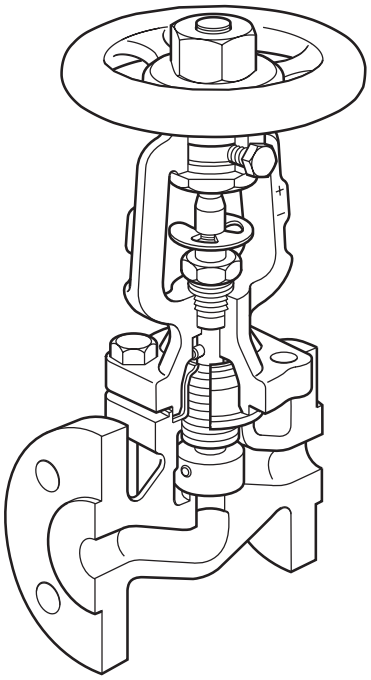


GAV 66AF-T

Bellows Sealed Stop Valves

GAV 6xF-T, GAV 6xF

Description

A range of sealed, in-line stop valves having twin ply bellows as standard throughout the range. These valves have been designed for use on steam, gas, liquid, condensate and water systems.

The standard GAV-T range comes complete with throttling plug and locking device.

The alternative GAV range has a flat disc.

The following tables clearly display the available sizes, pipe-line connections and available options for the standard and alternative ranges.

Standards

The product fully complies with the requirements of the Pressure Equipment Directive (PED) and carries the mark when so required.

Certification

The GAV 63F and GAV 63F-T are available with a manufacturer's Typical Test Report.

The GAV 64F, GAV 65F, GAV 64F-T, GAV 65F-T, GAV 66F, GAV 66F-T and GAV 66AF-T are available with certification to EN 10204 3.1.

Note: All certification/inspection requirements must be stated at the time of order placement.

Range and options

Standard GAV 6xF-T range - complete with throttling plug and locking device

Material		Cast iron		SG iron		Cast steel					Stainless steel
Model and connections		GAV 63F-T		GAV 64F-T PN16 GAV 65F-T PN25		GAV 66F-T					GAV 66AF-T
		PN16	KS10	PN16	PN25	PN25	PN40	ASME150	ASME300	KS20	PN40
Sizes	DN15	•	•	•	•		•	•	•	•	•
	DN20	•	•	•	•		•	•	•	•	•
	DN25	•	•	•	•		•	•	•	•	•
	DN32	•	•	•	•		•				•
	DN40	•	•	•	•		•	•	•	•	•
	DN50	•	•	•	•		•	•	•	•	•
	DN65	•	•	•	•		•				•
	DN80	•	•	•	•		•	•	•	•	•
	DN100	•	•	•	•		•	•	•	•	•
	DN125	•	•	•	•		•				
	DN150	•	•	•	•		•			•	
	DN200	•	•	•	•	•				•	
	DN250				•						

Alternative GAV 6xF range - complete with flat disc option

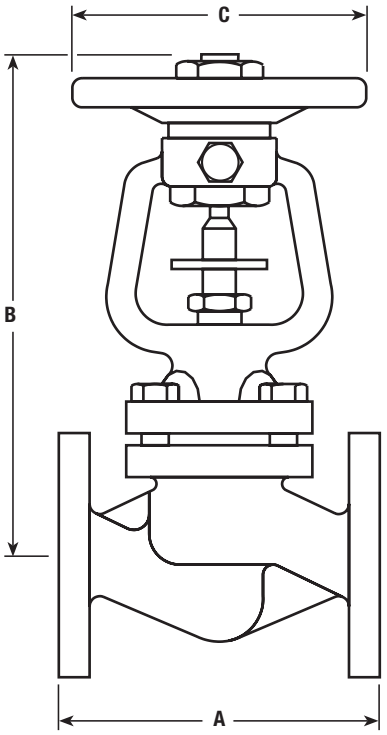
Material		Cast iron		SG iron		Cast steel					Stainless steel
Model and connections		GAV 63F		GAV 64F PN16 GAV 65F PN25		GAV 66F					
		PN16	KS10	PN16	PN25	PN25	PN40	ASME150	ASME300	KS20	
Sizes	DN125	•	•	•	•		•				
	DN150	•	•	•	•		•		•	•	
	DN200	•	•	•	•	•			•	•	
	DN250				•						

Optional balancing disc	DN125				•		•				
	DN150				•		•			•	
	DN200	•	•	•	•	•			•	•	

Dimensions/weights (approximate) in mm and kg

Size	PN	A				B	C	Weight				
		JIS/KS 10K	JIS/KS 20K	ASME 150	ASME 300			GAV 63F GAV 63F-T GAV 64F, GAV 65F GAV 64F-T, GAV 65F-T	GAV 66F (DIN)	GAV 66F (ASME) ANSI 150	GAV 66F ASME 300 JIS/KS 20K	GAV 66AF-T PN40
DN15	130	133	152	108	152	205	125	4	4	5	6	4
DN20	150	153	178	117	178	205	125	4	5	6	7	5
DN25	160	163	200	127	203	217	125	5	6	8	9	6
DN32	180	183	-	-	-	217	125	7	8	-	-	8
DN40	200	203	224	165	229	243	200	10	11	10	11	11
DN50	230	229	259	203	267	243	200	12	14	12	15	14
DN65	290	293	-	-	-	263	200	16	19	-	-	19
DN80	310	309	304	241	317	287	200	21	26	25	29	26
DN100	350	349	340	292	356	383	315	36	44	41	49	44
DN125	400	395	-	-	-	416	315	52	64	-	-	-
DN150	480	479	428	-	445	450	315	75	88	-	94	-
DN200	600	592	537	-	559	622	500	145	180	-	193	-
DN250	730	-	-	-	-	763	500	180*	-	-	-	-

