Specification Sheet

No.: 1 QTY: 1
Tag no. PDV 1628
Service

< Specification >

Model	HTS	
Description	Top-Guided Single Seated Control Valves	
Valve size	6	inch
Port size	6	inch
Rated Cv	360	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	HA3	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYT-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name Dry Air [GAS]

	MAX	NOR	MIN	UNIT
Flow rate	3000		375	m3/h[N]
Inlet pressure	1.44		1.32	barA
Outlet pressure	1.34		1.27	barA
Diff. pressure				bar
Shut-off press.		1.8		bar
Temperature	-165		-60	degC
Sp.Gr. (liq.)				kg/m3
Sp.Gr.(gas,vapor)	1.292		1.292	kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity	0.06		0.01	Mach
S.P.L.	57		40	dBA
Calculated Cv	213.4		54.86	
Travel	82		46	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	1.8		barG
Design temp.	-196~50		degC
Line size in/out	6	6	inch
Line Sch. / Thick.		5.5	mm

YAMATAKE

Specification Sheet

No.: 1 QTY: 0
Tag no. PDV 1628
Service

< Specification >

Model	HTS	
Description	Top-Guided Single Seated Control Valves	
Valve size	6	inch
Port size	6	inch
Rated Cv	360	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	HA3	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYT-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name Dry Air [GAS]

	MAX	NOR	MIN	UNIT
Flow rate	800			m3/h[N]
Inlet pressure	1.37			barA
Outlet pressure	1.27			barA
Diff. pressure				bar
Shut-off press.		1.8		bar
Temperature	-167			degC
Sp.Gr. (liq.)				kg/m3
Sp.Gr.(gas,vapor)	1.292			kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity	0.01			Mach
S.P.L.				dBA
Calculated Cv	57.85			
Travel	48			%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	1.8		barG
Design temp.	-196~50		degC
Line size in/out	6	6	inch
Line Sch. / Thick.			mm

Specification Sheet

No.:	2	QTY:	1
Tag no.	HV 1822/1832		
Service			

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	4	inch
Port size	4	inch
Rated Cv	200	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	EXTENTION-2	
Actuator	PSA4	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	spiral, V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name: OXYGEN [LIQUID]

	MAX	NOR	MIN	UNIT
Flow rate	32687		27981	l/h
Inlet pressure	7		6.9	barA
Outlet pressure	6.95		6.85	barA
Diff. pressure				bar
Shut-off press.		10		bar
Temperature	-180		-180	degC
Sp.Gr. (liq.)	1128		1128	kg/m3
Sp.Gr.(gas,vapor)				kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity	1.12		0.95	m/s
S.P.L.	48		47	dBA
Calculated Cv	179.5		153.6	
Travel	90		82	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	10	barG	
Design temp.	-196~50	degC	
Line size in/out	/	6	inch
Line Sch. / Thick.	/		mm

YAMATAKE

Specification Sheet

No.: 3 QTY: 1
Tag no. PV 1824/1834
Service

Product no.:

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	3	inch
Port size	2	inch
Rated Cv	50	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	EXTENTION-2	
Actuator	PSA3	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	spiral, V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

<Option>

SV0703-102	Indicating unit : "bar"
SV0601-001	Air piping Connection: 1/4 NPT
SV0018-005	Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name OXYGEN [LIQUID]

	MAX	NOR	MIN	UNIT
Flow rate			9539	l/h
Inlet pressure			6.9	barA
Outlet pressure			2.7	barA
Diff. pressure				bar
Shut-off press.		10		bar
Temperature			-180	degC
Sp.Gr. (liq.)			1128	kg/m3
Sp.Gr.(gas,vapor)				kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity			0.58	m/s
S.P.L.			75	dBA
Calculated Cv			5.715	
Travel			43	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	10		barG
Design temp.	-196~50		degC
Line size in/out		6	inch
Line Sch. / Thick.			mm

YAMATAKE

Specification Sheet

No.: 4 QTY: 1
Tag no. FV 1582
Service

Product no.:

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	1	inch
Port size	Cv=0.4	inch
Rated Cv	0.4	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	PSA1	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYS-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name OXYGEN [LIQUID]

	MAX	NOR	MIN	UNIT
Flow rate	124		102	l/h
Inlet pressure	6.95		6.85	barA
Outlet pressure	5.3		4.95	barA
Diff. pressure				bar
Shut-off press.		10		bar
Temperature	-179		-179	degC
Sp.Gr. (liq.)	1123		1123	kg/m3
Sp.Gr.(gas,vapor)				kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity	0.06		0.05	m/s
S.P.L.	40		40	dBA
Calculated Cv	0.1183		0.09065	
Travel	67		60	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	10		barG
Design temp.	-196~50		degC
Line size in/out		6	inch
Line Sch. / Thick.			mm

