



Sun and glare protection without drawbacks



MULTIFILM®

Perfection for windows.

Centre for Virtual Engineering (ZVE), Stuttgart



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About MULTIFILM®



MULTIFILM® stands for **high quality interior sun and glare protection**. For more than 25 years, our roller blinds have been improving living and working conditions, ensure a pleasant indoor climate and good light and visibility conditions.

In our roller blinds highly functional materials are used: **Transparent, reflective polyester films and technical textiles** offer **effective protection against the sun's heat and glare**. Thanks to their transparency, they allow a **clear view to the outside**.

Investments in our products pay for themselves in the short term through energy savings and satisfied employees.

Functionally in design, our products gear to architectural trends and the latest façade technology. MULTIFILM® systems can be easily retrofitted or integrated in façade planning.

The product range includes numerous **roller blind variants, opposite-pull systems, large-format façade systems** as well as **slat and panel curtains**.

PRODUCTS & SERVICE

We offer expert **consulting, measurement and assembly** in one hand.

- Bespoke products according to customer requirements
- Individual product adjustments & special solutions
- Energy consulting
- Project support

QUALITY

MULTIFILM® products are robust, reliable, durable, energy efficient and functional in design. Our high quality standards guarantee an economically sustainable investment.

- Quality- and Environment management according to ISO 9001:2015 and 14001:2015
- Fulfilment of the VDU Workplace Ordinance (BildscharbV)
- Glare protection, **heat protection and visual contact to the outside** according to DIN EN 14501 (Performance requirements for sun protection systems)



WHAT FILM ROLLER BLINDS ARE GOOD FOR:

- Optimum protection against disturbing glare and reflections on the screen
- Effective protection against heat: deflects up to 88 %¹ of the total solar energy
- Comfortable room temperature and natural room illumination with daylight
- Unimpaired outside view thanks to uniform transparency
- g- and U-value improvement of window and façade
- Saving of up to 37 %² on cooling and heating energy
- Very high UV protection
- Low procurement costs
- Suitable for new constructions or retrofitting
- Functional all through the year irrespective of weather conditions
- Maintenance-free, reliable, durable

¹ SiAt01 film and sun protection glazing sunbelt polaris 65/34
As per appraisal by TU Berlin

² SiAt01 film with thermal insulating glass (g-value: 59%; U-value: 1.2W/m²K)
(Calculated with Parasol software, V6.6, University of Lund/Sweden)



UNSERE HIGHLIGHTS

- Shading windows with a width of up to 3 m and height of 8 m with one single system
- Compact-Line roller blinds with very small head box (35 x 35 mm)
- Transparent films with up to 84 % solar reflectance and different levels of visible transmittance
- Decorative films in attractive designs and colours
- Highly efficient technical fabrics



INNOVATION & TECHNOLOGY

- Patented MULTIWAVE® pleating with widths of up to 3 m
- Ultrasonic welding technique for joining films
- Full surface print of polyester films with decoration and images (MULTIDECOR Screen+)
- MULTIFLEX® films – two levels of visible transmittances
- Globally unique flat embossing system for embossing and colouring films



Putting the sun in the shade

How MULTIFILM® roller blinds work



THE PROBLEM

Without sun protection, rooms and buildings with generous glazing quickly turn into heat traps.

- Shortwave sun radiation is absorbed in the rooms and transformed into heat.
- The glazing cannot transfer this heat outwards and the heat builds up uncontrollably in the room.
- Too much light affects the well-being and efficiency of employees.
- Disturbing glare on the screen leads to fatigue, headaches and stress.



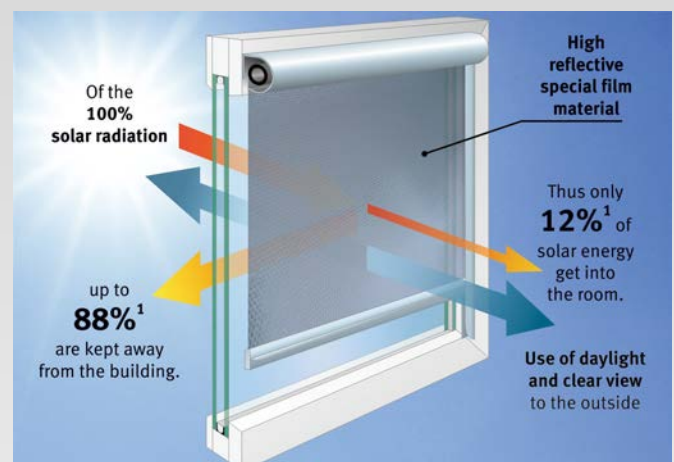
THE SOLUTION: FILM ROLLER BLINDS

- Reliable protection against disturbing glare and reflections on the screen
- Allow unimpaired view outside thanks to the transparent film
- Create comfortable room temperatures through effective heat protection

HOW MULTIFILM® FILM ROLLER BLINDS WORK

- The film has a thin aluminium layer on the outside of the film roller blind.
- This layer reflects the solar energy directly back into the open, before it can transform to heat in the room.
- Up to 88 %¹ of the solar radiation is kept away from the room in this manner.
- This protects the room significantly from heating up, the internal temperature remains comfortable.
- The film softens the incident daylight and reliably protects against disturbing glare on the screen.
- The transparency of the film enables a clear and undistorted outside view.

¹ SiAtO2 film and sun protection glazing sunbelt polaris 65/34 as per appraisal by TU Berlin



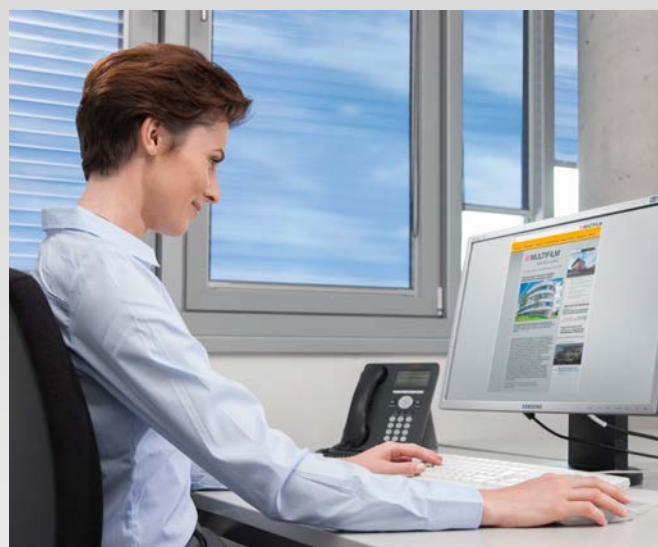
Daylight in – glare out

Anti-glare film roller blinds create a comfortable atmosphere at the workplace

Optimum illumination of the workplace with daylight and comfortable room temperatures increase well-being and efficiency of employees. However, if daylight enters the room unhindered, it causes glare and reflections on the screen. This causes fatigue, headaches and back pain, muscle strain as well as distress to the eye, which can lead to longer downtimes.

Film roller blinds from MULTIFILM® fulfil the prerequisites for a glare-free and relaxed work atmosphere:

- Absorb incident daylight
- Reduce the marked differences in brightness
- Effectively protect against glare and reflections on the screen
- Illuminate rooms naturally with daylight
- Provide good contrast for screens
- Maintain the natural colour tones of daylight
- Can be adjusted individually
- Maintain unimpaired outside view even when the anti-glare system is closed
- Protect eyes
- Protect against heat in summer and save energy in winter



Moreover, MULTIFILM® sun protection and anti-glare systems comply with numerous legal requirements:

- Directive on Occupational Safety and Health for Display Screen Equipment (BildscharbV)
- Workplace regulations ASR 3.4 (Daylight at the workplace, visual contact)
- DIN 5034-1 (Daylight in indoor spaces)
- DIN EN 14501-1 (Performance requirements and classification of sun protection systems)

COMPARISON OF VARIOUS SUN PROTECTION SYSTEMS ACCORDING TO DIN EN 14501-1

DIN EN 14501-1 classifies the service requirements for sun protection systems with respect to anti-glare properties, visual contact with outside space and achievable g-value. The film roller blind is superior to all other products in the combination of these criteria.

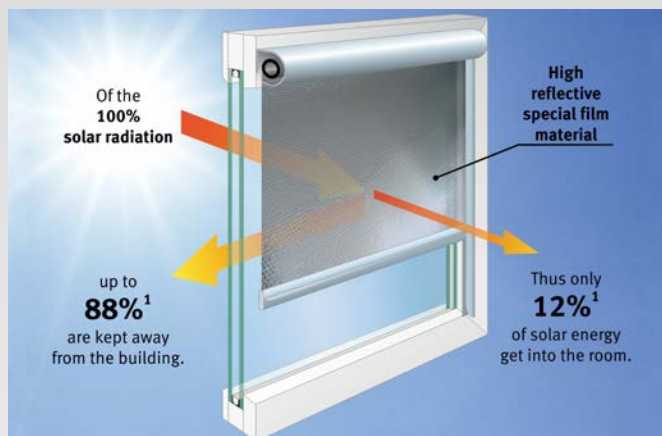
Sun protection system	g-value	Anti-glare	Outside visibility	Overall
Film roller blind with side guides	3	3	2	8
Fabric roller blind with side guides	2	1	1	4
Fabric roller blind without side guides	2	1	1	4
Vertical blinds - fabric	2	1	0	3
Aluminium shutters – internal (closed 90°)	2	3	0	5
Aluminium shutters – internal (cut-off position 45°)	1	0	3	4
Exterior aluminium blinds (closed 90°)	4	3	0	7
Exterior aluminium blinds (cut-off position 45°)	3	0	3	6

Thermal insulating glass (g-value 0.50; U-value 1.1W/m²K); 0 = not fulfilled ... 4 = completely fulfilled

Energy savings with MULTIFILM® film roller blinds

MULTIFILM® film roller blinds improve the g- and U-values of windows and façades and demonstrably save energy – in summer as well as in winter.

