

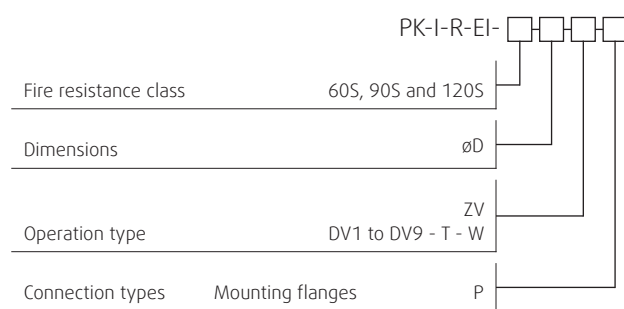
# Systemair Fire Dampers

Fire resistance class EI60S; EI90S and EI120S

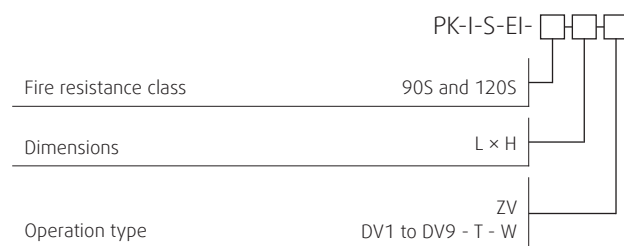


## Ordering codes

### Ordering Codes for Circular FD:



### Ordering Codes for Rectangular FD:



NOTES:

- E = Casing integrity
- I = Thermal insulation
- S = Smoke leakage

## Description

As standard, all fire dampers are designed and certified to comply with EI-S performance attributes. PKIR and PKIS fire dampers are intended to be embedded into fire partition walls or ceilings. Installation of these units is described in the Installation, Operation and Maintenance manual for rectangular and circular fire dampers. As standard, all dampers can be supplied with a manual actuator, optional accessories, e.g. microswitches, electromagnets, or a servo-driven actuator and communication control units.

## Fire Dampers With a Manual Actuator

Fire damper automatically sets itself to closed position if the thermal fuse link gets ruptured or a signal is given to the electromagnet to release the damper blade from an open to closed position. After the closure, the damper blade is mechanically secured in the closed position and can only be opened manually. The fast blow fuse releases the link mechanism as soon as the air temperature in the duct system reaches 72 °C and the damper blade closes within 10 seconds..

## Servo-driven Fire Dampers

Fire dampers can be equipped with a servo that closes the damper blade on demand of the Building Management System or based on a signal received from the thermoelectric fuse. Servo fitted fire dampers are standardly equipped with an electrothermal fuse which, when having reached or exceeded the ambient temperature of 72°C with a tolerance of ±1.5°C, activates the servo and closes the damper blade within 20 seconds.

## Installation, Operation and Maintenance

Fire dampers must be installed, operated and maintained according to the Installation, Operation and Maintenance manual

## Operating Conditions

Dampers equipped with manual actuating mechanism and thermal fuse with a low melting alloy may be operated in a workplace where the operating temperatures fall in the range between -10 to 65°C. A damper equipped with a manual actuating mechanism and an electromagnet may be operated in a workplace where the temperature falls in the range of -10 to 40°C. Dampers equipped with a servo and a thermal fuse may be operated in a workplace with the ambient operating temperatures within the range between -10 to 65°C. The active fire-proof sealing must not be exposed to direct contact with water. The maximum air flow speed is 12 m/s with clean air without mechanic or chemical contamination with uniform flow, without condensation, ice coating and ice. The maximum allowable pressure difference in front and behind the closed blade is 1200 Pa. The device is not actuated until the ambient temperature reaches 65°C. In case of need of adjustment for higher temperatures in the working place it is advisable to consult such demands with the producer and indicate them in the purchase order accordingly. In terms of their construction, the dampers are designed for use with a horizontal, vertical or angled blade axis.

## Transportation, Storage and Operating conditions

It is necessary to transport the dampers by such means of transport that provide a cover and secured on pallets. When handling the dampers during transportation, the dampers must be protected against damage and weather conditions. The damper blades must be transported in the "CLOSE" position. It is recommended to store these products in a closed, dry, area where the temperature falls within the range of -10°C to +50°C. The temperature during storage, transportation and operation must not exceed 65°C!

