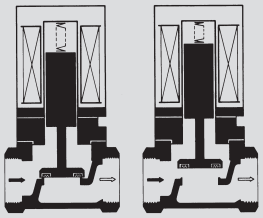
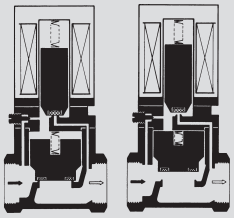
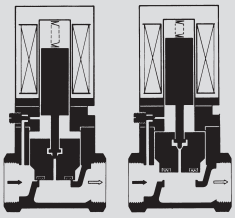
Solenoid valve operating methods



Direct-acting
For small nominal diameters
No minimum differential pressure required.



servo-assisted
A minimum differential pressure of approx. 0.5 bar is required. Cannot open without differential pressure between input and output.



Automatically servo-assisted
(coupled) For differential pressures from 0 to maximum pressure. For universal application.

Fema piston-type solenoid valves are suitable for demanding applications, particularly in the field of heat, energy and gas technology. All valves of the product groups mentioned below are automatically servo-assisted and may therefore be used from 0 bar to maximum pressure. No minimum differential pressure is required. A DC coil is normally used. A rectifier is supplied for connection to a 230 VAC supply.

Product Summary

Series Application	Nom. diameter DN (mm)	M= screwed F= flange	Working pressure* (bar)	Seals: Piston	Seals: Nozzle	Seals: Static seal	Temperatures: Medium °C	Temperatures: Environment °C	N = Normal type ⟨Ex⟩ = Ex-type	Operating-mode	DIN testing agency
TG **for neutral media**	15/20 25/32 40/50	M + F M + F F	0–40 0–32 0–20	NBR	NBR	NBR	-15 to + 90 60°C for Ex	-15 to + 60	N + ⟨Ex⟩	nc + no	
TGK **for high temperatures**	15/20 25/32 40/50	M + F M + F F	0–40 0–32 0–20	PTFE	Stainl. steel cone	EPDM	max. 180	-15 to + 60	N	nc + no	
K **for fuel gases up to 4 bar**	15/20 15/20 25/32 40/50	M F F F	0–4 0–4 0–4 0–4	NBR	NBR	NBR	-15 to + 60	-15 to + 60	N + ⟨Ex⟩	nc	DVGW DIN-EN 161
K **f. fuel gases over 4 bar**	15/20 25/32 40/50	F F F	0–25 0–25 0–20	NBR	NBR	NBR	-15 to + 60	-15 to + 60	N + ⟨Ex⟩	nc	DVGW DIN 3394 part 1
K **for liquid gases in liquid phase**	15/20 25	F F	0–25 0–25	NBR	NBR	NBR	-15 to + 60	-15 to + 60	N + ⟨Ex⟩	nc	TÜV DIN 32725 (draft Nov ´92)
K **for fuel oil**	15/20 15/32 40/50	F F F	0–25 0–25 0–20	NBR	NBR	NBR	-15 to + 60	15 to + 60	N	nc	TÜV DIN-EN 264
LG **for hot water and steam up to 120°C**	15/20 25/32 40/50	M + F M + F F	0–25 0–20 0–16	PTFE	Stainl. steel cone	EPDM	max. 120	+ 4 to + 60	N	nc	TÜV DIN 32730
LGK **for hot water and steam up to 180°C**	15/20 25/32 40/50	M + F M + F F	0–20 0–16 0–12	PTFE	Stainl. steel cone	EPDM	max. 180	+ 4 to + 60	N	nc	TÜV DIN 32730

nc = normally closed, opened under voltage.
no = normally open, closed under voltage (identified in the Product Summary by the letter “U”).
* = The respective data sheet contains exact details of the limits of use.

Sealing materials:
NBR = Perbunan
EPDM = Ethylene–propylene rubber
PTFE = Teflon

L25G31F

LG series

up to 120°C/180°C · TÜV-tested to DIN 32 730

Fema piston-type solenoid valves of the LG series are particularly suitable for use as stop and safety check valves in heating installations up to 120°C or 180°C.

The coupled (automatically servo-controlled) mode of operation does not require a minimum differential pressure; the units open and close without difficulty even without pressure or with low differential pressures.

Solenoid valves of the L series are tested according to PED 97/23/EC Module B, testing basis: DIN 32730

CE-Identification numbers:

L15…, L20…	CE-0035BN0060
L25…, L32…	CE-0035BN0061
L40…, L50…	CE-0035BN0062

Factory certified to Module D
Cert. no.: 01 202 931/Q-02 0010

NB:
To avoid heat build-up, the solenoid system must not be insulated or painted.