* (GAV 64F-T/GAV 64F, GAV 65F-T/GAV 65F only)



GAV 6xF-T flow data

Size	GAV 6xF-T valve												
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250
Handwheel rotations	K_v values for given handwheel rotations tested to EN 60534-2-3 Water at 20 °C												
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5	1.2	1.2	1.4	2.2	4.4	4.1	5.6	10.4	12.0	21	28	66	110
1	1.7	1.7	2.0	3.7	5.0	5.0	7.0	11.5	14.3	23	30	81	140
1.5	2.7	2.9	2.9	5.0	5.5	6.0	9.2	13.6	24.5	26	33	97	150
2	3.6	4.0	4.6	7.9	7.6	7.2	11.6	16.3	34.1	42	46	111	165
2.5	4.4	5.3	6.4	10.6	11.0	9.7	12.4	18.5	59.6	67	65	149	190
3	5.4	6.6	8.5	13.8	14.7	14.1	13.0	21.1	86.2	94	90	199	225
4			10.6	17.0	22.6	24.4	25.2	24.5	123.0	140	152	302	330
4.5			11.2	18.3	24.4	29.4	32.5	29.0	139.0	181	177	355	451
5			11.9	19.6	27.2	37.0	43.6	39.1	164.1	185	216	403	460
6					28.9	46.2	60.2	61.0	179.0	220	264	455	600
6.5					29.1	47.0	63.0	69.0	186.0	230	288	480	641
6.7					29.3	47.2	64.3	73.0		235	293	487	656
7							65.9	78.0		241	305	495	678
8							71.2	90.0		259	337	507	738
8.5							74.6	92.0			348	522	760
9.5								99.0			369		793
10								101.6					805
10.7													827

To convert K_v to volume flowrate in m³/h:

$\dot{Q} = K_v \times \sqrt{\Delta P}$

Where:

$\dot{Q}$ = Volume flow in m³/h

ΔP = Pressure drop in bar

Note: The maximum recommended differential pressure in throttling function:

DN15 - DN80	2.0 bar	29.00 psi
DN100 - DN125	1.5 bar	21.75 psi
DN150	1.0 bar	14.50 psi
DN200 - DN250	0.8 bar	11.60 psi

If the GAV 6xF-T is used above these quoted figures, increased noise and vibration may be experienced.

Seat leakage

Disc to seat shut-off conforms to EN 12266-1 Rate A leakage and ISO 5208 Rate A.

K_v values - all options

Size	DN15 (½")	DN20 (¾")	DN25 (1")	DN32 (1¼")	DN40 (1½")	DN50 (2")	DN65 (2½")
K_v	4	7	12	19	30	47	77

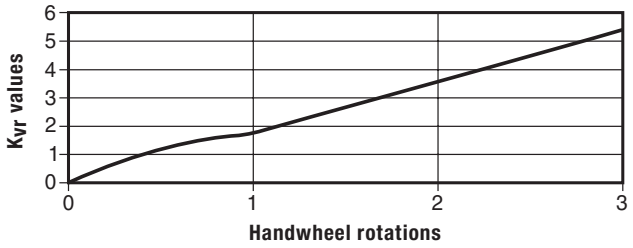
Size	DN80 (3")	DN100 (4")	DN125 (5")	DN150 (6")	DN200 (8")	DN250 (10")
K_v	120	193	288	410	725	1145

For conversion:
C_v (UK) = K_v x 0.963
C_v (US) = K_v x 1.156

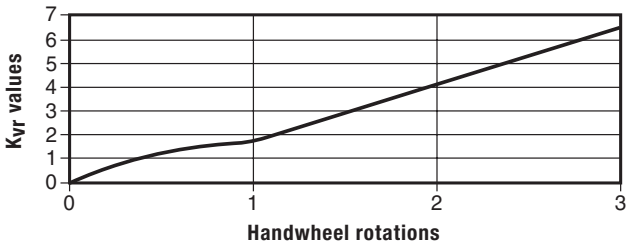
Note: For K_v values and flow characteristic values of the **GAV 63F-T, GAV 64F-T/GAV 65F-T** and **GAV 66F-T** see the next section 'GAV 6xF-T flow data'.

