RMG 790 Water Safety Shut-Off Valve

PRODUCT INFORMATION

Serving the Gas Industry Worldwide

RMG
by Honeywell

Application

• for installation in the hot water circuit of gas preheaters for boiler protection

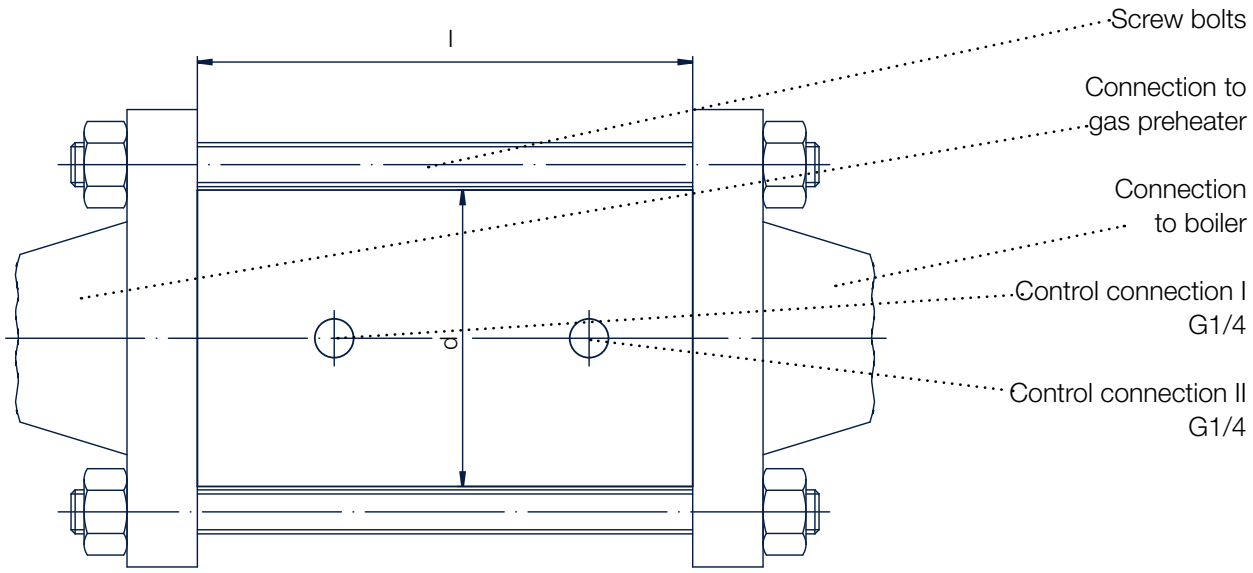
Features

• easy installation
• operated by energy already available in the system
• low pressure loss
• easy operational testing

TECHNICAL DATA	
Maximum allowable pressure PS	160 bar
Allowable temperature	140°C medium/environment
Nominal width	DN 25, DN 50, DN 80, DN 100, DN 150
Connection type	The device is designed without flanges for mounting between DIN EN flanges to PN 16 and PN 40 or flanges of Class 300 RF,Class 600 RF, Class 900 RF/RTJ* and Class 1500 RF/ RTJ* according to ANSI 16.5
Materials	Main valve body brass Internal parts brass, stainless steel Sealing rings fluorocarbon rubber
Optional features	- electrical remote indication of valve position „OFF“ - electromagnetic remote release triggered by power supplied/ power failure (solenoid valve parallel to the control unit)
Function and strength	Based on DIN EN 14382
Explosion protection	The device has no potential sources of ignition and as such is not covered by ATEX 95 (embedded electronic accessories meet the requirements of ATEX)
CE marking in compliance with PED	RMG CE 0085
DIN-DVGW reg. no.:	DG-4395AT0085

*RTJ model on request

SETTING RANGES OF THE SSV CONTROL UNIT		
Control unit setpoint spring number	SSV setting range W_d (bar)	Response pressure group AG
1	2.0 ... 2.5	5
2	2.5 ... 3.5	2.5
3	3.5 ... 16.0	2.5



DIMENSIONS IN MM					
Pressure rating	**Diameter d**				
	DN 25	**DN 50**	**DN 80**	**DN 100**	**DN 150**
PN 10	73	107	142	162	218
PN 16					
PN 25				168	224
PN 40					
Class 300			148	178	247
Class 600				190	263
Class 900	**	140	165	205	285
Class 1500*			171		280
	overall length l				
PN 10 ... Class 600	140	160	160	160	240
Class 900 Class 1500*	**	170	170	180	250

