

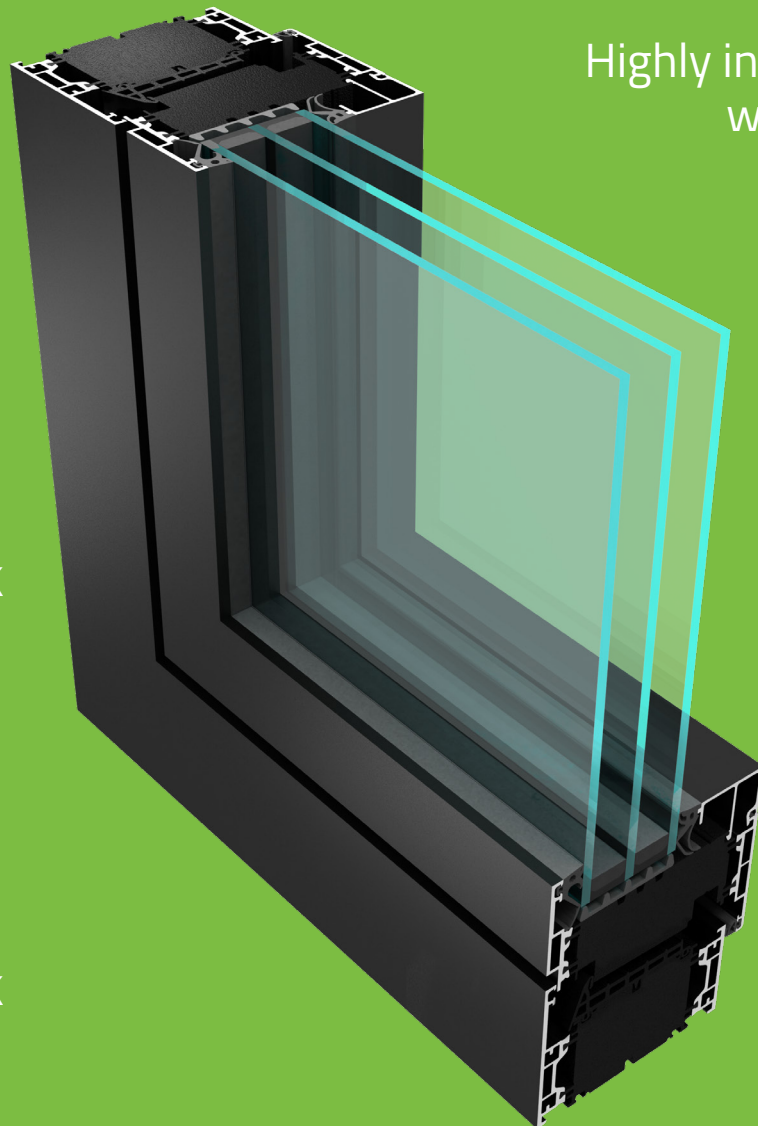


Tehokkaasti eristetty ikkunajärjestelmä

LK90 **eco**



Highly insulated
windows



Avattava ikkuna
Openable window
 $U_w = 0,68-0,75 \text{ W/m}^2\text{K}$

$U_f = 0,76-0,78 \text{ W/m}^2\text{K}$
 $U_g = 0,5-0,6 \text{ W/m}^2\text{K}$
1,23 x 1,48 m

Kiinteä ikkuna
Fixed window
 $U_w = 0,66-0,74 \text{ W/m}^2\text{K}$

$U_f = 0,78 \text{ W/m}^2\text{K}$
 $U_g = 0,5-0,6 \text{ W/m}^2\text{K}$
1,23 x 1,48 m

Tehokkaasti eristetty ikkunajärjestelmä

LK90 **eco**

Highly insulated windows

Käyttökohteita

- Sisäännavautuva ikkunat (ylä-/ ala-/ sivusaranoitu tai TBT- tai DK helat)
- Kiinteät ikkunat
- Ulosnavautuva ikkunat (ala- tai sivusaranoitu)
- Välikarmiton pari-ikkuna

Ominaisuuksia

- Lämpöeristetty alumiininen ikkunajärjestelmä
- Korkea lämmöneristävyys polyuretaaniblokin avulla
- Standardi-ikkunan U_w -arvo avattavalle ikkunalle jopa $0,67 \text{ W/m}^2\text{K}$ ja kiinteälle ikkunalle jopa $0,65 \text{ W/m}^2\text{K}$
- Karmisyvyys 90mm
- Piilosaranat
- Lasipaketin vahvuus avattavassa ikkunassa 29...78mm
- Lasipaketin vahvuus kiinteässä ikkunassa 25...68mm
- Profiilien pintakäsittelynä on yleensä anodisointi tai jauhemaalaus. Ulko- ja sisäpuoli voidaan tehdä erivärisiksi.
- Maksimaalinen energiansäästö
- Täyttää tulevaisuuden energiavaatimukset
- Vähäinen huollon tarve eliniän aikana
- Täysin kierrätettävissä
- Passive House Instituutin sertifioima tuote viileisiin ilmastoihin
- Murto suoja luokka RC2 EN 1627 mukaan mahdollinen
- CE-merkittävässä SFS-EN 14351-1 +A1 mukaan



Highly insulated window system

LK90

Highly insulated windows

Applications

- Inward opening windows (top/ bottom/ side hung, tilt-before-turn or tilt-and-turn)
- Fixed window
- Outward opening windows (bottom or side hung)
- Double window without center post (french casement window)

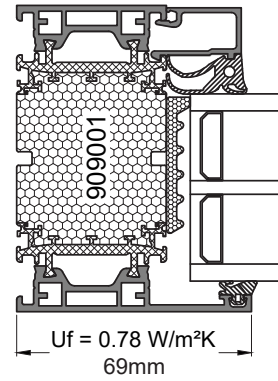
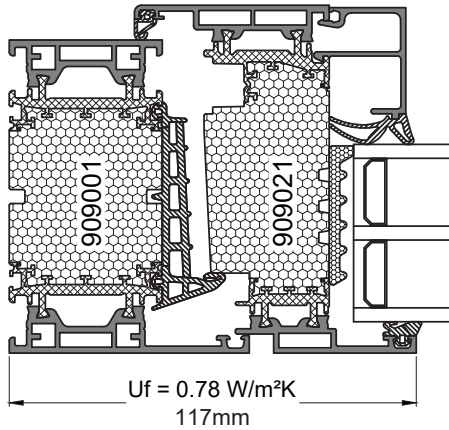
Features

- Highly insulated aluminium profile system
- High thermal insulation with polyurethane block
- U_w -value even 0,67 W/m²K with standard size openable window and 0,65 W/m²K with standard size fixed window
- 90 mm deep frame profiles
- Hidden hinges
- Glazing thickness 29...78mm (openable window)
- Glazing thickness 25...68mm (fixed window)
- Powder coated or anodized surface treatment. Different finishes of inside and outside possible.
- Maximum energy saving
- Meets future energy requirements
- Minimal care and maintenance required
- Completely recyclable
- Certified by Passive House Institute for cool-temperate areas
- Burglar resistance approved up to class RC2 according to EN 1627
- Possible to attach CE mark (EN 14351-1 +A1)



LK90eco IKKUNAJÄRJESTELMÄ
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**LK90eco U-ARVOJA ja OMINAISUUKSIA
LK90eco U-VALUES and PROPERTIES**


Uf = 0,78 W/m²K						
Purso LK90eco avautuva ikkuna / Purso LK90eco openable window (1230 x 1480 mm)						
	Lasin U_g-arvo [W/m²K] / Glazing U_g-value [W/m²K]					
		0,48	0,5	0,53	0,6	0,7
Eristyslasin välilistat IGU spacers	Ikkunan U_w-arvo [W/m²K] / Window U_w-value [W/m²K]					
Swisspacer ULTIMATE	0,65	0,66	0,68	0,73	0,80	0,87
TPS	0,67	0,68	0,70	0,75	0,82	0,89

Uf = 0,78 W/m²K						
Purso LK90eco kiinteä ikkuna / Purso LK90eco fixed window (1230 x 1480 mm)						
	Lasin U_g-arvo [W/m²K] / Glazing U_g-value [W/m²K]					
		0,48	0,5	0,53	0,6	0,7
Eristyslasin välilistat IGU spacers	Ikkunan U_w-arvo [W/m²K] / Window U_w-value [W/m²K]					
Swisspacer ULTIMATE	0,63	0,64	0,67	0,72	0,80	0,88
TPS	0,65	0,66	0,69	0,74	0,82	0,90

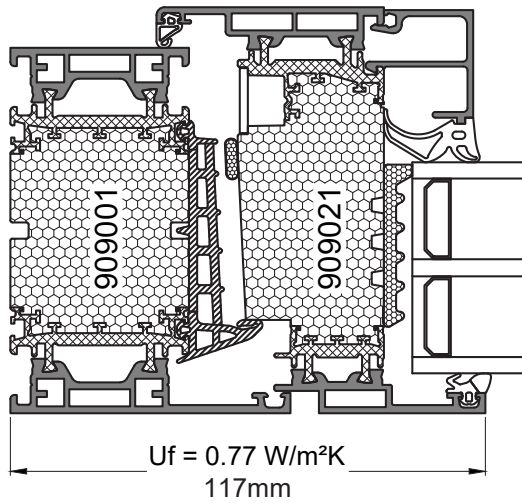
Sisäänpäin avautuvan ikkunan ominaisuuksia, testattu ikkunakoko 1760 x 2150 mm
Properties for inward opening window, tested window size 1760 x 2150 mm

• Tuulenpaineenkestävyys • Resistance to wind load	C5
• Sateenpitävyys • Watertightness	E1200
• Ilmanpitävyys • Air permeability	4

Sisäänpäin avautuvan ikkunan ominaisuuksia, testattu ikkunakoko 1650 x 1800 mm
Properties for inward opening window, tested window size 1650 x 1800 mm

• Murronestävyys (EN 1627) • Burglary resistance (EN 1627)	RC2 *)
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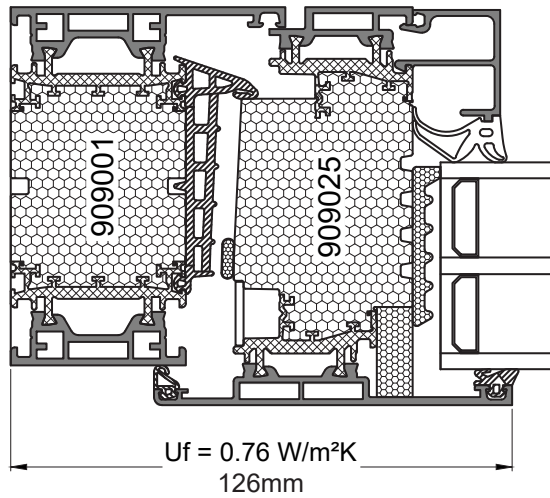
*) Kts. 8.1
*) See 8.1

LK90eco U-ARVOJA ja OMINAISUUKSIA
LK90eco U-VALUES and PROPERTIES


Purso LK90eco		U _g [W/m ² K]	U _w [W/m ² K]
Sisäännavautuva ikkuna 3k lasitus Swisspacer ULTIMATE 1230 x 1480 mm	Inward opening window 3 layer glazing Swisspacer ULTIMATE 1230 x 1480 mm	0,70	0,80
		0,64	0,76
		0,58	0,72
		0,52	0,68

Sisäänpäin avautuvan ikkunan ominaisuuksia
 Properties for inward opening window
 (ikkunakoko / window size 1760 x 2150 mm)

• Tuulenpaineenkestävyys • Resistance to wind load	C5
• Sateenpitävyys • Watertightness	E1200
• Ilmanpitävyys • Air permeability	4

LK90eco U-ARVOJA ja OMINAISUUKSIA
LK90eco U-VALUES and PROPERTIES


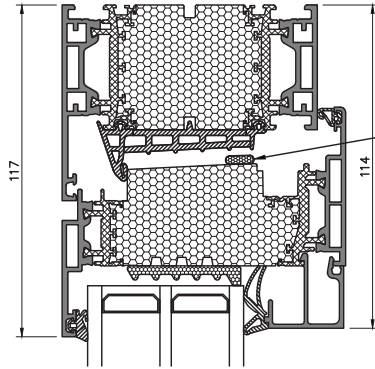
Purso LK90eco		U _g [W/m ² K]	U _w [W/m ² K]
Ulosavautuva ikkuna 3k lasitus Swisspacer ULTIMATE 1230 x 1480 mm	Outward opening window	0,70	0,80
	3 layer glazing	0,64	0,76
	Swisspacer ULTIMATE	0,58	0,72
	1230 x 1480 mm	0,52	0,68

Ulospäin avautuvan ikkunan ominaisuuksia
 Properties for outward opening window
 (ikkunakoko / window size 1230 x 1480 mm)

• Tuulenpaineenkestävyys • Resistance to wind load	C4
• Sateenpitävyys • Watertightness	E1650
• Ilmanpitävyys • Air permeability	4

PASSIIVITALOTIIVISTE, ESIMERKKEJÄ
PASSIVE HOUSE GASKET, EXAMPLES

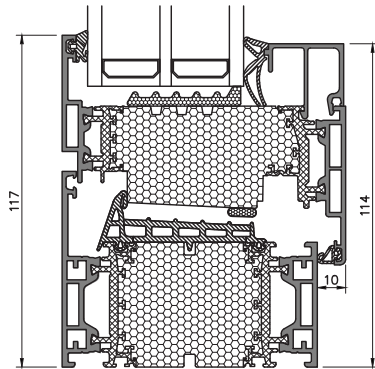
Sisäännavautuva ikkuna
 Inward opening window



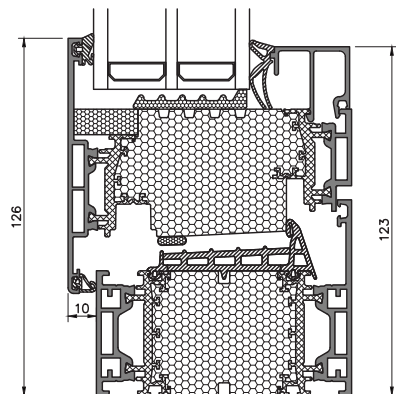
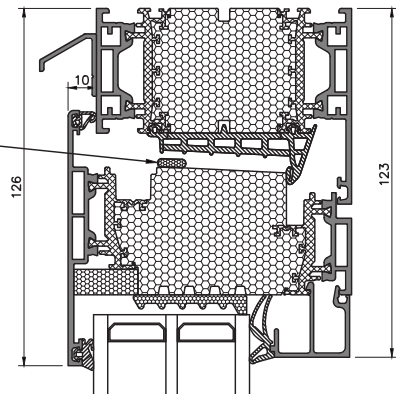
ECO QLON
 (QL3126)



Ulosnavautuva ikkuna
 Outward opening window



ECO QLON
 (QL3126)



Passiivitalotiiviste ECO QLON (QL3126).
 Tiiviste passiivitalon sertifiointia varten.

