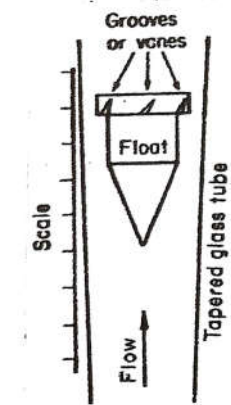


“Sensing the pulse of industry”

Specification for TekVar Variable Area Flow Sensors

The **TekVar** series is a comprehensive range of variable area flow sensors, which indicate the flow rate of gases and low viscosity liquids. Although simple and low cost, all **TekVar** sensors are provided with a Calibration Certificate traceable to both USA NIST and UK Accreditation Service (UKAS). They are also manufactured to quality strictly in accordance their ISO 9001 approval.

The **TekVar** principle of operation shows a vertical tapered transparent flow tube of tough, borosilicate glass or transparent plastics. These are scaled on the outside in various flow rate units for liquids or gases. Inside the flow tube is a hydraulically designed ‘float’, which is not an accurate description since it has a density always larger than the media being measured. At no flow condition the float rests at the bottom of the flow tube. Upward flow of media causes the float to rise to a position which maintains the pressure drop across it, in equilibrium with the effects of gravity and buoyancy forces acting upon it. Since the immersed weight of the float is constant within the media being measured, the pressure drop across it must also remain constant. Therefore, as the flow rate increases, the float will rise in the tapered flow tube to provide a larger annular area, through which the media passes. Hence the float takes up a height position, which is an indication of the flow rate, calibrated with NIST and UKAS traceability.

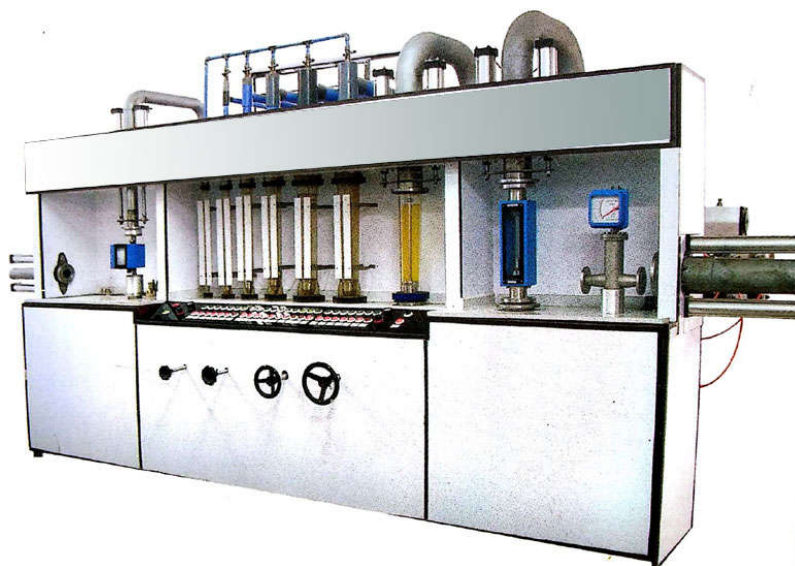


For optimum accuracy it is imperative that the float remains concentric with the tapered flow tube, **CE ISO 9001** even with no straight pipe runs at either end of the **TekVar**. This is accomplished with **TekVar** sensors, by both precision engineering and various hydraulic designs of the float, in which aerodynamic flutes are embodied to provide a stabilizing, concentric rotation. For large flow sensor floats, a friction-free guide rod is incorporated.

TekVar Quality and International Calibration Traceability

The **Tekflo Sensors** label means quality, with international calibration accuracy and traceability. As part of a Certified Partnership, **Tekflo** products are manufactured in strict accordance with ISO 9001 requirements and to European CE standards, such as the European Pressure Directive PED97/23/EC Article 3, Sound Engineering Practice (SEP).

Each **TekVar** flow sensor is calibrated with traceability to the USA National Institute of Standards and Technology (NIST), and the United Kingdom Accreditation Service (UKAS), and other internationally recognised standards. Our calibration facilities are modern and accurate to an order of accuracy better than the **TekVar** flow sensors themselves.



tekVar Theory and Correction for Sizing Sensors for Various Media

tekVar floats are designed for optimum accuracy for liquids and gases. For liquids, there are also float materials available with various densities suitable for various liquid densities and viscosities. The diagram shows typical float types and location of the reading plane:



tekVar reference conditions for their designated flow ranges are as follows:

Gases: Based on air at temperature 0°C = 273° K and pressure 1.033 bar absolute. We refer to these as normal conditions (NTP), although definitions differ in various countries.

For USA reference gas reference conditions are at 60° F = 520° R. We refer to these as standard conditions (STP), although definitions differ in various countries.

Liquids: Based on water, specific gravity 1.0, viscosity 1 centiPoise).

Formulae for Sizing tekVar Sensors for Various Gases

- a) Gas at normal conditions in metric units

$$Q_{air} = Q_{gas} \times \sqrt{\frac{\rho}{1.293}} \times \sqrt{\frac{273 + T}{273}} \times \sqrt{\frac{1.033}{1.033 + P}}$$

Q_{air} = tekVar equivalent air flow rate at NTP nlpm or NTP nm³/h.

Q_{gas} = flow rate of application gas nlpm or nm³/h

ρ = density of gas at NTP kg/nm³

T = operating temperature of gas ° C

P = operating pressure of gas kg/cm² gauge

Note: Size sensor with max rate typically 25% higher than normal.