## Material used and disposal

The product contains steel, zinc, calcium-silicate board, graphite fire-proof laminate, polyurethane foam and ethylene-propylene dry rubber. These are processed in compliance with local regulations. The product does not

contain any dangerous materials, with the exception of the solder's milligram quantity that contains Pb.

## Warranty

The manufacturer provides a 24-month warranty period starting on the date of expedition.

## Appendix

Any demands regarding deviations from the above mentioned technical specifications and conditions shall be discussed with the manufacturer. The manufacturer reserves the right to perform any modifications of the product without prior notice, provided that such changes have no effect on the quality and performance of the product.

## Damper Codes and Types

**ZV**; Basic model with manual crank and an actuating mechanism with spring return release driven by a fusible thermal link set to 72 °C.

**DV1**; ZV + closed position indication with a 24 V contact switch

**DV1-2**; ZV + open and closed indication with 24 V contact switches

**DV2**; ZV + closed position indication with a contact switch 230 V

**DV2-2**; ZV + open and closed indication with 230 V contact switches

**DV3**; ZV + 24 V AC electromagnetic release mechanism (release takes place when the electromagnet is activated)

**DV4**; ZV + 230 V AC electromagnetic release mechanism (release takes place when the electromagnet is activated)

**DV5**; ZV + 24 V AC electromagnetic release mechanism (release takes place when the electromagnet is activated) plus 24 V switch indicating the damper's closed position

**DV5-2**; ZV + 24 V AC electromagnetic release mechanism (release takes place when the electromagnet is activated) plus 24 V switches indicating the damper's closed and open position

**DV6**; ZV + 230 V AC electromagnetic release mechanism (release takes place when the electromagnet is activated) plus 230 V switch indicating the damper's

closed position

**DV6-2**; ZV + 230 V AC electromagnetic release mechanism (release takes place when the electromagnet is activated) plus 230 V switches indicating the damper's closed and open position

**DV3B to DV6B-2**; the same as DV3 to DV6-2 with electromagnet in interruption connection (release takes place by the interruption of the current in the electromagnet)

Servo-operated Fire Dampers:

**DV7**; spring return servo-operated fire dampers (230 V AC) without electro-thermal fuse, with auxiliary switches

**DV7-T**; spring return servo-operated fire dampers (230 V AC) with electro-thermal fuse and auxiliary switches

**DV9**; spring return servo-operated fire dampers (24 V) without electro-thermal fuse with auxiliary switches

**DV9-T**; spring return servo-operated fire dampers (24 V) with electro-thermal fuse and auxiliary switches

**DV9-ST**; spring return servo-operated fire dampers (24 V) without electro-thermal fuse, with auxiliary switches and Belimo BKN230-24 supply and communication unit.

**DV9-T-ST**; spring return servo-operated fire dampers (24 V) with electro-thermal fuse, auxiliary switches and Belimo BKN230-24 supply and communication unit

**DV9-W**; spring return servo-operated fire dampers (24 V) with auxiliary switches and cables for the Belimo BKN230-24 supply and communication unit

**DV9-T-W**; spring return servo-operated fire dampers (24 V) complete with electro-thermal fuse, auxiliary switches and with the cables for the Belimo BKN230-24 supply and communication unit

## Connection Type

**P** – by mounting flanges

## Installation Accessories

Set of 8 cover plates made from calcium-silicate boards (when using during installation please see the Installation, Operation and Maintenance manual - there are four front and four back cover plates).

Ordering code for round cover plates:

**PRR-ND**, ND = nominal diameter.

Ordering code for rectangular cover plates:

**PRS-L-H**, L = width, H = height



METO - PG20 adapter ordering code:

**MPA-L-H**, L=width, H=height



Meto-PG clutch - ordering code:

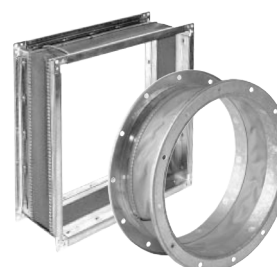
**MPC**, item number: 15476



If needed compensation of thermal dilatations use please our attenuators TVH, TVK

Ordering code for round attenuator: **TVK-ND**, ND=nominal diameter (L = 150 mm for all dimensions).