The graphs below show handwheel rotation and flow characteristic with water at 20 °C:

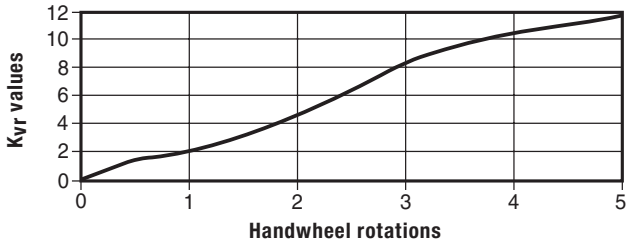
GAV 6xF-T - DN15



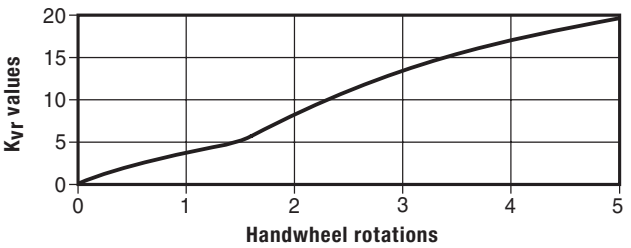
GAV 6xF-T - DN20



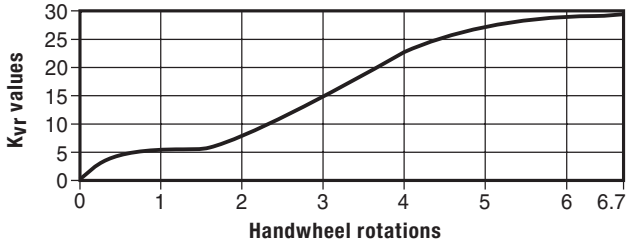
GAV 6xF-T - DN25



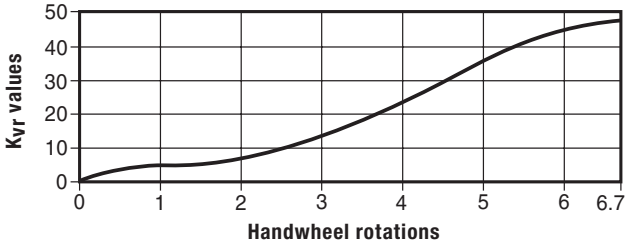
GAV 6xF-T - DN32



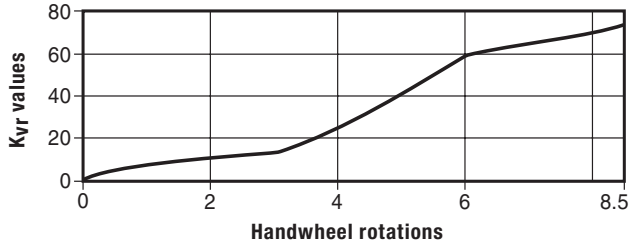
GAV 6xF-T - DN40



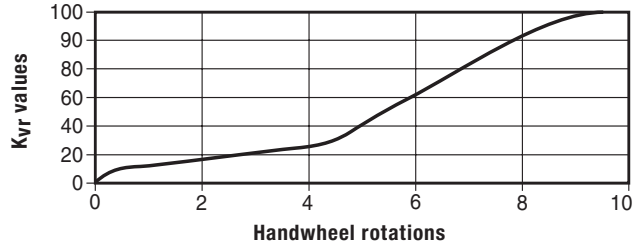
GAV 6xF-T - DN50



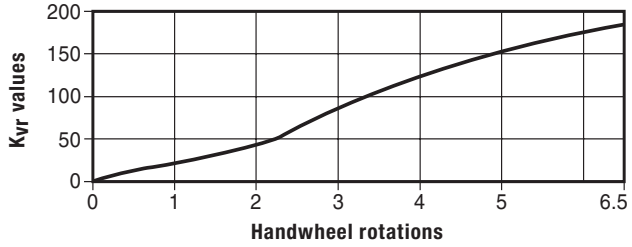
GAV 6xF-T - DN65



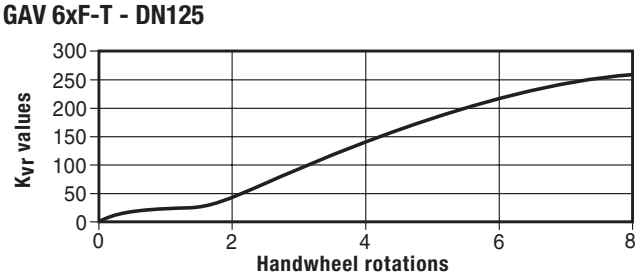
GAV 6xF-T - DN80



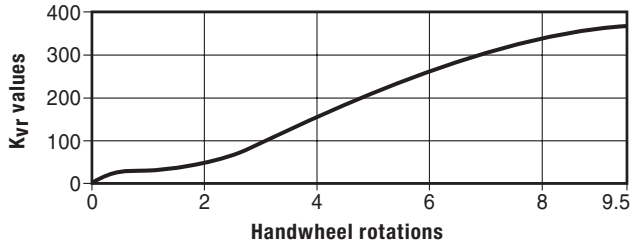
GAV 6xF-T - DN100



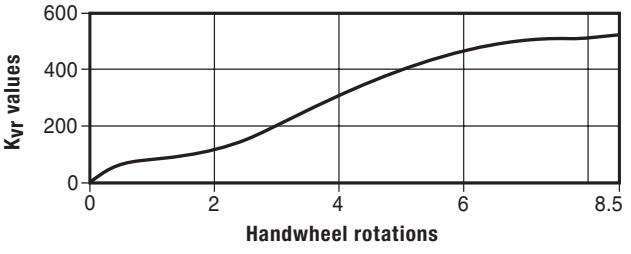
GAV 6xF-T - DN125



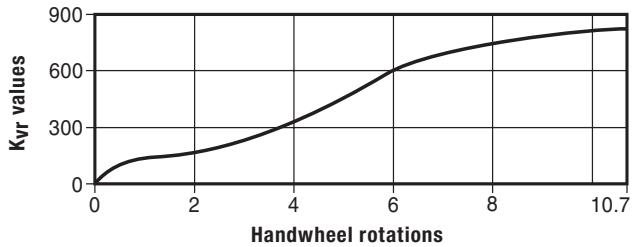
GAV 6xF-T - DN150



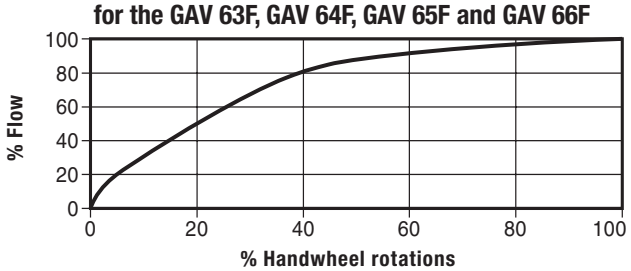
GAV 6xF-T - DN200



GAV 6xF-T - DN250



Typical standard flat disc for the GAV 63F, GAV 64F, GAV 65F and GAV 66F



Materials

for the GAV 63F-T, GAV 64F-T, GAV 65F-T, GAV 66F-T and GAV 63F, GAV 64F, GAV 65F, GAV 66F

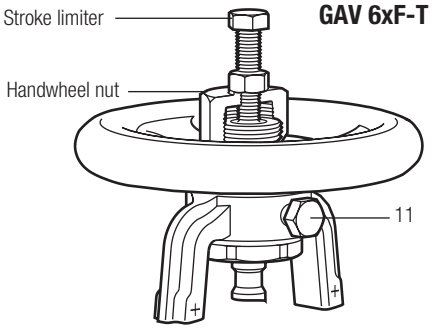
No. Part		GAV 63F-T and GAV 63F	GAV 64F-T, GAV 65F-T and GAV 64F, GAV 65F	GAV 66F-T and GAV 66F	
				DIN	ANSI
1 Body		Cast iron EN-GJS-250	SG iron EN-GJS-400-18-LT	Cast steel 1.0619+N (GSC 25N)	Cast steel ASTM A 216 WCB