Specification Sheet

No.: 5 QTY: 1
Tag no. FV 1556
Service

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	4	inch
Port size	2-1/2	inch
Rated Cv	85	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE FACE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	PSA3	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name LEAN OXYGEN [FLASH]

	MAX	NOR	MIN	UNIT
Flow rate	25395		21488	l/h
Inlet pressure	4.92		4.68	barA
Outlet pressure	1.85		1.76	barA
Diff. pressure				bar
Shut-off press.		8		bar
Temperature	-177		-176	degC
Sp.Gr. (liq.)	1000		1000	kg/m3
Sp.Gr.(gas,vapor)	1.395		1.395	kg/m3[N]
Viscosity				mPa-s
Flash	6.96		7.18	%
Velocity	0.87		0.73	m/s
S.P.L.	62		61	dBA
Calculated Cv	26.56		23.61	
Travel	64		61	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	8		barG
Design temp.	-196~50		degC
Line size in/out	/	6	inch
Line Sch. / Thick.	/		mm

Specification Sheet

No.: 6 QTY: 1
Tag no. FV 1558
Service

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	4	inch
Port size	2-1/2	inch
Rated Cv	85	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE FACE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	PSA3	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name LEAN LIQUID [FLASH]

	MAX	NOR	MIN	UNIT
Flow rate	25789		21670	l/h
Inlet pressure	4.98		4.62	barA
Outlet pressure	2.19		2.16	barA
Diff. pressure				bar
Shut-off press.		8		bar
Temperature	-189		-189	degC
Sp.Gr. (liq.)	783		783	kg/m3
Sp.Gr.(gas,vapor)	1.258		1.258	kg/m3[N]
Viscosity				mPa-s
Flash	3.8		3.34	%
Velocity	0.88		0.74	m/s
S.P.L.	60		59	dBA
Calculated Cv	19.83		17.35	
Travel	58		55	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	8	barG	
Design temp.	-196~50	degC	
Line size in/out	/	6	inch
Line Sch. / Thick.	/		mm

Specification Sheet

No.: 7 QTY: 1
Tag no. LV 1601
Service

< Specification >

Model	AGVB
Description	Top-Guided Single-Seat Control Valves
Valve size	4 inch
Port size	2-1/2 inch
Rated Cv	85
Connection size	inch
Body rating	ANSI150
End connection	BW
Body material	A351CF8
Trim material	SUS316 STELLITE FACE
Flow characteristic	EQ%
Bonnet type	BODY EXTENTION
Actuator	PSA3
Manual operator	
Valve action	REVERSE(Air fail close)
Gland packing	V-PTFE
Gasket	V543(PTFE), V563(PTFE)
Grease	
Air supply	2.7bar
Spring range	0.8-2.4bar

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name RICH LIQUID [FLASH]

	MAX	NOR	MIN	UNIT
Flow rate	22839		18576	l/h
Inlet pressure	5.17		4.78	barA
Outlet pressure	1.87		1.8	barA
Diff. pressure				bar
Shut-off press.		8		bar
Temperature	-179.2		-180.9	degC
Sp.Gr. (liq.)	873		873	kg/m3
Sp.Gr.(gas,vapor)	1.329		1.329	kg/m3[N]
Viscosity				mPa-s
Flash	9.21		8.57	%
Velocity	0.78		0.63	m/s
S.P.L.	62		61	dBA
Calculated Cv	23.31		19.54	
Travel	61		57	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	8	barG
Design temp.	-196~50	degC
Line size in/out		inch
Line Sch. / Thick.		mm

Specification Sheet

No.: 8 QTY: 1
Tag no. LV 1641
Service

< Specification >

Model	AGVB
Description	Top-Guided Single-Seat Control Valves
Valve size	3 inch
Port size	2 inch
Rated Cv	50
Connection size	inch
Body rating	ANSI150
End connection	BW
Body material	A351CF8
Trim material	SUS316 STELLITE FACE
Flow characteristic	EQ%
Bonnet type	BODY EXTENTION
Actuator	PSA3
Manual operator	
Valve action	REVERSE(Air fail close)
Gland packing	V-PTFE
Gasket	V543(PTFE), V563(PTFE)
Grease	
Air supply	2.7bar
Spring range	0.8-2.4bar