Passive House gasket ECO QLON (QL3126).
 Gasket for Passive House certificate.

LK90eco ÄÄNENERISTÄVYYYS
LK90eco DETERMINATION OF SOUND

LK90eco ikkunoiden ääneneristävyys perustuen ääneneristävyystesteihin

(ikkunoille, joiden $R_w \geq 39$ dB tai $R_w + C_{tr} \geq 35$ dB):

LK90eco windows determination of sound insulation based on sound insulation testing

(for windows $R_w \geq 39$ dB or $R_w + C_{tr} \geq 35$ dB):

Ikkunatyyppi Window type	Testattu lasitus Tested glazing	Lasin ominaisuudet IGU performance		R_w [dB]	$R_w + C$ [dB]	$R_w + C_{tr}$ [dB]
		R_w	$R_w + C_{tr}$			
Sisäänaukeava Inward opening	3k 6-14-4-14-4	36 dB	30 dB	38	35	31
Sisäänaukeava Inward opening	3k 8-14-4-14-4	37 dB	31 dB	40	38	34
Sisäänaukeava Inward opening	3k VSG8-14-4-14-6	43 dB	36 dB	43	40	36
Sisäänaukeava Inward opening	3k VSG12-14-6-14 -VSG8	50 dB	44 dB	46	45	42

Testauksesta saatuja arvoja voidaan käyttää lasielementeille, joissa on erilainen lasitus, mutta lasipaketin äänitekniset ominaisuudet ovat vastaavat tai paremmat kuin testatussa lasituksessa.

Values obtained from the tests can be used for window elements with different glazing if the performance of the used IGU is equivalent or better than tested.

Testitulosten ekstrapolointi eri kokoisille ikkunoille:

Extrapolation of the test results for different size windows:

Termi Properties	Ikkunan kokonaisala / Total are of window			
	$A \leq 2,7$ m ²	$2,7$ m ² < $A \leq 3,6$ m ²	$3,6$ m ² < $A \leq 4,6$ m ²	$4,6$ m ² < A
R_w ; $R_w + C$ ja $R_w + C_{tr}$	- 0 dB	- 1 dB	- 2 dB	- 3 dB

R_w Ilmaääneneristysluku

$R_w + C$ Lentoliikennemelu (nopeiden junien äänet, teollisuusmelu, korkea ja keskitaajuus)

$R_w + C_{tr}$ Liikennemelu (hitaiden junien äänet, teollisuusmelu, matala ja keskitaajuus)

R_w Sound reduction index

$R_w + C$ Jet aircraft noise, sounds of fast trains, industrial noise (high and mid frequency)

$R_w + C_{tr}$ Traffic noise, sounds of slow trains, industrial noise (low and mid frequency)

LK90eco ÄÄNENERISTÄVYYS LK90eco DETERMINATION OF SOUND

LK90eco ikkunoiden ääneneristävyys perustuen eristyslaselementin tietoihin standardin EN 14 351-1 liitteen B mukaan (ikkunoille, joiden $R_w < 39$ dB tai $R_w + C_{tr} < 35$ dB):

LK90eco windows determination of sound insulation based on IGU data according to standard EN 14 351-1 annex B (for windows $R_w < 39$ dB or $R_w + C_{tr} < 35$ dB):

R_w Ilmaääneneristysluku

$R_w + C$ Lentoliikennemelu (nopeiden junien äänet, teollisuusmelu, korkea ja keskitaajuus)

R_w Sound reduction index

$R_w + C$ Jet aircraft noise, sounds of fast trains, industrial noise (high and mid frequency)

	Eristyslasin R_w [dB] / IGU R_w [dB]								
	27	28	29	30	32	34	36	38	40
Ikkunan kokonaisala Total area of window	Ikkunan R_w [dB] / Window R_w [dB]								
$A \leq 2,7$ m ²	30	31	32	33	34	35	36	37	38
$2,7$ m ² < $A \leq 3,6$ m ²	29	30	31	32	33	34	35	36	37
$3,6$ m ² < $A \leq 4,6$ m ²	28	29	30	31	32	33	34	35	36
$4,6$ m ² < A	27	28	29	30	31	32	33	34	35

Ikkunan $R_w + C =$ ikkunan $R_w - 1$ dB

$R_w + C_{tr}$ Liikennemelu (hitaiden junien äänet, teollisuusmelu, matala ja keskitaajuus)

$R_w + C_{tr}$ Traffic noise, sounds of slow trains, industrial noise (low and mid frequency)

	Eristyslasin $R_w + C_{tr}$ [dB] / $R_w + C_{tr}$								
	24	25	26	27	28	30	32	34	36
Ikkunan kokonaisala Total area of window	Ikkunan $R_w + C_{tr}$ [dB] / Window $R_w + C_{tr}$ [dB]								
$A \leq 2,7$ m ²	26	27	28	29	30	31	32	33	34
$2,7$ m ² < $A \leq 3,6$ m ²	25	26	27	28	29	30	31	32	33
$3,6$ m ² < $A \leq 4,6$ m ²	24	25	26	27	28	29	30	31	32
$4,6$ m ² < A	23	24	25	26	27	28	29	30	31

Esimerkki CE-merkinnästä / CE-marking example:

Ikkunaelementin kokonaisala (A) 1,5 m x 2,0 m = 3,0 m², eristyslasin $R_w = 36$ dB ja $R_w + C_{tr} = 32$ dB.
Total area of window (A) 1,5 m x 2,0 m = 3,0 m², IGU $R_w = 36$ dB and $R_w + C_{tr} = 32$ dB.

Taulukoiduista arvoista / From tabulated data:

Ikkuna / Window:

R_w	= 35 dB
$R_w + C$	= 34 dB (35 dB - 1 dB = 34 dB)
$R_w + C_{tr}$	= 31 dB

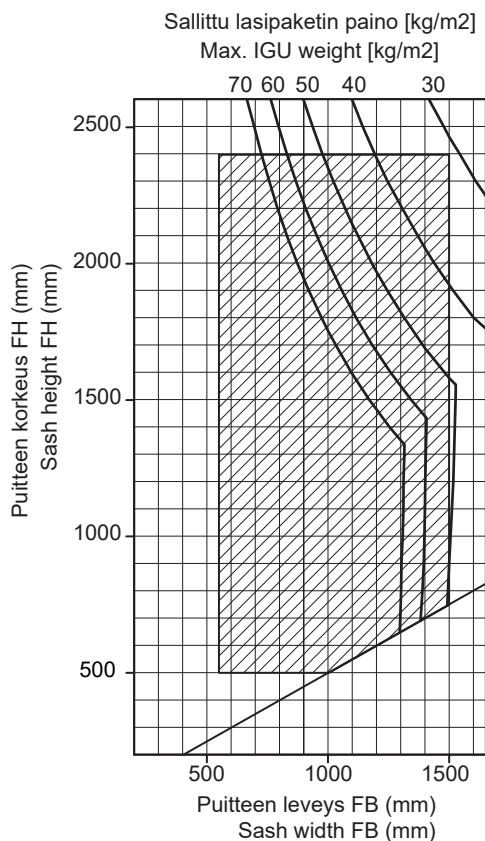
CE-merkintä / CE-marking:

R_w (C; C_{tr}) **35 (-1; -4) dB**

**HELAT JA SARANAT, SISÄÄNAVAUTUVAT IKKUNAT
HARDWARE AND HINGES, INWARD OPENING WINDOW**

SIVUSARANOITU IKKUNA PIILOSARANOILLA
SIDEHUNG WINDOW WITH HIDDEN HINGES

ECO SH - VV



Suosittelava puitteen enimmäispaino 130 kg
Recommended maximum weight of sash 130 kg

Saranoiden kätsisyys (RH tai LH),
puitteen (tai karmin) ulkomitat sekä
painikkeen väri mainittava heloja tilatessa.

Side of the hinges (RH or LH),
outer dimensions of sash (or frame)
and colour of handle must be mentioned
when hardware is ordered.

Saranoiden kätsisyys:
Side of the hinges:



VASENKÄTINEN IKKUNA - LH
HINGES ON LEFT - LH
(view from hinge side)

OIKEAKÄTINEN IKKUNA - RH
HINGES ON RIGHT - RH
(view from hinge side)

**HELAT JA SARANAT, SISÄÄNAVAUTUVAT IKKUNAT
HARDWARE AND HINGES, INWARD OPENING WINDOW**

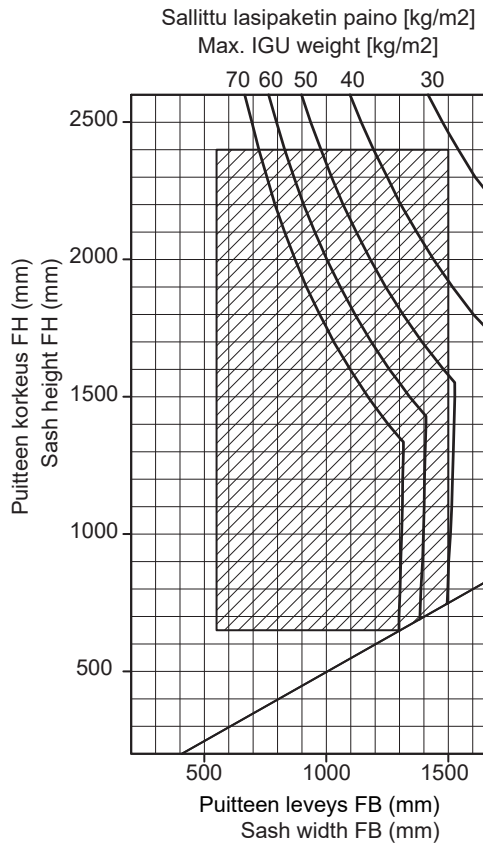
**KIPPI ENNEN KÄÄNTÖÄ IKKUNA PIILOSARANOILLA
TILT-BEFORE-TURN WINDOW WITH HIDDEN HINGES**

ECO TBT-VV

1.



2.



Suosittelava puitteen enimmäispaino 130 kg
Recommended maximum weight of sash 130 kg

Saranoiden kätsisyys (RH tai LH),
puitteen (tai karmin) ulkomitat sekä
painikkeen väri mainittava heloja tilatessa.

Side of the hinges (RH or LH),
outer dimensions of sash (or frame)
and colour of handle must be mentioned
when hardware is ordered.

Saranoiden kätsisyys:
Side of the hinges:



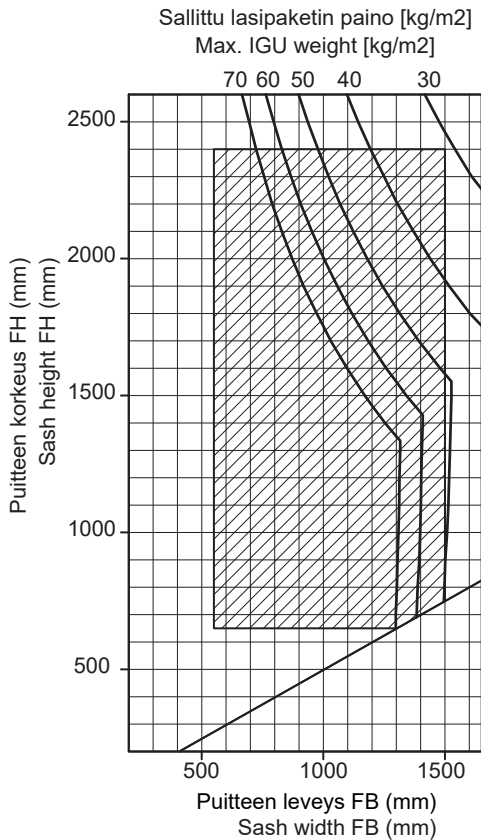
VASENKÄTINEN IKKUNA - LH
HINGES ON LEFT - LH
(view from hinge side)

OIKEAKÄTINEN IKKUNA - RH
HINGES ON RIGHT - RH
(view from hinge side)

**HELAT JA SARANAT, SISÄÄNAVAUTUVAT IKKUNAT
HARDWARE AND HINGES, INWARD OPENING WINDOW**

**KÄÄNTÖ-KIPPI-IKKUNA PIILOSARANOILLA
TILT-AND-TURN WINDOW WITH HIDDEN HINGES**

ECO DK-VV



1.



2.



Suosittava puitteen enimmäispaino 130 kg
Recommended maximum weight of sash 130 kg

Saranoiden käisyys (RH tai LH),
puitteen (tai karmin) ulkomitat sekä
painikkeen väri mainittava heloja tilatessa.

Side of the hinges (RH or LH),
outer dimensions of sash (or frame)
and colour of handle must be mentioned
when hardware is ordered.