Technical data

Type	2/2-way
Operating mode	normally closed
Type of construction	Piston-type solenoid valve, coupled, no minimum differential pressure required
TÜV-tested	to DIN 32730 Type test approval mark (DIN reg. no.) see Product Summary
Materials	Casing: Bronze Rg 5 to DIN 1705 Internal parts: Brass (CuZn40Pb) and corrosion-resistant steel
Sealing materials	Piston: Teflon (PTFE). Nozzle: Cone made of stainless steel. Static seal: EPDM
Mounting position	Standard version: Solenoid system preferably upright. Horizontal mounting position possible for DN 15 to DN 32. For DN 40 and 50 a horizontal mounting position is not permitted. The solenoid system should not hang downwards.
Outdoor installations	fr = suitable for outdoor use
Ambient temperature	4°C to +60°C
Temperature of medium	120°C/180°C maximum
Working pressure	See Product Summary
Flanges	To DIN 2501 Part 1 PN 40 for DN 15–32 PN 25 for DN 40/50
Recommended weld-on flange	PN 40 to DIN 2635
Maintenance	The valve should be operated 5-10 times per month to prevent the piston from sticking. No further maintenance is required.

DN (mm)	k_{vs} value (m^3/h)	Working pressure (bar)	Internal thread	Screwed connection Type	Flange connection Type	DIN Reg. No.
Temperature of medium 120°C maximum						
15	4.0	0–25	G 1/2“	L15G31M	L15G31F	1F02204
20	4.8	0–25	G 3/4“	L20G31M	L20G31F	1F02204
25	10	0–20	G 1“	L25G31M	L25G31F	1F02304
32	13	0–20	G 1 1/4“	L32G31M	L32G31F	1F02304
40	34	0–16			L40G31F	1F02404
50	40	0–16			L50G31F	1F02404
Temperature of medium 180°C maximum						
15	4.0	0–20	G 1/2“	L15G31MK	L15G31FK	1F01904
20	4.8	0–20	G 3/4“	L20G31MK	L20G31FK	1F01904
25	10	0–16	G 1“	L25G31MK	L25G31FK	1F02004
32	13	0–16	G 1 1/4“	L32G31MK	L32G31FK	1F02004
40	34	0–12			L40G31FK	1F02104
50	40	0–12			L50G31FK	1F02104