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name RICH LIQUID [FLASH]

	MAX	NOR	MIN	UNIT
Flow rate	15156		13237	l/h
Inlet pressure	4.88		4.54	barA
Outlet pressure	1.9		1.78	barA
Diff. pressure				bar
Shut-off press.		8		bar
Temperature	-177		-177	degC
Sp.Gr. (liq.)	871		871	kg/m3
Sp.Gr.(gas,vapor)	1.337		1.337	kg/m3[N]
Viscosity				mPa-s
Flash	11.94		11.62	%
Velocity	0.92		0.8	m/s
S.P.L.	60		59	dBA
Calculated Cv	18.42		16.8	
Travel	67		65	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	8	barG
Design temp.	-196~50	degC
Line size in/out	/	inch
Line Sch. / Thick.	/	mm

Specification Sheet

No.: 9 QTY: 1
Tag no. FV 1645
Service

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	3	inch
Port size	3	inch
Rated Cv	115	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	PSA3	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYQ-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name OXYGEN [LIQUID]

	MAX	NOR	MIN	UNIT
Flow rate	33927		28493	l/h
Inlet pressure	6.2		6.2	barA
Outlet pressure	5.9		5.7	barA
Diff. pressure				bar
Shut-off press.		9		bar
Temperature	-171		-171	degC
Sp.Gr. (liq.)	1083		1083	kg/m3
Sp.Gr.(gas,vapor)	1.435		1.435	kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity	2.06		1.73	m/s
S.P.L.	56		57	dBA
Calculated Cv	74.52		48.48	
Travel	79		70	%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	9	barG
Design temp.	-196~50	degC
Line size in/out		inch
Line Sch. / Thick.		mm

Specification Sheet

No.: 10 QTY: 1
Tag no. HV 1667
Service

< Specification >

Model
Description

Valve size inch
Port size inch
Rated Cv
Connection size inch
Body rating
End connection
Body material
Trim material
Flow characteristic
Bonnet type
Actuator
Manual operator
Valve action
Gland packing
Gasket
Grease
Air supply
Spring range

< Accesories >

Positioner / Signal
Exprosion-proof
Signal 4-20 mADC
Regurator KZ03-2B-XX
Regulator 2
Limit Switch
Action
Solenoid valve
Action
Power supply
Others

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body: M10B5/10
Diaph. Case: M10B5/10
Yoke: M10B5/10
Paint: Standard

<Operating condition>

Fluid name He-Ne-N2 [GAS]

	MAX	NOR	MIN	UNIT
Flow rate	312	240		m3/h[N]
Inlet pressure	5.4	5.4		barA
Outlet pressure	1.3	1.3		barA
Diff. pressure				bar
Shut-off press.				bar
Temperature	-178	-178		degC
Sp.Gr. (liq.)				kg/m3
Sp.Gr.(gas,vapor)	1.25	1.25		kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity				m/s
S.P.L.				dBA
Calculated Cv	2.308	1.775		
Travel				%

<Seat Leakage>

<Note> Tokumi -

<Line spec>

Design press. barG
Design temp. degC
Line size in/out / inch
Line Sch. / Thick. / mm

YAMATAKE

Specification Sheet

No.: 11 QTY: 1
Tag no. FV 1629
Service

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	1	inch
Port size	Cv=6.3	inch
Rated Cv	6.3	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	PSA1	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYS-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

Product no.:

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name NITROGEN [FLASH]

	MAX	NOR	MIN	UNIT
Flow rate	2408	1352		l/h
Inlet pressure	7.62	7.67		barA
Outlet pressure	2.89	2.1		barA
Diff. pressure				bar
Shut-off press.		6.7		bar
Temperature	-171	-171		degC
Sp.Gr. (liq.)	675	675		kg/m3
Sp.Gr.(gas,vapor)	1.25	1.25		kg/m3[N]
Viscosity				mPa-s
Flash	21.9	21.9		%
Velocity	1.32	0.74		m/s
S.P.L.	57	57		dBA
Calculated Cv	2.375	1.291		
Travel	74	57		%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi -
EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	6.7	barG
Design temp.	-196~20	degC
Line size in/out		inch
Line Sch. / Thick.		mm

Specification Sheet

No.:	12	QTY:	1
Tag no.	TV 1581B		
Service			

Product no.:

< Specification >

Model	AGVB	
Description	Top-Guided Single-Seat Control Valves	
Valve size	1-1/2	inch
Port size	1	inch
Rated Cv	14	
Connection size		inch
Body rating	ANSI150	
End connection	BW	
Body material	A351CF8	
Trim material	SUS316 STELLITE	
Flow characteristic	EQ%	
Bonnet type	BODY EXTENTION	
Actuator	PSA1	
Manual operator		
Valve action	REVERSE(Air fail close)	
Gland packing	V-PTFE	
Gasket	V543(PTFE), V563(PTFE)	
Grease		
Air supply	2.7bar	
Spring range	0.8-2.4bar	

< Accesories >

Positioner / Signal	AVP300-FSD2D-1CYS-X
Exprosion-proof	FM Explosionproof and Flameproof, 1/4 NPT, 1/2
Signal	4-20 mADC
Regurator	KZ03-2B-XX
Regulator 2	
Limit Switch	
Action	
Solenoid valve	
Action	
Power supply	
Others	

<Option>

SV0703-102 Indicating unit : "bar"

SV0601-001 Air piping Connection: 1/4 NPT

SV0018-005 Oil-free Gr.B (For stainless steel body) and Water-free treatment

<Finish>

Body:	M10B5/10
Diaph. Case:	M10B5/10
Yoke:	M10B5/10
Paint:	Standard

<Operating condition>

Fluid name Dry air [GAS]

	MAX	NOR	MIN	UNIT
Flow rate	550	380		m3/h[N]
Inlet pressure	5.2	4.9		barA
Outlet pressure	1.5	1.4		barA
Diff. pressure				bar
Shut-off press.		6.1		bar
Temperature	-60	-60		degC
Sp.Gr. (liq.)				kg/m3
Sp.Gr.(gas,vapor)	1.292	1.292		kg/m3[N]
Viscosity				mPa-s
Flash				%
Velocity	0.24	0.17		Mach
S.P.L.				dBA
Calculated Cv	6.429	4.714		
Travel	71	65		%

<Seat Leakage>

CLASS IV (SV0201-003)

<Note> Tokumi - EXTENSION PASS-THROUGH:with

<Line spec>

Design press.	6.1	barG
Design temp.	-196~50	degC
Line size in/out	/	inch
Line Sch. / Thick.	/	mm

Cv Calculation Sheet

No: 1	TAG NO:	PDV 1628		CASE:	MAX	
Flow rate:	3000	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	1.44	barA	Model:	HTS		
Outlet pressure:	1.34	barA	Valve size:	6		inch
Diff. pressure		bar	Line size In/Out:	6	6	inch
Temperature:	-165	degC	Pipe Sch/ Thick:		5.5	mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.292	kg/m3[N]	KC:		0.07	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.06		Mach
Critical pressure:		barA	S.P.L.:	57		dBA
CP/CV , Z:			Calc. Cv:	213.4		
Flash:		%	Travel:	82		%

$$Cv(Gas) = \frac{3171 m3/h[S] \times Sqr(0.9992 \times 108.1 degK) \times 1}{2.930 \times Sqr(10 kPa \times (144 kPaA + 134 kPaA))} = 213.4$$

No: 1	TAG NO:	PDV 1628		CASE:	MIN	
Flow rate:	375	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	1.32	barA	Model:	HTS		
Outlet pressure:	1.27	barA	Valve size:	6		inch
Diff. pressure		bar	Line size In/Out:	6	6	inch
Temperature:	-60	degC	Pipe Sch/ Thick:		5.5	mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.292	kg/m3[N]	KC:		0.04	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.01		Mach
Critical pressure:		barA	S.P.L.:	40		dBA
CP/CV , Z:			Calc. Cv:	54.86		
Flash:		%	Travel:	46		%

$$Cv(Gas) = \frac{396.4 m3/h[S] \times Sqr(0.9992 \times 213.2 degK) \times 1}{2.930 \times Sqr(5 kPa \times (132 kPaA + 127 kPaA))} = 54.86$$

No: 1	TAG NO:	PDV 1628		CASE:	MAX	
Flow rate:	800	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	1.37	barA	Model:	HTS		
Outlet pressure:	1.27	barA	Valve size:	6		inch
Diff. pressure		bar	Line size In/Out:	6	6	inch
Temperature:	-167	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.292	kg/m3[N]	KC:		0.07	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.01		Mach
Critical pressure:		barA	S.P.L.:			dBA
CP/CV , Z:			Calc. Cv:	57.85		
Flash:		%	Travel:	48		%

$$Cv(Gas) = \frac{845.6 m3/h[S] \times Sqr(0.9992 \times 106.1 degK) \times 1}{2.930 \times Sqr(10 kPa \times (137 kPaA + 127 kPaA))} = 57.85$$