Saranoiden käisyys:
Side of the hinges:



VASENKÄTINEN IKKUNA - LH
HINGES ON LEFT - LH
(view from hinge side)

OIKEAKÄTINEN IKKUNA - RH
HINGES ON RIGHT - RH
(view from hinge side)

**HELAT JA SARANAT, SISÄÄNAVAUTUVAT IKKUNAT
HARDWARE AND HINGES, INWARD OPENING WINDOW**

ALASARANOITU IKKUNA PIILOSARANOILLA
BOTTOM HUNG WINDOW WITH HIDDEN HINGES

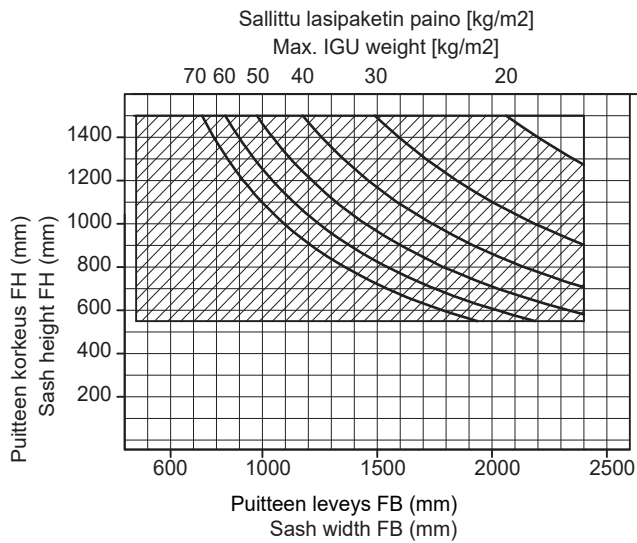
ECO BH – VV



Puitteen enimmäispaino 80 kg
Maximum weight of sash 80 kg

Puitteen (tai karmin) ulkomitat sekä
painikkeen väri mainittava heloja tilatessa.

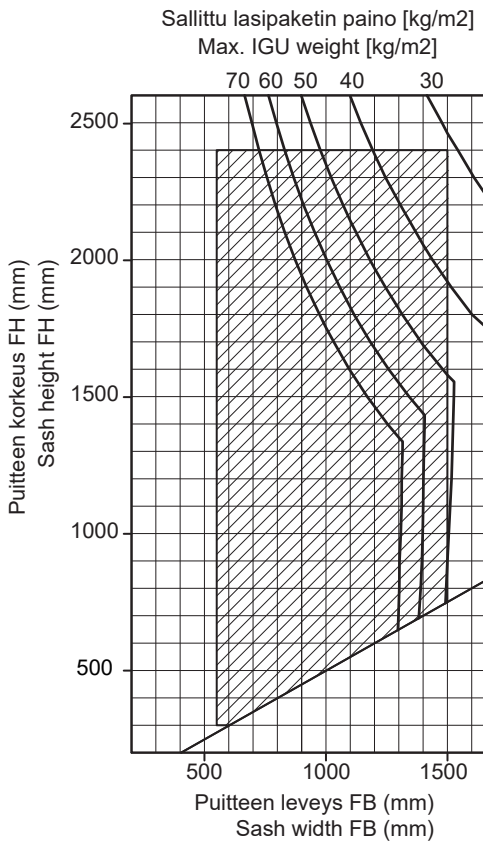
Outer dimensions of sash (or frame)
and colour of handle must be mentioned
when hardware is ordered.



**HELAT JA SARANAT, ULOSAVAUTUVAT IKKUNAT
HARDWARE AND HINGES, OUTWARD OPENING WINDOW**

SIVUSARANOITU IKKUNA PIILOSARANOILLA, ULOSAVAUTUVA
SIDEHUNG WINDOW WITH HIDDEN HINGES, OUTWARD OPENING

ECO SHO-VV



Suosittelava puitteen enimmäispaino 130 kg
Recommended maximum weight of sash 130 kg

Saranoiden kätsisyys (RH tai LH),
puitteen (tai karmin) ulkomitat sekä
painikkeen väri mainittava heloja tilatessa.

Side of the hinges (RH or LH),
outer dimensions of sash (or frame)
and colour of handle must be mentioned
when hardware is ordered.

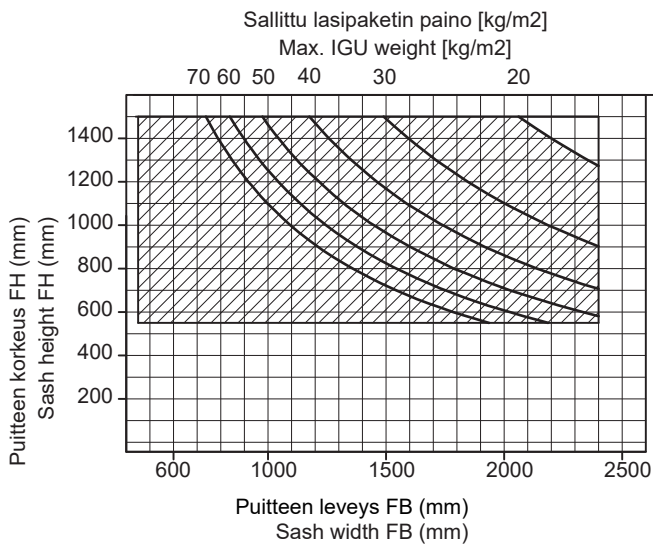
Saranoiden kätsisyys:
Side of the hinges:



VASENKÄTINEN IKKUNA - LH
HINGES ON LEFT - LH
(view from hinge side)



OIKEAKÄTINEN IKKUNA - RH
HINGES ON RIGHT - RH
(view from hinge side)

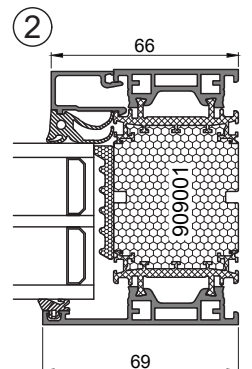
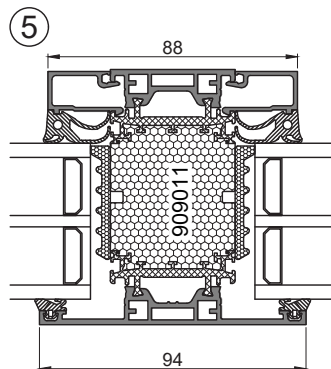
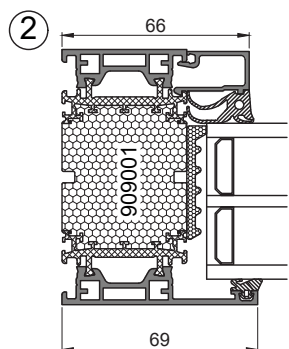
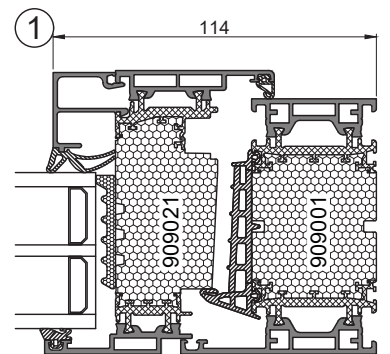
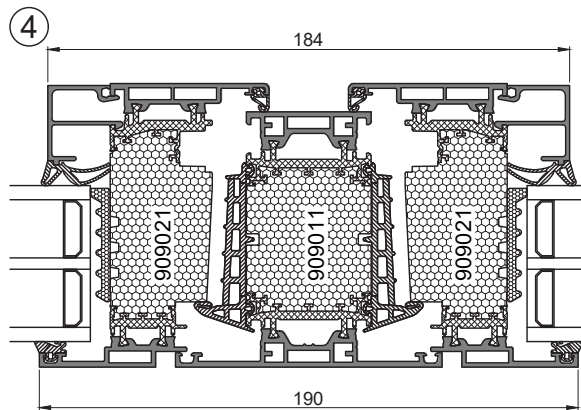
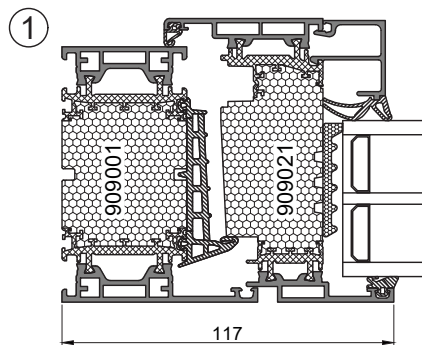
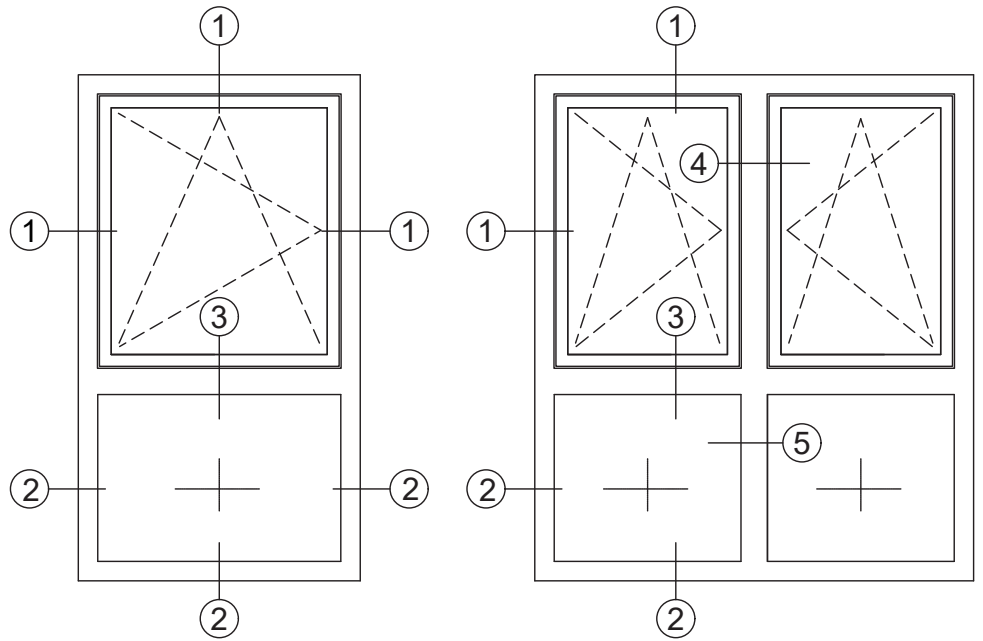
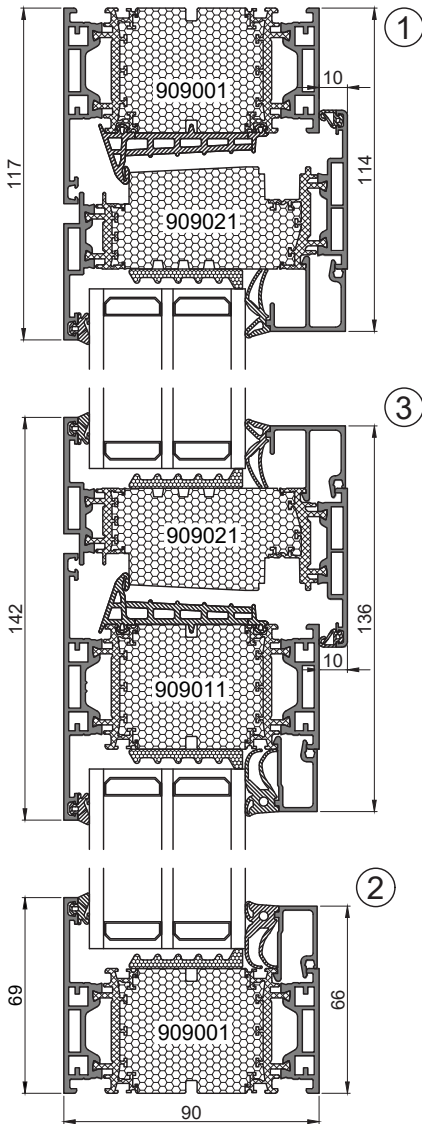
**HELAT JA SARANAT, ULOSVAUTUVAT IKKUNAT
 HARDWARE AND HINGES, OUTWARD OPENING WINDOW**
**ALASARANOITU IKKUNA PIILOSARANOILLA, ULOSVAUTUVA
 BOTTOM HUNG WINDOW WITH HIDDEN HINGES, OUTWARD OPENING**
ECO BHO - VV