COOLING ENERGY SAVINGS IN SUMMER



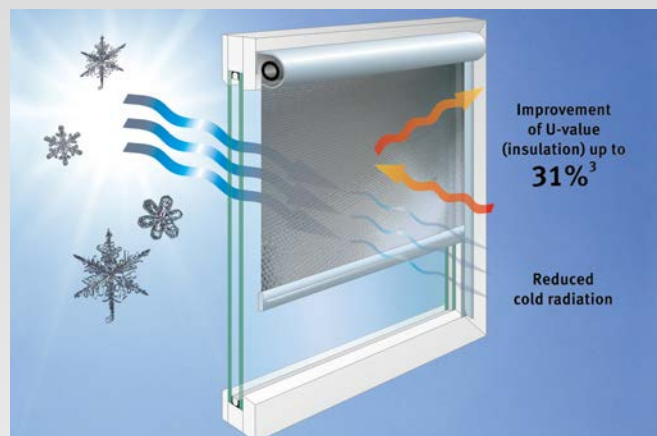
- Reflection of solar rays from the aluminium layer on the film
- Deflects up to 88 %¹ of solar energy
- Significant reduction in room heating
- **Savings of up to 30 %² on cooling energy** as compared to an unshaded window

¹ SiAt012 film and sun protection glazing sunbelt polaris 65/34 as per appraisal by TU Berlin

² SiAt023 film with thermal insulating glass Climaplust 1,1N (Source: Alware)

³ SiAt013 film with insulating glazing Climaplust Ultra N (1.1 W/m²K), As per testing report of the Fraunhofer Institute IBP Stuttgart

HEATING ENERGY SAVINGS IN WINTER



- The film roller blinds with side guides counter the loss of heat through the window due to their insulating properties.
- The aluminium coating of the film reflects heat radiating out from inside the room back into the room.
- The cavity between the roller blind and window additionally reduces heat loss.
- U-value of the glass improved by up to 31 %³
- Reduces the cooling down of the room and **saves on heating energy**

ENERGY LABEL: ENERGY EFFICIENCY TRANSPARENT AND COMPARABLE

- Evaluate windows with sun protection systems with respect to energy efficiency and classify them in the known energy efficiency classes
- Separate mapping of heat protection in summer and conservation of energy in winter
- Energy efficiency of film roller blinds installed inside is obvious at first glance

Example MULTIFILM® film roller blinds with *triple sun protection and thermal insulating glass*

Triple sun protection and thermal insulating glass: *Energy efficiency class without sun protection:*

- U_g -value: 0.50 W/m²K
- g-value: 0.20



- Energy expenditure on heating: C
- Energy expenditure on cooling: C

With sun protection (roller blind, film SiAt01):

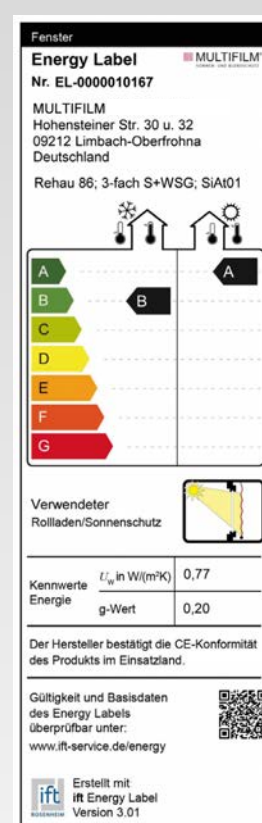
- $U_{g,s}$ -value: 0.43 W/m²K
- g_t -value: 0.13



Energy efficiency class with film roller blinds:

- Energy expenditure on heating: B
- Energy expenditure on cooling: A

The label thus proves the high energy saving potential of film roller blinds, even with the use of high grade windows, and their positive effect on the energy balance of buildings.



Energy savings with MULTIFILM® film roller blinds

IMPROVEMENT OF THE g- AND U-VALUE OF WINDOWS AND FAÇADES

The total energy transmittance (g-value) as well as the U-value of windows and façades reduce significantly with the use of MULTIFILM® film roller blinds. The g-value improves by almost 70 % and the U-value by up to 31 % depending on the film and glass type used. This enables effective savings on cooling and heating energy.

Glass Type/ Structure	Glass		Film Type	Glass with film roller blind				
	g-value	U-value		Total g-value	g-value improvement	F _c -value	Total U-value	U-value improvement
Double layered insulation glazing (4/14Air/4) (existing glazing in old construction)	0.77	2.81	SiAt01	0.19	75 %	0.25	1.60	43 %
			SiAt02	0.24	69 %	0.31	1.63	42 %
Double layered thermal insulation glazing Climaplust Ultra 1.1 N (4/16Ar/4)	0.63 ⁴	1.10 ⁴	SiAt01	0.21	67 %	0.33	0.76 ¹	31 %
			SiAt02	0.26	59 %	0.41	0.76	31 %
Double layered thermal insulation glazing Climaplust V 1.1 N (4/16Kr/4)	0.54 ²	1.10 ⁴	SiAt01	0.17 ²	69 %	0.32 ²	0.76	31 %
			SiAt02	0.25 ²	54 %	0.46 ²	0.76	31 %
			SiAt07	0.29 ²	46 %	0.54 ²	0.76	31 %
			SiWt00	0.18 ²	67 %	0.33 ²	0.76	31 %
Triple layered sun protection glazing Sunbelt Polaris 65/34 (6/16Kr/4)	0.38 ²	1.10 ⁴	SiAt01	0.12 ²	69 %	0.31 ²	0.84	24 %
			SiAt02	0.14 ²	63 %	0.37 ²	0.85	23 %
Triple layered sun protection and thermal insulation glazing (6/12Kr/4/12Kr/6)	0.43	0.51	SiAt01	0.26	40 %	0.60	0.44	14 %
			SiAt02	0.28	35 %	0.65	0.44	14 %
Triple layered sun protection and thermal insulation glazing Solawer Neutral STW 12 VSG (10/12Ar/6/12Ar/6)	0.27 ⁴	0.70 ⁴	SiAt01	0.17 ³	37 %	0.63	0.57	19 %
			SiAt02	0.18 ³	33 %	0.67	0.58	17 %
Triple layered thermal insulation glazing (4/16Ar/4/16Ar/4)	0.48	0.70	SiAt01	0.28	42 %	0.58	0.58	17 %
			SiAt02	0.30	37 %	0.63	0.59	16 %

¹ The Fraunhofer Institute for Building Physics Stuttgart; ² Technical University Berlin; ³ Institute for Window Technology Rosenheim; ⁴ Manufacturer specifications; all other values: calculations

SAVINGS ON COOLING AND HEATING ENERGY

The actual savings on cooling and heating energy with MULTIFILM® film roller blinds were determined based on a calculation model¹.

PROCEDURE

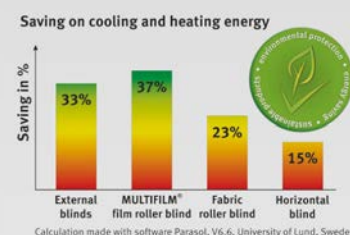
- Determination of the annual energy requirement for a shaded office space in comparison to an unshaded
- Comparison of four different sun protection systems

DATA BASE

- Office space (19.4 m²) with 2 persons and 2 PCs
- Window (5.4 m²), south direction and thermal insulating glass according to DIN EN 14501-1, Type C (g-value: 59%; U-value: 1.2 W/m²K)
- Desired temperature: between 20 and 26 °C
- Geographical location: Munich
- Period of observation: 1 year

RESULT

- **37 % of the cooling and heating energy** can be saved with film roller blinds as compared to an unshaded window.
- This puts the film roller blind in the first position among the compared systems.
- The F_c-value of the considered film-glass combination is 0.44. This corresponds to energy efficiency class 2 ("high").²

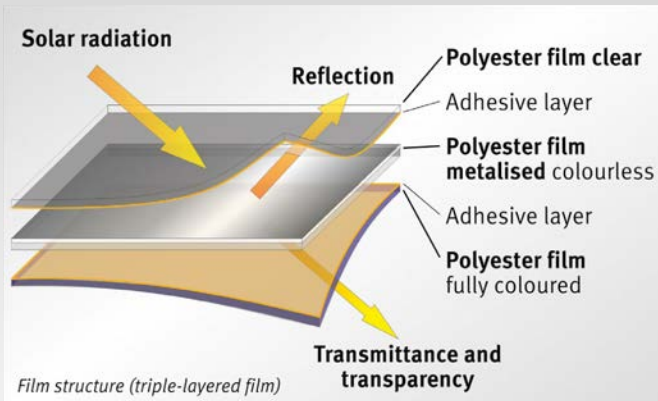


¹ Calculated using Parasol software, V6.6, University Lund/Sweden

² As per energy efficiency classification by the Association for Interior Sight and Sun Protection Systems (ViS)

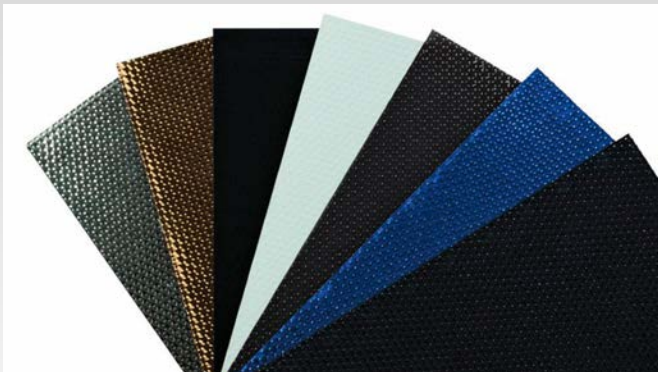
Sun protection system	Roller blind	Roller blind	Shutters	Shutters
Position	internal	internal	internal	external
Hanging	shade film SiAt01	fabric Verosafe 12.228/1	slats Turnils 17 alu blank	slats Aluminium
Remarks	side guides	without side guides	slats in cut-off position	slats in cut-off position
Total U-value	0.89	1.11	1.17	
Total g-value	0.26	0.41	0.51	
F _c -value	0.44	0.70	0.86	
Total cooling and heating energy requirement without sun protection in kWh	998	998	998	998
Total cooling and heating energy requirement with sun protection in kWh	625	775	845	670
Total cooling and heating energy savings with sun protection in %	37	23	15	33

MULTIFILM® shade films



DESIGN

- Two or usually three layered polyester films
- Third layer ensures higher film stability
- Possess an aluminium layer which is protected on the inside, thus shade films are highly reflective
- Different thickness, strength of the aluminium coating, colour and technical transmittance properties



FINISH

THERMAL FLAT EMBOSING PROCESS

This unique process gives the shade films a Piqué type embossing. It ensures:

- High resistance to mechanical stress (e.g. scratches)
- Diffused light distribution in the room
- Reduces outward reflection
- Provides good transparency



MULTIWAVE® PLEATING

- Soft arched pleating
- Up to 3 m width of film so that it is possible to shade large format façade elements with one single system
- Fold distance between pleats can be selected between 30 and 100 mm
- Ensures harmonious internal and external view and high surface stability of the film



FILM WELDING

- Special ultrasonic welding process for high strength joining of individual film segments up to a size of 3x10 m
- So that shading of large glass façades is possible with just one single system
- Inconspicuous, fully heavy duty seam

MULTIFILM® shade films

FILM ASSORTMENT

- Large selection of different film types in various colours, number of layers, visible transmittance and solar reflection

Film	Colour external/internal	Visible transmit- tance T_{VL} *	Solar reflectance*	g-value*	Suitability with respect to		
					Heat protection	Antiglare	Outside visibility
SiAt01	silver/anthracite	1 %	79 %	5 %	++	++	++
SiAt02	silver/anthracite	2 %	74 %	7 %	++	++	++
SiAt07	silver/anthracite	7 %	61 %	17 %	+	+	++
SiBc02	silver/bronze	2 %	75 %	8 %	++	++	++
SiBc09	silver/bronze	9 %	59 %	19 %	+	0	++
SiSi02	silver/silver	2 %	79 %	9 %	++	0	+
SiSi18	silver/silver	16 %	67 %	18 %	+	0	++
GyGy02	grey/grey	3 %	23 %	26 %	-	++	++
GyGy07	grey/grey	7 %	17 %	40 %	-	+	++
SiBk00	silver/black	0.01 %	84 %	3 %	++	++	-
SiWt00	silver/white	0.1 %	84 %	5 %	++	++	-

*All technical data are subject to manufacturing-related tolerances.