Ordering code for rectangular attenuator: **TVH-L-H**, L=width, H=height (L = 150 mm for all dimensions).



## PKIR-EI30&E60S, -EI60S, -EI90S and -EI120S

We offer a wide range of dampers and dimensions with fire resistance of 60, 90 and 120 minutes for circular ductworks.



Circular fire dampers are certified according to the EN 15650, tested in accordance with the EN 1366-2 and classified according to the EN13501-3:

Name	Range of actuator types	Dimension range (mm)	Installation	Fire resistivity
PKIR EI30S&E60S	DV7 to DV9-T-W	ø 100 to 630	Solid wall – wet or dry Flexible wall – wet or dry Ceiling – wet	EI 30 (ve i ↔ o) S E 60 (ve ho i ↔ o) S
PKIR EI60S	ZV, DV1 to DV9-T-W	ø 100 to 630	Solid wall – wet or dry Flexible wall – wet or dry Ceiling – wet	EI 60 (ve ho i ↔ o) S
PKIR EI90S	ZV, DV1 to DV9-T-W	ø 100 to 1000	Solid wall – wet or dry Flexible wall – wet or dry Ceiling – wet	EI 90 (ve ho i ↔ o) S
PKIR EI120S	ZV, DV1 to DV9-T-W	ø 200 to 800	Solid wall – wet Flexible wall – wet Ceiling – wet	EI 120 (ve ho i ↔ o) S EI 180 (ve i ↔ o) S

All circular fire dampers PKIR have CE certificate: 1396-CPD-0061

	DN	100	125	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	
W		450						500				540			600						
W <sub>1</sub> *	(mm)																		37,5	87,5	
W <sub>2</sub> *												5	27,5	52,5	77,5	107,5	142,5	182,5	227,5	277,5	327,5
Q	(kg)	3,6	4	4,8	5,2	5,6	6,5	7	8,4	9,4	10,6	12,8	15,5	17,9	20,4	23,7	27,6	33,8	39,8	46,6	

\* overhang of the open blade including sealing and gap by opening

Tab. 1: Dimensions and weights for manually operated circular fire dampers

	DN	100	125	160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	
W		450											500								
W <sub>1</sub> *	(mm)																	42,5	87,5	137,5	187,5
W <sub>2</sub> *												5	27,5	52,5	77,5	107,5	142,5	182,5	227,5	277,5	327,5
Q	(kg)	3,6	4	4,8	5,2	5,6	6,5	7	8,4	9,4	10,6	12,8	15,5	19,4	21,9	25,2	29,1	35,3	41,3	48,1	

\* overhang of the open blade including sealing and gap by opening

Tab. 2: Dimensions and weights for servo-operated circular fire dampers

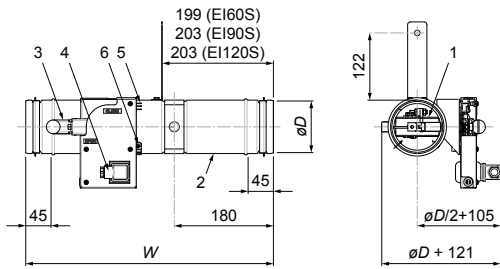


Fig. 1: Manually operated circular fire damper construction for sizes ø 100 to 225 mm

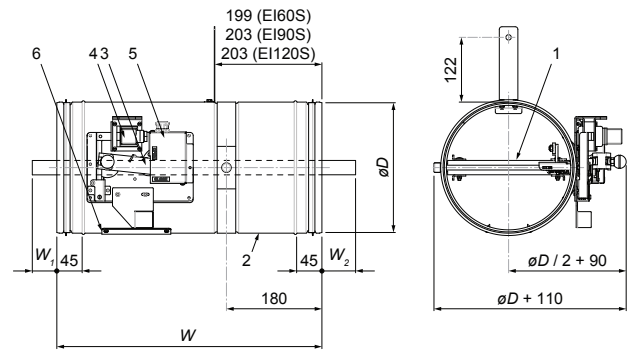


Fig. 2: Manually operated circular fire damper construction for sizes ø 250 to 1000 mm

