A TECHNICAL PLANNING GUIDE

Acoustic pivot doors

This guide covers the acoustic performance of the pivot door assembly only, not overall room performance, which also depends on walls, ceilings, and flanking paths.

Acoustic performance depends on these three elements

01

The door leaf

The door leaf itself is decisive. Both mass and material choice determine how much sound is blocked (the Rw value of the leaf reflects this). A layered, carefully glued build-up with different materials damps better than a single material construction because resonance is countered. A ventilation grille in the leaf nullifies any acoustic measure. The door manufacturer determines the build up and matches it to the required Rw value.

02

The seals

An acoustic pivot door seals on four sides: an automatic drop seal at the top and at the bottom of the leaf, and continuous rubber edge seals on both vertical edges. The weakest of the four sets the final result - a 1 mm gap can significantly reduce a 40 dB rating.

03

The surroundings

The wall around the door must outperform the door acoustically. Flanking paths via cable penetrations, openings or ventilation grilles in adjacent constructions will undo the door's contribution. These are outside the scope of this guide.

How RW values are reported

Rw is the weighted sound reduction index of the door leaf alone, measured under laboratory conditions.

Rw,p (p = practical) is the rating of the complete installed door set: leaf, frame, seals and ironmongery. Rw,p is always lower than Rw - typically by 3-5 dB - because real-world installation conditions, frame tolerances and ironmongery cutouts reduce performance compared to the laboratory.

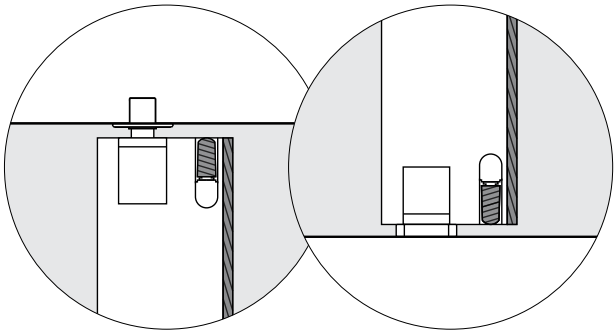
Always specify **Rw,p** in the brief, not Rw. A common minimum for acoustic pivot doors is Rw,p of 37 dB or higher.

Questions to resolve early in the design

- ☐ Rw,p target defined in the brief or by an acoustic consultant (specify Rw,p, not Rw)
- ☐ Sealing strategy specified for all four edges
- ☐ Wall construction outperforms the door target
- ☐ Door leaf construction matches the target
- ☐ Acoustic values available for door leaf
- ☐ Vertical edge seal type confirmed with manufacturer
- ☐ Rebate geometry checked against the seal profile
- ☐ Lock and hardware cutouts do not interrupt the edge seal
- ☐ Floor finish level and consistent across the full swing radius
- ☐ Threshold continuous. No step the drop seal cannot follow

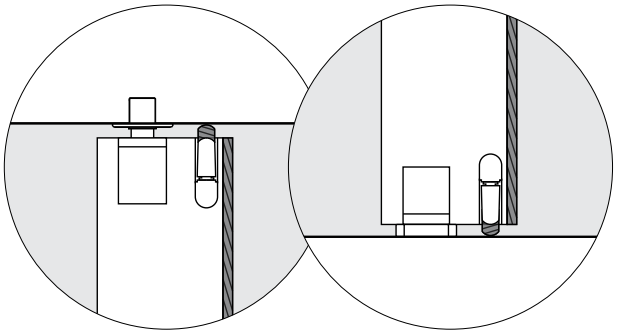
Bottom and top interface

OPEN
drop seals retracted



Actuator on latch side; bars retracted in cassette.
Vertical section through head jamb and floor.

CLOSED
drop seals extended



Actuator pressed by jamb;
bars extend into head jamb / onto floor.

What you see

An automatic drop seal in an aluminium cassette is mortised into the bottom and top edge of the leaf and stays in place; only the rubber bar moves. An actuator is pushed in by the jamb when the door reaches the closed position, releasing the spring-loaded mechanism so the rubber bar extends downward onto the floor at the bottom, or upward into the head jamb at the top. When the door opens the actuator releases and the bar retracts.

The cassette must stop short of the bottom (or top) pivot mortise on the pivot side so the FritsJurgens hardware stays free. The floor finish or head-jamb plane along the full swing path must be continuous and level; a threshold step the drop seal cannot follow leaks sound.

Choosing a drop seal

Use a drop seal designed for pivot doors. The cassette is mortised into the bottom or top edge of the leaf. As the door closes, a roller actuator rolls along the jamb and the rubber bar extends down onto the floor, or up into the head jamb. The seal lowers in parallel with a self-leveling action. Travel is around 20 mm and joint sound insulation reaches up to ~52 dB.

What to check before handover

KEY REQUIREMENTS FOR GAPS AND INSTALLATION QUALITY

Sealing options at a glance

Drop seals are an excellent solution for the bottom and top edges of acoustic pivot doors. Brush seals, magnetic seals and compression gaskets may also play a role at the vertical edges, depending on the Rw,p target and threshold detail. Confirm the combination with the door manufacturer before fabrication.

Ironmongery & gap location

Any ironmongery that bridges the seal line (locks, lever handles, pull bars) creates a flanking path. Confirm that all hardware cutouts are acoustically treated. Mortised lock cases must be sealed within the leaf, and exposed spindle holes fitted with acoustic escutcheons or plugs.