Cv Calculation Sheet

No: 2	TAG NO:	HV 1822/1832		CASE:	MAX	
Flow rate:	32687	l/h	Fluid state:	LIQUID		
Inlet Pressure:	7	barA	Model:	AGVB		
Outlet pressure:	6.95	barA	Valve size:	4		inch
Diff. pressure		bar	Line size In/Out:		6	inch
Temperature:	-180	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1128	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):		kg/m3[N]	KC:		0.01	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	1.12		m/s
Critical pressure:		barA	S.P.L.:	48		dBA
CP/CV , Z:			Calc. Cv:	179.5		
Flash:		%	Travel:	90		%

$$Cv(Liq) = \frac{11.56 \times 32.69 m3/h \times Sqr(1.128) \times 1}{Sqr(5kPa)} = 179.5$$

No: 2	TAG NO:	HV 1822/1832		CASE:	MIN	
Flow rate:	27981	l/h	Fluid state:	LIQUID		
Inlet Pressure:	6.9	barA	Model:	AGVB		
Outlet pressure:	6.85	barA	Valve size:	4		inch
Diff. pressure		bar	Line size In/Out:		6	inch
Temperature:	-180	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1128	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):		kg/m3[N]	KC:		0.01	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.95		m/s
Critical pressure:		barA	S.P.L.:	47		dBA
CP/CV , Z:			Calc. Cv:	153.6		
Flash:		%	Travel:	82		%

$$Cv(Liq) = \frac{11.56 \times 27.98 m3/h \times Sqr(1.128) \times 1}{Sqr(5kPa)} = 153.6$$

No: 3	TAG NO:	PV 1824/1834		CASE:	MIN	
Flow rate:	9539	l/h	Fluid state:	LIQUID		
Inlet Pressure:	6.9	barA	Model:	AGVB		
Outlet pressure:	2.7	barA	Valve size:	3		inch
Diff. pressure		bar	Line size In/Out:		6	inch
Temperature:	-180	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1128	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):		kg/m3[N]	KC:		0.61	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.58		m/s
Critical pressure:		barA	S.P.L.:	75		dBA
CP/CV , Z:			Calc. Cv:	5.715		
Flash:		%	Travel:	43		%

$$Cv(Liq) = \frac{11.56 \times 9.539 m3/h \times Sqr(1.128) \times 1}{Sqr(420kPa)} = 5.715$$

Cv Calculation Sheet

No: 4	TAG NO:	FV 1582		CASE:	MAX	
Flow rate:	124	l/h	Fluid state:	LIQUID		
Inlet Pressure:	6.95	barA	Model:	AGVB		
Outlet pressure:	5.3	barA	Valve size:	1		inch
Diff. pressure		bar	Line size In/Out:		6	inch
Temperature:	-179	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1123	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):		kg/m3[N]	KC:		0.24	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.06		m/s
Critical pressure:		barA	S.P.L.:	40		dBA
CP/CV , Z:			Calc. Cv:	0.1183		
Flash:		%	Travel:	67		%

$$Cv(Liq) = \frac{11.56 \times 0.124m3/h \times Sqr(1.123) \times 1}{Sqr(165kPa)} = 0.1183$$

No: 4	TAG NO:	FV 1582		CASE:	MIN	
Flow rate:	102	l/h	Fluid state:	LIQUID		
Inlet Pressure:	6.85	barA	Model:	AGVB		
Outlet pressure:	4.95	barA	Valve size:	1		inch
Diff. pressure		bar	Line size In/Out:		6	inch
Temperature:	-179	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1123	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):		kg/m3[N]	KC:		0.28	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.05		m/s
Critical pressure:		barA	S.P.L.:	40		dBA
CP/CV , Z:			Calc. Cv:	0.09065		
Flash:		%	Travel:	60		%

$$Cv(Liq) = \frac{11.56 \times 0.102m3/h \times Sqr(1.123) \times 1}{Sqr(190kPa)} = 0.09065$$

No: 5	TAG NO:	FV 1556		CASE:	MAX	
Flow rate:	25395	l/h	Fluid state:	FLASH		
Inlet Pressure:	4.92	barA	Model:	AGVB		
Outlet pressure:	1.85	barA	Valve size:	4		inch
Diff. pressure		bar	Line size In/Out:		6	inch
Temperature:	-177	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1000	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.395	kg/m3[N]	KC:		0.62	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.87		m/s
Critical pressure:		barA	S.P.L.:	62		dBA
CP/CV , Z:			Calc. Cv:	26.56		
Flash:	6.96	%	Travel:	64		%

$$Cv(Liq) = \frac{11.56 \times 23.63m3/h \times Sqr(1)}{Sqr(307kPa)} = 15.59$$

$$Cv(Gas) = \frac{1345m3/h[S] \times Sqr(1.079 \times 96.1degK)}{2.538 \times 492kPaA} = 10.97$$

