WIŚNIOWSKI

MakroTherm 60 mm Sectional Doors

Overview

Sectional industrial doors are intended for use at following public buildings: residential, public, industrial facilities, and also in the food processing sector (without direct contact with food). Each door essentially comprises vertical toothed racks and/or ceiling-mounted horizontal toothed racks and a door leaf made of steel panels filled with CFC-free PU foam. The structure is made of galvanized components. The door features seals along its entire circumference. A safe system of torsion springs counters the door leaf weight. The standard MakroTherm doors are manually operated. Chain hoists or electric drive units are recommended for comfortable operation of the doors. Installation in environments with high risk of corrosion may result in quicker depreciation of the door (e.g. in drying rooms or chemical storage facilities) and requires custom agreement. Due to the anti-corrosion protection the doors can be used as intended for in environments with Corrosivity Categories C1, C2 and C3 according to PN-EN ISO 12944-2 and PN-EN ISO 14713.

Designations

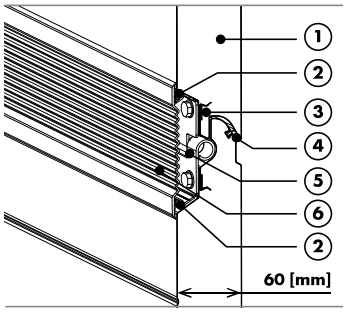
MakroTherm – Sectional industrial door; the door leaf is made of 60 [mm] thick steel panels filled with CFC-free polyurethane foam. The door is installed with the torsion springs rated at 25 000 cycles to counter the door leaf weight.

MakroTherm door leaf

The door leaf is made of the INNOVO panels available in the following height: 500 and 625 [mm]. The panel height depends on the overall door height. The panels are made of galvanized steel sheet with the woodgrain structure with low ribs or with the V-ribs with the silkline structure on the outer surface. The inner surface is woodgrain structure in RAL 9002. The panels are coated with polyester coatings at the ends and secured with galvanized steel hardware. The bottom panel features a gasket with contact with the ground, while the top panel features a gasket with contact to the headroom when the door leaf is closed. The panels feature formed anti-pinching protection and gaskets between each two segments.

INNOVO panels

Galvanized steel sheet panel, 60 [mm] thick, filled with CFC-free polyurethane foam. The flexible masking cover, installed on the panel inner side, is finished in an approximate white colour RAL 7040. The INNOVO panel heat transfer coefficient is 0.33 [W/m²K].



1 – PU foam
2 – Aluminium guide, fastening profile flexible covers
3 – 5 layers of sheet
4 – Panel joint seals
5 – Concealed hinge
6 – Flexible cover

Fig. 1. MakroTherm door panel.

N Low ribs V V ribs

Fig. 2. Door leaf with the low ribs and the V-ribs – outside view.

Balancing of the door leaf weight

The doors feature a system of torsion springs rated at 25 000 cycles to assist lifting and lowering of the door leaf. The door can feature from 1 to 4 torsion springs, depending on the door dimensions and guide type. The springs are installed on the door winding shaft that is made of galvanised steel. The torsion springs are installed at the headroom. The torsion springs in the MakroTherm doors are paint coated in standard. The doors are operated manually in standard (drive units are available as optional accessories).

MakroTherm door colours

The door leaf outer structure is made according to the tables below. All doors are coated with the satin finish. The inside surface of the leaf is made in a colour approximate to RAL 9002. The door leaf can be optionally coated on the outside in any RAL colour (except for colours with the pearl, reflective, signal or metallic finish or wood effect colours). See "NOTE" p. 3, item 1 – available with woodgrain or silkline textured doors only. All doors are coated with satin finish coatings. The inside surface of the leaf is made in a colour approximate to RAL 9002.

	Colour	V ribs			
		Texture			
		Woodgrain	Smoothgrain	Sandgrain	Silkline
RAL	RAL 9006 (White aluminium)	—	—	—	●
	RAL, other	—	—	—	●

Tab. 1. The textures and colours of panels with V ribs for the MakroTherm door series.
● Available — Unavailable

	Colour	N Low ribs			
		Texture			
		Woodgrain	Smoothgrain	Sandgrain	Silkline
RAL	RAL 7016 (Anthracite grey)	●	—	—	—
	RAL 9006 (White aluminium)				
	RAL 9016 (Traffic white)				
	RAL, other				

Tab. 2. The textures and colours of panels with low ribs for the MakroTherm door series.
● Available — Unavailable