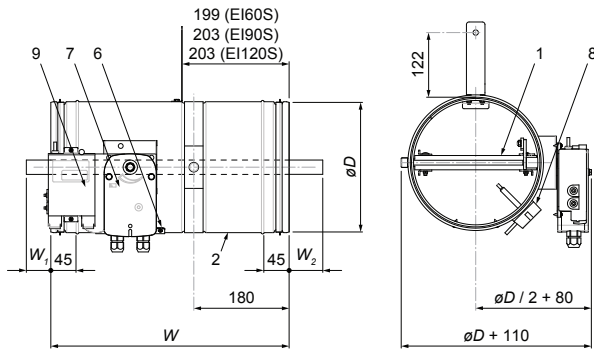


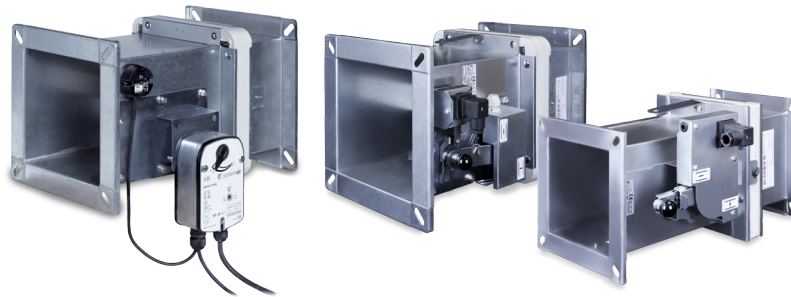
Fig. 3: Servo-operated circular fire damper construction

**Damper Parts Description:**

- 1. Damper blade
- 2. Casing
- 3. Release mechanism
- 4. Electromagnet
- 5. Terminal switch
- 6. Inspection (control) opening
- 7. Servo
- 8. Thermo-electrical fuse
- 9. Supply and communication unit Belimo BKN230-24

**PKIS-EI90S and EI120S**

We offer a wide range of dampers and dimensions with fire resistance of 90 and 120 minutes for rectangular ductworks.



Rectangular fire dampers are certified according to the EN 15650, tested in accordance with the EN 1366-2 and classified according to the EN13501-3:

Name	Range of actuator types	Dimension range (mm)	Installation	Fire resistivity
PKIS EI90S	ZV, DV1 to DV9-T-W	all supporting constructions: 100 × 100 to 1000 × 1000	Solid wall – wet or dry	EI 90 (ve ho i ↔ o) S
		rigid wall / ceiling: 100 × 100 to 1600 × 1000	Flexible wall – wet or dry	
			Ceiling – wet	
PKIS EI120S	ZV, DV1 to DV9-T-W	all supporting constructions: 100 × 100* to 1000 × 1000	Solid wall – we	EI 120 (ve ho i ↔ o) S
		rigid wall / ceiling: 200 x 200 to 1600 × 1000	Flexible wall – wet	
			Ceiling – wet	

All rectangular fire dampers PKIS have CE certificate: 1396-CPD-0062

H/L (mm)	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1400	1500	1600
200	8,41	9,41	10,41	11,46	12,42	13,39	14,45	15,42	16,38	18,41	20,44							
250	9,40	10,52	11,64	12,75	13,85	14,96	16,16	17,27	18,38	20,59	22,90	25,12	27,33					
300	10,37	11,64	12,89	14,03	15,28	16,53	17,78	19,03	20,27	22,77	25,26	27,66	30,16	32,65	36,05			
350	11,36	12,75	14,13	15,42	16,81	18,20	19,49	20,88	22,27	24,95	27,73	30,40	33,08	37,76	40,44	45,89		
400	12,32	13,85	15,28	16,81	18,24	19,77	21,20	22,73	24,16	27,13	30,09	34,95	37,91	40,87	43,83	49,75	52,71	55,67
450		14,96	16,53	18,10	19,67	21,34	22,92	24,49	26,06	29,30	34,35	37,59	40,73	43,98	47,12	53,51	56,75	59,89
500			17,78	19,49	21,20	22,92	24,63	26,34	28,06	31,48	36,81	40,23	43,66	47,09	50,61	57,46	60,89	64,31
550			19,03	20,88	22,63	24,49	26,34	28,20	30,05	35,56	39,27	42,98	46,59	50,29	54,00	61,32	65,03	68,74
600			20,17	22,17	24,16	26,06	28,06	29,95	33,85	37,74	41,63	45,52	49,51	53,40	57,29	65,08	69,07	72,96
700				24,85	27,03	29,20	31,38	35,46	37,64	42,09	46,45	50,81	55,26	59,62	63,98	72,79	77,14	81,50
800					29,99	34,25	36,71	39,17	41,53	46,45	51,27	56,19	61,01	65,84	70,76	80,50	85,32	90,14
900						37,49	40,13	42,78	45,52	50,81	56,19	61,58	66,87	72,25	77,54	88,31	93,60	98,99
1000							43,56	46,49	49,41	55,26	61,01	66,87	72,72	78,47	84,32	95,93	101,78	107,63

