BUILDING COMMON GROUND MAX FRANK

Technical Data Sheet

Egcopal

The impact sound insulated shear force dowel Egcopal reduces impact sound by decoupling components. It is used for the bedding of stair landings, arcades and cantilever balconies and transmits the shear forces acting in the connection joint. At the same time, the acoustically decoupled bedding ensures that the transmission of disturbing noises into adjacent rooms is insulated

Product

Description	**Egcopal** impact sound insulated shear force dowel
Use	▪ Support of stair landings, arcades and cantilevered balconies ▪ Transmission of shear forces in connection joints ▪ Acoustically decoupled support for noise damping ▪ Increased living comfort and well-being of residents
Characteristics/ Benefits	▪ Impact sound properties tested in an accredited test laboratory according to DIN 7396 tested ▪ Landing impact sound pressure level difference $\Delta L^*_{w,Landing}$ up to 35 dB ▪ Fire protection version F120 ▪ Stainless steel design ▪ No restriction of exposure class according to EC2

Test

Approval	General technical approval DIBt Z-15.7-357

Product details

Design	**Egcopal** end products essentially consist of an acoustic box and an anchor body/dowel.
Packaging	**Egcopal** are packed in cartons and shipped on pallets.
Storage	Protect from moisture and direct sunlight.
Physical characteristics	See tables below: ▪ Geometric boundary conditions plate to wall (page 2) ▪ Geometric boundary conditions plate to plate (page 3) ▪ static boundary conditions slab to wall and slab and slab (page 4)

Note: The usability of the products in the specific installation situation must be checked by the user. This data sheet is constantly updated. Technical changes are therefore expressly reserved without prior information of the customer. The currently valid version can be found on our website at: www.maxfrank.com. Our General Terms and Conditions of Sale apply in addition.

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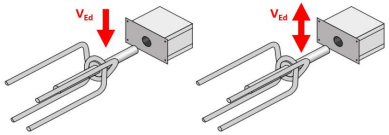
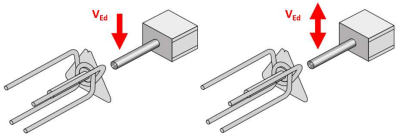
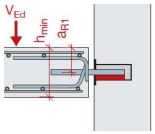
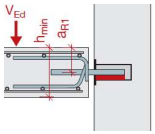
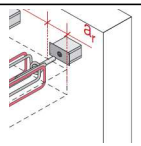
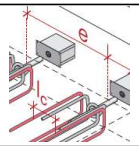
Egcopal design guide - Impact sound insulated shear force dowels

		Egcopal SPX for very high loads									Egcopal SPH for high loads									Egcopal SP for normal loads								
Types																												
Design variants		 in-situ concrete; in-situ concrete +/-									precast elements; precast elements +/- 																
DIBt approval		Z-15.7-357									Z-15.7-357									Z-15.7-357								
Joint opening [mm]		20	30	40	50	60	70	80	90	100	20	30	40	50	60	70	80	90	100	20	30	40	50	60	70	80	90	100
Product load-bearing capacity $V_{Rd,s}$ [kN/element]		74,6	72,4	70,4	68,5	66,7	65,0	63,4	61,8	60,4	---	---	37,3							37,3	37,3	34,7	30,8	27,7	25,2	23,1	21,3	19,8
Dowel diameter [mm]		52									52									32								
Dimensions acoustic box H x W x D [mm]		108 x 182 x 132									108 x 125 x 132									88 x 125 x 132								
Landing impact sound pressure level difference $\Delta L^*_{w,\,landing}$ [dB]		26 - 29									30 - 31									32 - 35								
Type of connection		**Geometric boundary conditions | Anchor body in slab | Acoustic box in wall**																										
Minimum slab thickness h_{min} [mm] **- Anchor body -**		160									160									160								
Minimum edge distance in loading direction aR1 [mm] **- Anchor body -**		80									80									80								
Minimum edge distance ar [mm] **- Anchor body -**		120									120									120								
Minimum dowel spacing e_{min} [mm] **- Anchor body -**		240									240									240								

