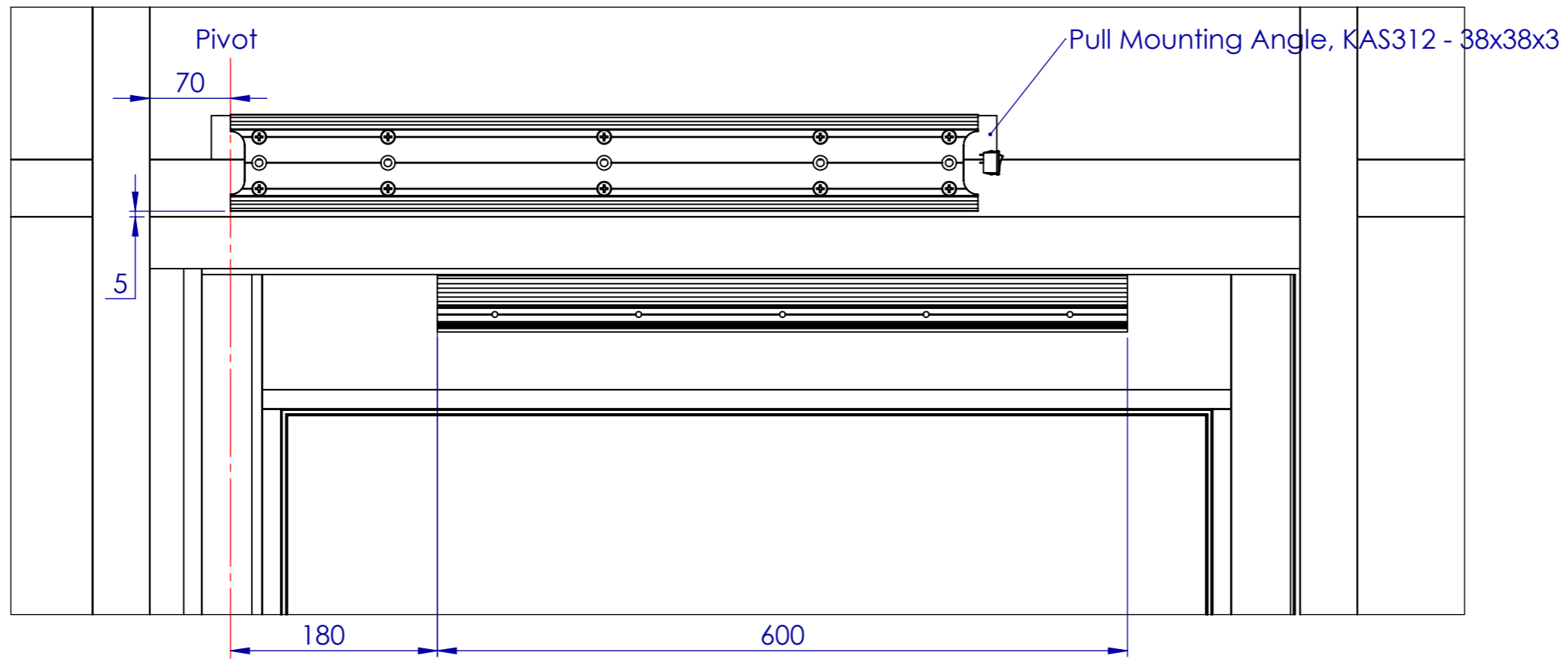
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SHEET 1 OF 3 Sht.1			
DESCRIPTION:	CW Mount Pull Sht.1		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
		SCALE: 1:20	REVISION 1

DETAIL D



DWG NO:	0104.4100-Plus S	Horton Automatics Ltd Unit A - Hortonwood 31 Telford, Shropshire TF1 7YZ	
SHEET 2 OF 3 Sht.2	DESCRIPTION: CW Mount Pull Sht.2		
DO NOT SCALE DRAWING	DIMENSIONS IN MM	DRAWN Adam Wiggans	DATE: 03/11/2016
SCALE: 1:2		REVISION 1	



DWG NO:

0104.4100-Plus S

Horton Automatics Ltd
Unit A - Hortonwood 31
Telford, Shropshire TF1 7YZ



SHEET 3 OF 3 Sht.3

DESCRIPTION:

CW Mount Pull Sht.3

DO NOT SCALE DRAWING

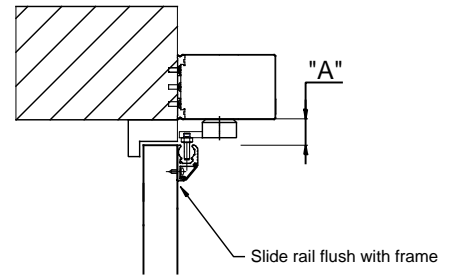
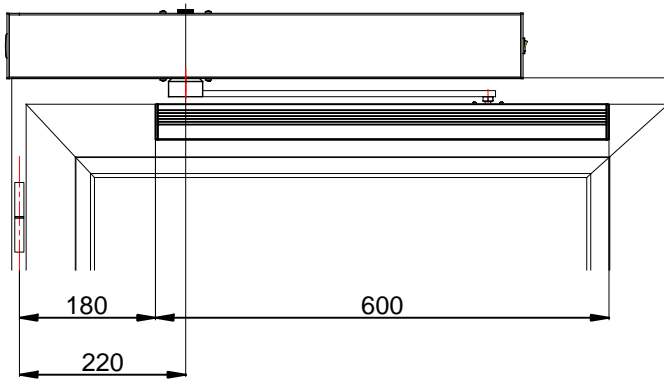
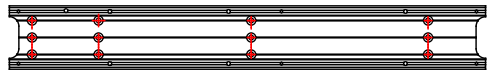
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DRAWN Adam Wiggans

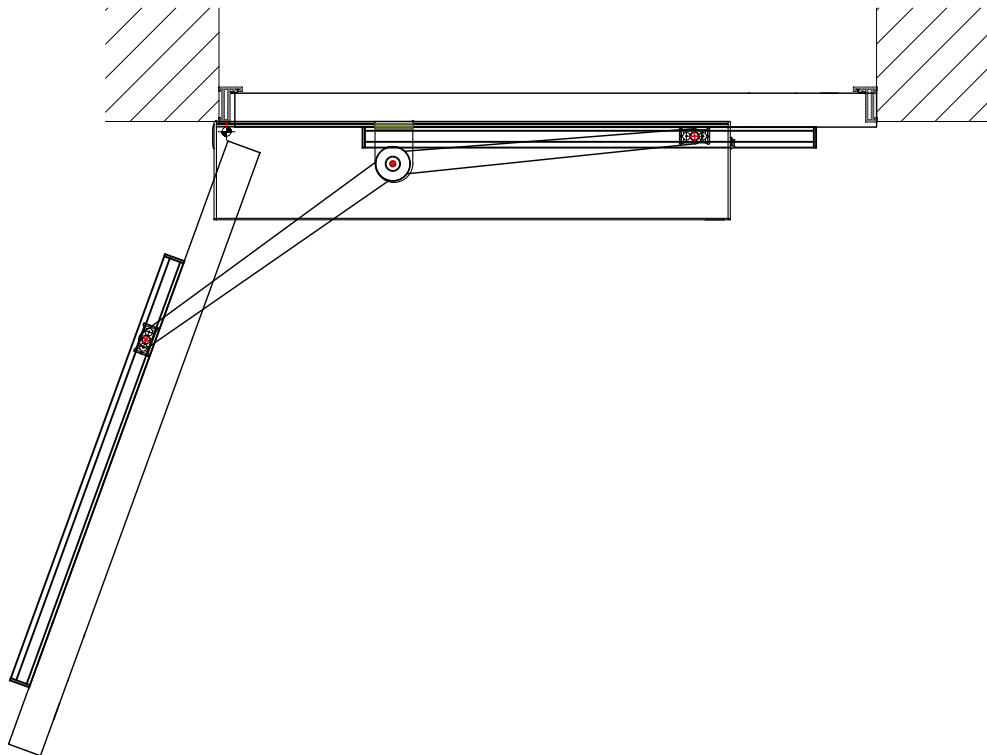
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REVISION 1

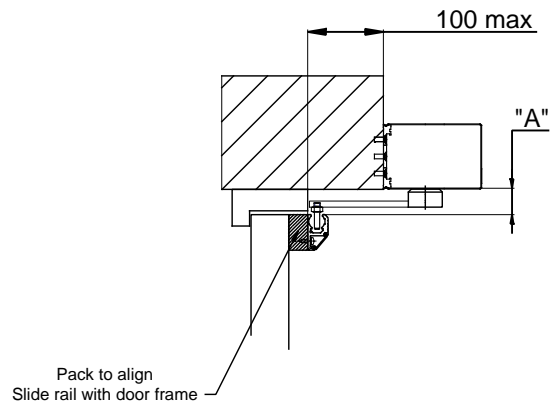
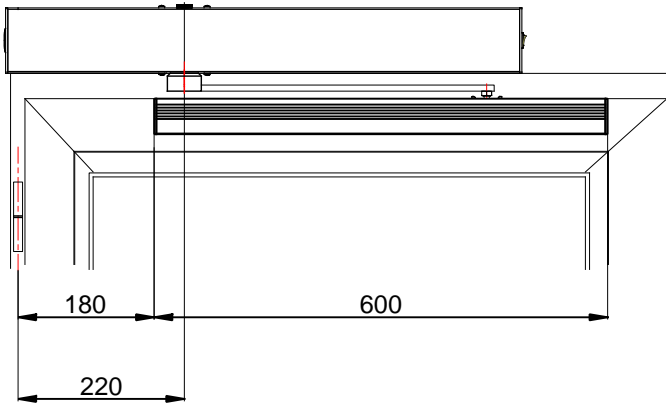
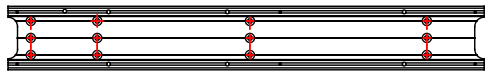






Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
Dimension "A" [mm]	35	55	75	95