- b) Gas at normal conditions in USA STP units

$$Q_{air} = Q_{gas} \times \sqrt{\frac{\rho}{0.0807}} \times \sqrt{\frac{520 + T}{520}} \times \sqrt{\frac{14.7}{14.7 + P}}$$

Q_{air} = tekVar equivalent air flow rate at STP scfm

Q_{gas} = flow rate of application gas scfm or scfh

ρ = density of gas at STP in lb/ft³

T = operating temperature of gas ° F

P = operating pressure of gas lb/ft³ gauge

Note: Size sensor with max rate typically 25% higher than normal.

- c) Gas at actual conditions with flow rates in actual lpm or actual m³/h:

$$Q_{air} = Q_{gas} \times \sqrt{\frac{\rho}{1.293}} \times \sqrt{\frac{460}{460 + T}} \times \sqrt{\frac{1.033 + P}{1.033}}$$

Q_{air} = tekVar equivalent air flow rate at nlpm or nm³/h

Q_{gas} = flow rate of application gas at actual lpm or actual m³/h

ρ = density of gas at NTP kg/nm³

T = operating temperature of gas ° C

P = operating pressure of gas kg.cm² gauge

Formulae for Sizing **tekVar Sensors** for Various Liquids

$$Q = Q_0 \times \sqrt{\frac{r_0 (r_1 - 1)}{(r_1 - r_0)}}$$

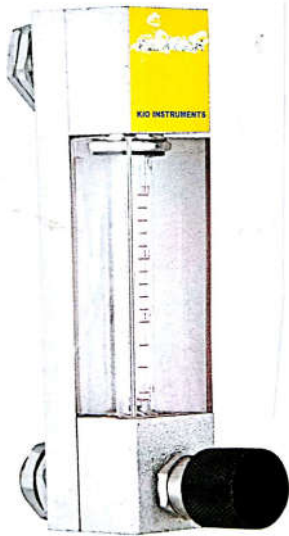
Q = **tekVar** equivalent water flow rate in mlpm / lpm / m3/h or gpm / gph
Q₀ = Flow rate of application liquid with sg other than water in lpm/mlpm or gpm/gph
r₀ = sg of application liquid
r₁ = sg of float

Standard Float Material	PVC	Teflon	316 Stainless Steel
Float sg	1.45	2.20	7.90

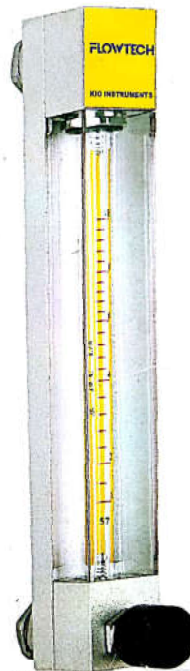
Note: Floats with integral magnets for use with reed switches have an sg different from the above. For these and liquid viscosities > 10 centiPoise, consult **Tekflo Sensors** or your local **tekflo sensors** Authorised Distributor.

tekVar Borosilicate Glass Flow Tube Sensors

tekVar TKV – 1P Panel Mount Series



tekVar TKV – 2P Panel Mount Series



tekVar TKV - 1P Specification

Media: Gases and low viscosity liquids
 Accuracy: ± 2.5% full scale
 Max temperature: 100° C (212° F)
 Max pressure: 6 bar g (87 psig)
 Connections and: 1/8" / 1 / 4" MNPT / MBSPT
 Body material: AISI 304 or 316 stainless steel
 Float material: AISI 316 stainless steel (liquids), Aluminium (gases)
 Seals: Viton
 Flow tube: Borosilicate glass
 Flow adjustment: fine needle valve
 Approx weight: 0.5 kg (1.1 lb)

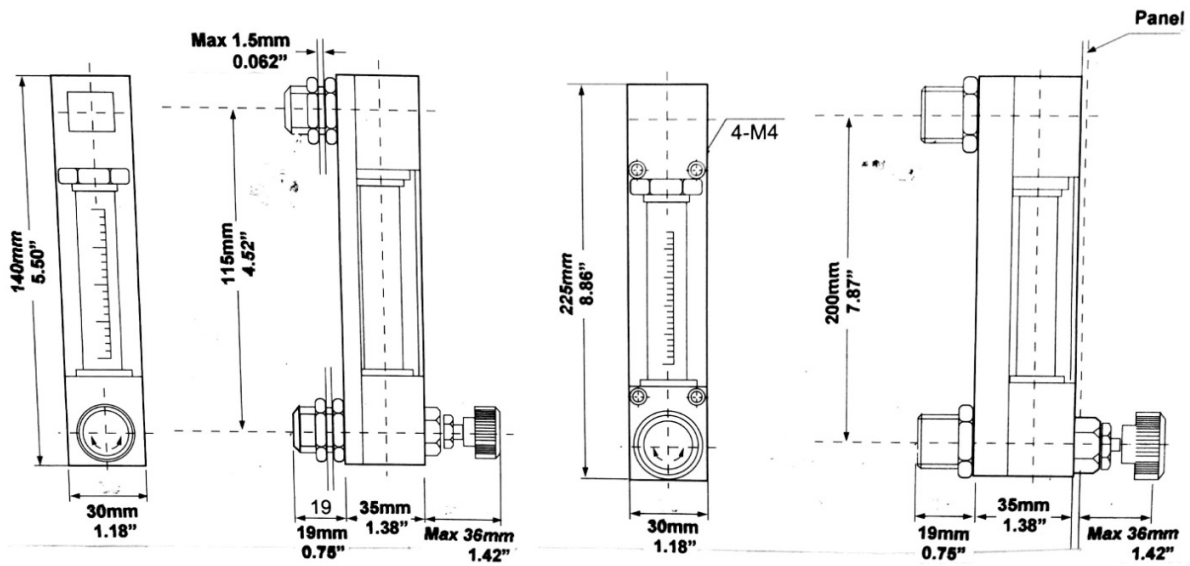
tekVar TKV - 2P Specification

All details as type **TKV – 1P**, except:
 Approx. weight 0.6 kg (1.3 lbs)