2 Bonnet		SG iron EN-GJS-400-18-LT		Steel (DN15 - DN80) DIN 17243 C 22.8	Forged steel (DN15- DN80) ASTM A 105
				Steel (DN100 - DN200) 1.0619+N (GSC 25N)	Cast steel (DN100- DN200) ASTM A 216 WCB
3 Seat		Stainless steel AISI 420			
4 Disc	Metal seat	Stainless steel DIN 17440 X30 Cr13			
5 Bellows		Stainless steel WS 1.4571 EN10028-7 X6 CrNiMTi 17-12-2			
6 Stem		Stainless steel AISI 420			
7 Handwheel		Pressed steel BS 1449 CR4			
8	Stem packing	Graphite			
	Bonnet studs		Steel DIN 17420 24 Cr Mo 5		Steel ASTM A 193 B7
9	Bonnet nuts		Steel DIN 17420 Ck 35		Steel ASTM A 192 2 H
	Bonnet bolts	Steel DIN 931 Gr. 5.6			
10 Body/bonnet gasket		Graphite laminated with stainless steel insert			
11	Locking screw DN15 - DN80	Steel M8 x 14 mm BS 3692 Gr. 8.8			
	Locking screw DN100 - DN150	Steel M8 x 20 mm BS 3692 Gr. 8.8			
	Locking screw DN200 - DN250	Steel M12 x 20 mm BS 3692 Gr. 8.8			

Stroke limiter for throttling versions

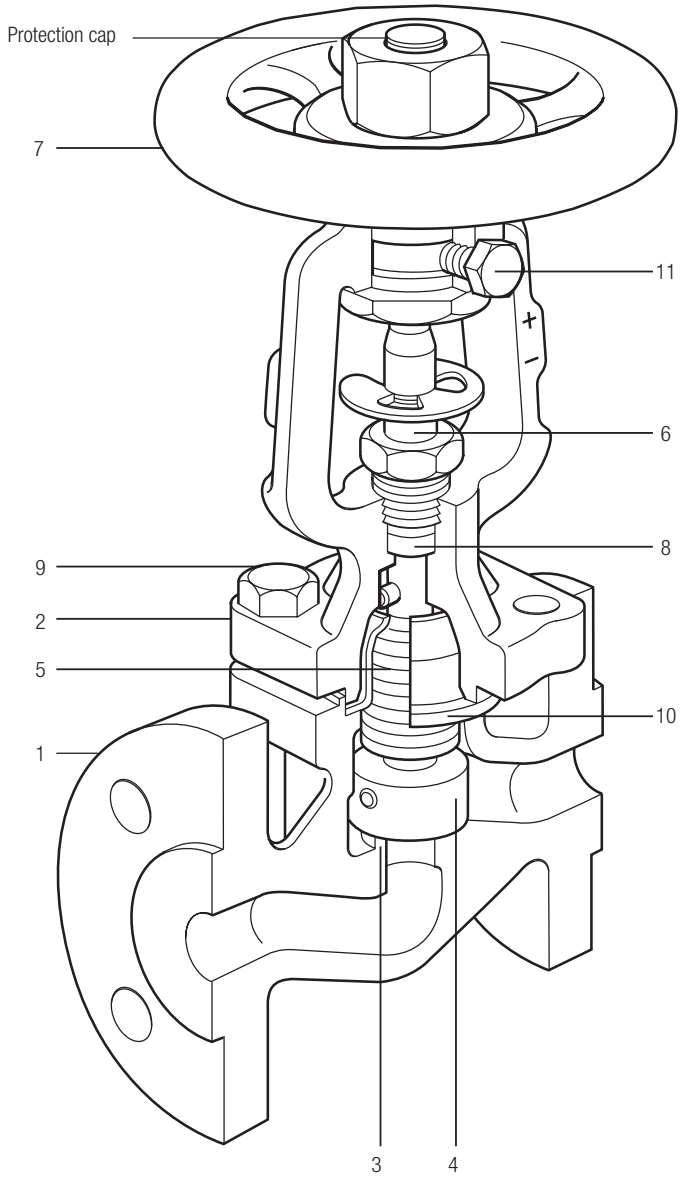
The handwheel nut on the **GAV 63F-T, GAV 64F-T, GAV 65F-T and GAV 66F-T** has a threaded hole for provision of a stroke limiter. Customer to supply standard nuts and bolts as indicated in the table below.