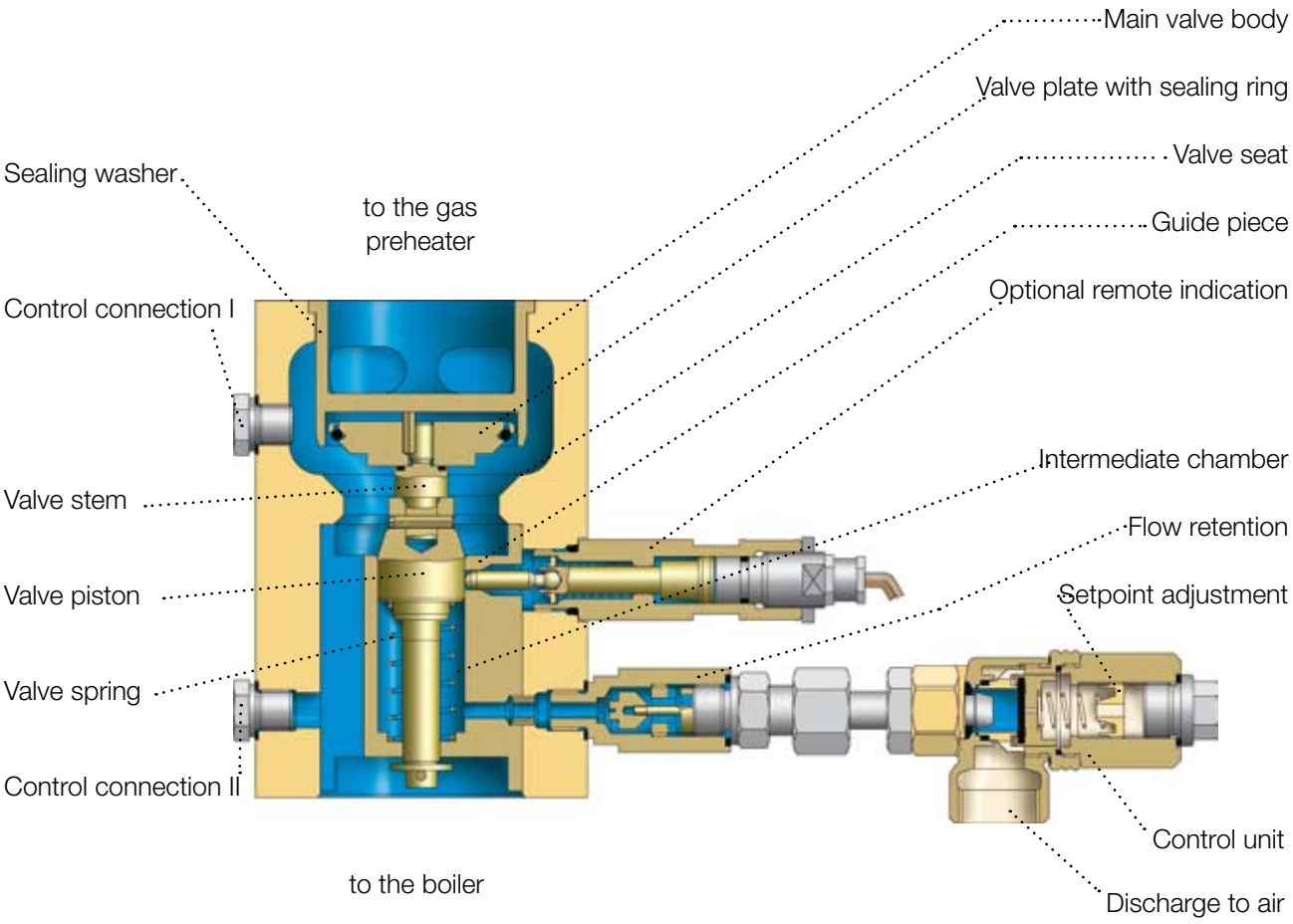
SCREW BOLTS FOR FLANGE CONNECTION		
Pressure rating	**Screw bolts**	**Nuts**
PN 10 to PN 40	DIN 2509	DIN EN ISO 4032
Class 300 to Class 1500*	ASTM A 193 size B7	ASTM A 194 size 2H