tekVar TKV – 1P and TKV – 2P Series Flow Data

Type	Flow Ranges			
	Water		Air	
TKV – 1P TKV – 2P	mlpm	gph	nlpm	scfh
	20 – 200	0.3 – 3.0	0.3 – 3.0	0.7 – 7.0
	30 – 300	0.5 – 5.0	0.5 – 5.0	1.0 – 10
	50 – 500	0.8 – 8.0	1.0 – 10	2.5 – 25
	lpm	gph		
	0.1 – 1.0	1.6 – 16	2.0 – 20	4.5 – 45
	0.15 – 1.5	2.4 – 24	3.0 – 30	7.0 – 70
	0.2 – 2.0	3.0 – 30	5.0 – 50	11 – 110

tekVar TKV – 1P and TKV – 2P Dimensional Drawings



tekVar TKV – 1P

tekVar TKV – 2P



Technical Data Sheet & General Specifications

tekVar TKV – 1P and TKV – 2P Series Ordering Code

Note: all details to be supplied using the **tekVar Enquiry Form** at the end of this specification.

Example: **TKV – 1P – 16gph – W – 1 – B – 40-60psig – 95-120F**
TKV – 2P

Basic Type: _____

Max Flow Rate and Units: _____
Take highest rate of appropriate standard range

Media: _____
Water = W
Air = A
Other (provide details) = O

Body Material: _____
AISI 304 stainless steel = 1
AISI 316 stainless steel = 2

Process Connections: _____
1/4" male NPT = A
1/4" male BSP parallel = B

Media Pressure Range: _____
State min and max in bar g or psig
Pressure must not exceed 6 bar g (87 psig)
Average pressure taken for gas flow scaling

Media Temperature Range: _____
State min and max in ° C or ° F (C or F)
Temperature must not exceed 100° C (212° F)
Average temperature taken for gas flow scaling

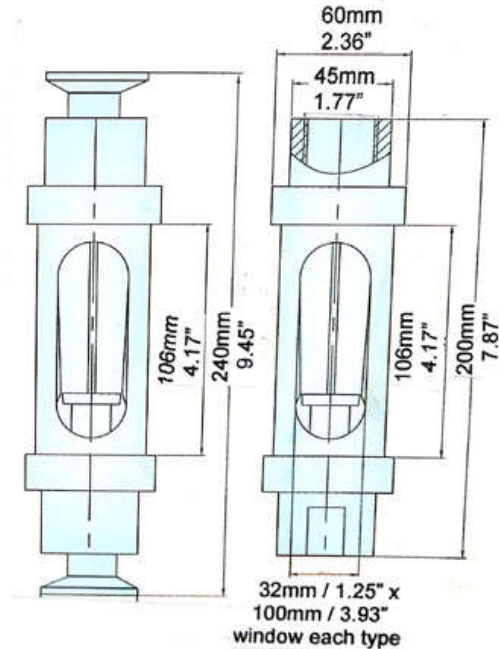
tekVar TKV05 Series With Polished Stainless Steel Construction for Clean Industrial or Sanitary Environments



tekVar TKV- 05
Threaded Female Connections



tekVar TKV- 05
Sanitary Connections



tekVar TKV- 05
Dimensional Drawings

tekVar TKV - 05 Specification

Media:	Liquids and gases
Accuracy:	± 1.5% full scale liquids ± 2.5% full scale gases
Max temperature:	100° C (212° F)
Max pressure:	6 bar g (87 psig)
Connections:	3 / 4" / 1" FNPT / FBSPT in AISI 304 stainless steel 3/4" or 1" 3-A approved Tri-Clamp or 20mm or 25mm DIN 11851 sanitary connections in AISI 316 stainless steel
Float material:	AISI 316 stainless steel (liquids), aluminium (gases)
Seals:	Viton
Flow tube:	Borosilicate glass
Protective cover:	304 stainless steel with threaded connections, 316 stainless steel for sanitary connections
Approx Weight:	2.2 kg (4.8 lbs) all stainless steel

tekVar TKV - 05 Series Flow Data, Process Connections

Flow Ranges				Process Connections
Water		Air		
lpm	gph	nlpm	scfm	
1.0 – 10	15 – 150	40 – 400	1.5 - 15	20mm (3/4") Sanitary or 3/4" FNPT or FBSPT
2.0 – 20	30 - 300	60 – 600	2.5- 25	
3.0 - 30	50 – 500	90 – 900	3.5 –35	
4.0 – 40	60 – 600	120 - 1200	4.5 - 45	
5.0 – 50	80 – 800	150 –1500	5.5 - 55	25mm (1") Sanitary or 1" NPT or BSPT
12 - 60	190 - 950	400 - 1800	5.0 - 70	
20 - 100	320 -1600	600 -3000	20 - 100	



Technical Data Sheet & General Specifications

tekVar TKV - 05 Series Ordering Code

Note: all details to be supplied using the **tekVar Enquiry Form** at the end of this specification.

