

Floor Spring Technology





Floor Spring

► Flattens itself



The HTS FS Floor spring is distinguished by its particularly flat design which makes it the ideal door closer for single or double active doors. The overall height of only 40 mm or 61 mm enables easy installation.



Floor Spring have to cope with routine daily business and emergency situations: they soften the door strike and close the door securely.



Floor Spring extend from the functional standard of the hold-open systems to "virtually invisible" closing solutions integrated into the floor or door bottom.

Floor Spring & Accessories Range

Floor Spring (EN 1154 Certified Range)

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HTS FS 960 Series (300 Kg)



HTS FS 840 Series (150 Kg)

Floor Spring (Non-EN Certified Range)

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HTS FS 650 Series (100 Kg)



HTS FS 463 Series (80 Kg)

Floor Spring Accessories

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Top & Bottom Pivot for Wooden and Profile doors



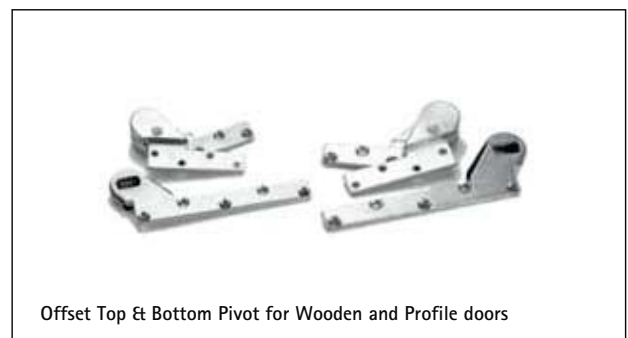
Spare Cover for 840 & 650 Series

Special Solutions

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Floor Pivot/ Hinge



Offset Top & Bottom Pivot for Wooden and Profile doors

Floor Spring

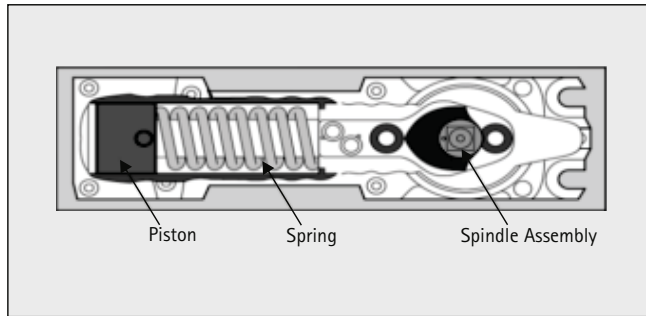
► Internal Mechanism & Basic Terminology

A Floor Spring is a mechanical door closing device mostly used for glass doors along with patch fitting. Floor springs are mostly used where both pull and push movement is required. The most prominent area where floor springs are used is in Interior doors of a Business park, Malls, Hospital building.

How to select: Choosing Floor Spring is more over similar to Door Closer. In addition to weight capacity, other criteria may include

- Door Dimensions i.e. Door Weight and Door width
- Closing Speed Variation
- Control over the rate of closing
- Safety & Durability
- Door Closer's performance in fire situation
- Anti-Ligature, Aesthetics, etc.

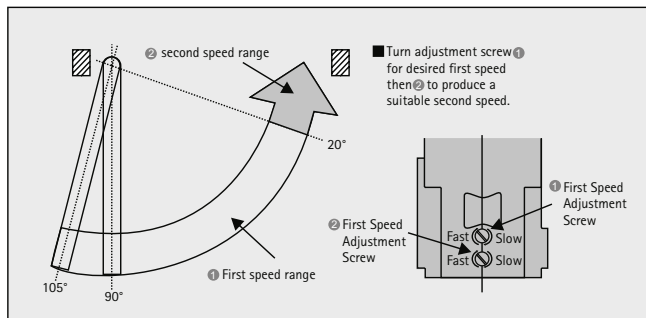
Floor Spring Internal Mechanism



CAM Action Mechanism

- When the door is opened to any one side the bottom arm fixed to the door rotates the Cam spindle and in turn the Cam also rotates.
- With the rotation of the cam, the cam assembly (connecting rod spring) connected to the piston pulls the piston head.
- Both the Compression springs and oil get compressed. Springs store energy. Under this condition the oil rushes to the other side of the piston head through the check valve in the piston head
- If the door is opened till 90°, the cam engages in arrester pin. This holds the door at 90° & will remain open as long as it is not disengaged by applying force on the door.
- If the opening of the door is less than 90°, when the door is released, the stored energy in the compressed spring tries to push the piston head. This provides the closing action of the door.