Puitteen enimmäispaino 80 kg
 Maximum weight of sash 80 kg

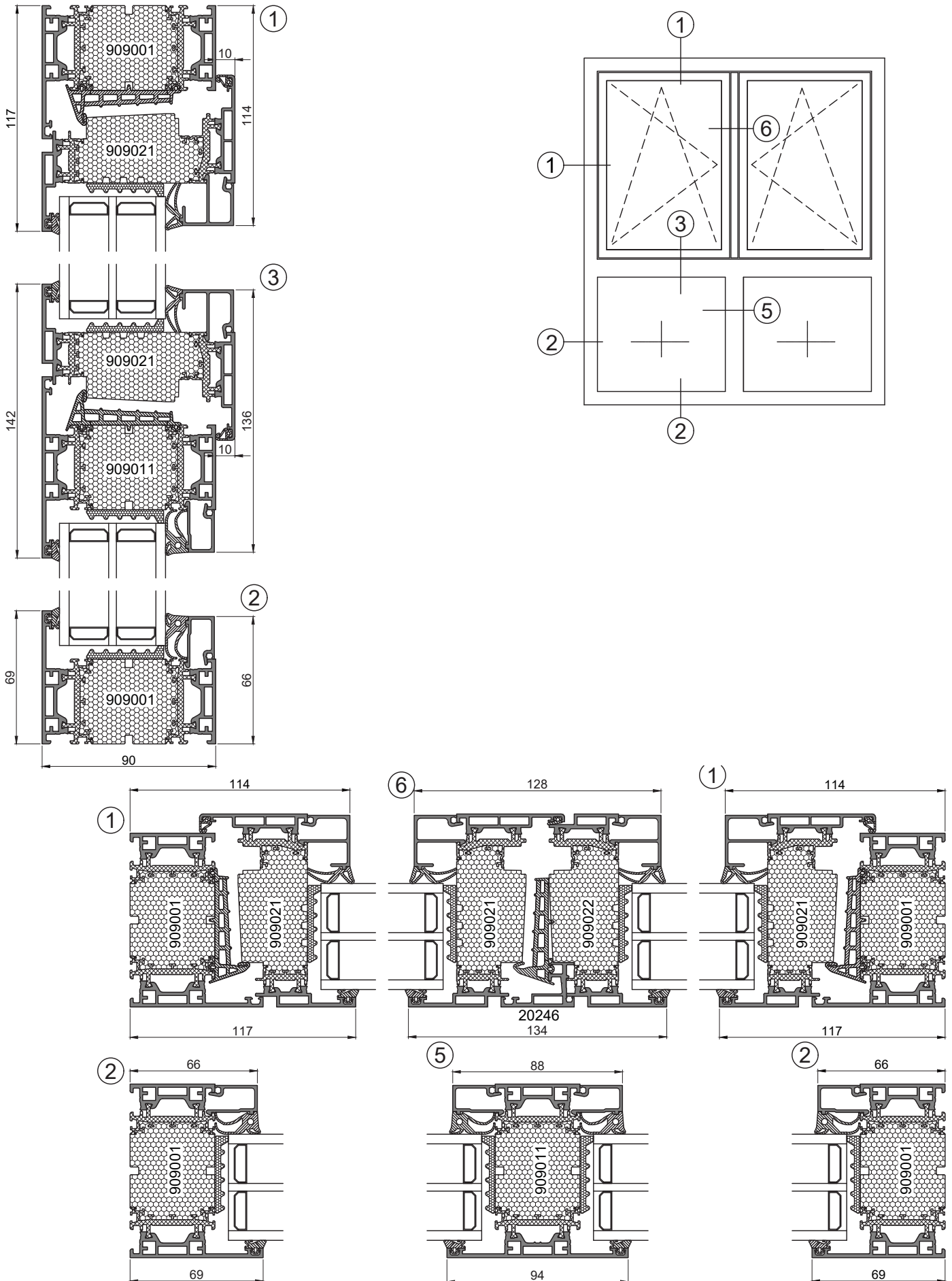
Saranoiden kätsisyys (RH tai LH),
 puitteen (tai karmin) ulkomitat sekä
 painikkeen väri mainittava heloja tilatessa.

Side of the hinges (RH or LH),
 outer dimensions of sash (or frame)
 and colour of handle must be mentioned
 when hardware is ordered.

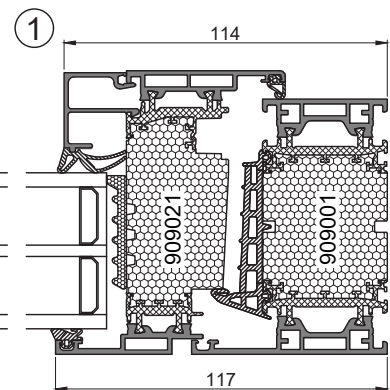
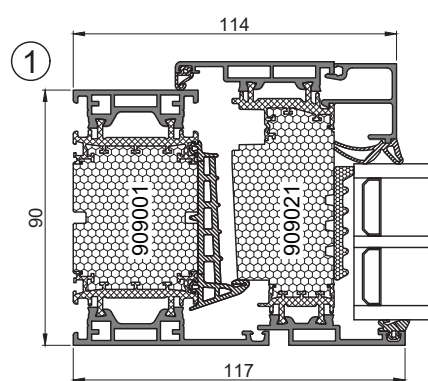
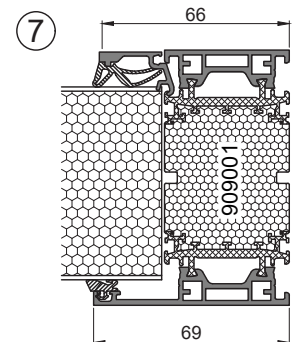
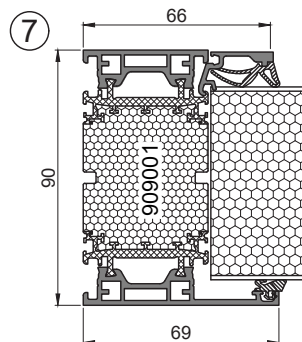
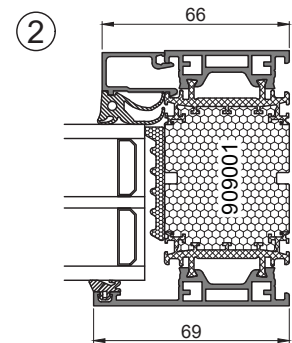
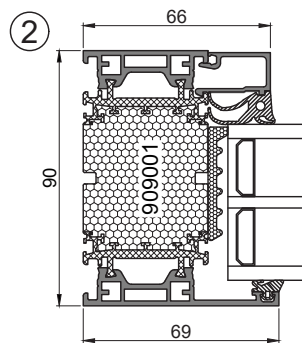
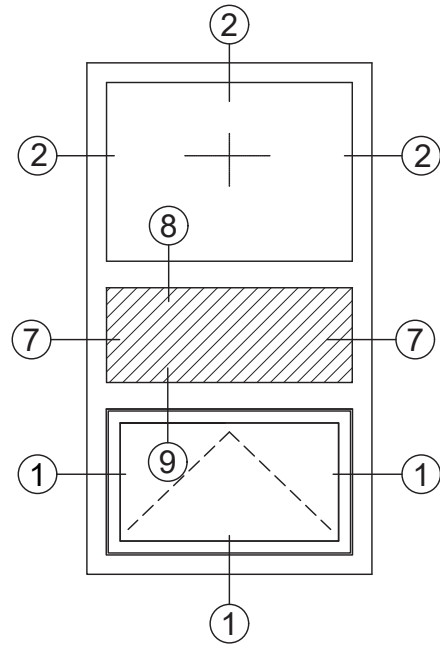
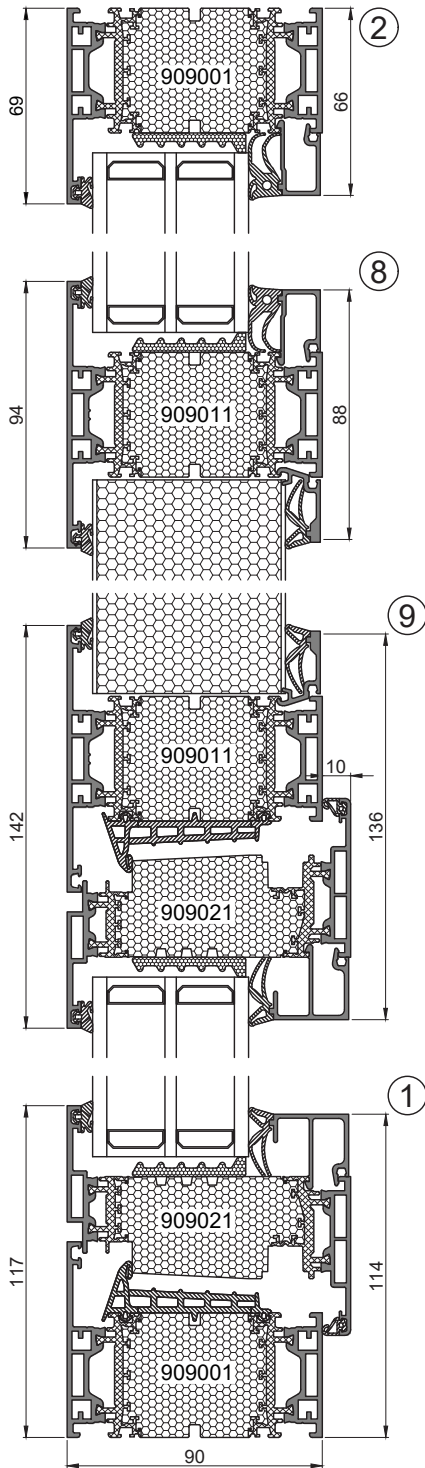
**SISÄÄNAVAUTUVA IKKUNA
INWARD OPENING WINDOW**



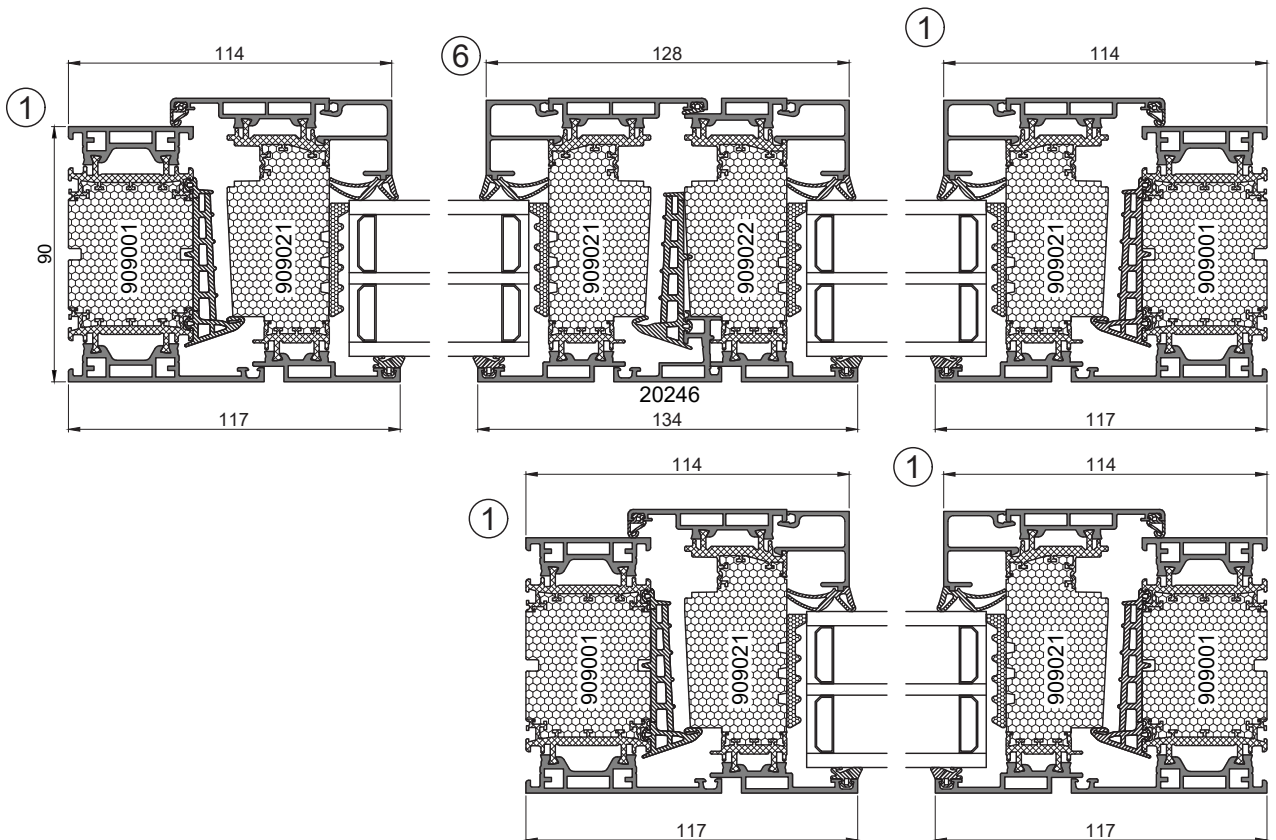
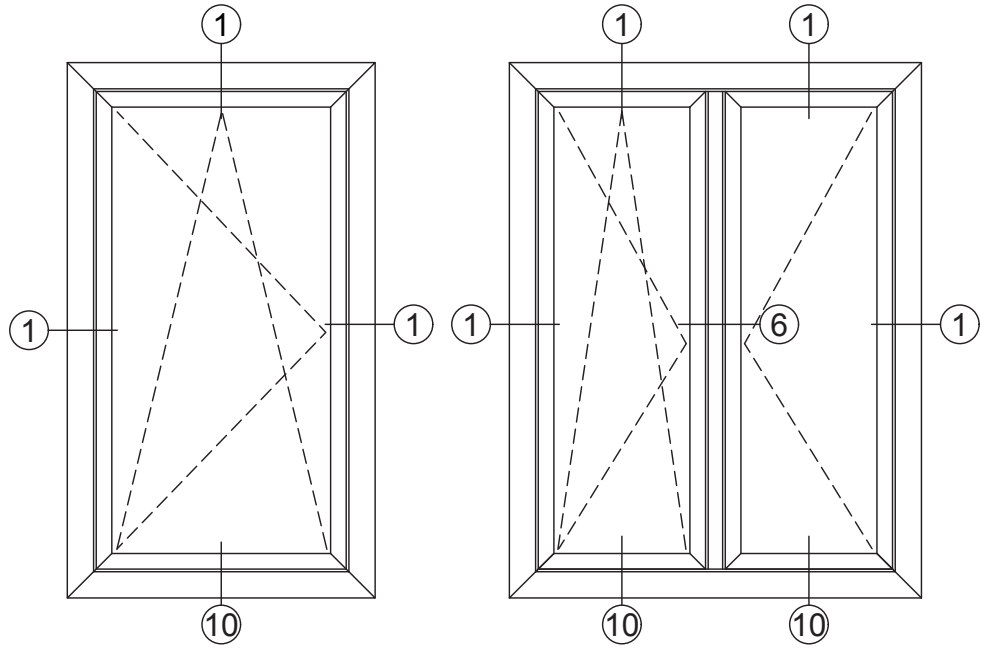
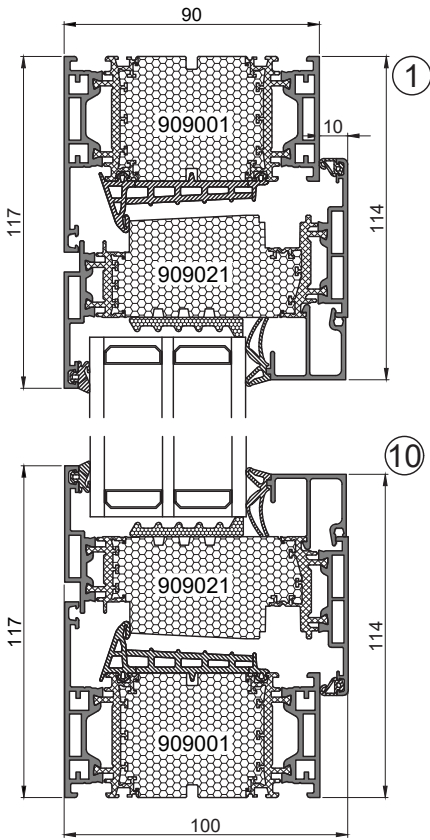
SISÄÄNAVAUTUVA PARI-IKKUNA ILMAN VÄLIKARMIA
INWARD OPENING DOUBLE WINDOW WITHOUT MIDDLE POST