Example: **TKV - 05 - 15scfm - A - 2 - A - 40-60psig - 95-120F**

Basic Type: _____

Max Flow Rate and Units: _____
 Take highest rate of appropriate standard range. See flow rates table

Media: _____
 Water = W
 Air = A
 Other (provide details) = O

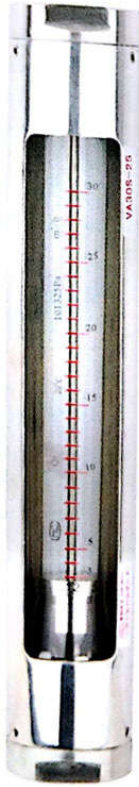
Body and Connection Materials: _____
 AISI 304 stainless steel = 1
 AISI 316 stainless steel = 2
 Note: gases have an aluminium float,
 liquids have a 316 stainless steel float

Process Connections: _____
 3/4" FNPT = A
 3/4" FBSPT = B
 20mm DIN 11851 sanitary = C
 3/4" Tri-Clamp sanitary = D
 1" FNPT = E
 1" FBSPT = F
 25mm DIN 11851 sanitary = G
 1" Tri-Clamp sanitary = H

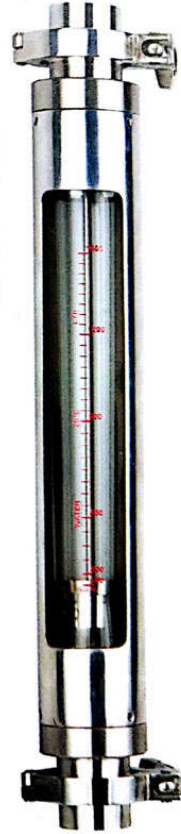
Media Pressure Range: _____
 State min and max in bar g or psig
 Pressure must not exceed 6 bar g (87 psig)
 For gases the average pressure is taken for scaling

Media Temperature Range: _____
 State min and max in ° C or ° F (C or F)
 Temperature must not exceed 100° C (212° F)
 For gases the average temperature is taken for scaling

tekVar TKV – STIN and TKV – STHY Series Variable Area Flow Sensors With Polished Stainless Steel Protection For Clean or Sanitary Environments



tekVar TKV – STIN
For Clean Industrial Environments



tekVar TKV – STHY
For Sanitary Environments

Specification for TKV – STIN and TKV - STHY

Media : Gases and low viscosity liquids
 Accuracy: $\pm 1.5\%$ full scale liquids
 $\pm 2.5\%$ full scale gases
 Max temperature: -20° to $+120^{\circ}$ C (-4° - 250° F)
 Max pressure: 10 - 7 bar g (145 -100 psig). See Flow Range Table for limitations
 Connections: $1/2''$ / $1''$ / $1\ 1/2''$ / $2''$ FNPT / FBSPT for type **TKV - STIN**
 $1/2''$ / $1''$ / $1\ 1/2''$ / $2''$ Tri-Clamp or DIN 11851 sanitary fittings for type **TKV - STHY**

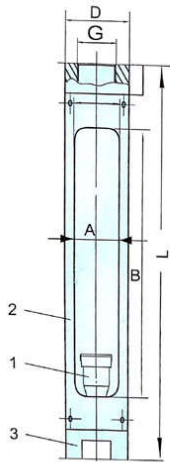
tekVar TKV – STIN and TKV – STHY Materials of Construction

Part #	Materials Available
1	AISI 316L stainless steel or PTFE
2	AISI 316 stainless steel
3	AISI 316 stainless steel

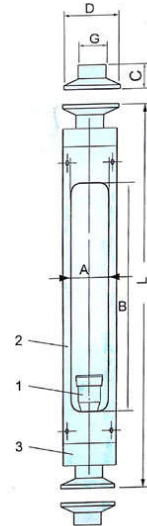
Seals: Viton
 Tube: Borosilicate glass

Note: Part # 1 are float materials in AISI 316L for liquids or PTFE for gases.

tekVar TKV – STIN and TKV – STHY Dimensional Drawings and Weights



Type TKV – STIN



Type TKV – STHY

Nominal Size	TKV – STIN		TKV – STHY		B		A		TKV – STIN Female Threaded Connections	Approximate Weights				
	L	L	L	L	mm	ins.	mm	ins.		TKV – STIN	TKV – STHY	TKV – STIN	TKV – STHY	
mm	ins.	mm	ins.	mm	ins.	mm	ins.	mm	ins.	kg	lbs	kg	lbs	
15	1/2"	344	13.5"	370	14.6"	270	10.6"	25	0.98"	1/2" NPT or BSPT	1.4	3.1	1.6	3.5
25	1"	348	13.7"	368	14.5"	236	9.29"	40	1.58"	1" NPT or BSPT	2.1	4.6	2.4	5.3
40	1 1/2"	370	14.6"	378	14.9"	226	8.90"	50	1.97"	1 1/2" NPT or BSPT	3.6	7.0	4.0	8.8
50	2"	380	15.0"	378	14.9"	226	8.90"	60	2.36"	2" NPT or BSPT	6.0	13.2	6.5	14.3