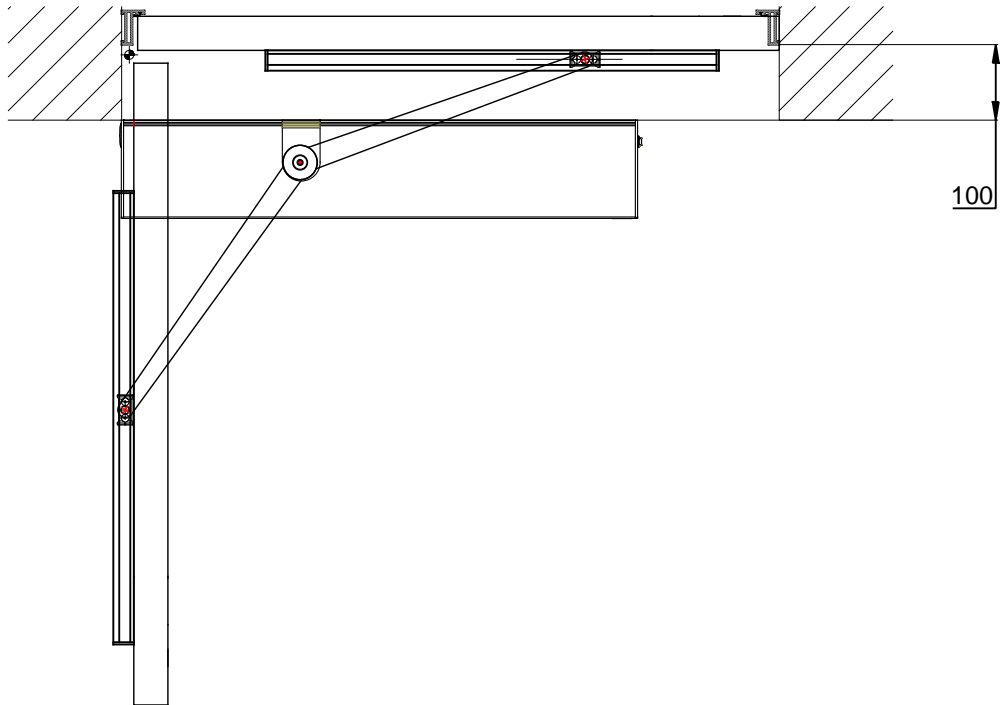


4100-Plus S

Installation
Slide Pull Arm (PF18.05) Flush Mount

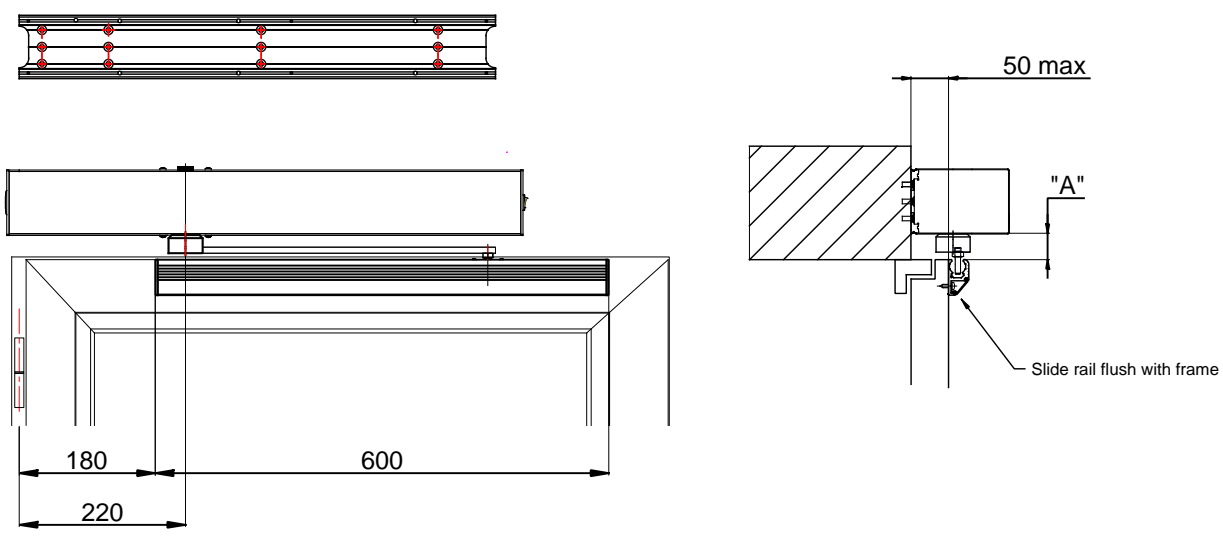






Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
				
Dimension "A" [mm]	35	55	75	95

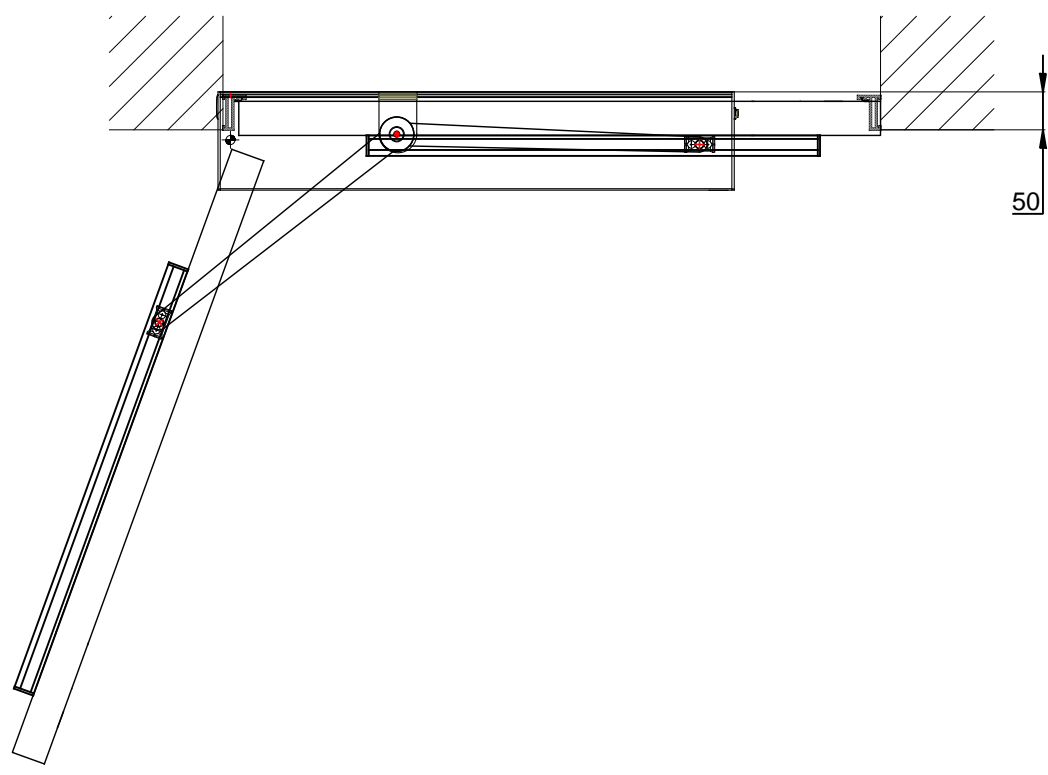


4100-Plus S

Installation
Slide Pull Arm (PF18.05) Maximum Reveal (100mm)



Shaft Dimension [mm]	30	50	70	90
	PF18.07	PF18.08	PF18.09	PF18.10
				
Dimension "A" [mm]	35	55	75	95



4100-Plus S

Installation
Slide Pull Arm (PF18.05) Negative Reveal (-50mm)



Horton 4100 Plus-S



INSTALLATION INSTRUCTIONS



FOR QUALIFIED PERSONS IN CONJUNCTION WITH PROJECT INSTRUCTIONS

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SAFETY INSTRUCTIONS

General

- Installation & maintenance should only be carried out by competent persons accredited by Horton Automatics Ltd, for whom this manual is intended.
- For personal and user safety carefully read and follow the instructions within this manual.
- Installation & commissioning must be carried out in accordance with EN 16005, BS 7036:0 force and following good practice.
- Use only genuine manufacturer approved parts.
- Retain these instructions for future reference.
- Pay careful attention to messages marked with hazard symbols. They warn of potential equipment damage or personal injury.



Before Installation

- ✓ Secure entrance from pedestrian traffic.
- ✓ Ensure mains power supply is safety isolated prior to connection.
- ✓ Check the product is complete and free from damaged.
- ✓ Determine that fixing locations are sufficiently true & load bearing.
- ✓ Check risk assessment is accurate to location and site conditions, report any anomalies and liaise with project manager.
- ✓ Whenever residual risks observed at doorset installation are too great for application or intended safeguarding measures are not yet installed or operational do not put system into powered operation, isolate it from power and consult with project manager.

On Completion

Ensure logbook is present and complete. Retain these instructions and issue user manual and commissioning checklist to client representative.

SPECIFICATIONS

Dimensions	See Fig.1
Power Supply	230V ±10% AC 50/60Hz
Nominal Power	85w
Auxiliary power output	15vdc - 12w max
Opening Time	3s to 6s (70°/S to 20°/S)
Closing Time	4s to 15s (40°/S to 10°/S)
Manual Closer Rating (EN 1154)	4 to 6
Max Opening Angle	110°
Door Leaf Width	700 to 1200 mm
Max. Door Leaf Payload	See Fig.2
Working Temperature	-10°C to +50°C
Weight	11 Kg Approx.
Service	Intensive
IP	IP40

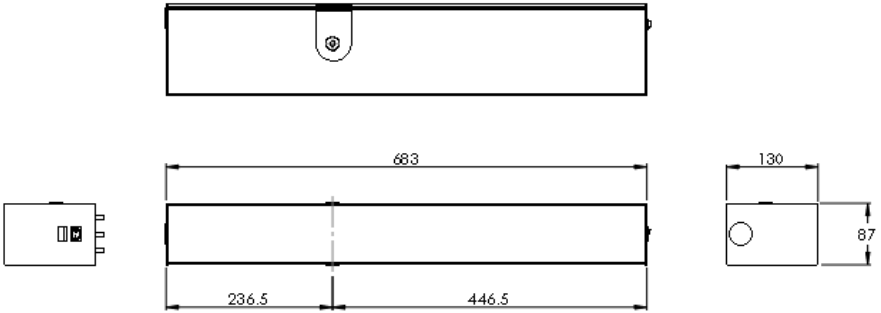


Fig.1 Dimensions

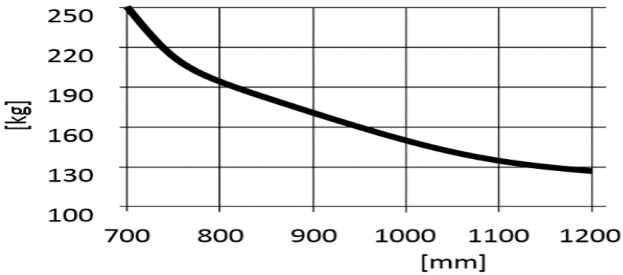


Fig.2 Door size limitations

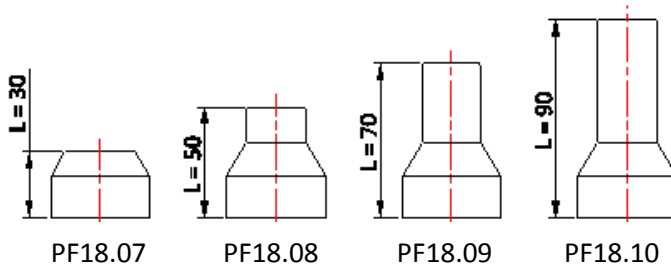


Fig.3 Spindle Length

Intended use

The Horton 4100 Plus drive is an electro mechanical system for automation of pedestrian entrances in accordance with BS EN 16005. It has been designed and built exclusively for this application within a dry, internal location. Use for any other purpose could affect the integrity of the product and result in hazardous operation. Horton Automatics Ltd. does not accept any liability resulting from misuse or use other than its intended use.

Parts List

Description	Part ID
ProSwing S	PF18.01
Pull Arm	PF18.05
Push Arm	PF18.06
Extended Push Arm	PF18.13
30 mm Shaft	PF18.07
50 mm Shaft	PF18.08
70 mm Shaft	PF18.09
90 mm Shaft	PF18.10
Standard Mode Selector	PF01.70
Advanced Mode Selector	PF01.72
Control board	PR18.01
Motor & Encoder	PR18.02
Toroidal Transformer	PR18.03
Gearing & Closer Assembly (S)	PR18.04
Electronic brake board	PR18.05
ON/OFF Switch with cable	PR18.10
Integral mode Switch with cable	PR18.11
PSU board	PR18.12

INSTALLATION

Pull Arm

Preparation

Proceed as follows:

- remove cover (B)
- disconnect wiring from control board (C)
- release 2 captive screws and remove control board (C)
- remove 2 screws and transformer (G)
- remove 4 screws and motor/gear assembly (D)
- loosen 4 screws and remove end caps (E) and (F)

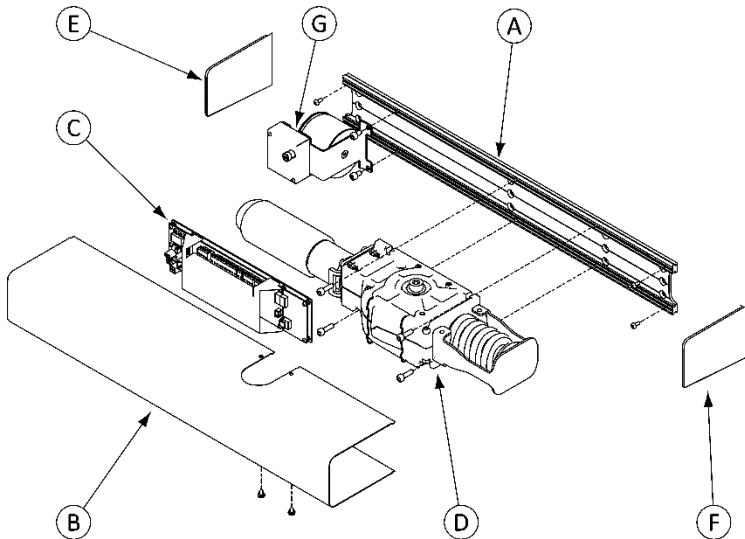


Fig.4 Exploded View

Mounting Operator

Position and secure the base plate in relation to pivot axis and door leaf, as shown in Fig.5 dependent on door hand

- The base plate outer edge should align with the pivot axis.
- The base plate lower edge must parallel to door leaf top edge
- The vertical dimension "L" between bottom of base plate and top of door leaf is spindle length + 5mm (Fig. 3)

