

The Honeywell logo is positioned in the top left corner. It consists of the word "Honeywell" in a bold, sans-serif font. The "H" is red, and the remaining letters are white. The background of the entire cover is a dark, swirling pattern of blue and orange flames or smoke, with a red circular shape in the top right corner.

Honeywell

Honeywell Thermal Solutions Europe

INDUSTRIAL TECHNICAL CATALOGUE

2017-2018

Honeywell Industrial Controls

1

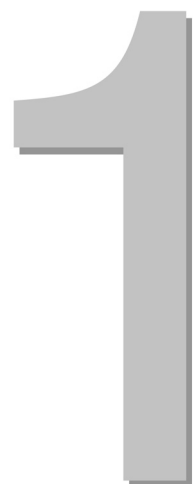
Kromschröder Controls

2

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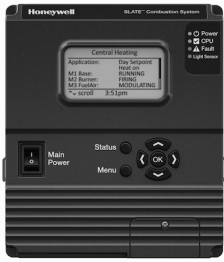


SLATE system

SLATE(TM) Combustion Management System

With the revolutionary integration of configurable safety and programmable logic, SLATE™ is easily customized for virtually any application in any industry, in less time, and with far less complexity.

Universal I/O scheme lets you choose how to use each module, and the customizable touchscreen display or PC web browser (optimized for Chrome™) allows you to easily change the end user experience.



R8001A1001

- Burner management
- Steam generation
- Kilns and ovens
- Commercial and industrial boilers
- Make-up air
- Process heating



Approvals

- **CE** approved: EN298 for burner controllers in continuous operation, EN12067-2 for electronic fuel/air ratio controllers and EN1854 for automatic valve proofing systems
- **SIL 3** "capable" certification
- **CSA/UL/FM** approved (US/CA)



Protection class

IP00 / NEMA 1 (cabinet mounting)

Ambient temperature

-10 ... 60 °C

Maximum humidity

90 %rh



Operation

Automatic

Valve proofing system

Integrated



Supply voltage

24 Vdc / 24..264 Vac

Features

Easy installation, efficient operation and fast service because of:

- DIN-rail mounting (modular platform)
- On-board communications capabilities (Ethernet, Modbus, BACnet)
- Intuitive diagnostics (touch display, PC, smart phone)
- Optimized energy efficiency (O2 trim, VFD control)
- On-board system guides
- Status indicators (no blinking lights or fault codes)
- Plug-and-play replacement (configurable modular concept)
- Easy data backup (USB flash drive, SD cards)
- Compatible with flame rod and all existing Honeywell C70xx-series optical flame detectors by selection of correct Flame Amplifier Module.



Note

Each SLATE™ system uses:

- A multi voltage (24 Vdc / 24..264 Vac) Base Module - R8001A1001, which mounts directly on the DIN rail.
- Up to 12 SLATE™ Modules can be connected to a single Base Module.
- Each of the plug-in modules uses its own a DIN rail mounting Sub Base - R8001S9001.

Additional description

SLATE™ Online configurator (global site):

<https://combustion.honeywell.com/slate/>

- the online configurator simplifies selection of modules and system design
- One stop shop for downloading SLATE AX programming software, firmware upgrades and more
- Pre-configuration files are available for download to emulate most commonly used burner controllers

SLATE system

SLATE Configurable Safety Modules

Product description	Comment	Type
Base Module		R8001A1001/U
Burner Control Module	Needs sub base	R8001B2001/U
Fuel Air Ratio Module	Needs sub base	R8001C6001/U
Limit Control Module	Needs sub base	R8001L8001/U



R8001B2001



R8001C6001



R8001L8001

SLATE Flame Amplifier Modules

Product description	Comment	Type
IR Ampli-Check Flame Amplifier Module	Needs sub base	R8001F1041/U
UV Shutter-Check Flame Amplifier Module	Needs sub base	R8001S1051/U
UV Ampli-Check Flame Amplifier Module	Needs sub base	R8001S1071/U
Rectification Ampli-Check Flame Amplifier Module	Needs sub base	R8001V1031/U



R8001F1041



R8001S1051



R8001S1071



R8001V1031

SLATE Programmable Logic Modules

Product description	Comment	Type
Digital I/O Module	Needs sub base	R8001D4001/U
Annunciator Module	Needs sub base	R8001N7001/U
Analogue I/O Module	Needs sub base	R8001U3001/U



R8001D4001



R8001N7001



R8001U3001

SLATE system

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R8001K5001



R8001S9001

SLATE Additional Modules

Product description	Comment	Type
7" Web based Colour Touchscreen Display		R8001K5001/U
10" Web based Colour Touchscreen Display		R8001K1010/U
DIN rail Mounting Sub-base	One per module needed!	R8001S9001/U
SLATE Extension Cable		50096820-001/U
SLATE Connector Kit		32008001-002/U

SLATE Actuators(90 span)

Product description	Comment	Type
Actuator, 450 steps, 30s runtime, 5.5 Nm, IP40		R8001M1050/U
Actuator, 450 steps, 30s runtime, 17 Nm, IP40		R8001M1150/U
Actuator 900 steps, 15s runtime, 5.5 Nm, IP66		R8001M4050/U
Actuator 900 steps, 15s runtime, 17 Nm, IP66		R8001M4150/U
Actuator 33 or 101 Nm		MAXON-SMARTLINK-DS



R8001M1050



R8001M4050



SMARTLINK-DS

SLATE PC Software

Product description	Comment	Type
SLATE AX PC software, based on Niagara AX		SLATEAXTOOL








SLATE

Product description	Comment	Type
Impression of SLATE System mounted on a DIN rail		_SLATE



APPL-SLATESYSTEM

SLATE system

Applicable flame detectors, refer to "Flame Sensors" chapter		
	Flame rod. Used with R8001V1031/U Flame Amplifier Module.	_C7008
C7008A	MiniPeeper UV detector, standard version. Intermittent operation. Used with R8001S1071/U Flame Amplifier Module.	_C7027
	MiniPeeper UV detector, with field replaceable UV tube and high temperature specification. Intermittent operation. Used with R8001S1071/U Flame Amplifier Module.	_C7035
C7027	MiniPeeper UV detector, with side view option. Intermittent operation. Used with R8001S1071/U Flame Amplifier Module.	_C7044
	PurplePeeper UV detector, standard version. Intermittent operation. Used with R8001V1031/U Flame Amplifier Module.	_C7012A/G
C7035	MiniPeeper self-checking UV detector. Continuous operation. Used with R8001S1051/U Flame Amplifier Module.	_C7061A1
	MiniPeeper self-checking UV detector. Continuous operation and ATEX-Z1 approved. Used with R8001S1051/U Flame Amplifier Module.	_C7061F1
C7044	MiniPeeper self-checking UV detector. Continuous operation and for use in hazardous locations (US/CA only). Used with R8001S1051/U Flame Amplifier Module.	_C7061F2
	Infrared detector. Continuous operation. Used with R8001F1041/U Flame Amplifier Module.	_C7915



Single Gas Valves

1

Solenoid gas valve, normally closed VE400AA



VE400AA



Class "A" AC powered, Safety Shutoff Solenoid Gas Valve.
For pilot and small burner applications in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	AC powered, non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air.
Materials	brass body for 1/4" version, aluminium body for others.
Approvals	CE (EN161), AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Protection class	IP65
Electrical connection	DIN plug

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/4	500	VE408AA1007
Rp 3/8	200	VE410AA1003
Rp 1/2	200	VE415AA1008
Rp 3/4	200	VE420AA1001

220...240 VRac versions (needs DIN plug with integrated rectifier)

Valve dimension	Max. operating pressure mbar	Type
Rp 1/4	500	VE408AA1049

110 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/4	500	VE408AA1015
Rp 3/8	200	VE410AA1011
Rp 1/2	200	VE415AA1016
Rp 3/4	200	VE420AA1019



CO020012

Electrical connection

DIN Plug	CO020012
DIN Plug, with integrated rectifier	COMPM221

Single Gas Valves

Solenoid gas valve, normally closed VE4000A1



VE4000A



Class "A" Safety Shutoff Solenoid Gas Valve.

For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CE (EN161), AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	Some models have 4x pressure taps 1/4" (2x on each side), marked as "Bypass" in the selection table.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 3/8	360	IP54	PG11		BB052301	–	VE4010A1006
Rp 1/2	360	IP54	PG11		BB052301	–	VE4015A1005
Rp 1/2	360	IP65	DIN plug		BB052302	–	VE4015A1070
Rp 3/4	360	IP54	PG11	MS052501	BB052325	–	VE4020A1005
Rp 1	360	IP54	PG11	MS052501	BB052325	–	VE4025A1004
Rp 1	360	IP65	DIN plug	MS052501	BB052326DIN	–	VE4025A1145
Rp 1 1/4	200	IP54	PG11	MS054001	BB052340	–	VE4032A1000
Rp 1 1/4	200	IP54	PG11	MS054001	BB052340	–	VE4032A1109
Rp 1 1/2	200	IP54	PG11	MS054001	BB052340	–	VE4040A1003
Rp 1 1/2	200	IP54	PG11	MS054001	BB052340	Bypass	VE4040A1144
Rp 1 1/2	360	IP65	DIN plug	MS054001	BB052306DIN	–	VE4040A1219
Rp 2	200	IP54	PG11	MS055001	BB052303	–	VE4050A1002
Rp 2	360	IP65	DIN plug	MS055001	BB052303	–	VE4050A1127
Rp 2 1/2	200	IP54	PG11	MS056501	BB052365	–	VE4065A1000

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 1/2	360	IP54	PG11		BB051102DIN	–	VE4015A1013
Rp 1/2	360	IP65	DIN plug		BB051102DIN	–	VE4015A1138
Rp 3/4	200	IP54	PG11	MS052501	BB051125	–	VE4020A1054
Rp 1	200	IP54	PG11	MS052501	BB051125	–	VE4025A1053
Rp 1	360	IP65	DIN plug	MS052501	BB051126DIN	–	VE4025A1194
Rp 1 1/2	200	IP54	PG11	MS054001		–	VE4040A1052
Rp 1 1/2	360	IP65	DIN plug	MS054001		–	VE4040A1227
Rp 2	200	IP54	PG11	MS055001	BB051152DIN	–	VE4050A1051
Rp 2	360	IP65	DIN plug	MS055001	BB051154DIN	–	VE4050A1184

Single Gas Valves

1



CO020012

Electrical connection

DIN plug	CO020012
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CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VExxxxA/B/C/S DN20-25	MS052501
CPI Switch for VExxxxA/B/C and VG4xxx DN32-40	MS054001
CPI Switch for VExxxxA/B/C and VG4xxx DN50	MS055001
CPI Switch for VExxxxA1 and VG4xxx DN65-80	MS056501



MS05

Replacement coils

Replacement coil	BB052301
Replacement coil	BB052302
Replacement coil	BB052325
Replacement coil	BB052326DIN
Replacement coil	BB052340
Replacement coil	BB052306DIN
Replacement coil	BB052303
Replacement coil	BB052365
Replacement coil	BB051102DIN
Replacement coil	BB051125
Replacement coil	BB051126DIN
Replacement coil	BB051152DIN
Replacement coil	BB051154DIN

Single Gas Valves

Solenoid gas valve, normally closed VE4000A3



VE4000A3



Class "A" Safety Shutoff Solenoid Gas Valve.

For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CE (EN161), AGA
Pipe connection	PN16 Flanges as per EN 1092-1
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
DN65	360	IP65	DIN plug	MS058001	BB052381DIN	VE4065A3022
DN80	360	IP65	DIN plug	MS058001	BB052382DIN	VE4080A3021
DN100	200	IP54	PG11	MS051001	BB152300	VE4100A3001
DN100	360	IP65	DIN plug	MS051001		VE4100A3068

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
DN65	360	IP65	DIN plug	MS058001	BB051181DIN	VE4065A3030
DN80	360	IP65	DIN plug	MS058001	BB051105DIN	VE4080A3039
DN100	360	IP65	DIN plug	MS051001		VE4100A3076

Electrical connection

DIN plug	CO020012
CPI Switch for VE4100A	MS051001

CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VE4065/80	MS058001
CPI Switch for VE4100A	MS051001

Replacement coils

Replacement coil	BB052381DIN
Replacement coil	BB052382DIN
Replacement coil	BB152300
Replacement coil	BB051181DIN
Replacement coil	BB051105DIN



CO020012



MS05

Single Gas Valves

Solenoid gas valve, normally closed, with flow rate adjustment VE4000B1



VE4000B1



Class "A" Safety Shutoff Solenoid Gas Valve, with maximum flow rate adjustment. For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening, with maximum flow rate adjustment.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CE (EN161), AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	<ul style="list-style-type: none"> • The maximum flow rate can be adjusted on top of the valve • Optional Closed Position Indication Switch (CPI switch) can be ordered separately.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 3/8	360	IP65	DIN plug			-	VE4010B1062
Rp 1/2	360	IP54	PG11		BB152301	-	VE4015B1004
Rp 1/2	360	IP65	DIN plug		BB152305	-	VE4015B1087
Rp 3/4	360	IP54	PG11	MS052501	BB152325	-	VE4020B1004
Rp 3/4	360	IP54	PG11	MS052501	BB152325	-	VE4020B1046
Rp 3/4	360	IP65	DIN plug	MS052501	BB152324	-	VE4020B1137
Rp 1	200	IP54	PG11	MS052501	BB152325	-	VE4025B1003
Rp 1	360	IP54	PG11	MS052501	BB152325	-	VE4025B1045
Rp 1	360	IP65	DIN plug	MS052501	BB152325	-	VE4025B1102
Rp 1 1/4	360	IP65	DIN plug	MS054001		-	VE4032B1116
Rp 1 1/2	200	IP54	PG11	MS054001	BB152326	-	VE4040B1002
Rp 1 1/2	360	IP54	PG11	MS054001	BB152340	-	VE4040B1044
Rp 1 1/2	360	IP65	DIN plug	MS054001		Viton	VE4040B1119
Rp 1 1/2	360	IP65	DIN plug	MS054001		-	VE4040B1135
Rp 2	200	IP54	PG11	MS055001	BB152340	-	VE4050B1001
Rp 2	360	IP54	PG11	MS055001	BB152303	-	VE4050B1043
Rp 2	360	IP65	DIN plug	MS055001	BB152307	-	VE4050B1118
Rp 2 1/2	200	IP54	PG11	MS058001	BB152365	-	VE4065B1017
Rp 3	200	IP54	PG11	MS058001	BB152380	-	VE4080B1016

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 3/8	360	IP65	DIN plug			-	VE4010B1054
Rp 1/2	200	IP54	PG11		BB151101	-	VE4015B1012
Rp 1/2	360	IP65	DIN plug		BB151107	-	VE4015B1095
Rp 3/4	360	IP65	PG11	MS052501	BB151125	-	VE4020B1129
Rp 1	360	IP54	PG11	MS052501	BB151125	-	VE4025B1078
Rp 1	360	IP65	DIN plug	MS052501	BB151125	Viton	VE4025B1110
Rp 1	360	IP65	DIN plug	MS052501	BB151125	-	VE4025B1128

Single Gas Valves

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 1 1/4	360	IP65	DIN plug	MS054001	BB151104	–	VE4032B1108
Rp 1 1/2	360	IP65	DIN plug	MS054001	BB151104	–	VE4040B1127
Rp 2	360	IP65	DIN plug	MS055001	BB151153	–	VE4050B1126

24 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 1/2	360	IP65	DIN plug			–	VE8015B1042
Rp 3/4	200	IP65	DIN plug	MS052501		–	VE8020B1042
Rp 1	200	IP65	DIN plug	MS052501		–	VE8025B1058
Rp 1 1/2	200	IP65	DIN plug	MS054001		–	VE8040B1032
Rp 2	200	IP65	DIN plug	MS055001		–	VE8050B1023

24...28 Vdc versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Comments	Type
Rp 1/2	360	IP65	DIN plug			–	VE8015B1059
Rp 3/4	200	IP65	DIN plug	MS052501		–	VE8020B1059
Rp 1	200	IP65	DIN plug	MS052501		–	VE8025B1066
Rp 1 1/4	200	IP65	DIN plug	MS054001		–	VE8032B1039
Rp 1 1/2	200	IP65	DIN plug	MS054001		–	VE8040B1040
Rp 2	200	IP65	DIN plug	MS055001		–	VE8050B1031

Electrical connection

DIN plug	CO020012
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CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VExxxxA/B/C/S DN20-25	MS052501
CPI Switch for VExxxxA/B/C and VG4xxx DN32-40	MS054001
CPI Switch for VExxxxA/B/C and VG4xxx DN50	MS055001
CPI Switch for VExxxxA1 and VG4xxx DN65-80	MS056501
CPI Switch for VExxxxB DN65-80	MS058001

Replacement coils

Replacement coil	BB152301
Replacement coil	BB152305
Replacement coil	BB152325
Replacement coil	BB152324
Replacement coil	BB152326
Replacement coil	BB152340
Replacement coil	BB152303
Replacement coil	BB152307
Replacement coil	BB152365
Replacement coil	BB152380
Replacement coil	BB151101
Replacement coil	BB151107
Replacement coil	BB151125
Replacement coil	BB151104
Replacement coil	BB151153



CO020012



MS05

Single Gas Valves

Solenoid gas valve, normally closed, flanged connections VE4000B3



VE4000B3



Class "A" Safety Shutoff Solenoid Gas Valve with flanged connections.
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening
Media	natural gas, propane, air. Special versions for biogas available upon request
Materials	aluminium die cast body
Approvals	CE (EN161), AGA
Pipe connection	PN16 Flanges as per EN 1092-1
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	<ul style="list-style-type: none"> • Adjustable maximum flow rate on top of the coil. • 4 auxiliary pressure taps with Rp 1/4" threaded connections, 2 on the inlet side, 2 on the outlet side. • Other voltages are also available. • Optional Closed Position Indication Switch (CPI switch) is ordered separately.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
DN65	200	IP54	PG11	MS058001	BB152365	VE4065B3005
DN65	360	IP54	PG11	MS058001	BB152380	VE4065B3039
DN65	360	IP65	DIN plug	MS058001		VE4065B3153
DN80	200	IP54	PG11	MS058001	BB152380	VE4080B3004
DN80	360	IP54	PG11	MS058001	BB152382	VE4080B3038
DN80	360	IP65	DIN plug	MS058001		VE4080B3178
DN100	200	IP54	PG11	MS051001	BB152300	VE4100B3000
DN100	360	IP54	PG11	MS051001		VE4100B3034

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
DN65	360	IP54	PG11	MS058001	BB151180	VE4065B3047
DN65	360	IP65	DIN plug	MS058001		VE4065B3161
DN80	360	IP54	PG11	MS058001		VE4080B3046

Electrical connection

DIN Plug **CO020012**

CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VExxxxB DN65-80 **MS058001**
 CPI Switch for VE4100A DN100 **MS051001**

Replacement coils

Replacement coil **BB152365**
 Replacement coil **BB152380**
 Replacement coil **BB152382**
 Replacement coil **BB152300**
 Replacement coil **BB151180**
 Replacement coil **BB151108**



CO020012



MS05

Single Gas Valves

Solenoid gas valve, normally closed, with characterized opening VE4000C1



VE4000C1



Class "A" Safety Shutoff Solenoid Gas Valve, with maximum flow rate adjustment and characterized opening.

For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, slow opening, with maximum flow rate adjustment
Media	natural gas, propane, air. Special versions for biogas available upon request
Materials	aluminium die cast body
Approvals	CE (EN161), AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	30 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	<ul style="list-style-type: none"> • The maximum flow rate and the opening characteristics can be adjusted on top of the valve. • Optional Closed Position Indication Switch (CPI switch) is ordered separately.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 1/2	360	IP54	PG11		BB152301	VE4015C1003
Rp 1/2	360	IP65	DIN plug		BB152305	VE4015C1110
Rp 3/4	360	IP54	PG11	MS052501	BB152325	VE4020C1003
Rp 3/4	360	IP54	DIN plug	MS052501		VE4020C1060
Rp 3/4	360	IP65	DIN plug	MS052501	BB152324	VE4020C1086
Rp 1	360	IP54	PG11	MS052501	BB152325	VE4025C1002
Rp 1	360	IP54	DIN plug	MS052501		VE4025C1085
Rp 1	360	IP65	DIN plug	MS052501	BB152324	VE4025C1119
Rp 1 1/4	360	IP54	PG11	MS054001	BB152340	VE4032C1032
Rp 1 1/2	200	IP54	PG11	MS054001	BB152326	VE4040C1001
Rp 1 1/2	360	IP65	DIN plug	MS054001	BB152342DIN	VE4040C1175
Rp 2	200	IP54	PG11	MS055001	BB152340	VE4050C1000
Rp 2	360	IP65	DIN plug	MS055001	BB152307DIN	VE4050C1117

110 Vac versions

Valve dimension	Max. operating pressure mbar	Protection class	Electrical connection	Optional CPI-switch	Replacement coil	Type
Rp 1/2	360	IP65	DIN plug		BB151107DIN	VE4015C1128
Rp 1	360	IP65	DIN plug	MS052501		VE4025C1127
Rp 1 1/4	360	IP65	DIN plug	MS054001		VE4032C1065
Rp 1 1/2	360	IP65	DIN plug	MS054001		VE4040C1167

Single Gas Valves

1



CO020012

Electrical connection

DIN plug	CO020012
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CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VExxxxA/B/C/S DN20-25	MS052501
CPI Switch for VExxxxA/B/C and VG4xxx DN32-40	MS054001
CPI Switch for VExxxxA/B/C and VG4xxx DN50	MS055001



MS05

Replacement parts

Replacement retarder for VE4xxxC-series DN10..25 and VQ4xxMC-series DN20-DN25	KTGRFR01
Replacement retarder for VE4xxxC-series DN32..50 and VQ4xxMC-series DN40-DN50	KTGRFR02

Replacement coils

Replacement coil	BB152301
Replacement coil	BB152305
Replacement coil	BB152325
Replacement coil	BB152324
Replacement coil	BB152340
Replacement coil	BB152326
Replacement coil	BB152342DIN
Replacement coil	BB152307DIN
Replacement coil	BB151107DIN

Single Gas Valves

Solenoid gas valve, normally open VE4000S



VE4000S1



Solenoid Gas Valve normally open.

The VE4000S1 and VE4000S2 series gas valves are safety relief solenoid valves used as vent valves in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally open
Media	natural gas, propane, air
Materials	aluminium die cast body
Approvals	CE (EN161), AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Max. operating pressure	360 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Protection class	IP54
Electrical connection	PG11
Additional description	<ul style="list-style-type: none"> • The VE4000S1 series are without Closed Position Indication (CPI) Switch, which can be ordered and installed separately. • The VE4000S2 series have the CPI switch factory installed.

VE4000S1 Series (220...240Vac)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	MS052501	BB152302	VE4020S1038
Rp 1	MS052501	BB152302	VE4025S1037

VE4000S1 Series (110Vac)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	MS052501	BB151101	VE4020S1046
Rp 1	MS052501	BB151101	VE4025S1045

VE4000S1 Series (24..28Vdc)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	MS052501		VE8020S1000
Rp 1	MS052501		VE8025S1009



VE4000S2

VE4000S2 Series with factory installed CPI switch (220...240Vac)

Valve dimension	Optional CPI-switch	Replacement coil	Type
Rp 3/4	included	BB152302	VE4020S2044
Rp 1	included	BB152302	VE4025S2035

CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VExxxxA/B/C/S DN20-25	MS052501
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MS05

Replacement coils

Replacement coil	BB152302
Replacement coil	BB151101

Single Gas Valves

1

Solenoid gas valve, normally closed, for Japanese market



VE4000B1



Class "A" Safety Shutoff Solenoid Gas Valve, with maximum flow rate adjustment (B-models) or openings characteristic (C-models) for the Japanese market (100/200 Vac).
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening, with maximum flow rate adjustment.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CE (EN161), AGA
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	BSP
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Protection class	IP54
Electrical connection	PG11
Additional description	<ul style="list-style-type: none"> • The maximum flow rate can be adjusted on top of the valve • Optional Closed Position Indication Switch (CPI switch) can be ordered separately.

100 Vac versions with flow restrictor

Valve dimension	Max. operating pressure mbar	Optional CPI-switch	Type
Rp 3/8	200		VE4010NB1100
Rp 1/2	200		VE4015NB1100
Rp 3/4	200	MS052501	VE4020NB1100
Rp 1	200	MS052501	VE4025NB1100
Rp 1 1/4	200	MS054001	VE4032NB1100
Rp 1 1/2	200	MS054001	VE4040NB1100
Rp 2	200	MS055001	VE4050NB1100

200 Vac versions with flow restrictor

Valve dimension	Max. operating pressure mbar	Optional CPI-switch	Type
Rp 3/8	200		VE4010NB1200
Rp 1/2	200		VE4015NB1200
Rp 3/4	200	MS052501	VE4020NB1200
Rp 1	200	MS052501	VE4025NB1200
Rp 1 1/4	200	MS054001	VE4032NB1200
Rp 1 1/2	200	MS054001	VE4040NB1200
Rp 2	200	MS055001	VE4050NB1200

Single Gas Valves



VE4000C1

100 Vac versions with openings curve

Valve dimension	Max. operating pressure mbar	Optional CPI-switch	Type
Rp 3/8	200		VE4010NC1100
Rp 1/2	200		VE4015NC1100
Rp 3/4	200	MS052501	VE4020NC1100
Rp 1	200	MS052501	VE4025NC1100
Rp 1 1/4	200	MS054001	VE4032NC1100
Rp 1 1/2	200	MS054001	VE4040NC1100
Rp 2	200	MS055001	VE4050NC1100

200 Vac versions with openings curve

Valve dimension	Max. operating pressure mbar	Optional CPI-switch	Type
Rp 1/2	200		VE4015NC1200
Rp 3/4	200	MS052501	VE4020NC1200
Rp 1	200	MS052501	VE4025NC1200
Rp 1 1/4	200	MS054001	VE4032NC1200
Rp 1 1/2	200	MS054001	VE4040NC1200
Rp 2	200	MS055001	VE4050NC1200



CO020012

Electrical connection

DIN Plug	CO020012
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MS05

CPI Switch for VE-series valves with bottom plug (1/4")

CPI Switch for VExxxxA/B/C/S DN20-25	MS052501
CPI Switch for VExxxxA/B/C and VG4xxx DN32-40	MS054001
CPI Switch for VExxxxA/B/C and VG4xxx DN50	MS055001

Single Gas Valves

1

Safety shut-off gas valve, normally closed for North American market V4295A1



V4295A1



Class "B" Safety Shutoff Gas Valve,

For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CSA, AGA
Pipe connection	Internal threads
Threads type	NPT
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-40 ... 63 °C
Additional description	Upstream and downstream taps 1/4" NPT

120 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	140	V4295A1015
Rp 3/4	140	V4295A1023
Rp 1	140	V4295A1031
Rp 1 1/4	140	V4295A1049
Rp 1 1/2	140	V4295A1056
Rp 2	140	V4295A1064
Rp 2 1/2	140	V4295A1072
Rp 3	140	V4295A1080
Rp 3/8	350	V4295A1098
Rp 1/2	350	V4295A1106
Rp 3/4	350	V4295A1114
Rp 1	350	V4295A1122
Rp 1 1/4	350	V4295A1130
Rp 1 1/2	350	V4295A1148/U
Rp 2	350	V4295A1155

24 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	140	V8295A1016
Rp 3/4	140	V8295A1024
Rp 1	140	V8295A1032
Rp 1 1/4	140	V8295A1040
Rp 1 1/2	140	V8295A1057
Rp 2	140	V8295A1065

Single Gas Valves

Safety shut-off gas valve, normally open for North American market V4295S1



V4295A1122



Class "B" Safety Shutoff Gas Valve,
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally OPEN (vent), fast closing.
Media	natural gas, propane, air.
Materials	aluminium die cast body.
Approvals	CSA, AGA
Pipe connection	Internal threads
Threads type	NPT
Max. operating pressure	140 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-40 ... 63 °C
Additional description	Upstream and downstream taps 1/4" NPT

120 Vac versions

Valve dimension	Type
Rp 3/4	V4295S1005
Rp 1	V4295S1013
Rp 1 1/4	V4295S1021

24 Vac versions

Valve dimension	Type
Rp 3/4	V8295S1006

Single Gas Valves

1

Fluid power actuators for safety shut-off gas valve VE5000-series



V4055

Fluid power actuators for Class "A" Safety Shutoff Gas Valves VE5000-series.

For control and regulation of gaseous fluids in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

Gas valve type	non regulated ON/OFF normally closed, fast opening.
Materials	aluminium die cast enclosure.
Approvals	CE (EN161) <ul style="list-style-type: none"> • Only in combination with Honeywell VE5000 series valve bodies.
Maximum opening time	16 s
Maximum closing time	1 s
Electrical connection	screw terminals
Ambient temperature	-23 ... 70 °C
Protection class	NEMA 3 / IP44
Additional description	<ul style="list-style-type: none"> • V4055 models are for on/off control. V4062 models for high/low/off control.

Standard pressure actuators for on/off control

Max. operating pressure mbar	Supply voltage	Comment	Type
360	120 Vac		V4055A1031/U
360	120 Vac	With damper arm shaft	V4055A1098/U
360	230 Vac	With damper arm shaft	V4055A1114/U
360	230 Vac		V4055A1130/U
360	240 Vac		V4055A1239/U

High pressure actuators for on/off control

Max. operating pressure mbar	Supply voltage	Comment	Type
500	120 Vac	With damper arm shaft	V4055B1039/U
500	230 Vac		V4055B1088/U
500	240 Vac		V4055B1096/U

Standard pressure actuators for high/low/off control

Max. operating pressure mbar	Supply voltage	Comment	Type
360	220 Vac	With damper arm shaft	V4062A1099/U

Accessories

Auxiliary Switch Bag Assembly (not for models with maximum flow limit switch).	133568/U
Valve-Closed Indication Switch Bag Assembly	133569/U
Damper Crank Arm (damper arm and clip)	7616BR/U

Single Gas Valves

Safety shut-off gas valve, normally closed, used with fluid power actuator V4055

Class "A" Safety Shutoff Gas Valve, for fluid power actuator.
For control and regulation of gaseous fluids in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.



VE5000A3



Gas valve type	non regulated ON/OFF normally closed, fast opening.
Media	natural gas, propane, air. Special versions for biogas available upon request.
Materials	aluminium die cast body.
Approvals	CE (EN161), AGA
Pipe connection	PN16 Flanges as per EN 1092-1
Max. operating pressure	360 mbar
Maximum opening time	1 s
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Additional description	Maximum inlet pressure depends on actuator model: <ul style="list-style-type: none"> • VE4065/80: 360mB maximum with V4055A or V4062A • VE4100: 360mB maximum with V4055B or V4062B

Valve bodies

Valve dimension	Type
DN65	VE5065A3005
DN80	VE5080A3004
DN80	VE5080A3012
DN100	VE5100A3000

Single Gas Valves

1

Throttle gas valve for firing rate control V5197A



V5197A-THREADED-FLANGED



The V5197A are firing rate valves used to provide variable flow control

Gas valve type	Fine control of gas flow, driven by actuator.
Media	Air, natural gas, liquefied petroleum (LP), and manufactured gases.
Materials	Unpainted cast aluminium, brass and stainless steel internal parts, NBR seals
Approvals	<ul style="list-style-type: none"> • Threaded Flanged: CE, UL, CSA • Flanged: CE
Max. operating pressure	1000 mbar
Ambient temperature	-40 ... 66 °C
Additional description	Pressure switch C6097 can be fitted direct to flange. Maximum flow can be set by adjustment screw on bottom. Adaptable for several actuators by different adaptor kits.

Threaded

Pipe connection	Type
Threaded flanged 3/4" ..2"	V5197A1003
Threaded flanged 2" ..3"	V5197A1011



V5197A-PN16-FLANGED

Flanged

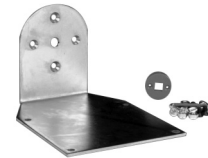
Pipe connection	Type
PN16 Flanges as per EN 1092-1 DN65	V5197A1029
PN16 Flanges as per EN 1092-1 DN80	V5197A1037

V5197 Actuator linkages

for MF4000 actuator (white)	KTFRG04
for MODUTROL actuator (blue)	KTFRG05



KTFRG04-KIT-MF4000-A



KTFRG05-KIT-MODUTROL-A

Single Gas Valves

Butterfly gas valve VF5000 series (normal or reduced capacity)

Manually operated butterfly valves are used to control and govern the burner airlock of gas burners. can be equipped with MT4000 and MF4000 series actuator.



VF5000



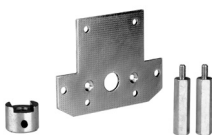
Gas valve type	Manually operated valve for flow control
Media	Air, natural gas, manufactured gases
Materials	Aluminium alloy die-cast. Viton O-ring seals. Valve plate shaft: Stainless steel.
Approvals	CE
Max. operating pressure	500 mbar
Ambient temperature	-15 ... 100 °C
Additional description	Standard flanging to fit between two flanges in accordance with DIN 2633.

Manual

Valve dimension	Type
DN25	VF5025A3007
DN32	VF5032A3003
DN40	VF5040A3006
DN50	VF5050A3005
DN65	VF5065A3003
DN80	VF5080A3002
DN100	VF5100A3008
DN125	VF5125A3005
DN150	VF5150A3003

Manual with reduced capacity

Valve dimension	Type
DN25	VF5025R3009
DN40	VF5050R3007
DN40	VF5065R3005
DN40	VF5080R3004
DN40	VF5100R3000



KTFFMT4

VF5000 actuator linkages

For MT4000 actuator	KTFFMT4
For MF4000 actuator	KTFFMF4

Single Gas Valves

1

Pneumatic shut off gas valve, normally closed type 8000



MAXON8000



Automatic shut off valve for use with variety of gaseous media.
For use with industrial burners on ovens, furnaces and other gas consuming appliances.
Connections:

- ISO 7-1 threaded or DIN PN16 Flanged
- **Available on request:** Special versions with NPT pipe thread, ANSI Flanged or with Socket welded nipple.

Other options, available on request:

- special firesafe- and NACE versions
- partial stroke testing

Gas valve type	Pneumatic actuated shut off valve
Media	Natural gas, propane, butane, hydrogen <ul style="list-style-type: none"> • Available on request: Special versions for oxygen, coke oven gas, refinery gas, biogas.
Ambient temperature	-40 ... 100 °C
Materials	Carbon or stainless steel body <ul style="list-style-type: none"> • Available on request: Special versions for low temperatures (till -50C).
Approvals	<ul style="list-style-type: none"> • GAD, EN161, PED, FM, AGA, TR (Russia) • SIL-3 Capable (meets IEC61508) • Available on request: UL, CSA, KTL and/or INMETRO approved models
Maximum closing time	1 s
Note	<ul style="list-style-type: none"> • Maximum operating pressures to be reduced with 25% when used with hydrogen (H₂)

Additional description

Operating Environment:

- Actuators are rated for NEMA 4, IP65 or optional NEMA 4X, IP65.
- Ambient temperature range of -40C to 60C for the 8111 models; option of -50C to 60C also available.
- Ambient temperature range of -40C to 50C for the 8113 models; option of -50C to 50C also available.
- All valves for oxygen service or using Ethylene Propylene body seals are limited to a minimum ambient and fluid temperature of -17C.

230 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17.6	SSOV 100S8111-CA22-D1B03	324721A
Rp 1 1/2	Internal threads	BSP	17.6	SSOV 150S8111-CA22-D1B03	324722A
Rp 2	Internal threads	BSP	17.6	SSOV 200S8111-CA22-D1B03	324723A
DN65	Flanges	–	12.1	SSOV 250C8111-DA22-D1B03	324724A
DN80	Flanges	–	9.3	SSOV 300C8111-DA22-D1B03	324726A
DN100	Flanges	–	9.3	SSOV 400C8111-DA22-D1B03	324727A

Single Gas Valves

120 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17.6	SSOV 100S8111-CA22-A1B03	324721B
Rp 1 1/2	Internal threads	BSP	17.6	SSOV 150S8111-CA22-A1B03	324722B
Rp 2	Internal threads	BSP	17.6	SSOV 200S8111-CA22-A1B03	324723B
DN65	Flanges	–	12.1	SSOV 250C8111-DA22-A1B03	324724B
DN80	Flanges	–	9.3	SSOV 300C8111-DA22-A1B03	324726B
DN100	Flanges	–	9.3	SSOV 400C8111-DA22-A1B03	324727B

24 Vdc versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17.6	SSOV 100S8111-CA22-G1B03	324721C
Rp 1 1/2	Internal threads	BSP	17.6	SSOV 150S8111-CA22-G1B03	324722C
Rp 2	Internal threads	BSP	17.6	SSOV 200S8111-CA22-G1B03	324723C
DN65	Flanges	–	12.1	SSOV 250C8111-DA22-G1B03	324724C
DN80	Flanges	–	9.3	SSOV 300C8111-DA22-G1B03	324726C
DN100	Flanges	–	9.3	SSOV 400C8111-DA22-G1B03	324727C

24 Vdc versions, ATEX Cat.2GD

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	17.6	SSOV 100S8113-CA22-J1B03	324721J
Rp 1 1/2	Internal threads	BSP	17.6	SSOV 150S8113-CA22-J1B03	324722J
Rp 2	Internal threads	BSP	17.6	SSOV 200S8113-CA22-J1B03	324723J
DN65	Flanges	–	12.1	SSOV 250C8113-DA22-J1B03	324724J
DN80	Flanges	–	9.3	SSOV 300C8113-DA22-J1B03	324726J
DN100	Flanges	–	9.3	SSOV 400C8113-DA22-J1B03	324727J

Single Gas Valves

Electro Mechanical gas valve, normally closed type MA

Automatic shut off valve for use with variety of gaseous media.
For use with industrial burners on ovens, furnaces and other gas consuming appliances.
Connections:

- ISO 7-1 threaded or DIN PN16 Flanged
- **Available on request:** Special versions with NPT pipe thread, ANSI Flanged or with Socket welded nipple.



MAXON-MA



Gas valve type	Electro mechanically actuated shut off valve
Media	Natural gas, propane, butane, hydrogen <ul style="list-style-type: none"> • Available on request: Special versions for oxygen, coke oven gas, refinery gas, biogas.
Ambient temperature	-40 ... 60 °C
Materials	Carbon steel body <ul style="list-style-type: none"> • Available on request: Special versions with stainless steel or low temperature carbon steel (as low as -50C).
Approvals	<ul style="list-style-type: none"> • GAD, EN161, PED, FM, AGA, TR (Russia) • SIL-3 Capable (meets IEC61508) • Available on request: UL and CSA approved models
Maximum closing time	1 s
Electrical connection	screw terminals
Protection class	NEMA 4 (IP65)
Note	<ul style="list-style-type: none"> • Maximum operating pressures to be reduced with 25% when used with hydrogen (H₂)

230 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	8.62	5000 100SMA11 CA22-CC13B0	325521A
Rp 1 1/2	Internal threads	BSP	4.83	5000 150SMA11 CA22-CC13B0	325522A
Rp 2	Internal threads	BSP	4.83	5000 200SMA11 CA22-CC13B0	325523A
DN65	Flanges	–	3.45	5000 250CMA11 DA22-CC23B0	325531A
DN80	Flanges	–	2.76	5000 300CMA11 DA22-CC23B0	325532A
DN100	Flanges	–	2.76	5000 400CMA11 DA22-CC23B0	325533A

120 Vac, 50/60 Hz versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	8.62	5000 100SMA11 CA22-AA13B0	325521B
Rp 1 1/2	Internal threads	BSP	4.83	5000 150SMA11 CA22-AA13B0	325522B
Rp 2	Internal threads	BSP	4.83	5000 200SMA11 CA22-AA13B0	325523B
DN65	Flanges	–	3.45	5000 250CMA11 DA22-AA23B0	325531B
DN80	Flanges	–	2.76	5000 300CMA11 DA22-AA23B0	325532B
DN100	Flanges	–	2.76	5000 400CMA11 DA22-AA23B0	325533B

24 Vdc versions

Valve dimension	Pipe connection	Threads type	Max. operating pressure bar	Product description	Type
Rp 1	Internal threads	BSP	8.62	5000 100SMA11 CA22-FE24B0	325521C
Rp 1 1/2	Internal threads	BSP	4.83	5000 150SMA11 CA22-FE24B0	325522C
Rp 2	Internal threads	BSP	4.83	5000 200SMA11 CA22-FE24B0	325523C
DN65	Flanges	–	3.45	5000 250CMA11 DA22-FE24B0	325531C
DN80	Flanges	–	2.76	5000 300CMA11 DA22-FE24B0	325532C
DN100	Flanges	–	2.76	5000 400CMA11 DA22-FE24B0	325533C

Single Gas Valves

Throttle gas valve VT5000 Series



VT4025A1009



These gas valves allow flow modulation with the possibility to set both minimum flow, by regulating the initial angle of the motor, and maximum flow by adjusting the regulator screw at the bottom of the valve.

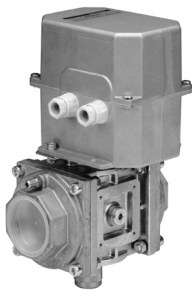
These valves are suitable for gaseous fluids in gas power burners, atmospheric gas boilers, melting furnaces, incinerators and other gas consuming appliances. The VT5000 series throttle valves are available in two versions: model VT5025 (with 1/2, 3/4" and 1" flanges) and model VT5050 (with 1 1/4", 1 1/2" and 2" flanges). There is also one model with factory mounted actuator (MT4000): VT4025A.

Gas valve type	Actuator operated throttle valve for flow control
Media	Air, natural gas, manufactured gases
Materials	Aluminium alloy die-cast. Viton O-ring seals. Valve dish: Stainless steel.
Approvals	CE
Pipe connection	Threaded flanges
Threads type	BSP
Max. operating pressure	360 mbar
Ambient temperature	-15 ... 60 °C
Additional description	<ul style="list-style-type: none"> • Uses Honeywell KTVT-series flanges for direct mounting in a pipe train or can be attached directly to the in- or outlet of VQ400-series dual valves or VR400-series combi valves for special applications. • For selection of suitable actuator, refer to MT4000, MF4000, LKS160 or Modutrol IV chapters.

Factory mounted actuator MT4000

Valve dimension	Maximum opening time s	Maximum closing time s	Protection class	Electrical connection	Comment	Type
DN25	30	30	IP40	conduit	Incl. MT4000A1027	VT4025A1009

With mounting bracket for actuator



VT50XXM

Valve dimension	Maximum opening time s	Maximum closing time s	Protection class	Electrical connection	Comment	Type
DN25	-	-	-	-	For Modutrol IV	VT5025M1005
DN25	-	-	-	-	For MF4000	VT5025M1013
DN25	-	-	-	-	For MT4000	VT5025M1021
DN25	-	-	-	-	For LKS160	VT5025M2003
DN50	-	-	-	-	For Modutrol IV	VT5050M1003
DN50	-	-	-	-	For MF4000	VT5050M1011
DN50	-	-	-	-	For MT4000	VT5050M1029
DN50	-	-	-	-	For LKS160	VT5050M2001

Flange kits for VT series throttle valves. Comes with 2x flanges, gaskets and, screws for mounting.

DN20 flange kit for VT4025 and VT5025. Has Rp 3/4" internal pipe thread (ISO 7-1)	KTVT20
DN25 flange kit for VT4025 and VT5025. Has Rp 1" internal pipe thread (ISO 7-1)	KTVT25
DN32 flange kit for VT5050. Has Rp 1-1/4" internal pipe thread (ISO 7-1)	KTVT32
DN40 flange kit for VT5050. Has Rp 1-1/2" internal pipe thread (ISO 7-1)	KTVT40
DN50 flange kit for VT5050. Has Rp 2" internal pipe thread (ISO 7-1)	KTVT50

Dual Gas Valves

1

Combination valve VQ-Modular

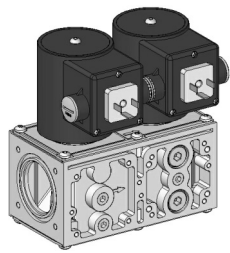
Class "A" Combination Gas Valve, up to 2" connection size. Special flanges are available for pipe sizes from 1/2" up to 2". Modular design:

- other valves can be fitted to each side of the valve body, such as a vent valve, pilot valve or external bypass valve;
- special gas pressure switch models are available for direct mounting on either side of the valve body.

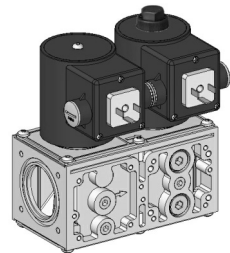
For control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.



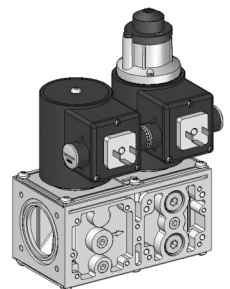
VQ-MODULAR



VQ425MA



VQ425MB-1



VQ425MC

Gas valve type

2 safety shutoff valves in series, without pressure regulator.

First safety valve V1

Always fast opening.

Second safety valve V2

Available models:

- MA - fast open
- MB - fast open with flow rate adjuster (factory set at fully open)
- MC - adjustable slow open (1..30 sec) with flow rate adjuster and step-open feature (factory settings: no step, ca. 6 sec slow-open and maximum flow)

Port connection

Honeywell flanges

Media

Designed for use with natural gas, butane or propane.

Materials

- Valve body: aluminium die cast body.
- Closing spring: AISI 302 steel.
- Valve plunger: Chrome plated Fe 360B steel sliding on anti-friction bearing.
- Seals and gaskets: Hydrocarbon resistant NBR rubber type.

Approvals

- CE (EN161), AGA

Note

- The VQ-Modular is designed for a maximum operating frequency of one cycle per minute.
- The small body size models are designed for ca. 500k cycles of operation.
- The large body size models are designed for ca. 300k cycles of operation.
- **IMPORTANT:** the VQ-Modular does not have an integrated screen at the inlet. For the inlet side always use flange models **KTCOMSxx** and for the outlet side flange models **KTCOMBxx**. KTCOMSxx can also be ordered for use at the outlet side, but then the included screen must be removed.

Max. operating pressure

360 mbar

Ambient temperature

-15 ... 60 °C

Maximum closing time

1 s

Additional description

- The valve solenoids are suitable for permanent energizing, such as applications in continuous operation.
- Various pressure tap points are available on both sides of the valve body as well as on the flanges.
- An optional Closed Position Indication Switch (CPI) can be mounted on the bottom of the first safety valve V1

Dual Gas Valves

VQ-Modular series dual valve

Supply voltage	Valve size inch	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Maximum flow m ³ /h	Optional CPI-switch	Spare coil V1	Spare coil V2	Type
115/230 Vac	3/4 .. 2	–	PG11 or DIN plug	IP54 or IP65	15	8	MS06-series	See table	See table. Not for MC.	_VQ4xxMx

First and second valve fast opening (* General features: Viton)

Supply voltage	Valve size inch	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Maximum flow m ³ /h	Optional CPI-switch	Spare coil V1	Spare coil V2	Type
230 Vac	3/4	1	PG11	IP54	15	8	MS062001	BB052302PG	BB052302PG	VQ420MA1004
230 Vac	3/4	1	DIN plug	IP65	15	8	MS062001	BB052302DIN	BB052305DIN	VQ420MA1012
230 Vac	1	1	PG11	IP54	21.1	11	MS062501	BB052326PG	BB052326PG	VQ425MA1005
230 Vac	1	1	DIN plug	IP65	21.1	11	MS062501	BB052326DIN	BB052326DIN	VQ425MA1013
115 Vac	1	1	DIN plug	IP65	23.9	11	MS062501	BB051126DIN	BB051126DIN	VQ425MA1038
230 Vac	1.1/2	1	PG11	IP54	46.5	31	MS064001	BB052306PG	BB052306PG	VQ440MA1006
230 Vac	1.1/2	1	DIN plug	IP65	46.5	31	MS064001	BB052306DIN	BB052306DIN	VQ440MA1014
115 Vac	1.1/2	1	DIN plug	IP65	46.5	31	MS064001	BB051152DIN	BB051152DIN	VQ440MA1030
230 Vac	1.1/2	1	DIN plug	IP65	46.5	31	MS064001	BB052306DIN	BB052306DIN	VQ440MA1048*
230 Vac	2	1	PG11	IP54	61	40	MS065001	BB052309PG	BB052309PG	VQ450MA1007
230 Vac	2	1	DIN plug	IP65	61	40	MS065001	BB052309DIN	BB052309DIN	VQ450MA1015

First valve fast opening. Second valve fast opening and with flow rate adjuster

Supply voltage	Valve size inch	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Maximum flow m ³ /h	Optional CPI-switch	Spare coil V1	Spare coil V2	Type
230 Vac	3/4	1	PG11	IP54	15	8	MS062001	BB052302PG	BB152305PG	VQ420MB1003
230 Vac	1	1	PG11	IP54	21.1	11	MS062501	BB052326PG	BB152324PG	VQ425MB1004
230 Vac	1	1	DIN plug	IP65	21.1	11	MS062501	BB052326DIN	BB152324DIN	VQ425MB1012
230 Vac	1.1/2	1	PG11	IP54	46.5	31	MS064001	BB052306PG	BB152342PG	VQ440MB1005
230 Vac	1.1/2	1	DIN plug	IP65	46.5	31	MS064001	BB052306DIN	BB152342DIN	VQ440MB1013
230 Vac	2	1	PG11	IP54	61	40	MS065001	BB052309PG	BB152307PG	VQ450MB1006
230 Vac	2	1	DIN plug	IP65	61	40	MS065001	BB052309DIN	BB152307DIN	VQ450MB1014

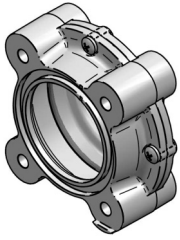
First valve fast opening. Second valve adjustable slow opening, step-open and flow rate adjuster

(* General features: Factory mounted 1" by-pass valve)

Supply voltage	Valve size inch	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Maximum flow m ³ /h	Optional CPI-switch	Spare coil V1	Spare coil V2	Type
230 Vac	3/4	30	PG11	IP54	15	8	MS062001	BB052302PG	–	VQ420MC1002
230 Vac	1	30	PG11	IP54	21.1	11	MS062501	BB052326PG	–	VQ425MC1003
230 Vac	1	30	DIN plug	IP65	21.1	11	MS062501	BB052326DIN	–	VQ425MC1011
230 Vac	1.1/2	30	PG11	IP54	46.5	31	MS064001	BB052306PG	–	VQ440MC1004
230 Vac	1.1/2	30	DIN plug	IP65	46.5	31	MS064001	BB052306DIN	–	VQ440MC1012
230 Vac	2	30	PG11	IP54	61	40	MS065001	BB052309PG	–	VQ450MC1005
230 Vac	2	30	DIN plug	IP65	61	40	MS065001	BB052309DIN	–	VQ450BB1005M*

Dual Gas Valves

1



HFVR

Fine particle filter, for mounting on inlet side (to be ordered separately)

Filter size 50 micron. Pack size 10pcs.	HFVR050
Filter size 150 micron. Pack size 10pcs.	HFVR150



KTCOMB

Flange kits without screen, for mounting on outlet side (to be ordered separately)

Flange kit for VQ420/25M. Contains 2x Rp 1/2"	KTCOMB15
Flange kit for VQ420/25M. Contains 2x Rp 3/4"	KTCOMB20
Flange kit for VQ420/25M. Contains 2x Rp 1"	KTCOMB25
Flange kit for VQ440/50M. Contains 2x Rp 1 1/4"	KTCOMB32
Flange kit for VQ440/50M. Contains 2x Rp 1 1/2"	KTCOMB40
Flange kit for VQ440/50M. Contains 2x Rp 2"	KTCOMB50

Flange kits with screen, for mounting on inlet side (to be ordered separately)

Flange kit for VQ420/25M. Contains 2x Rp 1/2"	KTCOMS15
Flange kit for VQ420/25M. Contains 2x Rp 3/4"	KTCOMS20
Flange kit for VQ420/25M. Contains 2x Rp 1"	KTCOMS25
Flange kit for VQ440/50M. Contains 2x Rp 1 1/4"	KTCOMS32
Flange kit for VQ440/50M. Contains 2x Rp 1 1/2"	KTCOMS40
Flange kit for VQ440/50M. Contains 2x Rp 2"	KTCOMS50

Side valves: By-Pass Valves (to be ordered separately)

By-pass valves	_VB420
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Side valves: Pilot Valves (to be ordered separately)

Pilot valves	_VP420
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Side valves: Vent Valves, normally open (to be ordered separately)

Vent valves	_VV420
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Gas Pressure Switches (to be ordered separately)

Standard gas pressure switches for direct mount	_C6097A2x00
Slim size gas pressure switches for direct mount	_C60VR40

DIN connector (to be ordered separately)

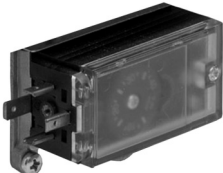
Standard DIN connector, colour black. For DIN/IP65 models only	C0020012
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Replacement parts

Replacement retarder for VE4xxxC-series DN10..25 and VQ4xxMC-series DN20-DN25	KTGRFR01
Replacement retarder for VE4xxxC-series DN32..50 and VQ4xxMC-series DN40-DN40	KTGRFR02



C6097A2200



C60VR40



C0020012

Dual Gas Valves

Side valves for VQ-Modular



VB420



Class "A" add-on side valves, for use with VQ-Modular dual valves, 3/4" size.

- VB420-series: internal by-pass of the second main valve, to provide two-stage control.
- VP420-series: integrated pilot valve with external Rp 3/4" outlet.
- VV420-series: integrated normally open vent valve to depressurize space between the two main valves during stand-by. Models for left or right side mount.

Gas valve type	Add-on safety shutoff valve, uses 4 screws for fixation and a gasket for sealing.
Media	Natural gas, butane or propane.
Materials	<ul style="list-style-type: none"> • Valve body: aluminium die cast body. • Closing spring: AISI 302 steel. • Valve plunger: Chrome plated Fe 360B steel sliding on anti-friction bearing. • Seals and gaskets: Hydrocarbon resistant NBR rubber type.
Approvals	<p>Only approved in combination with the VQ-Modular series dual valves.</p> <ul style="list-style-type: none"> • CE (EN161), AGA
Note	<p>The VB-VP-VV models side valves are designed for:</p> <ul style="list-style-type: none"> • a maximum operating frequency of one cycle per minute. • ca. 500k cycles of operation.
Valve size	3/4 inch
Max. operating pressure	360 mbar
Ambient temperature	-15 ... 60 °C
Maximum closing time	1 s
Maximum flow	14.8 m ³ /h
Additional description	<ul style="list-style-type: none"> • The valve solenoids are suitable for permanent energizing, such as applications in continuous operation.

Internal by-pass valve, fast opening and with flow rate adjuster.