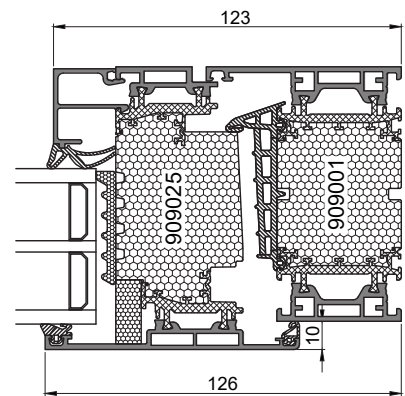
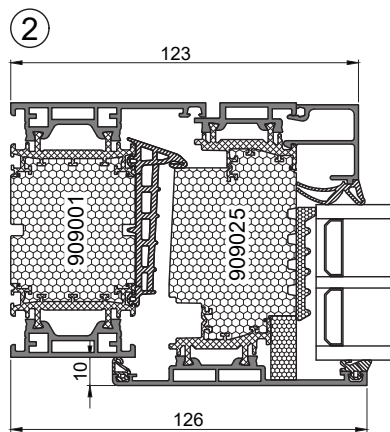
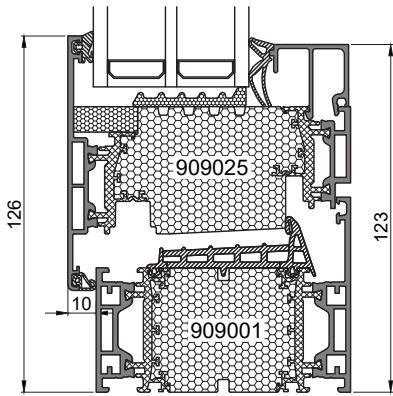
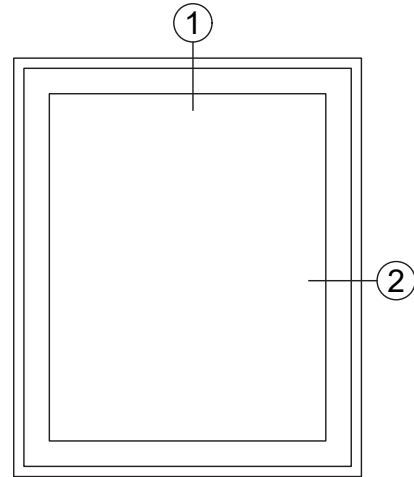
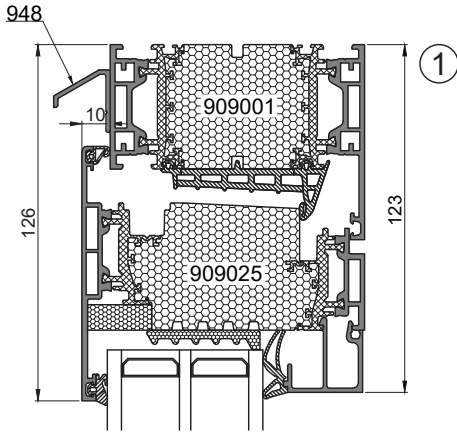
**KIINTEÄ JA ALASARANOITU IKKUNA
FIXED AND BOTTOM HUNG WINDOW**

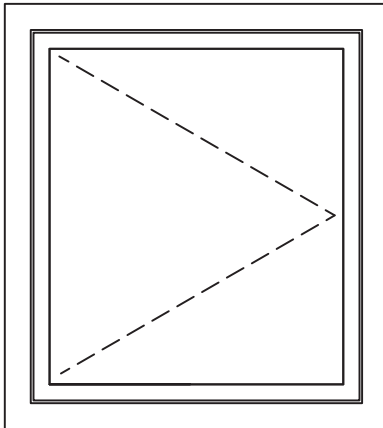
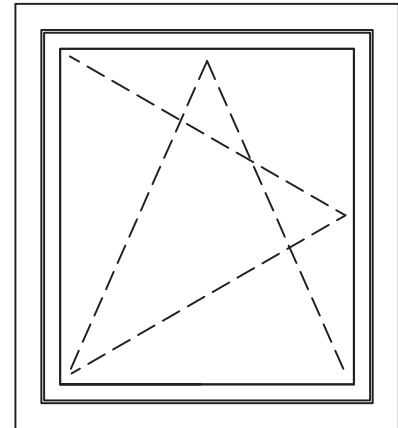


**RANSKALAINEN IKKUNA
FRENCH CASEMENT WINDOW**



ULOSAVAUTUVA IKKUNA
OUTWARD OPENING WINDOW



LK90eco MURTOSUOJALUOKKA RC2
LK90eco BURGLARY RESISTANCE CLASS RC2**SIVUSARANOITU IKKUNA PIILOSARANOILLA**
SIDEHUNG WINDOW WITH HIDDEN HINGES**KÄÄNTÖ-KIPPI-IKKUNA PIILOSARANOILLA**
TILT-AND-TURN WINDOW WITH HIDDEN HINGES**ECO SH - VV****ECO DK-VV**

RC 2 murtosuojaaluokka on mahdollinen sivusaranoituna tai kääntö-kippi ikkunana, piilosaranat

Heloitus Siegenia Titan AF 24+ RC2

Painike RC2 luokituksen mukaan (Lukittava painikemalli ja kestävyys 100Nm)

Lasitus P4A (EN 356) ja lasin asennus/kiinnitys RC lasitusohjeiden mukaan

RC2 murtosuojaaluokassa ikkunan sallittu maksimikoko huomioitava erikseen ohjeiden mukaan

RC2 burglar resistance class can be sidehung window with hidden hinges or tilt-and-turn window with hidden hinges

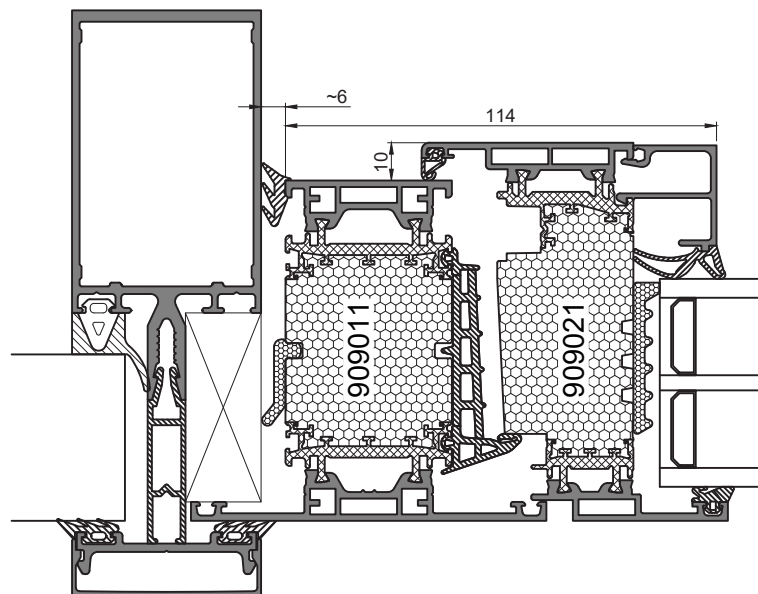
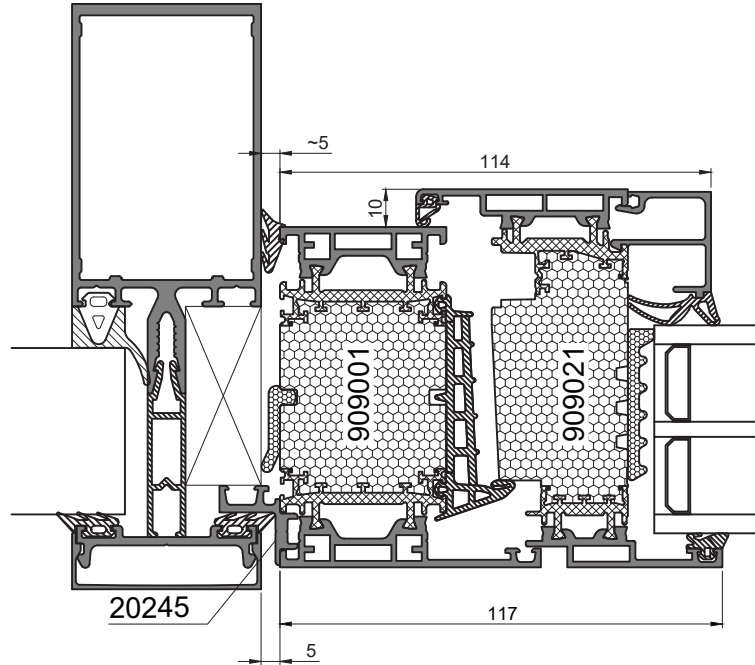
Hardware Siegenia Titan AF 24+ RC2 must be used.

Handle according to RC2 class (lockable and 100Nm)

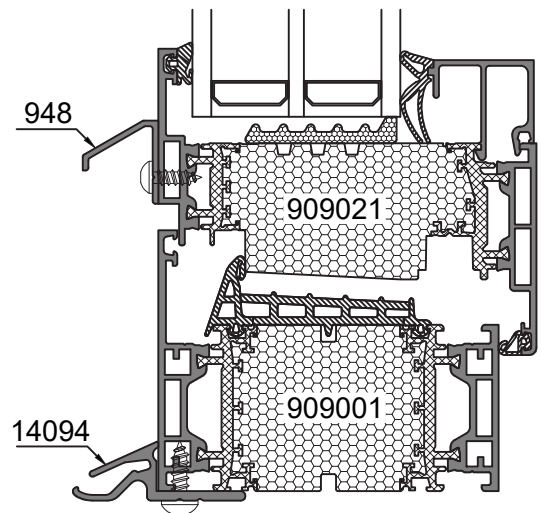
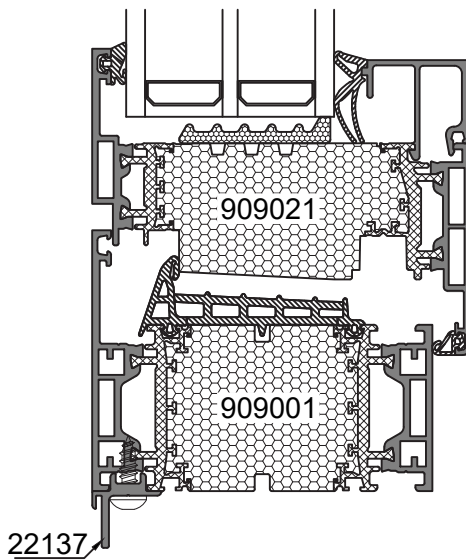
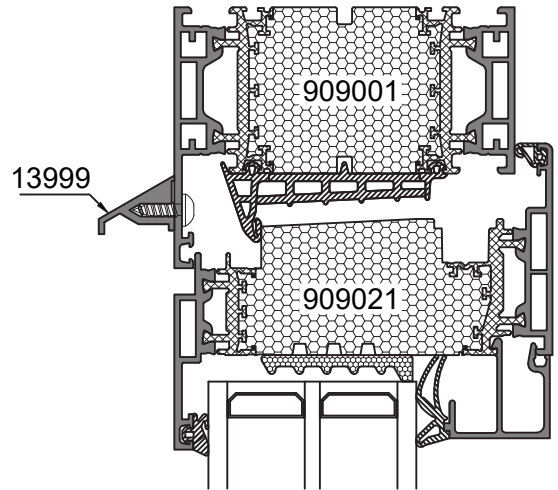
Glazing P4A (EN 356) and according RC2 glazing instructions