Size	Hexagon bolt
DN15- DN80	M8 x 50 mm
DN100- DN150	M12 x 75 mm
DN200- DN250	M12 x 100 mm

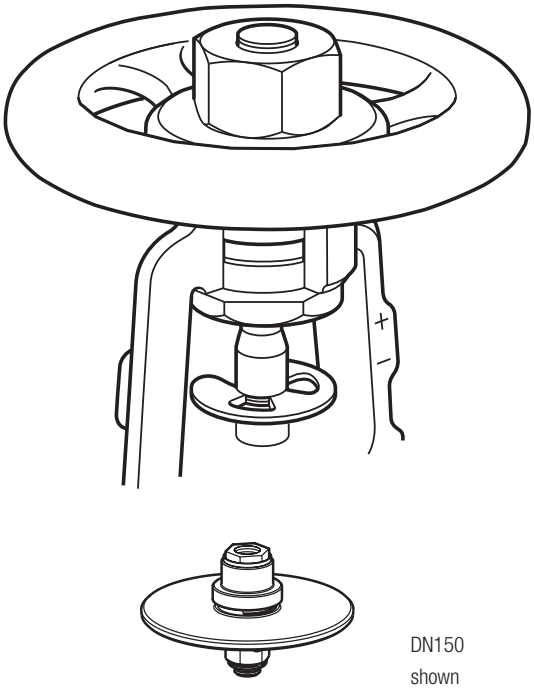
GAV 6xF-T



GAV 6xF-T



GAV 6xF



DN150 shown

Optional balancing disc assembly

Used above	25 bar ΔP	DN125	
	17 bar ΔP	DN150	6"
	10 bar ΔP	DN200	8"

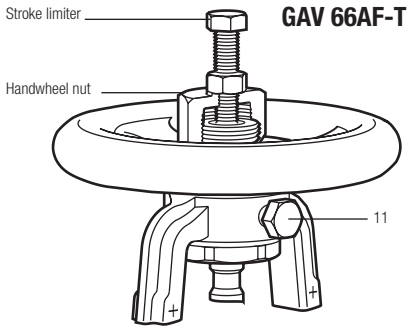
Materials for the GAV 66AF-T

No.	Part		GAV 66AF-T
1	Body		Stainless steel EN 10213 1.4408 or ASTM A351 CF8M
2	Bonnet		Stainless steel EN 10213 1.4581
3	Seat		Stainless steel EN 10213 1.4408 or ASTM A351 CF8M
4	Disc	DN15 - DN40	Stainless steel EN 10088 1.4571
		DN50 - DN100	Stainless steel EN 100222 1.4571
5	Bellows		Stainless steel DIN 17440 1.4571
6	Stem		Stainless steel EN 10088 1.4571
7	Handwheel		Pressed steel BS 1449 CR4
8	Stem packing		Graphite
9	Bonnet studs		Stainless steel A4-70
	Bonnet nuts		Stainless steel A4
10	Body/bonnet gasket		Graphite laminated with stainless steel insert
11	Locking screw	DN15 - DN80	Steel M8 x 14 mm A2-70
		DN100	Steel M8 x 20 mm A2-70