For mounting on either side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	Type
115 Vac	1	screw terminals	IP54	26	BB151107PG	VB420B1005
230 Vac	1	screw terminals	IP54	20	BB152305PG	VB420B1013
115 Vac	1	DIN plug	IP65	26	BB151107DIN	VB420B1021
230 Vac	1	DIN plug	IP65	20	BB152305DIN	VB420B1039

Internal by-pass valve, with adjustable slow opening, step-open and flow rate adjuster.

For mounting on either side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	Type
115 Vac	30	screw terminals	IP54	26	BB151107PG	VB420C1006
230 Vac	30	screw terminals	IP54	20	BB152305PG	VB420C1014
115 Vac	30	DIN plug	IP65	26	BB151107DIN	VB420C1022
230 Vac	30	DIN plug	IP65	20	BB152305DIN	VB420C1030

Dual Gas Valves

1



VP420

Pilot valve, fast opening and with flow rate adjuster. With Rp 3/4" internal pipe thread. For mounting on either side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	Type
115 Vac	1	screw terminals	IP54	26	BB151107PG	VP420B1003
230 Vac	1	screw terminals	IP54	20	BB152305PG	VP420B1011
115 Vac	1	DIN plug	IP65	26	BB151107DIN	VP420B1029
230 Vac	1	DIN plug	IP65	20	BB152305DIN	VP420B1037



VV420-RIGHT

Pilot valve, with adjustable slow opening, step-open and flow rate adjuster. With Rp 3/4" internal pipe thread. For mounting on either side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	Type
115 Vac	30	screw terminals	IP54	26	BB151107PG	VP420C1004
230 Vac	30	screw terminals	IP54	20	BB152305PG	VP420C1012
115 Vac	30	DIN plug	IP65	26	BB151107DIN	VP420C1020
230 Vac	30	DIN plug	IP65	20	BB152305DIN	VP420C1038



VV420-LEFT

Normally open vent valve series. With Rp 3/4" internal pipe thread, for mounting on the right side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	Type
115 Vac	1	screw terminals	IP54	26	BB151107DIN	VV420A1002
230 Vac	1	screw terminals	IP54	20	BB152310DIN	VV420A1010
115 Vac	1	DIN plug	IP65	26	BB151107DIN	VV420A1028
230 Vac	1	DIN plug	IP65	20	BB152310DIN	VV420A1036

Normally open vent valve series. With Rp 3/4" internal pipe thread, for mounting on the left side of the valve body.

Supply voltage	Maximum opening time s	Electrical connection	Protection class	Power consumption W	Spare coil V1	Type
115 Vac	1	screw terminals	IP54	26	BB151107DIN	VV420A1044
230 Vac	1	screw terminals	IP54	20	BB152310DIN	VV420A1051
115 Vac	1	DIN plug	IP65	26	BB151107DIN	VV420A1069
230 Vac	1	DIN plug	IP65	20	BB152310DIN	VV420A1077



CO020012

DIN connector (to be ordered separately)

Standard DIN connector, colour black.

CO020012

Semi Auto Gas Valves

Class "A" Semi-automatic safety valve, normally closed VG400AA

Class "A", manually open, Safety Shutoff Solenoid Gas Valve with threaded connections. For use in gas leak detection systems.



VG4XXAA



Gas valve type	non regulated ON/OFF normally closed, manual opening.
Media	natural gas, propane, air
Materials	aluminium die cast body
Approvals	CE (EN161)
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	NPT
Maximum closing time	1 s
Ambient temperature	-15 ... 60 °C
Protection class	IP65
Additional description	Valve is normally closed, has to be opened manually and remains open as long as the coil is being energized.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	500	VG415AA1004
Rp 3/4	500	VG420AA1007
Rp 1	500	VG425AA1002

DIN plug

DIN face connector colour BLACK	C0020012
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Class "A" Semi-automatic safety valve, normally open VG400SA

Class "A", manually closed, Safety Shutoff Solenoid Gas Valve with threaded connections.



VG4XXSA



Gas valve type	non regulated ON/OFF normally open, manual closing.
Media	natural gas, propane, air
Materials	aluminium die cast body
Approvals	CE (EN161)
Pipe connection	Internal thread as per ISO 7/1 (Rp)
Threads type	NPT
Maximum opening time	1 s
Ambient temperature	-15 ... 60 °C
Protection class	IP65
Additional description	Valve is manually opened and closes when the coil is energized.

220...240 Vac versions

Valve dimension	Max. operating pressure mbar	Type
Rp 1/2	500	VG415SA1002
Rp 3/4	500	VG420SA1005
Rp 1	500	VG425SA1000

DIN plug

DIN face connector colour BLACK	C0020012
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Semi Auto Gas Valves

1

Manual reset gas valve, normally closed VG4000A1



VG4000A1



Class "A", manually open, Safety Shutoff Solenoid Gas Valve with threaded connections. For use in gas leak detection systems or other applications requiring the safety gas valve to be manually open.

Gas valve type	non regulated ON/OFF normally closed, manual opening
Media	natural gas, propane, air
Materials	aluminium die cast body
Protection class	IP54. IP65 versions available upon request
Electrical connection	PG11
Approvals	CE (EN161)
Port connection	internal threads
Threads type	BSP
Ambient temperature	-15 ... 60 °C
Maximum closing time	1 s
Additional description	<ul style="list-style-type: none"> • Additional voltages (110Vac, 24Vac, 24-28Vdc) are also available. • Optional Closed Position Indication Switch (CPI switch) is ordered separately. • The valve has to be open manually when energised and closes when power is removed.

220...240 Vac versions

Valve size inch	Max. operating pressure mbar	Optional CPI-switch	Type
1 1/4	500	MS054001	VG4032A1006
1 1/2	500	MS054001	VG4040A1009
2	500	MS055001	VG4050A1008
2 1/2	360	MS056501	VG4065A1006

CPI switches

CPI switch	MS054001
CPI switch	MS055001
CPI switch	MS056501

Semi Auto Gas Valves

Manual reset gas valve, normally closed, flanged connections VG4000A3



VG4000A3



Class "A", manually open, Safety Shutoff Solenoid Gas Valve with flanged connections. For use in gas leak detection systems or other applications requiring the safety gas valve to be manually open.

Gas valve type	non regulated ON/OFF normally closed, manual opening
Media	natural gas, propane, air
Materials	aluminium die cast body
Protection class	IP54
Electrical connection	PG11
Approvals	CE (EN161)
Max. operating pressure	360 mbar
Port connection	flanges ISO7005
Ambient temperature	-15 ... 60 °C
Maximum closing time	1 s
Additional description	<ul style="list-style-type: none"> • Additional voltages (110Vac, 24Vac, 24-28Vdc) are also available. • Optional Closed Position Indication Switch (CPI switch) is ordered separately. • The valve has to be open manually when energised and closes when power is removed.

220...240 Vac versions

Valve size inch	Optional CPI-switch	Type
2 1/2	MS056501	VG4065A3002
3	MS056501	VG4080A3001
4	-	VG4100A3007

CPI switch

CPI switch	MS056501
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Semi Auto Gas Valves

Manual reset gas valve, normally open VG4000S



VG4000S



Normally open gas valve, manually closed.

For use in applications requiring a normally open gas valve with manual closing.

Gas valve type	non regulated ON/OFF normally open, manual closing
Media	natural gas, propane, air
Materials	aluminium die cast body
Protection class	IP54. IP65 versions available upon request
Electrical connection	PG11
Approvals	CE (EN161)
Port connection	internal threads
Threads type	BSP
Ambient temperature	-15 ... 60 °C
Maximum closing time	1 s
Additional description	<ul style="list-style-type: none">• Additional voltages (12Vdc, 24-28Vdc) are also available.• The valve has to be closed manually when energised and opens when power is removed.

220...240 Vac versions

Valve size inch	Max. operating pressure mbar	Type
1/2	100	VG4015S2008
3/4	100	VG4020S2008
1 1/4	100	VG4025S2007
1 1/4	360	VG4032S1005
1 1/2	360	VG4040S1008
2	360	VG4050S1007

Unimax Gas Valves (to be released)

Safety shut-off gas valve, 120 volt, American V4295-Series "Unimax"



V4295A2-DN20



Class "B" Line Voltage Safety Shutoff Single Solenoid Gas Valves for American market.

- V4295A2-series to replace V4295A1-series during 2017/2018
- Aluminium die cast valve body.
- Single valve seat technology to reduce risk of internal leakage
- Inlet and outlet 3/8" up to and including 3" NPT internal parallel pipe thread according ASME/ANSI B1.20.1.
- Series 1000 are standard on/off safety shut-off valves
- Series 3000 are safety on/off safety shut-off valves equipped with factory mounted and calibrated Proof Of Closure switch with over travel(POC)

Control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

- For use with non-aggressive fuel gases, such as natural gas, propane and butane as well as non-combustible gases like air and nitrogen.

Approvals	FM, ULc/us CSAC/us
Protection	NEMA 1
Voltage	120V 50/60Hz
Ambient temperature	-15 ... 60 °C
Ambient temperature	5 ... 145 °F
Electrical connection	Conduit
Inlet pressure	5psi/345mbar
Connection	threaded NPT

Standard



V4295A2

Pressure taps	Valve size	Flow regulator	Type
NPT 1/8"	3/8" DN10	On/Off NC	V4295A2003
NPT 1/8"	1/2" DN15	On/Off NC	V4295A2011
NPT 1/4"	3/4" DN20	On/Off NC	V4295A2029
NPT 1/4"	1" DN25	On/Off NC	V4295A2037
NPT 1/4"	1 1/4" DN32	On/Off NC	V4295A2045
NPT 1/4"	1 1/2" DN40	On/Off NC	V4295A2052
NPT 1/4"	2" DN50	On/Off NC	V4295A2060
NPT 1/4"	2 1/2" DN65	On/Off NC	V4295A2078
NPT 1/4"	3" DN80	On/Off NC	V4295A2086

Unimax Gas Valves (to be released)

1



V4295A3-DN20

With Proof Of Closure switch and overtravel.

Pressure taps	Valve size	Flow regulator	Type
NPT 1/8"	3/8" DN10	On/Off NC	V4295A3011
NPT 1/8"	1/2" DN15	On/Off NC	V4295A3019
NPT 1/4"	3/4" DN20	On/Off NC	V4295A3027
NPT 1/4"	1" DN25	On/Off NC	V4295A3035
NPT 1/4"	1 1/4" DN32	On/Off NC	V4295A3043
NPT 1/4"	1 1/2" DN40	On/Off NC	V4295A3050
NPT 1/4"	2" DN50	On/Off NC	V4295A3068
NPT 1/4"	2 1/2" DN65	On/Off NC	V4295A3076
NPT 1/4"	3" DN80	On/Off NC	V4295A3084

Vent Valves

Pressure taps	Valve size	Flow regulator	Type
NPT 1/4"	3/4" DN20	On/Off NO	V4295S2002
NPT 1/4"	1" DN25	On/Off NO	V4295S2010
NPT 1/4"	1 1/4" DN32	On/Off NO	V4295S2028



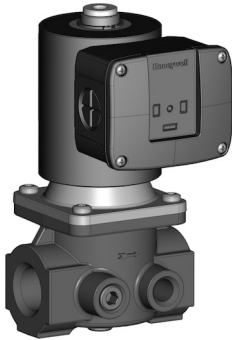
V4295A3



V4295S2

Unimax Gas Valves (to be released)

Safety shut-off gas valve, 24 volt, American V8295-Series "Unimax"



V8295A2-DN20



Class "B" Low Voltage Safety Shutoff Single Solenoid Gas Valves for American market.

- V8295A2-series to replace V8295A1-series during 2017/2018
- Aluminium die cast valve body.
- Single valve seat technology to reduce risk of internal leakage
- Inlet and outlet 3/8" up to and including 2" NPT internal parallel pipe thread according ASME/ANSI B1.20.1.
- Series 1000 are standard on/off safety shut-off valves
- Series 3000 are safety on/off safety shut-off valves equipped with factory mounted and calibrated Proof Of Closure switch with over travel(POC)

Control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

- For use with non-aggressive fuel gases, such as natural gas, propane and butane as well as non-combustible gases like air and nitrogen.

Approvals	FM, ULc/us CSAc/us
Protection	NEMA 1
Voltage	24V 50/60Hz
Ambient temperature	-15 ... 63 °C
Ambient temperature	5 ... 145 °F
Flow regulator	On/Off NC
Electrical connection	Conduit
Inlet pressure	2psi/140mbar
Connection	threaded NPT

Standard

Pressure taps	Valve size	Type
NPT 1/8"	1/2" DN15	V8295A2009
NPT 1/4"	3/4" DN20	V8295A2017
NPT 1/4"	1" DN25	V8295A2025
NPT 1/4"	1 1/4" DN32	V8295A2033
NPT 1/4"	1 1/2" DN40	V8295A2041
NPT 1/4"	2" DN50	V8295A2058

With Proof Of Closure switch.

Pressure taps	Valve size	Type
NPT 1/8"	1/2" DN15	V8295A3007
NPT 1/4"	3/4" DN20	V8295A3015
NPT 1/4"	1" DN25	V8295A3023
NPT 1/4"	1 1/4" DN32	V8295A3031
NPT 1/4"	1 1/2" DN40	V8295A3049
NPT 1/4"	2" DN50	V8295A3056



V8295A3-DN20



V8295A2



V8295A3

Unimax Gas Valves (to be released)

Safety shut-off gas valve, 200-240 volt, European VE4000-Series "Unimax"

Class "A" Safety Shutoff Single Solenoid Gas Valve.

- "Unimax" VE4000-series to replace existing "UGV" VE4000-series (**230Vac**) during 2017/2018
- Aluminium die cast valve body.
- Wide universal voltage input.
- Energy saving electrical operator.
- Single valve seat technology to reduce risk of internal leakage
- Possibility to field mount a closed position indicator switch kit (CPI switch), on models DN20..DN80 and on on/off model DN100 without flow restrictor.
- ISO 7/1 threaded pipe connections for models up to 3"
- ISO 7005 PN15 flanged pipe connections for models DN65..DN100
- **Standard Models** use a M16 PG cable gland cable entry and screw terminals for the electrical connection
- **DIN Plug models** use a DIN Plug connector according to ISO 4400 / DIN EN 175301-803 for the electrical connection. **Connector model CO020012 to be ordered separately.**

Control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

- For use with natural gas, propane, air. Special versions for biogas available upon request.

Approvals	CE(EN161), AGA, GOST/EAC
Protection	IP65
Voltage	200..240V 50/60Hz
Ambient temperature	-15 ... 60 °C
Inlet pressure	360mbar

Standard Model: Fast Opening - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	Gland	threaded BSP. PI	-	VE4010AGH1001
G 1/8"	1/2" DN15	On/Off NC	Gland	threaded BSP. PI	-	VE4015AGH1002
G 1/4"	3/4" DN20	On/Off NC	Gland	threaded BSP. PI	MS052501	VE4020AGH1003
G 1/4"	1" DN25	On/Off NC	Gland	threaded BSP. PI	MS052501	VE4025AGH1004
G 1/4"	1 1/4" DN32	On/Off NC	Gland	threaded BSP. PI	MS054001	VE4032AGH1005
G 1/4"	1 1/2" DN40	On/Off NC	Gland	threaded BSP. PI	MS054001	VE4040AGH1006
G 1/4"	2" DN50	On/Off NC	Gland	threaded BSP. PI	MS055001	VE4050AGH1007
G 1/4"	2 1/2" DN65	On/Off NC	Gland	threaded BSP. PI	MS065001	VE4065AGH1008
G 1/4"	3" DN80	On/Off NC	Gland	threaded BSP. PI	MS080001	VE4080AGH1009

Standard Model: Fast Opening - Flanged pipe connection

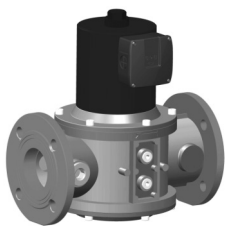
Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	On/Off NC	Gland	flange	MS056501	VE4065AGH3009
G 1/4"	3" DN80	On/Off NC	Gland	flange	MS058001	VE4080AGH3001
G 1/4"	4" DN100	On/Off NC	Gland	flange	MS051001	VE4100AGH3001



VE4010AGH1



VE4040AGH1



VE4080AGH3

Unimax Gas Valves (to be released)



VE4010BGH1



VE4040BGH1

Standard Model: Fast Opening - Integrated Flow Restrictor - Threaded pipe connection

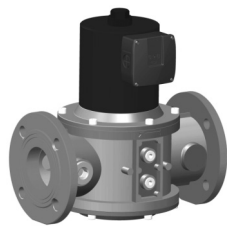
Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	Regulating	Gland	threaded BSP. PI	–	VE4010BGH1004
G 1/8"	1/2" DN15	Regulating	Gland	threaded BSP. PI	–	VE4015BGH1005
G 1/4"	3/4" DN20	Regulating	Gland	threaded BSP. PI	MS052501	VE4020BGH1006
G 1/4"	1" DN25	Regulating	Gland	threaded BSP. PI	MS052501	VE4025BGH1007
G 1/4"	1 1/4" DN32	Regulating	Gland	threaded BSP. PI	MS054001	VE4032BGH1008
G 1/4"	1 1/2" DN40	Regulating	Gland	threaded BSP. PI	MS054001	VE4040BGH1009
G 1/4"	2" DN50	Regulating	Gland	threaded BSP. PI	MS055001	VE4050BGH1001
G 1/4"	2 1/2" DN65	Regulating	Gland	threaded BSP. PI	MS080001	VE4065BGH1005
G 1/4"	3" DN80	Regulating	Gland	threaded BSP. PI	MS080001	VE4080BGH1006

Standard Model: Fast Opening - Integrated Flow Restrictor - Flanged pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	Regulating	Gland	flange	MS058001	VE4065BGH3006
G 1/4"	3" DN80	Regulating	Gland	flange	MS058001	VE4080BGH3007
G 1/4"	4" DN100	Regulating	Gland	flange	–	VE4100BGH3004

Standard Model: Slow Opening - Integrated Flow Restrictor - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	Reg. adj. opening	Gland	threaded BSP. PI		VE4010CGH1007
G 1/8"	1/2" DN15	Reg. adj. opening	Gland	threaded BSP. PI		VE4015CGH1008
G 1/4"	3/4" DN20	Reg. adj. opening	Gland	threaded BSP. PI	MS052501	VE4020CGH1009
G 1/4"	1" DN25	Reg. adj. opening	Gland	threaded BSP. PI	MS052501	VE4025CGH1001
G 1/4"	1 1/4" DN32	Reg. adj. opening	Gland	threaded BSP. PI	MS054001	VE4032CGH1002
G 1/4"	1 1/2" DN40	Reg. adj. opening	Gland	threaded BSP. PI	MS054001	VE4040CGH1003
G 1/4"	2" DN50	Reg. adj. opening	Gland	threaded BSP. PI	MS055001	VE4050CGH1004



VE4080BGH3



VE4010CGH1



VE4040CGH1

Unimax Gas Valves (to be released)

1



VE4040SGH1

Standard Model: Fast Closing (Normally Opened Vent Valve) - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/4"	3/4" DN20	On/Off NC	Gland	threaded BSP. PI	-	VE4020SGH1001

DIN Plug Model: Fast Opening - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	DIN plug	threaded BSP. PI	-	VE4010APH1003
G 1/8"	1/2" DN15	On/Off NC	DIN plug	threaded BSP. PI	-	VE4015APH1004
G 1/4"	3/4" DN20	On/Off NC	DIN plug	threaded BSP. PI	MS052501	VE4020APH1005
G 1/4"	1" DN25	On/Off NC	DIN plug	threaded BSP. PI	MS052501	VE4025APH1006
G 1/4"	1 1/4" DN32	On/Off NC	DIN plug	threaded BSP. PI	MS054001	VE4032APH1007
G 1/4"	1 1/2" DN40	On/Off NC	DIN plug	threaded BSP. PI	MS054001	VE4040APH1008
G 1/4"	2" DN50	On/Off NC	DIN plug	threaded BSP. PI	MS055001	VE4050APH1009
G 1/4"	2 1/2" DN65	On/Off NC	DIN plug	threaded BSP. PI	MS055001	VE4065APH1003
G 1/4"	3" DN80	On/Off NC	DIN plug	threaded BSP. PI	MS080001	VE4080APH1004

DIN Plug Model: Fast Opening - Flanged pipe connection

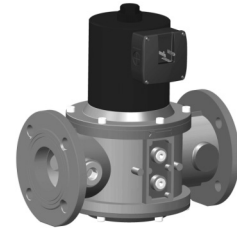
Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	On/Off NC	DIN plug	flange	MS056501	VE4065APH3004
G 1/4"	3" DN80	On/Off NC	DIN plug	flange	MS058001	VE4080APH3005
G 1/4"	4" DN100	On/Off NC	DIN plug	flange	MS051001	VE4100APH3003



VE4010APH1



VE4040APH1



VE4080APH3



VE4010BPH1

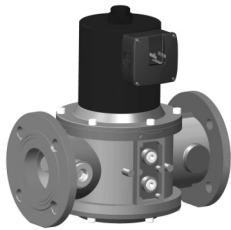
DIN Plug Model: Fast Opening - Integrated Flow Restrictor - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	DIN plug	threaded BSP. PI	-	VE4010BPH1006
G 1/8"	1/2" DN15	On/Off NC	DIN plug	threaded BSP. PI	-	VE4015BPH1007
G 1/4"	3/4" DN20	On/Off NC	DIN plug	threaded BSP. PI	MS052501	VE4020BPH1008
G 1/4"	1" DN25	On/Off NC	DIN plug	threaded BSP. PI	MS052501	VE4025BPH1009
G 1/4"	1 1/4" DN32	On/Off NC	DIN plug	threaded BSP. PI	MS054001	VE4032BPH1001
G 1/4"	1 1/2" DN40	On/Off NC	DIN plug	threaded BSP. PI	MS054001	VE4040BPH1002
G 1/4"	2" DN50	On/Off NC	DIN plug	threaded BSP. PI	MS055001	VE4050BPH1003
G 1/4"	2 1/2" DN65	On/Off NC	DIN plug	threaded BSP. PI	MS080001	VE4065BPH1009
G 1/4"	3" DN80	On/Off NC	DIN plug	threaded BSP. PI	MS080001	VE4080BPH1001



VE4040BPH1

Unimax Gas Valves (to be released)



VE4080BPH3

DIN Plug Model: Fast Opening - Integrated Flow Restrictor - Flanged pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	On/Off NC	DIN plug	flange	MS058001	VE4065BPH3001
G 1/4"	3" DN80	On/Off NC	DIN plug	flange	MS058001	VE4080BPH3002
G 1/4"	4" DN100	On/Off NC	DIN plug	flange	MS051001	VE4100BPH3006

DIN Plug Model: Slow Opening - Integrated Flow Restrictor - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	DIN plug	threaded BSP. PI	-	VE4010CPH1009
G 1/8"	1/2" DN15	On/Off NC	DIN plug	threaded BSP. PI	-	VE4015CPH1001
G 1/4"	3/4" DN20	On/Off NC	DIN plug	threaded BSP. PI	MS052501	VE4020CPH1002
G 1/4"	1" DN25	On/Off NC	DIN plug	threaded BSP. PI	MS052501	VE4025CPH1003
G 1/4"	1 1/4" DN32	On/Off NC	DIN plug	threaded BSP. PI	MS054001	VE4032CPH1004
G 1/4"	1 1/2" DN40	On/Off NC	DIN plug	threaded BSP. PI	MS054001	VE4040CPH1005
G 1/4"	2" DN50	On/Off NC	DIN plug	threaded BSP. PI	MS055001	VE4050CPH1006

DIN Plug

DIN-Plug for APH, BPH and CPH valve models, according to ISO 4400 / DIN EN 175301-803

CO020012



VE4010CPH1



VE4040CPH1



CO020012

CPI Switch, incl. DIN plug

CPI switch for all DN20 and DN25 valves	MS052501
CPI switch for all DN32 and all DN40 valves	MS054001
CPI switch for all DN50 valves	MS055001
CPI switch for DN65 on/off valves (for DN65 valves with flow restrictor select MS058001)	MS056501
CPI switch for DN65 valves with flow restrictor and for all DN80 valves (for DN65 on/off models select MS056501)	MS058001
CPI switch for DN100 on/off valves (no CPI possible on DN100 valves with flow restrictor)	MS051001



MS05

Unimax Gas Valves (to be released)

Safety shut-off gas valve, 100-120 volt, European VE6000-Series "Unimax"

Class "A" Safety Shutoff Single Solenoid Gas Valve.

- "Unimax" VE6000-series to replace existing "UGV" VE4000-series (**115Vac**) during 2017/2018
- Aluminium die cast valve body.
- Wide universal voltage input.
- Energy saving electrical operator.
- Single valve seat technology to reduce risk of internal leakage
- Possibility to field mount a closed position indicator switch kit (CPI switch), on models DN20..DN80 and on on/off model DN100 without flow restrictor.
- ISO 7/1 threaded pipe connections for models up to 3"
- ISO 7005 PN15 flanged pipe connections for models DN65..DN100
- **Standard Models** use a M16 PG cable gland cable entry and screw terminals for the electrical connection
- **DIN Plug models** use a DIN Plug connector according to ISO 4400 / DIN EN 175301-803 for the electrical connection. **Connector model CO020012 to be ordered separately.**

Control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

- For use with natural gas, propane, air. Special versions for biogas available upon request.

Approvals CE(EN161), AGA, GOST/EAC
 Protection IP65
 Voltage 100..120V 50/60Hz
 Ambient temperature -15 ... 60 °C

Fast Opening - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	Gland	360mbar	threaded BSP. PI	-	VE6010AGH1003
G 1/8"	1/2" DN15	On/Off NC	Gland	360mbar	threaded BSP. PI	-	VE6015AGH1004
G 1/4"	3/4" DN20	On/Off NC	Gland	360mbar	threaded BSP. PI	MS052501	VE6020AGH1005
G 1/4"	1" DN25	On/Off NC	Gland	360mbar	threaded BSP. PI	MS052501	VE6025AGH1006
G 1/4"	1 1/4" DN32	On/Off NC	Gland	360mbar	threaded BSP. PI	MS054001	VE6032AGH1007
G 1/4"	1 1/2" DN40	On/Off NC	Gland	360mbar	threaded BSP. PI	MS054001	VE6040AGH1008
G 1/4"	2" DN50	On/Off NC	Gland	360mbar	threaded BSP. PI	MS055001	VE6050AGH1002

Fast Opening - Flanged pipe connection

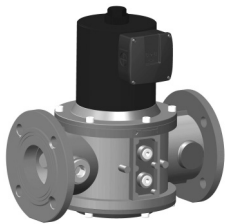
Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	On/Off NC	Gland	360mbar	flange	MS056501	VE6065AGH3004
G 1/4"	3" DN80	On/Off NC	Gland	360mbar	flange	MS058001	VE6080AGH3005
G 1/4"	4" DN100	On/Off NC	Gland	360mbar	flange	MS051001	VE6100AGH3003



VE6010AGH1



VE6040AGH1



VE6080AGH3

Unimax Gas Valves (to be released)



VE6010BGH1



VE6040BGH1

Fast Opening - Integrated Flow Restrictor - Threaded pipe connection

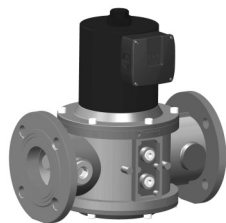
Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	Regulating	Gland	360mbar	threaded BSP. PI	–	VE6010BGH1005
G 1/8"	1/2" DN15	Regulating	Gland	360mbar	threaded BSP. PI	–	VE6015BGH1006
G 1/4"	3/4" DN20	Regulating	Gland	360mbar	threaded BSP. PI	MS052501	VE6020BGH1007
G 1/4"	1" DN25	Regulating	Gland	360mbar	threaded BSP. PI	MS052501	VE6025BGH1008
G 1/4"	1 1/4" DN32	Regulating	Gland	360mbar	threaded BSP. PI	MS054001	VE6032BGH1009
G 1/4"	1 1/2" DN40	Regulating	Gland	360mbar	threaded BSP. PI	MS054001	VE6040BGH1001
G 1/4"	2" DN50	Regulating	Gland	360mbar	threaded BSP. PI	MS055001	VE6050BGH1004

Fast Opening - Integrated Flow Restrictor - Flanged pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	Regulating	Gland	360mbar	flange	MS058001	VE6065BGH3006
G 1/4"	3" DN80	Regulating	Gland	360mbar	flange	MS058001	VE6080BGH3007
G 1/4"	4" DN100	Regulating	Gland	360mbar	flange	–	VE6100BGH3005

Slow Opening - Integrated Flow Restrictor - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	Reg. adj. opening	Gland	360mbar	threaded BSP. PI		VE6010CGH1007
G 1/8"	1/2" DN15	Reg. adj. opening	Gland	360mbar	threaded BSP. PI		VE6015CGH1008
G 1/4"	3/4" DN20	Reg. adj. opening	Gland	360mbar	threaded BSP. PI	MS052501	VE6020CGH1009
G 1/4"	1" DN25	Reg. adj. opening	Gland	360mbar	threaded BSP. PI	MS052501	VE6025CGH1001
G 1/4"	1 1/4" DN32	Reg. adj. opening	Gland	360mbar	threaded BSP. PI	MS054001	VE6032CGH1002
G 1/4"	1 1/2" DN40	Reg. adj. opening	Gland	360mbar	threaded BSP. PI	MS054001	VE6040CGH1003
G 1/4"	2" DN50	Reg. adj. opening	Gland	360mbar	threaded BSP. PI	MS055001	VE6050CGH1006



VE6080BGH3



VE6010CGH1



VE6040CGH1

Unimax Gas Valves (to be released)

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VE6040SGH1

Fast Closing (Normally Opened Vent Valve) - Threaded pipe connection

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/4"	3/4" DN20	On/Off NC	Gland	500mbar	threaded BSP. PI	-	VE6020SGH1002

Fast Opening - Threaded pipe connection - DIN connector

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	DIN plug	360mbar	threaded BSP. PI	-	VE6010APH1004
G 1/8"	1/2" DN15	On/Off NC	DIN plug	360mbar	threaded BSP. PI	-	VE6015APH1005
G 1/4"	3/4" DN20	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS052501	VE6020APH1006
G 1/4"	1" DN25	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS052501	VE6025APH1007
G 1/4"	1 1/4" DN32	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS054001	VE6032APH1008
G 1/4"	1 1/2" DN40	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS054001	VE6040APH1009
G 1/4"	2" DN50	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS055001	VE6050APH1003

Fast Opening - Flanged pipe connection - DIN connector

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	On/Off NC	DIN plug	360mbar	flange	MS056501	VE6065APH3005
G 1/4"	3" DN80	On/Off NC	DIN plug	360mbar	flange	MS058001	VE6080APH3006
G 1/4"	4" DN100	On/Off NC	DIN plug	360mbar	flange	MS051001	VE6100APH3004



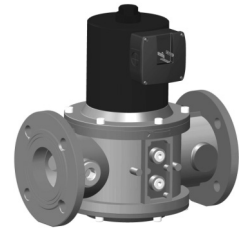
VE6010BPH1



VE6010APH1



VE6040APH1



VE6080APH3

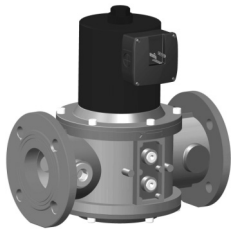
Fast Opening - Integrated Flow Restrictor - Threaded pipe connection - DIN connector

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	DIN plug	360mbar	threaded BSP. PI	-	VE6010BPH1006
G 1/8"	1/2" DN15	On/Off NC	DIN plug	360mbar	threaded BSP. PI	-	VE6015BPH1007
G 1/4"	3/4" DN20	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS052501	VE6020BPH1008
G 1/4"	1" DN25	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS052501	VE6025BPH1009
G 1/4"	1 1/4" DN32	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS054001	VE6032BPH1001
G 1/4"	1 1/2" DN40	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS054001	VE6040BPH1002
G 1/4"	2" DN50	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS055001	VE6050BPH1005



VE6040BPH1

Unimax Gas Valves (to be released)



VE6080BPH3

Fast Opening - Integrated Flow Restrictor - Flanged pipe connection - DIN connector

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/4"	2 1/2" DN65	On/Off NC	DIN plug	360mbar	flange	MS058001	VE6065BPH3007
G 1/4"	3" DN80	On/Off NC	DIN plug	360mbar	flange	MS058001	VE6080BPH3008
G 1/4"	4" DN100	On/Off NC	DIN plug	360mbar	flange	MS051001	VE6100BPH3006

Slow Opening - Integrated Flow Restrictor - Threaded pipe connection - DIN connector

Pressure taps	Valve size	Flow regulator	Electrical connection	Inlet pressure	Connection	Optional CPI-switch	Type
G 1/8"	3/8" DN10	On/Off NC	DIN plug	360mbar	threaded BSP. PI	-	VE6010CPH1008
G 1/8"	1/2" DN15	On/Off NC	DIN plug	360mbar	threaded BSP. PI	-	VE6015CPH1009
G 1/4"	3/4" DN20	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS052501	VE6020CPH1001
G 1/4"	1" DN25	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS052501	VE6025CPH1002
G 1/4"	1 1/4" DN32	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS054001	VE6032CPH1003
G 1/4"	1 1/2" DN40	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS054001	VE6040CPH1004
G 1/4"	2" DN50	On/Off NC	DIN plug	360mbar	threaded BSP. PI	MS055001	VE6050CPH1007

DIN Plug

DIN-Plug for APH, BPH and CPH valve models, according to ISO 4400 / DIN EN 175301-803

CO020012



VE6010CPH1



VE6040CPH1



CO020012

CPI Switch, incl. DIN plug

CPI switch for all DN20 and DN25 valves	MS052501
CPI switch for all DN32 and all DN40 valves	MS054001
CPI switch for all DN50 valves	MS055001
CPI switch for DN65 on/off valves (for DN65 valves with flow restrictor select MS058001)	MS056501
CPI switch for DN65 valves with flow restrictor and for all DN80 valves (for DN65 on/off models select MS056501)	MS058001
CPI switch for DN100 on/off valves (no CPI possible on DN100 valves with flow restrictor)	MS051001



MS05

Unimax Gas Valves (to be released)

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Safety shut-off gas valve, 24 volt, European VE8000-Series "Unimax"



VE8010BGH1



VE8040BGH1

Class "A" Safety Shutoff Single Solenoid Gas Valve.

- "Unimax" VE8000-series to replace existing "UGV" VE8000-series during 2017/2018
- Aluminium die cast valve body.
- Single valve seat technology to reduce risk of internal leakage
- Possibility to field mount a closed position indicator switch kit (CPI switch), on models DN20..DN50
- ISO 7/1 threaded pipe connections for models up to 2"
- **Standard Models** use a M16 PG cable gland cable entry and screw terminals for the electrical connection
- **DIN Plug models** use a DIN Plug connector according to ISO 4400 / DIN EN 175301-803 for the electrical connection. **Connector model CO020012 to be ordered separately.**

Control and regulation of gaseous fuels in gas power burners, gas boilers, ovens, furnaces and other gas consuming appliances.

- For use with natural gas, propane, air. Special versions for biogas available upon request.

Approvals	CE(EN161), AGA, GOST/EAC
Protection	IP65
Ambient temperature	-15 ... 60 °C
Flow regulator	Regulating
Electrical connection	Gland
Inlet pressure	200mbar
Connection	threaded BSP. PI

Standard Model: Fast Opening - Integrated Flow Restrictor - Threaded pipe connection - 24..28Vdc

Pressure taps	Valve size	Voltage	Optional CPI-switch	Type
G 1/8"	1/2" DN15	24..28Vdc	-	VE8015DGL1009
G 1/4"	3/4" DN20	24..28Vdc	MS052501	VE8020DGL1008
G 1/4"	1" DN25	24..28Vdc	MS052501	VE8025DGL1007
G 1/4"	1 1/4" DN32	24..28Vdc	MS054001	VE8032DGL1005
G 1/4"	1 1/2" DN40	24..28Vdc	MS054001	VE8040DGL1004
G 1/4"	2" DN50	24..28Vdc	MS055001	VE8050DGL1003

DIN Plug Model: Fast Opening - Integrated Flow Restrictor - Threaded pipe connection - 24Vac

Pressure taps	Valve size	Voltage	Optional CPI-switch	Type
G 1/8"	1/2" DN15	24V 50/60Hz	-	VE8015BPL1007
G 1/4"	3/4" DN20	24V 50/60Hz	MS052501	VE8020BPL1008
G 1/4"	1" DN25	24V 50/60Hz	MS052501	VE8025BPL1009
G 1/4"	1 1/4" DN32	24V 50/60Hz	MS054001	VE8032BPL1001
G 1/4"	1 1/2" DN40	24V 50/60Hz	MS054001	VE8040BPL1002
G 1/4"	2" DN50	24V 50/60Hz	MS055001	VE8050BPL1003



CO020012

DIN Plug

DIN-Plug for APH, BPH and CPH valve models, according to ISO 4400 / DIN EN 175301-803

CO020012



MS05

CPI Switch, incl. DIN plug

CPI switch for all DN20 and DN25 valves	MS052501
CPI switch for all DN32 and all DN40 valves	MS054001
CPI switch for all DN50 valves	MS055001

Burner Controls

Burner Controls EC/RM7800-series



7800-SERIES



The EC/RM7800 series are microprocessor-based industrial burner controls for automatically fired gas, oil or combination fuel single burner applications. For all type of burners with unlimited capacity.

Approvals

- CE approved according EN298 for **continuous** operation (when used with correct flame amplifier and flame sensor).
- SIL-3 Capable certified
- APAVE accepted (CE approved models)
- CSA/UL approved (120Vac models only)

Protection class

- Europe: IP00 (cabinet mount only)
- Americas: NEMA 1 (cabinet or wall mount)

Ambient temperature

-40 ... 60 °C

Maximum humidity

85 %rh

Note

About Flame Failure Response Times (FFRT):

- European 7800-series burner controllers (EU): 1.0 or 2.0s (depends on flame amplifier).
- American 7800-series burner controllers (US): 0.8 or 3.0s (depends on flame amplifier).

Flame detector

Depends on plug-in amplifier

Additional description

- Modular design with plug-in modules. Selectable pre-purge time by ST7800A1xxx/U module selection.
- Accepts all existing Honeywell optical flame detectors and flame rods.
- All information regarding the burner control (6 last lockout conditions, flame signal, hours of operation ...) are available on the keyboard display module or through communication.

European models 120Vac (RM78xx) (Operation: Cont.; Flame failure response time: 1,0/2,0s)

Control model	Outputs	Pilot	Prepurge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Valve proofing system	Type
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	2s	1	-	RM7850A1001/U
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	15s	1	-	RM7850A1019/U
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	30s	1	-	RM7850A1027/U
Primary	on/off	Intermittent	-	5/10s	-	-	selectable	-	RM7890B1055/U

European models 230Vac (EC78xx) (Operation: Cont.; Flame failure response time: 1,0/2,0s)

Control model	Outputs	Pilot	Prepurge timer	Pilot ignition time	Main ignition time	Post purge time	Number of ignition attempts	Valve proofing system	Type
Atmospheric	LF/Modulate	Selectable	•	5/10s	5/10s	-	1	-	EC7820A1026/U
Atmospheric	LF/Modulate	Selectable	•	5/10s	5/10s	-	3	-	EC7820A1034/U
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	15s	1	-	EC7850A1064/U
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	2s	1	-	EC7850A1072/U
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	30s	1	-	EC7850A1080/U
Full	HF/LF/Modulate	Selectable	•	3/5s	3/5s	15s	1	-	EC7850A1122/U
Primary	on/off	Intermittent	-	5/10s	-	-	selectable	-	EC7890B1028/U

Burner Controls

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American models 120Vac (RM78xx)

(Main ignition time: –; Number of ignition attempts: –; Flame failure response time: 0,8/3,0s)

Control model	Outputs	Operation	Pilot	Prepurge timer	Pilot ignition time	Post purge time	Valve proofing system	Comment	Type
Flame switch	2xSPDT	Cont.	–	–	–	–	–		RM7823A1016/U
Full	HF/LF/Modulate	Cont.	Interrupted	•	4/10s	15s	–		RM7840E1016/U
Atmosferic	LF/Modulate	Cont.	Interrupted	•	4/10s	15s	–		RM7840G1014/U
Full	HF/LF/Modulate	Cont.	Interrupted	•	4/10s	15s	–		RM7840L1018/U
Full	HF/LF/Modulate	Cont.	Selectable	•	4/10s	15s	–		RM7840L1026/U
Full	HF/LF/Modulate	Cont.	Interrupted	•	4/10s	15s	Integrated	Uses S7800A1142/U display for programming	RM7840L1075/U
Atmosferic	on/off	Cont.	Interrupted	–	4/10s	15s	–		RM7840M1017/U
Primary	–	Intermit.	Intermittent	–	4/10s	–	–	No shutter check	RM7890A1015/U
Primary	–	Cont.	Intermittent	–	4/10s	–	–		RM7890B1014/U
Primary	–	Cont.	Intermittent	–	–	–	–	Fixed 4s safety time.	RM7890B1030/U

American models 230Vac (EC78xx)

(Main ignition time: –; Number of ignition attempts: –; Flame failure response time: 0,8/3,0s)

Control model	Outputs	Operation	Pilot	Prepurge timer	Pilot ignition time	Post purge time	Valve proofing system	Comment	Type
Flame switch	2xSPDT	Cont.	–	–	–	–	–		EC7823A1004/U
Primary	–	Intermit.	Intermittent	–	4/10s	–	–	No shutter check	EC7890A1011/U
Primary	–	Cont.	Intermittent	–	4/10s	–	–		EC7890B1010/U

American models 24Vdc (RM7824)

(Main ignition time: –; Number of ignition attempts: –; Flame failure response time: 0,8/3,0s)

Control model	Outputs	Operation	Pilot	Prepurge timer	Pilot ignition time	Post purge time	Valve proofing system	Comment	Type
Primary	–	Cont.	–	–	4/10s	–	–	C7024E/F UV detector only	RM7824A1006/U

Flame amplifiers



R78XX

Used with RM7824A 24Vdc model only. For UV sensor C7024E/F. Self-Check. Not CE approved. FFRT: 3.0s	R7824C1002/U
For flame rod (cable<5m). FFRT: EU=1.0s / US=0.8s	R7847A1025/U
For flame rod (cable<5m). FFRT: EU=2.0s / US=3.0s	R7847A1033/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. FFRT: EU=1.0s / US=0.8s	R7847A1074/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. FFRT: EU=2.0s / US=3.0s	R7847A1082/U
For flame rod (cable<5m). Ampli-Check. FFRT: EU=1.0s / US=0.8s	R7847B1023/U
For flame rod (cable<5m). Ampli-Check. FFRT: EU=2.0s / US=3.0s	R7847B1031/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. Ampli-Check. FFRT: EU=1.0s / US=0.8s	R7847B1064/U
For flame rod (cable>5m) and UV sensor C7012A/C/G. Ampli-Check. FFRT: EU=2.0s / US=3.0s	R7847B1072/U
For C7012E/F UV sensor. Shutter-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7847C1005/U
For UV sensors C7027/35/44. FFRT: EU=1.0s / US=0.8s	R7849A1015/U
For UV sensors C7027/35/44. FFRT: EU=2.0s / US=3.0s	R7849A1023/U
For UV sensors C7027/35/44. Ampli-Check. FFRT: EU=1.0s / US=0.8s	R7849B1013/U
For UV sensors C7027/35/44. Ampli-Check. FFRT: EU=2.0s / US=3.0s	R7849B1021/U

Burner Controls

For UV sensors C7927 and visible light C7962. Ampli-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7851B1000/U
For UV sensors C7961E/F. Shutter-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7851C1008/U
For IR sensors C7915. Ampli-Check. Not CE approved. FFRT: EU=2.0s / US=3.0s	R7852B1009/U
For UV sensors C7061A/F. Shutter-Check. FFRT: EU=2.0s / US=3.0s	R7861A1026/U
For UV sensors C7061A/F. Shutter-Check. FFRT: EU=1.0s / US=0.8s	R7861A1034/U
For UV sensors C7076A/D/F. Shutter-Check. FFRT: EU=2.0s / US=3.0s	R7886A1001/U

Purge timers



ST7800

Prepurge time = 2s.	ST7800A1005/U
Prepurge time = 7s.	ST7800A1013/U
Prepurge time = 10s.	ST7800A1021/U
Prepurge time = 30s.	ST7800A1039/U
Prepurge time = 40s.	ST7800A1047/U
Prepurge time = 60s.	ST7800A1054/U
Prepurge time = 90s.	ST7800A1062/U
Prepurge time = 2.5min.	ST7800A1070/U
Prepurge time = 4.0min.	ST7800A1088/U
Prepurge time = 6.0min.	ST7800A1096/U
Prepurge time = 9.0min.	ST7800A1104/U
Prepurge time = 12.0min.	ST7800A1112/U
Prepurge time = 15.0min.	ST7800A1120/U
Prepurge time = 22.0min.	ST7800A1138/U
Prepurge time = 30.0min.	ST7800A1146/U

Wiring bases



Q7800

Mounting subbase for 7800-series. Panel mount.	Q7800A1005/U
Mounting subbase for 7800-series. Wall mount.	Q7800B1003/U

Keyboard display modules



S7800

Language: English. With integrated Modbus communication option.	S7800A1001/U
Language: French	S7800A1035/U
Language: German	S7800A1043/U
Language: Italian	S7800A1050/U
Language: Spanish	S7800A1068/U
Language: Portuguese	S7800A1126/U
Language: English. Enhanced model, needed to program Enhanced 7800-series models (with VPS).	S7800A1142/U

Remote Communication Modules



S7810

Data Controlbus Module for communication or for remote S7800 mounting.	S7810A1009/U
MODBUS communication card. For US models only, not CE approved (includes remote reset over Modbus).	S7810M1003/U
MODBUS communication card. CE approved (no remote reset over Modbus).	S7810M1029/U
Remote Reset Module.	S7820A1007/U

Burner Controls

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S7830A1005

Expanded annunciator (NA only)

Expanded Annunciator to show additional information about faults in the limit string, **only** for use in Americas. Voltage: 120V, 50/60Hz. Uses Q7800 mounting base (not included).

S7830A1005/U

Parts

5-wire connector for S7800/10/20	203541/U
Remote mounting bracket for S7800	203765/U
Display extension cable assembly. Cable length 1.5 m	221818A/U
Display extension cable assembly. Cable length ca. 3 m. Note: assure no electrical noise is present to avoid connection problems, due to extra long cable.	221818C/U
Nema 4 cover assembly for remote mounting of S7800 display.	50023821-001/U
Nema 4 cover assembly for remote mounting of S7800 display. Incl. remote reset button and wiring.	50023821-002/U

Burner Controls DBC2000-series



DBC2000



The Honeywell DBC2000 is a microprocessor-based integrated burner controller for automatically fired gas, oil or combination fuel industrial single burner power burner applications. The DBC2000 system consists of the relay module and wiring subbase. The Standard Model provides the minimum requirements to control an industrial burner system; the Enhanced Model includes an integrated Valve Proofing System; the Ultimate model includes bus communication on top of this. For all type of burners with unlimited capacity in intermittent operation. An integrated timer assures an automated recycle sequence after ca 24h uninterrupted heat demand.

Approvals	<ul style="list-style-type: none"> • CE approved according EN298 for intermittent operation (when used with correct flame sensor). • AGA certified
Protection class	IP40
Ambient temperature	-10 ... 60 °C
Maximum humidity	90 %rh
Note	Extra features: <ul style="list-style-type: none"> • Integrated 24h auto recycle timer • Selectable Pilot or Direct Main Burner Ignition operation. • Selectable post-purge (15s) or no-post-purge (0s) operation.
Control model	Full
Outputs	HF/LF/Modulate
Operation	24h auto-recycle
Pilot	Selectable intermittent / interrupted
Pilot ignition time	3s (Pilot only: 5s)
Main ignition time	3s
Post purge time	15/0s
Number of ignition attempts	1
Flame failure response time	<1s
Flame detector	UV/FR
Additional description	DBC2000 models have two integrated flame amplifiers: UV Power Tube (UV) and Rectification (FR), that are selectable by a jumper at the back of the unit. Default is FR (jumper present). Applicable flame sensors: <ul style="list-style-type: none"> • Flame rod (FR) • UV sensor family C7027/35/44 (UV) • UV sensor family C7012A/G (FR) • IR sensor family IRD1020 (FR)

Burner Controls

230Vac versions

Prepurge time	Valve proofing system	Comment	Type
35s	–	Standard Model	DBC2000E1018
0s	–	Standard Model	DBC2000E1026
60s	–	Standard Model	DBC2000E1034
35s	Integrated	Enhanced Model	DBC2000E2019

115Vac versions

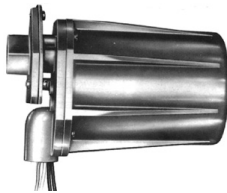
Prepurge time	Valve proofing system	Comment	Type
35s	–	Standard Model	DBC2000E1000
35s	Integrated	Enhanced Model	DBC2000E2001

Accessories for use with DBC2000 (see dedicated chapter for details)

Cable (ca. 250mm) with jack plug for remote 0..15 micro-ampere flame signal reading. For use with jack plug socket on the front of DBC2000 and R4343 or on plug-in amplifier of R4348.	117053/U
Industrial flame rod.	_C7008
PurplePeeper standard UV detector and IP67 protection.	_C7012A/G
MiniPeeper standard UV detector and IP54 protection.	_C7027
MiniPeeper with field replaceable tube and IP65 protection.	_C7035
MiniPeeper UV sensor with side view and IP54 protection.	_C7044
Infrared sensor (not CE approved and for 230Vac applications only). Commercial model.	_IRD1020



C7008



C7012



IRD1020



C7027



C7035



C7044

Flame Sensors

1

UV flame sensors C7027/35/44 ("MiniPeeper")



C7027A



Compact analogue UV flame sensor to detect ultraviolet radiations emitted by combustion flames. Used with Honeywell burner controls to provide flame supervision for commercial and industrial burner applications.

Approvals

- CE approved according to EN298, only in combination with matching Honeywell flame amplifiers and burner controls.
- UL/CSA approved for USA, only in combination with matching Honeywell flame amplifiers and burner controls.
- AGA approved for Australia, only in combination with matching Honeywell flame amplifiers and burner controls.
- Only for intermittent operation. The burner has to recycle at least once per 24 hours.

Features

- Rugged, compact, with encapsulated sensing tube for maximum protection.
- Quick and easy installation on standard sight pipe.
- Detects UV radiation in the 310nm range of the spectrum.

Additional description

- Models marked "DIN Approved Model" have no CSA/UL marking on the product label and have an insulated cable instead of wires.
- Maximum **recommended** cable length: ca. 50m

C7027 with clamp type connector

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1/2"	2.4	-18 ... 102	IP54		C7027A1023/U
1/2"	2.4	-40 ... 102	IP54		C7027A1031/U
1/2"	2.4	-18 ... 102	IP54	"DIN/BG" model	C7027A1056/U

C7027 with 1/2" NPT threaded spud connector



C7027A1064

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1/2"	2.4	-18 ... 102	IP54		C7027A1049/U
1/2"	7.3	-40 ... 102	IP54		C7027A1064/U

C7035 with field replaceable UV tube



C7035A1049

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1"	1.8	-18 ... 121	IP67		C7035A1023/U
1"	1.8	-40 ... 121	IP67		C7035A1031/U
1" BSP	1.8	-18 ... 121	IP67	"DIN/BG" model	C7035A1049/U
1"	1.8	-40 ... 121	IP67		C7035A1056/U
1" BSP	1.8	-40 ... 121	IP67	"DIN/BG" model	C7035A1064/U
1"	1.8	-18 ... 121	IP67	High temp. wires (315C)	C7035A1080/U

Flame Sensors



C7044

C7044 for side or end viewing

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
mounting bracket	1.8	-18 ... 102	IP54		C7044A1006/U



C7927A

C7927 solid state UV sensor (for EC/RM78xx only)

Mechanical connection	Cable length m	Ambient temperature °C	Protection class	Comment	Type
1/2"	1.8	-18 ... 102	IP54	Not CE (EN298) approved.	C7927A1016/U

Used with controllers

Industrial 115Vac flame switch (SPST)with integrated UV flame amplifier.	BC1000A0110U
Industrial 230Vac flame switch (SPST)with integrated UV flame amplifier.	BC1000A0220U
Industrial 115Vac flame switch (SPDT)with integrated UV flame amplifier.	BC1000B2001
Industrial 230Vac flame switch (SPDT)with integrated UV flame amplifier.	BC1000B2019
Industrial 115Vac burner controller with integrated FR/UV flame amplifier.	DBC2000E1000
Industrial 230Vac burner controller with integrated FR/UV flame amplifier.	DBC2000E1018
Industrial 115Vac burner controller with integrated FR/UV flame amplifier and VPS.	DBC2000E2001
Industrial 230Vac burner controller with integrated FR/UV flame amplifier and VPS.	DBC2000E2019
Industrial 115Vac burner controller with plug-in R7849-series UV flame amplifier.	_RM78xx
Industrial 230Vac burner controller with plug-in R7849-series UV flame amplifier.	_EC78xx
Industrial 115Vac flame switch with integrated UV flame amplifier.	R4343E1006
Industrial 230Vac flame switch with integrated UV flame amplifier.	R4343E1014
Industrial 115/230Vac flame switch with integrated UV flame amplifier.	R4343E1048-ST005
SLATE ^(TM) burner management system.	R8001B2001/U

Used with flame Amplifiers (EC/RM78xx and R4348 only)

Amplifier for the Honeywell R4348 series for use with C7027/35/44 sensors	R7323A1020
Amplifier for the Honeywell 7800 series burner control for use with C7027/35/44 sensors	_R7849Axx
Ampli-check amplifier of the Honeywell 7800 series burner control for use with C7027/35/44 UV sensors	_R7849Bxx
Ampli-check amplifier of the Honeywell 7800 series burner control for use with C7927 solid state UV sensor	_R7851Bxx
Ampli-check amplifier of the Honeywell SLATE ^(TM) burner management system for use with C7027/35/44 UV sensor	R8001F1091/U
Ampli-check amplifier of the Honeywell SLATE ^(TM) burner management system for use with C7927 solid state UV sensor	R8001S1071/U

Replacement tube for C7035

Ultraviolet sensing tube (-40° to 121°C) for C7035/C7061 flame scanners	129464N/U
Ultraviolet sensing tube (-18° to 121°C) for C7035/C7061 flame scanners	129464M/U

Flame Sensors

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UV flame sensors C7012A/C/E/F/G



C7012A



Solid-state electronic UV flame sensor to detect ultraviolet radiation emitted by the combustion of most carbon-containing fuels such as natural gas, LP gases, and oil. Used with Honeywell burner controls to provide flame supervision in continuous operation for industrial burner applications.

Approvals

- CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
- C7012E/F models are approved for use in continuous operation, by using dynamic self-check.
- C7012C/F models are UL listed for use in explosion hazardous locations; Class 1, groups C and D; and Class 2, groups E, F, and G.