++ well suited + suitable 0 limited suitability - not suitable

- MULTIFILM® films are flame retardant, non-dripping and produce minimal smoke.** (acc. to ÖNORM A3800 part 1)
- All MULTIFILM films provide excellent UV protection. The UV transmission corresponds with the light transmittance.

SPECIAL FILMS

Film	Description	Colour external/internal	Visible transmit- tance T_{VL} *	Solar reflectance*	g-value*	Suitability with respect to		
						Heat pro- tection	Anti- glare	Outside visibility
SiAt1V2 MULTIFLEX®	with 2 sections of different visible transmit- tance	silver/anthracite	2 %/6 %	61 %	17 %	+	+	++
SiAt023SN	extra strong three layered film for improved surface stability	silver/anthracite	2 %	74 %	7 %	++	++	++
GyGy033SR	film with scratch-protected surface on one side	grey/grey	3 %	16 %	35 %	-	++	++

*All technical data are subject to manufacturing-related tolerances.

++ well suited + suitable 0 limited suitability - not suitable



MULTIFILM® shade films

MULTIDECOR Screen+



This innovative process for full surface colouring of films is setting new benchmarks in sun protection: It combines effective heat protection and anti-glare properties with decorative chic.

Roller blinds with MULTIDECOR film in attractive designs and colours attract attention in any office.

There is ample choice: Modern to classic décors in various colours and structures as well as a wide pallet of monochrome colours are available. Individual motifs, such as company logos, advertising prints or photos can also be printed.

But MULTIDECOR Screen+ does not only have optical advantages:

- The colours are 100% resistant to abrasion and are highly non-fading.
- The transparency of the film and unimpaired outside visibility are maintained.
- The excellent reflection values and heat protection properties remain almost unchanged.
- All other film finishing processes such as flat embossing, MULTIWAVE® pleating or ultrasonic welding can be performed without any problem.



Fabrics



In all MULTIFILM® products, highly efficient technical fabrics can be used as an alternative to shade film and the following quality is available:

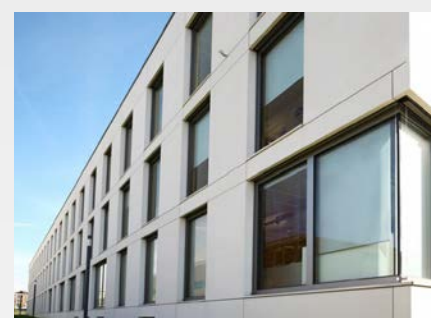
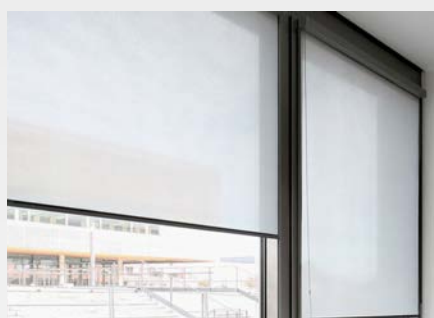
- Predominantly Trevira CS fabrics
- Fire protection classes: B1 (flame retardant)
- Highly lightfast (predominantly class 5 and 6)
- Different layers, such as aluminium or pearlescent, etc.
- Opaque to partially transparent (screen fabrics)
- Different visible transmittances and colours
- non-toxic as per Eco-Tex-Standard 100
- Partially sound absorbent and anti-bacterial

Fabric	Material	Thickness	Coating	Specification	Visible transmittance T_{VL}^*	Solar reflectance*	Suitability with respect to		
							Heat protection	Antiglare	Unimpaired view to outside
T01SiGy04	Trevira CS	0,36 mm	alu	screen	4 %	49 %	0	++	0
T01SiGy11	Trevira CS	0,36 mm	alu	screen	11 %	50 %	+	-	0
T02SiGy08	Trevira CS	0,44 mm	alu	screen	8 %	51 %	+	0	0
T03SiGy04	Trevira CS	0,43 mm	alu	sound absorbent	4 %	52 %	+	++	-
T03SiGy07	Trevira CS	0,43 mm	alu	sound absorbent	7 %	52 %	+	+	-
T07WtGy00	Polyester	0,38 mm	Acrylate	blackout	0 %	69 %	+	++	-
T08SiGy08	Trevira CS	0,20 mm	alu	dimout	8 %	50 %	+	0	-
T09SiGy05	Trevira CS	0,48 mm	alu	screen	5 %	63 %	+	+	0
T09SiGy07	Trevira CS	0,48 mm	alu	screen	7 %	66 %	+	+	0
T22SiGy03	Trevira CS	0,18 mm	alu	screen	4 %	60 %	+	++	0
T22SiGy06	Trevira CS	0,18 mm	alu	screen	7 %	66 %	+	+	0
T27WtGy00	Polyester	0,30 mm	Acrylate	dimout	20 %	70 %	+	-	-
T41PmGy02	Polyester	0,40 mm	pearlised	dimout	2 %	77 %	++	++	-
T42WtGy00	Trevira CS	0,47 mm	Polymer	blackout	0 %	69 %	+	++	-
T50SiGy12	Trevira CS	0,19 mm	alu	screen	12 %	55 %	+	-	0
T51BkGy04	PVC/Polyester	0,60 mm	-	screen	4 %	4 %	-	++	0
T51GyGy07	PVC/Polyester	0,60 mm	-	screen	7 %	38 %	0	+	0
T70WtGy45	Trevira CS	0,35 mm	-	dimout	45 %	50 %	+	-	0
T80SiBk03	Polyester	0,49 mm	alu	screen	3 %	34 %	0	++	0
T80SiGy04	Polyester	0,49 mm	alu	screen	4 %	39 %	0	++	0

Fire protection classes B1 (flame retardant)

++ very suitable + suitable 0 limited suitability - not suitable

*All technical data are subject to manufacturing-related tolerances.



MULTIFILM® sun protection and antiglare products

PRODUCT INFORMATION

- Customised systems of first class product quality
- All profile parts made of stable, anodised aluminium, with RAL powder coating on request
- Closed head box with side covers and inconspicuous opening for ventilation
- Side guides to support the roller blinds and cover the gaps to the side
- Integrated cleaning brushes for film roller blinds
- Infinitely variable adjustable
- Blind materials: highly efficient heat protection and antiglare film or technical fabrics

PRODUCT TYPES

	Max. w x h in mm	Operation	Properties
Compact-Line	1,500 x 3,400	manual	▪ Very compact head box ▪ Simple and quick installation
Classic-Line	2,200 x 3,400	manual and electrical	▪ Versatile “classic roller blind” ▪ Geometrical shapes
Roof window roller blinds	1,500 x 1,600	manual	▪ For VELUX-roof windows
Lux-Line	2,200 x 3,400	manual	▪ Direction of operation from bottom to top ▪ Geometrical shapes
Opposite-pull blind systems	2,200 x 3,400	electrical	▪ Combination of spring-loaded and motor-powered roller blinds for horizontal/inclined glazing, such as large glass roofs, skylights, winter gardens ▪ Geometrical shapes
Trend-Line	2,500 x 3,400	manual and electrical	▪ Decorative character ▪ Without side guides
Façade-Systems	3,000 x 8,000	manual and electrical	▪ For large glazed surfaces ▪ System adapted for airport towers
Vertical blinds	6,000 x 3,500	manual	▪ Slat width 127 mm ▪ Easy to retrofit existing slat systems
Panel blinds	12,000 x 3,500	manual	▪ Flexible shading of large glass areas ▪ Suitable for arched rails

COMPARISON OF SHADING OPTIONS

	Film roller blinds	Fabric roller blinds	Vertical blinds (fabric)	Horizontal shutters external	Horizontal shutters internal
Antiglare	++	o	o	o	o
Summer solar protection	+	–	–	++	o
Improvement of U-value in winter	+	o	o	o	o
External visual contact	++	–	–	o	o
Long-term behaviour/wear	++	+	+	o	+
Use of daylight	+	o	o	o	o
Independent of weather conditions	++	++	++	o	++
Maintenance costs	++	++	–	o	o

++ highly suitable + suitable o limited suitability – not suitable Extract from the AGI-worksheet F20, September 2004

Product line Compact-Line

Smart and economical

PRODUCT INFORMATION

- Particularly small head box (35 x 35 mm)
- Variety of side guides available
- Simple and quick installation

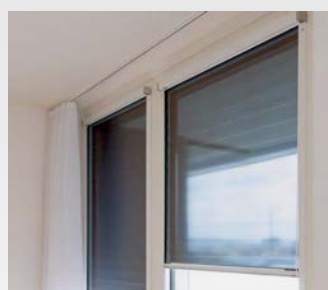
USE

- Predominantly in the commercial and public sector
- Industrial, administrative and private buildings