Cv Calculation Sheet

No: 5	TAG NO:	FV 1556	CASE:	MIN
Flow rate:	21488 l/h	Fluid state:	FLASH	
Inlet Pressure:	4.68 barA	Model:	AGVB	
Outlet pressure:	1.76 barA	Valve size:	4	inch
Diff. pressure	bar	Line size In/Out:	6	inch
Temperature:	-176 degC	Pipe Sch/ Thick:		mm
Sp.Gr. (liq.):	1000 kg/m3	Saturated temp.:		degC
Sp.Gr. (gas,vapor):	1.395 kg/m3[N]	KC:	0.62	
Viscosity:	mPa-s			
Vapor pressure:	barA	Velocity:	0.73	m/s
Critical pressure:	barA	S.P.L.:	61	dBA
CP/CV , Z:		Calc. Cv:	23.61	
Flash:	7.18 %	Travel:	61	%

$$Cv(Liq) = \frac{11.56 \times 19.95 m3/h \times Sqr(1)}{Sqr(292 kPa)} = 13.49$$

$$Cv(Gas) = \frac{1174 m3/h[S] \times Sqr(1.079 \times 97.1 degK)}{2.538 \times 468 kPaA} = 10.12$$

No: 6	TAG NO:	FV 1558	CASE:	MAX
Flow rate:	25789 l/h	Fluid state:	FLASH	
Inlet Pressure:	4.98 barA	Model:	AGVB	
Outlet pressure:	2.19 barA	Valve size:	4	inch
Diff. pressure	bar	Line size In/Out:	6	inch
Temperature:	-189 degC	Pipe Sch/ Thick:		mm
Sp.Gr. (liq.):	783 kg/m3	Saturated temp.:		degC
Sp.Gr. (gas,vapor):	1.258 kg/m3[N]	KC:	0.56	
Viscosity:	mPa-s			
Vapor pressure:	barA	Velocity:	0.88	m/s
Critical pressure:	barA	S.P.L.:	60	dBA
CP/CV , Z:		Calc. Cv:	19.83	
Flash:	3.8 %	Travel:	58	%

$$Cv(Liq) = \frac{11.56 \times 24.81 m3/h \times Sqr(0.783)}{Sqr(279 kPa)} = 15.19$$

$$Cv(Gas) = \frac{647.5 m3/h[S] \times Sqr(0.9729 \times 84.1 degK)}{2.538 \times 498 kPaA} = 4.635$$

No: 6	TAG NO:	FV 1558	CASE:	MIN
Flow rate:	21670 l/h	Fluid state:	FLASH	
Inlet Pressure:	4.62 barA	Model:	AGVB	
Outlet pressure:	2.16 barA	Valve size:	4	inch
Diff. pressure	bar	Line size In/Out:	6	inch
Temperature:	-189 degC	Pipe Sch/ Thick:		mm
Sp.Gr. (liq.):	783 kg/m3	Saturated temp.:		degC
Sp.Gr. (gas,vapor):	1.258 kg/m3[N]	KC:	0.53	
Viscosity:	mPa-s			
Vapor pressure:	barA	Velocity:	0.74	m/s
Critical pressure:	barA	S.P.L.:	59	dBA
CP/CV , Z:		Calc. Cv:	17.35	
Flash:	3.34 %	Travel:	55	%

$$Cv(Liq) = \frac{11.56 \times 20.95 m3/h \times Sqr(0.783)}{Sqr(246 kPa)} = 13.66$$

$$Cv(Gas) = \frac{478.2 m3/h[S] \times Sqr(0.9729 \times 84.1 degK)}{2.538 \times 462 kPaA} = 3.69$$

Cv Calculation Sheet

No: 7	TAG NO:	LV 1601		CASE:	MAX	
Flow rate:	22839	l/h	Fluid state:	FLASH		
Inlet Pressure:	5.17	barA	Model:	AGVB		
Outlet pressure:	1.87	barA	Valve size:	4		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-179.2	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	873	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.329	kg/m3[N]	KC:		0.64	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.78		m/s
Critical pressure:		barA	S.P.L.:	62		dBA
CP/CV , Z:			Calc. Cv:	23.31		
Flash:	9.21	%	Travel:	61		%

$$Cv(Liq) = \frac{11.56 \times 20.74 m3/h \times Sqr(0.873)}{Sqr(330 kPa)} = 12.33$$

$$Cv(Gas) = \frac{1467 m3/h[S] \times Sqr(1.028 \times 94 degK)}{2.538 \times 517 kPaA} = 10.98$$