Cable length

2.4 m

Additional description

- Two flame detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- Quick and easy installation on standard 3/4" NPT sight pipe (Ex-proof models 1" NPT).
- The "DIN" models have an additional grounding wire (green/yellow)

Standard models for intermittent operation

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
3/4" NPT	-4 ... 79	IP66	110..120 Vac			C7012A1145/U
3/4" NPT	-4 ... 79	IP66	240 Vac			C7012A1194/U
3/4" NPT	-4 ... 79	IP66	220 Vac	"DIN" version		C7012G1019/U

Standard models for continuous operation (with mechanical shutter)

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
3/4" NPT	-29 ... 79	IP66	110..120 Vac	Shutter coil voltage: 120V only		C7012E1104/U
1" NPT	-40 ... 79	IP66	110..120 Vac	Shutter coil voltage: 120V only		C7012E1120/U
3/4" NPT	-29 ... 79	IP66	240 Vac	Shutter coil voltage: 120V only		C7012E1153/U
3/4" NPT	-29 ... 79	IP66	220 Vac	"DIN" version Shutter coil voltage: 120V only		C7012E1187/U
3/4" NPT	-29 ... 79	IP66	110 Vac	"DIN" version Shutter coil voltage: 120V only		C7012E1195/U

UL listed explosion proof models for intermittent operation



C7012F

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
1" NPT	-29 ... 79	NEMA 7	110..120 Vac	Ex approved in USA only		C7012C1042/U

UL listed explosion proof models for continuous operation (with mechanical shutter)

Mechanical connection	Ambient temperature °C	Protection class	Supply voltage	Comment	Note	Type
1" NPT	-29 ... 79	NEMA 7	110..120 Vac	Ex approved in USA only Shutter coil voltage: 120V only		C7012F1052/U

Flame Sensors

Used with controllers

Industrial burner controller used with plug-in flame amplifier R78xx-series.	_EC/RM78
Industrial flame switch used with plug-in flame amplifier R72xx or R73xx series.	R4348B1008
Industrial flame switch with LED indicator and 4-20 mA analogue output for flame signal, used with plug-in flame amplifier.	R4348B1057
Industrial flame switch (115Vac) with integrated rectification flame amplifier.	R4343D1009
Industrial flame switch (230Vac) with integrated rectification flame amplifier.	R4343D1017

Standard amplifier for the Honeywell R4348 series for use with C7012A/C/G sensors.

FFRT = 1 sec, max.	R7321A1012
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Ampli-check amplifier for the Honeywell R4348 series for use with C7012A/C/G sensors.

FFRT = 2...4 sec (EU model)	R7247B1029
FFRT = 2 sec, max (EU model)	R7247B1037

Self-check amplifier for the Honeywell R4348 series for use with C7012E/F sensors.

FFRT = 2...4 sec	R7247C1001/U
FFRT = 2 sec, max	R7247C1019/U

Standard amplifier for the Honeywell EC/RM78xx series for use with C7012A/C/G sensors.

FFRT = 1.0 or 0.8 sec	R7847A1074/U
FFRT = 2.0 or 3.0 sec	R7847A1082/U

Ampli-check amplifier for the Honeywell EC/RM78xx series for use with C7012A/C/G sensors.

FFRT = 1.0 or 0.8 sec	R7847B1064/U
FFRT = 2.0 or 3.0 sec	R7847B1072/U

Self-check amplifier for the Honeywell EC/RM78xx series for use with C7012E/F sensors.

FFRT = 2.0 or 3.0 sec. Note: not CE approved (GAD) for use in Europe. When used with EC78xx controls (230Vac), take precautions to reduce line voltage shutter voltage to prevent damage to the connected C7012E/F !!	R7847C1005/U
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Accessories

Swivel mount for adjustable positioning of the UV sensor	118367A/U
Mounting flange with 1" NPT internal thread for mounting on 1" sight pipe (to replace standard 3/4" NPT flange), for C7012A/E/G only	124198/U
Quartz focussing lens	124204/U

Replacement parts

Ultraviolet sensing tube for C7012 sensor	113228/U
Coil and shutter assembly for C7012E/F models only	190971B/U

Flame Sensors

UV flame sensors C7061A/F

Solid-state electronic UV flame sensor to detect ultraviolet radiation emitted by the combustion of most carbon-containing fuels such as natural gas, LP gases, and oil. Used with Honeywell burner controls to provide flame supervision in continuous operation for industrial burner applications.



C7061A



Approvals

- CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
- C7061-series models are approved for use in continuous operation, by using dynamic self-check.
- C7061F1 models are ATEX approved for use in explosion hazardous locations; II G Ex d IIC T6, zone 1&2.
- C7061F2 models are UL listed for use in explosion hazardous locations; Class 1, groups C and D; and Class 2, groups E, F, and G.

Ambient temperature

-40 ... 80 °C

Additional description

- Two flame detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- Quick and easy installation on standard 3/4" NPT sight pipe (Ex-proof models: 1" NPT).
- Uses the same UV sensing ("Power") tube as used with C7027/35/44 series "MiniPeeper": no external power supply.
- The "DIN" models have an additional grounding wire (green/yellow)

European models for continuous operation, with mechanical shutter

Mechanical connection	Cable length m	Protection class	Comment	Note	Type
3/4" NPT	2.4	IP66	"DIN" model, with 5-wire cable	Single shutter coil voltage: 120V only	C7061A1004/U
3/4" NPT	0	IP66		Dual shutter coil voltage: 120/230V	C7061A1020/U
3/4" NPT	0	IP66	With focussing lens	Dual shutter coil voltage: 120/230V	C7061A1079/U



C7061F1003

ATEX certified Ex-proof European models for continuous operation, with mechanical shutter (Ex: CENELEC II G Ex d IIC T6; zone 1&2)

Mechanical connection	Cable length m	Protection class	Comment	Note	Type
1" NPT	0	IP67	Incl. cable gland	Dual shutter coil voltage: 120/230V	C7061F1003

American models for continuous operation, with mechanical shutter



C7061A

Mechanical connection	Cable length m	Protection class	Comment	Note	Type
3/4" NPT	2.4	IP66		Single shutter coil voltage: 120V only	C7061A1012/U
3/4" NPT	2.4	IP66	With focussing lens	Single shutter coil voltage: 120V only	C7061A1061/U

UL listed Ex-proof American models for continuous operation, with mechanical shutter (Ex: Class I, gr.C/D and Class II, gr.E/F/G)



C7061F2001

Mechanical connection	Cable length m	Protection class	Comment	Note	Type
1" NPT	2.4	NEMA 7	Ex-proof in Americas only	Single shutter coil voltage: 120V only	C7061F2001/U

KOSHA approved Ex-proof Korean models for continuous operation, with mechanical shutter (Ex: Ex d IIC T6 IP65)

Mechanical connection	Cable length m	Protection class	Comment	Note	Type
1" NPT	0	IP65	Ex-proof in Korea only	Dual shutter coil voltage: 120/230V	C7061F1011

Used with controllers

Industrial burner controller used with plug-in flame amplifier.	_EC/RM78
Industrial flame switch used with plug-in flame amplifier.	R4348B1008
Industrial flame switch with LED indicator and 4-20 mA analogue output for flame signal, used with plug-in flame amplifier.	R4348B1057
SLATE ^(TM) burner management system.	R8001B2001/U

Self-check amplifier for the Honeywell R4348 series.

FFRT = 1 sec, max	R7061A1008
FFRT = 2 sec, max	R7061A1016

Self-check amplifier for the Honeywell EC/RM78xx series.

FFRT = 2.0 or 3.0 sec. Note: When used with C7061 models with 120V shutter voltage only and with EC78xx controls (230Vac), take precautions to reduce line voltage shutter voltage to prevent damage to the connected C7061 !!	R7861A1026/U
FFRT = 1.0 or 0.8 sec. Note: When used with C7061 models with 120V shutter voltage only and with EC78xx controls (230Vac), take precautions to reduce line voltage shutter voltage to prevent damage to the connected C7061 !!	R7861A1034/U

Self-check amplifier for the Honeywell SLATE(TM) burner management system

Self-check amplifier of the Honeywell SLATE ^(TM) burner management system for use with C7061-series UV sensor	R8001S1051/U
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Accessories

Gasket, silicone rubber. For installing viewing window or lens(3pcs required)	114465/U
Swivel mount for adjustable positioning of the UV sensor	118367A/U
Mounting flange for C7061A with 1" NPT internal thread for mounting on 1" sight pipe (to replace standard 3/4" NPT flange)	124198/U
Quartz focussing lens	124204/U

Replacement parts

Ultraviolet sensing tube for C7061 sensors, -40..102C	129464N/U
Coil and shutter assembly	190971B/U

Flame Sensors

UV flame sensors C7076



C7076A1007



UV flame sensor to detect ultraviolet radiation emitted by combustion flames. Used with Honeywell burner controls to provide flame supervision in continuous operation for industrial burner applications, that use solid fuel or heavy oil, dirty gas, hydrogen, sulphur, etc. as fuel.

Approvals

- CE approved according to EN298 only in combination with matching Honeywell flame amplifiers and burner controls.
- Approved for use in continuous operation, by using dynamic self-check.

Note

- The C7076F models for use in hazardous areas are to be discontinued soon. Functional replacement is the Honeywell **U2-101xS-PF** series of combination flame sensors. For details, refer to the **Industrial Flame Monitoring** section from the start of the "Industrial Combustion" pages.
- Spare parts for C7076F models remain available.

Mechanical connection

1" NPT

Ambient temperature

-40 ... 70 °C

Protection class

IP65

Note

Shutter coil voltage: 120V only

Additional description

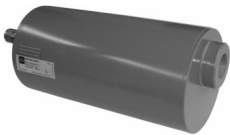
- Integrated air purge connection.
- Quick and easy installation on standard 1" NPT sight pipe.

Standard enclosure (IP65)

Supply voltage	Comment	Type
110..120 Vac		C7076A1007/U
220..240 Vac		C7076A1031/U

Ex-proof enclosure (ATEX: II G Ex d IIC T6 Zone 1&2)

Supply voltage	Comment	Type
220..240 Vac	Functional repl. U2-1016S-PF	C7076F1006
110..120 Vac	Functional repl. U2-1016S-PF	C7076F1014



C7076F1006

Flame Sensors



U2S-PF

Functional replacements of C7076F models for use in hazardous areas (see also section "Industrial Flame Monitoring").

Triple flame sensor: UV-tube, UV-ss and IR. 15FT cable (5m). Approvals: CE, ATEX, SIL 3	U2-1010S-PF
Triple flame sensor: UV-tube, UV-ss and IR. 50FT cable (15m). Approvals: CE, ATEX, SIL 3	U2-1010S-PF-050
Triple flame sensor: UV-tube, UV-ss and IR. 100FT cable (30m). Approvals: CE, ATEX, SIL 3	U2-1010S-PF-100
Single flame sensor: IR only. 15FT cable (5m). Approvals: CE, ATEX, SIL 3	U2-1012S-PF
Single flame sensor: UV-tube only. 15FT cable (5m). Approvals: CE, ATEX, SIL 3	U2-1016S-PF
Dual flame sensor: UV-tube and IR. 15FT cable (5m). Approvals: CE, ATEX, SIL 3	U2-1018S-PF

Used with controllers

Industrial 120Vac burner controller. Use R7886 UV plug-in flame amplifier.	_RM78xx
Industrial 230Vac burner controller. Use R7886 UV plug-in flame amplifier.	_EC78xx

Used with flame Amplifiers (EC/RM78xx and R4348 only)

Amplifier of the Honeywell R4348 series for use with C7076 sensors. FFRT = 2 s, max.	R7476A1007/U
Amplifier of the Honeywell R4348 series for use with C7076 sensors. FFRT = 2..4 s.	R7476A1015/U
Amplifier of the Honeywell 7800 series burner control for use with C7076-series sensors	R7886A1001/U

Replacement tube for C7076

Ultraviolet sensing tube for C7076 sensor	191053/U
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Replacement shutter assembly for C7076

Replacement shutter and coil assembly for C7076, with black painted shutter	190971E/U
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Replacement internal chassis for C7076

Replacement electronic chassis module, excluding sensing tube for C7076A/D models (120Vac)	191002B/U
Replacement electronic chassis module, excluding sensing tube for C7076A/D models (230Vac)	191002D/U
Replacement electronic chassis module, excluding sensing tube for C7076F models (120Vac)	191002BF
Replacement electronic chassis module, excluding sensing tube for C7076F models (230Vac)	191002DF

Flame Switches

1

Flame relays BC1000



BC1000



The BC1000A/B series is a flame switch for intermittent operation to indicate presence or absence of a flame and to be applied in commercial or industrial burner installations.

- The BC1000A is specially designed to be used as manual start/stop burner controller. For all type of burners with unlimited capacity.

Approvals	• CE approved according EN298 (for intermittent operation), AGA
Protection class	IP00
Ambient temperature	-20 ... 60 °C
Maximum humidity	90 %rh
Note	• The BC1000A1/B1 models will operate also with the "Satronic" IRD1020 range of infrared sensors. Note that this combination is NOT CE approved for use on installations that fall under the GAD (Gas Appliances Directive).
Additional description	<ul style="list-style-type: none"> • BC1000A/B provides a Safe Start function which checks if a flame signal is present when applying power to the device. • BC1000A1/B1 models are for use with rectification type flame sensors, such as flame rods and C7012A/G UV sensors. • BC1000A2/B2 models are for use with Honeywell UV sensor models C7027, C7035 and C7044.

230Vac versions

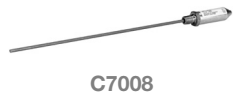
Outputs	Operation	Flame failure response time	Flame detector	Supply voltage	Comment	Type
1xSPST	Manual stop/start	2s	Rectification	220..240 Vac	Flame rod (or C7012A/G)	BC1000A0220F
1xSPST	Manual stop/start	2s	UV	220..240 Vac	C7027, C7035, C7044	BC1000A0220U
1xSPDT	Flame switch	<1s	Rectification	220..240 Vac	Flame rod (or C7012A/G)	BC1000B1018
1xSPDT	Flame switch	<1s	UV	220..240 Vac	C7027, C7035, C7044	BC1000B2019

115Vac versions

Outputs	Operation	Flame failure response time	Flame detector	Supply voltage	Comment	Type
1xSPST	Manual stop/start	2s	Rectification	110..120 Vac	Flame rod (or C7012A/G)	BC1000A0110F
1xSPST	Manual stop/start	2s	UV	110..120 Vac	C7027, C7035, C7044	BC1000A0110U
1xSPDT	Flame switch	<1s	Rectification	110..120 Vac	Flame rod (or C7012A/G)	BC1000B1000
1xSPDT	Flame switch	<1s	UV	110..120 Vac	C7027, C7035, C7044	BC1000B2001

Accessories for use with BC1000A1/B1 (see dedicated chapter for details)

Industrial flame rod.	_C7008
PurplePeeper standard UV detector and IP67 protection.	_C7012A/G
Infrared sensor (not CE approved and for 230Vac applications only). Commercial model.	_IRD1020



C7008

Accessories for BC1000A2/B2 (see dedicated chapter for details)

MiniPeeper standard UV detector and IP54 protection.	_C7027
MiniPeeper with field replaceable tube and IP65 protection.	_C7035
MiniPeeper UV sensor with side view and IP54 protection.	_C7044



C7012A



IRD1020



C7027



C7035



C7044

Flame Switches

Flame relay R4343



R4343E1030



The R4343D/E series is a flame switch for intermittent operation to indicate presence or absence of a flame and to be applied in commercial or industrial burner installations. light.

- Flame current meter jack socket on the front permits monitoring of flame signal strength, by using any appropriate microampere meter (0-10uA minimum scale).
- Plug-in mounts onto a sub base (included) for surface mounting.

Providing an indication of absence or presence of a flame in intermittent industrial oil/gas burner applications by an open or closed relay contact.

Approvals	• CE approved according EN298 (for intermittent operation)
Protection class	IP40
Ambient temperature	-10 ... 60 °C
Maximum humidity	90 %rh
Note	The R4343D models will operate also with the "Satronic" IRD1020 range of infrared sensors. Note that this combination is NOT CE approved for use on installations that fall under the GAD (Gas Appliances Directive).
Outputs	1xDPDT
Operation	Intermit.
Additional description	<ul style="list-style-type: none"> • R4343D models are for use with rectification type flame sensors, such as flame rods and C7012A/G UV sensors. • R4343E models are for use with Honeywell UV sensor models C7027, C7035 and C7044.

Ionisation flame detectors

Flame failure response time	Flame detector	Supply voltage	Type
<1s	Rectification	110..120 Vac	R4343D1009
<1s	Rectification	220..240 Vac	R4343D1017
<2s	Rectification	115/230 Vac	R4343D1041-ST005

UV flame detectors

Flame failure response time	Flame detector	Supply voltage	Type
<1s	UV	110..120 Vac	R4343E1006
<1s	UV	220..240 Vac	R4343E1014
<2s	UV	115/230 Vac	R4343E1048-ST005

Accessories (see dedicated chapter for details)

Cable (ca. 250mm) with jack plug for remote 0..15 micro-ampere flame signal reading. For use with jack plug socket on the front of DBC2000 and R4343 or on plug-in amplifier of R4348.	117053/U
Industrial flame rod.	_C7008
Standard Purplepeeper UV detector and IP65 protection.	_C7012A/G
MiniPeeper standard UV detector and IP54 protection.	_C7027
MiniPeeper with field replaceable tube and IP65 protection.	_C7035
MiniPeeper UV sensor with side view and IP54 protection.	_C7044
Infrared sensor (not CE approved and for 230Vac applications only). Commercial model.	_IRD1020



C7008



C7012A



IRD1020



C7027



C7035



C7044

Flame Switches

1

Flame relay R4348



R4348



The R4348B is a flame switch for continuous operation to indicate presence or absence of a flame and to be applied in large commercial or industrial burner installations.

- The R4348B includes a 3-pole flame relay which is energized when flame is sensed and de-energized when "no-flame" is sensed as well as a 3-pole line voltage "load relay". For all type of burners with unlimited capacity.

Approvals	• CE approved according EN298 (for continuous operation)
Protection class	IP40
Ambient temperature	-20 ... 60 °C
Maximum humidity	90 %rh
Note	Order mounting/wiring sub base separately.
Outputs	3xSPST + 2xDPDT
Operation	Flame switch
Flame failure response time	1,0/2,0s
Flame detector	Depends on plug-in amplifier
Additional description	<ul style="list-style-type: none"> • R4348B provides potential free relay outputs enable Honeywell sensors and amplifiers to be used with a wide range of logic circuits according to customer needs, including a Safe Start function which checks if a flame signal is present at burner start. • Accepts all flame rods or all Honeywell C7012, C7027, C7035, C7044, C7061 and C7076 optical flame detectors, by selecting the correct plug-in flame amplifier. • The R4348B (with rectification amplifier) will operate also with the "former Satronic" IRD1020 range of infrared sensors. Note that this combination is NOT CE approved for use in installations that fall under the GAD (Gas Appliances Directive).

All models

Comment	Type
Standard Model	R4348B1008
Enhanced model with LED meter and 4-20mA output	R4348B1057

Flame Switches

Accessories

Cable (ca. 250mm) with jack plug for remote 0..15 micro-ampere flame signal reading. For use with jack plug socket on the front of DBC2000 and R4343 or on plug-in amplifier of R4348.	117053/U
Mounting and wiring sub base for panel mount	46176612-501

Applicable flame detectors, refer to specific chapter

PurplePeeper UV detector, standard version. Intermittent operation.	_C7012A/G
PurplePeeper UV detector, self-checking version. Continuous operation	_C7012E/F
MiniPeeper UV detector, standard version. Intermittent operation.	_C7027A
MiniPeeper UV detector, with field replaceable UV tube and high temperature specification. Intermittent operation.	_C7035A
MiniPeeper UV detector, with side view option. Intermittent operation.	_C7044A
MiniPeeper self-checking UV detector. Continuous operation.	_C7061A/F
Special self-checking adjustable UV detector to detect flames from heavy oil, solid fuels and dirty gases. Continuous operation.	_C7076A/F

Applicable flame amplifiers.

UV plug-in amplifiers with Self-Check, for use with C7061A/F UV flame sensors. Purple colour. Response time 1 sec, max.	R7061A1008
UV plug-in amplifiers with Self-Check, for use with C7061A/F UV flame sensors. Purple colour. Response time 2 sec, max.	R7061A1016
Rectification plug-in amplifiers with Ampli-Check, for use with flame rod and C7012A/G UV flame sensors. Green colour. Response time 2..4 sec.	R7247B1029
Rectification plug-in amplifiers with Ampli-Check, for use with flame rod and C7012A/G UV flame sensors. Green colour. Response time 2 sec, max.	R7247B1037
Rectification plug-in amplifiers with Self-Check, for use with C7012E/F self-checking UV flame sensors. Green colour. Response time 2..4 sec.	R7247C1001/U
Rectification plug-in amplifiers with Self-Check, for use with C7012E/F self-checking UV flame sensors. Green colour. Response time 2 sec, max.	R7247C1019/U
Rectification plug-in amplifiers for use with flame rod or C7012A/G UV flame sensors. Green colour. Response time 1 sec, max.	R7321A1012
UV plug-in amplifiers for use with C7027, C7035 or C7044 UV flame sensors. Purple colour. Response time 1 sec, max.	R7323A1020
UV plug-in amplifiers with Self-Check, for use with C7076A/F UV flame sensors. Blue colour. Response time 2..4 sec.	R7476A1007/U
UV plug-in amplifiers with Self-Check, for use with C7076A/F UV flame sensors. Blue colour. Response time 2 sec, max.	R7476A1015/U

Industrial Flame Monitoring

1

Industrial flame monitoring - U2-101xS All-In-One Viewing head



U2S

The Honeywell U2-101xS series model all-in-one viewing head with integrated signal processor delivers flame discrimination in the toughest environments. With automatic setup and the ability to monitor UV and IR flame components simultaneously or separately, the U2-101xS all-in-one flame scanner offers improved burner up time and reliability. Industrial process burners, multiple burner system.

Touch screen user interface

A tempered and fully sealed glass touch wheel sensor: no mechanical moving buttons.

- Local display: LED display for flame signal monitoring onsite
- Configuration menu is locked to avoid accidental access automatically after a few minutes of inactivity. To unlock, make 1 full 360 turn with the finger around the touch screen window.



Power supply

24 Vdc; 2.6 VA



Protection class

- NEMA 4x, IP66
- Zone 2 Class 1 Div 2 Group A, B, C and D
- U2-101xS: II 3G Ex nA nC T5 Gc
- U2-101xS-PF: II 2G Ex d IIC T6 Gb / 2D Ex d tb IIIC T85 Db



Ambient temperature

-40 ... 70 °C

Maximum humidity

85 %rh



Approvals

- CE (EN298) for **continuous** operation (Europe).
- CSA and FM (US)
- IECEx and ATEX (explosion proof)
- NCC/Inmetro (Brazil)
- EAC (Russia)
- KTL (Korea)
- SIL 3 Capable



Housing (HxWxD)

117 mm; 117 mm; 155 mm

Weight

2.8 kg

Output signal

- 4-20 mA (or 0-20 mA) with scale multiplier for remote meter or DCS and local display.

Relay outputs

Wire flame and self-check relay contacts in serial to obtain fail-safe operation.

- Flame relay: SPST - Normally Open
- Self-check relay: SPST - Normally Open

End switch function/capacity

30 Vdc, 1 A (resistive)

Note

- For "PF" models it is highly recommended to use a pipe coupler (see R-518-xx accessories), for easy mounting on to a viewing pipe.
- Because Honeywell cable accessories are of USA origin, all cable lengths are measured in Ft (Feet, 1 Ft = 304.8mm)

Control model

Flame switch

Outputs

2xSPST

Flame failure response time

1/2/3s selectable

Additional description

- Sensor: UV Tube (UVTron), UV photo diode (UVss), IR sensor or a combination of these three sensors
- Response (peak): 210 nm (UVTron), 310 nm (UVss), 1400 nm (IR)
- Technology: Flicker (UVss and IR), Pulse Count (UVTron)
- 100% immunity for X-Ray and Gamma radiation
- Self-check (Electronic shutter): internal processor monitors tube health
- All-in-one flame scanner: no additional wiring cabinet needed
- Remote communication: Modbus RTU (2 wire RS485 compatible)
- 7 files for different configuration, that can be selected by applying or removing a voltage on the dedicated terminal (where FILE 0 is selected < 16Vdc and FILE X > 21Vdc) which this allows smooth file transition possible on mixed fuel burners. File 1..7 are selectable via the Modbus connection.

U2-S cable connector models. For general use and Zone 2. Excluding cable, connector, PT adapter and air purge coupler.

Product description	Comment	Flame detector	Type
Triple flame sensor.	3G Ex nA nC T5	UVTron+UVSS+IR	U2-1010S
Single flame sensor.	3G Ex nA nC T5	IR	U2-1012S
Single flame sensor.	3G Ex nA nC T5	UVTron	U2-1016S
Dual flame sensor.	3G Ex nA nC T5	UVTron+IR	U2-1018S

U2-S models with factory mounted cable and 3/4" cable gland. For use in Zone 1. Excluding PT adapter and air purge coupler.

Product description	Comment	Flame detector	Type
Triple sensor . Cable length 10 Ft (3 m).	Ex d IIC T6	UVTron+UVSS+IR	U2-1010S-PF
Triple sensor. Cable length 50 Ft (15 m).	Ex d IIC T6	UVTron+UVSS+IR	U2-1010S-PF-050
Triple sensor . Cable length 100 Ft (30 m).	Ex d IIC T6	UVTron+UVSS+IR	U2-1010S-PF-100
Single sensor. Cable length 10 Ft (3 m).	Ex d IIC T6	IR	U2-1012S-PF
Single sensor . Cable length 10 Ft (3 m).	Ex d IIC T6	UVTron	U2-1016S-PF
Dual sensor. Cable length 10 Ft (3 m).	Ex d IIC T6	UVTron+IR	U2-1018S-PF

Parts and accessories - 12 conductor C22S ITC/CIC approved cable for U2-S, with factory mounted R-518-10 connector

Cable length 50 Ft (15m)	ASYU2S
Cable length 100 Ft (30 m)	ASYU2S-100
Cable length 200 Ft (60 m)	ASYU2S-200
Cable length 50 Ft (90 m)	ASYU2S-300
12 Conductor cable with braided shield. Orderable in 1 Ft (30.48 cm) incrementals, minimum length is 15 Ft.	C22S

Parts and accessories - cable connector for U2-S

Quick disconnect 12-pins Turck connector for U2-S "non-PF" models.	R-518-10
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U2S-PF



U2S-ASYU2S



ASYU2S

Industrial Flame Monitoring

1



ISO-UNIT



ISO-UNITSS

Parts and accessories - pipe fitting accessories

1" NPTF sealing union with quartz window and 1/2" NPTF purge port	ISO-UNIT
1" NPTF stainless steel sealing union with quartz window and 1/2" NPTF purge port	ISO-UNITSS
1" NPTF sealing union with quartz window and 1/2" NPTF purge port. High pressure version with 1/2" thick high pressure quartz window	ISO-UNITHPGT
Swivel mount, 2" pipe slip to 1" NPT female connection. Anodized aluminium.	M-701-1
Swivel mount, 2" NPT female to 1" NPT female connection. Anodized aluminium.	M-701-2
Flanged swivel mount, 2" flanged to 1" NPTF	M-701-2-FLG
Swivel mount, 2" NPT female to 1" NPT female. Stainless steel construction	M-701-2-SS
Flanged swivel mount, 3-bolt, 4.5" flanged to 1" NPTF	M-701-3
Swivel mount, 3" NPTF to 1" NPTF connection	M-701-3P
Swivel mount, 2-bolt to 1" NPTF connection	M-701-4
Swivel mount bushing 1" x 1/2" NPT, 1/2" connection	M-701-5
1" NPT locking coupler with high temperature gasket	R-518-CL12-HTG
1" NPT aluminum locking quick disconnect/cam and groove coupler adapter with 1/2" NPT purge port. Used with U2 processor/viewing heads	R-518-CL12-PG
1/2" NPT locking coupler with high temperature gasket	R-518-CL13-HTG
1" NPT Ultem insulating locking coupler adapter. Used with U2 processor/viewing head	R-518-PT12
1" NPT Ultem locking coupler adapter with quartz lens	R-518-PT12L
1/2" NPT Ultem locking coupler adapter only	R-518-PT13
1/2" NPT Ultem locking coupler adapter with quartz lens	R-518-PT13L



M-701-2



M-701-2-FLG



M-701-2-SS



M-701-3



M-701-3P



M-701-4



R-518-CL12-HTG



R-518-CL12-PG



R-518-CL13-HTG



R-518-PT12



R-518-PT12L



R-518-PT13

Parts and accessories - programming and monitoring tools



FLAMETOOLS-HMI

Configuration colour touch screen display, with preinstalled Windows CE based configuration software and Modbus connection to connect 700xCSP, P222, P5xx and U2-S signal processors **FLAMETOOLS-HMI/U**

Configuration software on USB key drive, incl. RS422/85 to USB converter module **FLAMETOOLS-PC**

Parts and accessories - various parts

Replacement O-ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	ISO-OR
Replacement quartz window for ISO-Unit and ISO-UnitSS	ISO-QW
Replacement retainer ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	ISO-RR
ISO-Union wrench set.	ISO-WRENCH
Orifice and retaining ring set. Used for all viewing heads	M-702-6
High temperature gasket for 1" locking coupler	PT-GA1
Quartz lens for 1" locking coupler	PT-QL1
Ultra violet light source for UV sensor testing.	UVSOURCE



FLAMETOOLS-PC



M-702-6



UV-SOURCE

Industrial Flame Monitoring

Industrial flame monitoring - S700/S800 Viewing Heads



S700



S800



S700PF



700XXSP



P531



P532

The S700 and S800 viewing head is capable to detect the flame of almost every available fuel type or fuel mixture and have a high flame discrimination capability because of adjustable background radiation sensitivity.

Industrial process burners, multiple burner systems, incinerators, ovens, kilns, etc.

Approvals

- FM, CSA approved
- SIL3 capable
- NEMA 4x, IP64

Protection class

Ambient temperature

0 ... 50 °C

Maximum humidity

85 %rh

Note

- All S70x/80x/700/800 series Flame Safety Products are approved by FM Global for use in SIL 3 environment.
- All S706/S806 UV viewing heads are immune to X-Rays and Gamma radiation, making them ideal for a broad variety of industrial applications.
- Other than any other flame scanner, the S706/S806 UV viewing heads perform background pulse counting for tube health and therefore don't need a mechanical shutter system for self-checking.
- Because Honeywell cable accessories are of USA origin, all cable lengths are measured in Ft (Feet, 1 Ft = 304.8mm)

Operation

Cont.

Additional description

- S702 and S802 models: Germanium photo diode with spectral response 1110 to 1660 nm
- S706 and S806 models: UVton Tube with response 185 to 260 nm
- Fail-safe: no mechanical shutter needed because of the use of electronic monitoring and digital signal processing.
- Technology: Flicker (S702/S802 - IR) and Pulse Count (S706/S806 - UV)
- Works in combination with 700DCSP, 700ACSP and 800SP and on the 3rd channel of the P531 and P532 signal processors.

Flame scanner heads , with cable connector. Incl. 4.5 m cable and connector.

Product description	Flame detector	Type
Single IR viewing head.	IR	S702
Single UV viewing head.	UV	S706
Single IR viewing head, in stainless steel enclosure.	IR	S802
Single UV viewing head, in stainless steel enclosure	UV	S806

Flame scanner heads with 15 Ft (3.5 m) factory mounted over-moulded cable

Product description	Flame detector	Type
Single IR viewing head.	IR	S702PF
Single UV viewing head.	UV	S706PF

Signal Processors for use with S5xx and S55x Viewing Heads. Refer to specific chapter for details.

Single channel signal processing unit for S700/S800 series viewing heads, 85...264 Vac	700ACSP
Single channel signal processing unit for S700/S800 series viewing heads, 24 Vdc	700DCSP
3 channel signal processing unit without display. S700/S800 viewing head connects on 3rd channel only. Voltage: 85...264 Vac	P531AC
3 channel signal processing unit without display. S700/S800 viewing head connects on 3rd channel only. Voltage: 24 Vdc	P531DC
3 channel signal processing unit including display. S700/S800 viewing head connects on 3rd channel only. Voltage: 85...264 Vac	P532AC
3 channel signal processing unit including display. S700/S800 viewing head connects on 3rd channel only. Voltage: 24 Vdc	P532DC

Industrial Flame Monitoring



700-1

Parts and accessories: Mounting

Swivel mount for S700/S800. 1" x 1/2" NPT	700-1
Swivel mount for S700/S800. Flanged x 1/2" NPT	700-2
Swivel mount for S700/S800. 1/2" x 1/2" NPT	700-3
S700 cooling jacket for Vortex cooler	700ACC
Liquid tight cable restraint for S700/S800	700CRLT
Delrin adapter replacement for S700. 1/2" NPT model	700DA
Liquid tight cable adapter for S700/S800. 3/8" NPT model	700LTA
Right angle adapter for S700/S800. 1/2" x 1/2" M/F	700RAA
Ultem heat insulating nipple for S700. 1/2" (view) - 1/4" air purge.	700UA
Delrin adapter replacement for S800. 1/2" model.	800DA
Ultem heat insulating nipple for S800. 1/2" (view) - 1/4" air purge.	800UA
1/2 in. NPT Ultem heat insulating nipple for S700/S800 series viewing heads	R-518-13
1/2" NPT locking coupler with high temperature gasket	R-518-CL13-HTG
1/2" NPT Ultem locking coupler adapter only	R-518-PT13
1/2" NPT Ultem locking coupler adapter with quartz lens	R-518-PT13L



700-2



700-3



700CRLT



700DA



700LTA



700RAA



ASY782



700UA



800DA



800UA



ASY784



R-518-13



R-518-CL13-HTG



R-518-PT13



C330S

Parts and accessories: Electrical

Connector cable with LED and 15-ft (4.5 m) cable with braided shield for S700/S800.	ASY782
Viewing head connector kit for S700/S800 without cable.	ASY784
Connector cable with LED and 50-ft (15 m) C330S cable with braided shield for S700/S800.	ASY785
Connector cable with LED and 200-ft (60 m) cable with braided shield for S700/S800.	ASY785-200
4 Conductor cable with braided shield, excl. connector. Orderable in 1 Ft (30.48 cm) incrementals, minimum length is 15 Ft.	C330S



UV-SOURCE

Parts and accessories: Tools

Ultra violet light source	UVSOURCE
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Industrial Flame Monitoring

1

Signal processors, single channel

Single channel input for S700/S800 viewing heads. And one model for flame detection with a flame rod.

Temperature range 0 ... 50 °C

Hardware outputs

- Flame relay: 2 x SPDT
- Self-check relay: 1 x SPDT
- 0..20 mA or 4..20 mA (selectable)



600U



Model for flame detection by flame rod.

Product description	Supply voltage	Type
Flame monitoring system for use with a flame rod.	85..264 Vac	600U

Standard models, 700xxSP series

Product description	Supply voltage	Type
Adjustable sensitivity signal processor for S700/S800	85..264 Vac	700ACSP
Adjustable sensitivity signal processor for S700/S800	24 Vdc	700DCSP

Viewing heads S700/S800 with cable & connector

Single IR viewing head.	S702
Single UV viewing head.	S706
Single IR viewing head, stainless steel.	S802
Single UV viewing head, stainless steel.	S806

Viewing heads S700/S800 with moulded cable

Single IR viewing head ("pig-tail").	S702PF
Single UV viewing head ("pig-tail").	S706PF



700XXSP



S700



S800



S700PF

Rectifying flame rod for 600U

Flame rod assembly. Electrode length: 305 mm (12")	C7008A1018/U
Flame rod assembly. Electrode length: 610 mm (24")	C7008A1034/U



C7008

Industrial flame monitoring - Viewing Heads

The S55xBE viewing head delivers flame discrimination in the toughest environments and is capable to detect the flame of almost every available fuel type or fuel mixture. With automatic setup, three channels and the ability to monitor UV and IR flame components simultaneously or separately, the P532 signal processor offers improved burner up time and reliability. Industrial process burners, multiple burner systems, incinerators, ovens, kilns, etc.



S550BE



Approvals

- GOST, FM, UL, CSA & NRTL/C Approved
- IECEx certification for specific models (global)
- ATEX certification for S550BE-EX (3rd party product)

Protection class

- NEMA 4x, IP64
- S55xBE: Zone 2 Class 1 Div 2 Group A, B, C and D
- S55xBE: IECEx Cat 3 (Zone 2) II 3G IIC T5
- S550BE-EX: ATEX {EX} II 2 G Ex d IIC T6 for use in Zone 1 and 2 (3rd party product)

Ambient temperature

-40 ... 70 °C

Maximum humidity

85 %rh

Note

- All S55xBE / P5xx series Flame Safety Products are approved by FM Global for use in SIL 3 environment.
- All S55xBE viewing heads are immune to X-Rays and Gamma radiation, making them ideal for a broad variety of industrial applications.
- Other than any other flame scanner, the S55xBE viewing heads perform background pulse counting for tube health and therefore don't need a mechanical shutter system for self-checking.
- Because Honeywell cable accessories are of USA origin, all cable lengths are measured in Ft (Feet, 1 Ft = 304.8mm)

Operation

Cont.

Additional description

- Sensor: UV Tube, Solid State IR sensor or both UV+IR
- Response UV: 210 nm Peak / IR: 1400 nm Peak
- Technology: Pulse Count (UV) and Flicker (IR)
- Self-check: Electronic (no mechanical moving parts)
- Works in combination with P531, P532 and P522 signal processors (P522 with red button labels only).

Flame scanner heads S55xBE

Product description	Flame detector	Comment	Type
Dual UV/IR viewing head, with Turck connector (included)	UVTron+IR	Dual LED display for flame signal	S550BE
Single IR viewing head, with Turck connector (included)	IR	Single LED display for flame signal	S552BE
Single UV viewing head, with Turck connector (included)	UVTron	Single LED display for flame signal	S556BE

Flame scanner heads S55xBE-EX (Explosion proof). 3rd party product.

Product description	Flame detector	Comment	Type
Dual UV/IR viewing head with explosion proof enclosure. Available via distributor only	UVTron+IR	ATEX (Ex d IIC T6) - Zone 1 & 2	S550BE-EX



S550BE-EX

Industrial Flame Monitoring

1

Signal Processors for use with S5xx and S55x Viewing Heads. Refer to specific chapter for details.

2 channel signal processing unit, 85...264Vac	P522AC
2 channel signal processing unit, 24Vdc	P522DC
3 channel signal processing unit without display, 85...264Vac	P531AC
3 channel signal processing unit without display, 24Vdc	P531DC
3 channel signal processing unit including display, 85...264Vac	P532AC
3 channel signal processing unit including display, 24Vdc	P532DC



P522



P531



P532



ACC5XX



ISO-UNIT



ISO-UNITSS

Parts and accessories: Mounting

Air cooling canister for S550xBE viewing heads. 1/4 inch air inlet port. Use with vortex coolers. Not for older S5xx and S550BE-EX models.	ACC55XBE
Replacement O-ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	ISO-OR
Replacement quartz window for ISO-Unit and ISO-UnitSS	ISO-QW
Replacement retainer ring for ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT	ISO-RR
1" NPTF sealing union with quartz window and 1/2" NPTF purge port	ISO-UNIT
1" NPTF stainless steel sealing union with quartz window and 1/2" NPTF purge port	ISO-UNITSS
1" NPTF sealing union with quartz window and 1/2" NPTF purge port. High pressure version with 1/2" thick high pressure quartz window	ISO-UNITHPGT
Swivel mount, 2" pipe slip-on to 1" NPT connection	M-701-1
Swivel mount for S55xBE series viewing heads. 2" NPT female to 1" NPT female	M-701-2
Flanged swivel mount, 2" flanged to 1" NPTF	M-701-2-FLG
Swivel mount, 2" NPT female to 1" NPT female. Stainless steel construction	M-701-2-SS
Flanged swivel mount, 3-bolt, 4.5" flanged to 1" NPTF	M-701-3
Swivel mount, 3" NPTF to 1" NPTF connection	M-701-3P
Swivel mount, 2-bolt to 1" NPTF connection	M-701-4
Swivel mount bushing 1" x 1/2" NPT, 1/2" connection	M-701-5
Orifice and retaining ring set. Used for all viewing heads	M-702-6
High temperature gasket for 1" locking coupler	PT-GA1
Quartz lens for 1" locking coupler	PT-QL1
1" NPT Ultem heat and electrical insulating nipple for S55xB/BE series viewing heads swivel mount.	R-518-12
1" NPT locking coupler with high temperature gasket	R-518-CL12-HTG
1" NPT aluminum locking quick disconnect/cam and groove coupler adapter with 1/2" NPT purge port. Used with U2 processor/viewing heads	R-518-CL12-PG
1" NPT Ultem insulating locking coupler adapter. Used with U2 processor/viewing head	R-518-PT12
1" NPT Ultem locking coupler adapter with quartz lens	R-518-PT12L



M-701-2



M-701-2-FLG



M-701-2-SS



M-701-3



M-701-3P



M-701-4



M-702-6



R-518-12



R-518-CL13-HTG



R-518-CL12-PG



R-518-PT12



R-518-PT12L

Parts and accessories: Electrical



ASYS55XBE



C330S



LTA

C330S cable with connector for S55xBE series viewing heads, length 50 Ft / 15 m	ASYS55XBE
C330S cable with connector for S55xBE series viewing heads, length 200 Ft / 60 m	ASYS55XBE-200
4 Conductor cable with braided shield, excl. connector. Orderable in 1 Ft (30.48 cm) incrementals, minimum length is 15 Ft.	C330S
Liquid tight viewing head cable adapter for old type S5XX series viewing heads only. 1/2" NPTF conduit connection	LTA5XX
Liquid tight viewing head cable adapter for S55xBE series viewing heads. 1/2" NPTF conduit connection	LTA55XBE
Quick disconnect connector only for all S55xBE viewing head models	R-518-09

Parts and accessories: Tools

Configuration colour touch screen display, with preinstalled Windows CE based configuration software and Modbus connection to connect 700xCSP, P222, P5xx and U2-S signal processors	FLAMETOOLS-HMI/U
Configuration software on USB key drive, incl. RS422/85 to USB converter module	FLAMETOOLS-PC
ISO-Union wrench set	ISO-WRENCH
Ultra violet light source	UVSOURCE



FLAMETOOLS-HMI



FLAMETOOLS-PC



UV-SOURCE

Industrial Flame Monitoring

1

Signal processors, independent dual channel, P531, P532



P531

Independent dual channel input for viewing heads: S55xBx (channel 1 and 2) or S700/S800 (channel 3). Battery backup 24V DC

Temperature range	-40 ... 60 °C
R.H. range	50 ... 80 %rh
Bus system description	<ul style="list-style-type: none"> • Modbus • RS422 (differential)
Hardware outputs	<ul style="list-style-type: none"> • Flame relay: 3 x DPDT • Self-check relay: 1 x SPDT • Alarm relay: 1 x SPST • 0..20 mA or 4..20 mA (selectable)



With LED-indication

Power supply	Type
24 V DC	P531DC
85..264 24 V AC	P531AC

With user interface integrated

Power supply	Type
24 V DC	P532DC
85..264 24 V AC	P532AC

Programming and configuration tools

Configuration colour touch screen display, with preinstalled Windows CE based configuration software and Modbus connection to connect 700xCSP, P222, P5xx and U2-S signal processors	FLAMETOOLS-HMI/U
Configuration software on USB key drive, incl. RS422/85 to USB converter module	FLAMETOOLS-PC



P532



FLAMETOOLS-HMI



FLAMETOOLS-PC



S550BE

Viewing heads S55xBx (Channels 1 & 2)

Dual UV/IR viewing head, with Turck connector (included)	S550BE
Single IR viewing head, with Turck connector (included)	S552BE
Single UV viewing head, with Turck connector (included)	S556BE

Viewing head S550BE-EX (Channels 1 & 2)

Dual UV/IR viewing head, in explosion proof enclosure (ATEX). Note: 3rd party product.	S550BE-EX
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S550BE-EX

Viewing heads S700 and S800 (Channel 3 only)

IR viewing head (aluminium enclosure)	S702
UV viewing head (aluminium enclosure)	S706
IR viewing head (stainless steel enclosure)	S802
UV viewing head (stainless steel enclosure)	S806



S700



S800

Industrial Flame Monitoring

Signal processors, selectable dual channel, P522



P522

Selectable dual channel input for viewing heads: S5xx or S55xBx.
Battery backup 24V DC

- | | |
|------------------------|---|
| Temperature range | 0 ... 50 °C |
| R.H. range | 50 ... 80 %rh |
| Bus system description | RS422 (differential) |
| Hardware outputs | <ul style="list-style-type: none"> • Flame relay: 2 x SPDT • Self-check relay: 1 x SPST • Alarm relay: 1 x SPST • 0..20 mA or 4..20 mA (selectable) |

With LED-indication

Power supply	Type
24 V DC	P522DC
85..264 24 V AC	P522AC



Viewing heads S55xBx

Dual UV/IR viewing head, with Turck connector (included)	S550BE
Single IR viewing head, with Turck connector (included)	S552BE
Single UV viewing head, with Turck connector (included)	S556BE
Dual UV/IR viewing head in ATEX Ex d IIC T6 housing	S550BE-EX

Configuration / programming tools

Configuration colour touch screen display, with preinstalled Windows CE based configuration software and Modbus connection to connect 700xCSP, P222, P5xx and U2-S signal processors	FLAMETOOLS-HMI/U
Configuration software on USB key drive, incl. RS422/85 to USB converter module	FLAMETOOLS-PC



S550BE



S550BE-EX



FLAMETOOLS-HMI



FLAMETOOLS-PC

Fibre optics extensions for viewing heads



FASA

The Honeywell FASA-GLASS and FASA-QUARTZ fibre optic extensions are complete engineered assembled and tested accessories for viewing heads and make it possible to monitor flame in a hostile environment, in the presence of:

- excessive vibration
- intense heat
- corrosive chemicals
- explosive gases or dust
- complex burner configuration
- A fibre optic bundle is used to transmit flame radiation to the remotely located flame detector/viewing head. Flexible stainless steel tubes enclose the fibre optic bundle with forced air injection for cooling.
- A lens is used to focus the flame to one end of the fibre optic bundle, with the other end coupled directly to the viewing head.
- Various lengths are available in 1 Ft (30.4 cm) incrementals to a maximum of a little less than 8 m (25 Ft)

For IR only detection systems the **glass** fibre extensions are used

For UV only and dual UV/IR detection systems the **quartz** fibre extensions are used

Temperature range -40 ... 400 °C

Note FASA fibre optics assemblies are configured products. That means that the full length and used viewing head needs to be specified when ordering. The configuration cannot be changed once the FASA fibre optics assembly has been produced in the factory. **Contact Honeywell before ordering.**

Infrared: complete glass fibre optics assembly.

Model	Product description	Type
IR	Glass fibre optics complete assembly for IR with guide pipes and flexible connection.	FASA-GLASS

Infrared: inner assembly glass fibre optics. Excluding outer tubing.

Model	Product description	Type
IR	Glass fibre optics inner assembly for IR with flexible connection.	FASA-INT-GLASS

Ultraviolet: complete quartz fibre optics assembly.

Model	Product description	Type
UV/IR	Quartz fibre optics complete assembly for UV and/or IR with guide pipes and flexible connection.	FASA-QUARTZ

Ultraviolet: inner assembly quartz fibre optics. Excluding outer tubing.

Model	Product description	Type
UV/IR	Quartz fibre optics complete assembly for UV and/or IR with flexible connection.	FASA-INT-QUARTZ

Heavy duty gas pilot ignitors



GHE

The GHE igniters are non-fouling, inextinguishable, high-energy electric igniters suitable for most liquid and gaseous fuels. They are available for both 47 mm (1-7/8") and 73 mm (2-7/8") diameter support tubes, in lengths to suit the application.

The unique high energy circuit makes use of a controlled capacitor discharge to produce a high energy spark at a pulse rate of approximately 3 to 5 times per second that ignites liquid or gaseous fuels more reliably and consistently.

The GHE igniter assembly is comprised of two major parts; a high energy source of ignition and an internal mix air-gas delivery system.

The GHE Igniters are supplied with:

- 0.9 m (36") stainless steel flexible gas hose
- 0.9 m (36") stainless steel flexible air hose
- burner mounting tube
- high energy probe
- igniter tip 305 mm (12") long x 12.7 mm (1/2") outer diameter
- Various lengths are available in 1 Ft (30.4 cm) incremental to a maximum of 25 Ft (ca. 8 m)

Note

GHE pilot burner assemblies are configured products. That means that the full length needs to be specified when ordering. The configuration cannot be changed once the GHE pilot burner assembly has been produced in the factory. **Contact Honeywell before ordering.**

Product description	Type
Gas pilot ignitor assembly (300 - 900 kW)	GHE1-3
Gas pilot ignitor assembly (600 - 1500 kW)	GHE2-5

Accessories

12 Joule Power Pack, 120/230Vac, 50/60Hz	POWERPACK-12-CS
NEMA 4X enclosure for igniter powerpack.	NEMA-4X-ADD

Replacement parts

Replacement igniter probe junction box with canon plug receptacle for GHE igniters.	IGN-CPC-LB
Replacement internal GHE igniter cable with contact, specify length before ordering.	HV-HT

Industrial Flame Monitoring

1

Flare monitoring system



WATCHDOGIIIIBE



P222



S256BE



FLAMETOOLS-HMI

Watchdog III is a flare stack monitoring system, guarding against the venting of hazardous gases in the atmosphere.

Can be used for continuous onsite flare monitoring

- The fail-safe and well proven UVtron technology is used for flame detection.

Totally immune to sunlight:

- Can be installed anywhere in a 360 degree radius around the flare stack. Operates in the 210 nm range of the spectrum (UV)

The viewing head can be mounted outside a explosion hazardous location:

- The WATCHDOG viewing head can detect a flare more than 300 m away.

The signal processing unit can be mounted inside a nearby wiring cabinet.

Temperature range -40 ... 80 °C

Bus system description Serial communication: RS422/485 (differential)
 • 4800, 9600, 19200 or 38400 baud (selectable)

Hardware outputs
 • Early indication: 2 x SPDT
 • Delayed indication: 1 x SPDT
 • 0..20 mA or 4..20 mA (selectable)

Note
 • Because Honeywell cable accessories are of USA origin, all cable lengths are measured in Ft (Feet, 1 Ft = 304.8mm)

Complete set

Product description	Supply voltage	Type
Complete set, consists of P222, S256BE and ASYS5XXBE	85..264 Vac	WATCHDOGIIIIBE

Individual components (excl. connector and cable)

Product description	Supply voltage	Type
Watchdog Signal Processor only with mounting base and terminal. Excl. connector.	85..264 Vac	P222
Watchdog III UV Digital flare stack pilot monitor viewing head. Powered by P222.	24 Vdc	S256BE

Configuration tools

Configuration colour touch screen display, with preinstalled Windows CE based configuration software and Modbus connection to connect 700xCSP, P222, P5xx and U2-S signal processors	FLAMETOOLS-HMI/U
Configuration software on USB key drive, incl. RS422/85 to USB converter module	FLAMETOOLS-PC

Cables

4 Conductor cable with braided shield, excl. connector. Orderable in 1 Ft (30.48 cm) incrementals, minimum length is 15 Ft.	C330S
C330S cable with connector for S55xBE series and S256BE viewing heads, length 50 Ft / 15 m.	ASYS55XBE

Accessories

Turck plug for S256BE viewing head, used with C330S cable.	R-518-10
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FLAMETOOLS-PC



C330S



ASYS55XBE

Gas Turbine Flame Monitoring

Gas Turbine flame monitoring systems

The Honeywell LG/EG flame monitoring system detects the UV radiation emitted by a hydrocarbon flame and produces an output signal to indicate a flame or noflame condition. This system has delivered proven performance on General Electric (and GE licensee) gas turbines for more than 35 years.

- Geiger Mueller-type sensor phototube. Detects UV radiation in the 180..260nm range of the spectrum. Solar blind and tolerant to black body radiation.
- Two-year shelf-life, 10000h MTBF with over one billion (10⁹) operating hours.

Gas Turbines for power generation and compressors



LG1093AA



Hardware outputs

For EG1033 amplifier modules only

Features

- EG1033AA: Transistor open collector
- EG1033AB and EG1033AC: Relay contacts (SPDT)
- High sensitivity with fast Flame Present Response Time (0.1 sec typical)
- Flame Loss Response Time: 0.2 sec max.
- Amplifiers support multiple voltage requirements: 28 Vdc, 20-35 Vdc and 115 Vac.
- Operating distances up to 330m (1000ft), sensor to amplifier.
- Qualified component on General Electric turbines.
- Available with European Directive CE mark for EMC 89/336/EEC, LVD 73/23/EEC and ATEX Explosive Atmosphere 94/9/EC (EEx d IIA T3 or EEx d IIC T3, Zone 1 and 2).
- Available with Factory Mutual approval for explosive atmospheres (Class I, Div 1 and 2, Groups B, C and D).

Note

LG1093 series UV sensors may **not work as expected** in DLE gas turbine applications (Low-NOx). These use pre-selected LG1093 UV sensors which are not available through the regular Honeywell sales channels. **ALWAYS ask the manufacturer of the gas turbine for advice in case of an LG1093 service replacement on a DLN gas turbine application.**

Flame Sensor with 3/4 inch internal NPT mounting and Teflon shielded cable with 1" external conduit thread. Viewing window rated for 10bar (150psi).



LG1093AC

Model	Supply voltage	Temperature range °C	Maximum humidity %rh	Approvals	Type
Cable length 16ft (4.9m)	-	-40 ... 176	-	FM	LG1093AA24/U
Cable length 61ft (12.8m)	-	-40 ... 176	-	FM	LG1093AA26/U
Cable length 16ft (4.9m)	-	-40 ... 176	-	CE/ATEX (EEx d IIA T3)	LG1093AA34/U
Cable length 61ft (12.8m)	-	-40 ... 176	-	CE/ATEX (EEx d IIA T3)	LG1093AA36/U
Cable length 16ft (4.9m)	-	-40 ... 176	-	CE/ATEX (EEx d IIC T3)	LG1093AA44/U
Cable length 61ft (12.8m)	-	-40 ... 176	-	CE/ATEX (EEx d IIC T3)	LG1093AA46/U

Flame Sensor with 1.73" O.D. by 0.14" wide flange and 2-conductor armoured cable. Viewing window rated 428mbar (6.3psi)



EG1033AA

Model	Supply voltage	Temperature range °C	Maximum humidity %rh	Approvals	Type
Cable length 9ft (2.7m)	-	-40 ... 176	-	CE/ATEX (EEx d IIA T3)	LG1093AC01/U
Cable length 24ft (7.3m)	-	-40 ... 176	-	CE/ATEX (EEx d IIA T3)	LG1093AC05/U

Amplifier modules



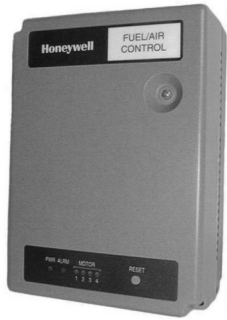
EG1033AC

Model	Supply voltage	Temperature range °C	Maximum humidity %rh	Approvals	Type
Transistor open collector output	24..28 Vdc	0 ... 55	90	-	EG1033AA01/U
SPST normally closed contact	115 Vac	0 ... 55	90	-	EG1033AB02/U
SPST normally open contact	24..28 Vdc	0 ... 55	90	-	EG1033AC01/U
SPST normally closed contact	24..28 Vdc	0 ... 55	90	-	EG1033AD01/U

Gas-Air Ratio Controllers

ControLinks - Electronic Fuel-Air Ratio Control System

ControLinks represents a value-added replacement of a mechanical parallel positioning fuel/air ratio control system by cam and linkage assembly controlling. For use with ML7999A2001 direct coupled actuators only, in Commercial or Industrial burners. Commercial and small and medium sized industrial fuel/air controlled modulating gas, oil and dual fuel burners.