Floor Spring Adjustment

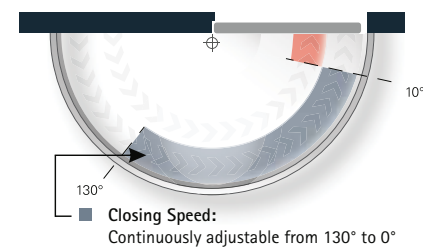


Adjustment in Floor spring can be done by turning adjustment screws clockwise or anti clockwise.

By turning first screw from CAM, we can adjust closing speed and by turning second screw or farther one, we can adjust latching speed.

CAUTION: DO NOT COMPLETELY UNSCREW FLOOR SPRING HYDRAULIC ADJUSTMENT SCREWS OR YOU WILL RUIN THE CLOSER AND HYDRAULIC FLUID WILL LEAK OUT.

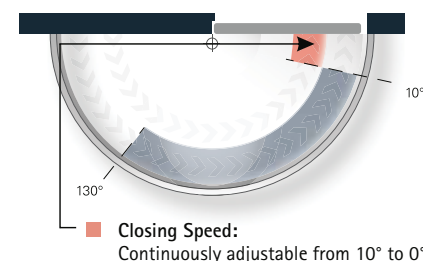
Basic Terminology Related to Floor Spring



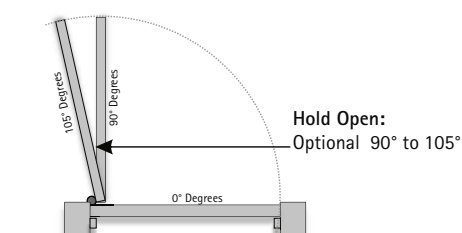
- **Closing Moment and Closing Speed:** The force generated by a door closing device which acts upon during the closing operation. It helps to adjust closing force according to width & weight of the door
- **Adjustable Closing Speed:** By turning Valve Screw the flow of Liquid can be altered for adjustment of Closing speed.



Valve Adjustment



- **Latching Speed:** A speed control operable to increase the closing speed and thus the safe closing of the door, for example to overcome door seals, door locks and high air pressure. Continuously Adjustable Latching speed ensures perfect latching of all kind of locks.
- **Latching speed valve:** By turning Valve Screw the flow of Liquid can be further altered for adjustment of Latching speed.



- **Hold Open:** Additional Feature which ensure self stopping of doors at a certain angle i.e. 90° and 105°.

Floor Spring

► Range Summary

| Product characteristics | | HTS FS960 Series | HTS FS840 Series | | | HTS FS650 Series | | | HTS FS463 |
|---|-----------------|------------------|------------------|-----|-----|------------------|-----|-----|-----------|
| Closing force <small>(continuously adjustable)</small> | Size acc. to EN | 3-6 | 2 | 3 | 4 | 2 | 3 | 4 | 3 |
| Door width <small>(acc. to EN)</small> | ≤ 850 mm | – | ■ | – | – | ■ | – | – | – |
| | ≤ 950 mm | ■ | – | ■ | – | – | ■ | – | ■ |
| | ≤ 1100 mm | ■ | – | – | ■ | – | – | ■ | – |
| | ≤ 1250 mm | ■ | | | | | | | |
| | ≤ 1400 mm | ■ | | | | | | | |
| Door weight <small>(acc. to EN)</small> | max. in kg | 300 | 150 | 150 | 150 | 100 | 100 | 100 | 80 |
| Dimensions | Length in mm | 341 | 307 | | | 274 | | | 274 |
| | Width in mm | 105 | 108 | | | 97 | | | 97 |
| | Height in mm | 61 | 40 | | | 40 | | | 40 |
| Latching speed <small>(adjustable)</small> | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Closing speed <small>(continuously adjustable)</small> | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Back Check (Inbuilt) | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Hold-open 90° 105° | | □ | □ | □ | □ | □ | □ | □ | □ |
| | | □ | □ | □ | □ | □ | □ | □ | □ |
| DIN left / DIN right | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Door opening angle | | 180° | 130° | | | 130° | | | 130° |
| Tested acc. to EN | | EN 1154 A | EN 1154 A | | | – | | | – |
| Certified according to EU-Directive | | CE | CE | | | – | | | – |
| Fire Rated | | F | F | | | – | | | – |