Setting out - Pull Arm Installation

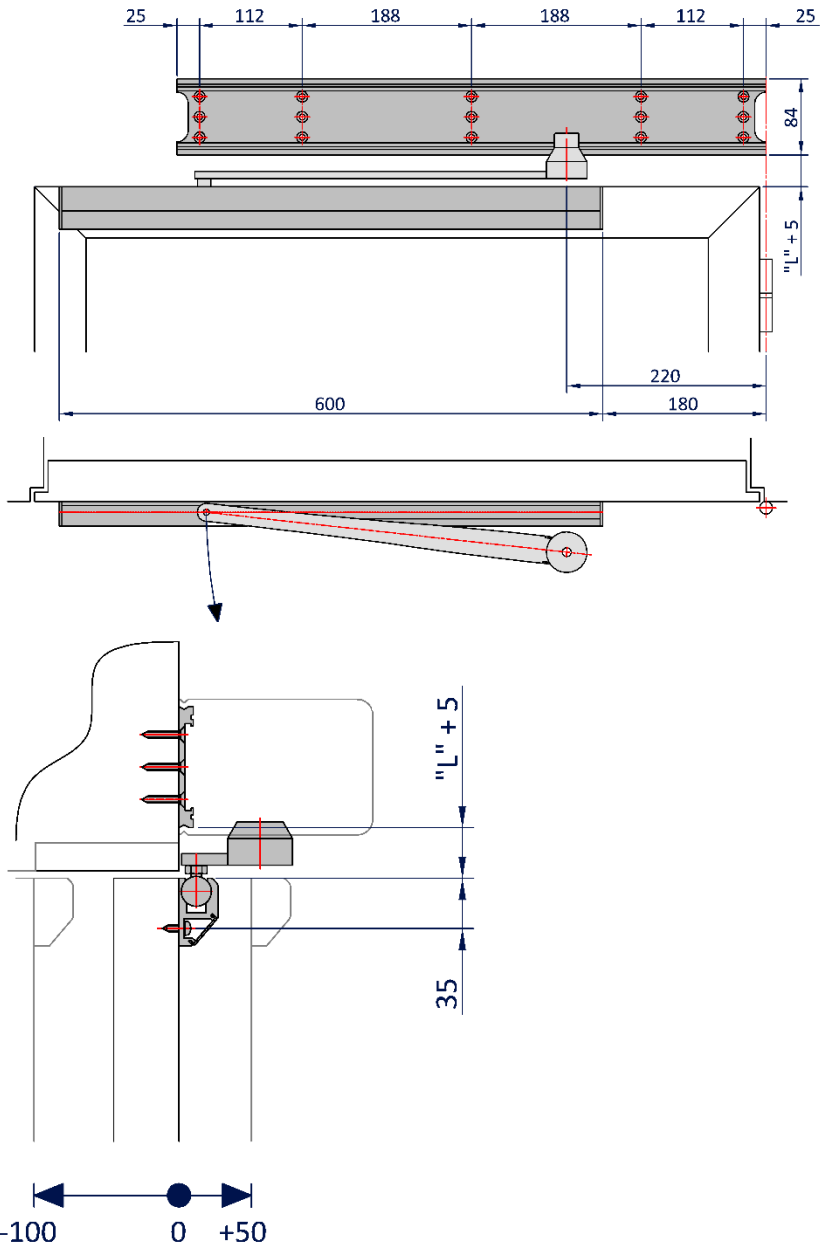
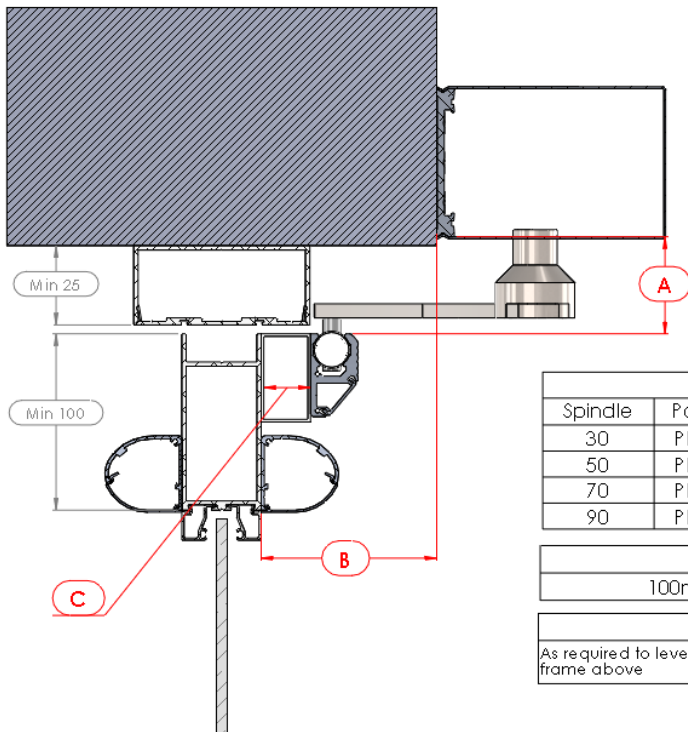


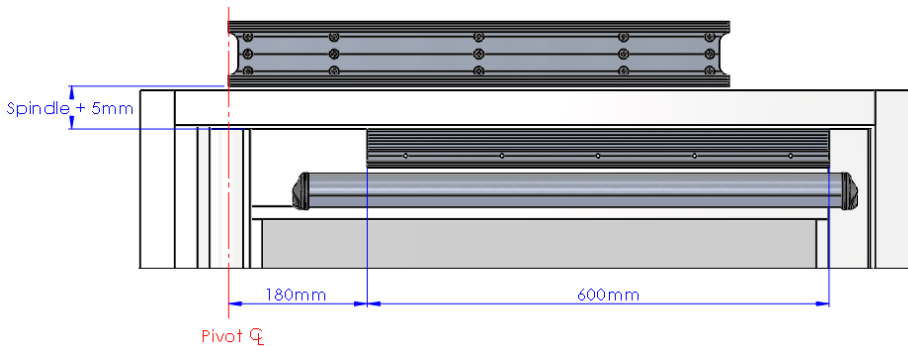
Fig.5 Pull arm setting out



"A"		
Spindle	Part No.	Dimension
30	PF18.07	35
50	PF18.08	55
70	PF18.09	75
90	PF18.10	95

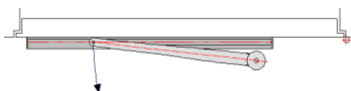
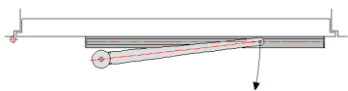
"B"
100mm Max

"C"
As required to level slide arm flush with frame above



LH Pull

RH Pull



Installing Pull Arm

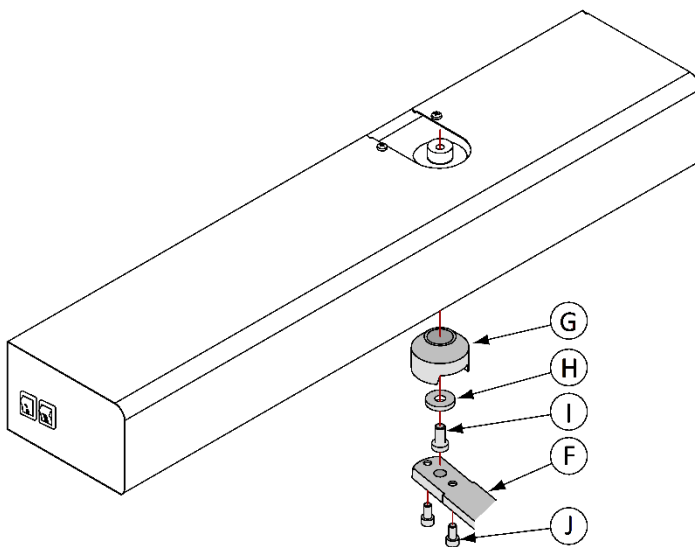
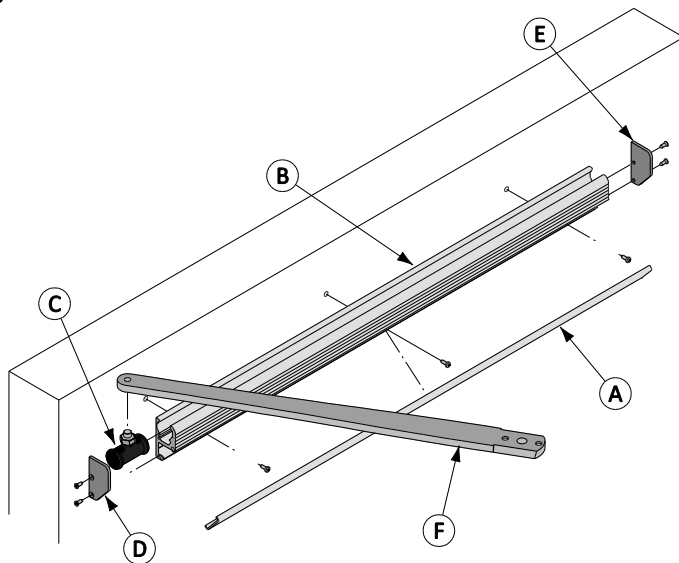


Fig.7 Pull arm assembly

Installing Pull Arm

- Tension the closing spring (Fig.17) to EN4
- Remove guide cover (A)
- Drill 4 holes along “V” mark on guide profile (B)
- Position guide profile (B) horizontal to door leaf according to dimensions in Fig.5
- Secure guide to door leaf using suitable fixings
- Insert slide coupling (C) within the guide (B)
- Close door
- Locate spindle (G) on output shaft so that end of arm (F) meets the slide coupling (C).
- Detach arm (F) from spindle (G)
- Remove spindle (G) from output shaft and rotate 1 to 3 teeth (5 to 15°) in the direction of door to tension spring (Fig. 8) and replace.
- Insert washer (H) and secure screw (I) into spindle
- Locate and secure arm (D) to spindle (G).
- Rotate arm to reach the coupling (C)
- Secure coupling (C) to arm (F)
- Insert guide cover profile (A) and end caps (E,D)

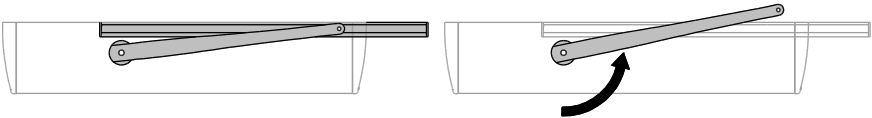


Fig.8 Pull arm pre-tensioning



Misalignment of operator in relation to door leaf movement will effect a bending force upon the arm causing the slide coupling to bind and damage the operator.

Arm Type Selection

Set slide switch to pull arm position.

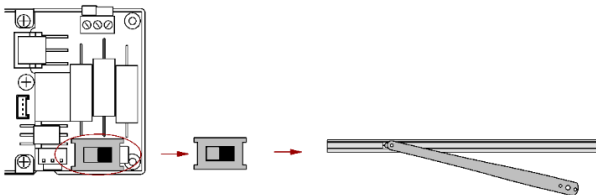


Fig.9 Arm type selector switch

Push Arm

Preparation

Proceed as follows:

- remove cover (B);
- disconnect wiring from control board (C);
- release the 2 captive screws and remove control board (C)
- remove the 2 screws and remove transformer (G);
- remove the 4 screws and remove gear motor (D);
- loosen the 4 screws and remove end caps (E) and (F);