Stroke limiter for throttling versions

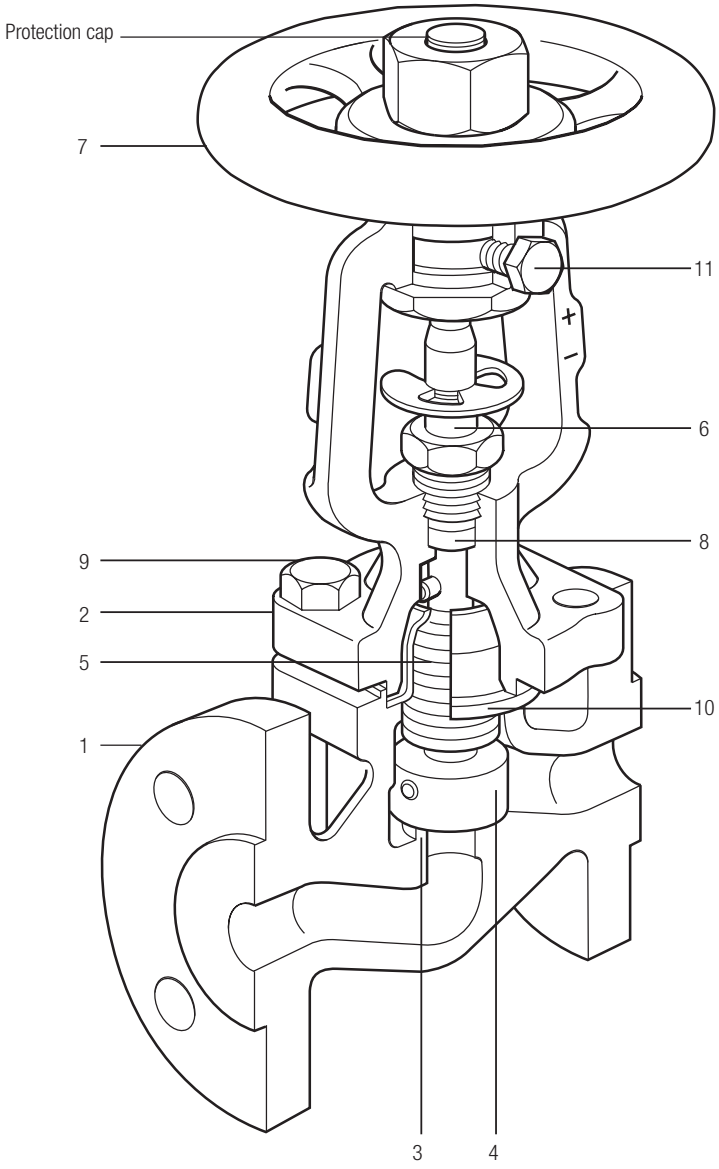
The handwheel nut on the **GAV 66AF-T** has a threaded hole for provision of a stroke limiter. Customer to supply standard nuts and bolts as indicated in the table below.

Size	Hexagon bolt
DN15- DN80	M8 x 50 mm
DN100	M12 x 75 mm



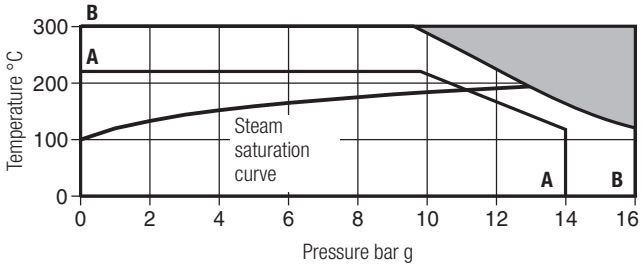
GAV 66AF-T

GAV 66AF-T



Pressure/temperature limits

GAV 63F-T and GAV 63F

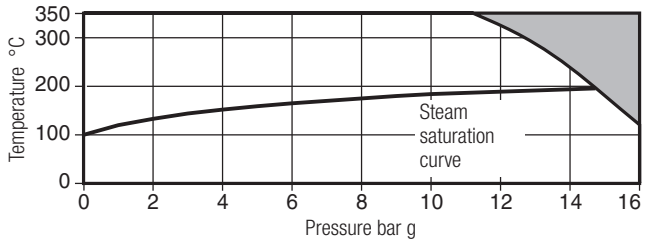


A - A Flanged JIS/KS 10K
B - B Flanged PN16

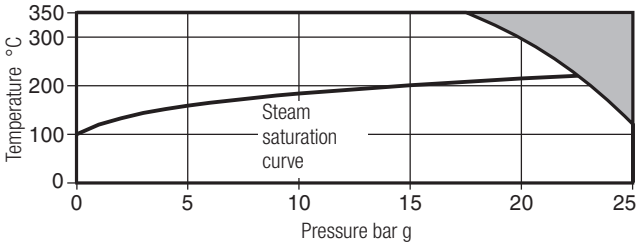
Body design conditions			PN16	JIS/KS 10K
PMA	Maximum allowable pressure		16 bar g @ 120 °C	14 bar g @ 120 °C (203.1 psi g @ 248 °F)
TMA	Maximum allowable temperature		300 °C @ 9.6 bar g	220 °C @ 10 bar g (428 °F @ 145 psi g)
PMO	Maximum operating pressure for saturated steam service	Metal seat	13 bar g @195 °C	11.2 bar g @ 189 °C (162.4 psi g @ 372.2 °F)
TMO	Maximum operating temperature	Metal seat	300 °C @ 9.6 bar g	220 °C @ 10 bar g (428 °F @ 145 psi g)
Minimum operating temperature			-10 °C	-10 °C (14 °F)
Designed for a maximum cold hydraulic test pressure of:			24 bar g	21 bar g (304.6 psi g)

GAV 64F-T, GAV 65F-T and GAV 64F, GAV 65F

PN16 (GAV 64F-T, GAV 64F)



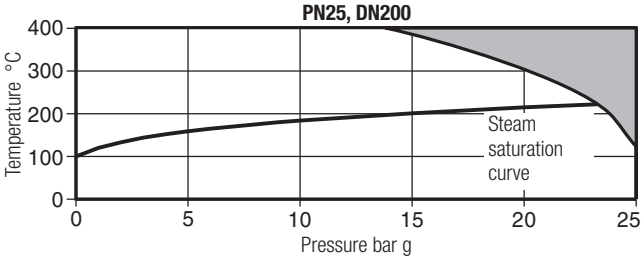
PN25 (GAV 65F-T, GAV 65F)