■ Yes - No □ Option

| EN STANDARDS | | |
|--------------|-----------------------------|------------------------------|
| EN Value | Recommended Door Width (MM) | Recommended Door Weight (KG) |
| EN 1 | 750 | 20 |
| EN 2 | 850 | 40 |
| EN 3 | 950 | 60 |
| EN 4 | 1100 | 80 |
| EN 5 | 1250 | 100 |
| EN 6 | 1400 | 120 |
| EN 7 | 1600 | 160 |

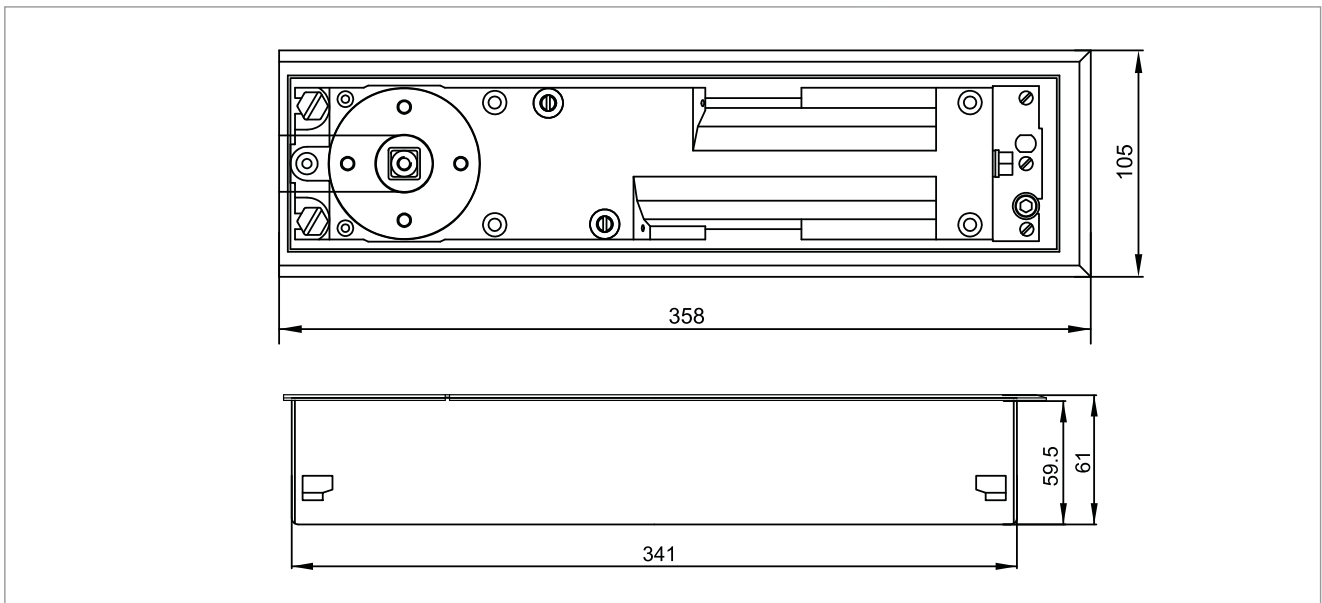
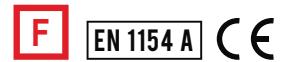
Floor Spring

960 series (300 kg)



- ▶ Cam Action Floor Spring
- ▶ Weight of door: Max 300 Kg
- ▶ Width of door: 950 - 1400mm
- ▶ Continuously Adjustable Spring Closing Power
- ▶ Closing speed: Continuously adjustable closing speed from approx. 180° to 0°
- ▶ Latching speed: Continuously adjustable, works between 10 to 0°
- ▶ Inbuilt Back Check Et Optional Hold Open at 90° and 105°
- ▶ Both DIN Left/ DIN Right
- ▶ Door Opening angle 180°
- ▶ Door Material: Steel, Wooden, Profile Framed
- ▶ Finish : Silver
- ▶ Set Includes: Floor Spring body, Cover, Top And Bottom Pivot for wooden/profile doors, Mounting Instructions, Fixing Material