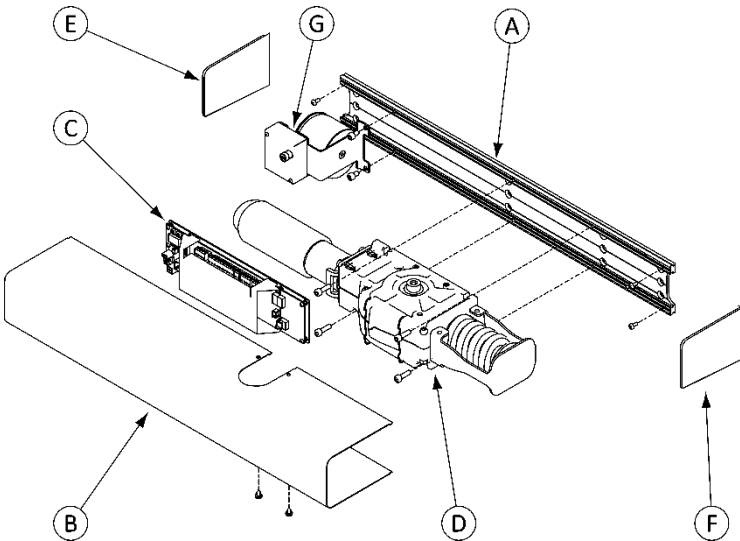


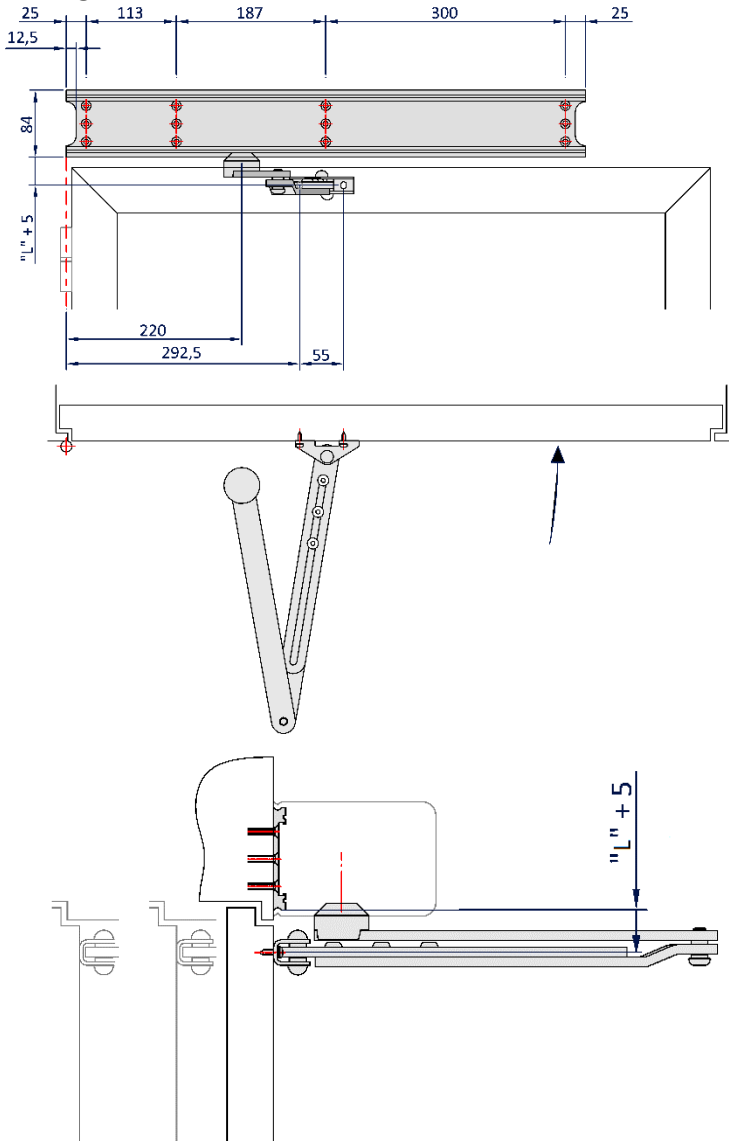
Fig.10 Exploded view


Mounting Operator

Position and secure the base plate in relation to pivot axis and door leaf, as shown in Fig.11 dependent on door hand

- Base plate outer edge should align with the pivot axis.
- Base plate lower edge must parallel to door leaf top edge
- Vertical dimension "L" between bottom of base plate and centreline of cleat fixing is spindle length (fig 3) +5mm.

Setting out - Push Arm Installation



 Standard Arm PF18.06
 -150 0


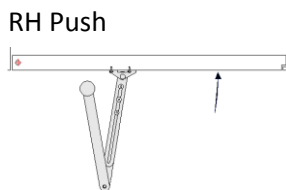
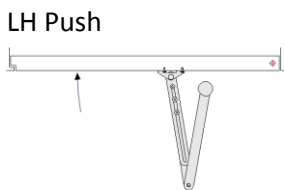
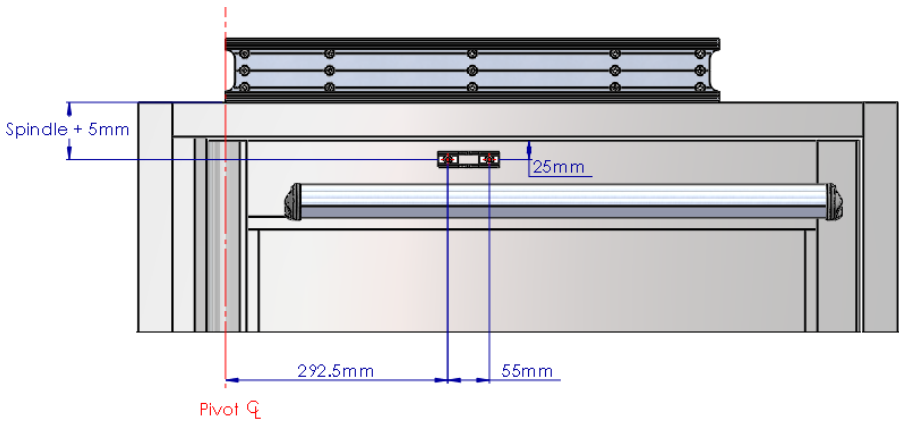
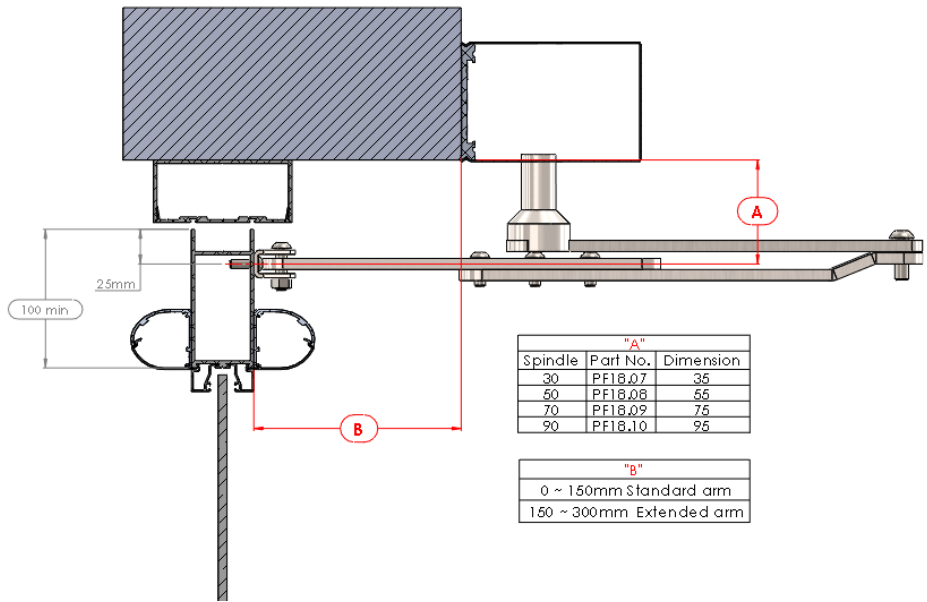
 Extended Arm PF18.03
 -300 -150

Fig.11 Push arm setting out



Installing Push Arm

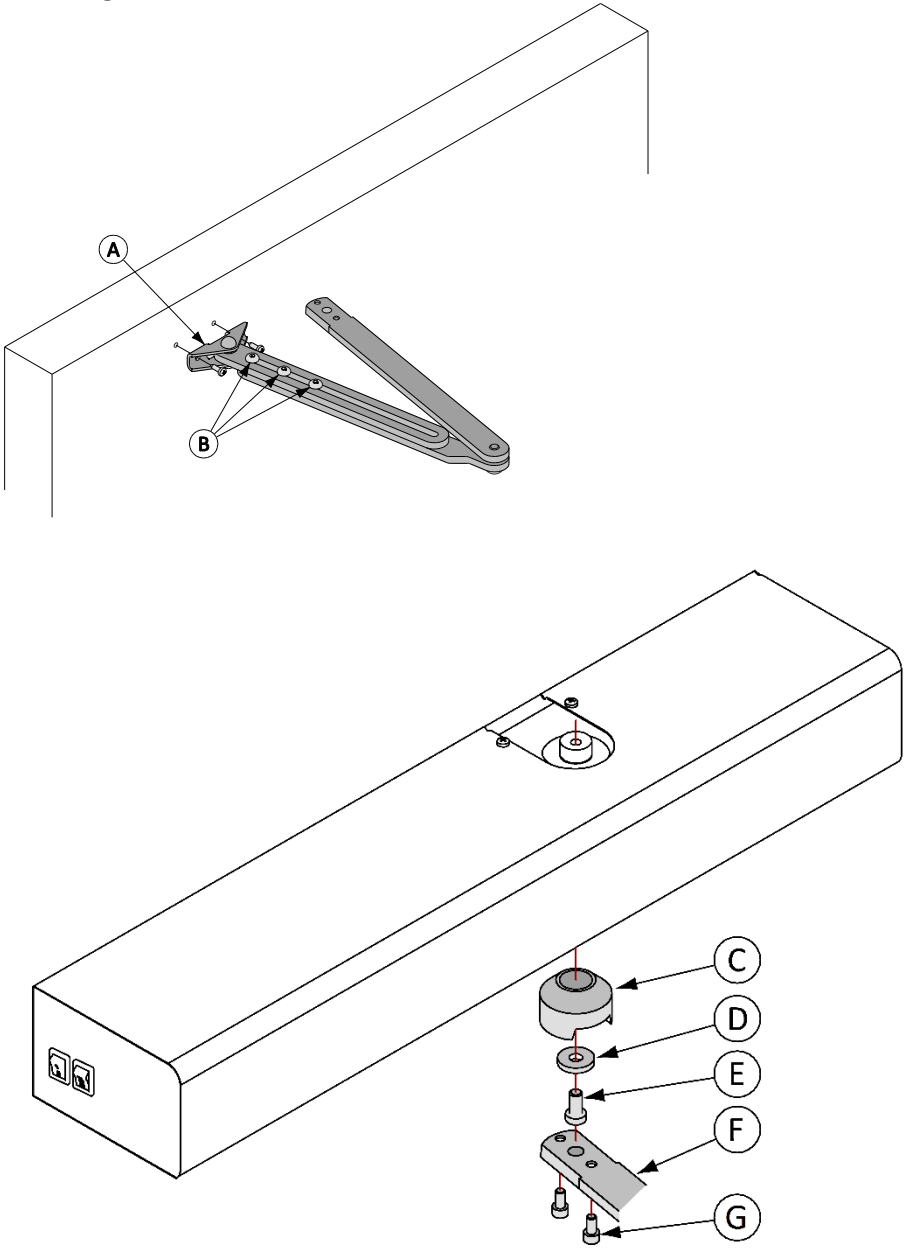


Fig.12 push arm assembly

Installing Push Arm

- Tension the closing spring (Fig.17) to EN4
- Remove screws (B) and cleat (A) from arm assembly
- Secure cleat to door leaf according to dimensions in Fig. 11
- Insert washer (D) and screw (E) in spindle
- Locate and secure arm (F) to spindle (C) with screws (G)
- Close door
- Locate spindle (C) on output shaft so that arm is perpendicular to door and tighten screw (C)
- Replace screws (B) loosely and re-attach cleat (A) to arm
- Keep door shut and rotate arm 5 to 15° to tension spring (Fig. 13).
- Tighten screws (B)

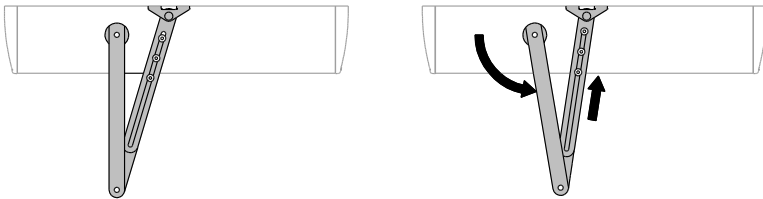


Fig.13 Push arm pre-tensioning



Misalignment of operator in relation to door leaf will effect a bending force upon the arm causing stress and damage the operator.

Arm Type Selection

Set slide switch according to push arm position.

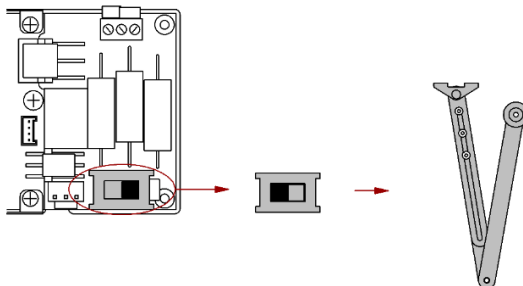


Fig.15 Arm type selector switch

COMMISSIONING MANUAL OPERATION

1. Spring Closing Force Setting

The closing force should be set according to the width and weight of the door in accordance with EN 1154 within the range EN 4 to 6.

Where wind and building over-pressure conditions that affect door movement exist, select a higher a value.

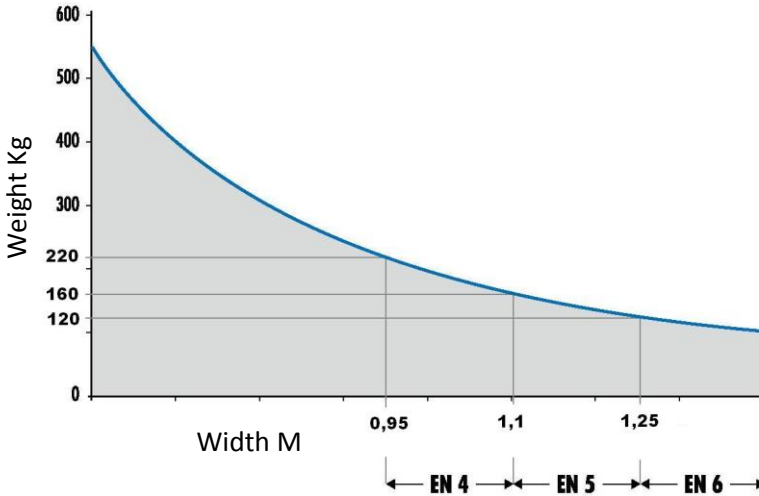


Fig.16 Recommended closer rating Vs door size according to EN1154

Set spring force via hex headed bolt (A) to align end plate (B) with the required value identified on label.