Note: Nominal sizes of type TKV – STHY determine the size of the Tri-Clamp or DIN 11851 sanitary fittings

tekVar TKV – STIN and TKV – STHY Flow Ranges and Maximum Pressures

Nominal Size	Flow Ranges				Max Pressure		
	Water		Air		bar g	psig	
	lph	gph	nm3/h	scfh			
15	1/2"	4 – 40	1.0 - 10	0.12- 1.2	4.5– 45	10	145
		6 – 60	1.6 - 16	0.3 – 3.0	12 - 120		
		10 - 100	2.5 - 25	0.5 – 5.0	20 - 200		
		16 - 160	4.0 - 40	0.8 – 8.0	30 - 300		
		25 – 250	6.3 - 63	1.2 - 12	45 - 450		
		40 – 400	10 - 100	2.0 - 20	75 - 750		
		63 – 630	16 - 160	-----	-----		
25	1"	63 – 630	16 - 160	2.0 - 20	75 - 750	10	145
		100 – 1000	25 - 250	3.0 - 30	120-1200		
		160 – 1600	40 – 400	5.0 - 50	200-2000		
		250 – 2500	63 - 630	8.0 - 80	300-3000		
40	1 1/2"	160 – 1600	40 - 400	5.0 - 50	200-2000	9.0	130
		250 – 2500	63 - 630	8.0 - 80	300-3000		
		400 – 4000	100-1000	12 - 120	450-4500		
50	2"	400 – 4000	100-1000	12 - 120	450-4500	7.0	100
		630 – 6300	160-1600	20 - 200	750-7500		
		1000 -10000	250-2500	30 - 300	1200-12000		
		4000 -16000	100-4000	-----	-----		

tekVar TKV – STIN and TKV - STHY Ordering Code

Example:

TKV – STIN - 25mm - 2000scfh – A – C – 40-60psig – 95-120F
TKS – STHY – 25mm – 400gph – W – B – 40-60psig – 95-120F

Basic Type: _____

TKV – STIN

TKV - STHY

Nominal Size mm _____

15mm (1/2") = 15mm

25mm (1") = 25mm

40mm (1 1/2") = 40mm

50mm (2") = 50mm

Max Flow Rate and Units: _____

Take highest rate of appropriate standard range

Media: _____

Water = W

Air = A

Other (provide details) = O

Process Connections: _____

TKV – STIN:

1/2" NPT = A, 1/2" BSPT = B, 1" NPT = C, 1" BSPT = D

1 1/2" NPT = E, 1 1/2" BSPT = F, 2" NPT = G, 2" BSPT = F

TKV – STHY:

1/2" Tri-Clamp = A, 1" Tri-Clamp = B, 1 1/2" Tri-Clamp = C, 2" Tri-Clamp = D

Media Pressure Range: _____

State min and max in bar g or psig.

The average will be taken for scaling of gas flow rates

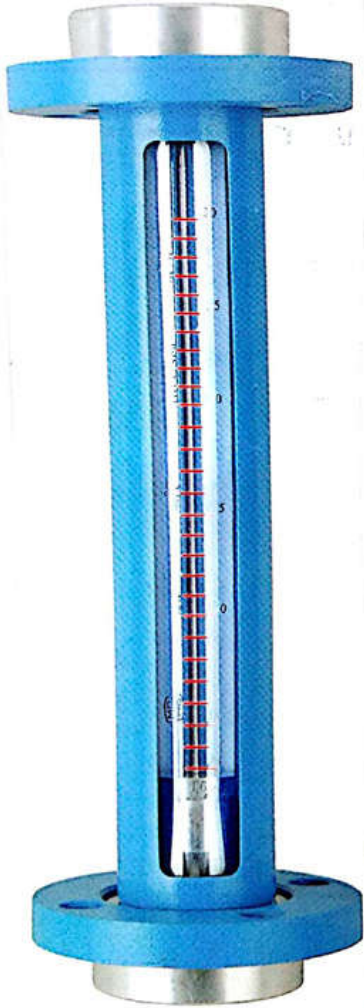
Media Temperature Range: _____

State min and max in °C or °F (C or F)

The average will be taken for scaling of gas flow rates

TekVar TKV – V01 and TKV – S01 Series Maximised Flow Tube Protection

TekVar TKV – F01 Series Maximised Flow Tube Protection



TekVar TKV - F01



TekVar TKV - V01



TekVar TKV – S01

Specification TKV – V01 and TKV – S01

Media : Gases and low viscosity liquids
 Accuracy: $\pm 1.5\%$ full scale liquids
 $\pm 2.5\%$ full scale gases
 Max temperature: -20° to $+120^{\circ}$ C (-4° - 250° F)
 (limited by flexible connection tube for type TKV – S01)
 Max pressure: 10 - 7 bar g (145 -100 psig)
 Connections: 1/2" / 1" / 1 1/2" / 2" FNPT / FBSPT

Specification TKV - F01

Type TKV – F01 has same specification as Type TKV – V01 and TKV – S01, except:

Flanged connections:
 1/2", 1", 1 1/2", 2" ANSI 150 rf and
 DIN PN10 or JIS 10k sizes 15, 25, 40, 50mm

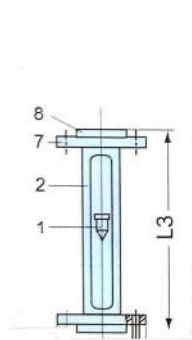
tekVar TKV – F01, TKV – V01, TKV - S01 Flow Ranges and Maximum Pressures