		Colour	G No ribs			
			Texture			
			Woodgrain	Smoothgrain	Sandgrain	Silkline
RAL		RAL 7016 (Anthracite grey)	—	—	—	●
		RAL 9016 (Traffic white)	—	—	—	●
		RAL non-standard (painted)	—	—	—	●
Special		Anthracite	—	—	●	—
		Anthracite grey 701605-167	—	●	—	—
		Anthracite quartz 436–1014	—	●	—	—
		Black ulti-mat PX47097	—	●	—	—
		Earl platin 119500	—	●	—	—
		Brusch schwarzbraun F436-1023	—	●	—	—
		White 915205-168	—	●	—	—
		Chocolate brown 887505-1167	—	●	—	—
		Cream white 137905-167	—	●	—	—
		Dark green 612505-167	—	●	—	—
		Metbrush silver F436-1002	—	●	—	—
		Silbergrau F436–5049, 116700	—	●	—	—
	Wood-like	AnTEAK 3241002–195	—	●	—	—
		Black cherry 3202001–167	—	●	—	—
		Dark Oak 2052089–167	—	●	—	—
		Daglesia 3152009–1167	—	●	—	—
		Swamp Oak 3167004–167	—	●	—	—
		Natural oak 3118076–1168	—	●	—	—
		Rustic oak 3149008–1167	—	●	—	—
		Soft Cherry 3214009–195	—	●	—	—
		Macore 3162002–167	—	●	—	—
		Oregon 1192001–167	—	●	—	—
		Sapeli 2065021–167	—	●	—	—
		Siena noce 49237 PN	—	●	—	—
		Siena PL 49254–015	—	●	—	—
		Siena rosso 49233 PR	—	●	—	—
		Sheffield oak grey F436–3086	—	●	—	—
		Sheffield oak brown F 436–3087	—	●	—	—
		Sheffield oak light F 456–3081	—	●	—	—
		Winchester 49240 XA	—	●	—	—
		Woodec turner oak malt F4703001	—	●	—	—
		Woodec sheffield oak alpine F4703002	—	●	—	—
		Woodec sheffield oak concrete F4703003	—	●	—	—
		Nut Brown	—	●	—	—
		Golden Oak	—	●	—	—

Tab. 3. The textures and colours of panels with no ribs for the MakroTherm door series.
● Available — Unavailable

		Colour	W High ribs			
			Texture			
			Woodgrain	Smoothgrain	Sandgrain	Silkline
RAL		RAL 9016 (Traffic white)	—	—	—	●
		RAL 7016 (Anthracite grey)	—	—	—	●
		RAL non-standard (painted)	—	—	—	●
Special		Anthracite	—	—	●	—
	Wood-like	Nut Brown	—	●	—	—
		Golden Oak	—	●	—	—

Tab. 4. The textures and colours of panels with high ribs for the MakroTherm door series.
● Available — Unavailable

50 000 cycle springs

Availability of the MakroTherm doors with the springs rated at 50 000 cycles and the headrooms required in doors with the STL guides – see Tab. 5. Larger dimensions and/or other guide types require individual arrangements.

Opening height (Ho) [mm] up to:	Opening width (So) [mm] up to:										
	2000	2250	3000	3250	3500	3750	4000	4250	4500	4750	5000
2000	420	420	420	420	420	420	420	420	420	420	420
2125	420	420	420	420	420	420	420	420	420	420	420
2250	420	420	420	420	420	420	420	420	420	420	420
2375	420	420	420	420	420	420	420	420	420	420	420
2500	420	420	420	420	420	420	420	420	420	420	420
2625	420	420	420	420	420	420	420	420	420	420	420
2750	420	420	420	420	420	420	420	420	420	420	420
2875	420	420	420	420	420	420	420	420	420	420	420
3000	420	420	420	420	420	420	420	420	420	420	420
3125	–	–	420	420	420	420	420	420	420	420	420
3250	–	–	420	420	420	420	420	420	420	420	420
3375	–	–	420	420	420	420	420	420	420	420	420
3500	–	–	420	420	420	420	420	420	420	420	420
3625	–	–	420	420	420	420	420	420	420	420	420
3750	–	–	420	420	420	420	420	420	420	420	420
3875	–	–	–	–	420	420	420	420	420	420	420
4000	–	–	–	–	420	420	–	–	–	–	–

Tab. 5. Availability of the MakroTherm doors with the springs rated at 50 000 cycles and the headrooms required with the STL guides.

If multiple doors are ordered in the same colour, partial deliveries (lots) may vary in colour hade.

The marks on the panels which appear during use result from natural wear and are not covered by warranty.

Framework / toothed racks

The parts are made of galvanized steel parts. The profiled toothed rack form prevents derailing of the rollers which move within. The horizontal toothed racks feature gaskets to which the door leaf is pressed when closed. The length of individual toothed racks depend on the guide type. See more in "Guide (installation) types and required installation parameters".