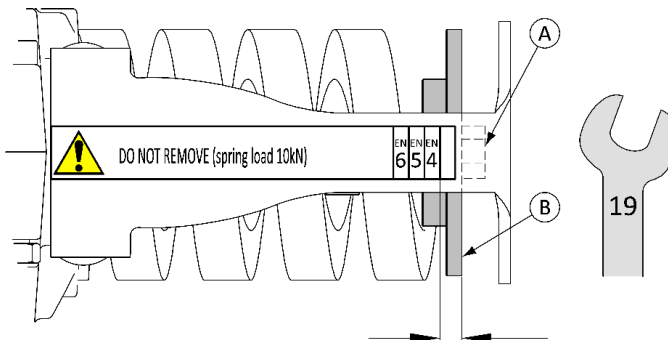


Fig.17 Spring closing force adjustment

2. Brake Adjustment

Adjust braking level to suit desired closing speed (without power) via jumper connections on terminal board.

To increase closing speed – remove jumpers;

To decrease closing speed – install jumpers.

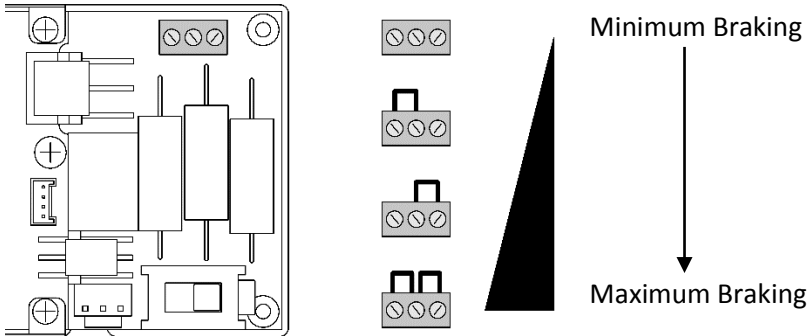


Fig.18 braking level

Drives are supplied with all jumpers connected for max braking.

COMMISSIONING POWERED OPERATION

1. Preliminary Checks

Before electrical wiring, complete following checks:

- ✓ Clear swarf and all other residual debris
- ✓ Verify security of all fixings

Control Board Layout

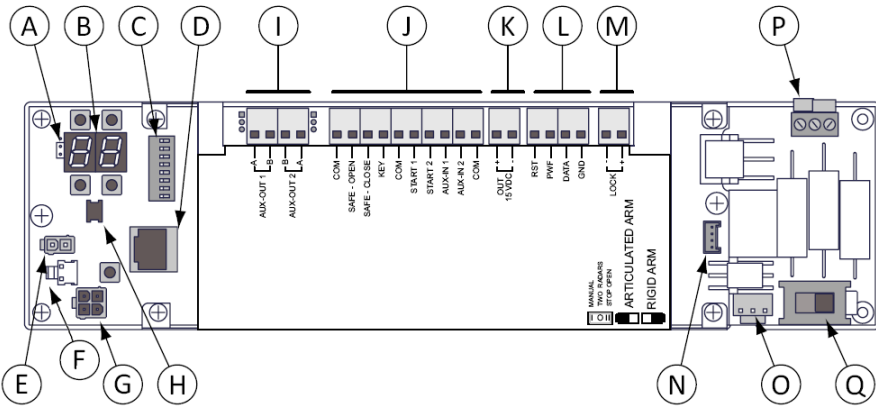


Fig.19 Control board layout

- | | |
|----------------------------------|-----------------------------------|
| A. Display Orientation | J. Input connections |
| B. Display and push buttons | K. Auxiliary power output |
| C. Primary Function Dip switches | L. Pair & adv. mode selector link |
| D. PC connector | M. Lock power output |
| E. Transformer plug connector | N. Encoder |
| F. Battery connector | O. Motor |
| G. ON-OFF Switch connector | P. Brake Level |
| H. Integral Mode switch plug | Q. Arm Type selector |
| I. Auxiliary Outputs | |

2. Mains and Internal Plug Connections

Mains Power Supply

Before connecting supply wiring, ensure supply is safely isolated.

- Route supply cable to operator taking care not to damage insulation.
- Remove cover (A)
- Securely connect the power supply and ground via terminals (B)
- Replace and secure cover (A)
- **Do Not Switch** supply on at this stage

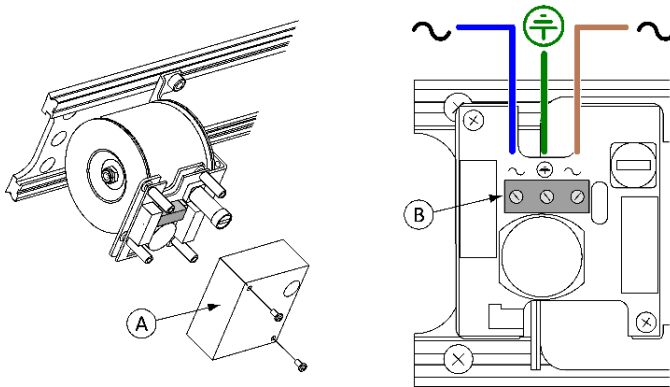


Fig.20 Mains supply connection

Internal plug connections

With power off, connect plugs (Fig19) for:

- Logic switch [H]
- ON-OFF switch [G]
- Transformer [E]
- Motor [O]
- Encoder [N]

ATTENTION:

To avoid irreversible damage to control ensure power supply is off whenever connecting/disconnecting plugs or peripheral device wiring.

3. Set Primary Function Settings

Primary functions and options of operator are set via dip-switches on control board (Fig 19 – C)

Set switch according to desired operation and installation type.

dip	Parameter	Option		Default is shaded
1	Arm selection	OFF		Push arm
			ON	Pull arm
2	Operating Mode	OFF		Full Power
			ON	Low Energy
3	PUSH & GO	OFF		Disabled
			ON	Enable
4	Key mode	OFF		Bi-stable
			ON	Mono-stable
5	Operator Type	OFF		4100 Plus M (motor only)
			ON	4100 Plus S (motor & spring)
6	Closing mode	OFF		Closing by motor
			ON	Closing by spring
7	Stall function - spring only closing	OFF		None
			ON	Recycle open
8	Not used	OFF		
			ON	

Changes to switch settings should only be made with power off

4. Initialise / Start Up

- Set power switch to OFF (O)
- Check Dip-switches (in particular 1&5) are correctly set
- Ensure KEY, SAFE CLOSE and SAFE OPEN elements linked to COM.
- Switch mains supply ON.
- Set power switch to ON (I).
- Observe display and check its orientation is correct
 - On initial power up E1 is displayed indicating a learn procedure is required
 - After a learn procedure has been completed, the firmware version and sensor configuration is displayed on power up.
 - Display orientation is set via adjacent jumper (Fig19 –A).

Learn Sensors (LS)

A sensor learn procedure is first completed without sensors to allow easier operational adjustments.

- Select **LS** via [+] & [-]
- Push [ENT] briefly
- Display flashes [--]
- Push and hold [ENT] until display shows sensor configuration
 - Since safety sensors are not connected at this point display should indicate SO
- Push ENT to confirm the detected configuration
- Push ESC to exit

Sensor Configurations

ID	Description
S0	No monitored sensors detected or sensors will be managed without monitoring.
S1	Monitored opening sensor detected, no closing sensor detected or will be managed without monitoring.
S2	Monitored closing sensor detected, no opening sensor detected or will be managed without monitoring.
S3	Monitored opening and closing sensors.

Learn Cycle (LP)

A learn cycle is required to determine the limits of door movement. A physical stop is required to find opening angle, this may be temporary.

- Select **LP** via [+] & [-]
- Push [ENT] briefly
- Display flashes [--]
- Push and hold [ENT] until display flashes E1 or opening cycle starts
- The learn cycle will begin during which the door will cycle once.
- On completion the display will indicate CL (closed position).

The operating opening angle will be reduced compared to the limit detected during the learn cycle to allow operation if there is no physical door stop. The percentage of reduction is defined by parameter 33.

5. Set & Adjust Powered Operation

Following a successful learn cycle, pressing [ENT] initiates a door cycle and is used to check operation whilst commissioning without peripheral devices connected.

Adjust parameter values 1 through 8 according to installation requirements

ID	Parameter	Range	Default
01	Opening speed	20°/s to 70°/s (5°/s steps)	60
02	Closing speed	10°/s to 40°/s (5°/s steps)	20
03	Hold open	0 ÷ 60sec, 62= 2min, 63=3min, 64=4min	0
04	Hold open low-energy	5 to 60sec (1sec steps)	5
05	Speed during Spring closing (according to Dip 6)	1 (slow) to 9 (fast)	5
06	Stop/reverse sensitivity	1 (sensitive) to 9 (less sensitive)	5
07	Acceleration / deceleration	5 to 30	30
08	Check speed angle	10 to 40	20

Parameter setting values are altered via the push buttons.

To set values proceed as follows:

- Select parameter to adjust with push buttons [+] and [-]
- Press [ENT] to enter in the adjustment mode
- The current parameter value is indicated on display
- Press [+] and [-] to change value
- Press [ENT] to accept value
- Press [ESC] to memorise settings and exit adjustment mode.

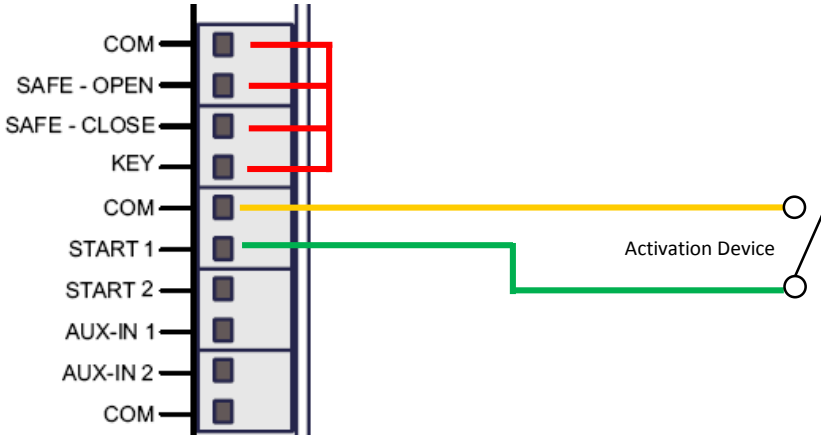
Press [ESC] to exit adjustment mode without modification.

After 10 seconds of inactivity the system exits adjustment mode.

6. Connect Peripheral Devices

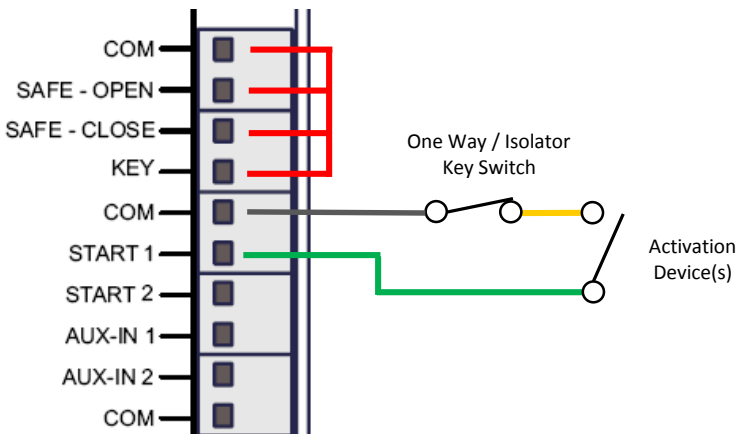
Activation Devices

Activation devices wire to Start 1 input which is active in automatic modes



One-way Mode Selector

For one-way mode or to isolate specific activation inputs a key operated NC switch contact is wired in series with device signal circuit.



Remote Mode Selector

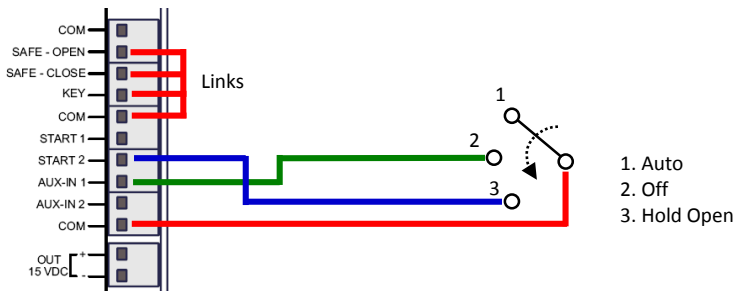
With key operated remote mode selector installed, the drive has three operating modes Automatic, Hold Open and Off. If installed the integral mode switch selector is disabled.