RC2 class window size is limited. Maximum size according instructions

LK90eco IKKUNOIDEN LIITTÄMINEN P50L-SARJAAN
JOINING LK90eco WINDOWS TO P50L-SERIE



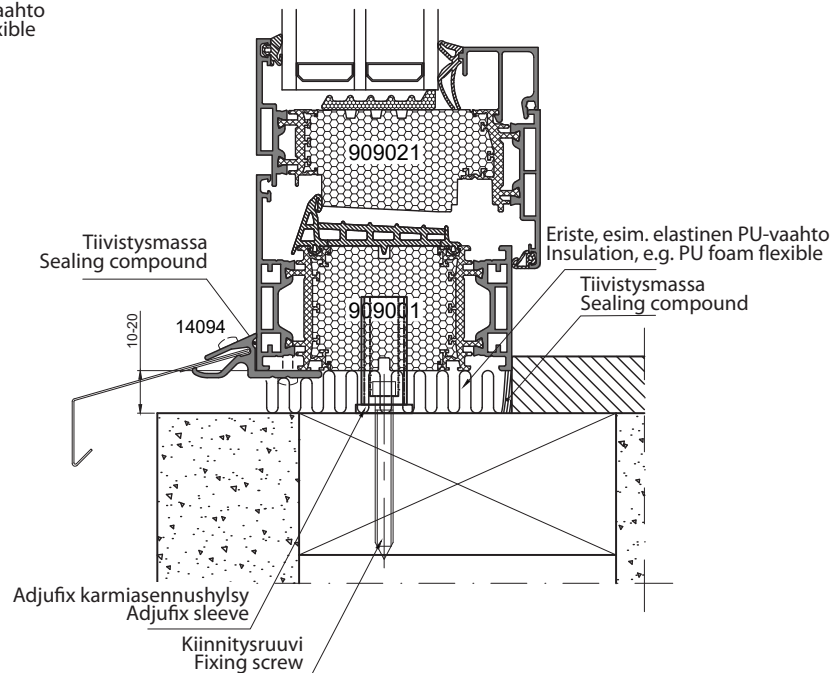
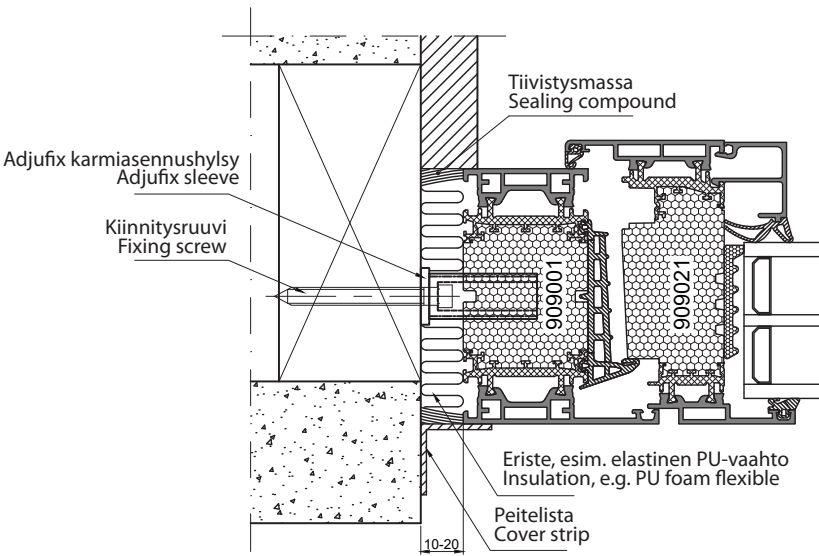
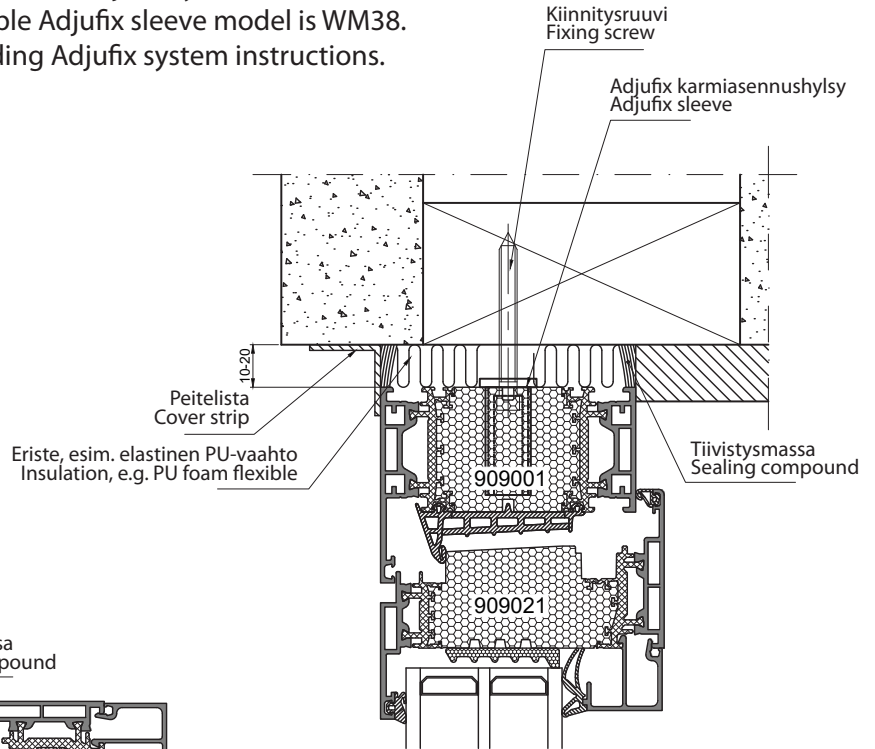
LK90eco IKKUNOIDEN TARVIKEPROFIILIT
ACCESSORY PROFILES FOR LK90eco WINDOWS



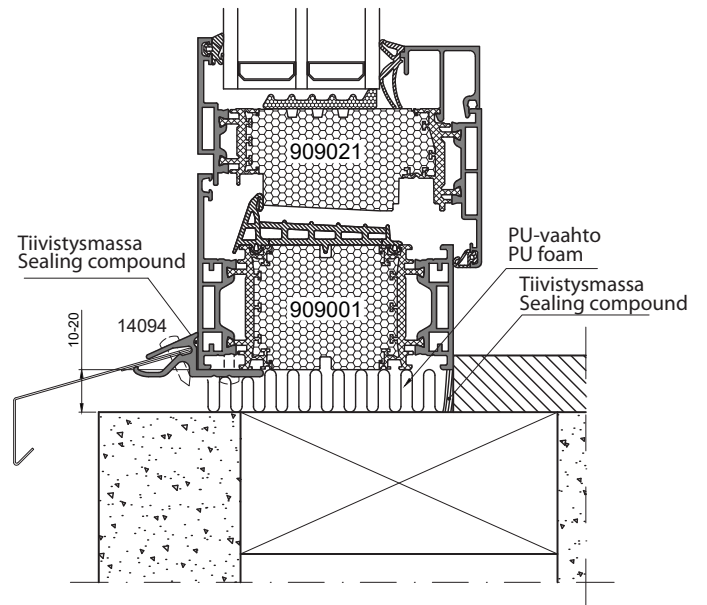
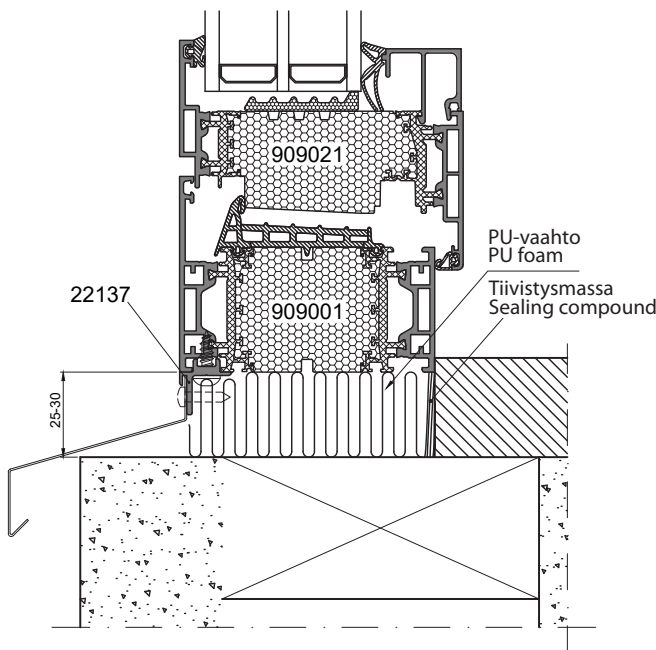
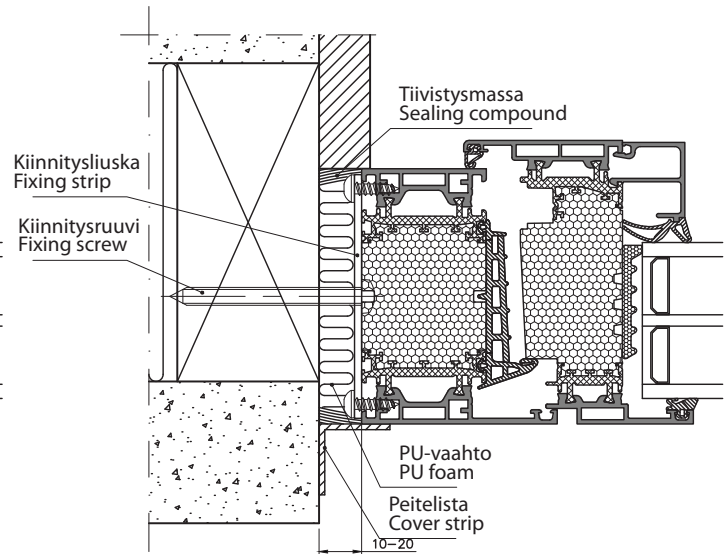
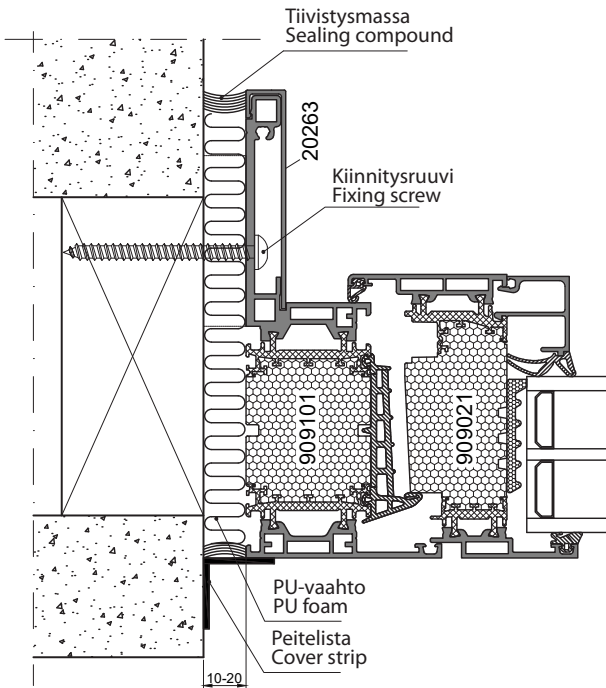
LIITTÄMINEN RAKENNUSRUNKOON, ESIMERKKEJÄ MOUNTING TO BUILDING FRAME, EXAMPLES

Asennuksessa on suositeltavaa käyttää Adjufix asennusmenetelmää.
Purso LK90eco ikkunoille soveltuva Adjufix karmihylsymalli on WM38.
Kiinnitysruuvit valitaan Adjufix järjestelmän ohjeiden mukaan.

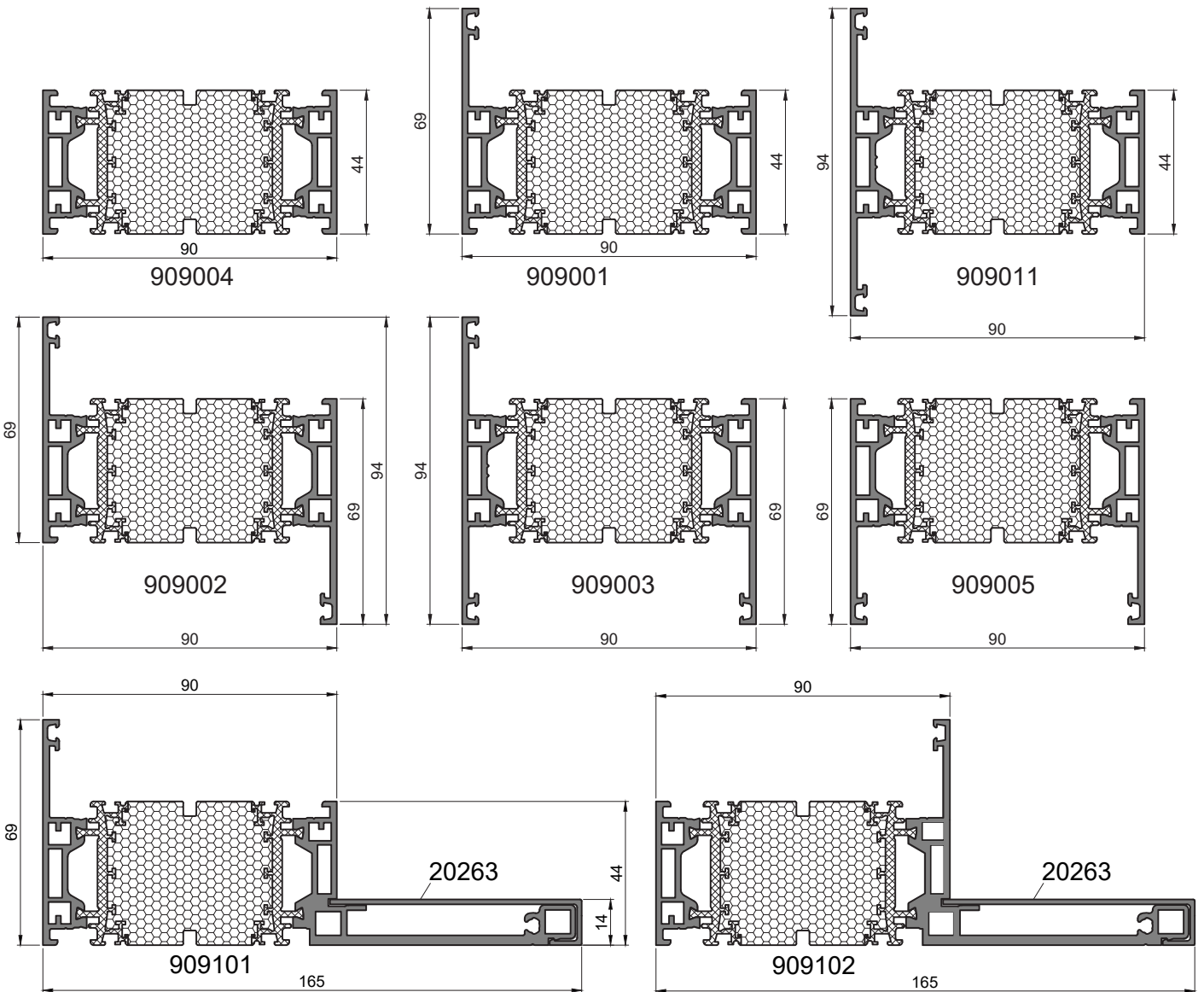
Mounting is recommendable to do with Adjufix system.
For Purso LK90eco products suitable Adjufix sleeve model is WM38.
Choose screw for fastening according Adjufix system instructions.