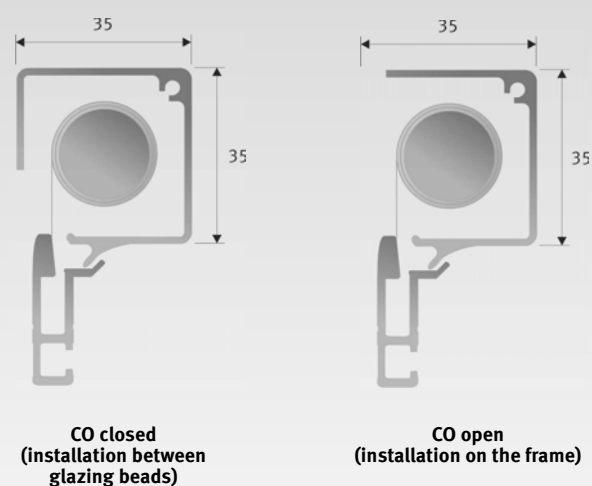
DRIVE	DESCRIPTION
Chain loop	▪ Vertical and up to 20° window inclination, free movement

MAXIMUM SIZE		
Head box	Width	Height
CO	1,500 mm	3,400 mm

Maximum sizes depending on the blind material, pleating and fitting position



HEAD BOXES



INSTALLATION

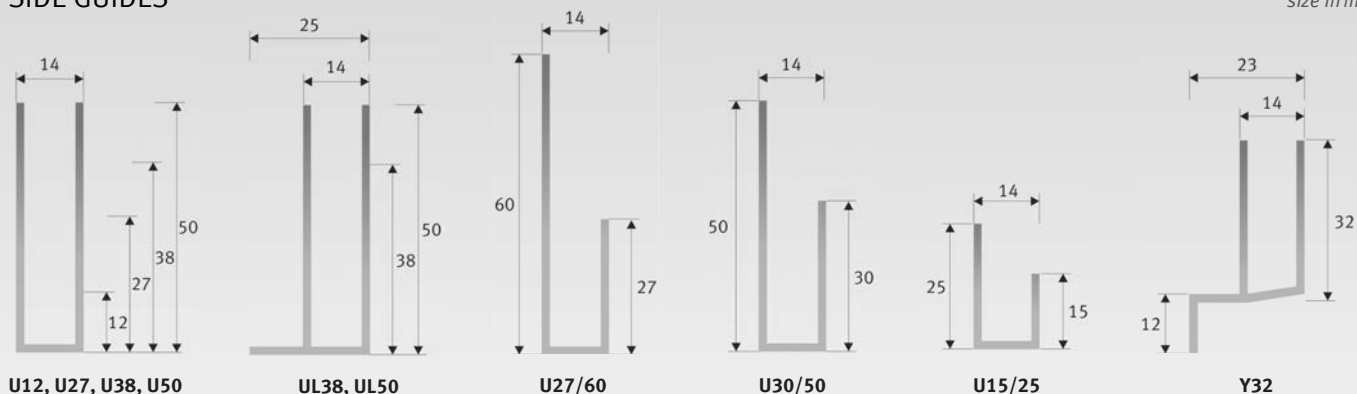


Adhesive installation on the frame (without drilling)



Insertion of the head box in the side guides

SIDE GUIDES



Product line Classic-Line

Versatile classic

PRODUCT INFORMATION

- Product group with the most variety with respect to type of operation, head box and side guides selection
- Variant without head box for ceiling installation or integration in the façade is possible

USE

- Industrial, commercial, administrative and private buildings



DRIVE	DESCRIPTION
Chain loop	▪ Vertical and up to 20° free movement ▪ Optional with side guides
Multistop	▪ Operation through knob on bottom rail, can be locked at any height
Roof window	▪ For VELUX-roof windows with 96° and 100°-glass strips ▪ Operation through knob on bottom rail, can be locked at any height
Electrical	▪ 24V motor via switch or remote control ▪ Rechargeable battery motor with remote control ▪ Can be easily retrofitted



EXAMPLES OF INSTALLATION



Adhesive plug-in installation on the frame (without drilling)



Screw mounting on the frame



Installation with clamps on the frame (without drilling)



Adhesive installation on the frame (without drilling) head box R1

Product line Classic-Line

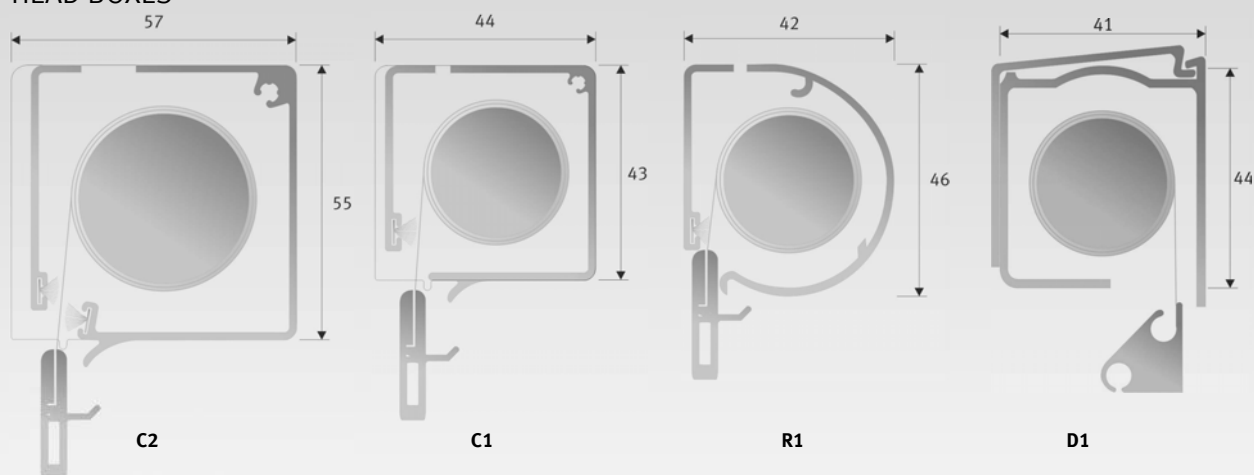
Versatile classic

MAXIMUM SIZES			
Head boxes	Drive	Width	Height
C1/R1	chain loop electrical Multistop	1,500 mm	3,400 mm
		1,500 mm	2,300 mm
		1,500 mm	1,800 mm
C2	chain loop electrical Multistop	2,200 mm	3,400 mm
		2,200 mm	3,400 mm
		1,500 mm	2,000 mm
D1	roof window roller blinds	1,500 mm	1,600 mm

Max. sizes depending on blind material, pleating, drive, installation type

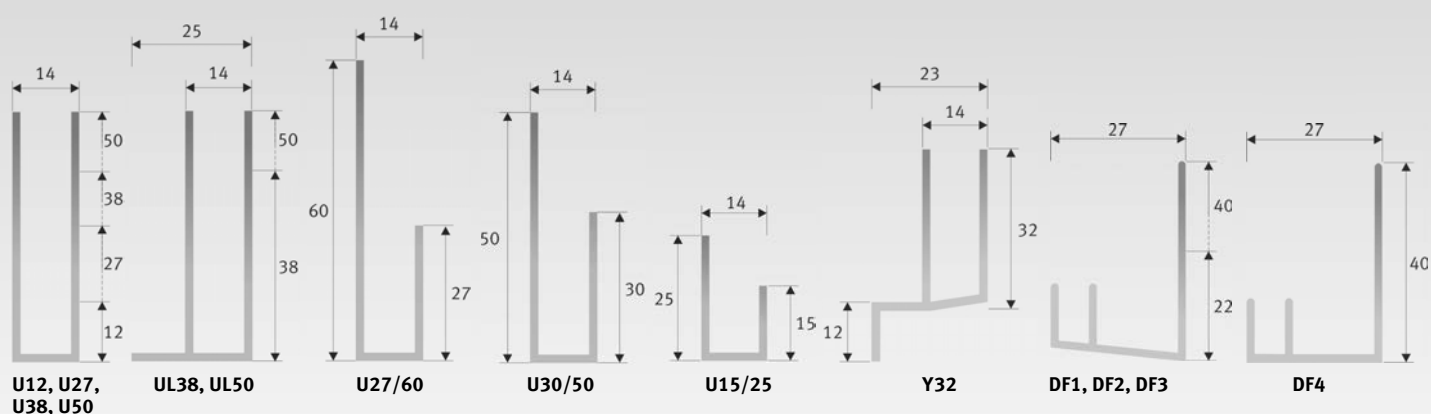


HEAD BOXES



Scale 2:3,
size in mm

SIDE GUIDES



Adhesive plug-in mounting
without drilling



Rounded side guides



Comfortable remote control
operation



Round head box R1

Product line Lux-Line

The roller blind from bottom to top

PRODUCT INFORMATION

- The blind closes from bottom to top
- Patented bottom rail
- Allows the use of daylight in the upper area of the room providing glare protection at eye level at the same time

USE

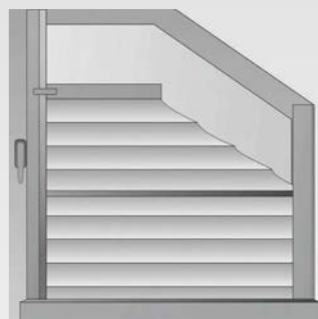
- Narrow, high or non-rectangular windows
- Inclined or horizontal windows



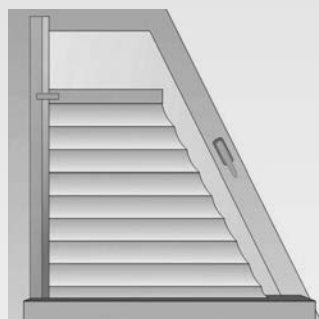
DRIVE	DESCRIPTION
Chain loop	▪ For vertical windows and windows with an incline up to 20°
Pull cord	▪ For vertical and inclined windows



GEOMETRIC SHAPES



Roller blinds with guidance for geometric shapes and welded stabilisation bar



Trapezoid windows with guidance for geometric shapes



EXAMPLES OF INSTALLATION



Screw fitting on the frame



Adhesive installation on the frame (without drilling)