*) PS = 160 bar

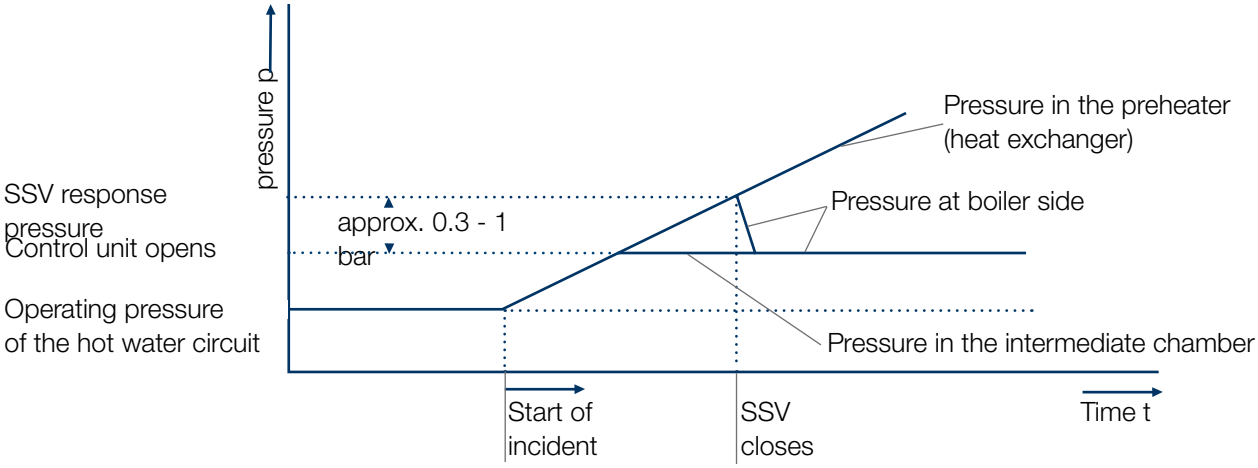
**) DN 25 in pressure rating > Class 600 on request

K_{VS} VALUE IN M^3/H					
	DN 25	**DN 50**	**DN 80**	**DN 100**	**DN 150**
Feed	10	35	98	134	285
Return	11	40	113	150	310

The safety shut-off valve (SSV) RMG 790 is designed for installation in the hot water circuit of gas preheaters feed and return). The device is a connecting unit between the gas preheater (heat exchanger), which is designed for the maximum allowable gas inlet pressure, and the boiler, which has a lower pressure rating. If a defect in the gas preheater (heat exchanger) causes excess gas to flow into the hot water circuit resulting in a pressure increase, the SSV RMG 790 will shut off the boiler from the inlet pressure-resistant heat exchanger as soon as a specified response pressure is reached, regardless of whether the pressure increases very slowly or suddenly. The SSV RMG 790 consists of the main valve and the control unit. The main valve body is flangeless and is mounted between the connecting flange of the heat exchanger and that of the feed/return line to the boiler by means of screw bolts. The valve housing has an axial opening in which the valve area corresponds approximately to the nominal width of the pipe connection. Control connections I and II, which lead into the chambers above and below the valve seat, have been provided for the connection of control pressure gauges and performing operational tests. Under normal operating conditions, all chambers in the safety shut-off device are charged with the boiler pressure prevailing in the hot water circuit of the natural gas preheater. The valve spring keeps the valve plate in the open position. A sealing washer protects the valve plate from the flow force of the circulating hot water, thus preventing it from being inadvertently closed. If the pressure in the hot water circuit increases due to a leak in the heat exchanger, the control unit will open 0.3 to 1 bar before the specified response pressure of the safety shut-off valve is reached, releasing a small amount of water. The pressure limit at which the control unit opens depends on the nominal width and installation position of the SSV RMG 790; Further details are available in the operating and maintenance instructions and spare parts list for RMG 790.20. The control unit maintains more or less constant pressure in the intermediate chamber below the valve pistons, whilst the pressure in the rest of the system above the valve piston continues to rise.