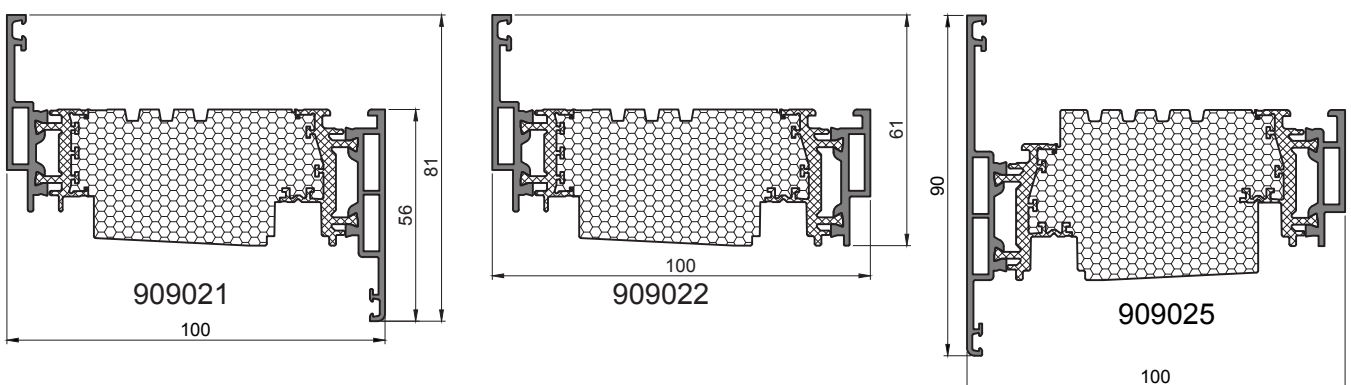
LIITTÄMINEN RAKENNUSRUNKOON, ESIMERKKEJÄ
MOUNTING TO BUILDING FRAME, EXAMPLES



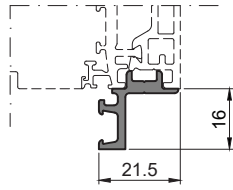
RUNKOPROFILIT
FRAME PROFILES



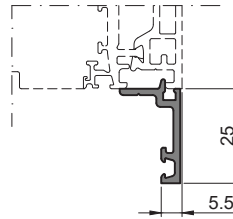
IKKUNAPROFILIT
WINDOW PROFILES



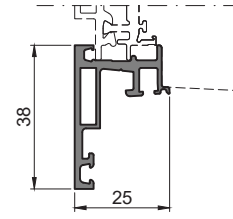
**LISÄPROFIILIT
ADDITIONAL PROFILES**



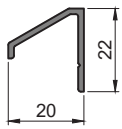
20245



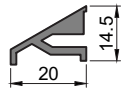
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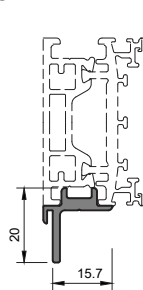
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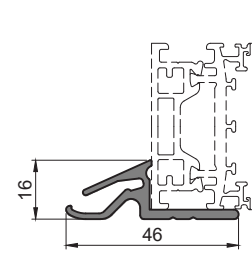
0948



13999

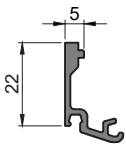


22137

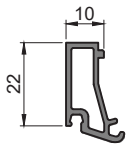


14094

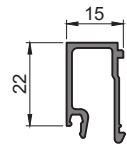
**LASITUSLISTAT
GLAZING BEADS**



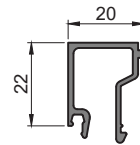
20247



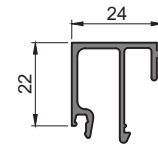
20248



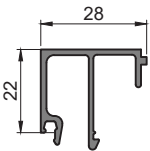
20249



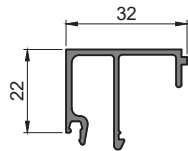
20250



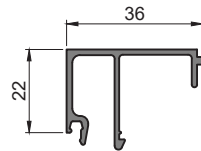
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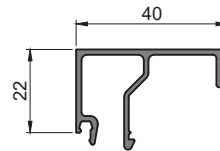
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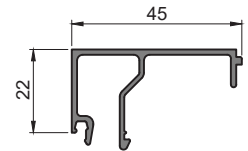
20243



20244



20251



20252

**TIIVISTEET
GASKETS**



ECO 770 004



ECO 770 111



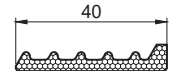
ECO 770 109



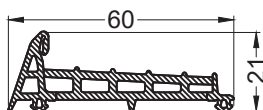
ECO 770 107



PE 1



PE 2



ECO PT90



ECO 770 001



DX 782



ECO 770 017

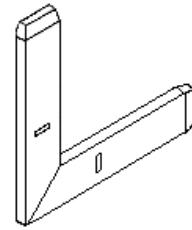


ECO QLON

TARVIKKEET
ACCESSORIES

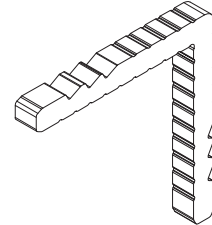
JIIRILIITOSKAPPALE
MITRE JOINT PIECE

ECO 785 015



JIIRILIITOSKAPPALE PROFIILILLE 757101
MITRE JOINT PIECE FOR PROFILE 757101

JL16300/7,1



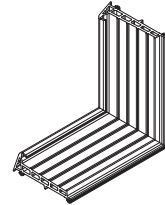
KULMATIIVISTYSKAPPALE
SEALING PIECE

ECO 770 305



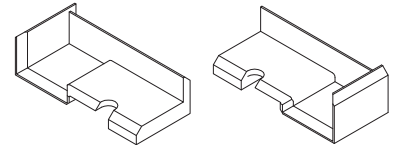
TIIVISTEKULMA
SEALING PIECE

PTECO090 kulmapala



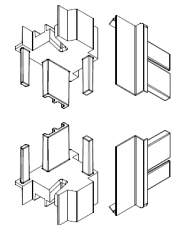
T-LIITOKSEN TIIVISTYSKAPPALE
SEALING PIECE

ECO 770 308 (R+L)



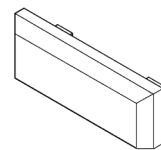
PARI-IKKUNAN TIIVISTYSKAPPALEET
SEALING PIECES, FRENCH WINDOW

ECO 795 235



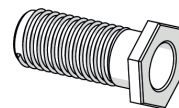
SUOJAHATTU
COVER CAP

ECO 795 190 musta / black
ECO 795 195 harmaa / grey
ECO 795 200 valkoinen / white
SH1 musta / black



ADJUFIX KARMIASENNUSHYLSY
ADJUFIX SLEEVE FOR FRAME

WM38



IKKUNAN PEITEKILPI
SLIDING COVER

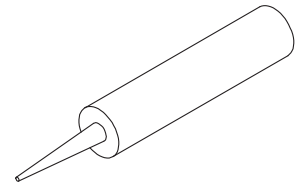
ECOCOVERPL1 hopeinen / silver
ECOCOVERPL2 valkoinen / white



TARVIKKEET
ACCESSORIES

LIITOSLIIMA, PU
JOINT GLUE, PU

ECO 785 100



TIIVISTELIIMA
GASKET GLUE

ECO 785 120



KULMAPURISTUSJOUSI, 10 kpl
MITRE JOINT CLAMP, 10 pcs

ECO 795 420



ERIKOISPIHDIT KULMAPURISTUSJOUSELLE
SPECIAL TONGS FOR MITRE JOINT CLAMP

ECO 795 430



TIIVISTELEIKKURI PÄÄTIIVISTEELE
CUTTER FOR SEALING PROFILES

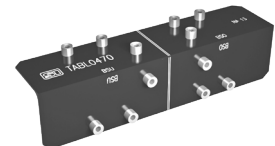
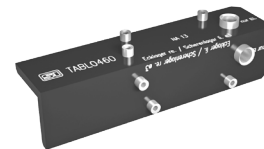
ECO 790 300



SARANAN PORAUSJIGIT
DRILLING GUIDES FOR HINGES

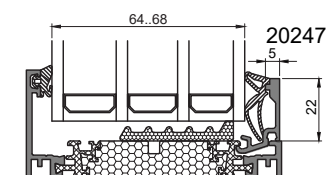
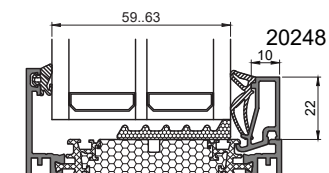
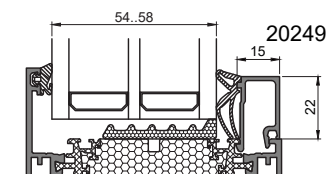
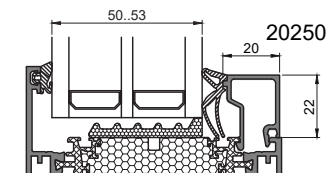
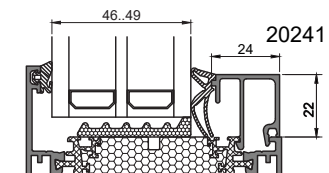
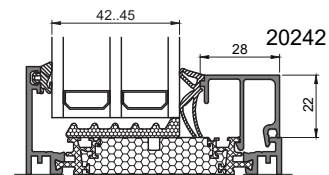
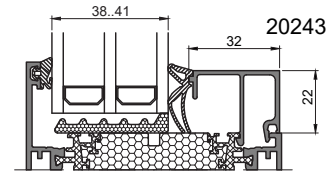
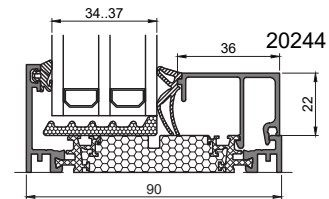
JIGI TABL0460

JIGI TABL0470



LASITUSLISTOJEN JA TIIVISTEIDEN VALINTA, **KIINTEÄ IKKUNA**
 SELECTING GLAZING BEADS AND GASKETS, **FIXED WINDOW**
 Ulkopuolen tiiviste/ outside sealing eco 770 004

Lasin paksuus/ Glazing thickness	Lasituslista/ Glazing bead	Ulkopuolen-tiiviste/ Outer gasket	Sisäpuolen-tiiviste/ Inner gasket
34	20244	ECO 770 004	ECO 770 111
35			ECO 770 109
36			ECO 770 109
37			ECO 770 107
38	20243	ECO 770 004	ECO 770 111
39			ECO 770 109
40			ECO 770 109
41	20242	ECO 770 004	ECO 770 107
42			ECO 770 111
43			ECO 770 109
44			ECO 770 109
45	20241	ECO 770 004	ECO 770 107
46			ECO 770 111
47			ECO 770 109
48			ECO 770 109
49	20250	ECO 770 004	ECO 770 107
50			ECO 770 111
51			ECO 770 109
52			ECO 770 109
53	20249	ECO 770 004	ECO 770 107
54			ECO 770 111
55			ECO 770 111
56			ECO 770 109
57	20248	ECO 770 004	ECO 770 109
58			ECO 770 109
59			ECO 770 111
60			ECO 770 111
61	20247	ECO 770 004	ECO 770 109
62			ECO 770 109
63			ECO 770 109
64			ECO 770 107
65	20247	ECO 770 004	ECO 770 111
66			ECO 770 111
67			ECO 770 109
68			ECO 770 109



ECO 770 004

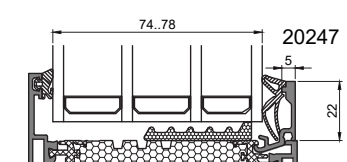
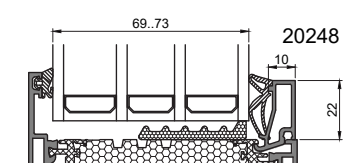
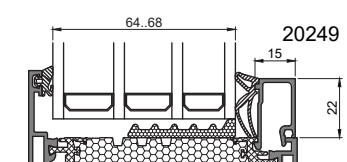
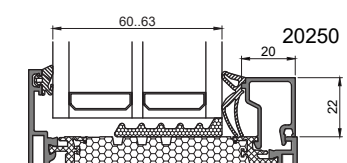
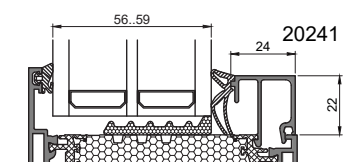
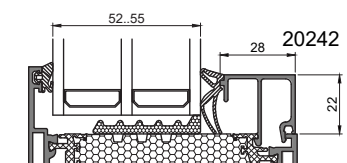
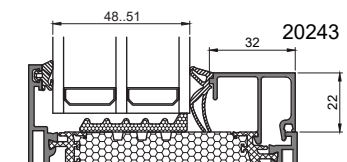
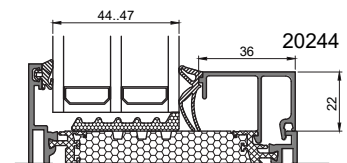
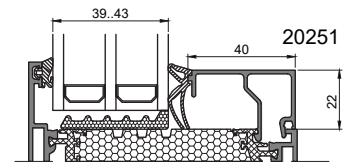
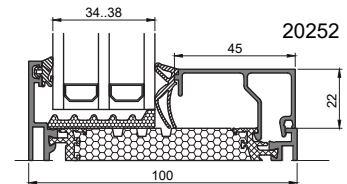
ECO 770 111