Guidance for geometric shapes

Product line Lux-Line

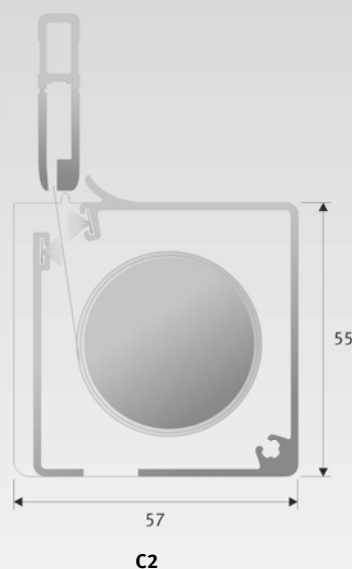
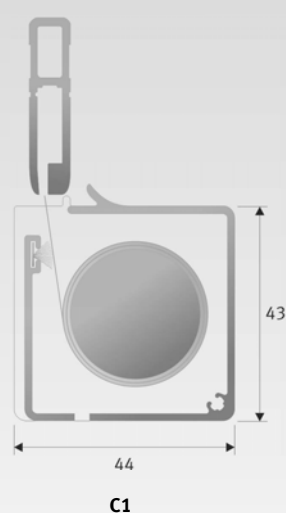
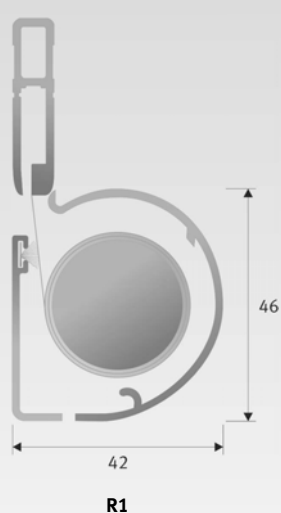
The roller blind from bottom to top

MAXIMUM SIZES			
Head boxes	Drive	Width	Height
C1/R1	chain loop/pull cord	1,500 mm	1,800 mm
C2	chain loop/pull cord	2,200 mm	3,400 mm

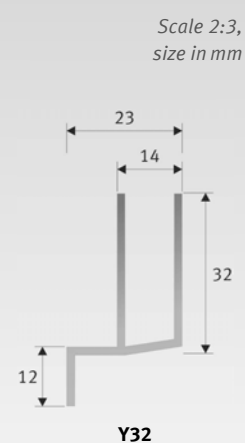
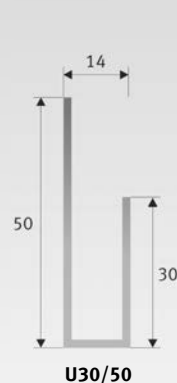
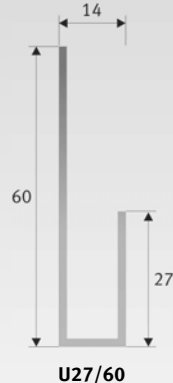
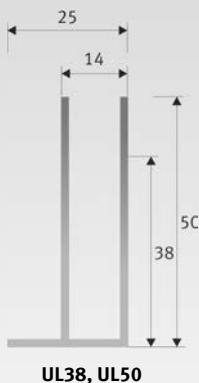
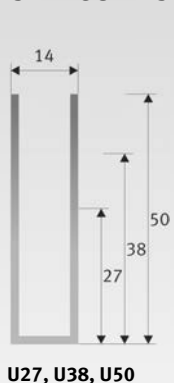
Max. sizes depending on blind material, pleating, drive, installation type



HEAD BOXES



SIDE GUIDES



Scale 2:3,
size in mm



Head box C1 bottom up



Cord lock



Guidance for geometric shapes



Geometric shape

Product line Trend-Line

Elegant internal decoration

PRODUCT INFORMATION

- Internal roller blinds with decorative character
- Optionally with or without head box
- Installation without side guides in front of or in the window recess

USE

- Private, commercial and administrative buildings



DRIVE	DESCRIPTION
Chain loop	▪ Vertical ▪ Optional with side guides
Electrical	▪ 24V motor via switch or remote control ▪ Rechargeable battery motor with remote control ▪ Can be easily retrofitted



INSTALLATION



Head box in front of the window recess on the wall or on the ceiling



Carrier rails in front of the window recess on the wall or on the ceiling



Head box in the window recess



Carrier rails in the window recess

Product line Trend-Line

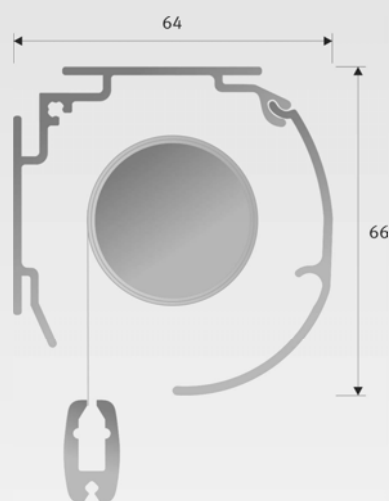
Elegant internal decoration

MAXIMUM SIZES			
Head box	Drive	Width	Height
R3	chain loop/ electrical	2,500 mm	3,400 mm
Roller blinds on carrier rails	chain loop/ electrical	2,500 mm	3,400 mm

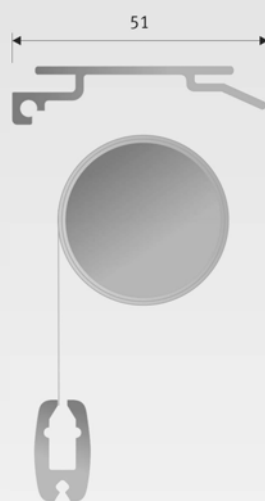
Max. sizes depending on blind material, drive, installation type



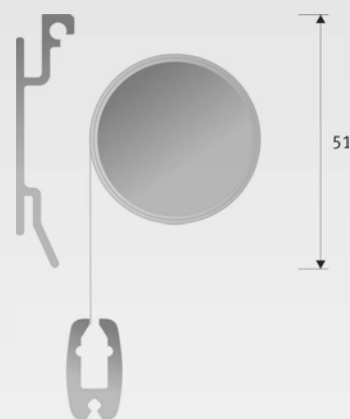
HEAD BOXES



R3



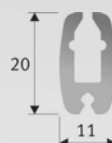
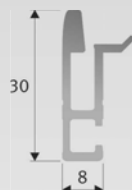
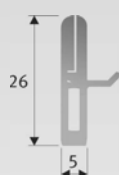
Trend-Line Trägerschiene
Deckenmontage



Trend-Line Trägerschiene
Wandmontage

Scale 2:3,
size in mm

Bottom rails



Type	L	P	E	T	S	D
Use	Classic-Line roller blinds without MULTIWAVE® pleating	- Film roller blinds with MULTIWAVE® pleating and side guides - Fabric roller blinds with side guides	- Opposite-pull technology - Lux-Line roller blinds	Film and fabric roller blinds without side guides	Façade-Systems	- Multistop roller blinds - Roof window roller blinds

Product line Opposite-pull technology Classic-Line

Effective in horizontal and inclined areas

PRODUCT INFORMATION

- System of two opposing head boxes
- Head box with spring loaded blinds and counter traction head box with motor
- Roller blind always remains tight due to spring tension – inclined and horizontal installations are possible
- Inconspicuous pulling tapes

USE

- Inclined glazing
- Rooflight domes and window bands
- Winter gardens and atria

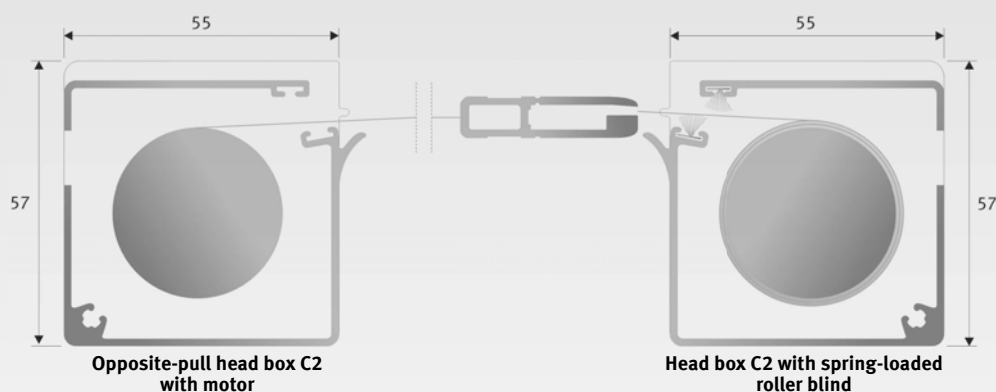


MAXIMUM SIZES			
Head box	Drive	Width	Height
C2	electrical with spring tension	2,200 mm	3,400 mm

Max. sizes depending on blind material, pleating, drive, installation type

DRIVE	DESCRIPTION
Electrical	▪ 24V motor via switch or remote control ▪ Rechargeable battery motor with remote control ▪ Can be easily retrofitted

TECHNICAL DETAILS



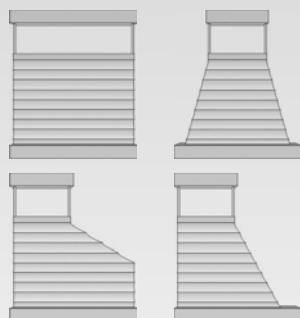
Scale 2:3,
size in mm

EXAMPLE OF INSTALLATION

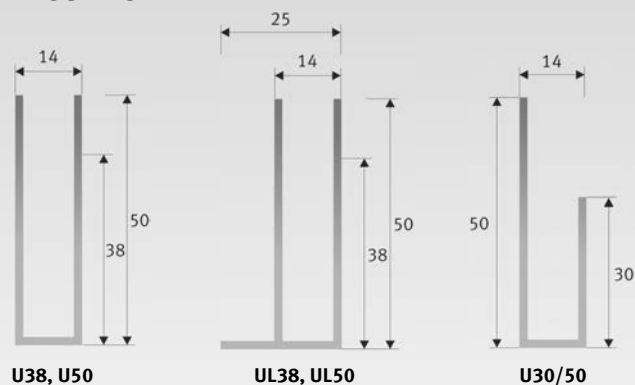


Screw fitting on the frame

PRODUCT VARIANTS



SIDE GUIDES



References

Film roller blinds in practice

Gemini Office Complex, Wollerau (Switzerland)



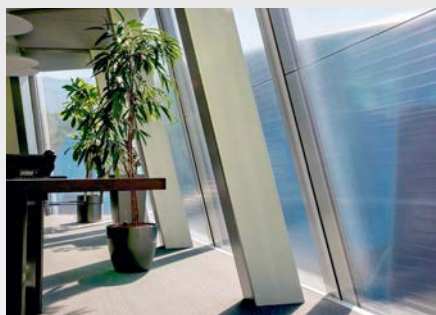
The Gemini office complex in Wollerau by Lake Zurich catches the eye with its pyramid form and reinforced concrete-glass architecture. The sophisticated energy concept for the building uses solar energy for heating in winter and solar power for cooling in summer.