Gaps and tolerances

Gap location	Requirement	Consequence if not met
Bottom / top (drop seal contact)	Seal must fully contact the surface - no gap	Acoustic loop broken; Rw,p drops sharply
Vertical edges	Confirm acceptable tolerance with door manufacturer	Performance depends on seal profile and rebate geometry
Floor flatness across full swing arc	Must be continuous and level across the full arc	Drop seal lifts at high points; acoustic loop interrupted

Installer checklist - before handover

Drop seal contact (head & floor)

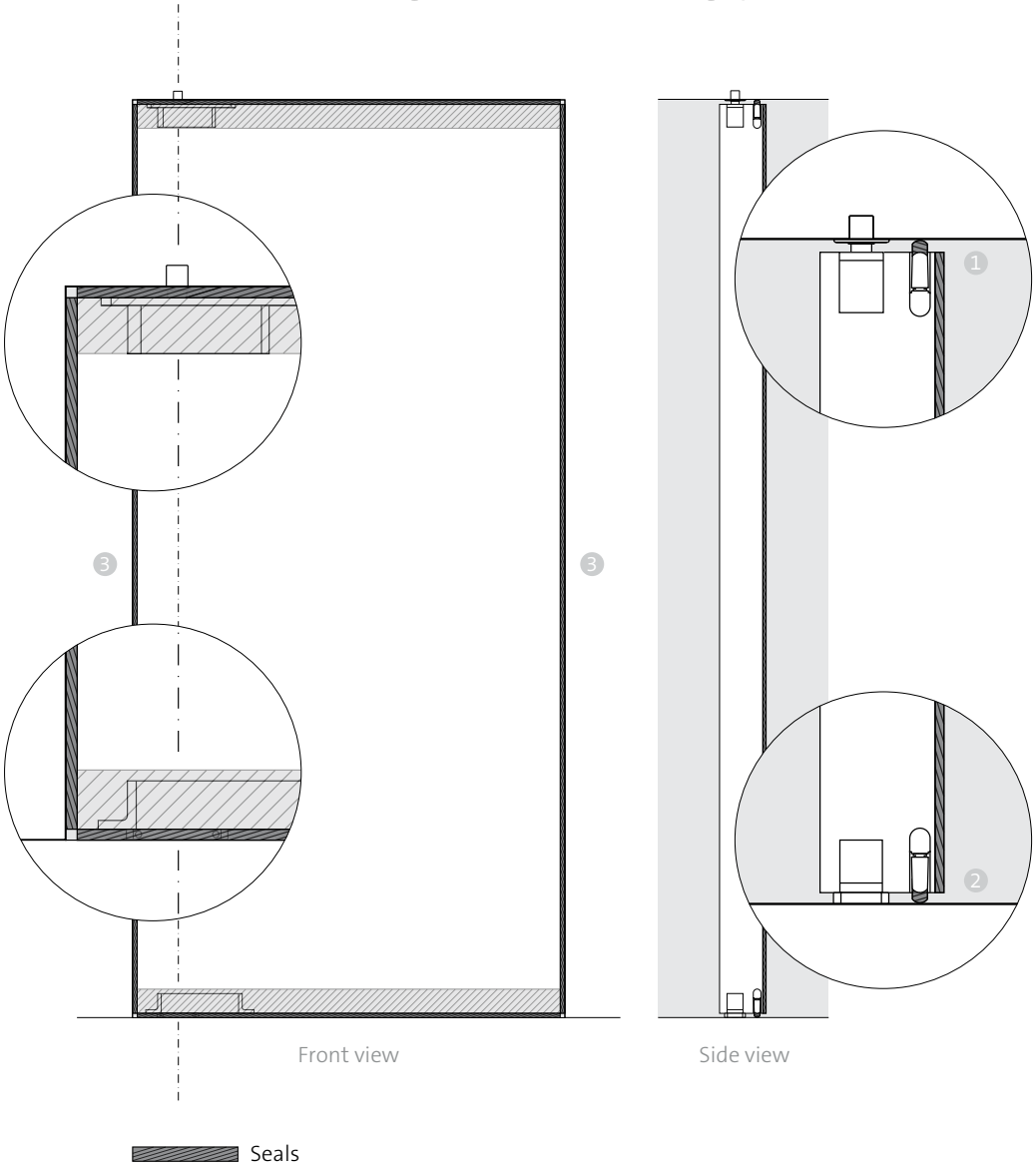
- ☐ Bottom drop seal: bar contacts floor along full width
- ☐ Top drop seal: bar contacts head jamb along full width
- ☐ No visible gap at head or floor when door is closed

Vertical edges

- ☐ Edge seals continuous head to floor, both sides
- ☐ Gap to jamb within manufacturer tolerance, both sides
- ☐ Ironmongery cutouts sealed; no bridging of seal line

CONCLUSION

The sealing strategy



Head drop seal [1]

Automatic drop seal mortised into the top edge of the leaf. The rubber bar extends up into the head jamb when the door closes.

Floor drop seal [2]

Automatic drop seal mortised into the bottom edge of the leaf. The rubber bar drops onto the finished floor when the door closes.

Rubber edge seals [3]

On both vertical edges of the leaf. Continuous between the head and floor drop seals, closing the sides of the sealing loop.

For illustration purposes only. Not a fabrication drawing.