ECO 770 109

ECO 770 107

LASITUSLISTOJEN JA TIIVISTEIDEN VALINTA, AVAUTUVA IKKUNA
SELECTING GLAZING BEADS AND GASKETS, OPENABLE WINDOW
 Ulkopuolen tiiviste/ outside sealing eco 770 004

Lasin paksuus/ Glazing thickness	Lasituslista/ Glazing bead	Ulkopuolen- tiiviste/ Outer gasket	Sisäpuolen- tiiviste/ Inner gasket
34	20252	ECO 770 004	ECO 770 111
35			ECO 770 111
36			ECO 770 109
37			ECO 770 109
38			ECO 770 107
39	20251	ECO 770 004	ECO 770 111
40			ECO 770 111
41			ECO 770 109
42			ECO 770 109
43			ECO 770 107
44	20244	ECO 770 004	ECO 770 111
45			ECO 770 109
46			ECO 770 109
47			ECO 770 107
48			20243
49	ECO 770 109		
50	ECO 770 109		
51	ECO 770 107		
52	20242	ECO 770 004	
53			ECO 770 109
54			ECO 770 109
55			ECO 770 107
56			20241
57	ECO 770 109		
58	ECO 770 109		
59	ECO 770 107		
60	20250	ECO 770 004	
61			ECO 770 109
62			ECO 770 109
63			ECO 770 107
64			20249
65	ECO 770 111		
66	ECO 770 109		
67	ECO 770 109		
68	ECO 770 107		
69	20248	ECO 770 004	ECO 770 111
70			ECO 770 111
71			ECO 770 109
72			ECO 770 109
73			ECO 770 107
74	20247	ECO 770 004	ECO 770 111
75			ECO 770 111
76			ECO 770 109
77			ECO 770 109
78			ECO 770 107



ECO 770 004

ECO 770 111

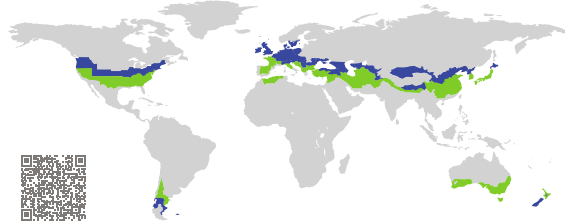
ECO 770 109

ECO 770 107

CERTIFICATE

Certified Passive House Component
Component-ID 1375wi03 valid until 31st December 2020

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

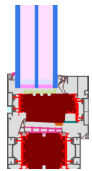


Category: **Window Frame**
Manufacturer: **Purso Oy, Siuro, Finland**
Product name: **LK90 ECO**

This certificate was awarded based on the following criteria for the cool, temperate climate zone

Comfort $U_W = 0.80 \leq 0.80 \text{ W/(m}^2 \text{K)}$
 $U_{W,installed} \leq 0.85 \text{ W/(m}^2 \text{K)}$
with $U_g = 0.70 \text{ W/(m}^2 \text{K)}$

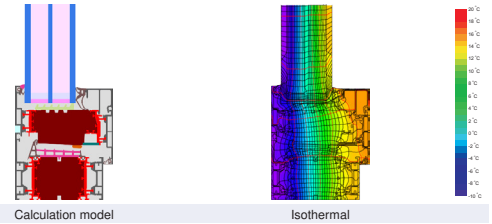
Hygiene $f_{Rsi=0.25} \geq 0.70$



Passive House efficiency class **phE** **phD** **phC** **phB** **phA**

www.passivehouse.com

Purso Oy
Alumiinitie 1, 37200 Siuro, Finland
☎ +358 3 3404 111 | ✉ maarit.mantysaari@purso.fi | 🌐 <http://www.purso.fi>



Description

Thermally broken aluminium frame with PU-foam core (0.051 W/mK). Glazing: 6/18/4/18/6, glass intersection: 20 mm, Spacer: SWISSPACER Ultimate with polysulfide secondary seal.

Explanation

The window U-values were calculated for the test window size of 1.23 m × 1.48 m with $U_g = 0.70 \text{ W/(m}^2 \text{K)}$. If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	$U_g = 0.70$	0.64	0.58	0.52	W/(m ² K)
	↓	↓	↓	↓	
Window	$U_W = 0.80$	0.76	0.72	0.68	W/(m ² K)

Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations performed in the context of certification is available from the manufacturer.

The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense to use a component of a higher thermal quality which has been certified for a climate zone with more stringent requirements.

Further information relating to certification can be found on www.passivehouse.com and passipedia.org.

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LK90 ECO

www.passivehouse.com

Frame values		Frame width b_f mm	U-value frame U_f W/(m ² K)	ψ -panel edge ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]	
Top	(bt)		117	0.77	0.031	0.74
Side	(st)		117	0.77	0.031	0.74
Bottom	(bt)		117	0.77	0.031	0.74
Mullion f_{Rsi}	(bt)		134	0.75	0.032	0.74

Spacer: SWISSPACER Ultimate Secondary seal: Polysulfid

Validated installations

EIFS		Insulated formwork blocks		Timber frame	
$U_{Wall} = 0.13 \text{ W/(m}^2 \text{K)}$		$U_{Wall} = 0.15 \text{ W/(m}^2 \text{K)}$		$U_{Wall} = 0.13 \text{ W/(m}^2 \text{K)}$	
$\psi_{install}$ W/(m K)		$\psi_{install}$ W/(m K)		$\psi_{install}$ W/(m K)	
Top	0.013	Top	0.013	Top	0.016
Side	0.013	Side	0.013	Side	0.016
Bottom	0.023	Bottom	0.020	Bottom	0.021
$U_{W, installed} = 0.84 \text{ W/(m}^2 \text{K)}$		$U_{W, installed} = 0.84 \text{ W/(m}^2 \text{K)}$		$U_{W, installed} = 0.85 \text{ W/(m}^2 \text{K)}$	

Component-ID: 1375wi03

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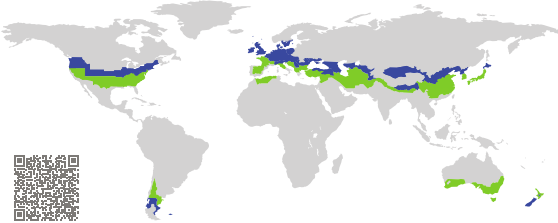
www.passivehouse.com

www.passivehouse.com

CERTIFICATE

Certified Passive House Component
Component-ID 1478wi03 valid until 31st December 2020

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany



Category: **Window Frame**
Manufacturer: **Purso Oy, Siuro, Finland**
Product name: **LK90 ECOowo**

This certificate was awarded based on the following criteria for the cool, temperate climate zone

Comfort $U_W = 0.80 \leq 0.80 \text{ W/(m}^2 \text{K)}$
 $U_{W,installed} \leq 0.85 \text{ W/(m}^2 \text{K)}$
with $U_g = 0.70 \text{ W/(m}^2 \text{K)}$

Hygiene $f_{Rsi=0.25} \geq 0.70$



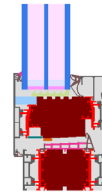
(Outward opening)



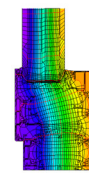
Passive House efficiency class **phE** **phD** **phC** **phB** **phA**
www.passivehouse.com

Purso Oy

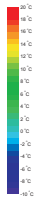
Alumiinitie 1, 37200 Siuro, Finland
☎ +358 3 3404 111 | ✉ maarit.mantysaari@purso.fi | 🌐 http://www.purso.fi |



Calculation model



Isothermal



Description

Outward opening thermally broken aluminum frame with PU-foam core (0.051 W/(mK)). Pane thickness: 52 mm (6/18/4/18/6), rebate depth: 18 mm. Spacer: SWISSPACER Ultimate.

Explanation

The window U-values were calculated for the test window size of 1.23 m × 1.48 m with $U_g = 0.70 \text{ W/(m}^2 \text{K)}$. If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	$U_g =$	0.70	0.64	0.58	0.52	W/(m ² K)
		↓	↓	↓	↓	
Window	$U_W =$	0.80	0.76	0.72	0.68	W/(m ² K)

Transparent building components are classified into efficiency classes depending on the heat losses through the opaque part. The frame U-Values, frame widths, thermal bridges at the glazing edge, and the glazing edge lengths are included in these heat losses. A more detailed report of the calculations performed in the context of certification is available from the manufacturer.

The Passive House Institute has defined international component criteria for seven climate zones. In principle, components which have been certified for climate zones with higher requirements may also be used in climates with less stringent requirements. In a particular climate zone it may make sense to use a component of a higher thermal quality which has been certified for a climate zone with more stringent requirements.

Further information relating to certification can be found on www.passivehouse.com and passipedia.org.

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LK90 ECOowo

www.passivehouse.com

Frame values		Frame width b_f mm	U-value frame U_f W/(m ² K)	ψ -panel edge ψ_g W/(m K)	Temp. Factor $f_{Rsi=0.25}$ [-]	
Top	(b)		126	0.76	0.031	0.75
Side	(s)		126	0.76	0.031	0.75
Bottom	(b)		126	0.76	0.031	0.75

Spacer: SWISSPACER Ultimate Secondary seal: Polysulfid

Validated installations

Formwork blocks top (operable)	Lighthweight timber top (operable)	Exterior insulation and finishing system (EIFS) (operable)
$U_{Wall} = 0.15 \text{ W/(m}^2 \text{K)}$	$U_{Wall} = 0.13 \text{ W/(m}^2 \text{K)}$	$U_{Wall} = 0.13 \text{ W/(m}^2 \text{K)}$
$\psi_{install}$ W/(m K)	$\psi_{install}$ W/(m K)	$\psi_{install}$ W/(m K)
Top 0.017	Top 0.019	Top 0.018
Side 0.017	Side 0.019	Side 0.018
Bottom 0.020	Bottom 0.020	Bottom 0.023
$U_{W, installed} = 0.85 \text{ W/(m}^2 \text{K)}$	$U_{W, installed} = 0.85 \text{ W/(m}^2 \text{K)}$	$U_{W, installed} = 0.85 \text{ W/(m}^2 \text{K)}$

Component-ID: 1478wi03

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TEKNISIÄ TIETOJA

Profililit

- alumiiniseos yleensä EN-AW 6063 T5
 - $R_{p_{0,2}} \text{ min} = 130 \text{ N/mm}^2$
 - $R_m \text{ min} = 175 \text{ N/mm}^2$
 - $E = 70000 \text{ N/mm}^2$
- alumiinirakenteiden suunnittelussa on huomioitava lämpötilan muutoksista aiheutuvat siirtymät
- alumiinin lämpölaajenemiskerroin on $24 \times 10^{-6}/\text{K}$
- profiilien muototoleranssit EN 755-9 tai EN 12020-2 mukaan
- seos soveltuu erinomaisesti anodisoitavaksi
- toimituspituus on normaalisti 6,3 m tai 6,6 m, muut mitat erikoistilauksesta
- lämpökatkon materiaali on polyamidi ja polyuretaani

Profiilien pintakäsittely

Anodisointi

Anodisointi on sähkökemiallinen menetelmä, jolla kasvatetaan alumiinin luonnollisen oksidikerroksen paksuutta. Anodisointi muodostaa kovan, mekaanista kulutusta kestävä pinnan, jolla on erinomainen säänkesto.

Jauhemaalaus

Jauhemaalauksessa profiilin pintaan ruiskutetaan pulveri, joka sulatetaan uunissa kestäväksi ja tasaiseksi pinnaksi. Ennen maalausta profiileille tehdään esikäsittely, jolla varmistetaan maalin pysyvyys. Normaalisti käytetään RAL-värikartan sävyjä, mutta muutkin sävyt ovat mahdollisia.

Tiivisteet

Materiaali: EPDM-kumi

Väri: musta

TECHNICAL INFORMATION

Profiles

- Aluminium alloy usually EN-AW 6063 T5
 - $R_{p_{0,2}} \text{ min} = 130 \text{ N/mm}^2$
 - $R_m \text{ min} = 175 \text{ N/mm}^2$
 - $E = 70000 \text{ N/mm}^2$
- Thermal transitions caused by changes in temperature must be taken into account in the design
- Thermal expansion coefficient of aluminium is $24 \times 10^{-6}/\text{K}$
- Shape tolerances of profiles according to EN 755-9 or EN 12020-2
- Alloy is well suited for anodizing
- Delivery length of profiles normally 6,3 m or 6,6 m, other lengths available on request
- Material of thermal breaks is polyamide and polyurethane

Surface treatment

Anodizing

Anodizing is an electrochemical method for increasing the thickness of the natural oxide layer of aluminium. Anodizing forms a hard, mechanical wear-resistant surface with excellent weather resistance.

Powder Coating

In powder coating the powder is injected into the surface of the profiles, which then is melted in a furnace into a durable and smooth surface. Before painting, the profiles are pre-processed, in order to ensure the endurance of the coating. Normally profiles are painted with RAL color shades, but other colors are also possible.

Gaskets

Material: EPDM-rubber

Colour: black



Valmistus, myynti ja tekninen neuvonta
Manufacturing, sales and technical information

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Building Systems Unit
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