SYSTEM REQUIREMENTS

- Efficient heat protection for energy-efficient façades
- Closing direction from bottom to top
- Very good outside view
- Inconspicuous appearance at the window
- Low-maintenance systems independent of weather

TECHNICAL IMPLEMENTATION

- 500 electrical **Opposite-pull blind systems** (2,400 mm x 3,100 mm) on an inclined glass façade, of which 100 systems have a trapezoidal form
- Installation in suspended ceilings and covered with object-specific head box profile
- Heat protection film with 61 % solar reflectance and 7 % visible transmittance
- Central system control by building services



Karstadt Store, Stuttgart (Germany)



The generous glass fronts and a glass dome ceiling ensure that the retail areas of the Karstadt Store, Stuttgart are bathed in light. The glass roof was completely renovated during a restructuring and the external shades used till now were replaced with internal sun protection systems from MULTIFILM®.

SYSTEM REQUIREMENTS

- Effective heat protection and antiglare system for the glass dome roof (35 x 13 m)
- Screw-free the systems on arched double-T carriers
- Aesthetic internal view

TECHNICAL IMPLEMENTATION

- 80 electrical **Opposite-pull blind systems** (1,700 x 2,200 mm) on arched glass dome roof
- Automatic control of the systems by building services
- Use of three layered film with MULTIWAVE® pleating for more surface stability of the inclined systems
- Use of high efficiency heat protection film with 74 % solar reflectance
- Development of a substructure to install the head box, side guides and additional supporting shafts



References

Film roller blinds in practice

Bayernwerk AG, Regensburg (Germany)



When it comes to electricity, gas, water or renewable energies in Bavaria, Bayernwerk AG as largest regional network operator is contact number one. Searching to find a suitable sun protection, which meets to the ecological values of the company and there responsible use of energy and resources, the choice fell on film blinds of MULTIFILM®.

SYSTEM REQUIREMENTS

- Good glare protection and view to outside
- Inconspicuous look on the window
- Weather-independent systems always available

TECHNICAL IMPLEMENTATION

- 2,100 roller blinds of type **Compact-Line**
- Individual manual operation via chain
- Complete assembly in just 20 working man days thanks to simple plug-in installation
- Silver-anthracite coloured film with 74 % solar reflectance and 2 % visible transmittance
- Homogeneous appearance thanks to MULTIWAVE®-pleated blinds



Messeccarrée Nord Apartment, Vienna (Austria)



MULTIFILM® film roller blinds can be found not just at computer workstations in offices, but are being used increasingly in residential buildings as well. Over 10,000 film roller blinds were installed in 3 years in various new residential constructions in Vienna, such as in the apartment building Messeccarrée Nord. The completely furnished apartments are eminently suitable for contemporary comfortable living.

SYSTEM REQUIREMENTS

- Effective heat protection
- Discreet appearance – suitable to the interior
- Fulfilment of building physics specifications (F_c -value < 0.43)

TECHNICAL IMPLEMENTATION

- over 800 film roller blinds **Compact-Line** (800 x 1,300 mm)
- Use of a heat protection film with 74 % solar reflectance and 2 % visible transmittance
- Inconspicuous appearance by small head boxes and white profiles
- MULTIWAVE® pleated films for a harmonious view



References

Film roller blinds in practice

Bad Stübler GmbH, Eislingen near Stuttgart (Germany)



The company Stübler presents their bathroom ideas in a generously glazed sales gallery. But too much sun and heat quickly disturbed the shopping pleasure. Now film roller blinds offer heat and glare protection as well as room for advertising.

SYSTEM REQUIREMENTS

- Effective sun protection
- Easy retrofitting
- Inconspicuous appearance on the window
- Use as advertising area

TECHNICAL IMPLEMENTATION

- 14 electrically operated film roller blinds **Classic-Line** (1,200 x 2,800 mm) on the outwards inclined glass façade, partially in trapezoid shape
- Heat protection film with 74 % solar reflectance and 2 % visible transmittance
- Profile parts matching the colour of the mullions and transom construction in purple violet
- Individual advertising print with MULTIDECOR Screen+
- single motifs per roller blind join to a large façade picture

Deltares, Delft (Netherlands)



Scientists of the independent research institute Deltares develop solutions for sustained protection of rivers, coastal areas and estuary regions.

SYSTEM REQUIREMENTS

- Addition to the existing shading (reflecting façade panels)
- Effective glare protection for floor level windows

TECHNICAL IMPLEMENTATION

- 350 film roller blinds of type **Classic-Line**, partially on non-rectangular windows inclined outwards
- Partial use of cable guides instead of side guides
- Operation with chain loop
- Film with 2 % visible transmittance for effective glare protection
- MULTIWAVE® pleated films for harmonious internal and external view

References

Film roller blinds in practice

Research Institute, Frankfurt a. M. (Germany)



In this renowned research institute, the functioning of the brain is explored. Neuroscientists address the question of how form attention, perceptions and thoughts. The focus is on the functioning and interconnection of individual nerve cells, smaller networks and larger brain systems. Disruptive external influences should not affect the scientific work. For this reason, the institute was equipped with discrete and individually available visual and glare protection.

SYSTEM REQUIREMENTS

- Bright visual and glare protection
- Restrained appearance
- Inconspicuous integration inside and outside
- Individually adjustable
- Weather-independent systems always available

TECHNICAL IMPLEMENTATION

- 400 roller blinds type **Classic-Line**
- Individual operation via chain
- Different fabrics depending on the building area
- All profiles in window colour

Berufsgenossenschaft Holz und Metall (Professional Association of the Wood and Metals Trade), Mainz (Germany)



Berufsgenossenschaft Holz und Metall is one of the nine professional trade associations in Germany. It supports around 4.7 million employees in over 200,000 companies and is thus one of three largest legal accident insurers in Germany.

SYSTEM REQUIREMENTS

- Optimum glare protection at work with display screen equipment
- Unimpeded outside view
- Window area to be shaded approx. 1,000 x 2,500 mm

TECHNICAL IMPLEMENTATION

- 900 film roller blinds of type **Lux-Line**
- Customer-specific mounting solution
- Use of silver-anthracite coloured film with 7 % visible transmittance
- Aesthetic internal and external view with MULTIWAVE® pleating

References

Film roller blinds in practice

Centre for Virtual Engineering (ZVE), Stuttgart (Germany)



The Centre for Virtual Engineering ZVE captivates with the impressive appearance of its premises and equipment with futuristic laboratories and office areas. Scientists of the Fraunhofer-Institute for Industrial Engineering (IAO) work on new solutions in the fields of innovative work structures, mobility of the future and digital engineering.

SYSTEM REQUIREMENTS

- Internal antiglare system
- Very good outside view
- Inconspicuous appearance at the window
- No impact on the façade elevation



TECHNICAL IMPLEMENTATION

- 250 electrical **film roller blinds without head box** on the ceiling
- Object-specific ceiling installation profile
- Use of a discreet grey antiglare film for almost invisible appearance on the façade
- Automatic control by the building services

Asian Infrastructure Investment Bank (AIIB), Beijing (China)



The Asian Infrastructure Investment Bank (AIIB) promotes infrastructure projects in the upcoming countries in Asia – primarily by providing funds, but also through consulting and technical support. Along with predominantly Asian countries, the member countries also include European countries, above all Germany.

The headquarters of the bank in Shanghai was equipped completely with film roller blinds as the first project by MULTIFILM® in China.

SYSTEM REQUIREMENTS

- Effective heat and glare protection on double glazed windows
- Inconspicuous appearance at the window

TECHNICAL IMPLEMENTATION

- approx. 1,700 roller blinds of type **Classic-Line** (1,700 x 2,700 mm) in the office spaces
- Use of highly reflective, transparent film with 2 or 7 % visible transmittance – depending on the direction of the façade
- MULTIWAVE® pleated film for harmonious internal and external view
- approx. 70 electrically operated **Façade-Systems** with black-out fabric in the conference rooms
- All profile parts with RAL powder coating of window colour

Product line Façade-Systems

For large surface glazing

PRODUCT INFORMATION

- Especially for shading large surface glazing
- Joining of individual films by using ultrasonic welding technology to elements with maximum dimensions of 3x8 m
- Use of extra strong, three layered film with high surface stability, which is in addition flat embossed and MULTIWAVE® pleated
- Inconspicuous integration of the mechanism and profiles in the façade design

USE

- In buildings with large glazed areas



DRIVE	DESCRIPTION
Chain loop	▪ Vertical and up to 20° free movement ▪ Optional with side guides
Electrical	▪ 230 V motor via switch or remote control

MAXIMUM SIZES			
Head boxes	Drive	Width	Height
F1	chain loop electrical	2,700 mm 2,700 mm	6,000 mm 6,000 mm
F2	chain loop electrical	3,000 mm 3,000 mm	8,000 mm 8,000 mm

Max. sizes depending on blind material, pleating, drive, installation type

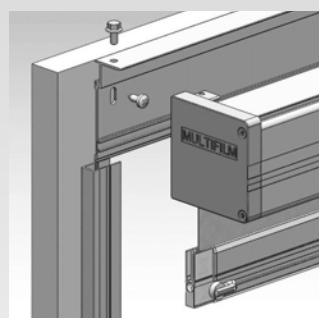


Head box F1

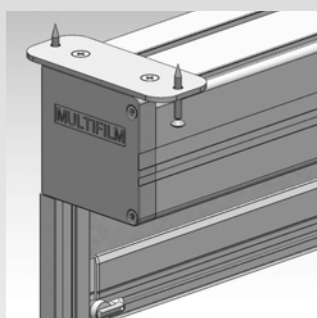


Head box F2

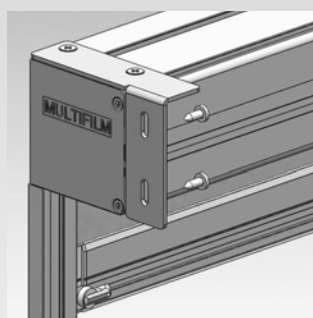
EXAMPLES OF INSTALLATION FOR HEAD BOX F1



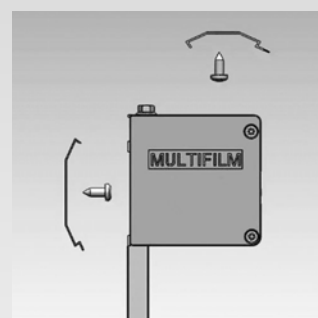
Screw fixing of the rear head box at the back