Nominal Size mm Ins	Flow Ranges				Max Pressure	
	Water		Air		bar g	psig
	lph	gph	nm3/h	scfh		
15 1/2"	4 – 40	1.0 - 10	0.12- 1.2	4.5– 45	10	145
	6 – 60	1.6 - 16	0.3 – 3.0	12 - 120		
	10 - 100	2.5 - 25	0.5 – 5.0	20 - 200		
	16 - 160	4.0 - 40	0.8 – 8.0	30 - 300		
	25 – 250	6.3 - 63	1.2 - 12	45 - 450		
	40 – 400	10 - 100	2.0 - 20	75 - 750		
	63 – 630	16 - 160	-----	-----		
25 1"	63 – 630	16 - 160	2.0 - 20	75 - 750	10	145
	100 – 1000	25 - 250	3.0 - 30	120-1200		
	160 – 1600	40 – 400	5.0 - 50	200-2000		
	250 – 2500	63 - 630	8.0 - 80	300-3000		
40 1 1/2"	160 – 1600	40 - 400	5.0 - 50	200-2000	9.0	130
	250 – 2500	63 - 630	8.0 - 80	300-3000		
	400 – 4000	100-1000	12 - 120	450-4500		
50 2"	400 – 4000	100-1000	12 - 120	450-4500	7.0	100
	630 – 6300	160-1600	20 - 200	750-7500		
	1000 -10000	250-2500	30 - 300	1200-12000		
	4000 -16000	100-4000	-----	-----		

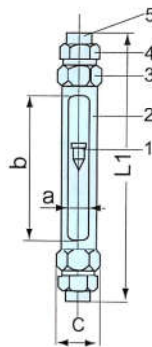
tekVar TKV – F01, TKV – V01, TKV - S01 Dimensional Drawings

L3 = 310mm (12.2")
all flow ranges

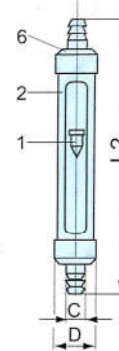
Nom Size 15, 25mm (3/4", 1"):
L2 = 400mm (15.8")
Nom Size 40, 50mm (1 1/2", 2"):
L2 = 450mm (17.7")



TKV – F01



TKV – V01



TKV – S01

Nominal Size		Window Size		TKV- V01 L1		TKV – S01				TKV – V01 Female Threaded Connections		Weights	
mm	ins.	mm	ins.	mm	ins.	C Dia		D				kg	lbs
15	1/2"	26 x 230	1"x 9"	408	16.1"	13.5	0.53"	44	1.73"	1/2" NPT or BSPT		1.2	2.6
25	1"	26 x 230	1"x 9"	414	16.3"	27	1.06"	65	2.56"	1" NPT or BSPT		2.0	4.4
40	1 1/2"	40 x 230	1.5"x9"	428	16.9"	44	1.73"	80	3.15"	1 1/2" NPT or BSPT		3.9	8.6
50	2"	50 x 230	2"x 9"	431	17.0"	53	2.08"	103	4.06"	2" NPT or BSPT		6.1	13.4

Note: nominal sizes apply to flange sizes for type **TKV – F01**

TekVar TKV – F01, TKV – V01, TKV –S01 Materials of Construction and Float

TekVar TKV – V01, S01		TekVar TKV – F01	
Part #	Materials Available	Part #	Materials Available
1	AISI 316L stainless steel or PTFE	1	AISI 316 stainless steel or PTFE
2	Epoxy coated steel	2	Epoxy coated steel
3	Aluminium or AISI 304 stainless steel	3	Epoxy coated steel or AISI 304 stainless steel
4	Epoxy coated steel	4	Aluminium or AISI 304 stainless steel
5	304 stainless steel or epoxy coated steel	5, 6	Not applicable
Seals: Viton (all types)		7	AISI 304 stainless steel
Tube: Borosilicate glass (all types)		8	AISI 304 stainless steel

Note: Part # 1 are float materials in AISI 316L for liquids or PTFE for gases.

TekVar TKV – V01, S01, F01 Ordering Code

Example:

TKV – V01 - 25mm - 1200scfh – A – 2 – 1 – 7 - C – 40-60psig – 95-120F
TKS – S01 – 25mm - 1200scfh - A – 1 – 1 – 8 - X – 40-60psig – 45-80F*
TKS – F01 – 25mm – 1200scfh – A – 3 – 2 – 0 - H - 40-60psig – 95-120F

Basic Type: _____

TKV – V01, S01, F01

Nominal Size mm _____

15mm (1/2") = 15mm
 25mm (1") = 25mm
 40mm (1 1/2") = 40mm
 50mm (2") = 50mm

Max Flow Rate and Units: _____

Take highest rate of appropriate standard range

Media: _____

Water = W
 Air = A
 Other (provide details) = O

Part # 3 Construction Material: _____

Aluminium for TKV-V01 and TKV-S01 = 1
 AISI 304 stainless steel for TKV-V01 and TKV-S01 = 2
 Epoxy coated steel for TKV-F01 = 3
 AISI 304 stainless steel for TKV-F01 = 4

Part # 4 Construction Material _____

Part # 4 for TKV-S01 Not Applicable = 0
 Epoxy coated steel for TKV-V01 = 1
 AISI 304 stainless steel for TKV-F01 = 2
 Aluminium for TKV-F01 = 3

Part # 5 Construction Material : _____

Part # 5 for TKV-S01 and TKV-F01 not applicable = 0
 AISI 304 stainless steel for TKV-V01 = 1
 Epoxy coated steel for TKV- V01 = 2

Process Connections: _____

Flexible tube connection for Type TKV-S01 (see dimensions table)

TKV-V01: _____ = X
 1/2" NPT = A, 1/2" BSPT = B, 1" NPT = C, 1" BSPT = D
 1 1/2" NPT = E, 1 1/2" BSPT = F, 2" NPT = G, 2" BSPT = F