In Off mode the drive can be configured to hold close by motor (engaging electric lock if fitted) or remain free with spring closer for manual use via parameter 15.

Configure operation in Off mode by parameter 15:

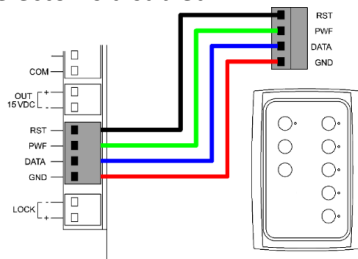
ID	Description	Setting	Description
15	Auxiliary input 1	11 - Manual	Door free for manual operation in Off mode
		12 - Stop/ Close	Door held closed/locked in Off mode

Wire mode selector to terminals Start 2, Aux IN 1 and COM



Standard (PF01.70) and Advanced (PF01.72) Mode Selectors

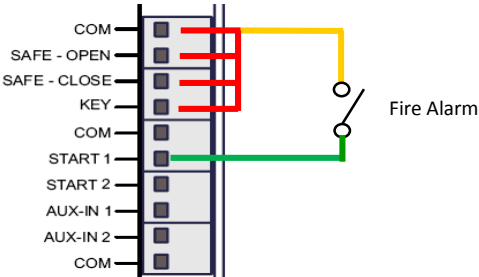
Optional standard & advanced mode selectors connect to terminal block L. Use 4 core 0,22mm shielded cable. If installed the integral mode switch selector is disabled.



Fire Alarm.

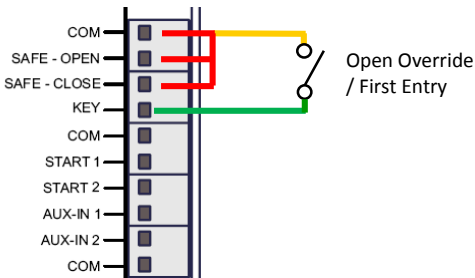
To interface with fire alarm system requires a volt free normally open command signal to drive control.

The default connection for fire alarm signal is to Start 1 input terminal whereby activation of fire alarm causes door to open for the duration of signal when in "Automatic" mode.



Open Override / First Entry.

A First entry or open override command from key-switch or similar control element can be installed to open door regardless of operating mode.



Connect signal to KEY terminal and set input parameter 25

ID	Description	Setting
25	Polarity Key input	0 – NO

Connecting & Powering Electric Lock

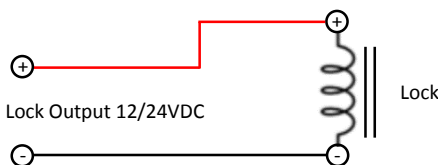
Powered electric locks connect to terminal M (Fig19).

- Check lock power is within output limits (12/24Vdc, 15W)
- Set parameters 9/10/11/12/14 according to lock type

ID	Description	Setting	Default
09	Lock voltage	0 = 12 VDC 1 = 24 VDC	0
10	Electric lock type	0 = No Lock 1 = Strike fail secure without power 2 = Maglock (24VDC type only) 3 = Solenoid 4 = Motorised 5 = strike with relock at power off 6 = Maglock with delayed re-energise (24VDC only)	0
11	Opening delay	0 to 9 dependent on the type of electric lock	2
12	Hold close force	0 to 9 (max)	5
14	Electric lock / hold by motor	0 = Disabled 1 = One Radar 2 = Two Radars 3 = One Radar and two Radars	3

Type (ID10)	Operation	Timing Range (ID11)
1 Strike Fail-secure	De-energised after delay (Id11) Relocks mechanically in closed position.	50 to 500ms
2 Maglock Fail-safe	Door opens after delay (Id11) Re-energised when door near to closed Only use 24Vdc rated Mag-locks up to 625mA	200 to 2000ms
3 Solenoid Fail-safe	Secure when energised Door opens after delay (Id11) Re-energised when door fully closed	200 to 2000ms
4 Motorised	Energised to unlock Door opens after delay (Id11) Re-energised to lock when door is fully closed	500 to 5000ms
5 Strike Fail-secure	Unlocks on power (impulse) Door opens after delay (Id11) De-energised beyond 10° of opening	100 to 1000ms
6 Maglock Fail-safe	Door opens after set delay (Id11) Re-energised after door reaches closed Only use 24Vdc rated Mag-locks up to 625mA	200 to 2000ms

- Wire lock to terminal M observing polarity.



Power Rating

The lock output is 12 or 24Vdc, 15Watts.

Since current (I) is equal to power (W) divided by Voltage (V)

Max current draw at 24V is $15W/24V = 0.625A$ (625mA)

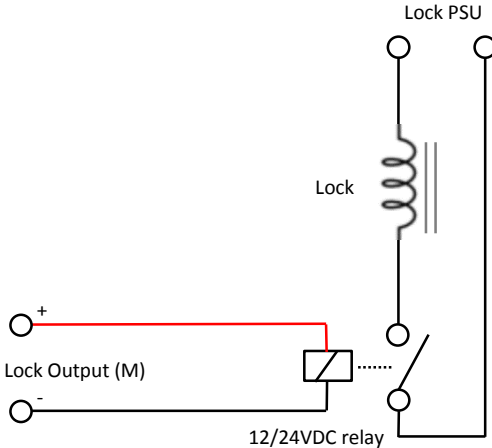
Max current draw at 12V is $15W/12V = 1.25A$

$$I = \frac{W}{V}$$

Providing a Lock Control signal for externally powered electric lock

It is possible to configure the Aux Output 1 or 2 outputs to emulate a lock command signal via parameter settings. However, since the output contacts are rated at a maximum of 100MmA max it is unlikely to be suitable for switching power to an electric lock directly, it is preferable to use lock output with relay as described below.

A higher rated electric lock than the operator power output can be controlled by via a relay connected to the lock 'power' output.

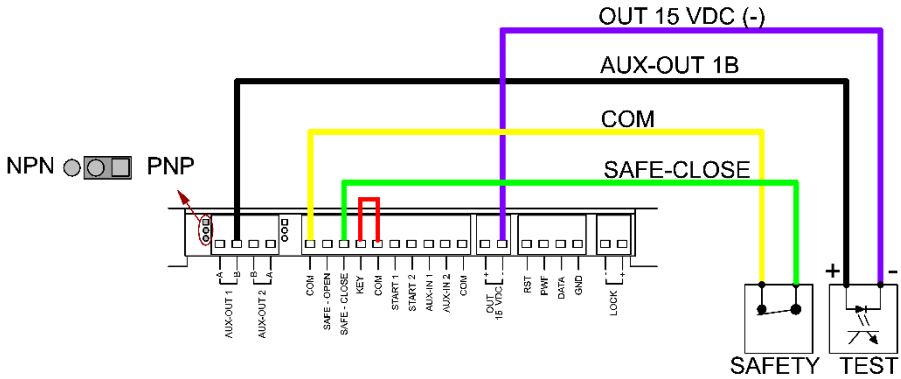


7. Connect Safety Sensors

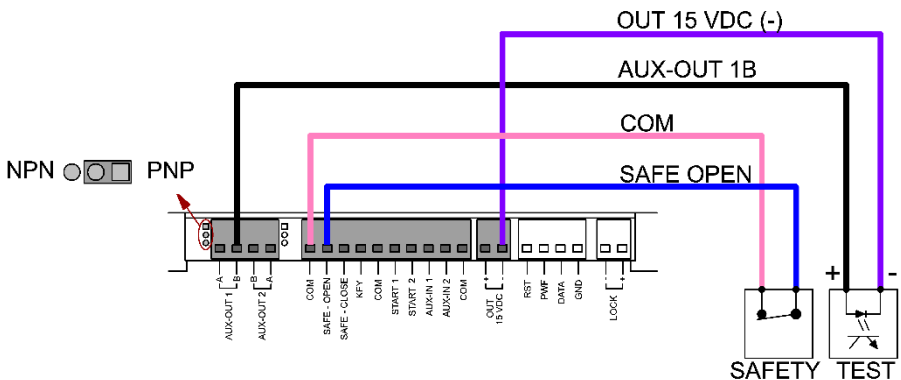
Safety Sensors Wiring (Optex OA Edge)

- Remove links from safe-open and safe close terminals Fig 19 J.
- Connect opening and close safety sensors as below.
- Set Aux Out 1 output to **PNP** via adjacent jumper

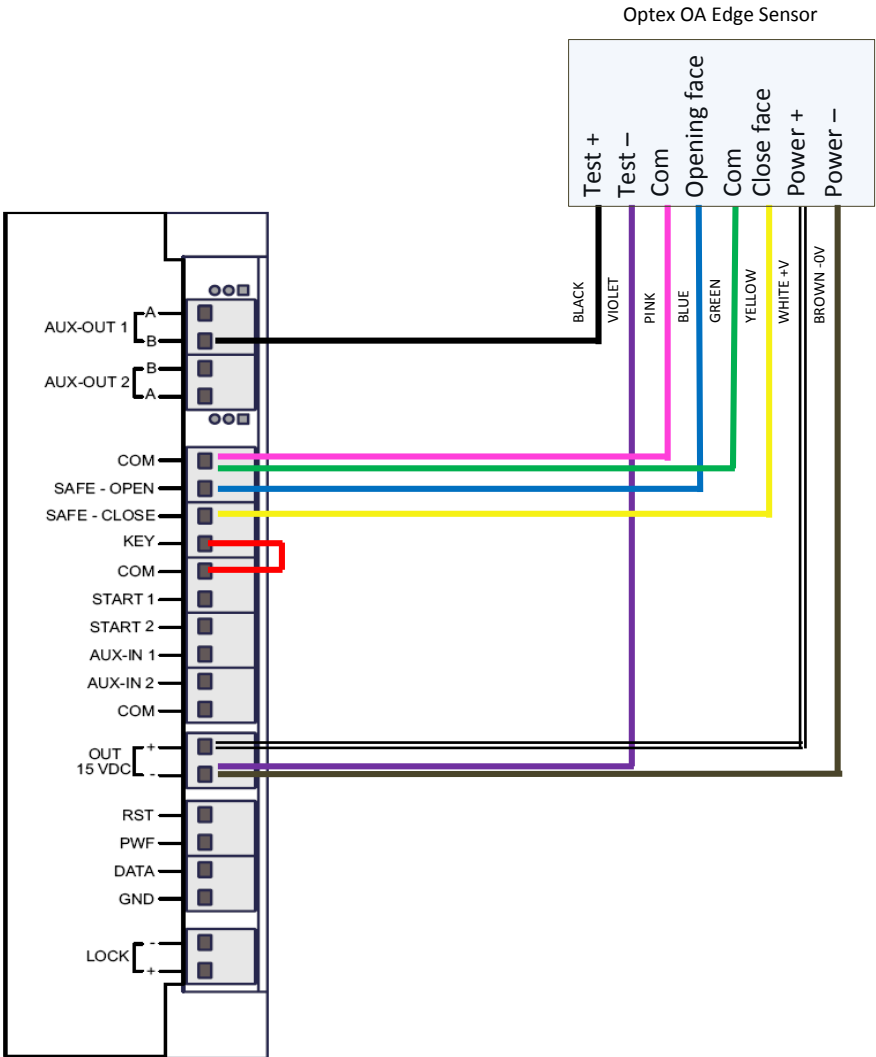
Closing face safety



Opening face safety



Opening and closing face safety

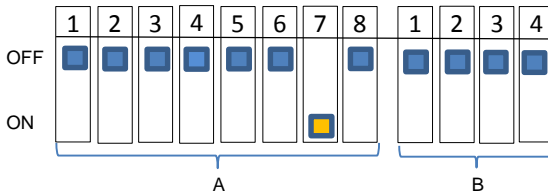


8. Set-up Safety Sensors

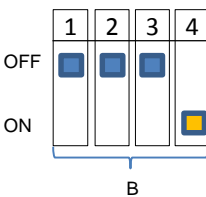
Set DIP switches*

ID	Parameter	Range	Setting
Master			
A1	Non-detection zone (h)	Off =15cm, On =35cm	Off or to suit
A2	Frequency setting	On =1, Off =2	Off or to suit
A3	Immunity	Standard = Off, High = On	Off or to suit
A4	Presence timer	Detection time Off=60sec , On= infinite	Off
A5	Not Used		
A6			
A7	Test input	Test type = test 'Low'	ON
A8	Test input delay	Test response = 10ms	Off
Slave			
B1	Non detection zone (h)	In addition to A1 Off = 0cm, On = +10cm	Off or to suit
B2	Detection zone width	Wide (4 spots) Off, Narrow (2 spots) On	Off
B3	Disable Self-monitoring	On =disable, Off = enable	Off
B4	Mounting side	Off=Closing face, On = opening face	Off
B1	Non detection zone (h)	In addition to A1 Off = 0cm, On = +10cm	Off or to suit
B2	Detection zone width	Wide (4 spots) = Off, Narrow (2 spots) = On	Off
B3	Disable Self-monitoring	On =disable, Off = enable	Off
B4	Side of door installed	Off= Closing face, On = opening face	ON

Master



Slave



*Based on master sensor installed on closing face.