No: 7	TAG NO:	LV 1601		CASE:	MIN	
Flow rate:	18576	l/h	Fluid state:	FLASH		
Inlet Pressure:	4.78	barA	Model:	AGVB		
Outlet pressure:	1.8	barA	Valve size:	4		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-180.9	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	873	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.329	kg/m3[N]	KC:		0.62	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.63		m/s
Critical pressure:		barA	S.P.L.:	61		dBA
CP/CV , Z:			Calc. Cv:	19.54		
Flash:	8.57	%	Travel:	57		%

$$Cv(Liq) = \frac{11.56 \times 16.98 m3/h \times Sqr(0.873)}{Sqr(298 kPa)} = 10.63$$

$$Cv(Gas) = \frac{1110 m3/h[S] \times Sqr(1.028 \times 92.3 degK)}{2.538 \times 478 kPaA} = 8.91$$

No: 8	TAG NO:	LV 1641		CASE:	MAX	
Flow rate:	15156	l/h	Fluid state:	FLASH		
Inlet Pressure:	4.88	barA	Model:	AGVB		
Outlet pressure:	1.9	barA	Valve size:	3		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-177	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	871	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.337	kg/m3[N]	KC:		0.61	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.92		m/s
Critical pressure:		barA	S.P.L.:	60		dBA
CP/CV , Z:			Calc. Cv:	18.42		
Flash:	11.94	%	Travel:	67		%

$$Cv(Liq) = \frac{11.56 \times 13.35 m3/h \times Sqr(0.871)}{Sqr(298 kPa)} = 8.341$$

$$Cv(Gas) = \frac{1251 m3/h[S] \times Sqr(1.034 \times 96.1 degK)}{2.538 \times 488 kPaA} = 10.08$$

Cv Calculation Sheet

No: 8	TAG NO:	LV 1641		CASE:	MIN	
Flow rate:	13237	l/h	Fluid state:	FLASH		
Inlet Pressure:	4.54	barA	Model:	AGVB		
Outlet pressure:	1.78	barA	Valve size:	3		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-177	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	871	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.337	kg/m3[N]	KC:		0.61	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.8		m/s
Critical pressure:		barA	S.P.L.:	59		dBA
CP/CV , Z:			Calc. Cv:	16.8		
Flash:	11.62	%	Travel:	65		%

$$Cv(Liq) = \frac{11.56 \times 11.7m3/h \times Sqr(0.871)}{Sqr(276kPa)} = 7.597$$

$$Cv(Gas) = \frac{1064m3/h[S] \times Sqr(1.034 \times 96.1degK)}{2.538 \times 454kPaA} = 9.205$$

No: 9	TAG NO:	FV 1645		CASE:	MAX	
Flow rate:	33927	l/h	Fluid state:	LIQUID		
Inlet Pressure:	6.2	barA	Model:	AGVB		
Outlet pressure:	5.9	barA	Valve size:	3		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-171	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1083	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.435	kg/m3[N]	KC:		0.05	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	2.06		m/s
Critical pressure:		barA	S.P.L.:	56		dBA
CP/CV , Z:			Calc. Cv:	74.52		
Flash:		%	Travel:	79		%

$$Cv(Liq) = \frac{11.56 \times 33.93m3/h \times Sqr(1.083) \times 1}{Sqr(30kPa)} = 74.52$$

No: 9	TAG NO:	FV 1645		CASE:	MIN	
Flow rate:	28493	l/h	Fluid state:	LIQUID		
Inlet Pressure:	6.2	barA	Model:	AGVB		
Outlet pressure:	5.7	barA	Valve size:	3		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-171	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	1083	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.435	kg/m3[N]	KC:		0.08	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	1.73		m/s
Critical pressure:		barA	S.P.L.:	57		dBA
CP/CV , Z:			Calc. Cv:	48.48		
Flash:		%	Travel:	70		%

$$Cv(Liq) = \frac{11.56 \times 28.49m3/h \times Sqr(1.083) \times 1}{Sqr(50kPa)} = 48.48$$