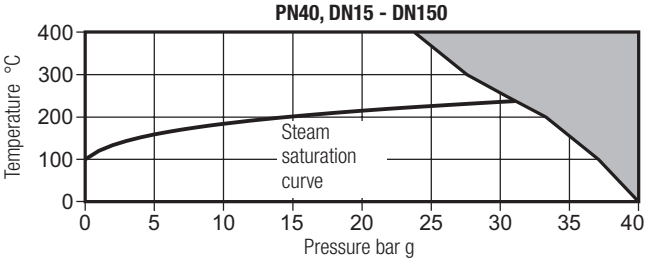
Body design conditions			PN16	PN25
PMA	Maximum allowable pressure		16 bar g @ 120 °C	25 bar g @ 120 °C
TMA	Maximum allowable temperature		350 °C @ 11.2 bar g	350 °C @ 17.5 bar g
PMO	Maximum operating pressure for saturated steam service	Metal seat	14.7 bar g @ 200 °C	22.5 bar g @ 221 °C
TMO	Maximum operating temperature	Metal seat	350 °C @ 11.2 bar g	350 °C @ 17.5 bar g
Minimum operating temperature			-10 °C	-10 °C
Designed for a maximum cold hydraulic test pressure of:			24 bar g	37.5 bar g

GAV 66F-T and GAV 66F (DIN)

PN25, DN200



PN40, DN15 - DN150



Body design conditions			PN25/DN200	PN40/DN15-DN150
PMA	Maximum allowable pressure		25 bar g @ 50 °C	40 bar g @ 50 °C
TMA	Maximum allowable temperature		400 °C @ 14.8 bar g	400 °C @ 23.8 bar g
PMO	Maximum operating pressure for saturated steam service	Metal seat	20.3 bar g @ 215 °C	31.1 bar g @ 238 °C
TMO	Maximum operating temperature	Metal seat	400 °C @ 14.8 bar g	400 °C @ 23.8 bar g
Minimum operating temperature			-10 °C	-10 °C
Designed for a maximum cold hydraulic test pressure of:			37.5 bar g	60 bar g

Key

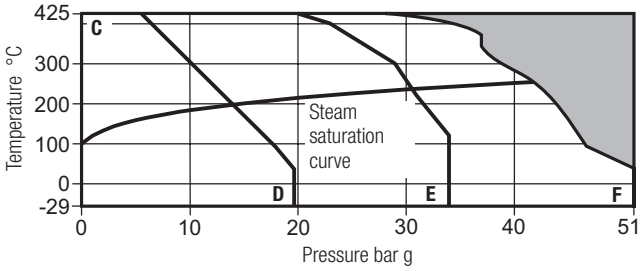
The product must not be used in this region.

Note: ΔPMX Maximum differential pressure is limited to the PMO.

Maximum permissible differential pressure in throttling function:

DN15 - DN80	2.0 bar
DN100 - DN125	1.5 bar
DN150	1.0 bar
DN200 - DN250	0.8 bar

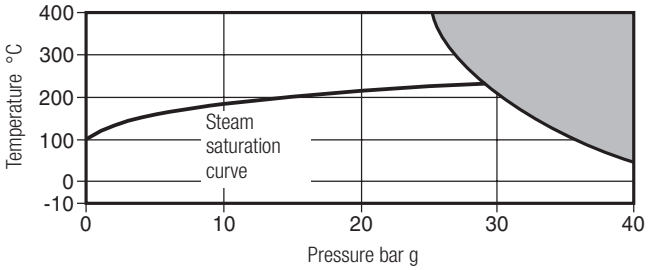
GAV 66F-T and GAV 66F (ASME)



C - D Flanged ASME 150
C - E Flanged JIS/KS 20K
C - F Flanged ASME 300

Body design conditions			ASME 150	ASME 300	JIS/KS 20K
PMA	Maximum allowable pressure		19.6 bar g @ 38 °C (284.3 psi g @ 100.4 °F)	51.1 bar g @ 38 °C (741.1 psi g @ 100.4 °F)	34 bar g @ 120 °C (493.1 psi g @ 248 °F)
TMA	Maximum allowable temperature		425 °C @ 5.5 bar g (797 °F @ 79.8 psi g)	425 °C @ 28.8 bar g (797 °F @ 417.7 psi g)	425 °C @ 20 bar g (797 °F @ 290.1 psi g)
PMO	Maximum operating pressure for saturated steam service	Metal seat	13.6 bar g @ 198 °C (197.3 psi g @ 338.4 °F)	41.7 bar g @ 254 °C (604.8 psi g @ 489.2 °F)	30.6 bar g @ 237 °C (443.8 psi g @ 458.6 °F)
TMO	Maximum operating temperature	Metal seat	425 °C @ 5.5 bar g (797 °F @ 79.8 psi g)	425 °C @ 28.8 bar g (797 °F @ 417.7 psi g)	425 °C 20 bar g (797 °F @ 290.1 psi g)
Minimum operating temperature			-29 °C (-20.2 °F)	-29 °C (-20.2 °F)	0 °C (32 °F)
Designed for a maximum cold hydraulic test pressure of:			30 bar g (435.1 psi g)	77 bar g (1116.8 psi g)	51 bar g (739.7 psi g)