Initialize Sensors

- Initialize sensors by pressing function switch until led turns off, then release
- Led will flash green indicating number of modules connected then flash alternate yellow/red when initialisation is complete

Initiate Learn procedure

- Initiate a sensor learn by pressing function switch briefly, the Led indicator will flash yellow whilst it 'learns' the non detection zone.
- Do not enter sensor detection zone during learn cycle.
- When complete the LED will show green and sensor goes to stand-by.

9. Initiate Safety Sensor Monitoring

Set sensor monitoring function to on and sensor input to normally closed

- check Aux Out 1 is set to **PNP** via adjacent jumper

ID	Description	Setting
17	Safety sensor monitoring	0 = monitoring ON
30	Auxiliary Out 1 state	1 = NC

Carry out Safety sensor learn procedure **LS** as described in Step 4

- During LS procedure keep clear of sensors else procedure will fail
- If sensors are incorrectly wired or set up, display flashes **LS**.
 - Abort procedure by pushing ESC.
 - Check sensors and launch LS again.

On completion of **LS** procedure the detected configuration is displayed until either ENT is pressed to confirm the configuration is correct or ESC to abort.

Sensor Configurations

ID	Description
S0	No monitored sensors detected
S1	Monitored opening sensor detected
S2	Monitored closing sensor detected
S3	Monitored opening and closing sensors detected.

Adjust Sensor Blanking

Adjust safety sensor blanking angle via parameter 20 as necessary.

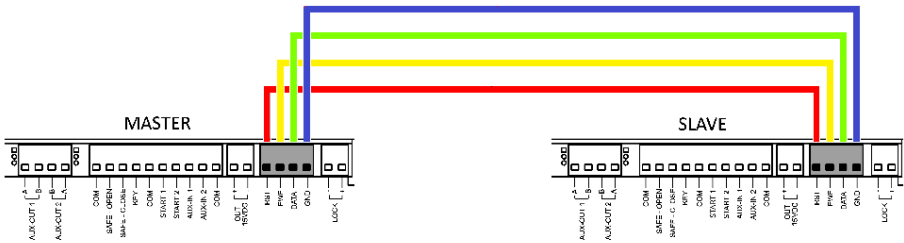
ID	Description	Setting
20	Safety sensor blanking	0 ÷ 40% of opening angle

COMMISSIONING PAIRED OPERATION

Paired Operation

To synchronise operation of a paired doorset:

- Initiate and commission each drive as described in preceding sections
- Wire synchronisation cable connecting drives



- Define each operator as either master or slave via parameter 13
 - Conventionally master door is first to open and last to close

ID	Description	Setting
13	Drive definition	0= Single, 1= master, 2= slave

If doors are rebated, set timing for sequenced operation

ID	Description	Setting
21	Opening sequence delay	0 – 100ms delay (0=synchronized)
22	Closing sequence delay	0 – 100ms delay (0=synchronized)

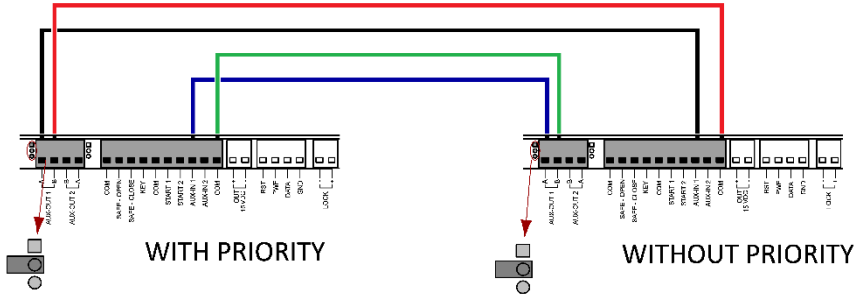
Note:

- ✓ Peripheral commands and remote mode selector connect to master
- ✓ Safety devices connect independently to each drive.
- ✓ Operating parameters (speed, Accl, sensor blanking, etc) are set on each drive
- ✓ Closing cycle starts only after both doors have reached open.
- ✓ Electric lock operation is independent for each door.
- ✓ Obstructed closing affects both doors, causing them to re-open.
- ✓ Obstructed opening affects only the stalled door, causing it to stop
- ✓ Mains supplies should be derived from same source of isolation.

Inter-lock Function

To set inter-lock function:

- Wire control signal connections below using 4x0,22 shielded cable
- Set Aux Out 2 to Relay form output by disconnecting jumper
- Set priority opening via parameters 16 and 17:



For paired doorsets the interlock connection is between master boards

APPENDIX

Operating Modes

Integral Mode Switch

Mode Switch	Description
I – Manual	Manual operation, START 1 & 2 activation inputs are disabled
O – Automatic	Powered operation. START 1 & 2 activation inputs active Locking / hold by motor function active dependent on P.14
II – Hold Open	Door Open

Remote Mode Switch (key-switch)

Mode Switch	Description
1 – Automatic	Powered operation. START 1 & 2 activation inputs active. Locking / hold by motor function active, dependent on parameter 14.
2 – Off	Manual operation with spring closing when P.15 set to manual. Start 1 & 2 activation inputs disabled. Key Input enabled
	Locked (or held by motor P.14) when P.15 set to Stop/close. Start 1 & 2 activation inputs disabled. Key Input enabled
3 – Hold Open	Door Open

Advanced Mode Switch (membrane switch)

Mode Switch	Description
Manual	Manual operation.
Automatic – 1 way	Only START 1 activation input is active. Locking / hold by motor function active, dependent on parameter 14.
Automatic – 2 way	START 1 & 2 activation inputs are active. Locking / hold by motor function active, dependent on parameter 14.
Stop Close	START 1, 2 and DDA inputs are disabled Locking / hold by motor function dependent on parameter 14.
Hold Open	Door Open

Parameters Table

ID	Description	Setting	Default
01	Opening speed	20°/s to 70°/s (5°/s steps)	60
02	Closing speed	10°/s to 40°/s (5°/s steps)	20
03	Hold open	0 to 60s. 62= 2min, 63=3min, 64=4min	0
04	Hold open 'low-energy'	5 to 60s	5
05	Closing speed	1 to 9 max	5
06	Stop/reverse sensitivity	1 (sensitive) to 9, both directions	5
07	Acceleration / deceleration	5 to 30	30
08	Check speed angle	10 to 40	20
09	Electric lock power	0=12 VDC 1=24 VDC	0
10	Lock type	0 = No Lock, 1 = Strike fail secure without power, 2 = Maglock (24VDC type only), 3 = Solenoid, 4 = Motorised, 5 = strike with relock at power off, 6 = Maglock with delay(24VDC)	0
11	Opening delay	0 to 9 set according to type of electric lock type	2
12	Lock closing force	0(min) to 9(max)	5
13	Single/Master/Slave	0= Single, 1= master, 2= slave	0
14	Lock activation / hold close	0 = Disabled 1 = One Radar 2 = Two Radars 3 = One and Two Radars	3
15	Auxiliary input 1	0 = DDA opening 1 = Emergency opening 2 = Interlock door with priority 3 = Interlock door without priority 4 = Feedback lock release 5 = Command lock release 6 = Command Single on Double door 7 = Stand-by 8 = Reactivate the door after stand-by 9 = Step/step function (impulse open/close) 10= Fire alarm 11= Manual 12= Stop closed	0
16	Auxiliary input 2	0 = DDA opening 1 = Emergency opening 2 = Interlock door with priority 3 = Interlock door without priority 4 = Feedback lock release 5 = Command lock release 6 = Command Single on Double door 7 = Stand-by 8 = Reactivate the door after stand-by 9 = Step/step function (impulse open/close) 10= Fire alarm 11= Manual 12=Stop closed	1

ID	Description	Setting	Default
17	Auxiliary output 1	0 = Sensors monitoring 1 = Interlock 2 = Stop open condition 3 = Stop closed condition 4 = Failure 5 = Repetition of lock command	0
18	Auxiliary output 2	As Auxiliary output 1 configuration	1
19	Multi-Master	1 to 15 (see specific instructions)	0
20	Safety sensor blanking	0 – 40% of opening angle	0
21	Opening sequence delay	0 – 100ms delay (0=synchronized)	0
22	Closing sequence delay	0 – 100ms delay (0=synchronized)	0
23	Open safety input	0 = NO (Normally Open) 1 = NC (Normally Closed)	1
24	Close safety input		1
25	Key input		1
26	Start1		0
27	Start2		0
28	Aux In 1		0
29	Aux In 2		0
30	Aux Out 1		0
31	Aux Out 2		0
32	Force level during LP	5 to 60 (0 = min, 9 = max)	5
33	Opening angle reduction	0 to 50%	0
34	Mounting Position	0= lintel, 1= door	0
35	DDA speed	0= LE, 1= according to speed parameters 1 & 2	0
36	Battery back-up	0= no battery, 1= continuous operation, 2= open	0
37	START 2 function	0 = Powered operation, active according to mode 1 = LE operation, active in manual mode only 2 = LE operation, active in all modes	0
TS	Test cycle	0= none, 1= cyclical, 2= intensive cyclical	

Operator Functions

Function	Description
Low-Energy Activation	With AUX IN 1 or 2 parameter 15 set to DDA Opening (0) an input initiates a low energy cycle. (except in Stop Close)
Push & Go Activation	Powered operation starts when pushed. Selectable by DIP 3.
Closing Cycle Sensor ESPE	If activated the door stops briefly and recycles open.
Opening Cycle Sensor ESPE	If activated door movement stops.
Opening Cycle Obstruction	If obstructed whilst opening the door stops briefly then closes slowly. Sensitivity is adjusted via parameter 6
Closing Cycle Obstruction	If obstructed whilst closing the door stops briefly then opens slowly. Sensitivity is adjusted via parameter 6

Display Messages

The segmented display indicates operation and error codes:

Display	Meaning
OP	Door opened
OP (blinking)	Door opening
CL	Door closed
CL (blinking)	Door closing
E1	Door requires self-learning procedure
E2	Wrong arm selection – (Dip 1, Slide switch or Dip 5)
E3/E4	Over Current
E6	Monitored sensor error
E8	Encoder connection
S1	Opening safety monitoring fault
S2	Closing safety monitoring fault
S3	Opening and closing safety monitoring fault

Parameter Reset

To reset all parameter to factory default values:

- Select **Sd** via [+] & [-]
- Push [ENT] briefly
- Display flashes [--]
- Push and hold [ENT] until [--] disappears and release [ENT].

Inputs

Input	Default	Description	Function
Key	NC*	Open Override	Door opens on impulse
Start 1	NO	Open Activation	Activates door in 2 radar logic mode only
Start 2	NO	Open Activation	Activates door in 1 & 2 radar logic mode
Safety Open	NC	Opening safety Input	Stops door opening if activated
Safety Close	NC	Closing safety Input	Re-opens closing door if activated
Aux In 1 & Aux In 2	NO	Auxiliary input signal with programmable functions:	
		0 - DDA opening input	Command to cycle door in low energy mode
		1 - Emergency open	Opens door with highest priority
		2 - Interlock priority	Interlock synchronisation input, with priority
		3 - Interlock no priority	Interlock synchronisation input, without priority
		4- Lock monitor	Input for lock status monitoring
		5- lock release	Lock releases for manual operation.
		6- Single door open	Master door opens in paired application.
		7- Stand-by	Standby mode (unlocked & deactivated)
		8- Standby reactivation	Reactivates door from standby mode
		9- Step/step function	Impulse open / impulse closes function.
		10- Fire alarm	Door closes and commands are disabled
		11- Manual function	Manual operation / logic switch disabled
		12- Stop closed	Door closed / logic switch disabled

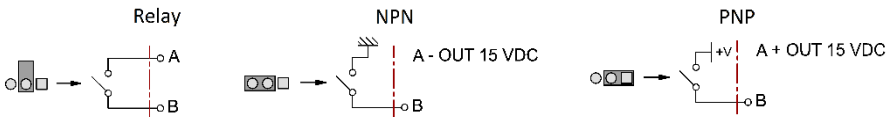
NO / NC output can be changed – see parameter settings

*Key input should be set to normally open (NO) for UK standard operation

Auxiliary Outputs

Output	Form	Description	Function
AUX OUT 1 & AUX OUT 2	NO		
		0 - Monitoring sensors	Monitoring of safety sensors.
		1 - Inter lock	Synchronisation output - interlock operation
		2 - Door opened	It signals door in opened position.
		3 - Door closed	It signals door in closed position.
		4 - Fault	It signals door in fault.
		5- Lock command	Repeats the electric lock command

The form (NPN, PNP, Relay) of Auxiliary Outputs is set via adjacent jumpers



Auxiliary Outputs are rated at a maximum **24V - 100mA**

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4100-Plus Installation Instructions
Issue 1 Revision A
11/08/2016



4100-Plus Swing Door Operator



Operation & Maintenance

Retain for reference

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SAFETY INSTRUCTIONS

Thank you for choosing this product, for optimum and safe operation carefully observe the instructions and recommendations within this manual.