Approved Et Certified Product:



| S.no. | Floor spring | Hold-open | Closing force | Door Width | Max. door weight | Unit | Article No. | PU |
|-------|--------------|-----------|---------------|---------------|------------------|------|-------------|----|
| 1 | FS 960 | N/A | EN 3-6 | 950 - 1400 mm | 300 kg | Set | 9 227 858 | 01 |
| 2 | FS 960 | 90° | EN 3-6 | 950 - 1400 mm | 300 kg | Set | 9 227 859 | 01 |
| 3 | FS 960 | 105° | EN 3-6 | 950 - 1400 mm | 300 kg | Set | 9 227 860 | 01 |

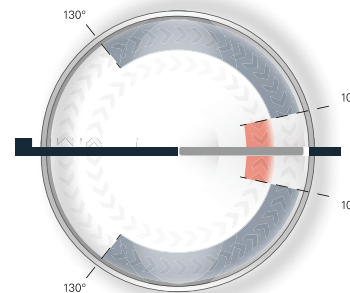
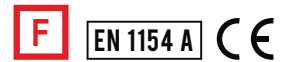
Floor Spring

840 series (150 kg)

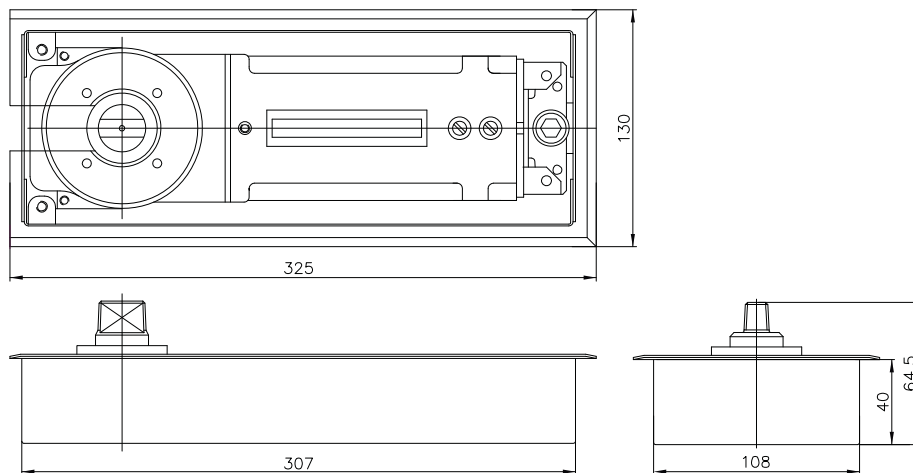


- ▶ Cam Action Floor Spring
- ▶ Weight of door: Max 150 Kg
- ▶ Width of door: 750 - 1100mm
- ▶ Closing speed: Continuously adjustable closing speed from approx. 130° to 0°
- ▶ Latching speed: Continuously adjustable, works between 10 to 0°
- ▶ Inbuilt Back Check Et Optional Hold Open at 90° and 105°
- ▶ Both DIN Left/ DIN Right
- ▶ Door Opening angle 130°
- ▶ Door Material: Steel, Wooden, Profile Framed
- ▶ Finish : Silver
- ▶ Set Includes: Floor Spring body, Cover, Mounting Instructions, Fixing Material

Approved Et Certified Product:



Dimension drawing



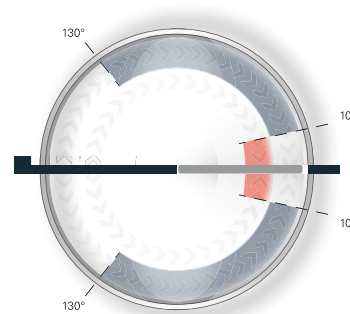
| S.no. | Floor spring | Hold-open | Closing force | Max. door width | Max. door weight | Unit | Article No. | PU |
|-------|--------------|-----------|---------------|-----------------|------------------|------|-------------|----|
| 1 | FS 842 | N/A | EN 2 | 850mm | 150 kg | Set | 9 227 840 | 01 |
| 2 | FS 842 | 90° | EN 2 | 850mm | 150 kg | Set | 9 227 841 | 01 |
| 3 | FS 842 | 105° | EN 2 | 850mm | 150 kg | Set | 9 227 842 | 01 |
| 4 | FS 843 | N/A | EN 3 | 950mm | 150 kg | Set | 9 227 843 | 01 |
| 5 | FS 843 | 90° | EN 3 | 950mm | 150 kg | Set | 9 227 844 | 01 |
| 6 | FS 843 | 105° | EN 3 | 950mm | 150 kg | Set | 9 227 845 | 01 |
| 7 | FS 844 | N/A | EN 4 | 1100mm | 150 kg | Set | 9 227 846 | 01 |
| 8 | FS 844 | 90° | EN 4 | 1100mm | 150 kg | Set | 9 227 847 | 01 |
| 9 | FS 844 | 105° | EN 4 | 1100mm | 150 kg | Set | 9 227 848 | 01 |