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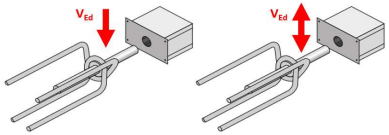
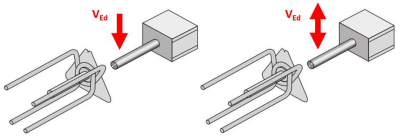
Design variants		 in-situ concrete; in-situ concrete +/-									precast elements; precast elements +/- 																
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Joint opening [mm]		20	30	40	50	60	70	80	90	100	20	30	40	50	60	70	80	90	100	20	30	40	50	60	70	80	90	100
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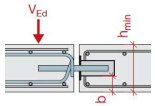
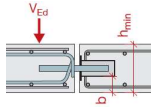
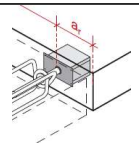
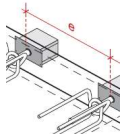
Landing impact sound pressure level difference $\Delta L^*_{w,\,landing}$ [dB]		26 - 29									30 - 31									32 - 35								
Type of connection		**Geometric boundary conditions | Anchor body in slab | Acoustic box in wall**																										
Minimum slab thickness h_{min} [mm] **- Acoustic box -** centric / eccentric		270 / 230									270 / 230									250 / 210								
Minimum edge distance in direction of loading b [mm] **- Acoustic box -**		80									80									80								
Minimum edge distance ar [mm] **- Acoustic box -**		180									180									180								
Minimum dowel spacing emin [mm] **- Acoustic box -**		360									360									360								

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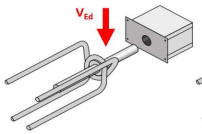
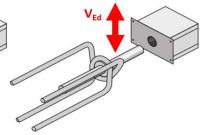
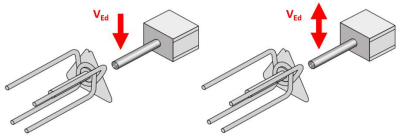
Design variants	 in-situ concrete in-situ concrete +/- 									precast elements precast elements +/- 																
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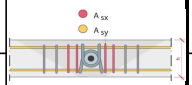
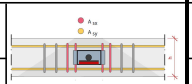
Landing impact sound pressure level difference $\Delta L^*_{w,\,landing}$ [dB]	26 - 29									30 - 31									32 - 35								
On-site construction / dimensioning	**Egcopal acoustic box in wall | Anchor body centred in slab with on-site reinforcement. These boundary conditions fulfil the punching shear verification and the concrete edge break. See also approval Annexes 9 - 12**																										
Impact V_{Ed} [kN/Egcopal]	≤ 60,0					≤ 75,6				≤ 37,3									≤ 37,3								
Slab thickness [mm]	≥ 160					≥ 180				≥ 160									≥ 160								
Dowel distance [mm][1)]	≥ 604					≥ 684				≥ 620									≥ 620								
A_{sx} number / ø each left and right 	2 ø 14					2 ø 14				2 ø 10									2 ø 10								
A_{sy} number / ø each top and bottom	4 ø 14					4 ø 14				2 ø 10									2 ø 10								
Cap bracket ø 	8 Required for slab thickness < 260									8 Required for slab thickness < 260									8 Required for slab thickness < 240								
On-site construction / dimensioning	**Egcopal acoustic box eccentric in slab | Anchor body eccentric in slab with on-site reinforcement. These boundary conditions fulfil the punching shear verification and the concrete edge failure. See also approval Annexes 9 - 12**																										
Impact V_{Ed} [kN/Egcopal]	≤ 49,0		≤ 65,9		≤ 75,6		≤ 37,3			≤ 37,3			≤ 19,4			≤ 37,3										
Slab thickness [mm][2)] / b [mm]	≥ 265 / ≥ 110		≥ 280 / 120		≥ 285 / 130		≥ 235 / ≥ 80			≥ 240 / ≥ 90			≥ 220 / ≥ 90			≥ 215 / ≥ 80										
Dowel distance [mm][1)]	≥ 850		≥ 874		≥ 866		≥ 793			≥ 769			≥ 689			≥ 713										
A_{sx} number / ø each left and right 	2 ø 12		2 ø 14		3 ø 12		2 ø 12			2 ø 10			2 ø 10			2 ø 12										
A_{sy} number / ø each top and bottom	1 ø 12		1 ø 14		1 ø 14		1 ø 12			1 ø 10			1 ø 10			1 ø 12										

Technical boundary conditions: c_{nom} = 20 mm, concrete C 20/25, reinforcing steel B500

[1)] Smaller dowel spacing is possible, but then a shear force verification is required.

[2)] Eccentric arrangement in the plate. With a constant "b" and a centric arrangement, the verifications are also fulfilled.