R7999

Approvals	CE, CSA, UL, FM, EAC
Ambient temperature	-40 ... 60 °C
Maximum humidity	85 %rh
Note	

ControLinks can operate fully independent from the used burner controller. However using the Honeywell 7800-series gets the most out of the system, by extended status and fault indication via the Microsoft™ Windows™ CE based full colour system display S7999D.

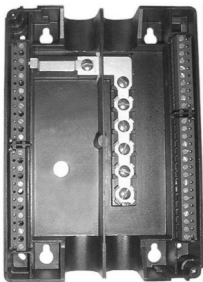
Additional description

- Works with the ML7999A2001 serial number controlled fail-safe direct coupled actuators.
- Can store 2 fully independent fuel/air curves, that are electrically selectable
- Can connect up to 4 actuators, 1 for air, 2 for fuels and 1 for flue gas recirculation. Minimal 2 actuators are needed to operate the system.



Controller

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP40	110..120 Vac	10	-	-	-	R7999A1005/U
IP40	220..240 Vac	10	-	-	-	R7999B1003/U



Q7999

Mounting and wiring base

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP40	-	-	-	-	-	Q7999A1006/U



ML7999

Special fail-safe actuator for ControLinks

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP50	85..264 Vac	15	90	30	11.3	ML7999A2001/U

Colour touch, Windows CE based Configuration and Status display



S7999D1048

Protection class	Supply voltage	Power consumption W	Angle of rotation °	Runtime s	Torque Nm	Type
IP40	24 Vac	12	-	-	-	S7999D1048/U

Accessories for ML7999 actuators

Weather proofing kit (NEMA 3 - IP54) for ML7999	32002935-001/U
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Valve Proofing Systems

Valve proving system A4021



A4021A1002



The A4021 is a self-checking microprocessor based Valve Proving System (VPS). The A4021 checks the effective closure of automatic shut-off valves by measuring the pressure differential between two valves during the test sequence.

- The A4021 is specially designed to be used as proving system to check the effective closure of the valves before burner start up (pre-configuration) or at the end of a heat demand (post-configuration).

Approvals	CE approved (50Hz) according EN1643 (PIN: CE-0063AS1822)
Protection class	IP40, only with subbase ZL030001
Ambient temperature	-10 ... 60 °C
Maximum humidity	95 %rh
Outputs	1xSPST
Operation	Automatic
Runtime	60 s
Comment	Test time per valve 25sec.
Additional description	<ul style="list-style-type: none"> • Remote reset. • Alarm output potential free NO contact. • Uses the NO contact of a standard gas pressure switch, that is set to 1/2x the nominal inlet pressure. • Suggested gas pressure switches: C6097 series C60VR40xxx series

230Vac versions

Type
A4021A1002

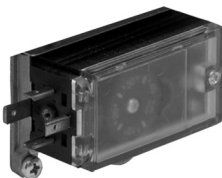


C6097A2210

115Vac versions

Type
A4021A1010

Accessoires



C60VR40

Subbase for A4021A series.	ZL030001
Mounting bracket for VQ400 and VE5000 series.	1030002020
Gas pressure switch flanged, for direct mounting on VQ4xx or VR4xx dual solenoid valves.	_C6097A2x00
Gas pressure switch Rp1/4" threaded for stand-alone mounting.	_C6097A2x10
Miniature gas pressure switch flanged, for direct mounting on VQ4xx or VR4xx dual solenoid valves.	_C60VR4

Pressure Regulators and Gasfilters

1

Gas pressure regulators HUP-HUPF series



HUPF025B110



Spring-loaded gas pressure regulator with inlet pressure compensation and zero shut-off.
All gas-consuming appliances

Media	manufactured gases (town gas) natural gases (group H - methane) liquefied petroleum gas (LPG) non-aggressive gases air
Materials	<ul style="list-style-type: none"> • body: aluminium die cast, UNI 5076/3051 • filter (HUPF): self-extinguishing synthetic fiber for gases conform EN437 galvanized electro welded mesh • filter (HUPF): mesh 50µm
Approvals	CE (EN88-1), AGA
Max. operating pressure	500 mbar
Ambient temperature	-15 ... 60 °C
Outlet pressure	10 ... 30 mbar
Filter mesh	50 micron
Additional description	<ul style="list-style-type: none"> • The outlet pressure is kept constant with changing gas flow as a function of the spring setting. The zero shut-off prevents the outlet pressure from increasing when there is no gas flow through the regulator. • The HUPF-series have a field replaceable filter element. • There are two inlet pressure taps on each side of the regulator: Rp 1/4" • The outlet pressure range can be adjusted by an adjustment screw on top of the regulator. • The HUP(F) series are delivered with the standard (white) spring that determines the outlet pressure range. Other pressure ranges can be selected by changing the spring. See the spring selection overview on this page for other outlet pressure ranges.

Threaded connection. With incorporated gas filter.

Pipe connection	Threads type	Pipe size	Comment	Type
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1/2		HUPF015B110
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 3/4		HUPF020B110
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1		HUPF025B110
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/4		HUPF032B110
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/2		HUPF040B110
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 2		HUPF050B110

Flanged connection. With incorporated gas filter.

Pipe connection	Threads type	Pipe size	Comment	Type
PN16 Flanges as per EN 1092-1	–	DN50	pre-mounted flange assembly	HUPF050B310
PN16 Flanges as per EN 1092-1	–	DN65	full casted body	HUPF065B310
PN16 Flanges as per EN 1092-1	–	DN80	full casted body	HUPF080B310
PN16 Flanges as per EN 1092-1	–	DN100	full casted body	HUPF100B310



HUPF050B310

Adjustment springs HRSP150 for HUPF015, HUPF020 and HUPF025

Green spring (5 ... 13 mbar)	HRSP150M1
Red spring (7 ... 20 mbar)	HRSP150M2
White spring (10 ... 30 mbar). This is the factory default.	HRSP150M3
Yellow spring (25 ... 70 mbar)	HRSP150M4
Violet spring (65 ... 150 mbar)	HRSP150M7
Orange spring (140 ... 300 mbar)	HRSP150M8

Pressure Regulators and Gasfilters

Adjustment springs HRSP153 for HUPF032 and HUPF040

White spring (10 ... 30 mbar). This is the factory default.	HRSP153M3
Yellow spring (25 ... 70 mbar)	HRSP153M4
Violet spring (65 ... 150 mbar)	HRSP153M7
Orange spring (140 ... 300 mbar)	HRSP153M8

Adjustment springs HRSP155 for HUPF050

Yellow spring (25 ... 70 mbar)	HRSP155M4
Violet spring (65 ... 150 mbar)	HRSP155M7
Orange spring (140 ... 300 mbar)	HRSP155M8

Adjustment springs HRSP156 for HUPF065, HUPF080 and HUPF100

Yellow spring (25 ... 70 mbar)	HRSP156M4
Violet spring (65 ... 150 mbar)	HRSP156M7
Orange spring (140 ... 300 mbar)	HRSP156M8

Replacement filter cartridges

When ordering KTFL3 replacement filter cartridges, also the production date code (format: yyww) and / or the production lot code (format: F3ydddy) of the regulator housing must be included when ordering. For example: F301237 indicates day 123 of the year 2007.	_KTFL3
Replacement filter cartridge for HUPF015/020/025 (current)	KTFL3-2100A
Replacement filter cartridge for HUPF032/040 (current)	KTFL3-2200A
Replacement filter cartridge for HUPF050 (current)	KTFL3-2300A
Replacement filter cartridge for HUPF065B (< F300877) and HUPF080B (< F300297)	KTFL3-2400A
Replacement filter cartridge for HUPF065/080/100 (current)	KTFL3-2400A
Replacement filter cartridge for HUPF100 (< F301437)	KTFL3-2500A

Replacement membrane kits

When ordering KTMB3 mebrane kits, also the production date code (format: yyww) and / or the production lot code (format: F3ydddy) of the regulator housing must be included when ordering. For example: F301237 indicates day 123 of the year 2007.	_KTMB3
Replacement membrane kit for HUPF032/040 (< F302555)	KTMB3-0400A
Replacement membrane kit for HUPF032/040 (F302565 ... F301816)	KTMB3-1300A
Replacement membrane kit for HUPF032/040 (current)	KTMB3-1800A
Replacement membrane kit for HUPF050 (< F301805)	KTMB3-0500A
Replacement membrane kit for HUPF050 (F301815 ... F301086)	KTMB3-1400A
Replacement membrane kit for HUPF050 (current)	KTMB3-1700A
Replacement membrane kit for HUPF065 (< F300877) and HUPF080 (< F300297)	KTMB3-1500A
Replacement membrane kit for HUPF065/080/100 (current)	KTMB3-1900A
Replacement membrane kit for HUPF100 (< F301437)	KTMB3-1600A

Pressure Regulators and Gasfilters

1

Gas filter HUF



HUF025B160



Gas filter with filter element
All gas-consuming appliances

Media manufactured gases (town gas) natural gases (group H - methane) liquefied petroleum gas (LPG) non-aggressive gases air

Materials

- body: aluminium die cast, UNI 5076/3051
- filter: self-extinguishing synthetic fiber for gases conform EN437 galvanized electro welded mesh
- filter: mesh 50um

Approvals CE (EN13611) Gas Appliance Directive 2009/142/EC, based on DIN 3386

Max. operating pressure 10000 mbar

Ambient temperature -15 ... 80 °C

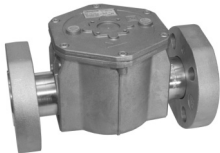
Additional description

- exchangeable filter element
- inlet pressure tap Rp 1/4" outlet pressure tap Rp 1/4"

Threaded

Pipe connection	Threads type	Pipe size	Type
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1/2	HUF015B160
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 3/4	HUF020B160
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1	HUF025B160
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/4	HUF032B160
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 1 1/2	HUF040B160
Internal thread as per ISO 7/1 (Rp)	BSP	Rp 2	HUF050B160

Flanged



HUF040B360

Pipe connection	Threads type	Pipe size	Type
PN16 Flanges as per EN 1092-1	-	DN40	HUF040B360
PN16 Flanges as per EN 1092-1	-	DN50	HUF050B360
PN16 Flanges as per EN 1092-1	-	DN65	HUF065B360
PN16 Flanges as per EN 1092-1	-	DN80	HUF080B360
PN16 Flanges as per EN 1092-1	-	DN100	HUF100B360
PN16 Flanges as per EN 1092-1	-	DN150	HUF150B360

Filter replacement cartridge

When ordering **KTFL replacement filter cartridges**, also the production date code (format: **yyww**) and / or the production lot code (format: **F1ydddy**) of the filter housing is included when ordering see example on this page. _KTFL1

HUF015B/020B/025B1 (all date codes after F102405)	KTFL1-1200A
HUF025B1 (date codes before F102405) and HUF025B3 (all date codes)	KTFL1-1300A
HUF050B (date codes before F103507)	KTFL1-1400A
HUF065B (date codes before F101778) and HUF080B (date codes before F101358)	KTFL1-1500A
HUF100B (date codes before F102608)	KTFL1-1600A
HUF150B (all date codes)	KTFL1-1700A
HUF032B/040B/050B (all date codes)	KTFL1-1800A
HUF065B (date codes between F101788 and F101319) and HUF080B (date codes between F101368 and F101319)	KTFL1-1900A
HUF065B/080B (all date codes after F101319) and HUF100B (all date codes after F102608)	KTFL1-2000A

Gas and Air Pressure Switches

Pressure switch for general gas- and air application C6097



C6097A2210



The C6097 Pressure Switches are safety devices used in positive-pressure or differential-pressure systems to sense gas or air pressure changes.

Kind of pressure	differential pressure, relative
Pressure connection	Two models are available: pipe mount or flange mount on valve body. <ul style="list-style-type: none"> • Pipe mount models: positive pressure: G1/4" • Pipe mount models: negative pressure: G1/8" • Flange mount models: direct mount on valve body
Electrical connection	PG11 or DIN plug
Protection class	IP54
Housing material	<ul style="list-style-type: none"> • Bottom part: aluminium die cast • Case: blue coloured polybutylene terephthalate • Cover: transparent polycarbonate
Media temp.	-15 ... 80 °C
Ambient temperature	-15 ... 60 °C
Switch function/capacity	<ul style="list-style-type: none"> • Switch action: SPDT • Max voltage: 250Vac • Min voltage: 24Vac • Max resistive load: 5 A • Max inductive load (pf=0.6): 3 A • Min load: 50 mA
Approvals	<ul style="list-style-type: none"> • C6097A1/B1 models: UL (US+C), CSA (US+C), FM • C6097A2 models: CE (EN1854) - PIN: 0063AR1571
Mounting position	horizontal or vertical
Additional description	<ul style="list-style-type: none"> • C6097A1 models are calibrated for pressure fall (approved for use as minimum pressure limiter in NA) and have psi or in.wc scale • C6097B1 models are calibrated for pressure rise (approved for use as maximum pressure limiter in NA) and have psi or in.wc scale • C6097A2 models are calibrated for nominal pressure (CE approved for use as minimum or maximum pressure limiter in EU) and have mbar scale

European models for pipe mount, G1/4" connection. Uses PG11 cable gland.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
1 ... 10	... 0.4	200	CE Approved	C6097A2110
2.5 ... 50	... 0.6	300	CE Approved	C6097A2210
30 ... 150	... 2.8	500	CE Approved	C6097A2310
100 ... 500	... 7	600	CE Approved	C6097A2410

Gas and Air Pressure Switches

1



C6097A2200

European models for flange mount on valve body. Uses DIN connector (not included).

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
2.5 ... 50	... 0.6	300	CE Approved	C6097A2200
30 ... 150	... 2.8	500	CE Approved	C6097A2300
100 ... 500	... 7	600	CE Approved	C6097A2400



C6097-
AUTORECYCLE

American models for pipe mount, G1/4" connection. Auto recycle. Break on pressure fall.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
1 ... 12.5	6 ... 10.5	300	CSA/UL/FM Approved	C6097A1004/U
7 ... 52	0.6 ... 1.2	600	CSA/UL/FM Approved	C6097A1053/U
30 ... 150	2.7 ... 6	600	CSA/UL/FM Approved	C6097A1079/U

American models for flange mount. Manual reset. Break on pressure fall.



C6097-
MANUALRESET

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
7 ... 52	0.6 ... 1.2	600	CSA/UL/FM Approved	C6097A1061/U

American models for pipe mount, G1/4" connection. Manual reset. Break on pressure fall.



C6097-
AUTORECYCLE

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
7 ... 52	6 ... 10.5	500	CSA/UL/FM Approved	C6097A1012/U

American models for pipe mount, G1/4" connection. Manual reset. Break on pressure rise.

Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
30 ... 150	25 ... 30	600	CSA/UL/FM Approved	C6097B1002/U



CO020012

American models for pipe mount, G1/4" connection. Auto recycle. Break on pressure rise.

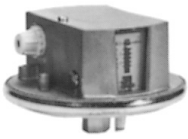
Pressure adjustment range mbar	Differential pressure setpoint range mbar	Max. pressure mbar	Comment	Type
103 ... 480	7 ... 21	600	CSA/UL/FM Approved	C6097B1101/U

DIN plug (for specific C6097A2 models only)

CO020012

Gas and Air Pressure Switches

Pressure switch for general gas- and air application C6045D



C6045D



For monitoring pressure of air and non-aggressive (fuel)gases.

Kind of pressure	differential pressure, relative
Pressure connection	<ul style="list-style-type: none"> • positive pressure: G1/4" • negative pressure: G1/8"
Electrical connection	PG13,5
Protection class	IP40
Housing material	aluminium die casting
Media temp.	-15 ... 70 °C
Ambient temperature	-15 ... 70 °C
Switch function/capacity	SPDT Microswitch 250Vac; capacity: 2 A (inductive); 10 A resistive
Approvals	CE (EN1854) - PIN: 0063AR3085/2
Mounting position	horizontal or vertical
Additional description	Large mambrane for maximum accuracy

Direct mount on G1/4" connection

Pressure adjustment range mbar	Max. pressure mbar	Type
0.2 ... 3	100	C6045D1043
1 ... 10	100	C6045D1050
5 ... 50	200	C6045D1019
15 ... 150	300	C6045D1027

Including mounting bracket with screws

Pressure adjustment range mbar	Max. pressure mbar	Type
0.2 ... 3	100	C6045D1068
1 ... 10	100	C6045D1092
5 ... 50	200	C6045D1076
15 ... 150	300	C6045D1084

Including mounting bracket with screws and 2m (L) x 4mm (ID) tubing and nipples for air duct applications

Pressure adjustment range mbar	Max. pressure mbar	Type
0.2 ... 3	100	C6045D1118
1 ... 10	100	C6045D1100

Mounting bracket with screws (20sets per carton) 45.002.208-001B

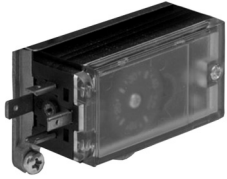


C6045D-BRACKET

Gas and Air Pressure Switches

1

Pressure switch for gas application C60VR



C60VR40



Pressure switch for gas application to be mounted on VQ400 dual valves and VRB00/VR400/V4730 combination gas valves.

- The C60VR40xxx has an adjustable setpoint and performs minimum gas pressure supervision in a safe start interlock circuit.
- The C60VR40xxx is designed to be fitted directly on the valve body of the applicable gas valve body, using two mounting screws and an O-ring.

Kind of pressure	overpressure, relative
Pressure connection	Flanged, directly on valve body.
Electrical connection	DIN plug
Protection class	IP00 (IP54 with DIN plug mounted)
Housing material	<ul style="list-style-type: none"> • Body: aluminium • Cover: reinforced PBT glassfibre
Ambient temperature	-10 ... 70 °C
End switch function/ capacity	<ul style="list-style-type: none"> • Switch action: 1x SPDT • Resistive: 5A • Inductive (COS PHI = 0.6): 0.5A
Approvals	<ul style="list-style-type: none"> • C60VR40 models: CE (EN 1854) • C60VRT40 models: UL
Mounting position	horizontal
Comment	Max. pressure: 2 bar < 15 min
Additional description	DIN plug not included.

Models for Europe

Pressure adjustment range mbar	Differential pressure mbar	Max. pressure mbar	Type
5 ... 40	1.5 ... 2.5	100	C60VR40040
30 ... 110	4 ... 12	600	C60VR40110

Models for USA

Pressure adjustment range mbar	Differential pressure mbar	Max. pressure mbar	Type
5 ... 40	1.5 ... 2.5	600	C60VRT40040



CO020012

Parts

DIN Plug	CO020012
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Gas and Air Pressure Switches

Pressuretrol Controllers



L404F



Provide operating control with automatic limit protection for pressure systems up to 20 Bar (300 psi).

Kind of pressure	overpressure, relative
Electrical connection	conduit
Housing material	Painted carbon steel and transparent plastic front cover
Media temp.	-37 ... 66 °C
Ambient temperature	-37 ... 66 °C
Switch function/capacity	SPDT Microswitch 250Vac; capacity: 1 A (inductive); 5 A resistive
Mounting position	vertical
Additional description	<ul style="list-style-type: none"> • Use with steam, air, noncombustible gases, or fluids non-corrosive to pressure sensing element • Models have snap-acting switching to open or close a circuit on pressure rise • Adjustable differentials • Mount using 1/4" NPT internal pipe thread or surface mount through base of case • Stainless steel diaphragm

European model, incl. grounding screw

Pressure adjustment range kPa	Differential pressure adjustment range kPa	Max. pressure kPa	Pressure connection	Protection class	Type
14 ... 103	14 ... 41	345	1/4" BSP	IP40	L404F1219/U
69 ... 1034	60 ... 152	1551	1/4" BSP	IP40	L404F1227/U
138 ... 2068	138 ... 345	2413	1/4" BSP	IP40	L404F1235/U
35 ... 345	41 ... 97	586	1/4" BSP	IP40	L404F1243/U

American model

Pressure adjustment range kPa	Differential pressure adjustment range kPa	Max. pressure kPa	Pressure connection	Protection class	Type
14 ... 103	14 ... 41	345	1/4" NPT	NEMA1	L404F1060/U
35 ... 345	41 ... 97	586	1/4" NPT	NEMA1	L404F1078/U
138 ... 2068	138 ... 345	2413	1/4" NPT	NEMA1	L404F1094/U
69 ... 1034	60 ... 152	1551	1/4" NPT	NEMA1	L404F1102/U

American model, Limit Controller. With manual reset.

Has 2X SPST switches which open simultaneously on pressure rise.

Pressure adjustment range kPa	Differential pressure adjustment range kPa	Max. pressure kPa	Pressure connection	Protection class	Type
69 ... 1034	-	1551	1/4" NPT	NEMA1	L4079A1050/U

Steam Trap Black Iron Siphon Loop for L404 or L91

14026/U

Gas and Air Pressure Switches

1

Proportional Pressure Control Controllers



L91B1043

Modulating pressure operating control for regulation of liquid or air and other non-corrosive gases.

Kind of pressure	overpressure, relative
Pressure connection	1/4" NPT external thread
Electrical connection	conduit
Protection class	IP44
Housing material	Painted carbon steel and transparent plastic front cover
Media temp.	0 ... 66 °C
Ambient temperature	0 ... 66 °C
Switch function/capacity	Modulating: 140 Ohm potentiometer
Mounting position	vertical
Additional description	<p>Brass bellows</p> <ul style="list-style-type: none"> • Use with steam, air, noncombustible gases, or other fluids noncorrosive to the brass or phos-bronze (20 Bar / 300 psi models) bellows • Do NOT use with combustible mediums or any medium chemically harmful to phos-bronze bellows (0.6-20 Bar / 10-300 psi models) or brass bellows (all other pressure range models) • Do NOT use with combustible mediums or any medium chemically harmful to phos-bronze bellows (0.6-20 Bar / 10-300 psi models) or brass bellows (all other pressure range models)

Single potentiometer 140 Ohms. With optional surface mount through back of case.

Pressure adjustment range kPa	Differential pressure adjustment range kPa	Max. pressure kPa	Type
0 ... 103	10 ... 83	172	L91B1035/U
34 ... 1034	35 ... 160	1551	L91B1050/U
69 ... 2068	193 ... 758	2241	L91B1068/U
0 ... 2068	85 ... 330	2241	L91B1241/U

Single potentiometer 140 Ohms. With G1/4" mounting.

Pressure adjustment range kPa	Differential pressure adjustment range kPa	Max. pressure kPa	Type
0 ... 1034	35 ... 160	1551	L91B1100/U
0 ... 2068	193 ... 758	2241	L91B1118/U

Steam Trap Black Iron Siphon Loop for L404 or L91 14026/U

Ignition Generators

Electronic Spark Ignition generator, ZT93x-series



ZT930

The ZT 93x-series high frequency (20 kHz) spark ignition transformer is suitable for use with medium sized oil, gas and dual fuel burners.

- the single pole model (ZT931) is designed for use with gas burners (spark to ground)
- the dual pole model (ZT930) is designed for use with oil and/or dual fuel burners (spark between 2 electrodes)

Weight	280 g
Protection class	IP40, for models with 1 mm clip connection for high voltage cable.
Ambient temperature	-10 ... 60 °C
Note	The duty cycle is maximal 33% during 3 minutes of operation.
Additional description	The ZT93x-series ignition transformer is available in 2 versions: <ul style="list-style-type: none"> • with 1 mm high voltage cable connection. This is the more robust model for optimal insulation of the high voltage and strong fixation of the cable in the transformer. To be used with the 1 mm clip and 7 mm diameter high voltage silicone cable. • with 4 mm high voltage cable connection. This is the general purpose model, that can be used with several brands of high voltage cables available in the market.

Dual pole models (oil and dual fuel); ZT930-series

Features	Supply voltage	Output voltage	Current	Power consumption	Comment	Output frequency	Type
				W		kHz	
1 mm HV	220..240 Vac	2x 7 kV	40 mA rms	60		... 20	13121U
4 mm HV	220..240 Vac	2x 7 kV	40 mA rms	60		... 20	13124U
4 mm HV	110..120 Vac	2x 7 kV	40 mA rms	60		... 20	13224U
4 mm HV	24 Vdc	2x 7 kV	17 mA rms	60	Pack size 50 pcs!	... 20	13174

Single pole models (gas); ZT931-series

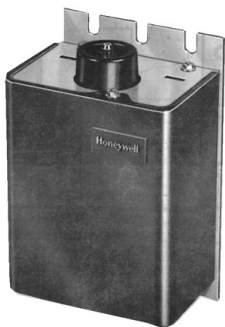
Features	Supply voltage	Output voltage	Current	Power consumption	Comment	Output frequency	Type
				W		kHz	
1 mm HV	220..240 Vac	1x 14 kV	40 mA rms	60		... 20	13131U
4 mm HV	220..240 Vac	1x 14 kV	40 mA rms	60		... 20	13134U
4 mm HV	220..240 Vac	1x 14 kV	40 mA rms	60		... 20	1313405U
1 mm HV	110..120 Vac	1x 14 kV	40 mA rms	60		... 20	13231U
4 mm HV	110..120 Vac	1x 14 kV	40 mA rms	60		... 20	13234U



ZT931

North American model

Features	Supply voltage	Output voltage	Current	Power consumption	Comment	Output frequency	Type
				W		kHz	
6 mm HV	110..120 Vac	1x 10 kV	40 mA rms	66		... 0.06	Q624A1014/U
6 mm HV	110..120 Vac	1x 14 kV	40 mA rms	40		... 20	Q652B1006/U



Q624A

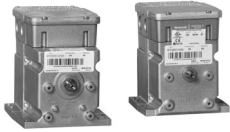
Accessories for ZT93x-series

High voltage silicone cable with 4 mm high voltage connector. Can be used with ZT93x-4 mm models. Diameter: 7 mm, standard length: 1000mm. Only available in pack size 25 pcs .	72710
High voltage silicone cable for ZT93x-1 mm models with 1 mm clip. Diameter: 7 mm, standard length: 1000mm. Only available in pack size 25 pcs .	7271009
Power supply cable, with moulded connector. For all ZT93x models, standard length: 300mm. Only available in pack size 25 pcs .	7283001
Bag containing 100pcs high voltage insulation and fixation clips for ZT93x-1mm models, for use with universal 7 mm high voltage cable.	74993U

Servo Motors

1

Modutrol IV servo motors



MODUTROL-4



Modutrol IV Motors are spring return and non-spring return motors used to control dampers and valves.

- M62xx models are three-wire floating control motors for use with controllers that provide a switched spdt or floating output and have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.
- M72xx models accept a current or voltage signal from an electronic controller to position the motor shaft to any point between open and closed.
- M91xx and M94xx models use a 135Ohm modulating proportional signal to position the motor shaft to any point between open and closed.

Modutrol IV motors are used for damper and valve control in industrial burner applications and air handling installations.

Approvals

- CE, UL, FM, CSA, EAC

Protection class

IP44

- Weather protection kit is available as accessory to upgrade to IP54

Ambient temperature

-40 ... 66 °C

Maximum humidity

85 %rh

Features

- Screw terminals are standard.
- Adapter bracket for matching shaft height of older motors (ModIII) is available.
- Most models have field adjustable stroke (90 to 160).
- Die-cast aluminium housing.
- Two adjustable internal SPDT auxiliary switches are factory mounted.
- Dual shaft ends for normally open or normally closed valve or damper application. Both shaft ends offer the same torque rating.



MXXX4

Input voltage

- Default: 24 Vac
- Via optional built-in transformer: 24/120/230 Vac
- Line frequency: 50/60 Hz



MXXX5

Shaft mounting

9.5mm (3/8") square for all models on both ends

End switches

2

Function

Normally Closed

Additional description

- Modutrol motor timings are independant of line frequency.
- Torque ratings for dual-ended shaft motors are the sum of the shaft torques (power-end torque plus auxiliary-end torque).
- Breakaway torque is the maximum torque available to overcome occasional large loads such as a seized damper or valve. The breakaway torque is 1.5x the normal rated torque.
- Other models than listed in this catalogue are available outside Europe. Most models can be replaced by the available European models.

Servo Motors

Modutrol IV family

Supply voltage	Power consumption W	Input signal	Angle of rotation °	Runtime s	Torque Nm	Position feedback	Model	Type
24/120/230 Vac	See table	See table	See table	See table	See table	–	Series 2/3	<u>M62xx-M72xx-M9xx</u>

3-point control non-spring return (M62x4) (Angle of rotation: Adj. 90° .. 160°; Note: Linear feedback)

Supply voltage	Power consumption W	Input signal	Comment	Runtime s	Torque Nm	Position feedback	Model	Type
24 Vac	14	SPDT	Factory set at 90	Var. 15 .. 27	8.5	10kohm	Series 2	M6274F1009-F/U
24 Vac	13	SPDT	Factory set at 90	Var. 30 .. 53	17	10kohm	Series 2	M6284F1078-F/U
24 Vac	11	SPDT	Factory set at 160	Var. 120..214	34	10kohm	Series 2	M6294F1009-F/U
24 Vac	14	SPDT	Factory set at 90	Var. 60 .. 107	34	10kohm	Series 2	M6294F1017-F/U

3-point control spring return (M62x5) (Angle of rotation: Adj. 90° .. 160°; Note: Linear feedback)

Supply voltage	Power consumption W	Input signal	Comment	Runtime s	Torque Nm	Position feedback	Model	Type
24 Vac	23	SPDT	Factory set at 160	Var. 30 .. 53	6.8	10kohm	Series 2	M6285F1001-F/U

Analogue input control non-spring return (M72x4) (Angle of rotation: Adj. 90° .. 160°)

Supply voltage	Power consumption W	Input signal	Comment	Runtime s	Torque Nm	Position feedback	Model	Type
24 Vac	14	4-20 mA	Factory set at 90	Var. 15 .. 27	8.5	–	Series 2	M7274Q1009/U
24/120/230 Vac	13	4-20 mA		Fixed 30	17	–	Series 2	M7284Q1082/U
24 Vac	13	2-10 Vdc	Factory set at 160	Var. 30 .. 53	17	–	Series 2	M7284Q1098/U
24 Vac	13	4-20 mA	Factory set at 90	Var. 30 .. 53	17	–	Series 2	M7284Q1106/U
24 Vac	14	4-20 mA	Factory set at 90	Var. 60 .. 107	34	–	Series 2	M7294Q1015/U

Analogue input control spring return (M72x5) (Angle of rotation: Adj. 90° .. 160°)

Supply voltage	Power consumption W	Input signal	Comment	Runtime s	Torque Nm	Position feedback	Model	Type
24 Vac	23	4-20 mA	Factory set at 90	Var. 30 .. 53	6.8	–	Series 2	M7285Q1024/U
24 Vac	23	2-10 Vdc	Factory set at 160	Var. 30 .. 53	6.8	–	Series 2	M7285Q1032/U

Potentiometer control non-spring return (M9xx4) (Angle of rotation: Adj. 90° .. 160°)

Supply voltage	Power consumption W	Input signal	Comment	Runtime s	Torque Nm	Position feedback	Model	Type
24 Vac	12	0-150 Ohm	Factory set at 160	Var. 30 .. 53	8.5	–	Series 3	M9174F1001/U
24 Vac	14	0-150 Ohm	Factory set at 90	Var. 30 .. 53	17	–	Series 3	M9184F1034/U
24 Vac	14	0-1500 hm	Factory set at 90	Var. 15 .. 27	8.5	–	Series 3	M9484F1023/U
24 Vac	14	0-150 Ohm	Factory set at 160	Var. 30 .. 53	17	–	Series 3	M9484F1057/U
24 Vac	15	0-150 Ohm	Factory set at 90	Var. 60 .. 107	34	–	Series 3	M9494F1003/U

Potentiometer control spring return (M9xx5) (Angle of rotation: Adj. 90° .. 160°)

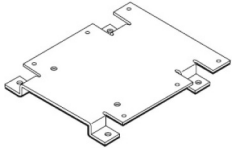
Supply voltage	Power consumption W	Input signal	Comment	Runtime s	Torque Nm	Position feedback	Model	Type
24 Vac	24	0-150 Ohm	Factory set at 160	Var. 30 .. 53	6.8	–	Series 3	M9185F1002/U

Servo Motors

1



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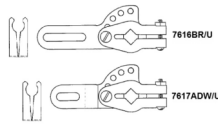
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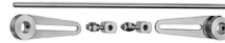
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Accessories

Replacement dual internal auxiliary switch kit	220736B/U
Adapter bracket to adjust shaft height when replacing old ModII or ModIII motors.	220738A/U
Adjustable cranc arm kit	221455A/U
Weatherproofing kit. Protects motor from driving rain when mounted in any position	4074ERU/U
Internal multi tap transformer for use on 120 or 230Vac voltage or to provide galvanic insulation. 24/120/230V to 24V.	50017460-001/U
Cranc arm assembly short	7617ADW/U
Cranc arm assembly long	7616BR/U
Single auxiliary 135Ohm potentiometer. Can be used as feedback potentiometer or to control slave M9xxx motors.	Q181A1007/U
Damper linkage. Includes pushrod, 2 damper arms and 2 ball joints	Q298B1065/U
Damper linkage. Includes mounting bracket, damper arm, motor crankarm, and 2 ball joints	Q605A1070/U
Adapter to convert M9xxx motors to analogue input version. Note: control accuracy <5%. For improved control accuracy, use M7xxx motor.	Q7230A1005/U



7616BR-7617ADW



Q298B1065



Q7230A1005-2



Q181A1007



Q605A1070

Servo Motors

Servo motors for industrial butterfly and throttle valves

The MT4000, MF4000 and LKS160 are non-spring return motors used to control dampers and valves.

The motors are used for damper and valve control in industrial burner applications.



MF4000

Approvals	• CE, AGA
Ambient temperature	-40 ... 60 °C
Maximum humidity	90 %rh
Input signal	SPDT
Angle of rotation	90 °
End switches	3



MT4000



LKS160

MF4000 heavy duty actuator for use with modulating gas valves

Supply voltage	Runtime (s)	Torque (Nm)	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
230 Vac	30	10	-	-	12 mm round	IP65	MF4000A1048
230 Vac	60	15	extra relay	-	12 mm round	IP65	MF4000B1070
230 Vac	15	5	extra relay	1k	12 mm round	IP65	MF4000P1018
230 Vac	15	5	-	1k	12 mm round	IP65	MF4000P1026
230 Vac	30	10	-	1k	12 mm round	IP65	MF4000P1059
115 Vac	30	10	-	1k	12 mm round	IP65	MF4000P1067
115 Vac	60	15	-	1k	12 mm round	IP65	MF4000P1091
230 Vac	60	15	-	1k	12 mm round	IP65	MF4000P1109

MT4000 for use with VT5000 throttle valves

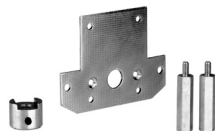
Supply voltage	Runtime (s)	Torque (Nm)	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
230 Vac	12	1.5	-	-	8 mm round	IP40	MT4000A2019
230 Vac	30	3	-	-	8 mm round	IP40	MT4000A2027
115 Vac	30	3	-	-	8 mm round	IP40	MT4000A2050

LKS160 for use with VT5000 throttle valves

Supply voltage	Runtime (s)	Torque (Nm)	Model	Setpoint potentiometer	Shaft mounting	Protection class	Type
230 Vac	34	3	A5-34 S8.P1.1	1k	8 mm round	IP40	78-LKS160-81U

Accessories for MF4000

Adapter kit to use MF4000 with VF5000-series butterfly valves	KTFFMF4
Adapter kit to use MF4000 with V5197	KTFRG04



KTFFMT4



KTFRG04-KIT-MF4000-A

Accessories for MT4000

Adapter kit to use MT4000 with VF5000-series butterfly valves	KTFFMT4
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Accessories for LKS160

Adapter kit to use LKS160 with V5197	KTFRG02
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Accessories for ML7999

Weather proofing kit (NEMA 3 - IP54)	32002935-001/U
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LKS160-01

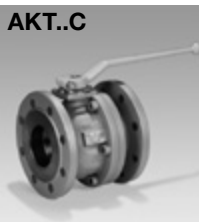
Kromschröder Controls

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2

2



Manual valves AKT

Type code

AKT	Manual valve
6-250/200	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
50	p _u max. 5 bar
160	p _u max. 16 bar
B	Housing: brass
S	Housing: steel
M	Housing: stainless steel, suitable for biogas
G1	Two-part housing, GGG 40, ball: cast steel
C	Two-part housing, GGG 40, ball: stainless steel
K	Short length

Manual shut-off valves, for gas, air and water, EU certified.

Designation	Order no.
With internal thread, p_u max. 5 bar, brass housing, gas temperature -20 to +60°C	
AKT 6R50B	03152270
AKT 10R50B	03152271
AKT 15R50B	03152272
AKT 20R50B	03152273
AKT 25R50B	03152274
AKT 32R50B	03152275
AKT 40R50B	03152276
AKT 50R50B	03152277
With internal thread, p_u max. 16 bar, cast steel housing, stainless steel ball, gas temperature -20 to +60°C	
AKT 15R160S	03152351
AKT 20R160S	03152352
AKT 25R160S	03152353
AKT 32R160S	03152354
AKT 40R160S	03152355
AKT 50R160S	03152356
With internal thread, p_u max. 16 bar, stainless steel housing and ball, gas temperature -20 to +60°C	
AKT 15R160M	03152357
AKT 20R160M	03152358
AKT 25R160M	03152359
AKT 32R160M	03152360
AKT 40R160M	03152361
AKT 50R160M	03152362
With flanged connection, p_u max. 16 bar, GGG 40 housing, gas temperature -20 to +60°C	
AKT 125F160G1	03152317
AKT 150F160G1	03152318
AKT 200F160G1	03152319
AKT 250/200F160G1	03152320
With flanged connection, p_u max. 16 bar, high temperature resistant up to 4 bar, GGG 40 housing, stainless steel ball, gas temperature -20 to +60°C	
AKT 25F160CK	03152380
AKT 32F160C	03152381
AKT 40F160C	03152382
AKT 50F160C	03152383
AKT 65F160C	03152384
AKT 80F160C	03152385
AKT 100F160C	03152386



Locking device for manual valves AKT..R50B

Type code

ASV	Locking device
6/10	For AKT 6 or AKT 10
15/20	For AKT 15 or AKT 20
25/32	For AKT 25 or AKT 32
40/50	For AKT 40 or AKT 50
R50B	Manual valve type

Lockable in open and closed position, can be retrofitted (padlock not supplied).

Designation	Order no.
ASV 6/10R50B	03151181
ASV 15/20R50B	03151182
ASV 25/32R50B	03151183
ASV 40/50R50B	03151184

Other locking devices or limit switches on request

2

AKT..R..TAS



Manual valves with thermal equipment trip AKT..TAS

Type code

AKT	Manual valve
6-250/200	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
10	p _u max. 1 bar in the case of high thermal stress, otherwise max. 5 bar
50	
TAS	Thermal equipment trip

AKT..F..TAS



Manual shut-off valves for gas, with automatically closing safety device, resistant to high temperatures (HTR), trip temperature 95°C (±5K), DVGW tested and registered. AKT..TAS can be used pursuant to the German Firing System Directive and TRGI 86/96. Use high temperature resistant flange seals WL-HT on the inlet side.

Designation	Order no.
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With internal thread, p_u max. 1 bar

AKT 15R10TAS	03152363
AKT 20R10TAS	03152364
AKT 25R10TAS	03152365

With internal thread, p_u max. 5 bar

AKT 32R50TAS	03152377
AKT 40R50TAS	03152378
AKT 50R50TAS	03152379

With flanged connection, p_u max. 5 bar*

AKT 25F50TAS	03152296
AKT 32F50TAS	03152297
AKT 40F50TAS	03152298
AKT 50F50TAS	03152299
AKT 65F50TAS	03152300
AKT 80F50TAS	03152301
AKT 100F50TAS	03152302
AKT 125F50TAS	03152303
AKT 150F50TAS	03152304

* If the TAS installation set (available on request) is being used, the thermal equipment trips AKT..F..TAS meet the high thermal capacity requirements for inlet pressures of up to a max. of 16 bar.

Flange seals for AKT..TAS and EKO

Resistant to high temperatures, rubber seal made of NBR 50219.0, support ring made of ST 37, galvanized and chromated with graphite coating on both sides and with red high temperature resistance label (HTR), seal material DVGW tested and registered.

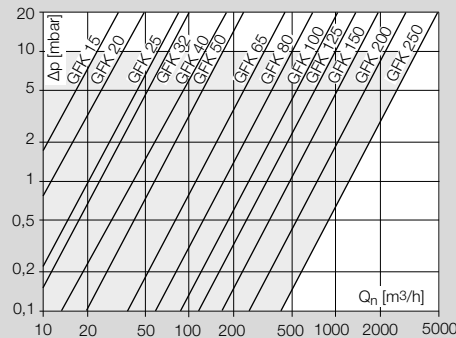
Designation	Order no.
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Flange seal WL-HT DN 25	03352221
Flange seal WL-HT DN 32	03352222
Flange seal WL-HT DN 40	03352223
Flange seal WL-HT DN 50	03352224
Flange seal WL-HT DN 65	03352225
Flange seal WL-HT DN 80	03352226
Flange seal WL-HT DN 100	03352227
Flange seal WL-HT DN 125	03352228
Flange seal WL-HT DN 150	03352229
Flange seal WL-HT DN 200	03352230



Gas filters GFK

Technical Information GFK



Natural gas

GFK

Type code

GFK	Gas filter
15-250	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
10	p_u max. 1 bar
40	p_u max. 4 bar
60	p_u max. 6 bar
-3	Screw plug at the inlet and outlet
-6	Pressure test point at the inlet and outlet

Gas filters with polypropylene fleece filter pads (50 µm as standard) for cleaning gas and air, EU certified.

Designation	Order no.
With internal thread, p_u max. 1 bar	
GFK 15R10-6	81935190
GFK 20R10-6	81936190
GFK 25R10-6	81937190
GFK 32R10-6	81938190
GFK 40R10-6	81939190
GFK 50R10-6	81940090
GFK 65R10-6	81941090
With flanged connection, p_u max. 1 bar	
GFK 40F10-6	81940190
GFK 50F10-6	81941190
GFK 65F10-6	81942190
GFK 80F10-6	81943190
GFK 100F10-6	81944190
GFK 125F10-3	81945010
GFK 150F10-3	81946010
GFK 200F10-3	81949010
GFK 250F10-3	81950010
With internal thread, p_u max. 4 bar	
GFK 15R40-6	81935200
GFK 20R40-6	81936200
GFK 25R40-6	81937200
GFK 32R40-6	81938200
GFK 40R40-6	81939200
GFK 50R40-6	81940200
GFK 65R40-6	81941200
With flanged connection, p_u max. 4 bar	
GFK 125F40-3	81945100
GFK 150F40-3	81946100
With flanged connection, p_u max. 6 bar	
GFK 40F60-6	81940103
GFK 50F60-6	81941103
GFK 65F60-6	81942103
GFK 80F60-6	81943103
GFK 100F60-6	81944103

Designation	Order no.
Pressure test point loosely enclosed	
Test point G 1/8 aluminium + AFM /B	75444352

Gas filter spare parts

Filter pads with a separation rate of 50 µm

Designation	Order no.
Spare parts set GFK 15/20, 10 x pads, 10 x O-rings	71935010
Spare parts set GFK 25/32, 10 x pads, 10 x O-rings	71937010
Spare parts set GFK 40/50, 5 x pads, 5 x O-rings	71939010
Spare parts set GFK 65, 1 x pad, 1 x O-ring	74923284
Spare parts set GFK 80, 1 x pad, 1 x O-ring	74923285
Spare parts set GFK 100, 1 x pad, 1 x O-ring	74923286
Filter pad GFK 125	35448581
O-ring 308 x 8 for GFK 125/150	03110013
Filter pad GFK 150	35448583
O-ring 308 x 8 for GFK 125/150	03110013
Filter pad GFK 200/250	35448584
O-ring 430 x 8 for GFK 200/250	03109164

Filter pads with special separation rate of 10 µm for

GFK 15-100	on request
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Pressure regulators for gas

Spring-loaded pressure regulators with pressure compensation diaphragm and zero shut-off to maintain the set outlet pressure p_d constant despite changing gas flow rates.

valVario pressure regulators

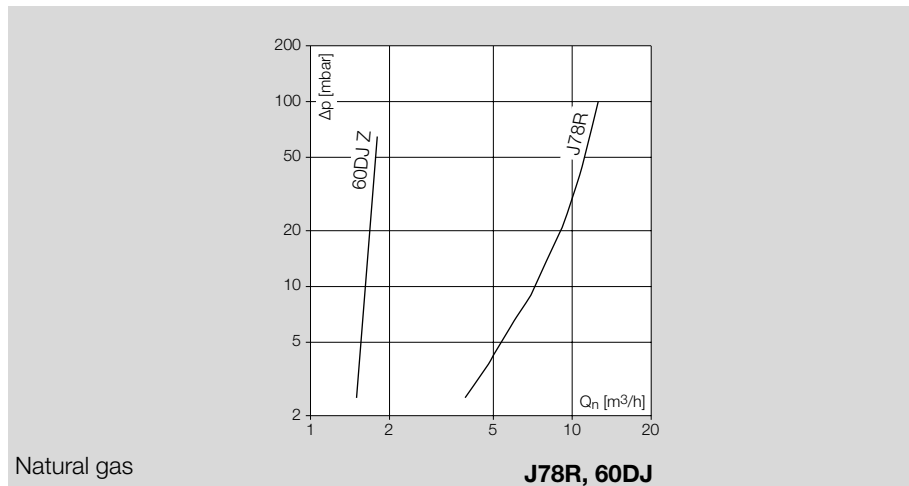
Type	Connection	p_u max. [mbar]	Gas type	p_d [mbar]
J78R	thread	100	gas/air	6–55
60DJ	thread	100	gas/air	35–90
GDJ 15R04	thread	400	gas/air	2–55
GDJ 20R04	thread	400	gas/air	5–160
GDJ 25R04	thread	400	gas/air	5–160
GDJ 40R04	thread	400	gas/air	5–160
GDJ 50R04	thread	400	gas/air	5–100
VGBF 40F05	flange	500	gas/air	5–350
VGBF 50F05	flange	500	gas/air	5–350
VGBF 65F05	flange	500	gas/air	5–160
VGBF 80F05	flange	500	gas/air	5–350
VGBF 100F05	flange	500	gas/air	5–350
VGBF 150F05	flange	500	gas/air	5–160
VGBF 25R10	thread	1000	gas	5–350
VGBF 40..10	thread/ flange	1000	gas	5–350
VGBF 50..10	flange	1000	gas	5–350
VGBF 80F10	flange	1000	gas	5–350
VGBF 100F10	flange	1000	gas	5–350
VGBF 150F10	flange	1000	gas	5–160
VGBF 15R40	thread	4000	gas	5–350
VGBF 25R40	thread	4000	gas	5–350
VGBF 40..40	thread/ flange	4000	gas	5–350
VGBF 50..40	flange	4000	gas	5–350
VGBF 80F40	flange	4000	gas	5–350
VGBF 100F40	flange	4000	gas	5–350

2



Pressure regulators for gas J78R, 60DJ

[Technical Information J78R, 60DJ Z](#)



J78R: DN 15, outlet pressure p_d 15-23 mbar as standard (factory setting: 20 mbar), with screw plug at the inlet; 60DJ: DN 8, outlet pressure p_d 35-90 mbar as standard (factory setting: 80 mbar); J78R and 60DJ: for gas, p_u max. 100 mbar, EU certified.

Designation	Order no.
J78R 1	03155003
60DJ Z	03155300
Setting at factory of other outlet pressures	surcharge

Pressure regulators for air J78R 1-L, 60DJ L

J78R: DN 15, outlet pressure p_d 15-23 mbar as standard, with screw plug at the inlet;
60DJ: DN 8, outlet pressure p_d 35-90 mbar as standard; J78R and 60DJ: with special diaphragms for air operation (without approval).

Designation	Order no.
J78R 1-L	03155026
60DJ LZ	03155301

Springs for outlet pressure adjustment

on pressure regulators, packed in bags, with additional label for changed outlet pressure.

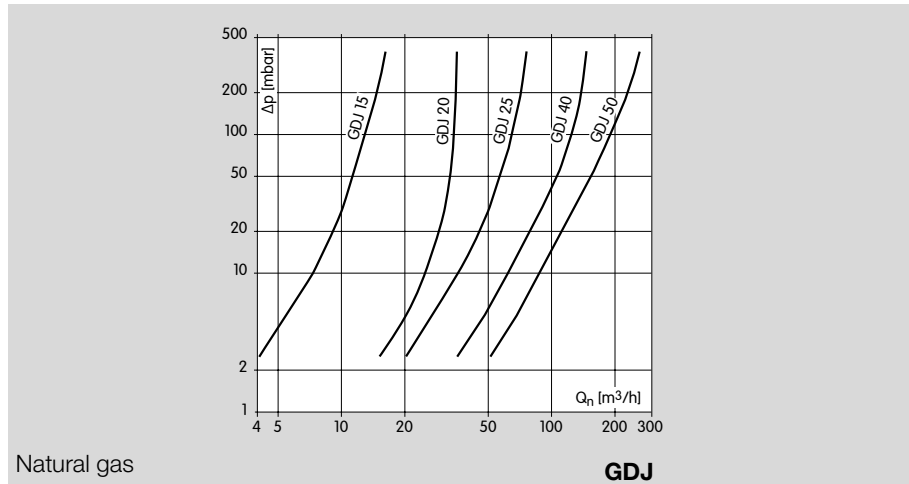
Designation	Order no.
J78R	
Spring 6-9 mbar, green/red	03089041
Spring 9-17 mbar, yellow	03089042
Spring 15-23 mbar, black	03089043
Spring 22-31 mbar, orange	03089044
Spring 31-42 mbar, brown	03089045
Spring 42-55 mbar, l-green/l-blue	03089047

2

Technical
Information GDJ



Pressure regulators for gas GDJ



Natural gas

GDJ

Type code

GDJ	Pressure regulator for gas
15-50	Nominal size
R	Rp internal thread
04	p_d max. 400 mbar
-0	No pressure test point
-4	Pressure test point at the inlet
L	Only for air (without approval)

Outlet pressure p_d 12.5-25 mbar as standard (DN 15: 16-28 mbar) (factory setting: 20 mbar), with safety diaphragm, therefore no purge line required, for gas, EU certified.

Designation	Order no.
GDJ 15R04-0	03155021
GDJ 20R04-0	03155022
GDJ 25R04-0	03155023
GDJ 40R04-0	03155024
GDJ 50R04-0	03155025
Pressure test point at the inlet possible	
Setting at factory of other outlet pressures	surcharge

Pressure regulators for air GDJ..L

Outlet pressure p_d 12.5-25 mbar as standard (DN 15: 16-28 mbar) with changing air flow rate, with special diaphragms for air operation (without approval).

Designation	Order no.
GDJ 15R04-OL	03155031
GDJ 20R04-OL	03155032
GDJ 25R04-OL	03155033
GDJ 40R04-OL	03155034
GDJ 50R04-OL	03155035

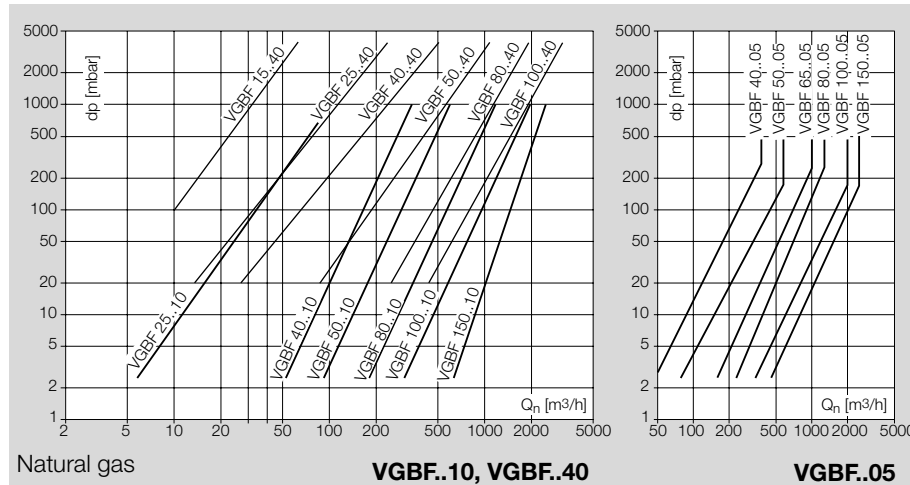
Springs for outlet pressure adjustment

on pressure regulators, packed in bags, with additional label for changed outlet pressure.

Designation	Order no.
GDJ 15	
Spring 2-16 mbar, yellow	03089075
Spring 10-20 mbar, black	03089076
Spring 16-28 mbar, orange	03089077
Spring 22-40 mbar, brown	03089078
Spring 40-55 mbar, l-green/l-blue	03089079
GDJ 20, GDJ 25	
Spring 5-15 mbar, d-green/l-blue	03089121
Spring 12.5-25 mbar, black	03089122
Spring 22.5-35 mbar, d-green/brown	03089123
Spring 30-50 mbar, d-green/orange	03089124
Spring 45-65 mbar, black/l-green	03089125
Spring 60-80 mbar, red/orange	03089126
Spring 75-100 mbar, pink/gold	03089127
Spring 100-160 mbar, yellow/orange	03089128
GDJ 40	
Spring 5-15 mbar, black/l-blue	03089129
Spring 12.5-25 mbar, black/l-green	03089130
Spring 22.5-35 mbar, silver/orange	03089131
Spring 30-50 mbar, black/brown	03089132
Spring 45-65 mbar, red/gold	03089133
Spring 60-80 mbar, black/orange	03089134
Spring 75-100 mbar, pink/silver	03089135
Spring 100-160 mbar, grey/gold	03089136
GDJ 50	
Spring 5-15 mbar, white/brown	03089137
Spring 12.5-25 mbar, white/d-blue	03089138
Spring 22.5-35 mbar, white/d-green	03089139
Spring 30-50 mbar, white/red	03089140
Spring 45-65 mbar, white/orange	03089141
Spring 60-80 mbar, d-blue/grey	03089142
Spring 75-100 mbar, grey/gold	03089143



Pressure regulators for gas VGBF



Natural gas

VGBF..10, VGBF..40

VGBF..05

Type code

VGBF	Pressure regulator for gas
15-150	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
05	p_u max. 500 mbar
10	p_u max. 1 bar
40	p_u max. 4 bar
-1	Screw plug at the inlet
-3	Screw plug at the inlet and outlet
V	Viton equipment for gas or air (without approval)

Outlet pressure p_d 10-30 mbar as standard (factory setting: 20 mbar), with safety diaphragm, therefore no purge line required, for gas, EU certified.