Add 3 kg weight for the versions equipped with a servo  
 Tab. 3: Dimensions and weights for the rectangular fire dampers EI90S

H/L (mm)	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1400	1500	1600
200	8,83	9,88	10,94	12,04	13,06	14,07	15,19	16,21	17,23	19,36	21,50							
250	9,87	11,05	12,22	13,38	14,54	15,70	16,96	18,12	19,28	21,59	24,01	26,33	28,65					
300	10,90	12,22	13,52	14,72	16,02	17,32	18,62	19,92	21,22	23,82	26,43	28,93	31,53	34,13	37,63			
350	11,94	13,38	14,82	16,16	17,60	19,05	20,39	21,83	23,27	26,06	28,94	31,72	34,51	39,29	42,07	47,74		
400	12,96	14,54	16,02	17,60	19,09	20,67	22,15	23,74	25,22	28,29	31,35	36,32	39,39	42,45	45,52	51,65	54,72	57,78
450		15,70	17,32	18,95	20,57	22,30	23,92	25,54	27,17	30,52	35,67	39,02	42,26	45,61	48,86	55,46	58,81	62,06
500			18,62	20,39	22,15	23,92	25,69	27,45	29,22	32,75	38,18	41,71	45,24	48,77	52,41	59,47	63,00	66,53
550			19,92	21,83	23,64	25,54	27,45	29,36	31,27	36,88	40,69	44,51	48,22	52,04	55,85	63,38	67,19	71,01
600			21,12	23,17	25,22	27,17	29,22	31,17	35,11	39,11	43,11	47,10	51,20	55,20	59,19	67,19	71,28	75,28
700				25,96	28,19	30,42	32,65	36,78	39,01	43,57	48,03	52,50	57,06	61,52	65,98	75,01	79,47	83,93
800					31,25	35,57	38,08	40,59	43,01	48,03	52,96	57,99	62,92	67,84	72,87	82,82	87,75	92,68
900						38,92	41,61	44,31	47,10	52,50	57,99	63,48	68,87	74,37	79,76	90,74	96,13	101,63
1000							45,14	48,12	51,10	57,06	62,92	68,87	74,83	80,69	86,65	98,46	104,42	110,38

Add 3 kg weight for the versions equipped with a servo  
 Tab. 4: Dimensions and weights for the rectangular fire dampers EI120S

H (mm)	W <sub>1</sub> (mm)	W <sub>2</sub> (mm)	
	EI90/120S	EI90S	EI120S
300		22	12
400		72	62
500		122	112
600	22	172	162
800	122	272	262
1000	222	372	362

\* overhang of the open blade including sealing and gap by opening  
 Tab. 5: Blade overhang in fully open position

EI90S / EI120S									
H/L (mm)	100	150	200	250	300	400	500	600	800
100*	5,5	6,1	6,8	7,5	8,2	9,5	10,9	12,3	15,0
150*	6,1	6,9	7,6	8,4	9,1	10,6	12,1	13,6	16,6
200	8,1	8,9							
250		9,7							
300		10,4							
400									

Add 3 kg weight for the versions equipped with a servo  
 \* Low-profile rectangular fire dampers (Fig. 4 and 6)  
 Tab. 6: Weights of rectangular fire dampers

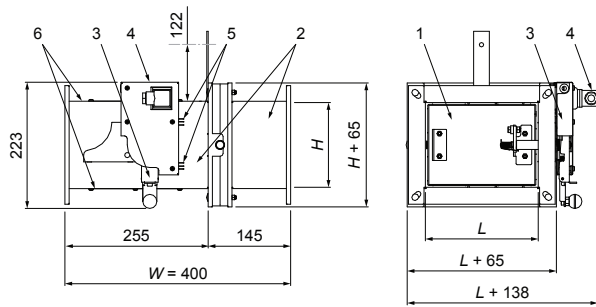


Fig. 4: Manually operated rectangular low profile fire damper construction for sizes in tab. 6