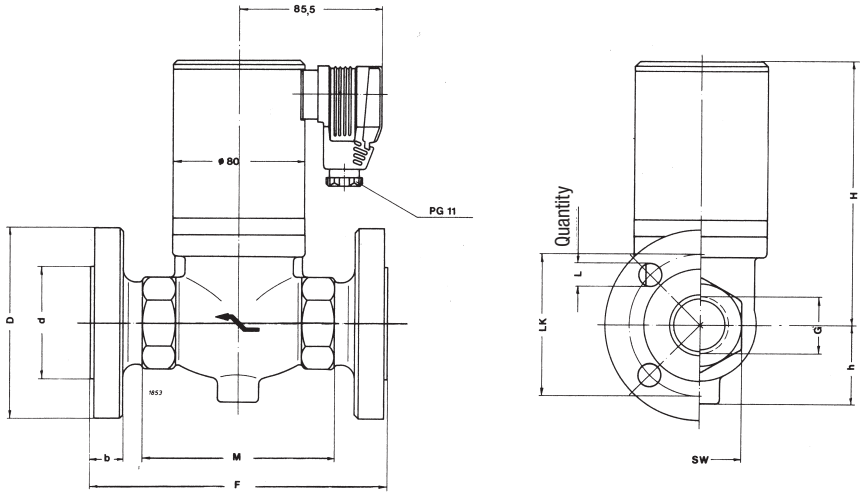
CE TÜV tested DIN Geprüft

Degree of protection: IP 65

T/K series

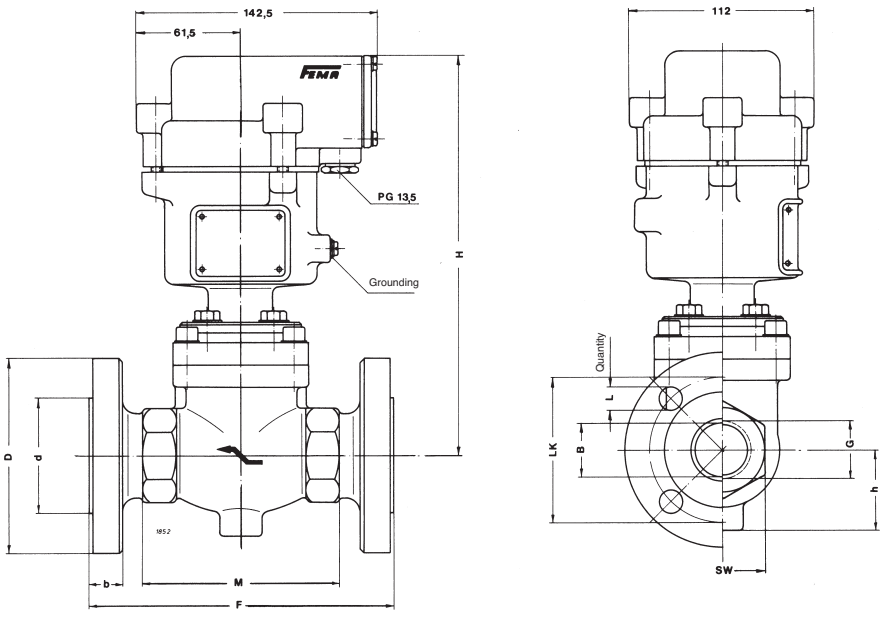
Dimensioned drawings/weights

Series
TG, K, LG



DN	Screwed version			Weight	Flange version								Weight		
	G	M	SW	kg	F	B	D	d	LK	b	L	i	kg	H	h
15	G 1/2	82	32	4.5	150	20	95	45	65	18	14	4	6.1	137.8	35
20	G 3/4	82	32	4.5	150	20	105	58	75	18	14	4	6.6	137.8	35
25	G 1	112	50	5.8	180	31	115	68	85	20	14	4	9.0	158.3	47.5
32	G 1 1/4	112	50	5.8	180	31	140	78	100	20	18	4	10.5	158.3	47.5
40					200	45	150	88	110	20	18	4	15.0	181.8	53
50					230	45	165	102	125	22	18	4	17.5	181.8	53

Series
TG-Ex, K-Ex, LG-Ex

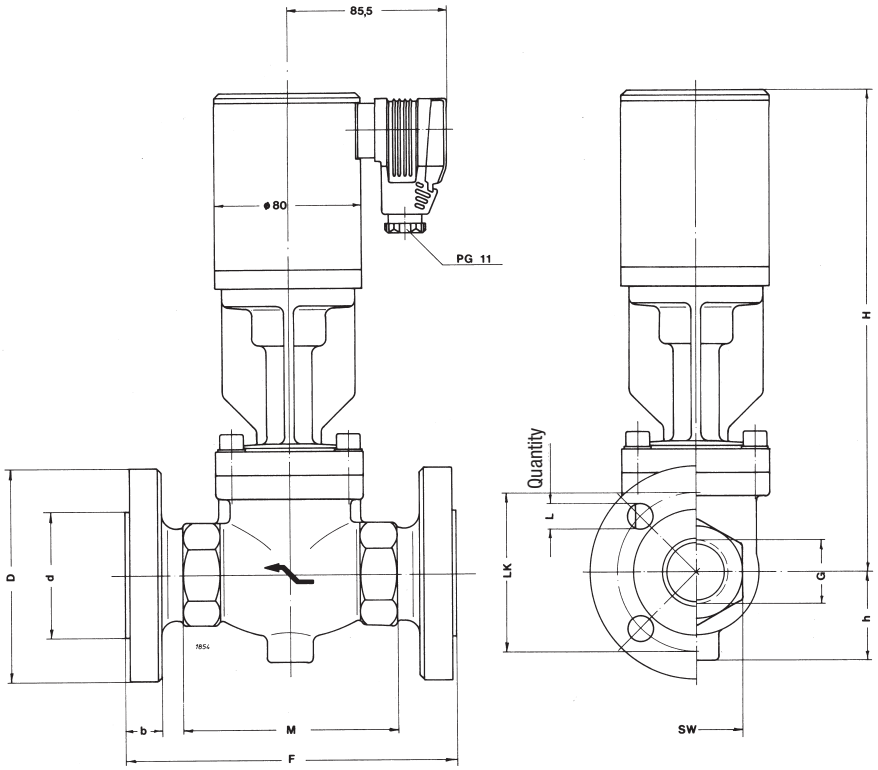


DN	Screwed version			Weight	Flange version								Weight		
	G	M	SW	kg	F	B	D	d	LK	b	L	i	kg	H	h
15	G 1/2	82	32	5.8	150	20	95	45	65	18	14	4	7.6	197.9	35
20	G 3/4	82	32	5.8	150	20	105	58	75	18	14	4	8.0	197.9	35
25	G 1	112	50	8.0	180	31	115	68	85	20	14	4	11.0	235.4	47.5
32	G 1 1/4	112	50	8.0	180	31	140	78	100	20	18	4	12.5	235.4	47.5
40					200	45	150	88	110	20	18	4	16.5	253.9	53
50					230	45	165	102	125	22	18	4	20.0	253.9	53

T/K series

Dimensioned drawings/weights

Series
TGK, LGK



DN	Screwed version			Weight	Flange version								Weight		
	G	M	SW	kg	F	B	D	d	LK	b	L	i	kg	H	h
15	G 1/2	82	32	5.6	150	20	95	45	65	18	14	4	7.5	238.3	35
20	G 3/4	82	32	5.6	150	20	105	58	75	18	14	4	7.8	238.3	35
25	G 1	112	50	7.2	180	31	115	68	85	20	14	4	10.5	256.8	47.5
32	G 1 1/4	112	50	7.2	180	31	140	78	100	20	18	4	12.0	256.8	47.5
40					200	45	150	88	110	20	18	4	16.0	277.3	53
50					230	45	165	102	125	22	18	4	19.0	277.3	53