Designation	Order no.
With flanged connection, p_u max. 500 mbar	
VGBF 40F05-3	86047220
VGBF 50F05-3	86048220
VGBF 65F05-3	86049220
VGBF 80F05-3	86050220
VGBF 100F05-3	86051220
VGBF 150F05-3	86053220
With internal thread, p_u max. 1 bar	
VGBF 25R10-1	86046210
VGBF 40R10-3	86047410
With flanged connection, p_u max. 1 bar	
VGBF 40F10-3	86047210
VGBF 50F10-3	86048210
VGBF 80F10-3	86050210
VGBF 100F10-3	86051210
VGBF 150F10-3	86053210
Damping valve VGBF /B	74924681
With internal thread, p_u max. 4 bar	
VGBF 15R40-1	86044010
VGBF 25R40-1	86046010
VGBF 40R40-3	86047110
With flanged connection, p_u max. 4 bar, including damping valve for impulse line	
VGBF 40F40-3	86047010
VGBF 50F40-3	86048010
VGBF 80F40-3	86050010
VGBF 100F40-3	86051010

Setting at factory of other outlet pressures, DN 15-65 surcharge
 Setting at factory of other outlet pressures, DN 80-150 surcharge

VGBF..V

Pressure regulators VGBF..V

For gas or air, outlet pressure p_d 10-30 mbar as standard (factory setting: 20 mbar) with changing flow rate, wetted rubber parts made of Viton (without approval).

Designation	Order no.
VGBF 40F05-3V	86047222
VGBF 50F05-3V	86048222
VGBF 65F05-3V	86049222
VGBF 80F05-3V	86050222
VGBF 100F05-3V	86051222
VGBF 150F05-3V	86053222

Adapters for length compensation when replacing GBF by VG-BF..05 or when replacing GI..F by GIK..F

Designation	Order no.
Adapter set VGBF 40F05 /B	74921153
Adapter set VGBF 50F05 /B	74921154
Adapter set VGBF 65F05 /B	74921155
Adapter set VGBF 80F05 /B	74921156
Adapter set VGBF 100F05 /B	74921157
Adapter set VGBF 150F05 /B	74921158

Springs for outlet pressure adjustment

on pressure regulators, packed in bags, with additional label for changed outlet pressure.

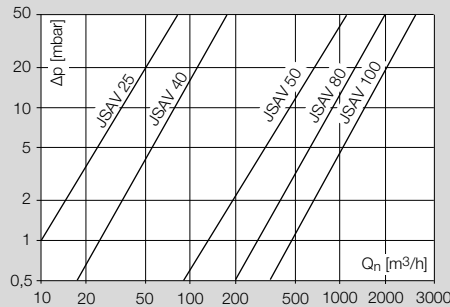
Designation	Order no.
VGBF 15	
Spring 5-12.5 mbar, -	75421911
Spring 10-30 mbar, red	75421921
Spring 25-45 mbar, yellow	75421931
Spring 40-60 mbar, green	75421941
Spring 55-75 mbar, blue	75421951
Spring 70-90 mbar, black	75442046
Spring 85-105 mbar, white	75442047
Spring 100-160 mbar, black/red	75442048
Spring 150-230 mbar, black/yellow	75442049
Spring 220-350 mbar, black/green	75442050
VGBF 25, VGBF 40	
Spring 5-12.5 mbar, -	75421961
Spring 10-30 mbar, red	75421971
Spring 25-45 mbar, yellow	75421980
Spring 40-60 mbar, green	75421990
Spring 55-75 mbar, blue	75422000
Spring 70-90 mbar, black	75422010
Spring 85-105 mbar, white	75422020
Spring 100-160 mbar, black/red	75438978
Spring 150-230 mbar, black/yellow	75438979
Spring 220-350 mbar, black/green	75438980
VGBF 50	
Spring 5-12.5 mbar, -	75422031
Spring 10-30 mbar, red	75422041
Spring 25-45 mbar, yellow	75422051
Spring 40-60 mbar, green	75422061
Spring 55-75 mbar, blue	75422071
Spring 70-90 mbar, black	75422081
Spring 85-105 mbar, white	75422091
Spring 100-160 mbar, black/red	75438981
Spring 150-230 mbar, black/yellow	75438982
Spring 220-350 mbar, black/green	75438983
VGBF 65	
Spring 5-12.5 mbar, -	75426160
Spring 10-30 mbar, red	75426170
Spring 25-45 mbar, yellow	75426180
Spring 40-60 mbar, green	75426190
Spring 55-75 mbar, blue	75426200
Spring 70-90 mbar, black	75426210
Spring 85-105 mbar, white	75426220
Spring 100-160 mbar, black/red	75446329

Designation	Order no.
VGBF 80	
Spring 5-12.5 mbar, -	75426230
Spring 10-30 mbar, red	75426240
Spring 25-45 mbar, yellow	75426250
Spring 40-60 mbar, green	75426260
Spring 55-75 mbar, blue	75426270
Spring 70-90 mbar, black	75426280
Spring 85-105 mbar, white	75426290
Spring 100-160 mbar, black/red	75438984
Spring 150-230 mbar, black/yellow	75438985
Spring 220-350 mbar, black/green	75438986
VGBF 100	
Spring 5-12.5 mbar, -	75426310
Spring 10-30 mbar, red	75426320
Spring 25-45 mbar, yellow	75426330
Spring 40-60 mbar, green	75426340
Spring 55-75 mbar, blue	75426350
Spring 70-90 mbar, black	75426360
Spring 85-105 mbar, white	75426370
Spring 100-160 mbar, black/red	75438987
Spring 150-230 mbar, black/yellow	75438988
Spring 220-350 mbar, black/green	75438989
VGBF 150	
Spring 5-12.5 mbar, -	75426450
Spring 10-30 mbar, red	75426460
Spring 25-40 mbar, yellow	75426470
Spring 40-60 mbar, green	75426480
Spring 55-75 mbar, blue	75426490
Spring 70-90 mbar, black	75426500
Spring 85-105 mbar, white	75426510
Spring 100-160 mbar, black/red	75438990



Safety shut-off valves JSAV

Technical Information JSAV



Natural gas

JSAV

Type code

JSAV	Safety shut-off valve
25-100	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
40	p_u max. 4 bar
50	p_u max. 5 bar
/1	Over-pressure shut-off p_{do}
/2	Over-pressure and under-pressure shut-off p_{do}/p_{du}
-0	No pressure test point
-3	Screw plug at the inlet and outlet

Safety shut-off valves for securing all downstream fittings against excess or insufficient gas pressure, with safety device, therefore no purge line required (only DN 25 and 40), for gas, lower trip pressure p_{du} standard adjusting range: 8-16 mbar (factory setting: 10 mbar), upper trip pressure p_{do} : 100-210 mbar on JSAV 25-40 (factory setting: 120 mbar) or 60-170 mbar on JSAV 50-100 (factory setting: 120 mbar), EU certified.

Designation	Order no.
With internal thread, with over-pressure shut-off	
JSAV 25R40/1-0	86361010
JSAV 40R40/1-3	86362010
With internal thread, with under- and over-pressure shut-off	
JSAV 25R40/2-0	86361050
JSAV 40R40/2-3	86362050
With flanged connection, with over-pressure shut-off	
JSAV 40F40/1-3	86362020
JSAV 50F50/1-0	03151134
JSAV 80F50/1-0	03151135
JSAV 100F50/1-0	03151136
With flanged connection, with under- and over-pressure shut-off	
JSAV 40F40/2-3	86362060
Reset lever for JSAV 50-100 /B	03151140
Switch for remote indication JSAV 50-100 /B	03151185
Setting at factory of other trip pressures	surcharge

Springs for pressure adjustment on JSAV

packed in bags, with additional label for changed trip pressure

Designation	Order no.
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Springs for lower trip pressure p_{du}

JSAV 25 and 40

Spring 8-16 mbar, l-blue	03089082
Spring 16-60 mbar, brown	03089083
Spring 60-150 mbar, violet	03089084

Springs for upper trip pressure p_{do}

JSAV 25 and 40

Spring 18-60 mbar, black	03089068
Spring 50-80 mbar, orange	03089069
Spring 60-110 mbar, red	03089070
Spring 100-210 mbar, d-green	03089071
Spring 200-350 mbar, yellow	03089072
Spring 280-500 mbar, white	03089073

JSAV 50-100

Spring 35-70 mbar, l-blue	03089063
Spring 60-170 mbar, red/brown	03089064
Spring 120-220 mbar, violet	03089065
Spring 190-400 mbar, orange/yellow	03089066
Spring 300-550 mbar, orange/green	03089067



Safety relief valve VSBV

Safety relief valve for eliminating short-term pressure surges or preventing pressure increases due to gas creeps, for gas, DN 25, Rp internal thread, p_u max. 4 bar, pressure test point at the inlet, standard adjusting range: 70-170 mbar (factory setting: 100 mbar), EU certified.

Designation	Order no.
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VSBV 25R40-4	84583010
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Setting at factory of other opening pressures surcharge

Springs for pressure adjustment on VSBV 25

packed in bags, with additional label for changed opening pressure

Designation	Order no.
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Spring 20-40 mbar, red	75441805
Spring 35-50 mbar, yellow	75441806
Spring 45-75 mbar, green	75441807
Spring 70-170 mbar, blue	75441808
Spring 165-330 mbar, black	75441809
Spring 320-500 mbar, white	75441810

[Technical Information VSBV 25](#)



Circulation pressure control and relief regulators VAR

Technical Information VAR

Type code

VAR	Circulation pressure control and relief regulator
25-100	Nominal sizes
R	Rp internal thread
F	Flange to ISO 7005
05	p_u max. 500 mbar
-1	Opening pressure p_d 10-150 mbar
-2	Opening pressure p_d 151-340 mbar

Circulation pressure control and relief regulators for maintaining constant pressures in gas appliances, for preventing inadmissibly high pressures, for relieving brief pressure surges, for compensating for pressure fluctuations occurring on compressors or fans. The regulators comply with the requirements of EN 88, Class A, Group 2. Different opening pressures p_d are achieved by using different springs. Please quote the required opening pressure p_d in your order.

Designation	Order no.
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Opening pressure p_d 10-150 mbar, default setting

90 mbar

VAR 25R05-1	86054010
VAR 40R05-1	86054020
VAR 40F05-1	86054030
VAR 50F05-1	86054040
VAR 65F05-1	86054100
VAR 80F05-1	86054060
VAR 100F05-1	86054070

Opening pressure p_d 151-340 mbar, default setting

200 mbar

VAR 25R05-2	86054011
VAR 40R05-2	86054021
VAR 40F05-2	86054031
VAR 50F05-2	86054041
VAR 80F05-2	86054061
VAR 100F05-2	86054071

Setting at factory of other opening pressures, DN 25-65 surcharge

Setting at factory of other opening pressures, DN 80-100 surcharge

Springs for outlet pressure adjustment

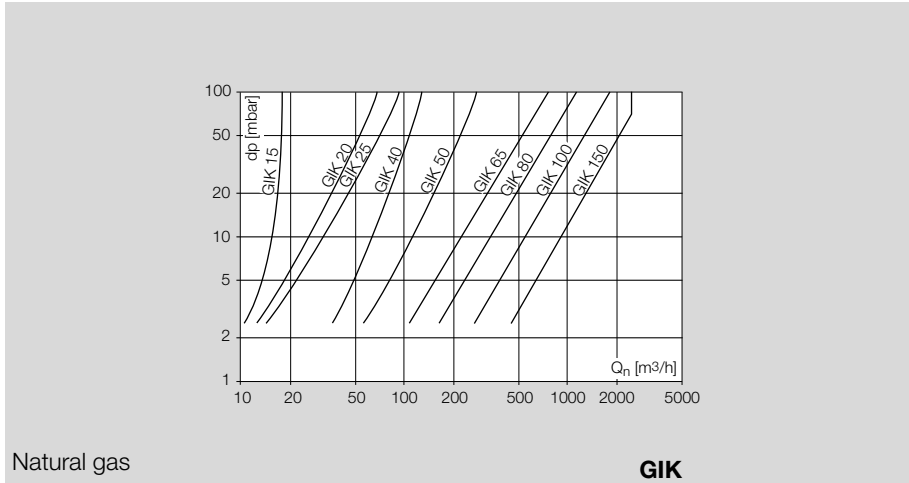
Designation	Order no.
VAR 25, VAR 40	
Spring 10-30 mbar, red	75421971
Spring 25-45 mbar, yellow	75421980
Spring 40-60 mbar, green	75421990
Spring 55-75 mbar, blue	75422000
Spring 70-90 mbar, black	75422010
Spring 85-105 mbar, white	75422020
Spring 100-160 mbar, black/red	75438978
Spring 150-230 mbar, black/yellow	75438979
Spring 220-350 mbar, black/green	75438980
VAR 50	
Spring 10-30 mbar, red	75422041
Spring 25-45 mbar, yellow	75422051
Spring 40-60 mbar, green	75422061
Spring 55-75 mbar, blue	75422071
Spring 70-90 mbar, black	75422081
Spring 85-105 mbar, white	75422091
Spring 100-160 mbar, black/red	75438981
Spring 150-230 mbar, black/yellow	75438982
Spring 220-350 mbar, black/green	75438983
VAR 65	
Spring 10-30 mbar, red	75426170
Spring 25-45 mbar, yellow	75426180
Spring 40-60 mbar, green	75426190
Spring 55-75 mbar, blue	75426200
Spring 70-90 mbar, black	75426210
Spring 85-105 mbar, white	75426220
Spring 100-160 mbar, black/red	75446329
VAR 80	
Spring 10-30 mbar, red	75426240
Spring 25-45 mbar, yellow	75426250
Spring 40-60 mbar, green	75426260
Spring 55-75 mbar, blue	75426270
Spring 70-90 mbar, black	75426280
Spring 85-105 mbar, white	75426290
Spring 100-160 mbar, black/red	75438984
Spring 150-230 mbar, black/yellow	75438985
Spring 220-350 mbar, black/green	75438986
VAR 100	
Spring 10-30 mbar, red	75426320
Spring 25-45 mbar, yellow	75426330
Spring 40-60 mbar, green	75426340
Spring 55-75 mbar, blue	75426350
Spring 70-90 mbar, black	75426360
Spring 85-105 mbar, white	75426370
Spring 100-160 mbar, black/red	75438987
Spring 150-230 mbar, black/yellow	75438988
Spring 220-350 mbar, black/green	75438989





Air/gas ratio controls GIK, GIK..B

Technical Information GIK



Type code

GIK	Air/gas ratio control
15-150	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
02	p_u max. 200 mbar
-5	Pressure test point at the outlet
-6	Pressure test point at the inlet and outlet
L	Only for air (without approval)
B	With bypass screw (GIK 15-25: 1.5 mm; GIK 40-50: 5 mm)

Air/gas ratio controls to maintain a constant gas/air ratio of 1:1, max. $\Delta p = 100$ mbar, EU certified.

Designation	Order no.
For continuous control, with internal thread	
GIK 15R02-5	03155170
GIK 20R02-5	03155122
GIK 25R02-5	03155134
GIK 40R02-5	03155146
GIK 50R02-5	03155158
For continuous control, with flanged connection	
GIK 65F02-6	85092220
GIK 80F02-6	85093220
GIK 100F02-6	85094220
GIK 150F02-6	85095220
For High/Low/Off control, with internal thread, bypass	
GIK 15R02-5B	03155171
GIK 20R02-5B	03155123
GIK 25R02-5B	03155135
GIK 40R02-5B	03155147
GIK 50R02-5B	03155159

GIK..R..L



Air/air ratio controls GIK..L, GIK..LB

Air/air ratio controls to maintain a constant air/air ratio of 1:1, with special diaphragms for air operation (without approval).

Designation	Order no.
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For continuous control, with internal thread

GIK 15R02-5L	03155173
GIK 20R02-5L	03155125
GIK 25R02-5L	03155137
GIK 40R02-5L	03155149
GIK 50R02-5L	03155161

For continuous control, with flanged connection

GIK 65F02-6L	85092221
GIK 80F02-6L	85093221
GIK 100F02-6L	85094221
GIK 150F02-6L	85095221

For High/Low/Off control, with internal thread, bypass

GIK 15R02-5LB	03155174
GIK 20R02-5LB	03155126
GIK 25R02-5LB	03155138
GIK 40R02-5LB	03155150
GIK 50R02-5LB	03155162

GIK..F..L



Accessories

Designation	Order no.
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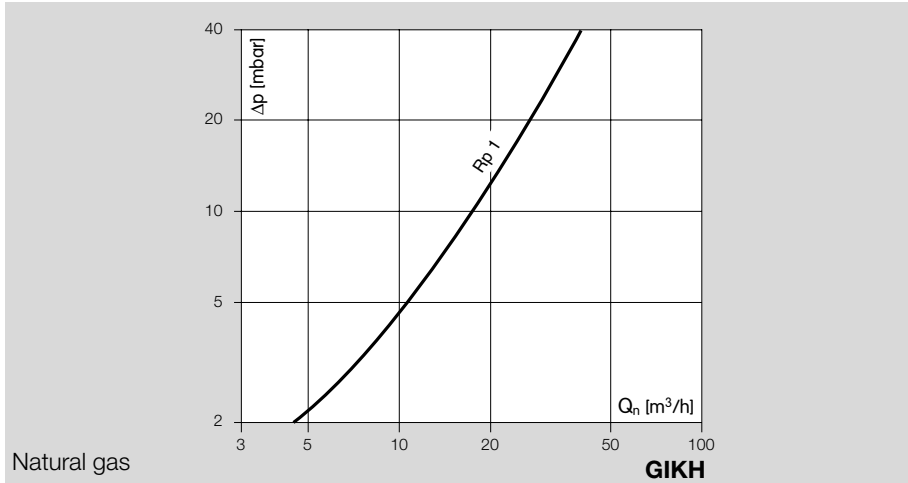
Conversion kit with variable restrictor GIK 15-50 /B	03351040
Conversion kit with variable restrictor GIK 65-150 /B	74910779
Conversion kit zero pressure GIK 15-50 /B	03351039
Conversion kit zero pressure GIK 65-150 /B	74910853
Bypass GIK 15-25, diameter to order /B	74919820
Bypass GIK 40-50, diameter to order /B	74919821
Bypass GIK 15-25, variable /B	74919806

GIKH



Variable air/gas ratio controls GIKH

Technical Information GIKH



Type code

GIKH	Variable air/gas ratio control
25	Nominal size
R	Rp internal thread
02	p _u max. 200 mbar
-5	Pressure test point at the outlet
L	Only for air (without approval)
B	With bypass screw

Air/gas ratio controls to maintain a constant gas/air ratio of approx. 4:1 on systems using preheated air, max. Δp = 100 mbar, EU certified.

Designation	Order no.
For continuous control, for gas	
GIKH 25R02-5	03155191
For High/Low/Off control, bypass 1.5 mm, for gas	
GIKH 25R02-5B	03155192
For continuous control, for air	
GIKH 25R02-5L	03155193

Accessories

Designation	Order no.
Bypass GIK 15-25, diameter to order /B	74919820
Bypass GIK 15-25, variable /B	74919806

Solenoid and motorized valves

Type	Gas type	State when de-energized	Stages	p_u max. [mbar]	Other
VAS	gas/air	closed	1	500	
VGP	gas/air	closed	1	150/200	
VG	gas/air	closed	1	100-1800	
VAN	gas/air	open	1	500	
VK	gas/air	closed	1 or 2	230-8000	also in ex-proof version
VR	Air	closed	1	150	Cold air

VAS 1-3../N



VAS 1-2../L



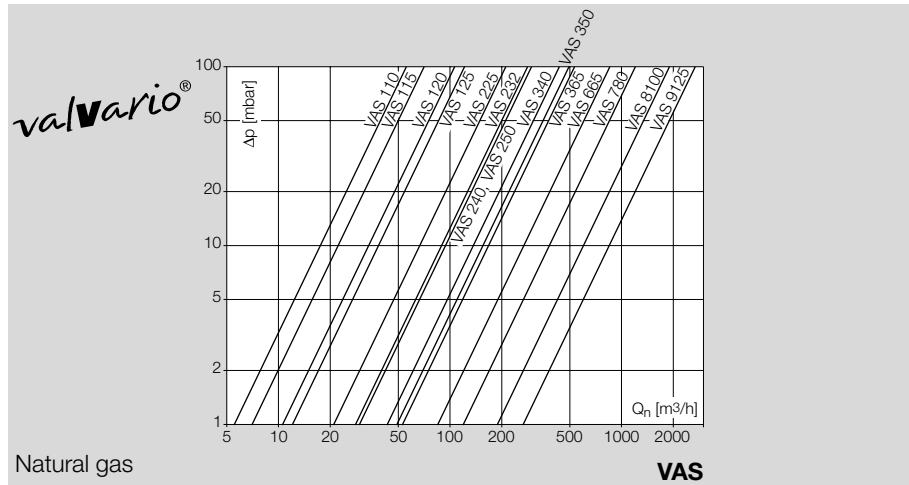
AS 6-9../N



VAS 6-9../N../PP



Solenoid valves for gas VAS



Technical Information VAS, VCS

Type code

VAS	Solenoid valve for gas
1-9	Sizes
10-125	Inlet and outlet flange nominal size
R	Rp internal thread
F	Flange to ISO 7005
05	p _U max. 500 mbar
/N	Quick opening, quick closing
/L	Slow opening, quick closing
W	Mains voltage 230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
A	Mains voltage 120-230 V AC, 50/60 Hz
S	With proof of closure switch and visual position indicator
G	With proof of closure switch for 24 V and visual position indicator
R	Viewing side: right
L	Viewing side: left
3	Electrical connection via cable gland
B	Basic
E	Prepared for adapter plates
/P	Accessory, right, inlet: screw plug
/M	Accessory, right, inlet: pressure test point
/1	Accessory, right, inlet: pressure switch DG 17/VC
/2	Accessory, right, inlet: pressure switch DG 40/VC
/3	Accessory, right, inlet: pressure switch DG 110/VC
/4	Accessory, right, inlet: pressure switch DG 300/VC
P	Accessory, right, outlet: screw plug
M	Accessory, right, outlet: pressure test point
1	Accessory, right, outlet: pressure switch DG 17/VC
2	Accessory, right, outlet: pressure switch DG 40/VC
3	Accessory, right, outlet: pressure switch DG 110/VC
4	Accessory, right, outlet: pressure switch DG 300/VC

The same accessories can be selected for the left- or right-hand side.

Class A gas safety valves to EN 161 for automatic shut-off, closed when de-energized, for gas and air, p_U max. 500 mbar, with pilot lamp and flow adjustment, IP 65, EU certified, FM and CSA approved, certified for systems up to SIL 3 and PL e.

Designation	Order no.
Quick opening, with threaded connection, for 230 V AC	
VAS 110R/NW	88000002
VAS 115R/NW	88000003
VAS 120R/NW	88000004
VAS 125R/NW	88000005
VAS 225R/NW	88000022
VAS 232R/NW	88000023
VAS 240R/NW	88000024
VAS 250R/NW	88000025
VAS 340R/NW	88000042
VAS 350R/NW	88000043
VAS 365R/NW	88000044

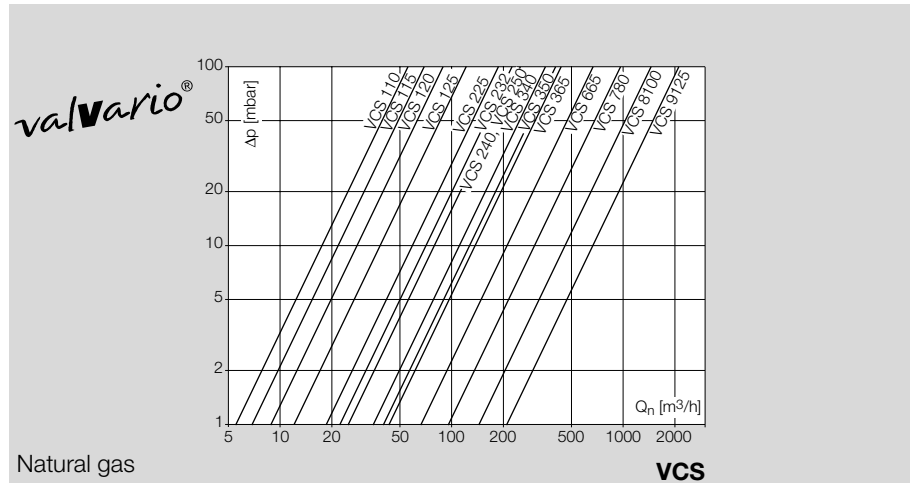
Designation	Order no.
Quick opening, with flanged connection, for 230 V AC	
VAS 240F/NW	88004432
VAS 350F/NW	88004433
VAS 665F05NW3E/PP/PP	88202654
VAS 780F05NW3E/PP/PP	88202673
VAS 8100F05NW3E/PP/PP	88202675
VAS 9125F05NA3E/PP/PP	88202677
Quick opening, flanged connection, for 230 V AC, basic	
VAS 665F05NW3B/PP/PP	88202653
VAS 780F05NW3B/PP/PP	88202683
VAS 8100F05NW3B/PP/PP	88202684
VAS 9125F05NA3B/PP/PP	88202685
Slow opening, with threaded connection, for 230 V AC	
VAS 110R/LW	88000007
VAS 115R/LW	88000008
VAS 120R/LW	88000009
VAS 125R/LW	88000010
VAS 225R/LW	88000027
VAS 232R/LW	88000028
VAS 240R/LW	88000029
VAS 250R/LW	88000030
VAS 340R/LW	88000046
VAS 350R/LW	88000047
VAS 365R/LW	88000048
Slow opening, with flanged connection, for 230 V AC	
VAS 240F/LW	88004434
VAS 350F/LW	88004435
VAS 665F05LW3E/PP/PP	88202689
VAS 780F05LW3E/PP/PP	88202690
VAS 8100F05LW3E/PP/PP	88202691
Slow opening, flanged connection, for 230 V AC, basic	
VAS 665F05LW3B/PP/PP	88202695
VAS 780F05LW3B/PP/PP	88202696
VAS 8100F05LW3B/PP/PP	88202697
Quick opening, with threaded connection, for 120 V AC	
VAS 110R/NQ	88000012
VAS 115R/NQ	88000013
VAS 120R/NQ	88000014
VAS 125R/NQ	88000015
VAS 225R/NQ	88000032
VAS 232R/NQ	88000033
VAS 240R/NQ	88000034
VAS 250R/NQ	88000035
VAS 340R/NQ	88000050
VAS 350R/NQ	88000051
VAS 365R/NQ	88000052
Quick opening, with flanged connection, for 120 V AC	
VAS 240F/NQ	88004436
VAS 350F/NQ	88004437
VAS 665F05NQ3E/PP/PP	88202701
VAS 780F05NQ3E/PP/PP	88202702
VAS 8100F05NQ3E/PP/PP	88202703
VAS 9125F05NA3E/PP/PP	88202677
Quick opening, flanged connection, for 120 V AC, basic	
VAS 665F05NQ3B/PP/PP	88202706
VAS 780F05NQ3B/PP/PP	88202707
VAS 8100F05NQ3B/PP/PP	88202709
VAS 9125F05NA3B/PP/PP	88202685
Slow opening, with threaded connection, for 120 V AC	
VAS 110R/LQ	88000017
VAS 115R/LQ	88000018
VAS 120R/LQ	88000019
VAS 125R/LQ	88000020
VAS 225R/LQ	88000037
VAS 232R/LQ	88000038
VAS 240R/LQ	88000039
VAS 250R/LQ	88000040
VAS 340R/LQ	88000054
VAS 350R/LQ	88000055
VAS 365R/LQ	88000056

Designation	Order no.
Slow opening, with flanged connection, for 120 V AC	
VAS 240F/LQ	88004438
VAS 350F/LQ	88004439
VAS 665F05LQ3E/PP/PP	88202713
VAS 780F05LQ3E/PP/PP	88202714
VAS 8100F05LQ3E/PP/PP	88202715
Slow opening, flanged connection, for 120 V AC, basic	
VAS 665F05LQ3B/PP/PP	88202719
VAS 780F05LQ3B/PP/PP	88202720
VAS 8100F05LQ3B/PP/PP	88202721

2



Double solenoid valves VCS



Type code

VCS	Double solenoid valve
1-3, 6-9	Sizes
E	EU certified
10-125	Inlet and outlet flange nominal size
R	Rp internal thread
F	Flange to ISO 7005
05	p _U max. 500 mbar
L	Valve 1 slow opening, quick closing
N	Valve 1 quick opening, quick closing, with flow adjustment
L	Valve 2 slow opening, quick closing
N	Valve 2 quick opening, quick closing, with flow adjustment
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
A	Mains voltage 120-230 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
S	With proof of closure switch and visual position indicator
G	With proof of closure switch for 24 V and visual position indicator
R	Viewing side: right
L	Viewing side: left
3	Electrical connection via cable gland
B	Basic
E	Prepared for adapter plates
/P	Accessory, right, inlet: screw plug
/M	Accessory, right, inlet: pressure test point
P	Accessory, right, interspace 1: screw plug
M	Accessory, right, interspace 1: pressure test point
P	Accessory, right, interspace 2: screw plug
M	Accessory, right, interspace 2: pressure test point
P	Accessory, right, outlet: screw plug
M	Accessory, right, outlet: pressure test point

The same accessories can be selected for the left- or right-hand side.

Class A gas safety valves to EN 161 for automatic shut-off, closed when de-energized, for gas and air, p_U max. 500 mbar, with pilot lamp, IP 65, EU certified, FM and CSA approved, certified for systems up to SIL 3 and PL e.

Designation	Order no.
Quick opening, threaded connection, for 230 V AC	
VCS 1E10R/10R05NNWR3/PPPP/PPPP	88100097
VCS 1E15R/15R05NNWR3/PPPP/PPPP	88100065
VCS 1E20R/20R05NNWR3/PPPP/PPPP	88100098
VCS 1E25R/25R05NNWR3/PPPP/PPPP	88100099
VCS 2E40R/40R05NNWR3/PPPP/PPPP	88100100
VCS 3E50R/50R05NNWR3/PPPP/PPPP	88100101
Quick opening, flanged connection, for 230 V AC, basic	
VCS 2E40F/40F05NNWR3/PPPP/PPPP	88100102
VCS 3E50F/50F05NNWR3/PPPP/PPPP	88100103
VCS 665F05NNWR3B/PPPP/PPPP	88202726
VCS 780F05NNWR3B/PPPP/PPPP	88202727
VCS 8100F05NNWR3B/PPPP/PPPP	88202728
VCS 9125F05NNWR3B/PPPP/PPPP	88202729

Designation	Order no.
Quick opening, flanged connection, for 230 V AC, accessories can be connected to the space between valves	
VCS 665F05NNWR3E/PPPP/PPPP	88202734
VCS 780F05NNWR3E/PPPP/PPPP	88202735
VCS 8100F05NNWR3E/PPPP/PPPP	88202736
VCS 9125F05NNAR3E/PPPP/PPPP	88202737
Slow opening, threaded connection, for 230 V AC	
VCS 1E10R/10R05NLWR3/PPPP/PPPP	88100104
VCS 1E15R/15R05NLKR3/PPPP/PPPP	88100136
VCS 1E20R/20R05NLWR3/PPPP/PPPP	88100106
VCS 1E25R/25R05NLWR3/PPPP/PPPP	88100107
VCS 2E40R/40R05NLWR3/PPPP/PPPP	88100108
VCS 3E50R/50R05NLWR3/PPPP/PPPP	88100109
Slow opening, flanged connection, for 230 V AC, basic	
VCS 2E40F/40F05NLWR3/PPPP/PPPP	88100110
VCS 3E50F/50F05NLWR3/PPPP/PPPP	88100296
VCS 665F05NLWR3B/PPPP/PPPP	88202741
VCS 780F05NLWR3B/PPPP/PPPP	88202742
VCS 8100F05NLWR3B/PPPP/PPPP	88202743
Slow opening, flanged connection, for 230 V AC, accessories can be connected to the space between valves	
VCS 665F05NLWR3E/PPPP/PPPP	88202749
VCS 780F05NLWR3E/PPPP/PPPP	88202750
VCS 8100F05NLWR3E/PPPP/PPPP	88202751
Quick opening, threaded connection, for 120 V AC	
VCS 1E10R/10R05NNQR3/PPPP/PPPP	88100111
VCS 1E15R/15R05NNQR3/PPPP/PPPP	88100112
VCS 1E20R/20R05NNQR3/PPPP/PPPP	88100113
VCS 1E25R/25R05NNQR3/PPPP/PPPP	88100114
VCS 2E40R/40R05NNQR3/PPPP/PPPP	88100115
VCS 3E50R/50R05NNQR3/PPPP/PPPP	88100116
Quick opening, flanged connection, for 120 V AC, basic	
VCS 2E40F/40F05NNQR3/PPPP/PPPP	88100117
VCS 3E50F/50F05NNQR3/PPPP/PPPP	88100118
VCS 665F05NNQR3B/PPPP/PPPP	88202755
VCS 780F05NNQR3B/PPPP/PPPP	88202756
VCS 8100F05NNQR3B/PPPP/PPPP	88202757
VCS 9125F05NNAR3B/PPPP/PPPP	88202729
Quick opening, flanged connection, for 120 V AC, accessories can be connected to the space between valves	
VCS 665F05NNQR3E/PPPP/PPPP	88202761
VCS 780F05NNQR3E/PPPP/PPPP	88202762
VCS 8100F05NNQR3E/PPPP/PPPP	88202763
VCS 9125F05NNAR3E/PPPP/PPPP	88202737
Slow opening, threaded connection, for 120 V AC	
VCS 1E10R/10R05NLQR3/PPPP/PPPP	88100119
VCS 1E15R/15R05NLQR3/PPPP/PPPP	88100120
VCS 1E20R/20R05NLQR3/PPPP/PPPP	88100130
VCS 1E25R/25R05NLQR3/PPPP/PPPP	88100131
VCS 2E40R/40R05NLQR3/PPPP/PPPP	88100132
VCS 3E50R/50R05NLQR3/PPPP/PPPP	88100133
Slow opening, flanged connection, for 120 V AC, basic	
VCS 2E40F/40F05NLQR3/PPPP/PPPP	88100134
VCS 3E50F/50F05NLQR3/PPPP/PPPP	88100135
VCS 665F05NLQR3B/PPPP/PPPP	88202767
VCS 780F05NLQR3B/PPPP/PPPP	88202768
VCS 8100F05NLQR3B/PPPP/PPPP	88202769
Slow opening, flanged connection, for 120 V AC, accessories can be connected to the space between valves	
VCS 665F05NLQR3E/PPPP/PPPP	88202773
VCS 780F05NLQR3E/PPPP/PPPP	88202774
VCS 8100F05NLQR3E/PPPP/PPPP	88202775

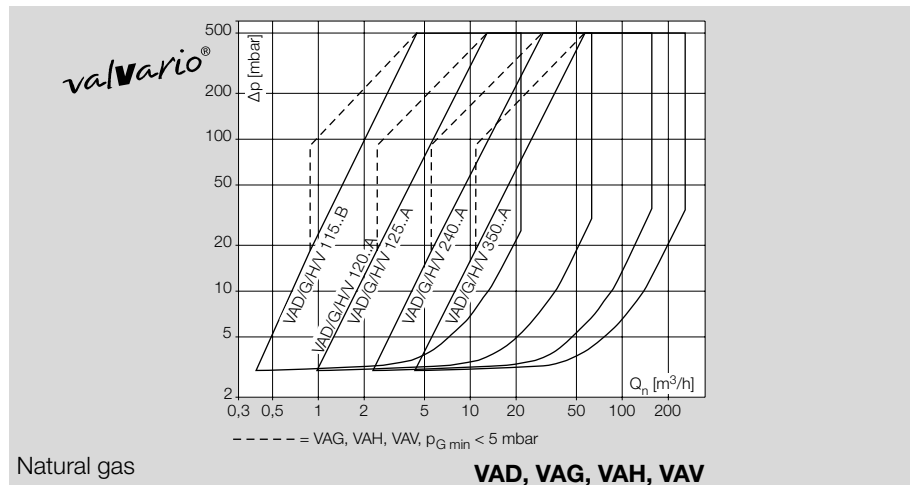
VAD, VAG, VAV



VAH



Pressure regulators with solenoid valve VAD, VAG, VAH, VAV



Natural gas

VAD, VAG, VAH, VAV

Type code

VAD	Pressure regulator with solenoid valve
VAG	Air/gas ratio control with solenoid valve
VAH	Flow rate regulator with solenoid valve
VAV	Variable air/gas ratio control with solenoid valve
1-3	Sizes
15-50	Inlet and outlet flange nominal size
R	Rp internal thread
/N	Quick opening, quick closing
W	Mains voltage 230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
SR	With position indicator and visual indicator, right
SL	With position indicator and visual indicator, left
GR	With position indicator for 24 V and visual indicator, right
GL	With position indicator for 24 V and visual indicator, left
-25	Outlet pressure p_d for VAD: 2.5-25 mbar
-50	Outlet pressure p_d for VAD: 20-50 mbar
-100	Outlet pressure p_d for VAD: 35-100 mbar
A	Standard valve seat
B	Reduced valve seat
E	VAG: connection for air control pressure: compression fitting
K	VAG, VAV: connection for air control pressure: plastic hose coupling
N	VAG: zero governor

Class A pressure regulator to EN 88 with integrated Class A safety valve to EN 161 and EN 13611 for safeguarding and control of the gas pressure in gas inlet and burner lines, for gas and air, p_u max. 500 mbar, with pilot lamp, IP 65, with M20 cable gland supplied loose, EU certified, VAD, VAG: ANSI/CSA approved, VAD, VAG, VAV: AGA approved, VAD, VAG, VAH: FM approved, VAD, VAG, VAV: UL listed, VAD, VAG, VAH, VAV: certified for systems up to SIL 3 and PL e.

Designation	Order no.
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Pressure regulator, p_d 35-100 mbar, for 230 V AC

VAD 115R/NW-100B	88000262
VAD 120R/NW-100A	88000266
VAD 125R/NW-100A	88000265
VAD 240R/NW-100A	88000267
VAD 350R/NW-100A	88000270

Pressure regulator, p_d 35-100 mbar, for 120 V AC

VAD 115R/NQ-100B	88000279
VAD 120R/NQ-100A	88000280
VAD 125R/NQ-100A	88000281
VAD 240R/NQ-100A	88000282
VAD 350R/NQ-100A	88000285

Designation	Order no.
Air/gas ratio control, for 230 V AC	
VAG 115R/NWBE	88000141
VAG 120R/NWAE	88000272
VAG 125R/NWAE	88000273
VAG 240R/NWAE	88000274
VAG 350R/NWAE	88000277
Air/gas ratio control, for 120 V AC	
VAG 115R/NQBE	88000287
VAG 120R/NQAE	88000288
VAG 125R/NQAE	88000289
VAG 240R/NQAE	88000290
VAG 350R/NQAE	88000293
Flow rate regulator, for 230 V AC	
VAH 115R/NWBE	88020263
VAH 120R/NWAE	88020783
VAH 125R/NWAE	88020580
VAH 240R/NWAE	88020266
VAH 350R/NWAE	88020267
Flow rate regulator, for 120 V AC	
VAH 115R/NQBE	88020784
VAH 120R/NQAE	88020785
VAH 125R/NQAE	88020786
VAH 240R/NQAE	88020787
VAH 350R/NQAE	88020788
Variable air/gas ratio control, for 230 V AC	
VAV 115R/NWBK	88005508
VAV 120R/NWAK	88005514
VAV 125R/NWAK	88004706
VAV 240R/NWAK	88005515
VAV 350R/NWAK	88005516
Variable air/gas ratio control, for 120 V AC	
VAV 115R/NQBK	88006607
VAV 120R/NQAK	88006722
VAV 125R/NQAK	88006608
VAV 240R/NQAK	88006609
VAV 350R/NQAK	88006633

VAS..SR

VAS, VCS, VAD, VAG, VAH, VAV versions

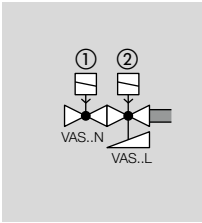
Designation	Order no.
Position indicator, fitted	
VAS 1..S, VAD/G/V 1..S with position indicator	surcharge
VAS 1..G, VAD/G/V 1..G with position indicator for 24 V DC	surcharge
VAS 2–9..S, VAD/G/V 2–3..S with position indicator	surcharge
VAS 2–9..G, VAD/G/V 2–3..G with position indicator for 24 V DC ..	surcharge
Proof of closure switch VCS, fitted to both valves	
VCS 6–9..S with proof of closure switch	surcharge
VCS 6–9..G with proof of closure switch for 24 V DC	surcharge
Valve for 24 V DC	
VAS/VAD/VAG/VAV..K for 24 V DC	no surcharge
Electrical connection	
1 M20 cable gland for valve without position indicator	no surcharge
2 M20 cable glands for valve with position indicator	no surcharge
Fitting an M20 cable gland, sizes 1–3	surcharge
Sizes 1–3	
Plug with socket for valve	surcharge
Plug with socket for 2 valves	surcharge
Plug with socket for position indicator	surcharge
Fitting a plug	surcharge
Sizes 6–9	
Plug with socket for valve	surcharge
Plug with socket for 2 valves	surcharge
Plug with socket for position indicator	surcharge

Examples of valVario system configurations

Type code

VAS	Solenoid valve for gas
VAD	Pressure regulator with solenoid valve
VAG	Air/gas ratio control with solenoid valve
VAV	Variable air/gas ratio control with solenoid valve
VAH	Flow rate regulator with solenoid valve
VCS	Double solenoid valve
VCD	Pressure regulator with two solenoid valves
VCG	Air/gas ratio control with two solenoid valves
VCV	Variable air/gas ratio control with two solenoid valve
VCH	Flow rate regulator with two solenoid valves
1-3	Sizes
E	EU certified
10-65	Inlet flange nominal size
R	Rp internal thread
F	Flange to ISO 7005
10-65	Outlet flange nominal size
R	Rp internal thread
F	Flange to ISO 7005
05	p_u max. 500 mbar
F	Filter module
N	Valve 1 quick opening, quick closing
L	Valve 1 slow opening, quick closing
D-25	Valve 1 with pressure regulator, outlet pressure: 2.5-25 mbar
D-50	Valve 1 with pressure regulator, outlet pressure: 20-50 mbar
D-100	Valve 1 with pressure regulator, outlet pressure: 35-100 mbar
GE	Valve 1 with air/gas ratio control, connection for air control pressure: compression fitting
GK	Valve 1 with air/gas ratio control, connection for air control pressure: plastic hose coupling
GA	Valve 1 with air/gas ratio control, connection set for air control pressure p_{sa} : NPT 1/4 adapter, 2 pressure test points p_d and p_{sa}
GN	Valve 1 with zero governor
VK	Valve 1 with variable air/gas ratio control, connection for air control pressure: plastic hose coupling
HE	Valve 1 with flow rate regulator, connection for air control pressure: compression fitting
HA	Valve 1 with flow rate regulator, connection set for air control pressure p_{sa} : NPT 1/4 adapter, 2 pressure test points p_d and p_{sa}
	The type of valve for valve 2 can be selected as for valve 1.
V	Fine-adjusting valve
4-38	Measuring orifice diameter [mm]
W	Mains voltage 230 V AC, 50/60 Hz
Y	Mains voltage 200 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
P	Mains voltage 100 V AC, 50/60 Hz
K	Mains voltage 24 V DC
S	With proof of closure switch and visual position indicator
G	With proof of closure switch for 24 V and visual position indicator
R	Flow from left to right
L	Flow from right to left
3	Electrical connection: M20 cable gland
5	Electrical connection: plug without socket
6	Electrical connection: plug with socket
7	Electrical connection: plug for 2 valves and position indicator without socket
8	Electrical connection: plug for 2 valves and position indicator with socket
PP	Valve 1: accessories on viewing side: 2 screw plugs
MM	Valve 1: accessories on viewing side: 2 pressure test points
1-4	Valve 1: accessories on viewing side: pressure switch DG..VC Valve 2: accessories on viewing side: as for valve 1
ZY	Valve 1: accessories at rear: pilot gas valve VBY
ZS	Valve 1: accessories at rear: pilot gas valve VAS 1
PP	Valve 1: accessories at rear: 2 screw plugs
MM	Valve 1: accessories at rear: 2 pressure test points
BY	Valve 1: accessories at rear: bypass valve VBY
BS	Valve 1: accessories at rear: bypass valve VAS 1
1-4	Valve 1: accessories at rear: pressure switch DG..VC Valve 2: accessories at rear: as for valve 1

The following example systems indicate the variety of combinations offered by valVario.



2 gas solenoid valves VAS connected in series

- 1 = VAS 115/-R/N, quick opening;
- 2 = VAS 1-/15R/L, slow opening

Designation	Order no.
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For 230 V AC

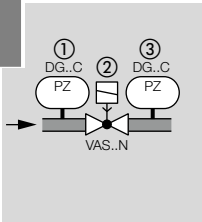
VCS 1E15R/15R05NLWR3/PPPP/PPPP 88100105

For 120 V AC

VCS 1E15R/15R05NLQR3/PPPP/PPPP 88100120

For 24 V DC

VCS 1E15R/15R05NLKR3/PPPP/PPPP 88100136



Gas solenoid valve VAS with inlet and outlet pressure switch DG..VC

- 1 = DG 40/VC1-6W for inlet pressure;
- 2 = VAS 115R/N, quick opening;
- 3 = DG 110/VC1-6W for outlet pressure

Designation	Order no.
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For 230 V AC

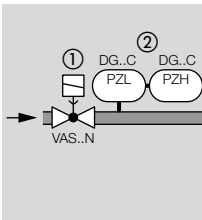
VAS 115R/NW 88000955

For 120 V AC

VAS 115R/NQ 88000956

For 24 V DC

VAS 115R/NK 88001137



Gas solenoid valve VAS with 2 outlet pressure switches DG..VC

- 1 = VAS 115R/N, quick opening;
- 2 = 2 x DG 110/VC1-6W for outlet pressure 2 x p_d

Designation	Order no.
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For 230 V AC

VAS 115R/NW 88000958

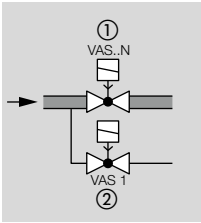
For 120 V AC

VAS 115R/NQ 88000959

For 24 V DC

VAS 115R/NK 88001138





Gas solenoid valve VAS with pilot gas valve VAS 1

1 = VAS 115R/N, quick opening;
2 = VAS 1-0/15R/N, bypass nozzle Ø 8 mm, as pilot gas valve

Designation	Order no.
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For 230 V AC

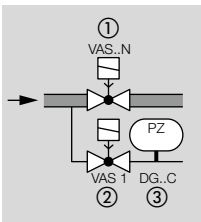
VAS 1E15R/15R05NWL/ZS/PP 88100137

For 120 V AC

VAS 1E15R/15R05NQL/ZS/PP 88100138

For 24 V DC

VAS 1E15R/15R05NKL/ZS/PP 88100139



Gas solenoid valve VAS with pilot gas valve VAS 1 and outlet pressure switch DG..VC

1 = VAS 115R/N, quick opening;
2 = VAS 1-0/15R/N, bypass nozzle Ø 8 mm, as pilot gas valve;
3 = DG 110/VC1-6W for outlet pressure of pilot gas valve

Designation	Order no.
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For 230 V AC

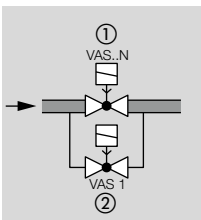
VAS 1E15R/15R05NWL/ZS/PP 88100141

For 120 V AC

VAS 1E15R/15R05NQL/ZS/PP 88100142

For 24 V DC

VAS 1E15R/15R05NKL/ZS/PP 88100143



Gas solenoid valve VAS with bypass valve VAS 1

1 = VAS 115R/N, quick opening;
2 = VAS 1-0/N, bypass nozzle Ø 8 mm, as bypass valve

Designation	Order no.
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For 230 V AC

VAS 1E15R/15R05NWL/BS/PP 88100144

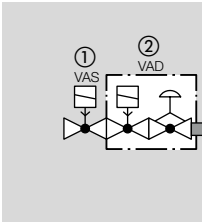
For 120 V AC

VAS 1E15R/15R05NQL/BS/PP 88100145

For 24 V DC

VAS 1E15R/15R05NKL/BS/PP 88100147





Pressure regulator with solenoid valve VAD and solenoid valve VAS

1 = VAS 115/-R/N, quick opening;
 2 = VAD 1-/15R/N..-100B, p_d 35-100 mbar for constant pressure control

Designation	Order no.
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For 230 V AC

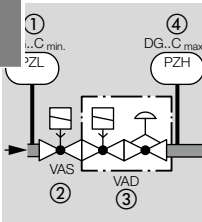
VCD 1E15R/15R05ND-100WR3/PPPP/PPPP 88100148

For 120 V AC

VCD 1E15R/15R05ND-100QR3/PPPP/PPPP 88100149

For 24 V DC

VCD 1E15R/15R05ND-100KR3/PPPP/PPPP 88100150



Pressure regulator with solenoid valve VAD, solenoid valve VAS and inlet and outlet pressure switch DG..VC

1 = DG 40/VC1-6W for inlet pressure;
 2 = VAS 115/-R/N, quick opening;
 3 = VAD 1-/15R/N..-100B, p_d 35-100 mbar for constant pressure control;
 4 = DG 110/VC1-6W for outlet pressure

Designation	Order no.
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For 230 V AC

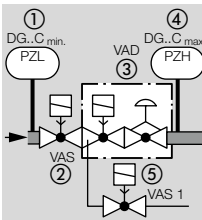
VCD 1E15R/15R05ND-100WR3/PP-3/2-PP 88100151

For 120 V AC

VCD 1E15R/15R05ND-100QR3/PP-3/2-PP 88100152

For 24 V DC

VCD 1E15R/15R05ND-100KR3/PP-3/2-PP 88100153



Pressure regulator with solenoid valve VAD, solenoid valve VAS and pilot gas valve VAS 1

1 = DG 40/VC1-6W for inlet pressure;
 2 = VAS 115/-R/N, quick opening;
 3 = VAD 1-/15R/N..-100B, p_d 35-100 mbar for constant pressure control;
 4 = DG 110/VC1-6W for outlet pressure;
 5 = VAS 1-0/15R/N, bypass nozzle \varnothing 8 mm, as non-controlled pilot gas valve

Designation	Order no.
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For 230 V AC

VCD 1E15R/15R05ND-100WL3/PPZS/2--3 88100154

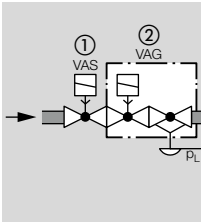
For 120 V AC

VCD 1E15R/15R05ND-100QL3/PPZS/2--3 88100155

For 24 V DC

VCD 1E15R/15R05ND-100KL3/PPZS/2--3 88100156





Air/gas ratio control with solenoid valve VAG and solenoid valve VAS

- 1 = VAS 115/-R/N, quick opening;
- 2 = VAG 1-/15R/N..BE as air/gas ratio control for modulating control

Designation	Order no.
-------------	-----------

For 230 V AC

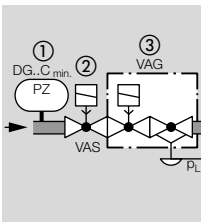
VCG 1E15R/15R05NGEWR3/PPPP/PPPP 88100158

For 120 V AC

VCG 1E15R/15R05NGEQR3/PPPP/PPPP 88100159

For 24 V DC

VCG 1E15R/15R05NGEKR3/PPPP/PPPP 88100160



Air/gas ratio control with solenoid valve VAG, solenoid valve VAS and inlet pressure switch DG..VC

- 1 = DG 40/VC1-6W as inlet pressure switch;
- 2 = VAS 115/-R/N, quick opening;
- 3 = VAG 1-/15R/N..BE as air/gas ratio control for modulating control

Designation	Order no.
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For 230 V AC

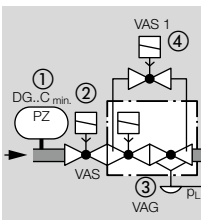
VCG 1E15R/15R05NGEWR3/2-PP/PPPP 88100162

For 120 V AC

VCG 1E15R/15R05NGEQR3/2-PP/PPPP 88100164

For 24 V DC

VCG 1E15R/15R05NGEKR3/2-PP/PPPP 88100166



Air/gas ratio control with solenoid valve VAG, solenoid valve VAS, bypass valve VAS 1 and inlet pressure switch DG..VC

- 1 = DG 40/VC1-6W as inlet pressure switch;
- 2 = VAS 115/-R/N, quick opening;
- 3 = VAG 1-/15R/N..BE as air/gas ratio control for High/Low control;
- 4 = VAS 1-0/N, bypass nozzle Ø 8 mm, as bypass valve

Designation	Order no.
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For 230 V AC

VCG 1E15R/15R05NGEWL3/PPBS/2-PP 88100168

For 120 V AC

VCG 1E15R/15R05NGEQL3/PPBS/2-PP 88100169

For 24 V DC

VCG 1E15R/15R05NGEKL3/PPBS/2-PP 88100170





Accessories: gas pressure switches DG..C for valVario

Gas pressure switches for monitoring the inlet or outlet pressure, can be attached at the right- or left-hand side, screws and O-rings included, EU certified.

Designation	Order no.
DG 17VC1-6W /B	75455241
DG 40VC1-6W /B	75455243
DG 110VC1-6W /B	75455245
DG 300VC1-6W /B	75455246

With gold-plated contacts, for 12-250 V

DG 17VC1-6WG /B	75455247
DG 40VC1-6WG /B	75455249
DG 110VC1-6WG /B	75455251
DG 300VC1-6WG /B	75455252

Attachment of a pressure switch for gas DG..VC surcharge

Bypass or pilot gas valves VBY for valVario size 1

Type code

VBY	Gas valve
8	Nominal size
I	For internal gas pick-up as bypass valve
R	For external gas pick-up as pilot gas valve
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
W	Mains voltage 230 V AC, 50/60 Hz
6L	Electrical connection via plug and socket with LED
-R	Attachment side of main valve: to the right
-L	Attachment side of main valve: to the left
B	Enclosed (separate packing unit)
05	Nozzle: 0.5 mm
D	With flow adjustment

Class A gas safety valve to EN 161 for automatic shut-off, closed when de-energized, for gas and air, p_U max. 500 mbar, IP 54, EU certified.