GAV 66AF-T



Body design conditions				PN40
PMA	Maximum allowable pressure			40 bar g @ 100 °C
TMA	Maximum allowable temperature			400 °C @ 27.4 bar g
Minimum alowable temperature				-10 °C
PMO	Maximum operating pressure for saturated steam service		Metal seat	32.2 bar g @ 240 °C
TMO	Maximum operating temperature		Metal seat	400 °C @ 27.4 bar g
Minimum operating temperature				-10 °C
ΔPMX	Maximum differential pressure	On/off function		Limited to the PMO
		Throttling fungtion	DN15-DN80	2 bar
			DN100	1.5 bar
Designed for a maximum cold hydraulic test pressure of:				60 bar g

Key

The product must not be used in this region.

Note: ΔPMX Maximum differential pressure is limited to the PMO.

Maximum permissible differential pressure in throttling function:

DN15 - DN80	2.0 bar
DN100 - DN125	1.5 bar
DN150	1.0 bar
DN200 - DN250	0.8 bar

Bellows Sealed Stop Valves

GAV 6xF-T, GAV 6xF

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

Installation note

Install in the direction of flow given by the arrow on the body with the handwheel in a suitable position.

Disposal

These products are recyclable. No ecological hazard is anticipated with the disposal of these products, providing due care is taken.

How to order

Example: 1 off DN25 Gestra type GAV 64F-T bellows sealed stop valve, flanged PN16.

Note: Should the differential pressure exceed those listed against the respective sizes in the table below, then please ensure balancing discs are specified for use in the valves.

Size	DN125	DN150	DN200	DN250
Differential pressure (bar)	25	17	10	6

How to order spares

Please note: for customer convenience spares are supplied in kits to ensure all the appropriate replacement parts are supplied to carry out a specific maintenance task. e.g. when a stem/bellows assembly is ordered, parts (10), (8) and (6, 5) will be included in the kit.

Always order spares by using the description given in 'Available spares' and state the size and type of stop valve.

Example: 1 - Body/bonnet gasket and stem packing for a DN15 Gestra type GAV 64F-T PN16 bellows sealed stop valve.

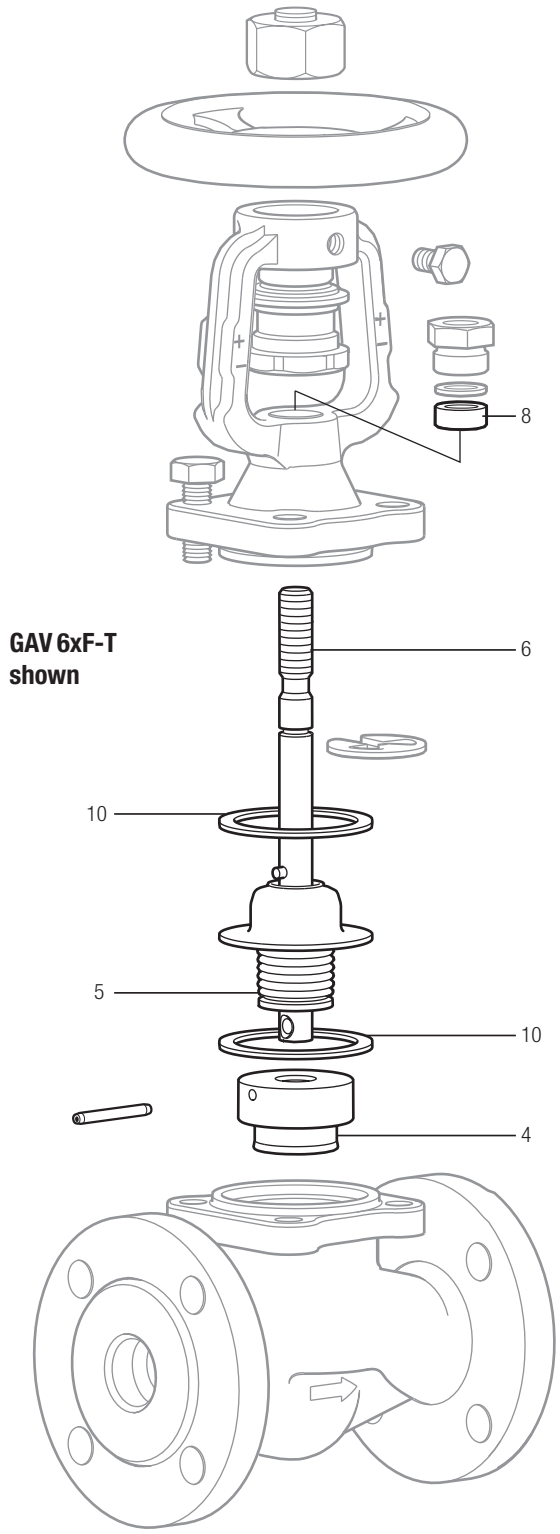
Please note our terms of sale and delivery.

Spare parts

The spare parts are shown in heavy outline. Parts drawn in a grey line are not supplied as spares.

Available spares

Body/bonnet gasket and stem packing	10, 8 (2 off)
Stem and bellows assembly (state if GAV-T or GAV)	5, 6, 8, 10
Disc (and optional disc where fitted) - state full description of the valve	4, 8, 10



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