TKV-F01: _____

1/2" ANSI 150 rf = G, 1" ANSI 150 rf = H, 1 1/2" ANSI 150 rf = I, 2" ANSI 150 rf = J
 DIN PN10: DN 15 = K, DN25 = L, DN40 = M, DN50 = N
 JIS 10k: 15mm = O, 25mm = P, 40mm = Q, 50mm = R

Media Pressure Range: _____

State min and max in bar g or psig.
 The average will be taken for scaling of gas flow rates

Media Temperature Range: _____

State min and max in °C or °F (C or F)
 *Temperature must not exceed flexible tubing maximum on Type **TKV – S01**
 The average will be taken for scaling of gas flow rates

TekVar TKV – V02, TKV – S02 Series Wide View Protection

TekVar TKV – F02 Series Wide View Protection



TKV – V02

TKV – S02

TKV – F02

Specification for TKV – V02, TKVS02, TKV F02

Media: Liquids and gases
 Accuracy: $\pm 1.5\%$ full scale liquids
 $\pm 2.5\%$ full scale gases
 Max. temperature: -20° to $+120^{\circ}$ C (-4 to $+250^{\circ}$ F)
 Note: **TKV – S02** temperature limited by flexible hose type
 Float material: AISI 304 or 316 stainless steel (liquids)
 Aluminium (gases)
 Protective cover: epoxy coated aluminium
 Max pressure: 10 - 7 bar g (145 -100 psig)
 Connections: $1/2"$ / $1"$ / $1\ 1/2"$ / $2"$ FNPT / FBSPT
 in 304 st st or carbon steel
 Overall length: 408 – 431mm (16" – 16.9")
 Float material: PTFE, AISI 316 stainless steel
 Seals: Viton
 Flow tube: Borosilicate glass

Type **TKV – F02** has same specification as **TKV – V02**, except:

Flanged connections:
 $1/2"$, $1"$, $1\ 1/2"$, $2"$ ANSI 150 rf
 DIN PN10 or JIS10k, DN 15, 25, 40, 50mm
 in 304 stainless steel or epoxy coated carbon steel.

tekVar TKV – V02, TKV – S02, TKV – F02 Flow Ranges and Maximum Pressures

Nominal Size mm Ins		Flow Ranges				Max Pressure	
		Water		Air		bar g	psig
lph	gph	nm3/h	scfh				
15	1/2"	4 – 40	1.0 - 10	0.12- 1.2	4.5– 45	10	145
		6 – 60	1.6 - 16	0.3 – 3.0	12 - 120		
		10 - 100	2.5 - 25	0.5 – 5.0	20 - 200		
		16 - 160	4.0 - 40	0.8 – 8.0	30 - 300		
		25 – 250	6.3 - 63	1.2 - 12	45 - 450		
		40 – 400	10 - 100	2.0 - 20	75 - 750		
		63 – 630	16 - 160	-----	-----		
25	1"	63 – 630	16 - 160	2.0 - 20	75 - 750	10	145
		100 – 1000	25 - 250	3.0 - 30	120-1200		
		160 – 1600	40 – 400	5.0 - 50	200-2000		
		250 – 2500	63 - 630	8.0 - 80	300-3000		
40	1 1/2"	160 – 1600	40 - 400	5.0 - 50	200-2000	9.0	130
		250 – 2500	63 - 630	8.0 - 80	300-3000		
		400 – 4000	100-1000	12 - 120	450-4500		
50	2"	400 – 4000	100-1000	12 - 120	450-4500	7.0	100
		630 – 6300	160-1600	20 - 200	750-7500		
		1000 -10000	250-2500	30 - 300	1200-12000		
		5000 -16000	100-4000	-----	-----		

tekVar TKV - V02, TKV – S02, TKV – F02 Dimensional Drawings

L2 = 375mm (14.8")

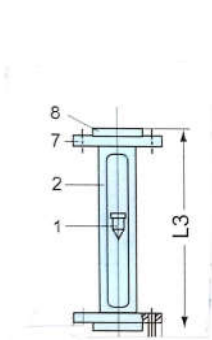
Sizes 15, 25mm (1/2", 1")

L3 – 425mm (16.7")

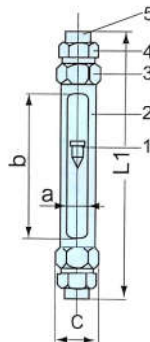
L1 = 400mm (15.8")

Sizes 40, 50mm (1 1/2", 2")

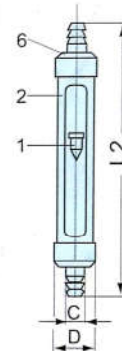
L1 = 450mm (17.7")



TKV – V02



TKV – S02



TKV – F02

Nominal Size mm ins.		Window Size All Types mm ins.		TKV – S02				TKV – V02 Female Threaded Connections	Weights			
				A		B Dia.			V02, S02		F02	
mm	ins.	mm	ins.	mm	ins.	mm	ins.	kg	lbs	kg	lbs	
15	1/2"	33 x 236	1.29"x 9.25"	58	2.28"	17	0.67"	1/2" FNPT or FBSPT	1.1	2.4	2.0	4.4
25	1"	50 x 250	1.97"x 9.45"	74	2.91"	30	1.18"	1" FNPT or FBSPT	1.8	4.4	3.4	7.5
40	1 1/2"	65 x 230	2.5"x 9.0"	92	3.62"	44	1.73"	1 1/2" FNPT or FBSPT	3.1	6.8	6.3	13.9
50	2"	85 x 230	3.4"x 9.0"	112	4.41"	54	2.13"	2" FNPT or FBSPT	5.2	11.4	9.8	21.6