Designation	Order no.
Bypass valve for 230 V AC	
VBY 8IW6L-RBD	74337977
VBY 8IW6L-LBD	74337983
VBY 8IW6L-RB05	74338428
VBY 8IW6L-LB05	74338434
Pilot gas valve for 230 V AC	
VBY 8RW6L-RBD	74337978
VBY 8RW6L-LBD	74337984
VBY 8RW6L-RB05	74338429
VBY 8RW6L-LB05	74338435
Bypass valve for 120 V AC	
VBY 8IQ6L-RBD	74337979
VBY 8IQ6L-LBD	74337985
VBY 8IQ6L-RB05	74338430
VBY 8IQ6L-LB05	74338436
Pilot gas valve for 120 V AC	
VBY 8RQ6L-RBD	74337980
VBY 8RQ6L-LBD	74337986
VBY 8RQ6L-RB05	74338431
VBY 8RQ6L-LB05	74338437

Attachment of bypass or pilot gas valve VBY surcharge



Bypass or pilot gas valves VAS 1

Class A gas safety valves to EN 161 for automatic shut-off, closed when de-energized, for gas and air, p_u max. 500 mbar, with pilot lamp, IP 65, M20 cable gland, 10 mm bypass nozzle, the connection parts are included in the delivery, EU certified, FM and CSA approved, UL listed.

[Technical Information VAS, VCS](#)

Designation	Order no.
Bypass valve for size 1 for 230 V AC	
VAS 1-0/NW	88001064
Bypass valve for size 2 or 3 for 230 V AC	
VAS 1-0/NW	88003427
Bypass valve for size 1 for 120 V AC	
VAS 1-0/NQ	88009053
Bypass valve for size 2 or 3 for 120 V AC	
VAS 1-0/NQ	88009054
Pilot gas valve DN 15 for size 1 for 230 V AC	
VAS 1-0/15R/NW	88000386
Pilot gas valve DN 15 for size 2 or 3 for 230 V AC	
VAS 1-0/15R/NW	88000771
Pilot gas valve DN 15 for size 1 for 120 V AC	
VAS 1-0/15R/NQ	88004171
Pilot gas valve DN 15 for size 2 or 3 for 120 V AC	
VAS 1-0/15R/NQ	88004173
Attachment of bypass valve VAS 1	surcharge



Tightness controls TC 1V for valVario

[Technical Information TC](#)

Type code	
TC	Tightness control
1V	For attachment to valVario
05	p_u max. 500 mbar
W	Mains voltage 230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
/W	Control voltage: 230 V AC, 50/60 Hz
/Q	Control voltage: 120 V AC, 50/60 Hz
/K	Control voltage: 24 V DC

Tightness controls for checking two safety valves before and/or after burner run, with adjustable measurement time (5-30 s) for adjustment to different test volumes, leakage rates and inlet pressures, EU certified.

Can be directly mounted to valVario controls. The power supply to the valves must be wired via a single plug.

Designation	Order no.
Control voltage = mains voltage	
TC 1V05W/W	84765541
TC 1V05Q/Q	84765543
TC 1V05K/K	84765545
Control voltage: 24 V DC	
TC 1V05W/K	84765542
TC 1V05Q/K	84765544

VMV



Fine-adjusting valves VMV

Type code

VMV	Fine-adjusting valve
1-2	Sizes
10-50	Inlet and outlet flange nominal size
R	Rp internal thread
05	p _u max. 500 mbar
P	Screw plugs

Technical
Information [VMV](#)

For fine adjustment of gas and air flow rates.

Designation	Order no.
VMV 110R05P	88012996
VMV 115R05P	88012861
VMV 120R05P	88012997
VMV 125R05P	88012862
VMV 240R05P	88012860
VMV 250R05P	88012999

Gas control line VAH 1 /B	74924458
Gas control line VAH 2 /B	74924459

VMF



Filter modules VMF

Type code

VMF	Filter module
1-2	
-05	p _u max. 500 mbar
M	Test point

Technical
Information [VMF](#)

Designation	Order no.
VMF 1-05M	88013005
VMF 2-05M	88013006

VMO



Measuring orifices VMO

Type code

VMO	Measuring orifice
1-2	Sizes
10-50	Inlet and outlet flange nominal size
R	Rp internal thread
05	p _u max. 500 mbar
M	Test point
04-38	Orifice diameter in mm

Technical
Information [VMO](#)

Designation	Order no.
VMO 110R05M06	88013000
VMO 115R05M06	88013001
VMO 120R05M12	88013002
VMO 125R05M20	88013003
VMO 240R05M32	88012863
VMO 250R05M38	88013004

Attachm. block



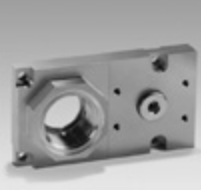
FLV..R



FLV..F



Adapter



Other accessories for valVario

/E = fitted, /B = enclosed

Designation	Order no.
Pressure gauge block	
Attachment block Rp 1/4 VA 1-3 /B	74922228
Test point	
Test point G 1/4 P aluminium + Viton /B	74923390
Attachment of two pressure test points	surcharge
Threaded flanges, size 1	
FLV 1-0 /B	74921469
FLV 110R /B	74921504
FLV 115R /B	74921505
FLV 120R /B	74922229
FLV 125R /B	74922230
Screw set VA 1/B	74921992
Size 2	
FLV 225R /B	74922231
FLV 232R /B	74922232
FLV 240R /B	74922233
FLV 250R /B	74922234
FLV 240F /B	74922826
Screw set VA 2 /B	74921993
Size 3	
FLV 340R /B	74922235
FLV 350R /B	74922236
FLV 365R /B	74922237
FLV 350F /B	74922828
Screw set VA 3 /B	74921994
Adapters for length compensation when replacing VG or VK by VAS 6-9	
Length compensation VAS 6 /B	74923271
Length compensation VAS 7 /B	74923272
Length compensation VAS 8 /B	74923273
Length compensation VAS 9 /B	74923274
Adapter plates for VAS and VCS 6-9 with accessory connection	
Measuring adapter VA 6-9 /B	74923021
Measuring adapter VA 6-9T /B	74923022
Bypass adapter VA 6-9 /B	74923023
Relief line adapter 1 1/2" NPT VA 6-9 /B	74923024
Relief line adapter Rp 1" VA 6-9 /B	74923025
Coupler plug with socket	
Plug, 2+PE, with socket VAS 1-3 /B	74922393
Plug, 3+PE, with socket VCS 1 /B	74922394
Plug, 3+PE, with socket VCS 2-3 /B	74922395
Plug, 3-pin (POC), with socket VA 1-3 /B	74922396
Plug, 2+PE, with socket VAS 6-9 /B	74922971
Plug, 3+PE, with socket VCS 6-9 /B	74922972
Plug, 3-pin (POC), with socket VAS 6-9 /B	74922973
Plug, 3-pin (POC), with socket VCS 6-9 /B	74922974
Flange set for MODULINE	
Flange set VA 1/LFC 1	74922171
Flange set VA 2/LFC 2	74922172



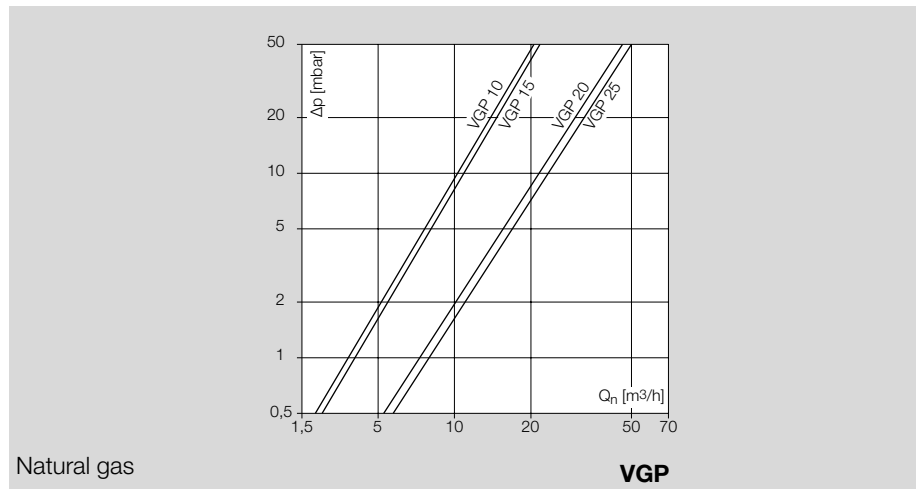
Assembling 2 units to form a system

Designation	Order no.
Size 1	
Seal set VA 1 /B	74921988
Cable gland set VA 1 /B	74921985
Assembly	surcharge
Size 2	
Seal set VA 2 /B	74921989
Cable gland set VA 2 /B	74921986
Assembly	surcharge
Size 3	
Seal set VA 3 /B	74921990
Cable gland set VA 3 /B	74921987
Assembly	surcharge



Solenoid valves for gas VGP

[Technical Information VGP](#)



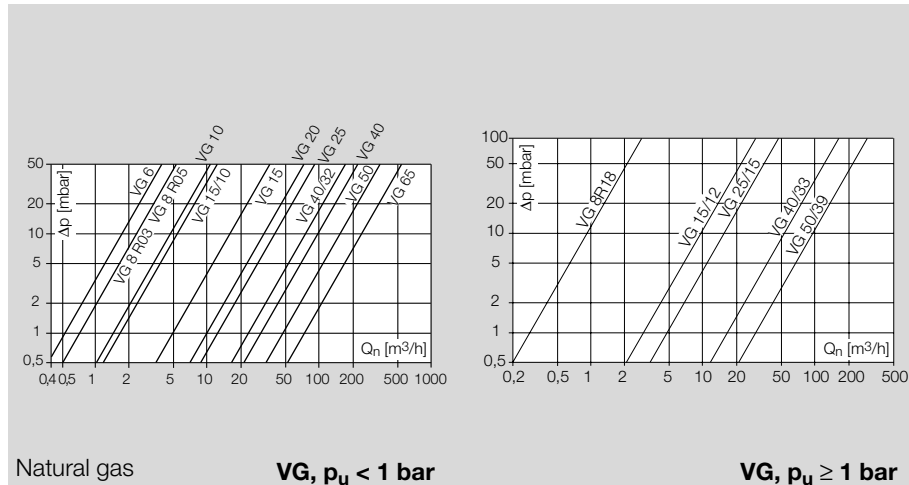
Type code	
VGP	Solenoid valve for gas
10-25	Nominal size
R	Rp internal thread
01	p_u max. 150 mbar
02	p_u max. 200 mbar
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
6	Connection via rectifier adapter and standard socket

For automatic shut-off, closed when de-energized, quick opening, quick closing, for gas and air, Class A to EN 161, with socket, EU certified.

Designation	Order no.
For 230 V AC	
VGP 10R02W6	85293104
VGP 15R02W6	85294101
VGP 20R01W6	85295300
VGP 25R01W6	85296300
For 120 V AC	
VGP 10R02Q6	85293300
VGP 15R02Q6	85294300
VGP 20R01Q6	85295700
VGP 25R01Q6	85296201

Solenoid valves for gas VG

Technical
Information VG



Natural gas

VG, $p_u < 1 \text{ bar}$

VG, $p_u \geq 1 \text{ bar}$



Solenoid valves for gas VG 6-15/10

Type code

VG	Solenoid valve for gas
6-15/10	Nominal size
K	Double-cone olive for 8 mm tube loosely enclosed
R	Rp internal thread
01	p_u max. 100 mbar
03	p_u max. 360 mbar
05	p_u max. 500 mbar
18	p_u max. 1.8 bar
T	Mains voltage 220/240 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
6	Connection via 3-pin standard plug and socket
G	Low-noise

Class A gas safety valves to EN 161 for automatic shut-off, closed when de-energized, for gas and air, EU certified.

Designation	Order no.
Quick opening, with double-cone olive, for 220/240 V AC	
VG 6K03T6G	85229011
VG 6K05T6	85228010
Quick opening, with threaded connection, for 220/240 V AC	
VG 6R05T6	85230010
VG 8R03T6G	85231710
VG 8R05T6	85231010
VG 8R18T6	85232010
VG 10R01T6	85233010
VG 15/10R01T6G	85234510
VG 15/10R01T6	85234010
Quick opening, with double-cone olive, for 120 V AC	
VG 6K03Q6G	85229040
VG 6K05Q6	85228040
Quick opening, with threaded connection, for 120 V AC	
VG 6R05Q6	85230040
VG 8R03Q6G	85231740
VG 8R05Q6	85231050
VG 8R18Q6	85232040
VG 10R01Q6	85233040
VG 15/10R01Q6G	85234540
VG 15/10R01Q6	85234040
Gas restrictor orifice $d = 0.55$ for VG 8	74452748

VG..R..N



Solenoid valves for gas VG 10/15-65

Type code

VG	Solenoid valve for gas
10/15-65	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
02	p_U max. 200 mbar
03	p_U max. 360 mbar
10	p_U max. 1 bar
18	p_U max. 1.8 bar
L	Slow opening, quick closing
N	Quick opening, quick closing
T	Mains voltage 220/240 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
3	Terminal connection box, IP 54
1	Screw plug at the inlet
3	Screw plug at the inlet and outlet
D	With flow adjustment
M	Suitable for biogas
V	Viton valve disc seal
Z	With rolling diaphragm

VG..R..N



G..F..N



VG..R..L



VG..R..L



VG..F..L



Class A gas safety valves to EN 161 for automatic shut-off, closed when de-energized, for gas and air, EU certified.

Designation	Order no.
p_U max. 1000 mbar, quick opening, with threaded connection, for 220/240 V AC	
VG 40/33R10NT33	85260110
VG 50/39R10NT33	85261110
p_U max. 1000 mbar, quick opening, with flanged connection, for 220/240 V AC	
VG 40/33F10NT33	85260160
VG 50/39F10NT33	85261160
p_U max. 1800 mbar, quick opening, with threaded connection, for 220/240 V AC	
VG 15/12R18NT31	85265010
VG 25/15R18NT31	85266010
Valves with rolling diaphragm for highly contaminated gases	
Quick opening, for 220/240 V AC	
VG 15R03NT31DMVZ	85213040
VG 20R03NT31DMVZ	85214070
VG 25R03NT31DMVZ	85215070
VG 40/32R02NT31DMVZ	85208200
VG 40R03NT33DMVZ	85256860
VG 50R03NT33DMVZ	85257860
VG 50F03NT33DMVZ	85257870
VG 65F02NT33DMVZ	85272880
Slow opening, for 220/240 V AC	
VG 15R03LT31DMVZ	85213090
VG 20R03LT31DMVZ	85214090
VG 25R03LT31DMVZ	85215090
VG 40/32R02LT31DMVZ	85208250
VG 40R03LT33DMVZ	85256863
VG 50R03LT33DMVZ	85257863
VG 50F03LT33DMVZ	85257873
VG 65F02LT33DMVZ	85272980
p_U max. 1000 mbar, quick opening, with threaded connection, for 120 V AC	
VG 40/33R10NQ33	85260200
VG 50/39R10NQ33	85261400
p_U max. 1000 mbar, quick opening, with flanged connection, for 120 V AC	
VG 40/33F10NQ33	85260250
VG 50/39F10NQ33	85261450

Designation	Order no.
p_u max. 1800 mbar, quick opening, with threaded connection, for 120 V AC	
VG 15/12R18NQ31	85265500
VG 25/15R18NQ31	85266500
Valves with rolling diaphragm for highly contaminated gases	
Quick opening, for 120 V AC	
VG 15R03NQ31DMVZ	85213041
VG 20R03NQ31DMVZ	85214071
VG 25R03NQ31DMVZ	85215071
VG 40/32R02NQ31DMVZ	85208202
VG 40R03NQ33DMVZ	85256861
VG 50R03NQ33DMVZ	85257861
VG 50F03NQ33DMVZ	85257871
VG 65F02NQ33DMVZ	85272882
Slow opening, for 120 V AC	
VG 15R03LQ31DMVZ	85213091
VG 20R03LQ31DMVZ	85214091
VG 25R03LQ31DMVZ	85215091
VG 40/32R02LQ31DMVZ	85208252
VG 40R03LQ33DMVZ	85256864
VG 50R03LQ33DMVZ	85257864
VG 50F03LQ33DMVZ	85257874
VG 65F02LQ33DMVZ	85272981

VG versions

Designation	Order no.
Solenoid valve for 24 V DC	
DN 6 to DN 50	surcharge
DN 65	surcharge

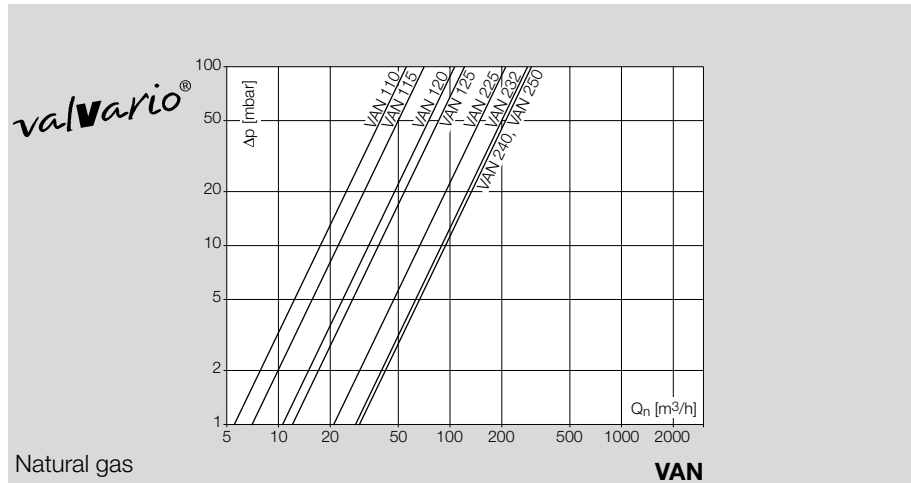
Accessories

Designation	Order no.
Coupler plug with socket and LED	
Plug + LED VG 15-40/32 230/115V /B	74923085
Plug + LED VG 40-65 230/115V /B	74923086
Plug + LED VG 15-40/32 24V /B	74923087
Plug + LED VG 40-65 24V /B	74923088



Magnetic relief valves VAN

Technical Information VAN



Type code

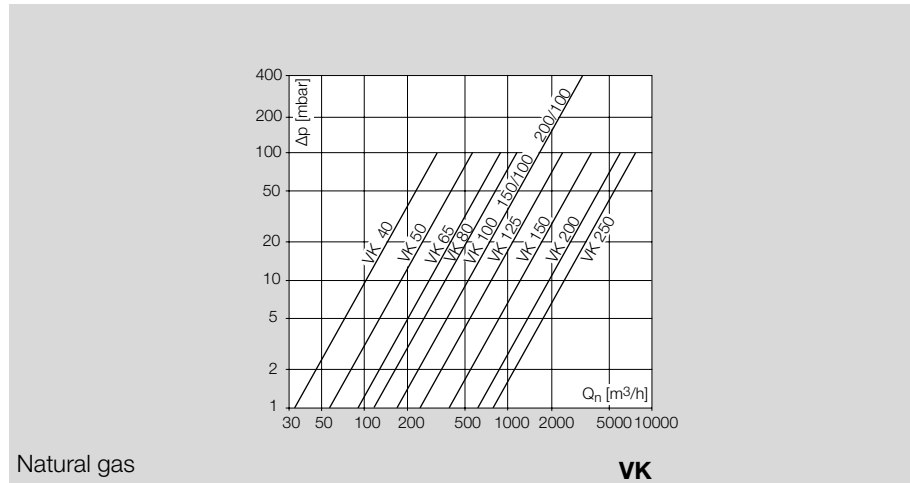
VAN	Magnetic relief valve
1-2	Sizes
10-50	Inlet and outlet flange nominal size
R	Rp internal thread
/N	Quick opening, quick closing
K	Mains voltage 24 V DC
P	Mains voltage 100 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
Y	Mains voltage 200 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
S	With position indicator and visual indicator
G	With position indicator for 24 V and visual indicator
R	Viewing side: right
L	Viewing side: left

For blowing off gas from relief lines, open when de-energized, for gas and air, Class C to EN 161, with Viton seal, EU certified.

Designation	Order no.
For 230 V AC	
VAN 115R/NW	88012134
VAN 120R/NW	88012135
VAN 125R/NW	88012136
VAN 240R/NW	88012137
VAN 250R/NW	88012452
With position indicator, for 230 V AC	
VAN 115R/NWSR	88012158
VAN 120R/NWSR	88012159
VAN 125R/NWSR	88012160
VAN 240R/NWSR	88012161
VAN 250R/NWSR	88012453
For 120 V AC	
VAN 115R/NQ	88012138
VAN 120R/NQ	88012139
VAN 125R/NQ	88012140
VAN 240R/NQ	88012141
VAN 250R/NQ	88012454
With position indicator, for 120 V AC	
VAN 115R/NQSR	88012162
VAN 120R/NQSR	88012163
VAN 125R/NQSR	88012164
VAN 240R/NQSR	88012165
VAN 250R/NQSR	88012455



Motorized valves for gas VK



Natural gas

VK

Type code

VK	Motorized valve for gas
40-250	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
02	p _U max. 230 mbar
04	p _U max. 400 mbar
05	p _U max. 500 mbar
06	p _U max. 600 mbar
10	p _U max. 1 bar
15	p _U max. 1.5 bar
20	p _U max. 2 bar
24	p _U max. 2.4 bar
31	p _U max. 3.1 bar
40	p _U max. 4 bar
60	p _U max. 6 bar
80	p _U max. 8 bar
Z	2-stage
T5	Mains voltage 220/240 V AC, 50 Hz
W5/K	Mains voltage 220 V AC, 50 Hz / 24 V DC
W5	Mains voltage 230 V AC, 50 Hz
Q6	Mains voltage 120 V AC, 60 Hz
W6	Mains voltage 230 V AC, 60 Hz
M	Mains voltage 110 V AC, 50/60 Hz
X	Explosion-proof version, IP 65
H	For higher inlet pressures
A	Valve housing made of AISi
G	Valve housing made of GGG 50 complying with TRD 412 and GUV
4	Terminal connection box, IP 65
6	Connection box with 4-pin standard socket, IP 54
6L	Connection box with 4-pin standard socket, with lamp, IP 54
9	Metal terminal connection box, IP 54
3	Screw plugs at the inlet and outlet
D	With flow adjustment
S	With position indicator
V	With Viton valve disc seal
F	With viewing window

For automatic shut-off, closed when de-energized, slow opening, quick closing, for gas and air, Class A to EN 161, EU certified.

Designation

Order no.

Motorized valves VK..A, one-stage, AISi housing, with threaded connection

VK 40R10T5A93D	85311010
VK 40R40T5A93D	85311012
VK 50R10T5A93D	85311030
VK 50R40T5A93D	85311032
VK 65R10T5A93D	85311120
VK 65R31T5A93D	85311122

Designation	Order no.
Motorized valves VK..A, one-stage, AISi housing, with flanged connection	
VK 40F10T5A93D	85311020
VK 40F40T5A93D	85311022
VK 50F10T5A93D	85311040
VK 50F40T5A93D	85311042
VK 65F10T5A93D	85311050
VK 65F31T5A93D	85311052
VK 80F10T5A93D	85311060
VK 80F24T5A93D	85311062
VK 100F10T5A93D	85311070
VK 125F10T5HA93	85311200
VK 150F10T5HA93	85311300
VK 200F10T5HA93	85311400
VK 250F05T5HA93	85311150
Motorized valves for gas VK..HG, one-stage (for higher inlet pressures), GGG housing	
VK 50F80T5HG93D	85317020
VK 65F80T5HG93D	85317030
VK 80F60T5HG93D	85317040
VK 100F40T5HG93D	85317050
VK 125F20T5HG93	85317060
VK 150F15T5HG93	85317070
VK 150/100F40T5HG93	85317090
VK 200F10T5HG93	85317080
VK 200/100F40T5HG93	85317100
Motorized valves for gas VK..S with position indicator fitted at the factory	
With 1 position indicator	surcharge
With 2 position indicators	surcharge
Position indicator for one-stage VK valves, for retrofitting	
Position indicator VK..S /B	74911637
2 position indicators VK..S2 /B	74960023
Position indicator VK..HS /B	74918705
2 position indicators, VK..HS2 /B	74919317
Switch box with holding relay for manual restart, SK HR-T: 220/240 V AC, SK HR-N: 100/120 V AC	
SK HR-T	84408017
SK HR-N	84408018
VK with Viton valve disc seal	
VK 40-80..V	surcharge
VK 100-150..V	surcharge
VK 200..V	surcharge
Other accessories	
VK..T5/K, motorized valve with 24 V holding voltage	surcharge
Motorized valve with socket	surcharge
Motorized valve with socket and LED	surcharge
Motorized valves for gas VK..ZAS, two-stage, AISi housing	
VK 40R10ZT5A93DS	85313010
VK 40R40ZT5A93DS	85313012
VK 50R10ZT5A93DS	85313030
VK 50R40ZT5A93DS	85313032
VK 65R10ZT5A93DS	85313120
VK 40F10ZT5A93DS	85313020
VK 40F40ZT5A93DS	85313022
VK 50F10ZT5A93DS	85313040
VK 50F40ZT5A93DS	85313042
VK 65F10ZT5A93DS	85313050
VK 65F31ZT5A93DS	85313052
VK 80F10ZT5A93DS	85313060
VK 80F24ZT5A93DS	85313062
VK 100F10ZT5A93DS	85313070
VK 125F06ZT5A93S	85313080
VK 150F04ZT5A93S	85313090
VK 200F02ZT5A93S	85313100

Designation	Order no.
Motorized valves for gas VK..ZGS, two-stage, GGG housing	
VK 50F40ZT5G93DS	85316100
VK 65F31ZT5G93DS	85316200
VK 80F24ZT5G93DS	85316300
VK 100F10ZT5G93DS	85316400
VK 125F06ZT5G93S	85316500
VK 150F04ZT5G93S	85316600



Motorized valves for gas VK..X, explosion-proof, one-stage

For automatic shut-off, closed when de-energized, slow opening, quick closing, for gas and air, Class A to EN 161, EU certified, with explosion-proof drive version (IECEx), Ex e o IIC T5 Gb, for zone 1 and 2 hazardous areas, not for mines susceptible to fire damp.

Designation	Order no.
AlSi housing	
VK 40R10W5XA43D	85311014
VK 50R10W5XA43D	85311034
VK 65R10W5XA43D	85311124
VK 40F10W5XA43D	85311024
VK 50F10W5XA43D	85311044
VK 65F10W5XA43D	85311054
VK 80F10W5XA43D	85311066
VK 100F10W5XA43D	85311075
VK 125F06W5XA43	85311093
VK 150F04W5XA43	85311104
VK 200F02W5XA43	85311086
GGG housing	
VK 50F40W5XG43D	85314111
VK 65F31W5XG43D	85314211
VK 80F24W5XG43D	85314311
VK 100F10W5XG43D	85314410
VK 125F06W5XG43	85314510
VK 150F04W5XG43	85314610
VK 200F02W5XG43	85314620



Motorized valves VK..HX on request



Tightness controls TC 1C, TC 2, TC 3

Technical
Information TC

Type code

TC	Tightness control
1C	For attachment to CG
2	For quick opening individual valves
3	For quick or slow opening individual valves
R	Rp internal thread
N	NPT internal thread
05	p _u max. 500 mbar
W	Mains voltage 230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
/W	Control voltage: 230 V AC, 50/60 Hz
/Q	Control voltage: 120 V AC, 50/60 Hz
/K	Control voltage: 24 V DC

Tightness controls for checking two safety valves before and/or after burner run, with adjustable measurement time (5-30 s) for adjustment to different test volumes, leakage rates and inlet pressures, EU certified. An adapter plate is included in the delivery to attach the TC 2 to the gas solenoid valve.

Designation	Order no.
For attachment to CG	
TC 1C05W/W	84765552
TC 1C05Q/Q	84765554
TC 1C05K/K	84765556
TC 1C05W/K	84765553
TC 1C05Q/K	84765555
For quick opening individual valves	
TC 2R05W/W	84765631
TC 2R05Q/Q	84765633
TC 2R05K/K	84765635
TC 2R05W/K	84765632
TC 2R05Q/K	84765634
For quick or slow opening individual valves	
TC 3R05W/W	84765716
TC 3R05Q/Q	84765713
TC 3R05K/K	84765715
TC 3R05W/K	84765712
TC 3R05K/K	84765715



Tightness controls TC 410

Type code

TC	Tightness control
4	In control cabinet
1	Testing before or after burner run
0	External pressure switch required
-1	Test period: 10-60 s
-10	Test period: 100-600 s
T	Mains voltage 220/240 V AC, 50/60 Hz
K	Mains voltage 24 V DC
N	Mains voltage 110/120 V AC, 50/60 Hz

Tightness controls for checking two safety valves before or after burner run, with adjustable test period for adjustment to different test volumes, leakage rates and inlet pressures, for quick opening individual valves, connection of an external pressure switch for any inlet pressures, EU certified.

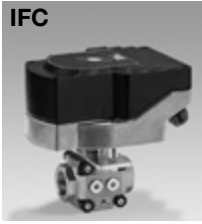
Designation	Order no.
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Test period: 10-60 s

TC 410-1T	84765810
TC 410-1N	84765830
TC 410-1K	84765850

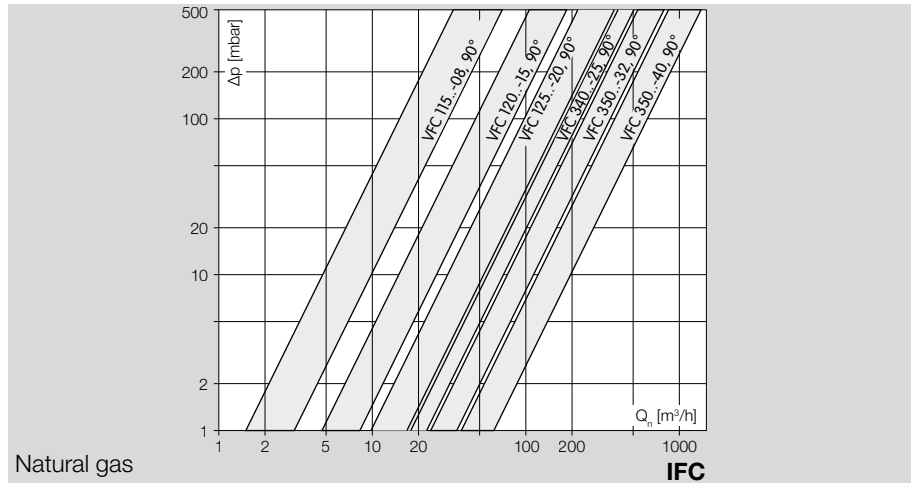
Test period: 100-600 s

TC 410-10T	84765820
TC 410-10N	84765840
TC 410-10K	84765860



Linear flow controls with actuator IFC

Technical Information IFC



Type code

IFC	Linear flow control with actuator
1, 3	Sizes
10-50	Inlet flange nominal size
/10-50	Outlet flange nominal size
R	Rp internal thread
05	p _U max. 500 mbar
-08, -15, -20, -25, -32, -40	Cylinder
P	Accessory, right, inlet: screw plug
M	Accessory, right, inlet: pressure test point
1	Accessory, right, inlet: pressure switch DG 17/VC
2	Accessory, right, inlet: pressure switch DG 40/VC
3	Accessory, right, inlet: pressure switch DG 110/VC
4	Accessory, right, inlet: pressure switch DG 300/VC
P	Accessory, right, outlet: screw plug
M	Accessory, right, outlet: pressure test point
1	Accessory, right, outlet: pressure switch DG 17/VC
2	Accessory, right, outlet: pressure switch DG 40/VC
3	Accessory, right, outlet: pressure switch DG 110/VC
4	Accessory, right, outlet: pressure switch DG 300/VC
P, M, 1, 2, 3, 4	The same accessories can be selected for the left- or right-hand side.
/20	Actuator IC 20
/40	Actuator IC 40
07-60	Running time in s/90°
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
A	Mains voltage 100-230 V AC, 50/60 Hz
2	Torque 2.5 Nm
3	Torque 3 Nm
T	Three-point step control
D	Digital input
E	Controlled by continuous signal
A	4-20 mA analogue input
R10	With 1000 Ω feedback potentiometer
P	Parameter set No.
-3	Cable glands on the inlet side

Linear flow controls for control of continuously regulated burner processes, linear ratio of input signal to flow rate, control ratio 25:1, for gas and air, with actuator IC 20 or IC 40, EU certified.

Designation	Order no.
-------------	-----------

For 230 V AC

Cylinder 08, three-point step control

IFC 110/10R05-08PPPP/20-60W3T	88300516
IFC 115/15R05-08PPPP/20-60W3T	88300570
IFC 120/20R05-08PPPP/20-60W3T	88300571
IFC 125/25R05-08PPPP/20-60W3T	88300572

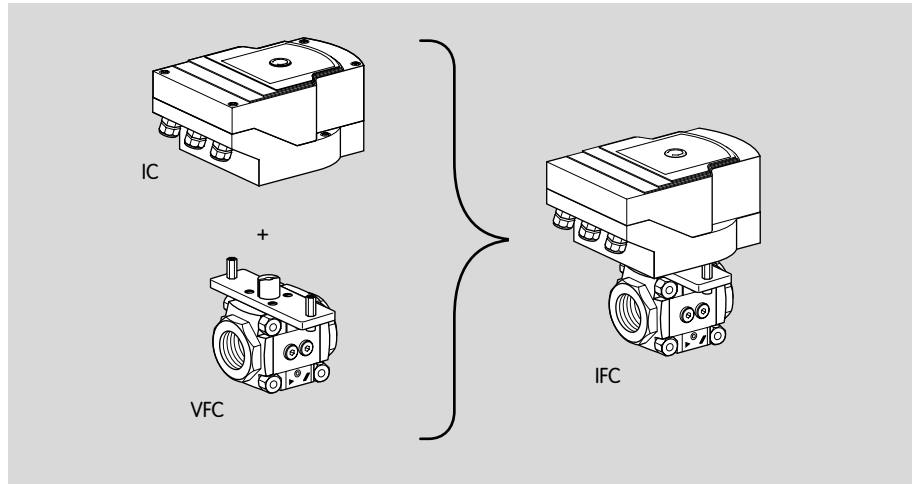
Designation	Order no.
Cylinder 15, three-point step control	
IFC 110/10R05-15PPPP/20-60W3T	88300573
IFC 115/15R05-15PPPP/20-60W3T	88300574
IFC 120/20R05-15PPPP/20-60W3T	88300575
IFC 125/25R05-15PPPP/20-60W3T	88300576
Cylinder 20, three-point step control	
IFC 110/10R05-20PPPP/20-60W3T	88300517
IFC 115/15R05-20PPPP/20-60W3T	88300567
IFC 120/20R05-20PPPP/20-60W3T	88300568
IFC 125/25R05-20PPPP/20-60W3T	88300569
Cylinder 25, three-point step control	
IFC 340/40R05-25PPPP/20-60W3T	88302528
IFC 350/50R05-25PPPP/20-60W3T	88302529
IFC 365/65R05-25PPPP/20-60W3T	88302530
Cylinder 32, three-point step control	
IFC 340/40R05-32PPPP/20-60W3T	88302531
IFC 350/50R05-32PPPP/20-60W3T	88302532
IFC 365/65R05-32PPPP/20-60W3T	88302533
Cylinder 40, three-point step control	
IFC 340/40R05-40PPPP/20-60W3T	88302534
IFC 350/50R05-40PPPP/20-60W3T	88302535
IFC 365/65R05-40PPPP/20-60W3T	88302536
Cylinder 08, controlled by continuous signal	
IFC 110/10R05-08PPPP/20-60W3E	88300577
IFC 115/15R05-08PPPP/20-60W3E	88300578
IFC 120/20R05-08PPPP/20-60W3E	88300579
IFC 125/25R05-08PPPP/20-60W3E	88300580
Cylinder 15, controlled by continuous signal	
IFC 110/10R05-15PPPP/20-60W3E	88300581
IFC 115/15R05-15PPPP/20-60W3E	88300582
IFC 120/20R05-15PPPP/20-60W3E	88300583
IFC 125/25R05-15PPPP/20-60W3E	88300584
Cylinder 20, controlled by continuous signal	
IFC 110/10R05-20PPPP/20-60W3E	88300585
IFC 115/15R05-20PPPP/20-60W3E	88300586
IFC 120/20R05-20PPPP/20-60W3E	88300587
IFC 125/25R05-20PPPP/20-60W3E	88300588
Cylinder 25, controlled by continuous signal	
IFC 340/40R05-25PPPP/20-60W3E	88302537
IFC 350/50R05-25PPPP/20-60W3E	88302538
IFC 365/65R05-25PPPP/20-60W3E	88302539
Cylinder 32, controlled by continuous signal	
IFC 340/40R05-32PPPP/20-60W3E	88302540
IFC 350/50R05-32PPPP/20-60W3E	88302541
IFC 365/65R05-32PPPP/20-60W3E	88302542
Cylinder 40, controlled by continuous signal	
IFC 340/40R05-40PPPP/20-60W3E	88302543
IFC 350/50R05-40PPPP/20-60W3E	88302544
IFC 365/65R05-40PPPP/20-60W3E	88302545
For 120 V AC	
Cylinder 08, three-point step control	
IFC 110/10R05-08PPPP/20-60Q3T	88301905
IFC 115/15R05-08PPPP/20-60Q3T	88301906
IFC 120/20R05-08PPPP/20-60Q3T	88301907
IFC 125/25R05-08PPPP/20-60Q3T	88301908
Cylinder 15, three-point step control	
IFC 110/10R05-15PPPP/20-60Q3T	88301909
IFC 115/15R05-15PPPP/20-60Q3T	88301910
IFC 120/20R05-15PPPP/20-60Q3T	88301911
IFC 125/25R05-15PPPP/20-60Q3T	88301912
Cylinder 20, three-point step control	
IFC 110/10R05-20PPPP/20-60Q3T	88301913
IFC 115/15R05-20PPPP/20-60Q3T	88301914
IFC 120/20R05-20PPPP/20-60Q3T	88301915
IFC 125/25R05-20PPPP/20-60Q3T	88301916
Cylinder 25, three-point step control	
IFC 340/40R05-25PPPP/20-60Q3T	88302546
IFC 350/50R05-25PPPP/20-60Q3T	88302547
IFC 365/65R05-25PPPP/20-60Q3T	88302548

Designation	Order no.
Cylinder 32, three-point step control	
IFC 340/40R05-32PPPP/20-60Q3T	88302549
IFC 350/50R05-32PPPP/20-60Q3T	88302550
IFC 365/65R05-32PPPP/20-60Q3T	88302551
Cylinder 40, three-point step control	
IFC 340/40R05-40PPPP/20-60Q3T	88302552
IFC 350/50R05-40PPPP/20-60Q3T	88302553
IFC 365/65R05-40PPPP/20-60Q3T	88302554
Cylinder 08, controlled by continuous signal	
IFC 110/10R05-08PPPP/20-60Q3E	88301917
IFC 115/15R05-08PPPP/20-60Q3E	88301918
IFC 120/20R05-08PPPP/20-60Q3E	88301919
IFC 125/25R05-08PPPP/20-60Q3E	88301920
Cylinder 15, controlled by continuous signal	
IFC 110/10R05-15PPPP/20-60Q3E	88302450
IFC 115/15R05-15PPPP/20-60Q3E	88301921
IFC 120/20R05-15PPPP/20-60Q3E	88301922
IFC 125/25R05-15PPPP/20-60Q3E	88301923
Cylinder 20, controlled by continuous signal	
IFC 110/10R05-20PPPP/20-60Q3E	88301924
IFC 115/15R05-20PPPP/20-60Q3E	88301925
IFC 120/20R05-20PPPP/20-60Q3E	88301926
IFC 125/25R05-20PPPP/20-60Q3E	88300619
Cylinder 25, controlled by continuous signal	
IFC 340/40R05-25PPPP/20-60Q3E	88302555
IFC 350/50R05-25PPPP/20-60Q3E	88302556
IFC 365/65R05-25PPPP/20-60Q3E	88302557
Cylinder 32, controlled by continuous signal	
IFC 340/40R05-32PPPP/20-60Q3E	88302558
IFC 350/50R05-32PPPP/20-60Q3E	88302559
IFC 365/65R05-32PPPP/20-60Q3E	88302560
Cylinder 40, controlled by continuous signal	
IFC 340/40R05-40PPPP/20-60Q3E	88302561
IFC 350/50R05-40PPPP/20-60Q3E	88302562
IFC 365/65R05-40PPPP/20-60Q3E	88302563
Versions	
Actuator with different running time	no surcharge

Accessories

Designation	Order no.
Feedback potentiometer for IC 20	
Potentiometer IC 20 1000 Ohm /B	74921144
Fastening set	
Fastening set IC-BVG/BVA/BVH/LFC /B	74921082
Opto-adapter for IC 40	
PCO 200 including BCSoft CD-ROM	74960625
PCO 300 including BCSoft CD-ROM	74960617

Linear flow controls with actuator IFC



Linear flow control VFC and actuator IC 20 or IC 40 can be delivered ready assembled as linear flow control with actuator IFC, see previous page. If the required combination is not available there, you can combine a VFC with any IC 20 or IC 40.

Designation	Order no.
Assembly	surcharge

VFC



Linear flow controls VFC

Type code

VFC	Linear flow control
1, 3	Sizes
10-65	Inlet flange nominal size
/10-/65	Outlet flange nominal size
R	Rp internal thread
05-	p _u max. 500 mbar
08-40	Cylinder
P	Accessory, right, inlet: screw plug
M	Accessory, right, inlet: pressure test point
1	Accessory, right, inlet: pressure switch DG 17/VC
2	Accessory, right, inlet: pressure switch DG 40/VC
3	Accessory, right, inlet: pressure switch DG 110/VC
4	Accessory, right, inlet: pressure switch DG 300/VC
P	Accessory, right, outlet: screw plug
M	Accessory, right, outlet: pressure test point
1	Accessory, right, outlet: pressure switch DG 17/VC
2	Accessory, right, outlet: pressure switch DG 40/VC
3	Accessory, right, outlet: pressure switch DG 110/VC
4	Accessory, right, outlet: pressure switch DG 300/VC
P, M, 1, 2, 3, 4	The same accessories can be selected for the left- or right-hand side.

Linear flow controls for controlling continuously regulated burner processes, linear ratio between input signal and flow rate, control ratio 25:1, for gas and air, for mounting onto actuator IC 20 or IC 40, EU certified.

Designation	Order no.
Cylinder 08	
VFC 110/10R05-08PPPP	88300201
VFC 115/15R05-08PPPP	88300202
VFC 120/20R05-08PPPP	88300203
VFC 125/25R05-08PPPP	88300204
Cylinder 15	
VFC 110/10R05-15PPPP	88300206
VFC 115/15R05-15PPPP	88300207
VFC 120/20R05-15PPPP	88300208
VFC 125/25R05-15PPPP	88300209
Cylinder 20	
VFC 110/10R05-20PPPP	88300211
VFC 115/15R05-20PPPP	88300212
VFC 120/20R05-20PPPP	88300213
VFC 125/25R05-20PPPP	88300214
Cylinder 25	
VFC 340/40R05-25PPPP	88302505
VFC 350/50R05-25PPPP	88302506
VFC 365/65R05-25PPPP	88302507
Cylinder 32	
VFC 340/40R05-32PPPP	88302508
VFC 350/50R05-32PPPP	88302509
VFC 365/65R05-32PPPP	88302510
Cylinder 40	
VFC 340/40R05-40PPPP	88302511
VFC 350/50R05-40PPPP	88302512
VFC 365/65R05-40PPPP	88302513



Actuators IC 30

Type code

IC 30	Actuator
30, 60	Running time in s/90°
K	Mains voltage 24 V DC
3	Torque 3 Nm
T	Three-point step control
R10	With 1000 Ω feedback potentiometer

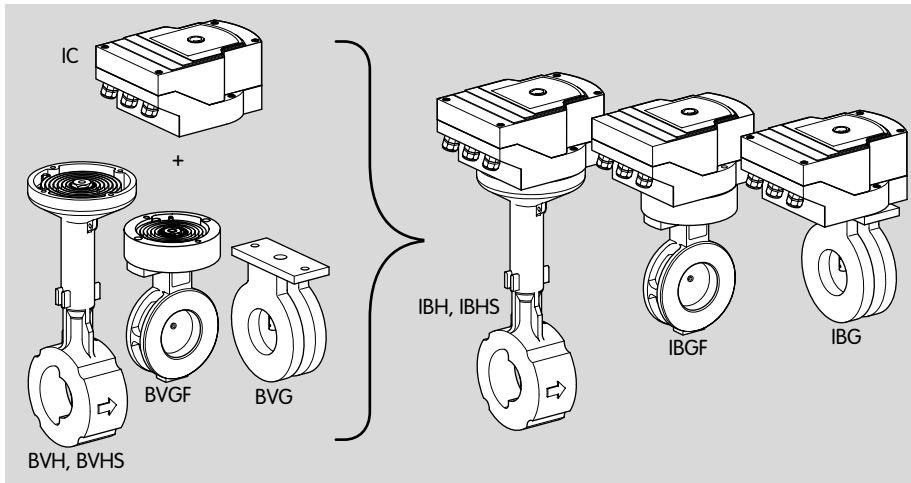
Reversible gear motor to transmit rotary movements between 0 and 90°, for mounting directly onto linear flow controls VFC using a fastening set (cf. Accessories), position feedback via externally readable position indicator, infinitely adjustable position switches and feedback potentiometer (optional), mains voltage: 24 V DC, running time: 30 or 60 s, controlled by three-point step signal, enclosure IP 65.

Designation	Order no.
IC 30-30K3T	03149351
IC 30-30K3TR10	03149352
IC 30-60K3T	03149353
IC 30-60K3TR10	03149354

Accessories

Designation	Order no.
Adapter set for mounting IC 30/VFC /B	74340194

Butterfly valves with actuator IBG, IBGF, IBA, IBAF, IBH, IBHS



Butterfly valves BVG, BVGF, BVA, BVAF, BVH or BVHS and actuators IC 20 or IC 40 can be delivered as ready assembled butterfly valves with actuator IBG, IBGF, IBA, IBAF, IBH or IBHS.

On the following pages, you will find the butterfly valves and actuators.

Designation	Order no.
Assembly	surcharge

Butterfly valves BVG, BVGF, BVA, BVAF

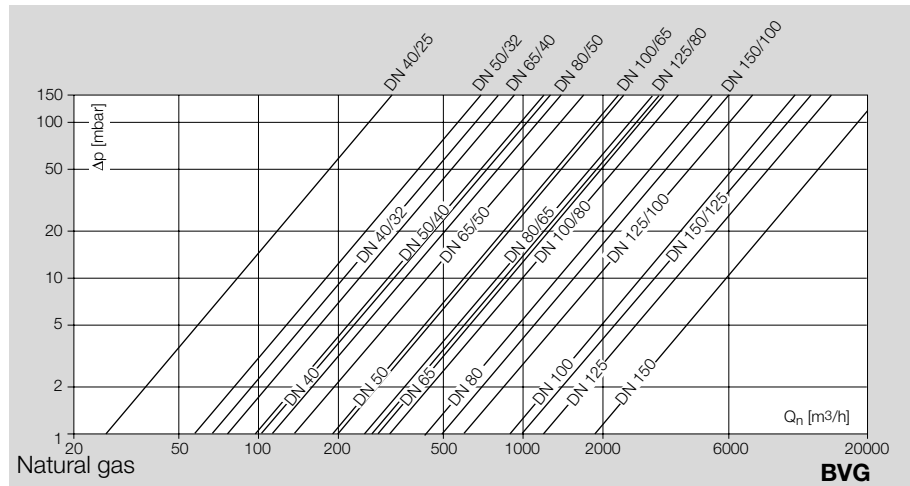
Type code

BVG	Butterfly valve for gas
BVA	Butterfly valve for air
F	Clearance-free
40-150	Nominal size
/25-/125	Reduced to nominal size
Z	For fitting between two EN flanges
05	p_u max. 500 mbar, Δp max. 150 mbar
H	With manual adjustment
F	With free shaft end
V	With square shaft

Technical Information [BVG](#), [BVGF](#), [BVA](#), [BVAF](#), [BVH](#), [BVHS](#), [BVHM](#)



Butterfly valves for gas BVG, BVGF



Butterfly valves for continuous control of a gas flow rate in a ratio of 10:1, medium temperature -20 to +60°C, for mounting directly onto the actuators IC 20 or IC 40 using a fastening set (cf. Accessories), EU certified, BVGF also with spring for clearance-free adjustment, suitable for biogas.

Designation Order no.

BVG

With full bore = nominal size

BVG 40Z05	88300120
BVG 50Z05	88300121
BVG 65Z05	88300122
BVG 80Z05	88300123
BVG 100Z05	88300124
BVG 125Z05	88300125
BVG 150Z05	88300126

With 1 x reduced bore

BVG 40/32Z05	88300127
BVG 50/40Z05	88300128
BVG 65/50Z05	88300129
BVG 80/65Z05	88300130
BVG 100/80Z05	88300131
BVG 125/100Z05	88300132
BVG 150/125Z05	88300133

With 2 x reduced bore

BVG 40/25Z05	88300134
BVG 50/32Z05	88300135
BVG 65/40Z05	88300136
BVG 80/50Z05	88300137
BVG 100/65Z05	88300138
BVG 125/80Z05	88300139
BVG 150/100Z05	88300140

BVGF

With full bore = nominal size

BVGF 40Z05	88300001
BVGF 50Z05	88300002
BVGF 65Z05	88300003
BVGF 80Z05	88300004
BVGF 100Z05	88300005
BVGF 125Z05	88300006
BVGF 150Z05	88300007

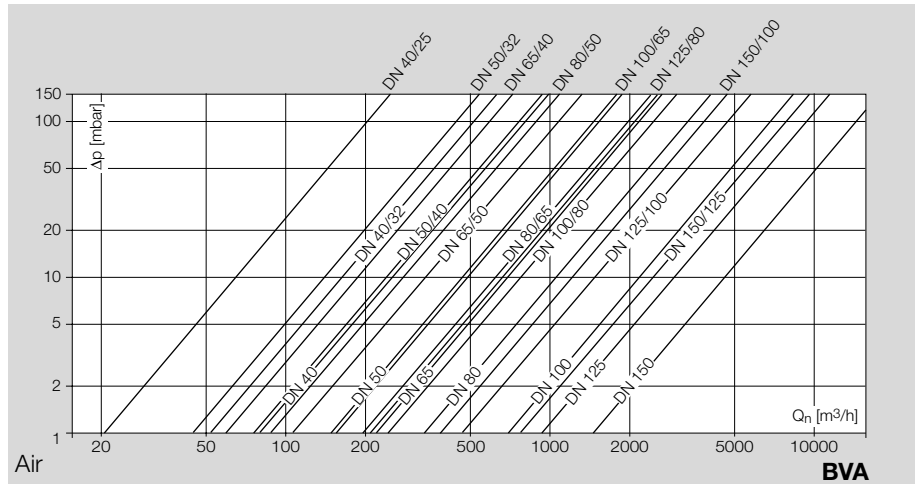
With 1 x reduced bore

BVGF 40/32Z05	88300008
BVGF 50/40Z05	88300009
BVGF 65/50Z05	88300010
BVGF 80/65Z05	88300011
BVGF 100/80Z05	88300012
BVGF 125/100Z05	88300013
BVGF 150/125Z05	88300014

Designation	Order no.
With 2 x reduced bore	
BVGF 40/25Z05	88300015
BVGF 50/32Z05	88300016
BVGF 65/40Z05	88300017
BVGF 80/50Z05	88300018
BVGF 100/65Z05	88300019
BVGF 125/80Z05	88300020
BVGF 150/100Z05	88300021



Butterfly valves for air BVA, BVAF



Butterfly valves for continuous control of an air flow rate in a ratio of 10:1, for mounting directly onto the actuators IC 20 or IC 40 using a fastening set (cf. Accessories), medium temperature -20 to +60°C, BVAF also with spring for clearance-free adjustment.

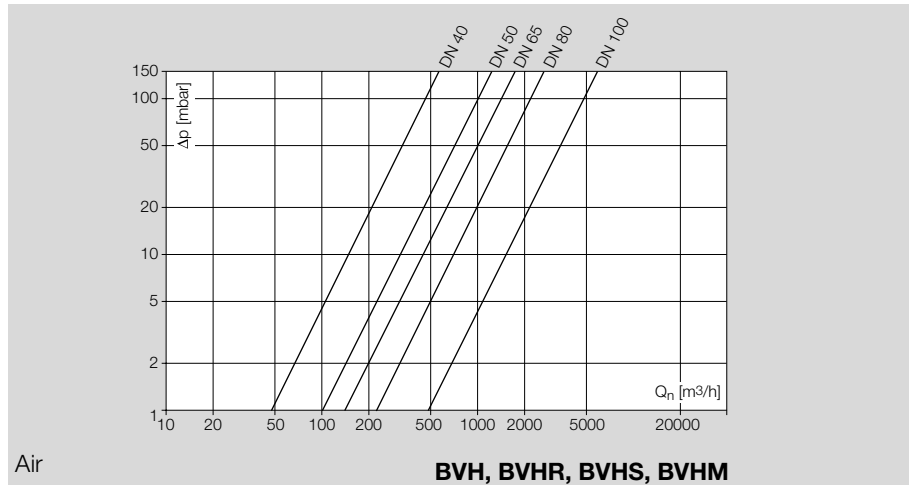
Designation	Order no.
BVA	
With full bore = nominal size	
BVA 40Z05	88300099
BVA 50Z05	88300100
BVA 65Z05	88300101
BVA 80Z05	88300102
BVA 100Z05	88300103
BVA 125Z05	88300104
BVA 150Z05	88300105
With 1 x reduced bore	
BVA 40/32Z05	88300106
BVA 50/40Z05	88300107
BVA 65/50Z05	88300108
BVA 80/65Z05	88300109
BVA 100/80Z05	88300110
BVA 125/100Z05	88300111
BVA 150/125Z05	88300112
With 2 x reduced bore	
BVA 40/25Z05	88300113
BVA 50/32Z05	88300114
BVA 65/40Z05	88300115
BVA 80/50Z05	88300116
BVA 100/65Z05	88300117
BVA 125/80Z05	88300118
BVA 150/100Z05	88300119
BVAF	
With full bore = nominal size	
BVAF 40Z05	88300022
BVAF 50Z05	88300023
BVAF 65Z05	88300024
BVAF 80Z05	88300025
BVAF 100Z05	88300026
BVAF 125Z05	88300027
BVAF 150Z05	88300028

Designation	Order no.
With 1 x reduced bore	
BVAF 40/32Z05	88300029
BVAF 50/40Z05	88300030
BVAF 65/50Z05	88300031
BVAF 80/65Z05	88300032
BVAF 100/80Z05	88300033
BVAF 125/100Z05	88300034
BVAF 150/125Z05	88300035
With 2 x reduced bore	
BVAF 40/25Z05	88300036
BVAF 50/32Z05	88300037
BVAF 65/40Z05	88300038
BVAF 80/50Z05	88300039
BVAF 100/65Z05	88300040
BVAF 125/80Z05	88300041
BVAF 150/100Z05	88300042
Versions	
Butterfly valves with square shaft	surcharge
Butterfly valves with free shaft end	surcharge
Butterfly valves with manual adjustment	surcharge



Butterfly valves for air and flue gas BVH, BVHS, BVHR

Technical Information BVG, BVGF, BVA, BVAF, BVH, BVHS, BVHM



Type code

BVH	Butterfly valve for air and flue gas
BVHS	Like BVH, but with additional safety closing function
BVHR	Like BVH, for medium temperatures of up to 550°C
40-100	Nominal size
Z	For fitting between two EN flanges
01	p_u max. 150 mbar
A	With stop

Butterfly valves for continuous or staged control of an air or flue gas flow rate in a ratio of 10:1; in conjunction with the stop bar, the TWINDISC valve disc ensures very low leakage rates; for mounting directly onto the actuators IC 20 or IC 40 using a fastening set (cf. Accessories), medium temperature -20 to +450°C, BVHR up to 550°C; heat deflectors must be used for medium temperatures of 250°C and higher.