Hardware / hinges / latch

The panel end hardware and the middle and side hinges (located between the segments) are made of galvanized steel sheets. The hinges have slide bushes. The side hinges have double sliding rollers with bearings which guide the door leaf within the toothed racks. The manually-operated door has a latch. The latch in doors with electric drive units may only be installed with the open latch sensor.

Protection features

- The panels are specially formed at the joints to prevent pinching of fingers.
- Cable break safety device: all sectional industrial doors feature safety brakes which prevent the door leaf from falling when the suspension cables fail.
- Spring break safety device: safety brakes which prevent the door leaf from falling when the door leaf counterweight spring fails.
- Flexible internal covers for panel joints, mounted on specially profiled aluminium panels.

Drive unit

In standard doors are manually operated. The electric drive units are optional accessories. See Automatic operation units on p. 89.

Adaptation to manufacturer's drive units

Adaptation of the doors for the installation of side-mounted compact drive units or manually-operated chain hoists: applies only if the drive unit is not purchased with the door or will be installed after installation of the door. The adaptation for the drive unit installation involves extending the winding shaft, replacing the bottom (floor touching) gasket to accommodate the optical sensors of the safety edge strip.

After doors adapted for electric drive operation are fitted with a drive unit, it is required to check whether the door meets all the regulations. The person installing the drive unit is responsible for making sure that all the safety of use requirements are met.

100 000 cycle springs

Contact the Sales Department for production availability.

Galvanized springs

The galvanic coating of the door leaf counterweight springs is for anti-corrosion protection.

Other RAL colours

The door leaf can be optionally coated with any (non-standard) RAL palette colour – this applies to the woodgrain and silkline structures only (except for colours with the pearl, reflective, signal or metallic finish or dark colours acc. to the recommendations, see p. 8) – in satin. See NOTE p. 3, item 1

The steel panels are painted on the outside only. The inside colour is approximate to RAL 9002 (except for the panel joints).

Burglarproof protection

This feature prevents prising the door leaf from the outside by unauthorized persons. It is only available for doors with compact drive units.

Fig. 3. Burglarproof protection

Special installation kit

This kit allows installing the doors within steel structures or reinforced concrete headrooms. The kit is always adapted to the door installation parameters and sold only with the specific ordered door.

Alignment of ribs levels

Two doors of the same or different dimensions, different accessories or different headrooms may feature ribs at various height (the ribs might not be aligned). Contact the Sales Department for availability of allignment of ribs.

Pull for manual door lifting

This is a PVC pull for manual door lifting from the outside and the inside. The feature in standard version is installed on the right hand side when viewed from the inside, on the first panel from the bottom. The feature is recommended for manually-operated doors.

Chain hoist

The feature is recommended for manually-operated doors. The transmission gear features a driving chain the length of which is adapted to the door guide type. The transmission ratio is 4:1. When purchased separately, the transmission gear has a ca. 7 [m] chain. Unavailable with the doors with the LHp and LHpz guides at N < 280 [mm].

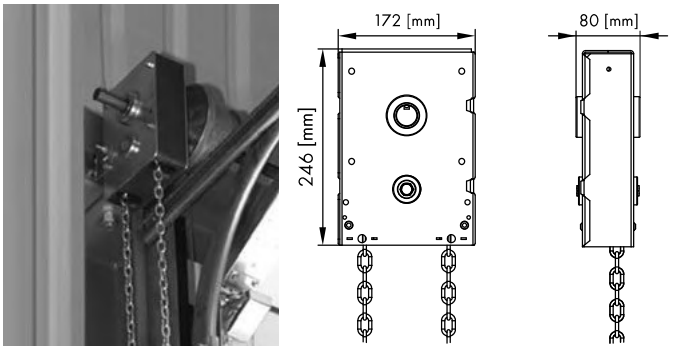


Fig. 4. Chain hoist.

Chain tensioner

Intended for use with the chain hoist option. The feature keeps the chain at a fixed position. Features a guard in the standard version.

Fig. 5. Chain tensioner.

Fastening bracket

The fastening bracket is for the installation of the door frames. The detail is installed on the frame side (the outer one) approx. every 500 mm. When the opening height is more than Ho, the door frames must be fastened directly to the headroom. The fastening brackets are available in sets of 12. The feature is recommended for the doors with So x Ho > 16 [m^2].

Fig. 6. Fastening bracket.

T-type additional suspender

The feature is intended for suspending of horizontal toothed racks. The suspender is available in two dimensions, L = 1050 [mm] and L = 550 [mm].