Floor Spring

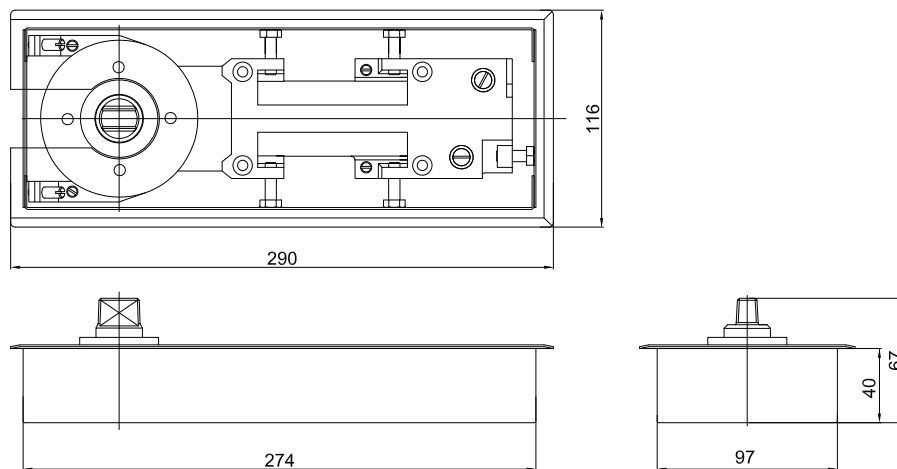
650 series (100 kg)



- ▶ Cam Action Floor Spring
- ▶ Weight of door: Max 100 Kg
- ▶ Width of door: 750 - 1100mm
- ▶ Closing speed: Continuously adjustable closing speed from approx. 130° to 0°
- ▶ Latching speed: Continuously adjustable, works between 10 to 0°
- ▶ Inbuilt Back Check Et Optional Hold Open at 90° Et 105°
- ▶ Both DIN Left/ DIN Right
- ▶ Door Opening angle 130°
- ▶ Door Material: Steel, Wooden, Profile Framed
- ▶ Finish : Silver
- ▶ Set Includes: Floor Spring body, Cover, Mounting Instructions, Fixing Material



Dimension drawing



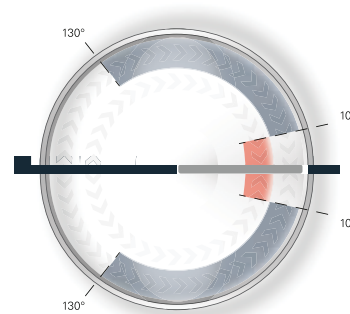
| S.no. | Floor spring | Hold-open | Closing force | Max. door width | Max. door weight | Unit | Article No. | PU |
|-------|--------------|-----------|---------------|-----------------|------------------|------|-------------|----|
| 1 | FH 652 | N/A | EN 2 | 850mm | 100 kg | Set | 9 227 849 | 01 |
| 2 | FH 652 | 90° | EN 2 | 850mm | 100 kg | Set | 9 227 850 | 01 |
| 3 | FH 652 | 105° | EN 2 | 850mm | 100 kg | Set | 9 227 851 | 01 |
| 4 | FH 653 | N/A | EN 3 | 950mm | 100 kg | Set | 9 227 852 | 01 |
| 5 | FH 653 | 90° | EN 3 | 950mm | 100 kg | Set | 9 227 853 | 01 |
| 6 | FH 653 | 105° | EN 3 | 950mm | 100 kg | Set | 9 227 854 | 01 |
| 7 | FH 654 | N/A | EN 4 | 1100mm | 100 kg | Set | 9 227 855 | 01 |
| 8 | FH 654 | 90° | EN 4 | 1100mm | 100 kg | Set | 9 227 856 | 01 |
| 9 | FH 654 | 105° | EN 4 | 1100mm | 100 kg | Set | 9 227 857 | 01 |