Designation	Order no.
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For mounting directly onto the actuators IC 20 or IC 40

BVH 40Z01A	88300156
BVH 50Z01A	88300157
BVH 65Z01A	88300158
BVH 80Z01A	88300159
BVH 100Z01A	88300160

With safety closing function, for mounting directly onto the actuator IC 40S

BVHS 40Z01A	88300166
BVHS 50Z01A	88300167
BVHS 65Z01A	88300168
BVHS 80Z01A	88300169
BVHS 100Z01A	88300170

For mounting directly onto the actuators IC 20 or IC 40, up to 550°C

BVHR 40Z01A	88302697
BVHR 50Z01A	88302698
BVHR 65Z01A	88302692
BVHR 80Z01A	88302699
BVHR 100Z01A	88302693



Actuators IC 20

Type code

IC 20	Actuator
07-60	Running time in s/90°
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
2	Torque 2.5 Nm
3	Torque 3 Nm
E	Controlled by continuous signal
T	Three-point step control
R10	With 1000 Ω feedback potentiometer

Reversible gear motor to transmit rotary movements between 0 and 90°, for mounting directly onto the butterfly valves BVG, BVA, BVH using a fastening set (cf. Accessories), position feedback via externally readable position indicator, infinitely adjustable position switches and feedback potentiometer (optional with IC 20), feedback with IC 20..E via 4-20 mA signal, Automatic/Manual mode changeover, running time: 7.5-60 s, controlled by three-point step signal or continuous signal, enclosure IP 65.

Designation	Order no.
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Three-point step control

For 230 V AC

IC 20-07W2T	88300058
IC 20-15W3T	88300059
IC 20-30W3T	88300060
IC 20-60W3T	88300061

For 120 V AC

IC 20-07Q2T	88300062
IC 20-15Q3T	88300063
IC 20-30Q3T	88300064
IC 20-60Q3T	88300065

With 1000 Ω feedback potentiometer

For 230 V AC

IC 20-07W2TR10	88300066
IC 20-15W3TR10	88300067
IC 20-30W3TR10	88300068
IC 20-60W3TR10	88300069

For 120 V AC

IC 20-07Q2TR10	88300070
IC 20-15Q3TR10	88300071
IC 20-30Q3TR10	88300072
IC 20-60Q3TR10	88300073

Controlled by continuous signal

For 230 V AC

IC 20-07W2E	88300074
IC 20-15W3E	88300075
IC 20-30W3E	88300076
IC 20-60W3E	88300077

For 120 V AC

IC 20-07Q2E	88300078
IC 20-15Q3E	88300079
IC 20-30Q3E	88300080
IC 20-60Q3E	88300081

IC 40



Actuators IC 40

Type code

Type code	Actuator
IC 40	Actuator
S	Safety closing function
A	Mains voltage 100–230 V AC, 50/60 Hz
2	Torque 2.5 Nm
3	Torque 3 Nm
A	4–20 mA analogue input
D	Digital input
R10	With 1000 Ω feedback potentiometer

Technical
Information IC 20,
IC 40

Reversible gear motor to transmit rotary movements between 0 and 90°, for mounting directly onto the butterfly valves BVG, BVA, BVH, BVHS using a fastening set (cf. Accessories), position feedback via externally readable position indicator and feedback potentiometer (optional), running time (4.5-76.5 s), Manual mode, different operating modes (two-point control, three-point step, continuous control, multiple stages) can be programmed via an optical interface, integrated diagnostic system, two digital control inputs (24 V DC or 100-230 V AC), two digital outputs (relay change-over contact). A PC with the BCSOFT software and an opto-adapter are required for setting work and for adapting the unit to the process. The safety closing function closes the valve if the voltage fails, enclosure IP 65, CSA approved.

Designation	Order no.
Digital input	
IC 40A2D	88300085
IC 40A2DR10	88300084
4–20 mA analogue input	
IC 40A2A	88300087
IC 40A2AR10	88300090
Safety closing function, digital input	
IC 40SA3D	88300091
IC 40SA3DR10	88300095
Safety closing function, 4–20 mA analogue input	
IC 40SA3A	88300093
IC 40SA3AR10	88300097

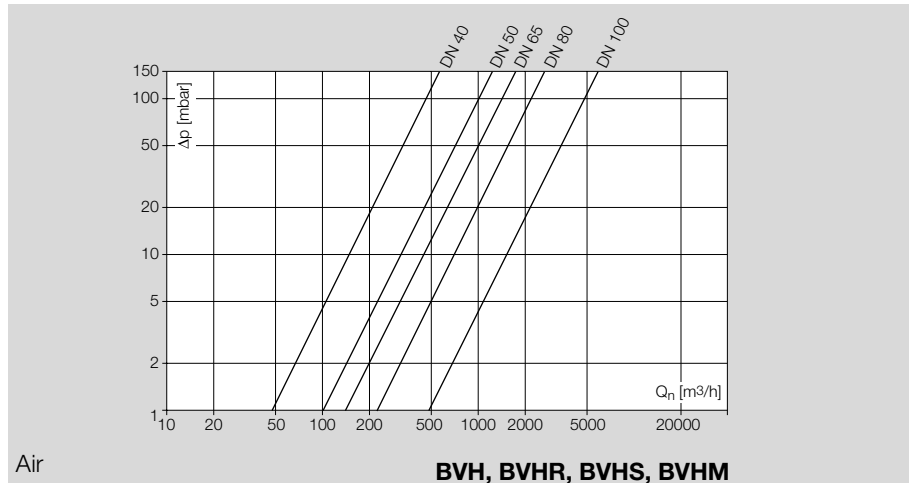
Accessories

Designation	Order no.
Feedback potentiometer for IC 20	
Potentiometer IC 20 1000 Ohm /B	74921144
Fastening set	
Fastening set IC-BVG/BVA/BVH/LFC /B	74921082
Heat deflectors for BVH	
Heat deflectors /B	74921670
Adapter sets	
Attachment set IC 20/IC 40 single application /B	74921671
Adapter set for mounting IC 20/IC 40 onto DKG/DKL /B	74921672
Adapter set for mounting IC 20/IC 40 onto LFC /B	74923919
Adapter set BVA/BVG with square shaft /B	74921674
Adapter set BVA/BVG with free shaft end /B	74921676
Adapter set BVA/BVG with manual adjustment /B	74921678
Opto-adapter for IC 40	
PCO 200 including BCSOFT CD-ROM	74960625
PCO 300 including BCSOFT CD-ROM	74960617

Technical
Information BVG,
BVGf, BVA, BVAf,
BVH, BVHS,
BVHM/MB 7



Butterfly valves for air and flue gas BVHM with solenoid actuator MB



Type code

BVHM	Butterfly valve for air and flue gas
40-100	Nominal size
Z	For fitting between two EN flanges
01	p_u max. 150 mbar
A	With stop

MB	Solenoid actuator
7	Actuator size 7 for DN 40-100
N	Quick opening, quick closing
R	Slow opening, slow closing
L	Slow opening, quick closing
W	Mains voltage 230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
3	Terminal connection box, IP 65
6	Connection box with 3-pin standard socket, IP 65

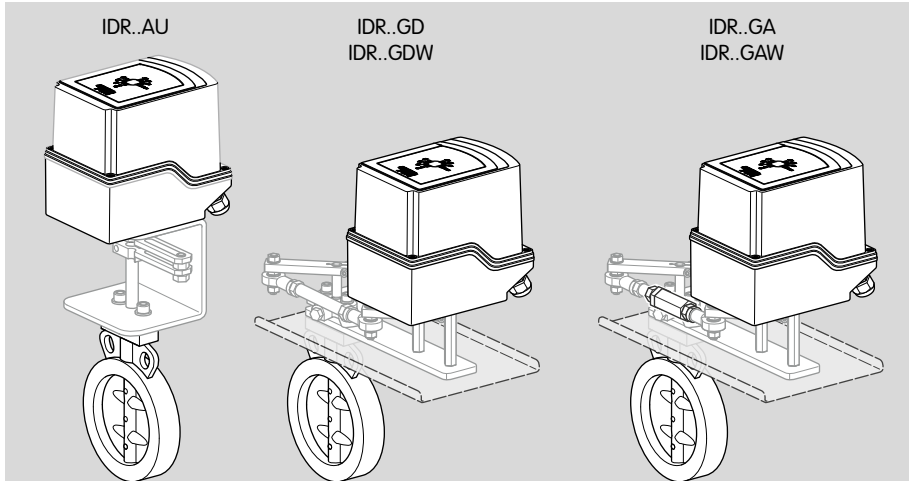
Butterfly valves with solenoid actuator for staged control of industrial burners in cold- or hot-air operating mode up to 450°C, p_u max. 150 mbar, with spring-loaded valve disc and position indicator. Butterfly valve and actuator are supplied as separate components, separate fastening set required.

Designation	Order no.
Butterfly valves	
BVHM 40Z01A	88300161
BVHM 50Z01A	88300162
BVHM 65Z01A	88300163
BVHM 80Z01A	88300164
BVHM 100Z01A	88300165
Solenoid actuators	
For 230 V AC	
MB 7NW3	74923034
MB 7RW3	74923040
MB 7LW3	74923046
For 120 V AC	
MB 7NQ3	74923036
MB 7RQ3	74923042
MB 7LQ3	74923048
Versions	
Solenoid actuator for 24 V DC	no surcharge
Solenoid actuator with standard socket	surcharge

Accessories

Designation	Order no.
Fastening set MB /B	74922222
Heat deflectors /B	74921670

Butterfly valves with actuator IDR



Type code

IDR	Butterfly valves with actuator
..	
AU	Attachment set for axial mounting, electr. connection above the pipe
AS	Attachment set for axial mounting, electr. connection to the side of the pipe
GD	Attachment set with linkage for valve with disc clearance
GDW	Attachment set with linkage and heat deflector for valve with disc clearance
GA	Attachment set with linkage for valve with stop bar
GAW	Attachment set with linkage and heat deflector for valve with stop bar

Butterfly valve DKR..F with free shaft end and actuator IC 50 can be delivered ready assembled as butterfly valve with actuator IDR. In the case of axial mounting, the actuator can be turned 90°.

On the following pages, you will find the butterfly valves and actuators.

Designation	Order no.
Assembly with axial attachment set surcharge
Assembly with attachment set with linkage surcharge
Assembly with attachment set with linkage and shock suppressor	surcharge

Butterfly valves DKR

Technical
Information DKR

Type code	
DKR	Butterfly valve for air and flue gas
15-500	Nominal size
Z	For fitting between two DIN flanges
03	p_U max. 300 mbar
H	With manual adjustment
F	With free shaft end
100, 350, 450, 600	Temperature range [°C]
D	With disc clearance
A	With stop bar



Butterfly valves for air and flue gas DKR..F

With free shaft end, for actuator IC 50, for higher temperatures, for fitting between two flanges to DIN 2633, PN 16.

Designation	Order no.
-------------	-----------

Temperature range up to 100°C

DKR 15Z03F100D	03149200
DKR 20Z03F100D	03149203
DKR 25Z03F100D	03149206
DKR 32Z03F100D	03149210
DKR 40Z03F100D	03149214
DKR 50Z03F100D	03149218
DKR 65Z03F100D	03149222
DKR 80Z03F100D	03149226
DKR 100Z03F100D	03149230
DKR 125Z03F100D	03149234
DKR 150Z03F100D	03149238
DKR 200Z03F100D	03149242
DKR 250Z03F100D	03149246
DKR 300Z03F100D	03149250
DKR 350Z03F100D	03149254
DKR 400Z03F100D	03149258
DKR 450Z03F100D	03149262
DKR 500Z03F100D	03149266

Temperature range up to 450°C

DKR 15Z03F450D	03149202
DKR 20Z03F450D	03149205
DKR 25Z03F450D	03149208
DKR 32Z03F450D	03149212
DKR 40Z03F450D	03149216
DKR 50Z03F450D	03149220
DKR 65Z03F450D	03149224
DKR 80Z03F450D	03149228
DKR 100Z03F450D	03149232
DKR 125Z03F450D	03149236
DKR 150Z03F450D	03149240
DKR 200Z03F450D	03149244
DKR 250Z03F450D	03149248
DKR 300Z03F450D	03149252
DKR 350Z03F450D	03149256
DKR 400Z03F450D	03149260
DKR 450Z03F450D	03149264
DKR 500Z03F450D	03149268

Temperature ranges above 450°C on request
 Butterfly valves DKR with stop bar on request

DKR..H



Butterfly valves for air and flue gas DKR..H

With manual adjustment, p_u max. 300 mbar, with disc clearance.

Designation	Order no.
Temperature range up to 100°C	
DKR 15Z03H100D	72702010
DKR 20Z03H100D	72702020
DKR 25Z03H100D	72702030
DKR 32Z03H100D	72702040
DKR 40Z03H100D	72702050
DKR 50Z03H100D	72702060
DKR 65Z03H100D	72702070
DKR 80Z03H100D	72702080
DKR 100Z03H100D	72702090
DKR 125Z03H100D	72702100
DKR 150Z03H100D	72702110
DKR 200Z03H100D	72702130
DKR 250Z03H100D	72702140
DKR 300Z03H100D	72702150
DKR 350Z03H100D	72702160
DKR 400Z03H100D	72702170
DKR 450Z03H100D	72702180
DKR 500Z03H100D	72702190
Temperature range up to 450°C	
DKR 15Z03H450D	72701210
DKR 20Z03H450D	72701220
DKR 25Z03H450D	72701230
DKR 32Z03H450D	72701240
DKR 40Z03H450D	72701250
DKR 50Z03H450D	72701260
DKR 65Z03H450D	72701270
DKR 80Z03H450D	72701280
DKR 100Z03H450D	72701290
DKR 125Z03H450D	72701300
DKR 150Z03H450D	72701310
DKR 200Z03H450D	72701330
DKR 250Z03H450D	72701340
DKR 300Z03H450D	72701350
DKR 350Z03H450D	72701360
DKR 400Z03H450D	72701370
DKR 450Z03H450D	72701380
DKR 500Z03H450D	72701390
Temperature ranges above 450°C	on request
Butterfly valves DKR with stop bar	on request



Actuators IC 50

Type code

IC 50	Actuator
03-60	Running time in s/90°
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
H	Mains voltage 24 V AC, 50/60 Hz
3-30	Torque [Nm]
E	Controlled by continuous signal
T	Three-point step control
R10	With 1000 Ω feedback potentiometer

Reversible gear motors to transmit rotary movements between 0 and 90°, for actuation of gas and air valves, with voltage-free limit switches, Automatic/Manual mode changeover and externally readable position indicator, running time: 3.7-60 s, CSA approved.

Designation	Order no.
-------------	-----------

For 230 V AC

Controlled by three-point step signal

IC 50-03W3TR10	74215211
IC 50-07W7TR10	74215212
IC 50-15W15TR10	74215213
IC 50-30W20TR10	74215214
IC 50-60W30TR10	74215215

Controlled by continuous signal

IC 50-03W3E	74215226
IC 50-07W7E	74215227
IC 50-15W15E	74215228
IC 50-30W20E	74215229
IC 50-60W30E	74215230

For 120 V AC

Controlled by three-point step signal

IC 50-03Q3TR10	74215216
IC 50-07Q7TR10	74215217
IC 50-15Q15TR10	74215218
IC 50-30Q20TR10	74215219
IC 50-60Q30TR10	74215220

Controlled by continuous signal

IC 50-03Q3E	74215231
IC 50-07Q7E	74215232
IC 50-15Q15E	74215233
IC 50-30Q20E	74215234
IC 50-60Q30E	74215235

Versions

Mains voltage 24 V AC, 50/60 Hz	no surcharge
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Additional equipment for actuators IC 50

/E = fitted, /B = enclosed

Designation	Order no.
Wall mounting bracket IC 50 /B	74924791

IDR..AU



Attachment sets for butterfly valves DKR and actuator IC 50

Designation

Order no.

For DKR, axial, enclosed

IC50-DKR Axial DN 15-20 /B	74924940
IC50-DKR Axial DN 25-32 /B	74924941
IC50-DKR Axial DN 40-50 /B	74924942
IC50-DKR Axial DN 65-125 /B	74924943
IC50-DKR Axial DN 150-250 /B	74924944
IC50-DKR Axial DN 300 /B	74924945
IC50-DKR Axial DN 350 /B	74924946
IC50-DKR Axial DN 400-500 /B	74924947

For DKR..D, with linkage, enclosed

IC50-DKR DN 15-20 with linkage / B	74924948
IC50-DKR DN 25-32 with linkage / B	74924949
IC50-DKR DN 40-50 with linkage /B	74924950
IC50-DKR DN 65-100 with linkage / B	74924951
IC50-DKR DN 125 with linkage / B	74924952
IC50-DKR DN 150-250 with linkage / B	74924953
IC50-DKR DN 300 with linkage / B	74924954
IC50-DKR DN 350 with linkage / B	74924955
IC50-DKR DN 400-500 with linkage / B	74924956

For DKR..A, with linkage and shock suppressor, enclosed

IC50-DKR DN 25-32 with shock suppressor /B	74924958
IC50-DKR DN 40-50 with shock suppressor /B	74924959
IC50-DKR DN 65-100 with shock suppressor /B	74924960
IC50-DKR DN 125 with shock suppressor /B	74924961
IC50-DKR DN 150-250 with shock suppressor /B	74924962
IC50-DKR DN 300 with shock suppressor /B	74924963
IC50-DKR DN 350 with shock suppressor /B	74924964
IC50-DKR DN 400-500 with shock suppressor /B	74924965

IDR..GD



IDR..GA



Heat deflectors for DKR

Designation

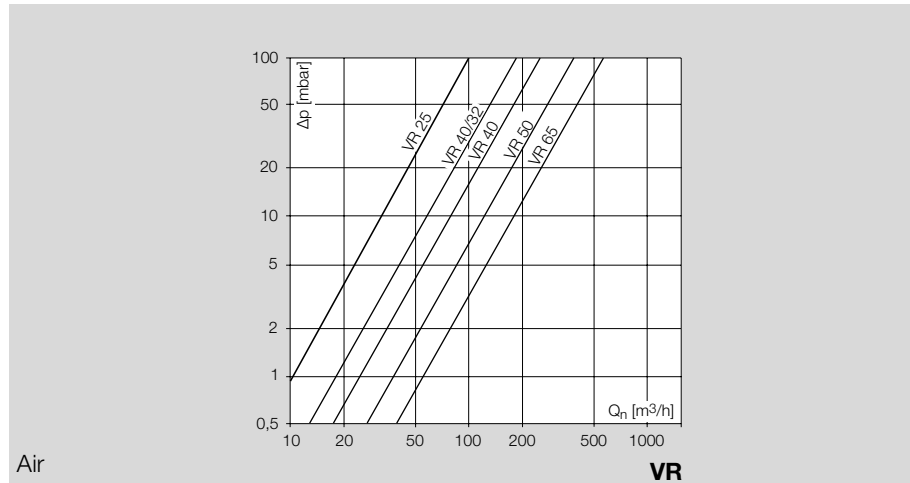
Order no.

Heat deflector DN 15-20 /B	74924966
Heat deflector DN 25-32 /B	74924967
Heat deflector DN 40-50 /B	74924968
Heat deflector DN 65-100 /B	74924969
Heat deflector DN 125 /B	74924970
Heat deflector DN 150-250 /B	74924971
Heat deflector DN 300 /B	74924972
Heat deflector DN 350 /B	74924973
Heat deflector DN 400-500 /B	74924974





Solenoid valves for air VR



Type code

VR	Solenoid valve for air
25-65	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
01	p_u max. 150 mbar
R	Slow opening, slow closing
N	Quick opening, quick closing
L	Slow opening, quick closing
T	Mains voltage 220/240 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
3	Terminal connection box, IP 54
6	Connection box with 3-pin standard socket, IP 54
6L	Connection box with 3-pin standard socket, with lamp, IP 54
1	Screw plug at the inlet
3	Screw plug at the inlet and outlet
D	With flow adjustment

Solenoid valves for air for staged control of industrial burners in cold-air operating mode.

Designation	Order no.
For cold air, quick opening, quick closing, for 220/240 V AC	
VR 40R01NT33D	85247400
VR 50R01NT33D	85248400
VR 65R01NT33D	85249400
VR 40F01NT33D	85247450
VR 50F01NT33D	85248450
VR 65F01NT33D	85249450
For cold air, slow opening, slow closing, for 220/240 V AC	
VR 25R01RT31D	85279010
VR 40/32R01RT31D	85250010
VR 40R01RT33D	85247100
VR 50R01RT33D	85248100
VR 65R01RT33D	85249100
VR 40F01RT33D	85247150
VR 50F01RT33D	85248150
VR 65F01RT33D	85249150
For cold air, slow opening, quick closing, for 220/240 V AC	
VR 40R01LT33D	85247700
VR 50R01LT33D	85248700
VR 65R01LT33D	85249700
For cold air, quick opening, quick closing, for 120 V AC	
VR 40R01NQ33D	85247520
VR 50R01NQ33D	85248530
VR 65R01NQ33D	85249530
VR 40F01NQ33D	85247570
VR 50F01NQ33D	85248580
VR 65F01NQ33D	85249580

Designation	Order no.
For cold air, slow opening, slow closing, for 120 V AC	
VR 25R01RQ31D	85279300
VR 40/32R01RQ31D	85250300
VR 40R01RQ33D	85247170
VR 50R01RQ33D	85248270
VR 65R01RQ33D	85249220
Bypass orifice	surcharge

VR versions

Designation	Order no.
Solenoid valve with socket and LED	surcharge
Solenoid valve for 24 V DC	
DN 6 to DN 50	surcharge
DN 65	surcharge

2



Pressure switches for gas DG

Diaphragm pressure switches with micro switch (silicone-free) for monitoring gas pressures on industrial installations and heating systems, for gas, air and flue gas, also for biogas, DG..H/N with manual reset if the pressure rises above or falls below a switching point, for 24-250 V, with gold contacts also for 5-250 V, enclosure IP 54 (IP 65), EU certified pursuant to the Gas Appliances Directive and DIN EN ISO 13849. As special-design pressure switches as defined by VdTÜV Code of Practice "Druck 100/1" (Pressure 100/1), they are suitable for applications in firing installations for steam and hot-water generators in accordance with TRD 604, Para. 3.6.4 and Class "S" pursuant to EN 1854. The units are certified up to and including PL e in accordance with DIN EN ISO 13849 and up to and including SIL 3 in accordance with DIN EN 61508. The suitability for certain applications can only be evaluated by taking into account the relevant safety-related complete system with regard to the requirements of DIN EN 61508 or DIN EN ISO 13849.

All pressure switches DG..G with gold contacts can be used with an isolating amplifier in zone 1 and 2 hazardous areas.

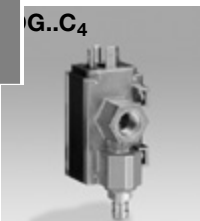
The pressure compensation holes of series DG..U, B, H, N, I have a defined ignition protection in terms of the safety measure for enclosed break devices for Group IIA gases and vapours. They can therefore be operated on pipes with zone 2 explosive atmospheres.

Type	Connection	Adjustment	El. connection	Contact
DG..C	pos. pressure (gas/air)	fixed	socket	NO/change-over
DG..VC	pos. pressure (gas/air)	hand wheel	socket	NO/change-over
DG..B	pos. pressure (gas/air)	hand wheel	terminals/socket	change-over
DG..U	pos. pressure (gas/air) neg. pressure (air)	hand wheel	terminals/socket	change-over
DG..H/N	pos. pressure (gas/air) neg. pressure (air)	hand wheel	terminals/socket	change-over
DG..I	neg. pressure (gas/air)	hand wheel	terminals/socket	change-over

Pressure switches for oxygen and ammonia DG..S

Diaphragm pressure switches with micro switch for monitoring oxygen and ammonia pressures (not suitable for natural gas, other media on request), for positive pressure, diaphragm material: IIR, with CE marking, not EC type-tested, without Class "S".

Type	Connection	Adjustment	El. connection	Contact
DG..S	pos. pressure (O ₂ /NH ₃)	hand wheel	terminals/socket	change-over



Pressure switches for gas DG..C

Technical
Information DG..C

Type code

DG	Pressure switch for gas
15	Adjusting range 3-15 mbar
17	Adjusting range 2-17 mbar
30	Adjusting range 8-30 mbar
35	Adjusting range 5-35 mbar
40	Adjusting range 5-40 mbar
45	Adjusting range 10-45 mbar
60	Adjusting range 10-60 mbar
110	Adjusting range 33-110 mbar
150	Adjusting range 40-150 mbar
250	Adjusting range 70-250 mbar
300	Adjusting range 100-300 mbar
360	Adjusting range 100-360 mbar
500	Adjusting range 150-500 mbar
/60	2 nd adjusting range 10-60 mbar
/150	2 nd adjusting range 40-150 mbar
/300	2 nd adjusting range 100-300 mbar
V	Switching point adjustable on hand wheel
C	Compact design
1	valVario connection
4	2 x Rp 1/4 internal thread, pressure test point
5	Rp 1/4 internal thread
6	R 1/8 external thread
8	R 1/4 external thread
D	Sealant
-5	4-pin plug, without socket
-6	4-pin plug, with socket
S	NO contact
W	Change-over contact
G	With gold-plated contacts

Gas: p_u max. 600 mbar, ambient temperature -10 to +70°C.

Designation	Order no.
-------------	-----------

Fixed setting, with NO contact, R 1/4 external thread connection

DG 15C8D-5S	84448151
DG 35C8D-5S	84448351
DG 110C8D-5S	84448551
DG 250C8D-5S	84448651
DG 360C8D-5S	84448751

With hand wheel for continuous adjustment, with change-over contact, R 1/4 external thread connection

DG 17VC8D-5W	84448050
DG 30VC8D-5W	84448250
DG 40VC8D-5W	84448870
DG 45VC8D-5W	84448850
DG 60VC8D-5W	84448270
DG 110VC8D-5W	84448450
DG 150VC8D-5W	84448470
DG 300VC8D-5W	84448950
DG 500VC8D-5W	84448570

With hand wheel for continuous adjustment, with change-over contact, Rp 1/4 internal thread connection

DG 17VC5-5W	84448010
DG 30VC5-5W	84448210
DG 40VC5-5W	84448830
DG 45VC5-5W	84448810
DG 60VC5-5W	84448230
DG 110VC5-5W	84448410
DG 150VC5-5W	84448430
DG 300VC5-5W	84448920
DG 500VC5-5W	84448530

Designation	Order no.
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With hand wheel for continuous adjustment, with change-over contact, 2 x Rp 1/4 internal thread connection and pressure test point

DG 17VC4-5W	84448060
DG 30VC4-5W	84448260
DG 40VC4-5W	84448880
DG 45VC4-5W	84448860
DG 60VC4-5W	84448280
DG 110VC4-5W	84448460
DG 150VC4-5W	84448480
DG 300VC4-5W	84448970
DG 500VC4-5W	84448582



Double pressure switch DG..C with two adjusting ranges

Designation	Order no.
-------------	-----------

DG 60/60VC4-6W	84448930
DG 150/150VC4-6W	84448931
DG 300/300VC4-6W	84448932
DG 60/150VC4-6W	84448933
DG 60/300VC4-6W	84448934
DG 150/300VC4-6W	84448935

Technical
Information DG..C

2



Pressure switches for gas DG..U, DG..H, DG..N, DG..B, DG..I, DG..S

Type code

DG	Pressure switch for gas
1,5	Negative pressure adjusting range -1.5 – -0.5/+0.5 – +3 mbar
6	Adjusting range 0.4 – 6 mbar
10	Adjusting range 1 – 10 mbar
12	Negative pressure adjusting range -12 – -1/+1 – +7 mbar
18	Negative pressure adjusting range -2 – -18 mbar
30	Adjusting range 2.5 – 30 mbar
50	Adjusting range 2.5 – 50 mbar
120	Negative pressure adjusting range -10 – -120 mbar
150	Adjusting range 30 – 150 mbar
400	Adjusting range 50 – 400 mbar
450	Negative pressure adjusting range -80 – -450 mbar
500	Adjusting range 100 – 500 mbar
B	Positive pressure
U	Positive pressure, differential pressure
H	Locks off with rising pressure
I	Negative pressure for gas
N	Locks off with falling pressure
S	Positive pressure for oxygen and ammonia
G	With gold-plated contacts
-3	Electrical connection via screw terminals
-4	Electrical connection via screw terminals, IP 65
-5	Electrical connection via 4-pin plug, without socket
-6	Electrical connection via 4-pin plug, with socket
-9	Electrical connection via 4-pin plug, with socket, IP 65
K2	Red/green pilot LED for 24 V DC/AC
T	Blue pilot lamp for 230 V AC
T2	Red/green pilot LED for 230 V AC
N	Blue pilot lamp for 120 V AC
A	External adjustment

p_0 max. 600 mbar, ambient temperature -15 to +80°C (DG..H/N: -15 to +60°C).
Pressure switches with enclosure IP 65 have gold contacts (12-250 V), cover with three screws and filter with splash guard in the breathing orifice.

Designation	Order no.
-------------	-----------

For positive pressure (gas, air), negative pressure (air) and differential pressure (air/air)

DG 6U-3	84447250
DG 10U-3	84447300
DG 30U-3	84447290
DG 50U-3	84447350
DG 150U-3	84447500
DG 400U-3	84447595
DG 500U-3	84447550

For voltages 12-250 V with gold-plated contacts

DG 6UG-3	84447270
DG 10UG-3	84447320
DG 30UG-3	84447292
DG 50UG-3	84447370
DG 150UG-3	84447520
DG 400UG-3	84447596
DG 500UG-3	84447570

For voltages 12-250 V with gold-plated contacts, enclosure IP 65

DG 6UG-4	84447000
DG 10UG-4	84447010
DG 30UG-4	84447015
DG 50UG-4	84447020
DG 150UG-4	84447030
DG 400UG-4	84447597
DG 500UG-4	84447040

Designation	Order no.
With fitted standard socket	
DG 6U-6	84447251
DG 10U-6	84447301
DG 30U-6	84447291
DG 50U-6	84447351
DG 150U-6	84447501
DG 400U-6	84447598
DG 500U-6	84447551
With manual reset, DG..H switches and locks off with rising pressure	
DG 10H-3	84447600
DG 50H-3	84447620
DG 150H-3	84447640
DG 500H-3	84447660
With manual reset, DG..N switches and locks off with falling pressure	
DG 10N-3	84447700
DG 50N-3	84447720
DG 150N-3	84447740
DG 500N-3	84447760
For positive pressure	
DG 6B-3	84447100
DG 10B-3	84447150
DG 50B-3	84447200
DG 150B-3	84447400
DG 400B-3	84447591
DG 500B-3	84447450
For voltages 12-250 V with gold-plated contacts	
DG 6BG-3	84447120
DG 10BG-3	84447170
DG 50BG-3	84447220
DG 150BG-3	84447420
DG 400BG-3	84447592
DG 500BG-3	84447470
With fitted standard socket	
DG 6B-6	84447101
DG 10B-6	84447151
DG 50B-6	84447201
DG 150B-6	84447401
DG 400B-6	84447593
DG 500B-6	84447451

Gas vacuum sensors DG..I

For negative pressure (gas, air), positive pressure (air) and differential pressure (air/air).

Designation	Order no.
DG 1,5I-3	84447090
DG 12I-3	84447080
DG 18I-3	84447050
DG 120I-3	84447060
DG 450I-3	84447070
For voltages 12-250 V with gold-plated contacts	
DG 1,5IG-3	84447091
DG 12IG-3	84447081
DG 18IG-3	84447051
DG 120IG-3	84447061
DG 450IG-3	84447071
For voltages 12-250 V with gold-plated contacts, IP 65	
DG 1,5IG-4	84447092
DG 12IG-4	84447082
DG 18IG-4	84447052
DG 120IG-4	84447062
DG 450IG-4	84447072

Pressure switches for oxygen and ammonia DG..S

Diaphragm pressure switches with micro switch for monitoring oxygen and ammonia pressures (not suitable for natural gas, other media on request), for positive pressure, diaphragm material: IIR, with CE marking, not EC type-tested, without Class "S".

Designation	Order no.
DG 6S-3	84447140
DG 10S-3	84447190
DG 50S-3	84447240
DG 150S-3	84447440
DG 500S-3	84447490

2

Pressure switches for air DL

Technical
Information DL

Type code

Type code	Description
DL	Pressure switch for air
1	Adjusting range 0.2–1 mbar (DL..E only)
1,5	Adjusting range -0.5–+1.5 mbar (DL..A only)
2	Adjusting range 0.2–2 mbar (DL..E, DL..EH only)
3	Adjusting range 0.2–3 mbar (DL..E, DL..A, DL..K only)
3,3	Adjusting range 0.2–3.3 mbar (DL..K only)
3,5	Adjusting range 0.3–3.5 mbar (DL..K only)
4	Adjusting range 0.5–4 mbar (DL..E, DL..EH only)
4,5	Adjusting range 0.3–5 mbar (DL..K only)
5	Adjusting range 0.4–5 mbar (DL..A, DL..K only)
5,1	Adjusting range 1.0–5.1 mbar (DL..K only)
8	Adjusting range 0.5–8 mbar (DL..K only)
10	Adjusting range 1.0–10 mbar (DL..E, DL..A, DL..K only)
11	Adjusting range 1.0–11 mbar (DL..K only)
14	Adjusting range 3–14 mbar (DL..E only)
16	Adjusting range 4–16 mbar (DL..K only)
24	Adjusting range 2–24 mbar (DL..K only)
30	Adjusting range 2.5–30 mbar (DL..A, DL..K only)
35	Adjusting range 12–35 mbar (DL..E only)
40	Adjusting range 5–40 mbar (DL..K only)
50	Adjusting range 2.5–50 mbar (DL..A, DL..K only)
150	Adjusting range 30–150 mbar (DL..A, DL..K only)
E	With flat plugs, tube connection, adjusting screw, -15 – +85°C
EH	With flat plugs, tube connection, adjusting screw, -40 – +110°C
A	With screw terminals, Rp 1/4, tube connection, hand wheel, -15 – +80°C
K	With tube connection, hand wheel, -15 – +80°C
H	Locks off with rising pressure
N	Locks off with falling pressure
G	With gold contacts
-1	AMP plug connection (DL..E, DL..K only) (UR recognized)
-3	Electrical connection via screw terminals (DL..A, DL..K only) (UL listed)
-4	Electrical connection via screw terminals, IP 65 (DL..A, DL..K only)
-5	Electrical connection via 4-pin plug, without socket (DL 3/5/10/50/150A/K only)
-6	Electrical connection via 4-pin plug, with socket (DL 3/5/10/50/150A/K only)
-9	Electrical connection via 4-pin plug, with socket, IP 65 (DL 3/5/10/50/150A/K only)
K2	Red/green pilot LED for 24 V DC/AC (DL..A, DL..K only)
T	Blue pilot lamp for 230 V AC (DL..A, DL..K only)
T2	Red/green pilot LED for 230 V AC (DL..A, DL..K only)
N	Blue pilot lamp for 120 V AC (DL..A, DL..K only)
P	With test tapping point (DL 5-150E, DL..K only)
1	With 1 test key (DL 5-150A only)
2	With 2 test keys (DL 5-150A only)
A	External adjustment (DL 3/5/10/50/150A/K only)
W	Z-angle bracket

Diaphragm pressure switches with micro switch for monitoring air and flue gas pressures on industrial and commercial installations and heating systems, for positive pressure,

negative pressure and differential pressure, enclosure: DL..A, DL..K: IP 54 (IP 65), DL..E: IP 00/21/42/44, depending on the installation (cf. Accessories), EU certified.

The pressure switches marked with an * in the following table are silicone-free. They are special-design pressure switches as defined by VdTÜV Code of Practice "Druck 100/1" (Pressure 100/1) and are suitable for applications in firing installations for steam and hot-water generators in accordance with TRD 604, Para. 3.6.4.

Type	Connection	Adjustment	El. connection	p _u max. [mbar]
DL 2E; 4E; 14E; 35E	tube	screw	flat plugs	50
DL 2EH; 4EH	tube	screw	flat plugs	15
DL 1E; 3E	tube	screw	flat plugs	50*
DL 5E; 10E; 50E	tube	screw	flat plugs	300*
DL 1,5A	tube/thread	hand wheel	terminals	50*
DL 3A	tube/thread	hand wheel	terminals	50*
DL 5A; 10A; 50A; 150A	tube/thread	hand wheel	terminals	300*
DL 3,5K; 4,5K; 8K; 11K; 16K; 24K; 40K	tube	hand wheel	terminals/ flat plugs	50
DL 3K	tube	hand wheel	terminals	50*
DL 5K; 10K; 50K; 150K	tube	hand wheel	terminals	300*

DL 3-150A**Pressure switches for air DL..A**

Switching point adjustable on hand wheel, Rp 1/4 connections for positive pressure and tube connections for positive pressure and negative pressure, silicone-free.

Designation	Order no.
DL 1,5A-3Z	84444411
DL 3A-3	84444400
DL 3AG-3	84444450
Rp 1/4 connections for positive pressure, Rp 1/8 for negative pressure	
DL 3A-3Z	84444402
DL 3AG-3Z	84444451

DL..A..1**Pressure switches for air DL..A with test key**

The test key acts on positive pressure and positive differential pressures. Models with two test keys are available for negative pressure and negative differential pressures, Rp 1/4 connections for positive pressure, Rp 1/8 for negative pressure and tube connections for positive pressure and negative pressure, silicone-free.

Designation	Order no.
With one test key for positive pressure	
DL 5A-31	84444470
DL 10A-31	84444480
DL 50A-31	84444490
DL 150A-31	84444880
For voltages 12-250 V with gold-plated contacts	
DL 5AG-31	84444471
DL 10AG-31	84444481
DL 50AG-31	84444491
DL 150AG-31	84444881
With two test keys for negative pressure and differential pressure	
DL 5A-32	84444475
DL 10A-32	84444485
DL 50A-32	84444495
DL 150A-32	84444885
For voltages 12-250 V with gold-plated contacts	
DL 5AG-32	84444476
DL 10AG-32	84444486
DL 50AG-32	84444496
DL 150AG-32	84444886

DL 3,5–40K



Pressure switches for air DL 3,3–40K

Diaphragm pressure switches with micro switch, particularly high contact reliability using a completely tempered diaphragm system and low gas release housing parts, tube and electrical connections accessible from one side, particularly easy to install, switching point adjustable on hand wheel.

[Technical Information DL..K](#)

Designation	Order no.
With screw terminals	
DL 3,3K-3	84444625
DL 3,5K-3	84444630
DL 4,5K-3	84444730
DL 8K-3	84444740
DL 11K-3	84444826
DL 16K-3	84444780
DL 24K-3	84444640
DL 40K-3	84444790
With screw terminals, for voltages 12-250 V with gold-plated contacts	
DL 3,3KG-3	84444626
DL 3,5KG-3	84444631
DL 4,5KG-3	84444732
DL 8KG-3	84444742
DL 11KG-3	84444827
DL 16KG-3	84444781
DL 24KG-3	84444641
DL 40KG-3	84444791
DL..K-1 with AMP flat plugs	on request

DL..K-3W



Pressure switches for air DL 3–150K

Switching point adjustable on hand wheel, with tube connections, electrical connection via screw terminals, silicone-free.

[Technical Information DL..K](#)

Designation	Order no.
With angle bracket	
DL 3K-3W	84444600
DL 5K-3W	84444700
DL 10K-3W	84444800
DL 50K-3W	84444810
DL 150K-3W	84444890
Without angle bracket	
DL 3K-3	84444608
DL 5K-3	84444709
DL 10K-3	84444807
DL 50K-3	84444816
DL 150K-3	84444892
With angle bracket, for 12-250 V with gold-plated contacts, with drilling template and retaining screws, with tube set	
DL 3KG-3WZ	84444603
DL 5KG-3WZ	84444604
DL 10KG-3WZ	84444605
DL 50KG-3WZ	84444606

DL..H switches and locks off with rising pressure, with manual reset

Designation	Order no.
Rp 1/4, with screw terminals, with one test key for positive pressure	
DL 10AH-31	84444430
DL 50AH-31	84444431
DL 150AH-31	84444432
Rp 1/4, with socket, with one test key for positive pressure	
DL 10AH-61	84444521
DL 50AH-61	84444522
DL 150AH-61	84444523
With screw terminals	
DL 10KH-3	84444433
DL 50KH-3	84444434
DL 150KH-3	84444435
With socket, with angle bracket	
DL 10KH-6W	84444524
DL 50KH-6W	84444525
DL 150KH-6W	84444526

DL..N switches and locks off with falling pressure, with manual reset

Designation	Order no.
Rp 1/4, with screw terminals, with one test key for positive pressure	
DL 10AN-31	84444440
DL 50AN-31	84444441
DL 150AN-31	84444442
Rp 1/4, with socket, with one test key for positive pressure	
DL 10AN-61	84444530
DL 50AN-61	84444531
DL 150AN-61	84444532
With screw terminals	
DL 10KN-3	84444443
DL 50KN-3	84444444
DL 150KN-3	84444445
With socket, with angle bracket	
DL 10KN-6W	84444533
DL 50KN-6W	84444534
DL 150KN-6W	84444535

DL 1-50E



Pressure switches for air DL 1-50E

With tube connections, adjustable switching point, 6.3 mm flat plug connection, silicone-free.

Designation	Order no.
DL 1E-1	84444010
DL 3E-1	84444210
DL 5E-1	84444250
DL 10E-1	84444270
DL 50E-1	84444280

For voltages 12-250 V with gold-plated contacts

DL 1EG-1	84444110
DL 3EG-1	84444310
DL 5EG-1	84444350
DL 10EG-1	84444370
DL 50EG-1	84444380

Versions

DL 5/10/50E-1P with test tapping point surcharge

On request, pressure switches for air DL 5/10/50E may also be supplied with opposing connections.

DL 2-35E



Pressure switches for air DL 2-35E

With tube connections, adjustable switching point, 6.3 mm flat plug connection, particularly high contact reliability using a completely tempered diaphragm system and low gas release housing parts, tube and electrical connections accessible from one side, particularly easy to install, also for clip-on assembly.

Designation	Order no.
DL 2E-1	84444150
DL 4E-1	84444180
DL 14E-1	84444351
DL 35E-1	84444190

For voltages 12-250 V with gold-plated contacts

DL 2EG-1	84444151
DL 4EG-1	84444181
DL 14EG-1	84444352
DL 35EG-1	84444191


U-angle bracket

Accessories for DG, DL

On pressure switches with standard coupler plug and pilot lamp, the switching contact can only be used as NO or NC contact. If the change-over function is needed, the standard socket with 2 LEDs, Order no. 74916200, must be used.

Designation	Order no.
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Fastening set with screws, U-shape bracket

U-angle bracket DG..B, DG..U, DG..I	74915387
U-angle bracket DG..U, B, H, N; DL 1,5-150A, DL 3-150K, DL 1-50E	

U-angle bracket DL 1,5-150A; DL 3K; DL 1-3E	74916185
	74916161

Fastening set with screws, Z-shape bracket

Z-angle bracket DL 1,5-150A; DL 3K; DL 1-3E	74913661
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Z-angle bracket DL 5-50E, 5-150K	74916158
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Z-angle bracket DL 2/4/14/35E, 3,5/4,5/8/16/24/40K	74919824
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Fastening set with screws, L-shape bracket

L-angle bracket DL 2/4/14/35E; 3,5/4,5/8/16/24/40K (A)	74919825
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L-angle bracket DL 2/4/14/35E; 3,5/4,5/8/16/24/40K (B)	74921466
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Standard connection sets

Standard coupler plug set DG	74915388
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Standard coupler plug set DL..A, DL..K	74916159
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Standard socket, 3+PE, grey /B	74916716
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Standard socket, 3+PE, black /B	74916715
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Standard socket with 2 LEDs (12-250 V AC/DC)	74916200
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Standard coupler plug DG	74920412
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Pilot lamp sets (not for DG..C or DL..E)

Pilot lamp set 220/240 V AC red	74920429
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Pilot lamp set 110/120 V AC red	74920430
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Pilot lamp set 220/240 V AC blue	74916122
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Pilot lamp set 110/120 V AC blue	74916121
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LED set 24 V DC/AC red/green	74921089
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LED set 230 V AC red/green	74923275
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Connecting set for use as minimum/maximum switch

(double pressure switch)

Connecting set DG..U, DG..T	74912250
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Cover with external adjustment

External adjustment DG..U/B/I, DL 3/5/10/50/150A/K	74916155
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Cover IP 65 with pressure equalization element

Cover IP 65 with pressure equalization element	74923391
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Test key (PIA), restrictor orifice

PIA R/Rp 1/4	74329466
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Restrictor orifice for DG R/Rp 1/4, 0.3 mm nozzle	75441317
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Restrictor orifice for DG R/Rp 1/4, 0.2 mm nozzle	75456321
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Scale mark for DG, DL..A, DL..K, set of five in bag


Colour coordination set DG blue, 5 pieces	74921726
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Colour coordination set DG yellow, 5 pieces	74921727
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Filter set DG for 1/8" vacuum connection with highly


contaminated ambient air, set of five in bag

Filter pad set DG R 1/8, 5 pieces	74916199
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Z-angle bracket

L-angle bracket

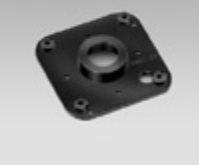
Coupler plug set

Lamp set

Ext. adjustment

Connecting set

PIA

Fastening adapt.



Accessories for DG, DL

Designation	Order no.
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Fastening material for DL

Motor flange adapter

Motor flange adapter for DL 5/10/50E	74916149
Motor flange adapter for DL 1-3E, 3-150A, 3-5K	74916157
Motor flange adapter for DL 5/10/50/150K	74916156
Motor flange adapter for DL 2/4/14/35E; 3,5/4,5/8/16/24/40K	74920415
Securing clip S for DL 2/4/14/35E	34335764

For attachment to the side of the pressure port

Securing clip D white for DL 2/4/14/35E	74921513
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For attachment to the three other sides

Securing clip D blue for DL 2/4/14/35E	74921512
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Miscellaneous parts

Cover plate spare parts set DL/DG	74924464
Screw plug R 1/4	03552302
Seal 1/4", 13x18, 1x1.5	03720763
Grommet DL 1/3/5/10/50E, IP 42	34328197
Grommet DL 1/3/5/10/50E, IP 44	34330703
Grommet DL 2/4/14/35E, IP 44	34919801
Adapter for line entrance M16 to M20 (5 ea.)	74921725
Cable gland M16 with adapter from PG 11	74921152

Tube sets (for air only)

With 2 m PVC tube, 2 duct connection flanges with screws, R

1/4 and R 1/8 connecting nipples for DG and DL

Tube set DG, DL (only for air)	74912952
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With 2 m PVC tube, 2 duct connection flanges with screws

Tube set DL (without connecting nipple)	74915366
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With 2 m PVC tube, 2 duct connection flanges with screws, 2 x 90 mm extensions, 2 angle connectors

Tube set DL with angle connector and extension	74919272
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3/2-way valve for checking the air pressure switch break contact

3/2-way solenoid valve	59900310
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Socket, 2+PE, design B	59002520
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Calibration report for pressure switch

Required information:

- Installation position (vertical, horizontal or upside down)

- Switching point (On or Off)

- Set value (see pressure ranges for different types)

Switching point calibration report for pressure switch	without No.
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Weather protection cover

Weather protection cover for DG..U/B/I (restricted installation position)

Weather protection cover for DG..U/B/I (restricted installation position)	on request
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Securing clip



Securing clip



IP 42 + IP 44



M16 – M20



PG 11 – M16



Tube set



Automatic burner control units

Burner control units for multiple burner applications with central fan.

Type designation	Con- tinuous opera- tion	Air con- trol	Ignition type	Max. signal line length	Behaviour in the event of flame failure	Gas valve outputs
IFD 244	yes	no	direct	75 m	restart	1
IFD 244..I	yes	no	direct	1 m	restart	1
IFD 258	yes	no	direct	75 m	switchable	1
IFD 258..I	yes	no	direct	1 m	switchable	1
BCU 400	yes	optional	direct/pilot	5/50 m	programmable	2
BCU 56x	yes	optional	direct	100 m	programmable	3
BCU 580	yes	optional	Gas pilots	100 m	programmable	4
PFU	yes	optional	direct/pilot	100 m	programmable	2

Burner control units BCU 370, BCU 570

Burner control unit for modulating single or forced draught burners.

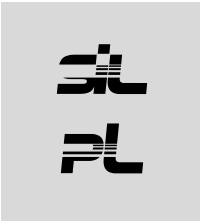
Type designation	Con- tinuous opera- tion	Air con- trol	Ignition type	Max. signal line length	Behaviour in the event of flame failure	Gas valve outputs
BCU 370	yes	yes	direct/pilot	1/50 m	programmable	3
BCU 570	yes	yes	direct/pilot	100 m	programmable	4

Protective system control FCU 500

For monitoring and controlling central safety functions in multiple burner systems on industrial furnaces

- Gas pressure monitoring
- Air pressure monitoring
- Pre-purge
- Tightness test or proof of closure function (optional)
- Temperature monitoring (optional)
- Fieldbus connection (optional)

FCU 500



Protective system control FCU 500

Type code

FCU	Protective system control
500	Series 500
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
C0	No valve proving system
C1	Valve proving system
F0	No capacity control
F1	Modulating with IC interface
F2	Modulating with RBW interface
H0	No temperature monitoring
H1	With temperature monitoring
K0	No connection plugs
K1	Connection plugs with screw terminals
K2	Connection plugs with spring force terminals
-E	Individual packaging

Technical
Information
FCU 500

For monitoring and controlling central safety functions in multiple burner systems on industrial furnaces, checking of the valves and system for tightness using a valve proving system, safe recording of the furnace chamber temperature on high temperature equipment by a temperature monitor or temperature limiter, long service life due to replaceable load module for fail-safe outputs, can be programmed according to customer requirements, EU certified, FM and EAC approved, certified for systems up to SIL 3 (compliant with PL e), FCU..H0: CSA approved.

Designation	Order no.
For staged control	
FCU 500WC0F0H0K1-E	88621025
For staged control, integrated valve proving system	
FCU 500WC1F0H0K1-E	88621026
For modulating control using actuators IC	
FCU 500WC0F1H0K1-E	88621012
For modulating control using actuators IC, integrated valve proving system	
FCU 500WC1F1H0K1-E	88621027
For staged control, temperature monitoring	
FCU 500WC0F0H1K1-E	88621106
For staged control, temperature monitoring, integrated valve proving system	
FCU 500WC1F0H1K1-E	88621092
For modulating control using actuators IC, temperature monitoring	
FCU 500WC0F1H1K1-E	88621102
For modulating control using actuators IC, temperature monitoring, integrated valve proving system	
FCU 500WC1F1H1K1-E	88621103

Versions

FCU 500..K1 with connection plugs with screw terminals surcharge
FCU 500..K2 with connection plugs with spring force terminals . . . surcharge

Accessories for FCU 500

Designation	Order no.
Connection plugs with screw terminals	
Connection plugs FCU 500+BCU 56x/580..K1	74923998
Connection plugs with spring force terminals	
Connection plugs FCU 500+BCU 56x/580..K2	74924000

Automatic burner control units for continuous operation IFD 244, IFD 258

Type code

IFD	Automatic burner control unit for continuous operation
2	Series 200
4	Ionization control
5	Ionization or UV control
4	Restart in the event of flame failure
8	Immediate fault lock-out or restart, switchable
-3	Safety time on start-up: 3 s
-5	Safety time on start-up: 5 s
-10	Safety time on start-up: 10 s
/1	Safety time operation: 1 s
W	Mains voltage 230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
Y	Mains voltage 200 V AC, 50/60 Hz
P	Mains voltage 100 V AC, 50/60 Hz
I	Integrated electronic ignition

Automatic burner control units for monitoring and control of gas burners, approved for continuous operation, 1 valve connection, IP 54, EU certified, AGA, FM, CSA and EAC approved.

IFD 244



Automatic burner control units IFD 244

Ionization control, 230 V AC, for grounded mains.

Designation	Order no.
IFD 244-3/1W	84621025
IFD 244-5/1W	84621045
IFD 244-10/1W	84621065
With integrated electronic ignition	
IFD 244-3/1WI	84621026
IFD 244-5/1WI	84621046
IFD 244-10/1WI	84621066

[Technical Information IFD 244](#)

IFD 258



Automatic burner control units IFD 258

In conjunction with UV sensor UVS, only intermittent operation available, single-electrode operation possible.

Designation	Order no.
230 V AC, for grounded and ungrounded mains	
IFD 258-3/1W	84621610
IFD 258-5/1W	84621630
IFD 258-10/1W	84621650
120 V AC, for grounded and ungrounded mains	
IFD 258-3/1Q	84621410
IFD 258-5/1Q	84621430
IFD 258-10/1Q	84621450

[Technical Information IFD 258](#)

IFD 258 also available in 100 V AC or 200 V AC version no surcharge

BCU 400



Burner control units BCU 400

Type code

BCU	Burner control unit
4	Series 400
40	Basic version
60	Standard version
65	Extended air control
80	Version for pilot and main burners
-3	1 st safety time on start-up: 3 s
-5	1 st safety time on start-up: 5 s
-10	1 st safety time on start-up: 10 s
/3	2 nd safety time on start-up: 3 s
/5	2 nd safety time on start-up: 5 s
/1	Safety time operation: 1 s
/2	Safety time operation: 2 s
L	Air valve control
R	Mains voltage 115 V AC, 50/60 Hz, for grounded and ungrounded mains
W	Mains voltage 230 V AC, 50/60 Hz, for grounded and ungrounded mains
1	Ignition transformer TZI 5-15/100
2	Ignition transformer TZI 7-25/20
3	Ignition transformer TZI 7,5-12/100
8	Ignition transformer TZI 7,5-20/33
GB	Front film in English with additional stickers in D, F, I, NL, E
P	Integrated industrial chassis plug, 16-pin*
D2/D3	Digital input for high temperature operation
S2-4	Number of start-up attempts, burner/pilot
/2-4	Number of start-up attempts, main burner
A	Air flow monitoring
U	Configured and prepared for UVD 1
C	With circuit board for signal distribution
B1	PROFIBUS DP interface
/1	Integrated Variosub PROFIBUS DP chassis socket, 9-pin**
E1	Voltage for valves and ignition transformer via L1

Technical
Information BCU 4

2

For controlling, igniting and monitoring impulse-controlled, modulating-controlled or stage-controlled gas burners, for continuous operation (in conjunction with UV sensor UVS, only intermittent operation available).