Using plates to the top



Using brackets to the side

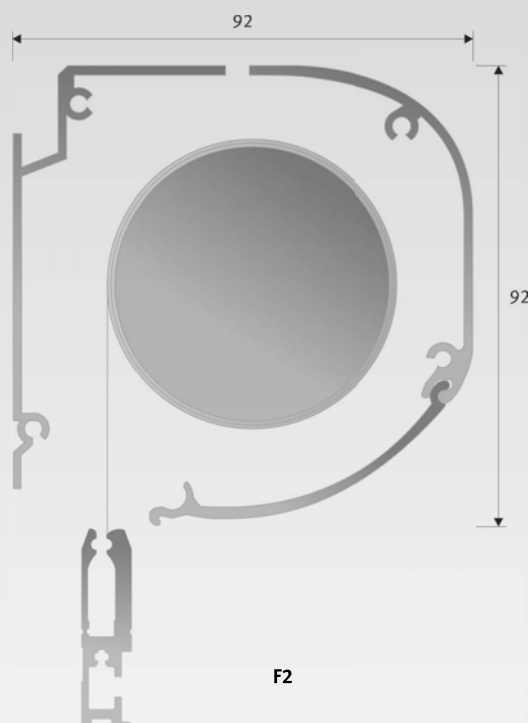


Using clips at the back or top

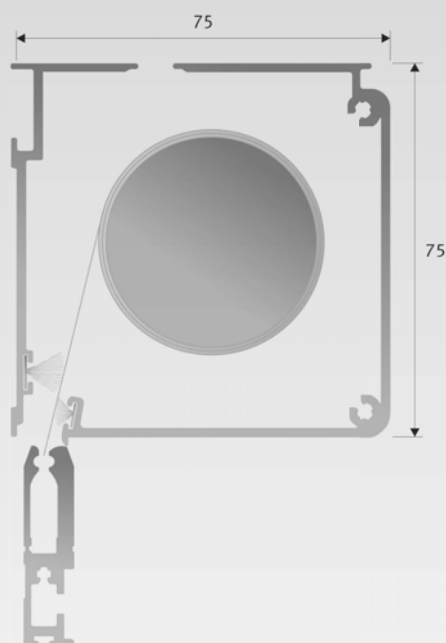
Product line Façade-Systems

For large surface glazing

HEAD BOXES



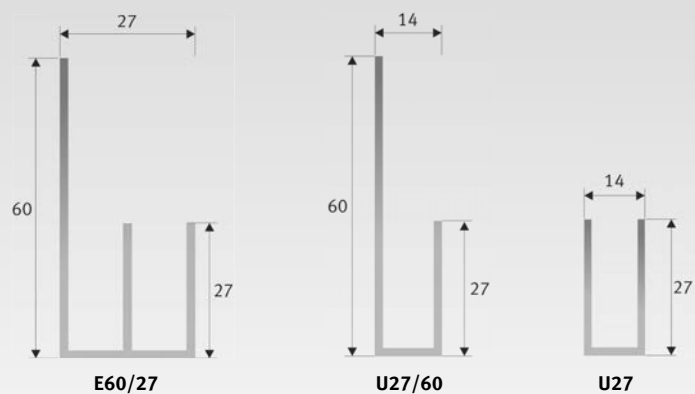
F2



F1

Scale 2:3,
size in mm

SIDE GUIDES

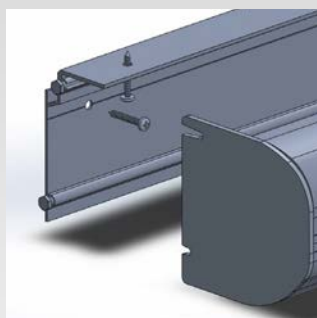


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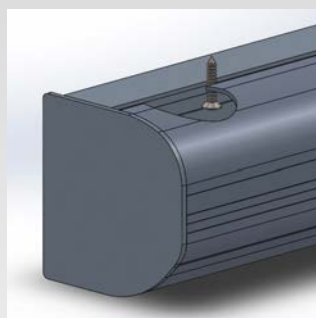
U27/60

U27

EXAMPLES OF INSTALLATION FOR HEAD BOX F2



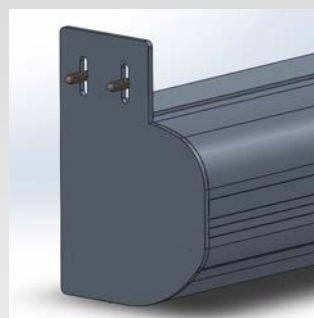
Using rear head box to the
back or top



Using screw channel at the top



Using plates to the side



Using plates to the side

References

Façade-Systems in practice

German Enterprise Center in Sino-German Eco-Park, Qingdao (China)



The Sino-German Eco-Park is a model area for ecologically sustainable urban development and settlement of environmentally aware companies.

The 29 km² park is to be completed in 2020. The German Enterprise Center supports German companies in entering the Chinese market.

SYSTEM REQUIREMENTS

- Glare protection for workstations with display screens
- Darkening for conference rooms

TECHNICAL IMPLEMENTATION

- 450 electrically operated **Film-Façade-Systems** and 1,750 **Classic-Line** roller blinds
- Installation as double roller blind with two different film blind materials for conference rooms: anti-glare film with 2% visible transmittance and black-out film
- Object-specific head box profile
- Corner areas with cable guides instead of side guides, partially a combination of two roller blinds with separate cables and guidances for geometric shapes in combination

European Court of Justice, Luxembourg City



The Palais de Justice was constructed in 1972 and has been extended multiple times since. The last enlargement included the development of the present structure and new construction of two office towers. A ring of offices standing on 14 m high columns now surrounds the Palais. The new façade consists of vertically arranged glass elements, which give the building a modern character and protect the rooms behind it from overheating at the same time.

The towers received a golden cladding of anodised aluminium weave. This has a specific zig-zag edge, which gives depth to the façade and refines the light accents. Moreover, the fabric provides sun protection but is still transparent and permeable to air.

SYSTEM REQUIREMENTS

- Internal anti-glare system
- Installation behind a suspended ceiling
- Matches the modular dimensions of the “open offices” design

TECHNICAL IMPLEMENTATION

- Over 1,000 **Film-Façade-Systems**
- Some systems with divided hanging – two film pieces on the tube – to ensure the variability of the “open office”
- System sizes of 1,000 x 3,000 mm to 2,400 x 3,500 mm
- Use of three layered film, grey on both sides with 1% visible transmittance
- Individual electrical operation through individual controls or centrally via BUS control

References

Façade-Systems in practice

Control Tower London Heathrow Airport (Great Britain)



London Heathrow is the largest airport in Europe with over 70 million passengers annually. Around 500,000 take-offs and landings are coordinated in a year by the completely glazed platform of the control tower. The glass surfaces of the platform have a height of around eleven meters and are inclined outward at 14 degrees.

SYSTEM REQUIREMENTS

- Reliable glare protection for the inclined trapezoid shaped glass surfaces of the tower
- Absolutely clear and unimpaired view of the airport and airspace
- Electrical operation
- Exact positioning of the horizontal welding seams for minimal impact on the visibility

TECHNICAL IMPLEMENTATION

- 48 trapezoid form **Film-Façade-Systems** with electrical operation with sizes up to 2,000 x 5,500 mm
- Lateral guidance by steel cables
- Bottom rail with telescopic extensions on both sides to balance the width of the trapeze
- Four single films were joined to one blind using the special ultrasonic welding process
- Use of a both sides grey film with no exterior reflectance and with 7 % visible transmittance
- Use of a non-embossed film for clear and unimpaired view of the airport

Environmental Research Station Schneefernerhaus, Zugspitze (Germany)



Germany's highest research establishment is located on the southern slope of the Zugspitze peak, 2,650 meters above sea level. Here, scientists determine toxic content in the air, observe weather phenomena and research the impact of climate change on humans and nature. Moreover, the data and insights determined here also serve to monitor global environmental agreements and to improve current climate forecasts.

SYSTEM REQUIREMENTS

- Reliable glare protection for conference rooms and screen workstations

TECHNICAL IMPLEMENTATION

- 13 electrically-operated **Film-Façade-Systems** (2,000 x 2,100 mm) and 13 **Compact-Line** film roller blinds with chain loop
- Use of extra strong 3 layered film for particularly high surface stability
- Antiglare film with 2 % visible transmittance and 74 % solar reflectance
- MULTIWAVE® pleated film for harmonious internal and external view

Product line Vertical blinds

Large glass surfaces shaded elegantly

PRODUCT INFORMATION

- Individual arrangement options
- Slats of flat embossed and MULTIWAVE® pleated film with fold distance of 100 mm
- Retrofitting of existing systems with film slats possible
- Slat hangers as clip system
- Shading of inclined or arched window areas possible
- No disturbing light gaps, thanks to sufficient slat overlapping

USE

- In industrial, commercial and administrative buildings, primarily in conference rooms and foyers

DRIVE	DESCRIPTION
Manual	▪ Process with lateral pull cord ▪ The slats are turned with chain loop

MAXIMUM SIZES

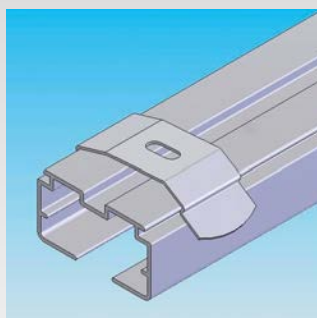
- 6,000 x 3,500 mm (width x height)
- Slat width: 127 mm