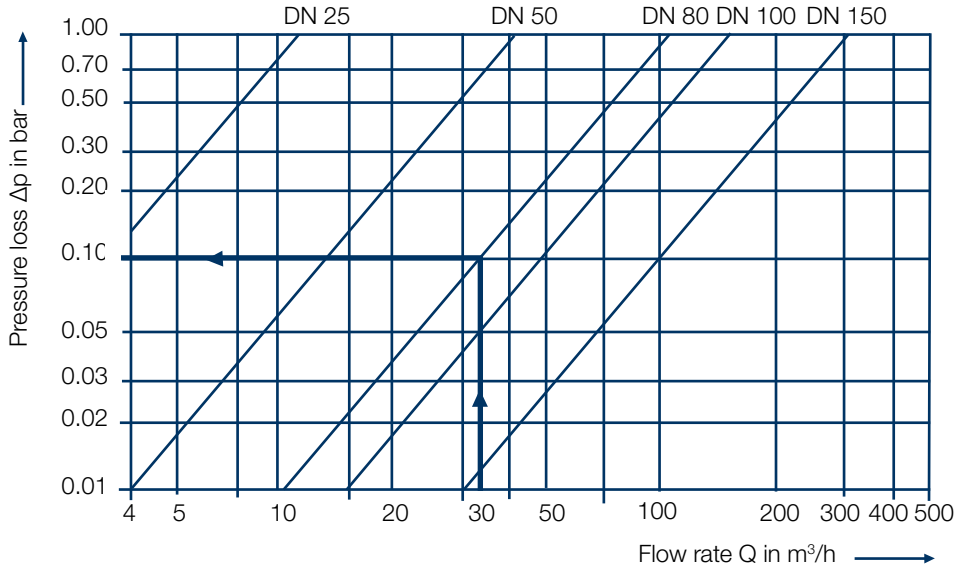


The SSV closes as soon as the force acting on the valve piston, which is generated by the pressure differential between the upper side of the piston (pressure in a heat exchanger) and the intermediate chamber (pressure controlled by the control unit), exceeds the pretensioning force of the valve spring. The valve plate presses down tightly on the valve seat forming a pressure-resistant seal which shuts off the hot water circuit. Closure of the valve plate is indicated electrically in the version with remote indication.



The safety shut-off device (SSV) will open again when the pressure in the heat exchanger (above the valve plate) has fallen to a value below the response pressure of the control unit (SSV response pressure minus 0.3 to 1 bar). The remote indication system is available in two different designs depending on the temperature in the hot water circuit. It cannot be retrofitted.

Pressure loss depending on the flow rate in the hot water circuit



Example: nominal width DN 80, flow rate Q = 35 m³/h -> pressure loss Δp = 0.1 bar

Note: The pressure loss should not exceed 0.5 bar. The SSV must be installed in the feed and return line. The pressure loss must be factored in twice to calculate the correct pump size.

Please observe DVGW guidelines G495 and G499. Further information is available in the operating and maintenance instructions and spare parts list for RMG 790.20. When installing devices with a position indicator in a horizontal position, please ensure that the position indicator is not pointing downwards. The control connections must be easily accessible and fitted with a shut-off valve to enable operational tests to be performed.

Example **RMG 790a - 50 - 300 - F1 / F / E1 / S - So**

Type
Nominal width
Pressure rating
Control unit with spring
Electrical remote indication of valve position „OFF“
Electromagnetic release triggered by power supplied
Screw bolts
Special model

NOMINAL WIDTH	
DN 25	25
DN 50	50
DN 80	80
DN 100	100
DN 150	150

PRESSURE RATING	
PN 10	10
PN 16	16
PN25	25
PN40	40
Class 300	300
Class 600	600
Class 900	900
Class 1500 (160 bar)	1500

CONTROL UNIT		
Spring	Setting range W_d in bar	
F 1	2.0...2.5	F 1
F 2	2.5...3.5	F 2
F 3	3.5...16.0	F 3

REMOTE INDICATION	
Electrical remote indication of valve position „OFF“	F

ELECTROMAGNETIC RELEASE	
Triggered by power supplied	E 1
Triggered by power failure	E 2

SCREW BOLTS	
with screw bolts	S

SPECIAL DESIGN (TO BE EXPLAINED IN DETAIL)	
Special model	So

We reserve the right to make technical changes.

For More Information
To learn more about RMG´s advanced gas solutions, contact your RMG account manager or visit www.rmg.com

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