The burner control unit BCU® unites the functionally interrelated components of automatic burner control unit, ignition transformer, Automatic/Manual mode changeover switch and display of operating and fault statuses in a compact metal housing. It is used near the burner to be monitored. Display of the program status, unit parameters and flame signal. Diagnosis and adjustment of unit parameters via an optical interface, BCU 460/465/480 with Manual mode, BCU..L with air valve control, BCU..B1/1 with PROFIBUS DP interface, BCU 46x/480..D2/D3 with digital input for high temperature operation, can be programmed according to customer requirements, EU certified, AGA, FM, CSA and EAC approved, certified for systems up to SIL 3 (compliant with PL e).

Designation	Order no.
For directly ignited burners of unlimited capacity	
BCU 460-3/1W1GBE1	88610893
BCU 460-3/1W3GBE1	88610894
BCU 460-5/1W1GBE1	88610895
BCU 460-5/1W3GBE1	88610896
For directly ignited burners of unlimited capacity, with air valve control	
BCU 460-3/1LW1GBE1	88610897
BCU 460-3/1LW3GBE1	88610898
BCU 460-5/1LW1GBE1	88610899
BCU 460-5/1LW3GBE1	88610900
With extended air control	
BCU 465-3/1LW1GBACE1	88610901
BCU 465-3/1LW3GBACE1	88610902
BCU 465-5/1LW1GBACE1	88610903
BCU 465-5/1LW3GBACE1	88610904
For pilot and main burners of unlimited capacity, both burners can be monitored independently, with air valve control	
BCU 480-5/3/1LW1GBE1	88610905
BCU 480-5/3/1LW3GBE1	88610906
BCU 480-10/3/1LW1GBE1	88610907
BCU 480-10/3/1LW3GBE1	88610908

Designation	Order no.
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Versions

BCU..R, mains voltage 115 V AC, 50/60 Hz	no surcharge
BCU..P with 16-pin industrial chassis plug	surcharge
BCU..D2/D3 with digital input for high temperature operation	surcharge
BCU..U configured for continuous operation using UVD 1	surcharge
BCU..C with circuit board for signal distribution	surcharge
BCU..B1/1 with PROFIBUS DP interface and 9-pin Variosub PROFIBUS DP chassis socket	surcharge

* Corresponding line socket must be ordered separately, cf. Accessories

** Corresponding line plug must be ordered separately, cf. Accessories

2

Line socket



Accessories for BCU 400

Designation	Order no.
-------------	-----------

Line socket for BCU..P, 16-pin	74919469
External securing bar for BCU 400	74960414
Fastening set BCU 400	74960422
Variosub PROFIBUS DP line plug for BCU..B1/1, 9-pin	74960431

Ext. fastening



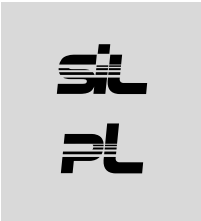
Fastening set



Variosub



BCU 500



Burner control units BCU 560, BCU 565, BCU 580

Type code

BCU	Burner control unit
5	Series 500
60	Standard version
65	Extended air control
80	Version for pilot and main burners
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
C0	No valve proving system
C1	Valve proving system
F0	No capacity control
F1	Modulating with IC interface
F2	Modulating with RBW interface
F3	Air valve control
U0	Ionization or UV control in case of operation with gas
D0	No high temperature operation
D1	High temperature operation
K0	No connection plugs
K1	Connection plugs with screw terminals
K2	Connection plugs with spring force terminals
-E	Individual packaging

Technical
Information
BCU 560, 565

For controlling, igniting and monitoring impulse-controlled, modulating-controlled or stage-controlled gas burners, for continuous operation (in conjunction with UV sensor UVS, only intermittent operation available).

The burner control unit BCU® unites the functionally interrelated components of automatic burner control unit, Manual/Automatic mode changeover and display of operating and fault statuses in a compact plastic housing for mounting on a DIN rail in a control cabinet. Display of the program status, unit parameters and flame signal. Diagnosis and adjustment of unit parameters via an optical interface, BCU 56x/580 with Manual mode, BCU..F1-F3 with capacity control, BCU 56x/580..D1 with digital input for high temperature operation, BCU 56x/580..C1 with valve proving system, can be programmed according to customer requirements, EU certified, AGA, FM, CSA and EAC approved, certified for systems up to SIL 3 (compliant with PL e).

Designation	Order no.
For directly ignited burners of unlimited capacity	
BCU 560WC0F0U0D0K1-E	88670029
For directly ignited burners of unlimited capacity, with capacity control	
BCU 560WC0F3U0D0K1-E	88670187
With extended air control	
BCU 565WC0F3U0D0K1-E	88670185
For pilot and main burners of unlimited capacity, both burners can be monitored independently, with capacity control	
BCU 580WC0F1U0D0K1-E	88670186

Versions

Valve proving system

BCU 5..C1 surcharge

Capacity control

BCU 5..F1 surcharge

BCU 5..F2 surcharge

BCU 5..F3 surcharge

High temperature operation

BCU 5..D1 surcharge

BCU 5..D2 surcharge

Connection plugs

BCU 5..K1 surcharge

BCU 5..K2 surcharge

Accessories for BCU 500

Designation	Order no.
Connection plugs with screw terminals	
Connection plugs FCU 500+BCU 56x/580..K1	74923998
Connection plugs with spring force terminals	
Connection plugs FCU 500+BCU 56x/580..K2	74924000



Flame detector IFW 15

For flame detection or multi-flame control in conjunction with BCU 5, for intermittent operation, with ionization or UV control.

[Brochure IFW 15](#)

Designation	Order no.
220/240 V AC, for grounded and ungrounded mains	
IFW 15-T	84359020
110/120 V AC, for grounded and ungrounded mains	
IFW 15-N	84359030



Burner control units PFU 700

[Technical Information PFU 7](#)

Type code	
PFU	Burner control unit
7	Series 700
60	Standard version
80	Version for pilot and main burners
L	Air valve control
T	Mains voltage 220/240 V AC, 50/60 Hz, for grounded and ungrounded mains
N	Mains voltage 110/120 V AC, 50/60 Hz, for grounded and ungrounded mains
D	Digital input for high temperature operation
U	Configured and prepared for UVD 1
K1	Replacement for PFS/PFD
K2	Replacement for PFU 778/798

19" rack-mounted burner control unit, for controlling, igniting and monitoring impulse-controlled, modulating-controlled or stage-controlled gas burners, for continuous operation (in conjunction with UV sensor UVS, only intermittent operation available). Display of the program status, unit parameters and flame signal; Manual mode for burner adjustment and for diagnostic purposes; visualization and adaptation to the specific application via the PC programming and diagnostic software BCSoft. Optionally available with air valve control and PROFIBUS DP connection via fieldbus interface PFA, FM, EAC and AGA approved, certified for systems up to SIL 3 (compliant with PL e).

Designation	Order no.
For directly ignited burners	
Safety time on start-up: 3 s	
PFU 760LT	88650016
Safety time on start-up: 5 s	
PFU 760LT	88650011
For directly ignited burners, with digital input for high temperature operation	
Safety time on start-up: 3 s	
PFU 760LTD	88650377
Safety time on start-up: 5 s	
PFU 760LTD	88650378
For directly ignited burners, with multi-flame control	
Safety time on start-up: 3 s	
PFU 760LT	88650135
Safety time on start-up: 5 s	
PFU 760LT	88650136
For pilot and main burners of unlimited capacity	
1 st safety time on start-up: 5 s, 2 nd safety time on start-up: 3 s	
PFU 780LT	88650133
1 st safety time on start-up: 10 s, 2 nd safety time on start-up: 3 s	
PFU 780LT	88650134



Designation	Order no.
For pilot and main burners of unlimited capacity, with digital input for high temperature operation	
1 st safety time on start-up: 5 s, 2 nd safety time on start-up: 3 s	
PFU 780LTD	88650379
1 st safety time on start-up: 10 s, 2 nd safety time on start-up: 3 s	
PFU 780LTD	88650380

Versions

PFU..N, mains voltage 110–120 V AC, 50/60 Hz	no surcharge
PFU..U configured and prepared for continuous operation using UVD 1	no surcharge
PFU without air valve control	reduction

PFU 760/780 as replacement for PFS/PFD/PFU

Replacement for PFS/PFD

Pre-set at the factory for adjustment to the product which is to be replaced. Please quote the order number, mains voltage, the settings of switches S1–S5 and the position of potentiometer P1 when ordering.

Replacement for PFU

Pre-set at the factory for adjustment to the product which is to be replaced. Please quote the order number and device parameters when ordering.

A separate opto-adapter and the BCSoft PC software are required to configure the PFU 760/780. The mains voltage is not adjustable.

Old	New	Application
PFS/PFD 778..S	PFU 760..K1	Direct ignition, no air valve control
PFS/PFD 778..M	PFU 760..K1	Direct ignition, programmable multi-flame control
PFS/PFD 778..L	PFU 760..L..K1	Direct ignition, air valve control
PFS/PFD 778..D	PFU 760..L..K1	Direct ignition, air valve control, programmable multi-flame control
PFU 778	PFU 760..L..K2	Direct ignition, air valve control
PFU 798	PFU 780..L..K2	Pilot/main burner, air valve control



BGT

Module subrack BGT S-9U/1 for PFU 760, PFU 780

consisting of:

module subrack, printed-circuit board with rear terminal strip, function-tested, standard documentation, guide rails, without partial front plates, screw terminals at the rear. Slots 1 – 9 for PFU 760 or PFU 780, slot 10 for PFP 700

Designation	Order no.
BGT S-9U/1	84402281
Other versions	on request



PFF 704

Flame detector PFF

For flame detection or multi-flame control in conjunction with PFU, with 4 independent flame detectors, mains voltage switchable from 110/120 V AC to 220/240 V AC, 50/60 Hz.

Designation	Order no.
For intermittent operation, with ionization or UV control	
PFF 704T/N	84372510

PFR 704



Relay module PFR 704

For signal decoupling, controlled by 24 V DC/AC, 110/120 V AC or 220/240 V AC, with 4 independent relays.

Designation	Order no.
PFR 704T/N/K/H	84373510

PFP 700



Power supply PFP 700

For supplying the control inputs of burner control units PFU, output rating: 24 V DC, 600 mA, mains voltage switchable from 110/120 V AC to 220/240 V AC, 50/60 Hz.

Designation	Order no.
PFP 700T/N	84366510

PFA



Fieldbus interface PFA

Type code

PFA	Fieldbus interface
7	Series 700
00	Standard version
10	Version for pilot and main burners
T	Mains voltage 220/240 V AC, 50/60 Hz
N	Mains voltage 110/120 V AC, 50/60 Hz

Technical
Information PFA,
BGT

For interworking of burner control units PFU to PROFIBUS DP. With the PFA 700 in module subrack BGT SA-9U/1-DP700, a maximum of nine burner control units PFU 760 can be controlled via the PROFIBUS DP, while with the PFA 710 in module subrack BGT SA-8U/1-DP710 the maximum is eight burner control units PFU 780.

The fieldbus interface PFA 700/710, together with the module subrack BGT, complies with the Low Voltage Directive (2006/95/EC) and the EMC Directive (2004/108/EC). It includes an integrated power supply for the bus interface and the inputs of the burner control units as well as code switches for addressing.

Designation	Order no.	
Standard version		
PFA 700T	84395111	1,012.40
PFA 700N	84395112	1,012.40
Version for pilot and main burners		
PFA 710T	84395113	1,164.30
PFA 710N	84395114	1,164.30
Replacement for PFA 700A (84395100)*		
PFA 700T with PROFIBUS plug	84395101	1,012.40
PFA 700N with PROFIBUS plug	84395102	1,012.40

* For replacing the PFA 700A (84395100) in existing systems with BGT SA-9U/1DP (84402283), the enclosed PROFIBUS plug with protective circuit must be used.

Accessories for PFA

Designation	Order no.
PROFIBUS plug with protective circuit	74960621

BGT

Module subrack BGT SA for PFA 700/PFU 760 and PFA 710/ PFU 780

consisting of:

module subrack, printed-circuit board with rear terminal strip, function-tested, standard documentation, guide rails, without partial front plates, screw terminals at the rear, relays and screw terminals for four free inputs and four free outputs, connection to PROFIBUS DP with D-Sub socket.

BGT SA-9: slot 1 for PFA 700, slots 2-10 for PFU 760,

BGT SA-8: slot 1 for PFA 710, slots 2-9 for PFU 780

Designation	Order no.
BGT SA-9U/1 DP700	84402291
BGT SA-8U/1 DP710	84402292

MPT 700

Impulse system MPT 700

For all gas-fired heat-treatment furnaces where recirculation of the furnace atmosphere ensures a constant temperature distribution, thereby allowing shorter heating-up periods. For converting a controller signal to switch-on/switch-off times for gas burners in the case of intermittent operation, linear response between actuating signal and burner capacity, control of up to 8 burners, various operating modes, single- and two-zone operation, mains voltage: 110-240 V AC, 50/60 Hz.

Designation	Order no.
MPT 700A	84395050

[Brochure MPT 700](#)

2

BGT

Module subrack BGT SM-8U/1/1 for MPT 700 and PFU 760, PFU 780

consisting of:

module subrack, printed-circuit board with rear terminal strip, function-tested, standard documentation, guide rails, without partial front plates, screw terminals at the rear, single-zone operation for MPT 700 operating modes 1-4, two-zone operation for MPT 700

operating modes 1-4, but max. 4 burners per zone.

Slot 1 for MPT 700, slots 2 – 9 for PFU 760 or PFU 780, slot 10 for PFP 700

Designation	Order no.
BGT SM-8U/1/1	84402282
Other versions	on request

Accessories for 19" boards

Designation	Order no.
Rack-mounted fan modules	
19" rack-mounted fan module 3U/84HP, 115 V AC	04065415
19" rack-mounted fan module 3U/84HP, 230 V AC	04065416
For PFX 7xx	
Socket connector E, 48-pin solder tag connection	04120148
Socket connector E, 48-pin wire-wrap connection	04120158
For MPT 700	
Socket connector F, 48-pin solder tag connection	04120143
Socket connector F, 48-pin wire-wrap connection	04120142

Customized 19" module subrack 3U/84HP for PFU, PFF, PFR, PFP and MPT 700

Module subrack for Kromschroder process firing systems of the series 700 (PFU, PFF, PFR, PFP and MPT 700), consisting of: module subrack, customized wiring (wire wrap) with rear terminal strip, function check, customer-specific documentation, guide rails and where necessary partial front plates, also in wall-mounted housing for electronics.



Burner control units BCU 370

Technical
Information
BCU 370

Type code

BCU	Burner control unit
370	Series 370
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
-	Without ignition
I1	Electronic ignition, single-pole
I2	Electronic ignition, double-pole
I3	Electronic ignition, double-pole with neutral conductor
F	Fan control
E	Valve control
U0	Ionization control (continuous op.) or UV control (intermittent op. with UVS)
U1	UV control (continuous operation with UVD 1)
D1	DGmax. monitoring
D3	Integrated tightness control
B1	PROFIBUS DP interface
-3	Three-point step control via PROFIBUS DP

For controlling, igniting and monitoring industrial forced draught burners of unlimited capacity in intermittent or continuous operation (in conjunction with UV sensor UVS, only intermittent operation available) for applications pursuant to EN 676.

It can be used for directly ignited forced draught burners or forced draught burners ignited with a gas pilot. Programmable via an optical interface and the PC software BCSoft, with optional quick start without pre-purge, display of the program status, unit parameters and flame signal, integrated Manual mode for manual burner start, BCU 370..D3 with tightness control function, BCU 370..B1 with PROFIBUS DP interface, can be programmed according to customer requirements, EU certified, AGA, FM, CSA (USA, Canada) and EAC approved, UL listed.

Designation	Order no.
Without ignition; DGmax. monitoring	
BCU 370WFEU0D1	88600015
Without ignition; integrated tightness control	
BCU 370WFEU0D3	88600023
Electronic ignition, single-pole*; DGmax. monitoring	
BCU 370WI1FEU0D1	88600001
Electronic ignition, single-pole*; integrated tightness control	
BCU 370WI1FEU0D3	88600206
Versions	
BCU 370..B1 with PROFIBUS DP interface, connection in the lower section of the housing	surcharge
BCU 370..B1-3 with three-point step control via PROFIBUS DP	surcharge

* Note the cable length and ignition energy (cf. Technical Information)

BCU 570



Burner control units BCU 570

Type code

BCU	Burner control unit
570	Series 570
Q	Mains voltage 120 V AC, 50/60 Hz
W	Mains voltage 230 V AC, 50/60 Hz
C0	No valve proving system
C1	Valve proving system
F1	Modulating with IC interface
F2	Modulating with RBW interface
U0	Ionization or UV control in case of operation with gas
K0	No connection plugs
K1	Connection plugs with screw terminals
K2	Connection plugs with spring force terminals
-E	Individual packaging



For controlling, igniting and monitoring single or forced draught burners of unlimited capacity in continuous operation (in conjunction with UV sensor UVS, only intermittent operation available) for applications pursuant to EN 746-2. For directly ignited burners or burners ignited with a gas pilot, programmable via an optical interface and PC software BCSOFT, performs central safety functions such as pressure monitoring, valve check, pre-purge and control of an actuator, for mounting on a DIN rail in a control cabinet, can be programmed according to customer requirements, AGA, FM, CSA and EAC approved, UL listed, EU certified, certified for systems up to SIL 3 (compliant with PL e).

Designation	Order no.
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For 230 V AC, modulating with IC interface, connection plugs with screw terminals

BCU 570WC0F1U0K1-E 88660053

For 230 V AC, modulating with RBW interface, connection plugs with spring force terminals

BCU 570WC0F2U0K1-E 88660059

Versions

BCU 570..C1 with valve proving system surcharge

BCU 570..K1 with connection plugs with screw terminals surcharge

BCU 570..K2 with connection plugs with spring force terminals ... surcharge

Accessories for BCU 500

Designation	Order no.
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Connection plugs with screw terminals

Connection plugs BCU 570..K1 74923997

Connection plugs with spring force terminals

Connection plugs BCU 570..K2 74923999

OCU



Operator-control unit OCU for FCU/BCU 5xx

Operator-control unit OCU for connection to a unit of the FCU/BCU 5xx product series. Display of device status in plain text, language can be changed, display of process values, statistics and unit parameters, control and adjustment of connected butterfly valves in Manual mode, for mounting on a control cabinet door, enclosure IP 65, designed for 23 mm holes in a 30 mm mounting grid, connection to control unit via 4-pin control line, cable lengths up to 10 m, suitable plugs supplied with OCU.

Designation	Order no.
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Switchable display: D, GB, F, NL, I, E

OCU 500-1 84327030

Switchable display: GB, DK, S, N, TR, P

OCU 500-2 84327031

Switchable display: GB, USA, E, P (BR), F

OCU 500-3 84327032

Switchable display: GB, RUS, PL, HR, RO, CZ

OCU 500-4 84327033

BCM 500



Bus module BCM 500 for FCU/BCU 5xx

Bus module BCM 500 for connection of FCU/BCU 5xx units to an automation system (Profinet), start, reset and capacity adjustment can be controlled using the fieldbus. The current program status, the signal status of the inputs and outputs (FCU/BCU) as well as the flame signal and statistical data can be read via the fieldbus.

Designation	Order no.
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Profinet interface for standard communication

BCM 500S0B2/3-3	74960663
BCM 500S0B4/3-3	74960688

PCO 200



Opto-adapter for devices with optical interface

Opto-adapter for the diagnosis and parameterization of BCU, PFU and FCU as well as IC 40. Adapter with magnet holder for connecting to the device interface. PCO 200 with USB 2.0 interface. Cable length 3 m. PCO 300 with Bluetooth interface. Software: for Windows 98 and higher, overview of the process values, setting and documentation for the unit parameters, reading out of statistical data, line recorder function.

Designation	Order no.
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PCO 200 including BCSOft CD-ROM	74960625
PCO 300 including BCSOft CD-ROM	74960617

PCO 300



Accessories for automatic burner control units

Designation	Order no.
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Surge voltage protector 500 V	74960444
Diode GP10Y, 1 A, 1600 V	74960443

High-voltage cable

Designation	Order no.
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High-voltage cable FZLK 1/7, -5 to +80°C	04250409
High-voltage cable FZLSi 1/7, -50 to +180°C	04250410

2



Ignition transformers TZI, TGI

Type code

TZI	Ignition transformer
TGI	Ignition transformer, enclosed
5	5 kV high voltage
7	7 kV high voltage
7,5	7,5 kV high voltage
-12	Output current 12 mA at 50 Hz (9 mA at 60 Hz)
-15	Output current 15 mA at 50 Hz (11 mA at 60 Hz)
-20	Output current 20 mA at 50 Hz (15 mA at 60 Hz)
-25	Output current 25 mA at 50 Hz (18 mA at 60 Hz)
/20	20% duty cycle
/33	33% duty cycle
/100	100% duty cycle
R	Mains voltage 115 V AC
W	Mains voltage 230 V AC

Ignition transformers for high-voltage spark ignition of gas or oil burners, suitable for ignition and monitoring with one or two electrodes.

Designation	Order no.
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For cabinet installation, enclosure IP 20

TZI 5-15/100W	84331381
TZI 7-25/20W	84327455
TZI 7,5-20/33W	84326116
TZI 7,5-12/100W	84331383
TZI 5-15/100R	84331382
TZI 7-25/20R	84335123
TZI 7,5-20/33R	84329111
TZI 7,5-12/100R	84331384

For on-site mounting, enclosure IP 65

TGI 5-15/100W	84391065
TGI 7-25/20W	84391080
TGI 7,5-20/33W	84391020
TGI 7,5-12/100W	84391045
TGI 5-15/100R	84391075
TGI 7-25/20R	84391090
TGI 7,5-20/33R	84391030
TGI 7,5-12/100R	84391055

Ignition transformers for 100 V on request

Accessories

100 m per coil

Designation	Order no.
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High-voltage cable FZLK 1/7, -5 to +80°C	04250409
High-voltage cable FZLSi 1/7, -50 to +180°C	04250410


FE, FZE

Ignition and sensing electrodes FE, FZE

Electrodes for ignition and monitoring of gas burners, made of Kanthal A1, insulated or bare.

Designation	Order no.
FE 200	34433320
FZE 300	34434610
FZE 400	34434612
FZE 500	34434613
FZE 600	34434614
FZE 300 insulated	74434610
FZE 400 insulated	74434612
FZE 500 insulated	74434613
FZE 600 insulated	74434614

Longer electrodes can be supplied, if desired on request


Technical
Information FE,
FZE

2


Terminal boots

Accessories

Designation	Order no.
Electrode holder	
Electrode holder for FE	75442337
Adapter piece R1/2 - M14 x 1.25	34453650
Right-angle or straight terminal boots	
Right-angle terminal boot, \varnothing 4 mm	04115301
Right-angle terminal boot, \varnothing 4 mm, interference-suppressed	04115308
Straight terminal boot, \varnothing 4 mm	04115302
Straight terminal boot, \varnothing 6 mm, interference-suppressed	04115306
Right-angle terminal boot, \varnothing 4 mm, made of silicone rubber	04115309
Straight terminal boot, \varnothing 4 mm, made of ceramics	04115314
Right-angle terminal boot, \varnothing 4 mm, splash-proof	75459221
Sleeve type suppressor, e.g. for ZKIH	
Sleeve type suppressor HE1	04115319
Spark plugs for BIO, BIOA, ZIO, BIC, BICA, ZIC	
Spark plug M14 x 1.25 L35	34482170
Spark plugs for ZMI	
Spark plug M18 x 1.5 L50	34483591
Dowel pin for electrode wire d = 3.5 mm	
Connex light spring pin L4 x 40	74921607


Electr. spark plug

Dowel pin



UV sensors UVS

Type code

UVS	UV sensor
5	Series 5
10	Series 10
D	Quartz glass heat guard
L	Quartz glass heat guard lens
0	Rp 1/2 internal thread
1	Rp 1/2 internal thread and cooling air connection
4	UVS 1 adapter (28 mm (1.1"))
G1	M20 cable gland

Technical
Information UVS 10

UVS 10D0G1 re-places UVS 1 with heat guard.

UV sensors for monitoring gas burners in intermittent operation in conjunction with flame detectors or automatic burner control units, EU certified in conjunction with Kromschroder automatic burner control units.

Designation	Order no.
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Quartz glass heat guard

UVS 10D0G1	84315200
UVS 10D1G1	84315202
UVS 10D4G1	84315204

Quartz glass heat guard lens

UVS 10L0G1	84315201
UVS 10L1G1	84315203
Other versions	on request

UVS 5

UVS 5 G1	84333031
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Accessories

Designation	Order no.
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UV tube for UVS	74960445
Quartz glass disc with seal	74960612
Quartz glass lens with seal	74960611



UV flame detectors UVC

Type code

UVC	UV flame detector
1	Series 1
D	Quartz glass heat guard
L	Quartz glass heat guard lens
0	Rp 1/2 internal thread
1	Rp 1/2 internal thread and cooling air connection
G1	M20 cable gland
A	Mains voltage 100–230 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz

Technical
Information UVC 1

UV flame detectors for continuous operation, for monitoring gas burners in conjunction with Kromschroder burner control units BCU..U or PFU..U, in aluminium housing with connection terminals, EU certified, FM, CSA and EAC approved, certified for systems up to SIL 3 (compliant with PL e).

Designation	Order no.
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Quartz glass heat guard

UVC 1D0G1A	84320305
UVC 1D1G1A	84320301

Quartz glass heat guard lens

UVC 1L0G1A	84320304
UVC 1L1G1A	84320300

Accessories

Designation	Order no.
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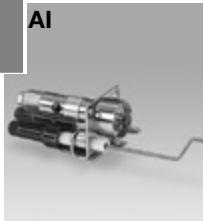
UV tube for UVC 1	74960684
Nozzle for cooling air adapter Rp 1/4, d = 4.5 mm /B	74960616

Gas pilots

Type code

ZAI	Gas pilot
ZMI	Gas pilot
ZMIC	Gas pilot with ceramic flame tube
ZKIH	Gas pilot
16	16 mm burner size (ZMI only)
25	25 mm burner size (ZMI only)
28	28 mm burner size (ZMIC only)
B	For natural gas (ZMI only)
G	For propane (ZMI only)
150-600	Protective tube length in mm
/50, /100	Flame tube length in mm
R	Rp internal thread
K	Double-cone olive

2



Gas pilot ZAI

Thermo gas pilot for safe ignition of atmospheric gas burners, capacity: approx. 3 kW.

[Brochure ZAI](#)

Designation	Order no.
ZAI K	84228010
Protective tube set ZAI	35437010



Gas pilot ZMI, ZMIC

Gas pilot with one spark/monitoring electrode for safe ignition of gas burners, with forced air supply.

[Technical Information ZMI](#)

Designation	Order no.
For 2 kW rated capacity, for natural gas	
ZMI 16B200R	84230020
ZMI 16B400R	84230040
ZMI 16B600R	84230060
For 2 kW rated capacity, for propane	
ZMI 16G200R	84230021
ZMI 16G400R	84230041
ZMI 16G600R	84230061
For 4 kW rated capacity, for natural gas	
ZMI 25B200R	84234020
ZMI 25B400R	84234040
ZMI 25B600R	84234060
For 4 kW rated capacity, for propane	
ZMI 25G200R	84234026
ZMI 25G400R	84234046
ZMI 25G600R	84234066
For 3 kW rated capacity, for natural gas, with ceramic flame tube	
ZMIC 28B300R	84199200



ZMIC..K with bellows unit (for an overall length of 400 mm or more)
surcharge

Other types of gas and lengths on request



Gas pilot ZKIH

Gas pilots with forced air supply for safe ignition of gas burners, capacity: 2-7 kW, for natural gas (max. 5 kW), propane and town gas.

[Technical Information ZKIH](#)

Designation	Order no.
ZKIH 150/100R	84214010
ZKIH 200/100R	84214020
ZKIH 300/100R	84214030
ZKIH 400/100R	84214040



Gas pilot ZIO 40

Gas pilot with forced air supply for safe ignition of gas burners, capacity: up to 20 kW, for natural gas, propane and town gas.

Type code ZIO

Designation	Order no.
ZIO 40HB-100/35-(1)B	84002017
ZIO 40HB-200/135-(1)B	84002027
ZIO 40HB-300/235-(1)B	84002037
ZIO 40HB-400/335-(1)B	84002047



Control valves S11T

Type code

S11T	Control valve
15-25	Nominal sizes
R	Rp internal thread
01	p _u max. 100 mbar
15	p _u max. 1500 mbar
S	With switch

[Technical Information S11T, ZTA, ZT 40..A, ZT 40../100, ZTI 55](#)

Control valves for thermo-electric safeguarding of gas-fired installations of any kind in conjunction with thermo gas pilots ZT, independent of mains power supply, closing time below 30 s, EU certified.

Designation	Order no.
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For manual ignition

S11T 15R01	34156010
S11T 20R01	34157010
S11T 25R01	34158010
S11T 15R15	34156030
S11T 25R15	34160010

With switch to control an ignition transformer

S11T 15R01S	34156020
S11T 20R01S	34157020
S11T 25R01S	34158020
S11T 15R15S	34156040
Thermo-cable and grounding cable NYA 6 mm ²	04250404



Gas pilots ZTA

Thermo gas pilots, with spark electrode for electrical ignition.

[Technical Information S11T, ZTA, ZT 40..A, ZT 40../100, ZTI 55](#)

Designation	Order no.
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Natural gas

ZTA B	84221018
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LPG

ZTA G	84221019
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Town gas nozzle

Nozzle ZTA/ZTI d = 0.9	75457820
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Gas pilots ZT, ZTI

Type code

ZT	Thermo gas pilot for control valve S11T
ZTI	Atmospheric with additional flame rod
40, 55	Protective tube diameter in mm
B	Natural gas
G	LPG
D	Coke oven gas, town gas
-XXX	Protective tube length in mm
/100, /120	Flame tube length in mm
A	Atmospheric

Technical
Information S11T,
ZTA, ZT 40..A, ZT
40../100, ZTI 55

Thermo gas pilots either with forced air supply or atmospheric, with spark electrode for electrical ignition.

Designation	Order no.
-------------	-----------

Atmospheric

ZT 40B-100A	84221013
ZT 40G-100A	84221014
ZT 40D-100A	84221015

Forced air

ZT 40B-100/100	84221010
ZT 40G-100/100	84221011
ZT 40D-100/100	84221012

Atmospheric with additional flame rod

ZTI 55B-105/120A	84228210
ZTI 55G-105/120A	84228211
ZTI 55D-105/120A	84228212
Other lengths and types of gas	on request



Pressure gauges KFM, RFM

Type code

KFM	Pressure gauge with capsule element
RFM	Pressure gauge with Bourdon tube
0,6-16	Measuring range on RFM in bar
2500	Measuring range on KFM in Pa
25-400	Measuring range on KFM in mbar
R	Connection pin with cylindrical pipe thread
B	Positive pressure
U	Positive pressure and negative pressure
63	63 mm visible scale diameter
100	100 mm visible scale diameter

Pressure gauges with capsule element or Bourdon tube for pressure display, for gas and air, stainless steel housing.

Designation	Order no.
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100 mm diameter (G 1/2 connection, radial), zero point correction

KFM 20RU100	03200194
KFM 25RB100	03200138
KFM 40RB100	03200131
KFM 60RB100	03200159
KFM 100RB100	03200108
KFM 160RB100	03200124
KFM 250RB100	03200109
KFM 400RB100	03200157

100 mm diameter (G 1/2 connection, radial), zero point correction, Pascal

KFM 2500RB100	03200176
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100 mm diameter (G 1/2 connection, radial), zero point correction

RFM 0,6RB100	03200156
RFM 1,6RB100	03200111
RFM 4RB100	03200121
RFM 6RB100	03200125
RFM 10RB100	03200110
RFM 16RB100	03200155

63 mm diameter (G 1/4 connection, radial)

KFM 25RB63	03200177
KFM 40RB63	03200178
KFM 60RB63	03200179
KFM 100RB63	03200180
KFM 160RB63	03200181
KFM 250RB63	03200182

63 mm diameter (G 1/4 connection, radial)

RFM 0,6RB63	03200149
RFM 1,6RB63	03200150
RFM 4RB63	03200151
RFM 10RB63	03200152
RFM 16RB63	03200153

Other versions on request



Manual cock DH, pressure gauge shut-off valve MH

For protecting a pressure gauge against pressure fluctuations, for gas and air, DH: EU certified, MH: DVGW tested and registered.

Designation	Order no.
Rp 1/4, p_u max. 5 bar	
DH 8R50	03152141
Rp 1/2, p_u max. 5 bar	
DH 15R50	03152149
G 1/2, with clamping sleeve, p_u max. 100 bar	
MH 15	03150191
G 1/2, with clamping sleeve, p_u max. 100 bar, for aggressive media	
MH 15M	03150192
Pressure gauge seal 1/2" - Cu	03110615
Pressure gauge seal 1/4" - Cu	03110617
Pressure gauge seal 1/2" - PTFE	03110711

Positive pressure protection for pressure gauges UDS

Type code

UDS	Positive pressure protection for pressure gauges
2,5	Adjusting range 0.4-2.5 bar
6,0	Adjusting range 2.0-6.0 bar
25	Adjusting range 5.0-25 bar
M	Aggressive media

For protection against positive pressures exceeding the measuring range of the pressure gauges, adjustable, for gas and air, G 1/2 connection, DVGW tested and certified.

Designation	Order no.
UDS 2,5	03150621
UDS 6,0	03150623
UDS 25	03150625
UDS 2,5M	03150622
UDS 6,0M	03150624
UDS 25M	03150626

Technical
Information GEHV,
GEH, LEH



Flow adjusting cocks GEHV, GEH, LEH

Type code

GEHV	Flow adjusting cock for gas and air
GEH	Flow adjusting cock for gas
LEH	Flow adjusting cock for air
8-50	Nominal sizes
R	Rp internal thread
10	p _u max. 1 bar
40	p _u max. 4 bar
50	p _u max. 5 bar



Adjusting cocks for precise flow rate adjustment.

Designation	Order no.
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For gas: p_u max. 5 bar, for air: p_u max. 25 bar, operated by hand wheel with adjusting scale

GEHV 8	03152258
GEHV 10	03152259
GEHV 15	03152260
GEHV 20	03152261
GEHV 25	03152262
GEHV 40	03152264
GEHV 50	03152265

For gas, p_u max. 1 or 5 bar, spanner-operated

GEH 8R10	03352504
GEH 10R10	03352505
GEH 15R10	03352506
GEH 20R10	03352507
GEH 25R10	03352508
GEH 32R50	03352509
GEH 40R50	03352510
GEH 50R50	03352511

For air, p_u max. 4 bar, operated by hand wheel

LEH 25R40	03152101
LEH 40R40	03152102
LEH 50R40	03152103

Safety cap as spare part for LEH

Safety cap LEH 25 Rp-A	35447202
Safety cap LEH 40 Rp-A	35447201
Safety cap LEH 50 Rp-A	35444445



Restricting orifices with cap screw

Restricting orifices for varying the flow rate adjustment, consisting of 1 male coupling, flat sealing, 2 sealing rings and 1 washer with hole as per your requirements, drilling tolerance ±0.2 mm, d > 3 mm.

Designation	Order no.
-------------	-----------

Restricting orifice set DN 15	74911847
Restricting orifice set DN 20	74911848
Restricting orifice set DN 25	74911849
Restricting orifice set DN 40	74911850
Restricting orifice set DN 50	74911851



Stainless steel washers, drilled (d ≥ 3 mm), without cap screw and seals

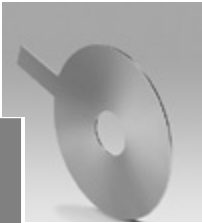
Designation	Order no.
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Orifice for 1/2", drilled	35441251
Orifice for 3/4", drilled	35441252
Orifice for 1", drilled	35441253
Orifice for 1 1/2", drilled	35441254
Orifice for 2", drilled	35441255



Stainless steel washers, predrilled (d = 3 mm), without cap screw and seals

Designation	Order no.
Orifice for 1/2", d = 3 mm	35439224
Orifice for 3/4", d = 3 mm	35439225
Orifice for 1", d = 3 mm	35436925
Orifice for 1 1/2", d = 3 mm	35436926
Orifice for 2", d = 3 mm	35436927



Restricting orifices for flange unions

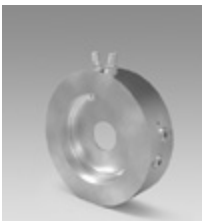
Stainless steel restricting orifices for varying the flow rate adjustment, for fitting between two flanges to DIN 2633 and 2566, orifice sizes for DN 80-150 with diameter stamped on lug visible from the outside, washer with hole as per your requirements, drilling tolerance ± 0.2 mm, $d > 3$ mm.

Designation	Order no.
Orifice for DN 50, drilled	35458298
Orifice for DN 65, drilled	35441256
Orifice for DN 80, drilled	35441257
Orifice for DN 100, drilled	35441258
Orifice for DN 125, drilled	35450878
Orifice for DN 150, drilled	35441259



Stainless steel washers, predrilled (d = 3 mm), for flange unions

Designation	Order no.
Orifice for DN 65, d = 3 mm	35440882
Orifice for DN 80, d = 3 mm	35440376
Orifice for DN 100, d = 3 mm	35440377
Orifice for DN 125, d = 3 mm	35456293
Orifice for DN 150, d = 3 mm	35440378



Orifice assemblies MBO

e.g. for measurement of gas flow rates on burners BBG, made of heat-resistant stainless steel, for fitting between two flanges, MBO with orifice diameter according to customer requirements without flow rate curve, drilling tolerance ± 0.2 mm.

Designation	Order no.
MBO 80, d = 32	74924087
MBO 80, d = 42	74924089
MBO 80, d according to customer requirements	74924145
MBO 100, d = 52	74924088
MBO 100, d = 62	74924090
MBO 100, d according to customer requirements	74924146

EKO..RA



Stainless steel bellows units EKO

Type code

EKO	Stainless steel bellows unit
15-200	Nominal size
RI	Rp internal thread
RA	R external thread
F10P	Flange with bore holes to PN 16, p _u max. 1 bar
F100P	Flange with bore holes to PN 16, p _u max. 10 bar
F	Flange with bore holes to PN 10, p _u max. 10 bar
Z	Hot-galvanized

EKO..RI



Stainless steel bellows units for stress-free pipe installation and to prevent transmission of vibration, for gas, air and water, with restricting orifice if desired, DVGW tested and registered.

Designation	Order no.
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EKO..F



High temperature resistant (HTR) version, cap screws with REINZ-AFM 34 type seal to DIN 3535, Part 6, at both ends, for gas: p_u max. 4 bar, for air: p_u max. 10 bar

EKO 15RA	03262041
EKO 20RA	03262043
EKO 25RA	03262045
EKO 32RA	03262047
EKO 40RA	03262049
EKO 50RA	03262051
EKO 15RI	03262042
EKO 20RI	03262044
EKO 25RI	03262046
EKO 32RI	03262048
EKO 40RI	03262050
EKO 50RI	03262052

High temperature resistant (HTR) version only in conjunction with WL-HT type flange seal (not included in the delivery), with flanges at both ends, cold-galvanized, for gas and air, EKO 250 and EKO 350 for air only

EKO 25F	03262053
EKO 32F	03262054
EKO 40F	03262055
EKO 50F	03262056
EKO 65F	03262057
EKO 80F	03262058
EKO 100F	03262059
EKO 125F	03262060
EKO 150F	03262061
EKO 200F	03262062
EKO 200F100P	03262073
EKO 250F10P	03262074
EKO 350F10P	03262075

High temperature resistant (HTR) version only in conjunction with WL-HT type flange seal (not included in the delivery), with flanges at both ends, hot-galvanized, for gas and air

EKO 40F-Z	03262065
EKO 50F-Z	03262066
EKO 65F-Z	03262067
EKO 80F-Z	03262068
EKO 100F-Z	03262069
EKO 125F-Z	03262070
EKO 150F-Z	03262071
EKO 200F-Z	03262072

Restricting orifices

If desired, V2A steel restricting orifices can be supplied for stainless steel bellows units EKO. Please send for a quotation.



Stainless steel flexible tubes ES

Type code

ES	Stainless steel flexible tube
8-100	Nominal size
RA	R external thread
F	Flange to EN 1092-1
500-1000	Length [mm]

Technical
Information EKO,
ES

Stainless steel flexible tubes for stress-free, flexible connection of devices and pipes and to prevent transmission of vibration,

ES..RA: p_u max. 5 bar for gas (MOP 5),

for air and water: ES 8–25RA: p_u max. 25 bar (PS 25), ES 32–50RA: p_u max. 16 bar (PS 16),

ES..F: p_u max. 16 bar for gas, air and water (MOP 16, PS 16),

DIN-DVGW tested and registered.

Designation	Order no.
ES 8RA500	03263001
ES 8RA800	03263004
ES 8RA1000	03263006
ES 10RA500	03263011
ES 10RA800	03263014
ES 10RA1000	03263016
ES 16RA500	03263021
ES 16RA800	03263024
ES 16RA1000	03263026
ES 20RA500	03263031
ES 20RA800	03263034
ES 20RA1000	03263036
ES 25RA500	03263041
ES 25RA800	03263044
ES 25RA1000	03263046
ES 32RA500	03263051
ES 32RA800	03263054
ES 32RA1000	03263056
ES 40RA500	03263061
ES 40RA800	03263064
ES 40RA1000	03263066
ES 50RA500	03263071
ES 50RA800	03263074
ES 50RA1000	03263076
ES 65F500	03263085
ES 65F850	03263086
ES 65F1000	03263087
ES 80F500	03263081
ES 80F800	03263083
ES 80F1000	03263088
ES 100F500	03263091
ES 100F800	03263084
ES 100F1000	03263096
Other lengths	on request

GRS



Non-return gas valves GRS, GRSF

Type code

GRSF	Non-return gas valve with flame arrester
GRS	Non-return gas valve
15-80	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
01	p _u max. 0.1 bar

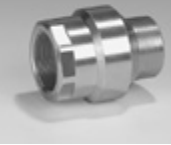
Non-return gas valves to prevent gas creepage or surge, for gas, air and oxygen, the max. inlet pressure depends on the gas type and nominal size, DVGW tested and registered.

Designation	Order no.
Not flame arresting	
GRS 15R	03150667
GRS 20R	03150668
GRS 25R	03150669
GRS 40R	03150670
GRS 50R	03150671
GRS 80F01	03150642
With flame arrester, flame arresting in the case of use with combustion air	
GRSF 15R	03150672
GRSF 20R	03150673
GRSF 25R	03150674
GRSF 40R	03150675
GRSF 50R	03150676
Adapter for length compensation	
Adapter for length compensation GRS 25R	03150677
Adapter for length compensation GRS 40R	03150678
Adapter for length compensation GRSF 25R	03150679
Adapter for length compensation GRSF 40R	03150680
Adapter for length compensation GRSF 50R	03150681

Welded fittings

Fittings and reducing fittings on request.

TAS 32-50



Thermal equipment trips TAS

Type code

TAS	Thermal equipment trip
32-50	Nominal size
I	Rp internal thread inlet connection
F	DIN flange inlet connection
I	Rp internal thread outlet connection
A	R external thread outlet connection
F	DIN flange outlet connection
50	p _u max. 5 bar
M	For biogas

Technical
Information TAS,
AKT..TAS

Automatically closing safety device, can be used pursuant to the German Firing System Directive and TRGI 86/96, steel fitting, resistant to high temperatures (HTR), trip temperature 100°C (-5K), suitable for natural gas, town gas, LPG, DVGW tested and registered.

Designation	Order no.
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Threaded connection

TAS 32IA50	03352457
TAS 40IA50	03352458
TAS 50IA50	03352459
TAS 32II50	03352460
TAS 40II50	03352461
TAS 50II50	03352462

For biogas, with threaded connection

TAS 15IA50M	03352541
TAS 20IA50M	03352543
TAS 25IA50M	03352545
TAS 32IA50M	03352548
TAS 40IA50M	03352551
TAS 50IA50M	03352554

Flanged connection on request

Test points



Pressure test points with seal

Designation	Order no.
Test point G 1/8 aluminium + AFM /B	75444352
Test point G 1/4 aluminium + AFM /B	74912868
Test point G 1/8 Ms + AFM /B	74918601
Test point G 1/4 Ms + AFM /B	74918602
Test point G 1/8 P aluminium + Viton /B	74923824
Test point G 1/4 P aluminium + Viton /B	74923390

Flow meters DM, DE

Type code

DM	Mechanical index
DE	Electronic index
10-1000	Nominal flow rate [m ³ /h]
R	Rp internal thread
Z	For fitting between two DIN flanges
25-150	Nominal size
-40	p _u max. 4 bar
-160	p _u max. 16 bar
B	M-Bus interface

DM..R



Flow meters DM

For metering gas where no calibration is required, display of the quantity consumed, with mechanical 7-digit display, with E1 and E200 pulse generators, for gas and air, DVGW tested and certified.

[Technical Information DM, DE](#)

Designation	Order no.
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p_u max. 4 bar

DM 10R25-40	03200378
DM 16R25-40	03200379
DM 25R25-40	03200380
DM 40R25-40	03200381
DM 40R40-40	03200386
DM 65Z50-40	03200382
DM 100Z80-40	03200390
DM 160Z80-40	03200391
DM 250Z100-40	03200392
DM 400Z100-40	03200402
DM 400Z150-40	03200387
DM 650Z150-40	03200388
DM 1000Z150-40	03200389

p_u max. 16 bar

DM 10R25-160	03352493
DM 16R25-160	03352494
DM 25R25-160	03352495
DM 40R25-160	03352496
DM 40R40-160	03352497
DM 65Z50-160	03200423
DM 100Z80-160	03200424
DM 160Z80-160	03200425
DM 250Z100-160	03200426
DM 400Z100-160	03200427
DM 400Z150-160	03200428
DM 650Z150-160	03200429
DM 1000Z150-160	03200430

Spare coupler plug

Coupler plug E1 and E200	04115179
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DM..Z



DE..Z



Flow meters DE

For metering gas where no calibration is required, display of the quantity consumed, key-date value, key date, current flow rate and high resolution of the quantity consumed, with E200 pulse generator, for gas and air, DVGW tested and certified.

Technical
Information DM,
DE

Designation	Order no.
p_u max. 4 bar, with M-Bus interface, quote primary address when ordering	
DE 10R25-40B	03352381
DE 16R25-40B	03352382
DE 25R25-40B	03352383
DE 40R25-40B	03352384
DE 40R40-40B	03352385
DE 65Z50-40B	03352386
DE 100Z80-40B	03352387
DE 160Z80-40B	03352388
DE 250Z100-40B	03352389
DE 400Z100-40B	03352390
DE 400Z150-40B	03352391
DE 650Z150-40B	03352392
DE 1000Z150-40B	03352393
p_u max. 16 bar, with M-Bus interface, quote primary address when ordering	
DE 10R25-160B	03352488
DE 16R25-160B	03352489
DE 25R25-160B	03352490
DE 40R25-160B	03352491
DE 40R40-160B	03352492
DE 65Z50-160B	03352480
DE 100Z80-160B	03352481
DE 160Z80-160B	03352482
DE 250Z100-160B	03352483
DE 400Z100-160B	03352484
DE 400Z150-160B	03352485
DE 650Z150-160B	03352486
DE 1000Z150-160B	03352487
Spare cable	
M-Bus cable M-MKWZR	03352148

Adjustment parts for flow meters DM, DE

Designation	Order no.
Adjustment part for DM/DE, R 1"	86571798
Adjustment part for DM/DE, R 1 1/2"	86571813
Adjustment part for DM/DE, DN 50	86571797
Adjustment part for DM/DE, DN 80	86571799
Adjustment part for DM/DE, DN 100	86571800
Adjustment part for DM/DE, DN 150	86575629

Exhausts ABG

Type code

ABG	Exhaust
25	Connection pipe nominal diameter: DN 25
50	Connection pipe nominal diameter: DN 50
/40	Exhaust nominal diameter: DN 40
/80	Exhaust nominal diameter: DN 80

Exhaust for gas pressure control and measuring systems, type A to DVGW note G 442 for the safe discharge of gases into the atmosphere, for connecting exhaust lines, breather lines and safety relief valves, relief and exhaust lines should discharge non-combusted gas safely and must be routed straight into the open air. Potentially explosive areas may be created at the discharge points of relief and exhaust lines. For the operator, the knowledge of the spatial extent of the potentially explosive areas is required so that action can be taken to avoid ignition sources and so that gas can therefore be discharged safely. Steel P235GH, DIN EN 10216-2, welded, hot-galvanized, length of the exhaust with connection pipe: 1100 mm. The connection pipe has smooth pipe ends. A connection can be made by welding, screw connection with threaded fittings or by clamp connectors for steel pipes.

Designation	Order no.
ABG 25/40	03165011
ABG 50/80	03165013

Unit Conversion Table



Unit conversion table (metric)

Length

	inch (m)	foot (ft)	mile	meter (m)
1 inch =	1	0,0833	-	0,0254
1 foot =	12	1	-	0,3048
1 mile =	-	-	1	1609,3
1 meter =	39,37	3,2808	621,4 x 10 ⁻⁶	1

Volume

	cubic foot (cu.ft.)	Eng. gallon (UK gal)	Am. gallon (US gal)	dm ³
1 cubic foot =	1	-	-	28,32
1 Eng. gal =	-	1	-	4,546
1 Am. gal =	-	-	1	3,785
1 dm ³ =	0,03531	0,21998	0,26420	1

Weight

	ounce (oz)	pound (lb)	gram (g)	kilogram (kg)
1 ounce =	1	0,0625	28,35	0,02835
1 pound =	16	1	453,6	0,4536
1 gram =	0,0353	2,2046 x 10 ⁻³	1	0,001
1 kilogram =	35,3	2,2046	1000	1

Pressure

	bar ¹⁾	standard atmosphere atm ²⁾	kgf/cm ² ³⁾	lbf/in ² ⁴⁾ PSI ¹⁰⁾	kPa
1 bar ¹⁾ =	1	0,987	1,020	14,50	100
1 atm ²⁾ =	1,013	1	1,033	14,70	101,3
1 kgf/cm ² ³⁾ =	0,981	0,968	1	14,22	98,1
1 lbf/in ² ⁴⁾ / PSI ¹⁰⁾ =	0,0689	0,680	0,0703	1	6,89
1 kilopascal (kPa) =	0,01	0,00987	0,0102	0,145	1

Pressure (continued)

	millibar	mm water column (mm H ₂ O)	mm mercury (mm Hg)	inch water column (in H ₂ O)	kPa	Pa
1 mbar =	1	10,20	0,750	0,4015	0,1	100
1 mm H ₂ O =	0,0981	1	0,0736	0,03937	0,00981	9,81
1 mm Hg =	1,333	13,60	1	0,535	0,1333	133,3
1 in H ₂ O =	2,491	25,40	1,868	1	0,2491	249,1
1 kilopascal (kPa) =	10	102	7,5	4,015	1	1000
1 Pa =	0,01	0,1	0,0075	0,004	0,001	1

¹⁾ 1 bar = 10⁵ N/m², 1 millibar = 10² N/m²

²⁾ same as 760 mm Hg (mercury) at sea level

³⁾ formerly: kg/cm², same as 1 at, or 1 ato over pressure

⁴⁾ formerly: 1 lb/sq.in or as psi

⁵⁾ 1 thermic to be considered the same as 1 Mcal

Flow

	ft ³ /h	dm ³ /s	m ³ /min	m ³ /h	cfm
1 ft ³ /h =	1	0,00787	0,000472	0,02832	0,0167
1 dm ³ /s =	127,1	1	0,06	3,6	2,12
1 m ³ /min =	2119	16,67	1	60	35,71
1 m ³ /h =	35,31	0,2778	0,01667	1	0,589
1 cfm =	60	0,47	0,028	1,699	1

Force

	lbf	kgf	N
1 pound-force (lbf) =	1	0,454	4,448
1 kilogram force (kgf) =	2,205	1	9,81
1 newton (N) =	0,225	0,102	1

Torque

	Nm	mkgf	lbf.in
1 Nm =	1	0,102	8,858
1 mkgf =	9,81	1	86,72
1 lbf.in =	0,113	0,012	1

Power

	Mega-calorie per hour (Mcal/h)	horse-power (hp)	British thermal unit p/h (Btu/h)	kilowatt (kW = kJ/s)
1 Mcal/h =	1	1,583	3968	1,163
1 hp =	0,632	1	2510	0,735
1 Btu/h =	252 x 10 ⁻⁶	398,5 x 10 ⁻⁶	1	293 x 10 ⁻⁶
1 kW =	0,860	1,360	3412	1

Energy

	Mega-calorie (Mcal) ⁵⁾	therm ⁶⁾	kilowatt-uur (kWh)	Mega-joule (MJ)
1 Mcal ⁵⁾ =	1	0,03968	1,163	4,186
1 therm ⁶⁾ =	25,2	1	29,31	105,5
1 kWh =	0,860	0,03412	1	3,6
1 MJ =	0,2389	0,00948	0,2778	1

Calorific value (and Wobbe index)

	Mega-calorie per standard m ³ (Mcal/m ³) ⁷⁾	kilo-calorie per standard m ³ (kcal/Nm ³) ⁸⁾	British thermal unit per cu.ft. (Btu/ft ³) ⁹⁾	Mega-joule per standard m ³ (MJ/m ³) ⁷⁾
1 Mcal/m ³ ⁷⁾ =	1	1055	110,5	4,186
1 kcal/Nm ³ ⁸⁾ =	948 x 10 ⁻⁶	1	0,1047	3968 x 10 ⁻⁶
1 Btu/ft ³ ⁹⁾ =	0,00905	9,55	1	0,03788
1 MJ/m ³ ⁷⁾ =	0,2389	252,0	26,4	1

⁵⁾ 1 therm = 100.000 Btu (British thermal unit)

⁷⁾ m³s = 1 m³ (15 °C, 1013 mbar, dry)

⁸⁾ 1 Nm = 1 m³ (0 °C, 760 mm Hg, dry)

⁹⁾ 1 ft³ = 1 ft³ (60 °F, 30 in Hg, wet)

¹⁰⁾ PSI = pound/inch²

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