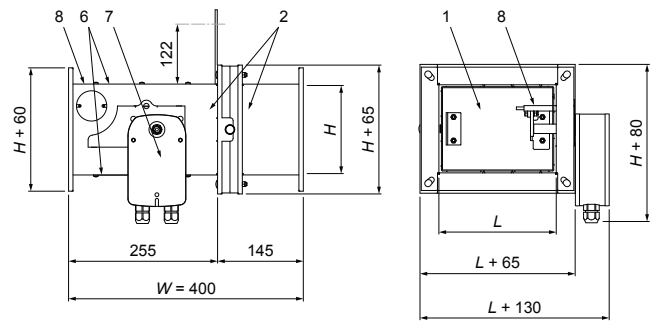


Fig. 6: Servo-operated rectangular low profile fire damper construction for sizes in tab. 6

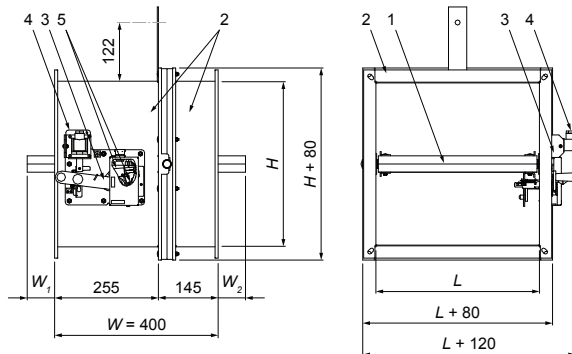


Fig. 5: Manually operated rectangular fire damper construction for sizes in tab. 3, 4

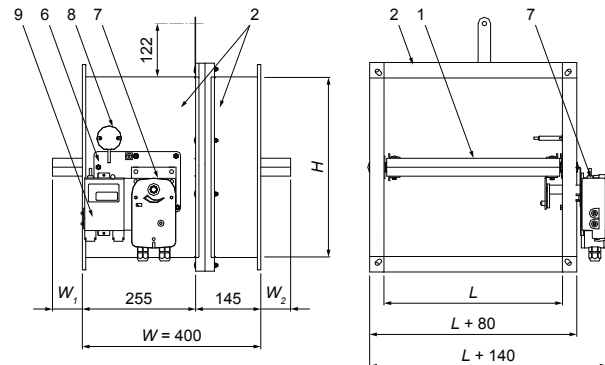


Fig. 7: Servo-operated rectangular fire damper construction for sizes in tab. 3, 4

**Damper Parts Description:**

- 1. Damper blade
- 2. Casing
- 3. Release mechanism
- 4. Electromagnet
- 5. Terminal switch
- 6. Inspection (control) opening
- 7. Servo
- 8. Thermo-electrical fuse
- 9. Supply and communication unit Belimo BKN230-24

**Technical parameters**

Durability test	- 50 cycles manual / 10000+100+100 cycles servo operated - without a change to the required attributes
Testing pressure	- 300 Pa
Safe position	- Closed
Possible installations	- Vertical/horizontal, solid/flexible wall, wet/dry (see classification tables on the pages 4 and 5)
Airflow direction	- Optional
Side protected from fire	- Optional
Closure	- 72 °C as standard, other options based on requirements - Manual - by springs after the thermal fuse melts - Servo operated - by springs in servo after the thermo-electrical fuse interruption
Ambient temperature	- In case of a 72 °C thermal fuse, the temperature should be a maximum of 65 °C, minimum -10°C
Repeated opening	- It is possible to open the device manually when it is cold
Closed/open indicator	- manual - 24 V DC / 230 V AC microswitches in versions DV1 to DV6-2 - servo operated - microswitches included in servo - versions DV7 to DV9-T-W
Suitability for ambience	- Inside only
Inspection possibility	- After opening of the inspection lid - in round separat in rectangular H≥200 mm after removing activating mechanism
Maintenance	- Not needed

Pressure drops and noise levels are accessible in PKI selector SW.