Floor Spring

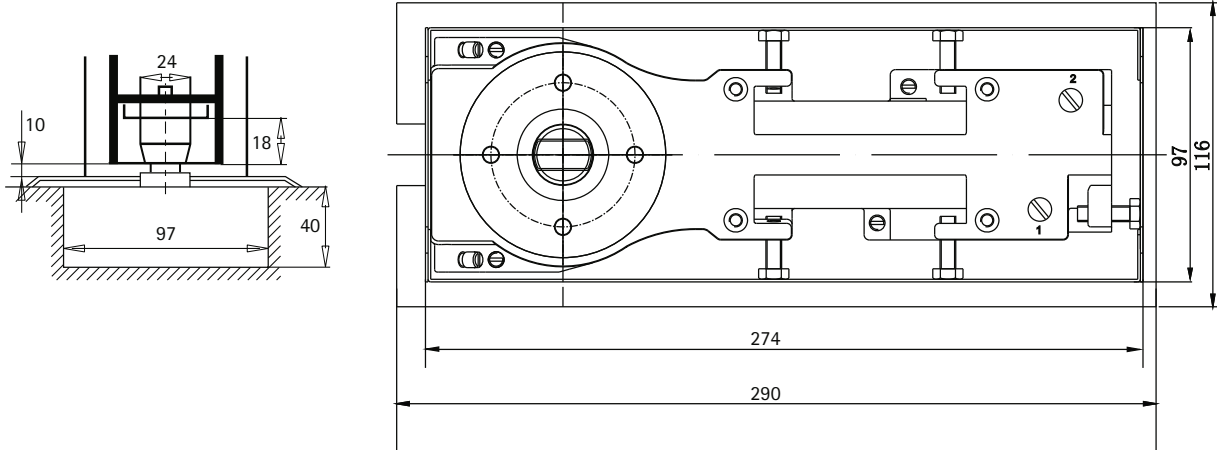
463 series (80 kg)



- ▶ Cam Action Floor Spring
- ▶ Weight of door: Max 80 Kg
- ▶ Width of door: 950 mm
- ▶ Closing speed: Continuously adjustable closing speed from approx. 130° to 0°
- ▶ Latching speed: Continuously adjustable, works between 10 to 0°
- ▶ Inbuilt Back Check Et Optional Hold Open at 90°
- ▶ Both DIN Left/ DIN Right
- ▶ Door Opening angle 130°
- ▶ Door Material: Steel, Wooden, Profile Framed
- ▶ Finish : Silver
- ▶ Set Includes: Floor Spring body, Cover, Mounting Instructions, Fixing Material



Dimension drawing



| S.no. | Floor spring | Hold-open | Closing force | Max. door width | Max. door weight | Unit | Article No. | PU |
|-------|--------------|-----------|---------------|-----------------|------------------|------|-------------|----|
| 1 | FH 463 | N/A | EN 3 | 950mm | 80 kg | Set | 9 228 443 | 01 |
| 2 | FH 463 | 90° | EN 3 | 950mm | 80 kg | Set | 9 228 444 | 01 |

Floor Spring

► Accessories

Top and Bottom pivot for 840, 650 & 463 Series (up to 150 kg)



Installation in the floor incl. accessory set containing

- Reception for floor spring pivot
- Reception for pivot hinge
- Adjustable pivot hinge

| S.no. | Description | Unit | Article No. | PU |
|-------|--|------|-------------|----|
| 1 | Top & Bottom pivot for wooden and Steel profile doors (For door weight up to 150 Kg) | Set | 9 227 863 | 01 |

Heavy Duty Top and bottom pivot for floor pivot (up to 350 kg)



- Heavy duty top and bottom strap with loading capacity of 350 kg.
- Installation in the Wooden and Profile doors.
- Reception for Floor Springs and Floor pivots.