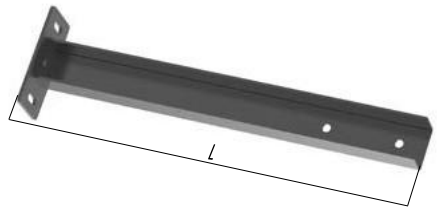


Fig. 7. T-type suspender.

Additional suspender – perforated angle, 2000 [mm]

The feature is intended for suspended installation of horizontal tracks. This is a steel angle bar with galvanic coating, sized 30 x 30 x 2, L = 2000 [mm] and with 8 x 25 [mm] holes.

Fig. 8. Suspender – perforated angle.

Assembly dimensions

Installation requirements

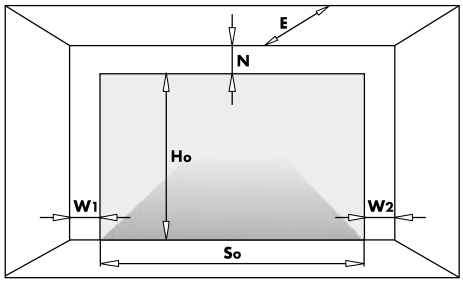


Fig. 9. The assembly dimensions and designations thereof required for correct selection and assembly of WIŚNIOWSKI sectional industrial doors.

S_o – opening width, ordering size,
S_j – clear passage width with the door installed,
H_o – opening height, ordering size,
H_j – clear passage height with the door installed,
N – minimum headroom required,
W_1 – minimum side clearance required,
W_2 – minimum side clearance required,
E – minimum indoor depth with clearance under the ceiling.

Reference drawing

Reference drawings of the installed door in the outer view are available on customer request.

STL – Standard guides

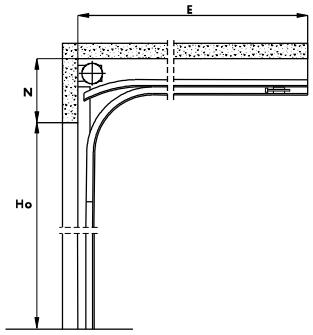


Fig. 10. STL guide.

STL		MakroTherm
S_j		S_o
H_j		H_o – 50 [mm]
N_{min}	Manually-operated door, Chain hoist, Side-mounted drive	See Fig. 7
W_{1min} or W_{2min} [1]	On the free end	= 150 [mm]
	For chain hoists	= 250 [mm]
	For side-mounted drives [1]	= 280 [mm]
E_{min}		H_o + 800 [mm]

Tab. 6. The required installation parameters for the STL guides.

Minimum headroom required for MakroTherm doors with STL guides

Opening height (Ho) in [mm] up to:	Opening width (So) in [mm] up to:															
	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	5250	5500	5750	6000
2000																
2125																
2250																
2375																
2500														**N_{min} = 520 [mm]**		
2625																
2750																
2875																
3000																
3125																
3250																
3375																
3500						**N_{min} = 420 [mm]**											
3625																
3750																
3875																
4000																
4125																
4250																
4375																
4500																
4625																
4750																
4875																
5000																

Tab. 7. Minimum headroom required for MakroTherm doors with STL guides.

[1] – The minimum side distance taking into account the margin for collision-free mounting and dismounting of the opening mechanism.

VL – Vertical guides

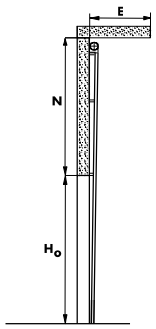


Fig. 11. VL guides.

		VL	MakroTherm
S_j			S_o
H_j			H_o[1]
N_{min}	Manually-operated door, Chain hoist, Side-mounted drive		at Ho ≤ 3100 = Ho + 800 [mm] at Ho > 3100 = Ho + 850 [mm]
W_{1min} or W_{2min} [2]	On the free end		= 150 [mm]
	For chain hoists		= 250 [mm]
	For side-mounted drives		= 280 [mm]
E_{min}			400 [mm]

Tab. 8. The required installation parameters for the VL guides.

Dimensional range for MakroPro and MakroTherm doors with VL guides

Opening height (Ho) in [mm] up to:	Opening width (So) in [mm] up to:															
	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	5250	5500	5750	6000
2000																
2125																
2250																
2375																
2500																
2625																
2750																
2875																
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3875																
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4125																
4250																
4375																
4500																

Tab. 9. Dimensional range for MakroPro and MakroTherm doors with VL guides.

[1] – Applies only to doors with electric drive units or chain hoists.
[2] – The minimum side clearance with spare room for collision-free installation and removal of the opening mechanism.