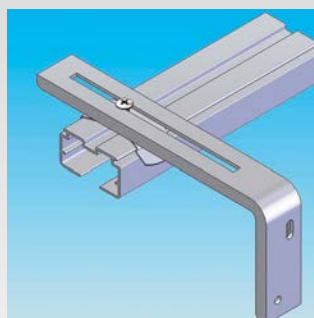
SLATS



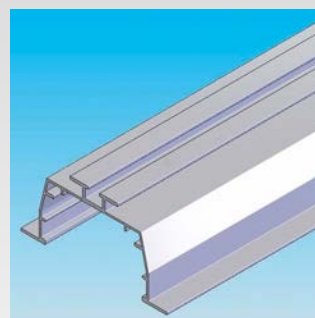
INSTALLATION



Using clips on the ceiling

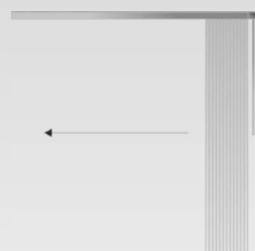


Using wall angles on the wall

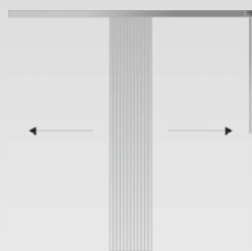


Using installation profiles in the suspended ceiling

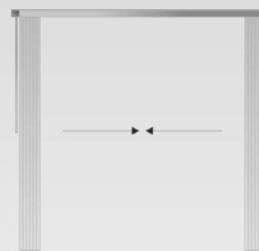
EXAMPLES OF ARRANGEMENT



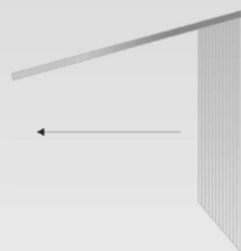
Bundle on one side, right or left, operation right or left



Bundle in the centre, operation to the right or left



Bundle divided, operation to the right or left



Sloped blinds, bundle and operation right or left

Product line Panel blinds

Large glass surfaces shaded elegantly

PRODUCT INFORMATION

- Individual arrangement options
- Panels can be moved freely or joined to each other
- Panels of MULTIWAVE® pleated film or fabric
- Different panel widths are possible in one system
- Large system widths through combinable rails
- Shading of arched windows possible

USE

- Industrial, commercial and administrative buildings
- Flexible shading of very large glass surfaces
- Can be used as variable room dividing systems

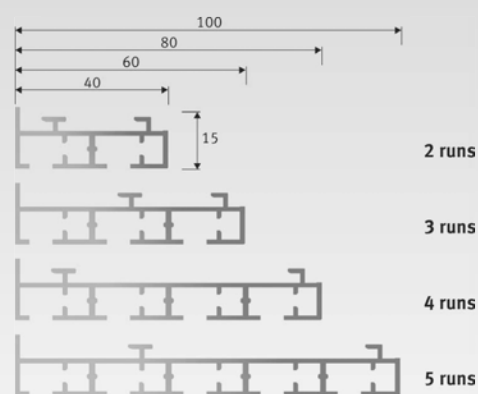
DRIVE	DESCRIPTION
Manual	▪ Lateral pull cord ▪ Control panel ▪ Freely movable

MAXIMUM SIZES

- Width: 12 m (pull cord); unlimited (control panel)
- Width of individual panel: up to 3 m
- Height: 3.50 m
- 10 runs per curtain

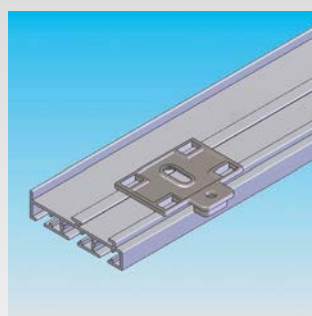


RAILS

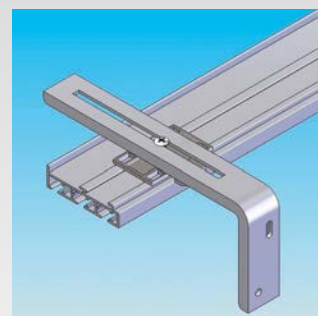


Scale 1:2,
size in mm

INSTALLATION

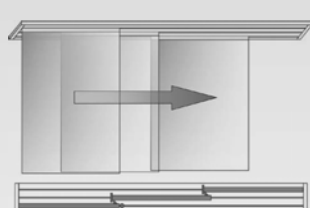


Using clips on the ceiling

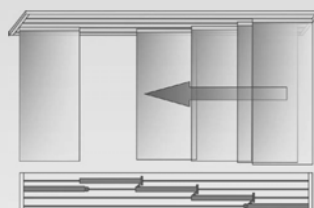


Using wall angles on the wall

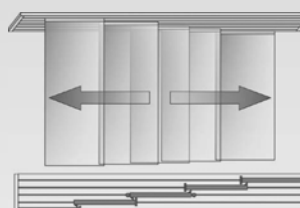
EXAMPLES OF ARRANGEMENT



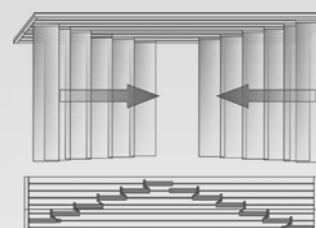
3 runs, one-sided, bundle to the left, one fixed panel



4 runs, one-sided, bundle to the right, two fixed panels



5 runs, bundle in the centre, one fixed panel



7 runs (rails coupled), two-sided, two fixed panels

References

Vertical and Panel blinds in practice

MAN Truck and Bus AG, Munich (Germany)



MAN Truck and Bus AG is one of the leading providers to the international automotive industry. The highly diverse product portfolio of the company includes cars, tourist buses or special vehicles through to engines and components.

SYSTEM REQUIREMENTS

- Inconspicuous glare protection for screen workstations
- Decent and harmonious integration in the mullion and transom construction of the façade

TECHNICAL IMPLEMENTATION

- 600 linear meters of **Panel blinds**, of these 50 meters on arched rails
- Panel-blind material: Screen fabric
- Flexible arrangement of glare protection with freely movable panels

INTERRA, Joure (Netherlands)



The headquarters of the engineering and architecture firm INTERRA immediately draws the eye with its extraordinary shape and colour as well as its location adjacent to the water. The futuristic new construction has generous glass surfaces.

SYSTEM REQUIREMENTS

- Optimum glare protection for computer workstations while using daylight
- Underlining the futuristic character of the building without influencing external elevation
- Representative, individual solution
- Unimpeded outside view

TECHNICAL IMPLEMENTATION

- 10 **sloped Panel blinds** to adapt to the form of the external façade
- Use of a silver-anthracite coloured film with 2 % visible transmittance
- Aesthetic and calming façade elevation due to arch-shaped MULTIWAVE® pleating



REFERENCES

GERMANY | Allianz Campus, Berlin | Airbus, Hamburg | AOK, Berlin | Arcor, Stuttgart | BASF, Ludwigshafen | Bavarian Radio, Munich | Bavarian Red Cross, Augsburg | Bayernwerk AG, Regensburg | Berliner Congress Center | Berufsgenossenschaft Holz und Metall, Mainz | Blohm + Voss, Hamburg | Daimler VAN Technology Center, Stuttgart | Delphi, Wuppertal | Der Spiegel, Hamburg | German Weather Service, Munich | German Institute for Standardization (DIN), Berlin | German Museum, Munich | EnBW-City, Stuttgart | Eurocopter Germany, Donauwörth | European Patent Office, Munich | Tax office, Erding | Airports Schönefeld and Tegel, Berlin | Fraport AG, Frankfurt/Main | Giesecke & Devrient, Munich | Hafencity Sandtorkai, Hamburg | Hilton Munich Airport | HUK-Coburg, Berlin | Infraser, Frankfurt | Lufthansa City Line, Airport Cologne-Bonn | Aerospace Center, Berlin | Mainova AG, Frankfurt | MAN, Munich | MID, Nuremberg | NRW Bank, Düsseldorf | ORACLE Deutschland, Potsdam | PCI, Hamm | PSD Bank, Münster | RHEINZINK, Datteln | Schwarzkopf Henkel, Viersen | Savings bank KölnBonn, Cologne | Stadtwerke Bochum | Stadtwerke Unna | Thyssen-Krupp, Essen | Technical University Munich | University Hohenheim | Economics Department, Hamburg | Centre for Virtual Engineering (ZVE), Stuttgart

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LIECHTENSTEIN | Hilti Glasbau, Schaan

LUXEMBOURG | Cour De Justice, Luxembourg city | Espace Pétrusse-Îlot A, Luxembourg city | Espace Pétrusse-Le Dôme, Luxembourg city

FRANCE | Banque de France, Paris | EBP, Rambouillet | Mairie de Paris, Paris | Ministère de l'Économie et des Finances, Paris | Price Water, Versailles | Universal Music, Antony

GREAT BRITAIN | B&Q, Southampton | London Heathrow Airport | North Yorkshire Police Headquarters, Harrogate | Southampton International Airport

IRELAND | Dublin Airport | Shannon International Airport

AUSTRIA | BAWAG P.S.K., Vienna | Bosch, Vienna | Hellerpark, Vienna | Klingerpark, Gumpoldskirchen | Messecarree, Vienna | Millenium Tower, Vienna | North Station, Vienna | Post Parcel Center, Vienna | Seestadt Aspern, Vienna | TPA Zentrum, Graz | Residential park "The green wave", Vienna

SWITZERLAND | Public Transport Basel | CLS Behring AG, Bern | Coop, Basel | ETH Zurich | Fielmann, Basel | GEMINI, Wollerau | InfraPost AG, Basel | Google Switzerland | Migros Trading Cooperative, Zurich | Post-Finance, Bern | SUVA, Luzern | Swisscom, Bern | Swiss life, Zurich | Tamedia AG, Zurich

BULGARIA | Argogroup, Sofia

ROMANIA | Daikin, Bukarest | Harting, Sibiu | Kaufland, Bukarest | Laurentiu, Constanta

PORTUGAL | Visabeira Group, Palácio do Gelo, Viseu

LITHUANIA | Apskritis viršininko administracija, Vilnius | Klaipėdos Skuba, Klaipėda | Technologijos Universitetas, Kaunas

DENMARK | Glenco, Ålborg | Silhorko, Skanderborg | Stena Aluminium, Kolding

NORWAY | Bergen Museum, Bergen | Gardermoen Airport, Oslo | Greverud Kjøpesenter, Oppegård | Holmenkollen World Championship Center, Oslo | Hospital, Tromsø | Kjevik Airport, Kristiansand | Nedre Bekkelaget School, Oslo | Norwegian Defense Research Institute, Kjeller | Olav Thon Eiendomsselskap ASA | Sandane Airport | Sola Airport | Stena Drilling | Tromsø Airport | Ullevål University Hospital, Ullevål | University of Bergen | Værnes Airport, Trondheim | Vika Atrium, Oslo | VM-huset, Oslo

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UAE | Airport Dubai | Airport Abu Dhabi

MONGOLIA | Airport Ulan Bator

MALAYSIA | Menara Exxon-Mobile, Kuala Lumpur | Petronas Twin Towers, Kuala Lumpur

SINGAPORE | BASF | HarborFront & Keppel Bay Towers

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