General Safety Advice



Commissioning, maintenance and servicing should only be carried out by professionally qualified personnel in accordance with BS EN 16005 and approved by Horton Automatics Ltd.



Do not tamper or adjust operation of the drive or connected devices

The Horton 4100 Plus drive is an electro mechanical system for automation of pedestrian entrances in accordance with BS EN 16005. It has been designed and built exclusively for this application. Use for any other purpose could affect the integrity of the product and result in hazardous operation. Horton Automatics Ltd. does not accept any liability resulting from misuse or use other than its intended use.

User Safety Advice



Do not run or idle in entrance area

Supervise minors and assist elderly or infirm using door



Observe all safety instructions, signage and warnings.

Be aware of the action of others and advise where inappropriate behaviour presents a risk.

SPECIFICATIONS

Dimensions	See Fig.1
Power Supply	230V \pm 10% AC 50/60Hz
Nominal Power	85w
Auxiliary power output	15vdc - 12w max
Opening Time	3s to 6s (70°/S to 20°/S)
Closing Time	4s to 15s (40°/S to 10°/S)
Manual Closer Rating (EN 1154)	4 to 6
Max Opening Angle	110°
Door Leaf Width	700 to 1200 mm
Max. Door Leaf Payload	See Fig.2
Working Temperature	-10°C to +50°C
Weight	11 Kg Approx.
Service	Intensive
IP	IP40

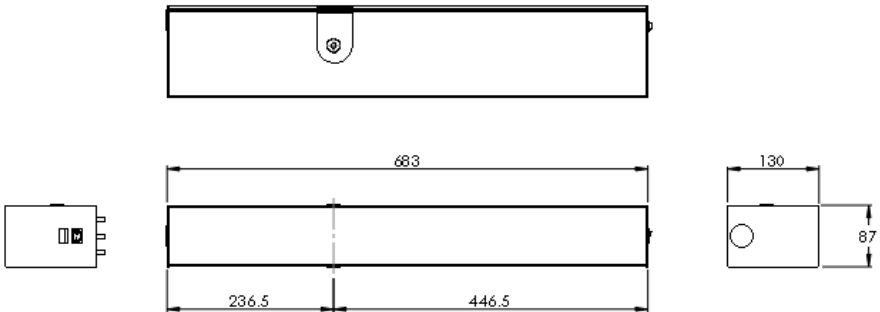
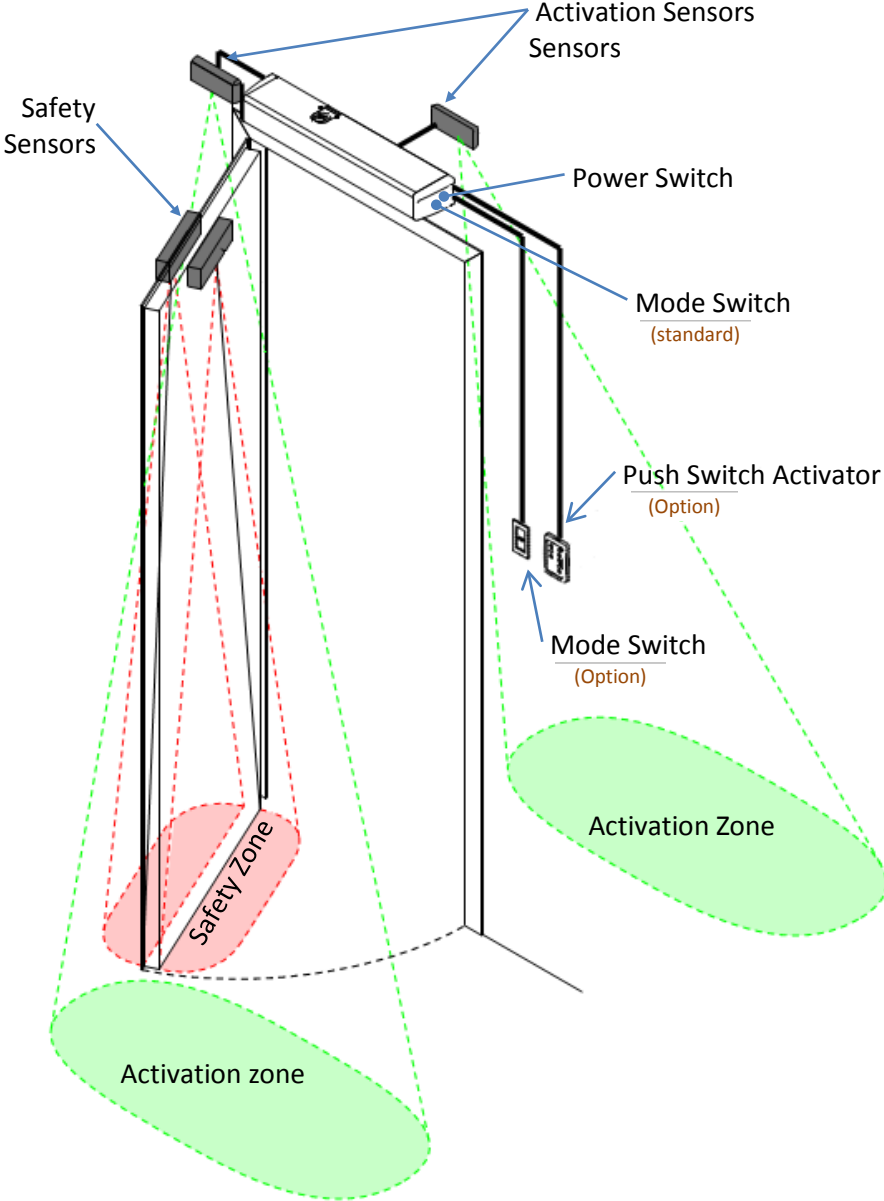


Fig.1 Dimensions

The Horton 4100-Plus S is an automatic swing drive system for pedestrian use. Operating as fully automatic system or set to meet requirements of Low-Energy application according EN16005. The device is intended for installation in a dry, internally mounted position.

Typical Layout



OPERATION

Operating Mode Selector

A mode selector switch is mounted in operator end plate as standard:

I	Off	Door remains closed.
0	Automatic	Door opens automatically via connected activators
II	Hold Open	Door remains open

A remotely key operated selector may be provided for convenience.

On/Off Isolator Switch.

A switch mounted in end of operator allows automatic door function to be turned off and operated manually

Manual Operation.

With power isolated the drive operates as self-closing door device adjustable operating forces between EN4 to EN6 in accordance with BS EN 1154 classifications.

Automatic Activation.

Activation to open door is usually provided by automatic approach sensors such or manual push switches. Auxiliary devices such as a card-readers or keypads may also be interfaced to provide special functions.

First Entry / Open Override.

A first entry / open override key switch (supplied as option) allows authorised entry from outside when door is 'Off' mode.

Manual Locking.

Manual locks must be released before operation to avoid damage to operator mechanism. To engage locks first ensure operator is 'Off'.

Automatic Locking (optional).

Automatic powered locks may be installed as an option and engage when in Off and Automatic (option). With the exception of specialised mechanisms, electric locks release with power loss / failure.

Power Failure

During interruption of mains power the doorset may be operated manually.

OWNER RESPONSIBILITIES

To ensure continued operation of a powered door installation, the installation and its environment should be subjected to systematic operational checks as often as is appropriate to the type of installation and its traffic flow. This should be assessed with reference to the Hazard Analysis and Risk Assessment carried out e.g. in high traffic areas such as shops, hospitals and airports, an appropriate rate would be at least once a week. According to The Workplace Regulations 1992 and Provision & Use of Work Equipment Regulations 1998, as a building owner / occupier it is a responsibility to regularly inspect automatic pedestrian door systems to safeguard the health and safety of employees and other persons.

Safety Checks

Should a doorset fail to operate as prescribed in the following checks, or at any other time for any other reason, do not attempt to repair or adjust the door. Call an ADSA accredited engineer trained to service Horton operators in accordance with mandatory and regulatory safety standards.

Visual Inspection

- Identify and remove any distractions or obstructions in vicinity of door which may lead to congestion.
- Flooring in and around doorway should be clear and free of tripping and slip hazards at all times.
- Ensure warning and information signage is clearly displayed
- Check security and condition of glazing, frames and barriers for hazards caused by damage.

Automatic Activation

Verify automatic activation sensor operation by towards doorway and into sensor activation zone. The door should open smoothly and stop without impact. Once clear of the doorway and after a time delay the door should close smoothly. For two way doors repeat check in both directions.

Manual Activation

Manual activation devices such as push switches, card-readers, key switches etc. should be tested by activation of each device in turn. The door should open smoothly and reclose after a time delay.

Safety Devices

According to risk assessment, doorsets are provided with safety devices to inhibit, stop or recycle movement when a person is detected within its path.

To check function of safety sensor monitoring closing face of door:

- Activate door to open
- Stand or place object within closing face sensor safety zone
- Check that the door remains in the fully open or stops before contact.

To check function of safety sensor monitoring opening face of door:

- Stand or place object within opening face sensor safety zone
- Activate door to open
- Check that the door stops before contact or slows.

A test object representative of a small child, as interrupted from EN16005 by the Automatic Door Suppliers Association, may be used where a more rigorously applied testing method is desired.

Signage

Signage provided with doorset should be clearly displayed.

TROUBLE-SHOOTING

Problem	Possible Cause	Corrective action
Doors not fully closing or re-opening	'Hold Open' mode selected	Select alternative operating mode
	Physical obstruction	Turn off and check free movement of door manually, remove obstruction
	Closing face safety sensor active (orange light)	Remove any objects in area of sensor. Sensor to standby (green light)
	External input i.e. access control	Correct fire/access control system state

Doors not opening	'Off' mode selected	Select alternative operating mode
	Mains power failure	Check mains supply
	Obstruction in path of door	Remove obstruction
	Doors manually locked	Release manual locks
	Opening face safety sensor active (red light)	Remove any objects in area of sensor. Sensor to standby (green light)

SERVICE & MAINTENANCE

To ensure safe and reliable operation of a powered door installation, the installation and its environment should be subjected to a systematic service and maintenance program. The recommended service frequency for automatic pedestrian doors at least once a year. Additional service requirements should be assessed according frequency of use, doorset type and location.

Powered doors are defined as 'Work Equipment' and 'Machinery' by the HSE and should be subject to a suitable system of maintenance to ensure it is maintained in an efficient state, and in good repair.

Cleaning

Regular cleaning of system is essential for efficient operation and appearance, appropriate cleaning is also a condition of the equipment warrantee. Failure to uphold a regular cleaning program inevitably leads to a need for a more intensive remedial cleaning program and may inhibit safe operation. Frequency depends on the environment, the aim being to prevent a build-up of debris and soiling.

- Clean painted surfaces with mild detergent solution
- Clean brushes/seals with vacuum to maintain efficiency.
- Do not use alkali base cleaning products
- Do not clean with pressure jet washing systems.
- Do not use abrasive materials or compounds.
- Ensure door is switched 'Off' before and during cleaning.

Safety Checks by competent persons

Automatic door systems should have an operational safety check carried out by competent personnel approved by the manufacturer and in accordance with BS EN 16005 at least once per year.

Maintenance by competent persons

Automatic door systems should be serviced by competent personnel approved by the manufacturer and in accordance with BS EN 16005 at least once per year.

Log Book

A log book recording maintenance work should be upheld and available for completion by servicing personnel.

Notes:

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4100-Plus Parts List

Description	Part No
ProSwing S	PF18.01
Pull Arm	PF18.05
Push Arm	PF18.06
Extended Push Arm	PF18.13
30 mm Shaft	PF18.07
50 mm Shaft	PF18.08
70 mm Shaft	PF18.09
90 mm Shaft	PF18.10
Standard Mode Selector	PF01.70
Advanced Mode Selector	PF01.72
Control board	PR18.01
Motor & Encoder	PR18.02
Toroidal Transformer	PR18.03
Gearing & Closer Assembly (S	PR18.04
Electronic brake board	PR18.05
ON/OFF Switch with cable	PR18.10
Mode Switch with cable	PR18.11
PSU board	PR18.12