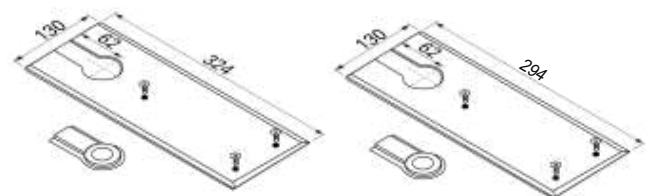
Dimensions: Top pivot

| S.no. | Description | Unit | Article No. | PU |
|-------|--|------|-------------|----|
| 1 | Heavy duty Top and bottom pivot for floor pivot (For door weight up to 350 Kg) | Set | 9 228 715 | 01 |

Cover for 840, 650 Series



► Cover for 840, 650 Series



Dimensions: Cover 840 series

Dimensions: Cover 650 series

| S.no. | Description | Unit | Article No. | PU |
|-------|---------------------------------------|------|-------------|----|
| 1 | Cover for floor spring for 840 series | Pc | 9 227 861 | 01 |
| 2 | Cover for floor spring for 650 series | Pc | 9 227 862 | 01 |

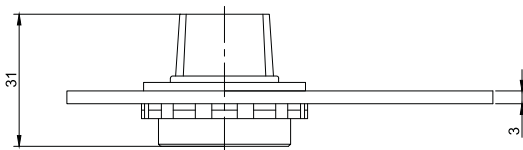
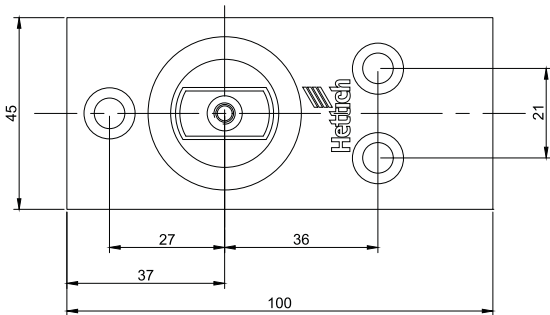
Floor Spring

► Special Solutions

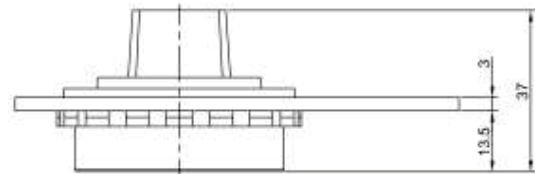
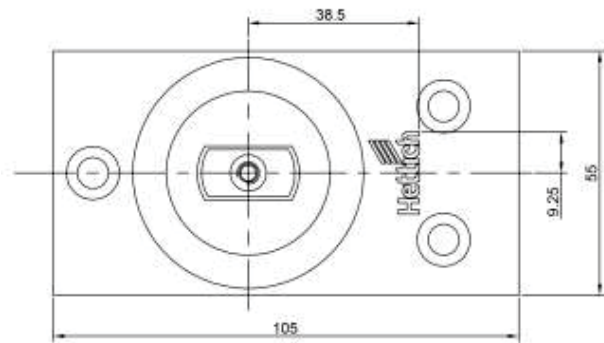
Floor pivot/hinge up to 150 & 350 Kg doors



- Loading Capacity up to 350 Kg
- Installation in the floor
- For heavy duty Double Action doors
- Also compatible with Glass Patch Fittings



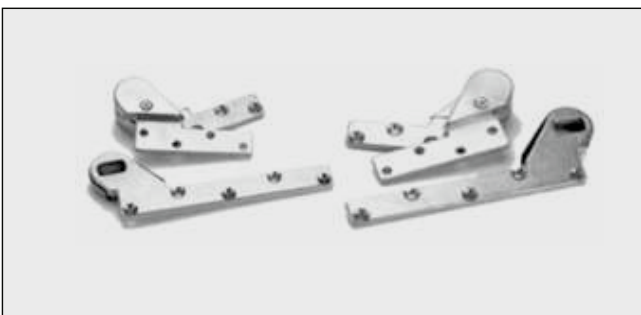
Dimensions: Floor pivot/hinge 150 kg



Dimensions: Floor pivot/hinge 350 kg

| S.no. | Description | Unit | Article No. | PU |
|-------|---|------|-------------|----|
| 1 | Floor pivot/hinge with loading capacity of 150 Kg doors | Set | 9 250 826 | 01 |
| 2 | Floor pivot/hinge with loading capacity of 350 Kg doors | Set | 9 228 714 | 01 |

Offset arms for Floor Springs



- Loading Capacity up to 350 Kg
- Installation in the Wooden doors
- Offset arms for Floor Spring and floor pivot
- Used on rebated doors
- Zinc plated steel material

| S.no. | Description | Unit | Article No. | PU |
|-------|---|------|-------------|----|
| 1 | Offset arms for Floor Springs (DIN Left) | Set | 9 228 717 | 01 |
| 2 | Offset arms for Floor Springs (DIN Right) | Set | 9 228 718 | 01 |