Cv Calculation Sheet

No: 10	TAG NO:	HV 1667		CASE:	MAX	
Flow rate:	312	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	5.4	barA	Model:			
Outlet pressure:	1.3	barA	Valve size:			inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-178	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.25	kg/m3[N]	KC:		0.76	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:			m/s
Critical pressure:		barA	S.P.L.:			dBA
CP/CV , Z:			Calc. Cv:	2.308		
Flash:		%	Travel:			%

$$Cv(Gas) = \frac{329.8m3/h[S] \times Sqr(0.9667 \times 95.1degK) \times 1}{2.538 \times 540kPaA} = 2.308$$

No: 10	TAG NO:	HV 1667		CASE:	NOR	
Flow rate:	240	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	5.4	barA	Model:			
Outlet pressure:	1.3	barA	Valve size:			inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-178	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.25	kg/m3[N]	KC:		0.76	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:			m/s
Critical pressure:		barA	S.P.L.:			dBA
CP/CV , Z:			Calc. Cv:	1.775		
Flash:		%	Travel:			%

$$Cv(Gas) = \frac{253.7m3/h[S] \times Sqr(0.9667 \times 95.1degK) \times 1}{2.538 \times 540kPaA} = 1.775$$

No: 11	TAG NO:	FV 1629		CASE:	MAX	
Flow rate:	2408	l/h	Fluid state:	FLASH		
Inlet Pressure:	7.62	barA	Model:	AGVB		
Outlet pressure:	2.89	barA	Valve size:	1		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-171	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	675	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.25	kg/m3[N]	KC:		0.62	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	1.32		m/s
Critical pressure:		barA	S.P.L.:	57		dBA
CP/CV , Z:			Calc. Cv:	2.375		
Flash:	21.9	%	Travel:	74		%

$$Cv(Liq) = \frac{11.56 \times 1.881m3/h \times Sqr(0.675)}{Sqr(473kPa)} = 0.8213$$

$$Cv(Gas) = \frac{302.3m3/h[S] \times Sqr(0.9667 \times 102.1degK)}{2.538 \times 762kPaA} = 1.553$$

Cv Calculation Sheet

No: 11	TAG NO:	FV 1629		CASE:	NOR	
Flow rate:	1352	l/h	Fluid state:	FLASH		
Inlet Pressure:	7.67	barA	Model:	AGVB		
Outlet pressure:	2.1	barA	Valve size:	1		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-171	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):	675	kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.25	kg/m3[N]	KC:		0.73	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.74		m/s
Critical pressure:		barA	S.P.L.:	57		dBA
CP/CV , Z:			Calc. Cv:	1.291		
Flash:	21.9	%	Travel:	57		%

$$Cv(Liq) = \frac{11.56 \times 1.056 m3/h \times Sqr(0.675)}{Sqr(557 kPa)} = 0.4249$$

$$Cv(Gas) = \frac{169.7 m3/h[S] \times Sqr(0.9667 \times 102.1 degK)}{2.538 \times 767 kPaA} = 0.8665$$

No: 12	TAG NO:	TV 1581B		CASE:	MAX	
Flow rate:	550	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	5.2	barA	Model:	AGVB		
Outlet pressure:	1.5	barA	Valve size:	1-1/2		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-60	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.292	kg/m3[N]	KC:		0.71	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.24		Mach
Critical pressure:		barA	S.P.L.:			dBA
CP/CV , Z:			Calc. Cv:	6.429		
Flash:		%	Travel:	71		%

$$Cv(Gas) = \frac{581.3 m3/h[S] \times Sqr(0.9992 \times 213.2 degK) \times 1}{2.538 \times 520 kPaA} = 6.429$$

No: 12	TAG NO:	TV 1581B		CASE:	NOR	
Flow rate:	380	m3/h[N]	Fluid state:	GAS		
Inlet Pressure:	4.9	barA	Model:	AGVB		
Outlet pressure:	1.4	barA	Valve size:	1-1/2		inch
Diff. pressure		bar	Line size In/Out:			inch
Temperature:	-60	degC	Pipe Sch/ Thick:			mm
Sp.Gr. (liq.):		kg/m3	Saturated temp.:			degC
Sp.Gr. (gas,vapor):	1.292	kg/m3[N]	KC:		0.71	
Viscosity:		mPa-s				
Vapor pressure:		barA	Velocity:	0.17		Mach
Critical pressure:		barA	S.P.L.:			dBA
CP/CV , Z:			Calc. Cv:	4.714		
Flash:		%	Travel:	65		%

$$Cv(Gas) = \frac{401.7 m3/h[S] \times Sqr(0.9992 \times 213.2 degK) \times 1}{2.538 \times 490 kPaA} = 4.714$$