Note: nominal sizes apply to flange sizes for type **TKV – F02**

tekVar TKV – V02, TKV – S02, TKV – F02 Materials of Construction and Floats

Types TKV – V02, TKV – S02		Type TKV – F02	
Part #	Materials Available	Part #	Materials Available
1	AISI 316L OR stainless steel, PTFE	1	AISI 316L stainless steel OR PTFE
2	Aluminium	2	Aluminium
3	Aluminium	3	Aluminium
4	TKV - V02: AISI 304 stainless steel TKV – S02: 304 stainless steel OR aluminium	4	AISI 304 OR epoxy coated carbon steel
Seals: Viton		Seals: Viton	
Tube: Borosilicate glass		Tube: Borosilicate glass	

Note: Part # 1 are float materials determined by **tekflo Sensors**.
PTFE floats are for gases only. Parts # 3, 4, 5 offer choices (See Construction Material in Ordering Code).

tekVar TKV – V02, TKV – S02, TKV – F02 Ordering Code

Note: all details to be supplied using the **tekVar Enquiry Form** at the end of this specification.

Example:

TKV – V02 – 25mm – 1200scfh – A – 1 – A – 40-60psig – 95-120F
TKS – S02 – 25mm – 1200scfh – A – 2 – X – 40-60psig – 45-80F*
TKS – F02 – 25mm – 1200scfh – A – 3 – H – 40-60psig – 95-120C

Basic Type: _____
TKV – V02, TKV – S02, TKS – F02

Nominal Size mm _____
 15mm (1/2") = 15mm
 25mm (1") = 25mm
 40mm (1 1/2") = 40mm
 50mm (2") = 50mm

Max Flow Rate and Units: _____
 Take highest rate of the appropriate standard range

Media:
 Water = W
 Air = A
 Other (provide details) = O

Part # 4 Construction Material: _____
 AISI 304 stainless steel all types = 1
 Aluminium for types for **TKV – S02** only = 2
 AISI 304 stainless steel Part # 4 for **TKV – F02** = 3

Process Connections (see Dimensional Drawings Table above): _____
TKV – S02 only = X

TKV – V02:
 1/2" NPT = A, 1/2" BSPT = B, 1" NPT = C, 1" BSPT = D,
 1 1/2" NPT = E, 1 1/2" BSPT = F, 2" NPT = G, 2" BSPT = F,

TKV – F02:
 1/2" ANSI 150 rf = G, 1" ANSI 150 rf = H, 1 1/2" ANSI 150 rf = I, 2" ANSI 150 rf = J
 DIN PN10: DN 15 = K, DN25 = L, DN40 = M, DN50 = N
 JIS 10k: 15mm = O, 25mm = P, 40mm = Q, 50mm = R

Media Pressure Range: _____
 State min and max in bar g or psig
 Average value will be taken for gas flow scaling

Media Temperature Range: _____
 State min and max in °C or °F *
 Average value will be taken for gas flow scaling

*Temperature must not exceed flexible tubing maximum on Type **TKV – S02**

TekVar TKV – P05 Series Plastic Variable Area Sensors for Liquids


TKV – P05F
Female Threaded Connections



TKV – P05M
Male Threaded Connections



TKV – P05G
Glued Connections

Media:	Low viscosity liquids only
Scales:	Normally dual unit scaling as in tables below.
Accuracy:	±5% full scale
Float material:	ABS plastic ranges 0.8 – 8.0 gpm (3 – 30 lpm) and greater AISI 316 stainless steel 0.8 - 8.0 gpm (3 – 30 lpm) and less
Flow tube material:	Acrylonitrile styrene OR polycarbonate
O ring seals:	Viton
Connection materials:	PVC glue ends,
Male connections:	1/2" - 2 NPT or BSPT
Female connections:	3/4" – 2 1/2" NPT or BSPT
Glue connections:	20mm (0.80"), 32mm (1.25"), 40mm (1.60"), 63mm (2.50"), 75mm (3.00") ODs
Max temperature:	60° C (140° F)
Max pressure:	6 bar g (87 psig)
Optional Flow Switches:	Type FSH high limit or FSL low limit. Max 24V dc/24V ac, max 0.3A, max 1VA, max load 200 M Ohms, 0 to + 55° C (+32 to +130°F), protection IP65/NEMA 4. Dims: 45mm deep x 45mm stand-out x 20mm wide (1.77" x 1.77" x 0.8")



Technical Data Sheet & General Specifications

Type TKV – P05F Flow Ranges, Female Connection Details, Dimensions and Weights

Nominal Size mm ins	Water Based Flow Ranges Both Units on One Scale gpm lpm		Female Connections	Dimensions						Weights	
				L		D		L3		kg	lbs
				mm	ins	mm	ins	mm	ins		
20 3/4"	0.8 – 8.0 1.0 – 10.0	3.0 – 30 4.0 – 40	3/4" FNPT or FBSPT	170	6.69	59	2.32	228	8.97	0.4	0.9
25 1"	1.2 – 12.0 2.0 – 20.0 2.5 – 25.0	5.0 – 50 8.0 – 80 10 – 100	1" FNPT or FBSPT	223	8.77	72	2.84	287	11.3	0.7	1.5
50 2"	2.5 – 25.0 5.0 – 45.0 7.0 – 70.0	10 – 100 20 – 180 25 – 250	2" FNPT or FBSPT	290	11.4	100	3.94	370	14.6	2.5	5.5
63 2 1/2"	25 – 110 40 – 160 50 – 250	80 – 400 150 – 650 200 – 1000	2 1/2" FNPT or FBSPT	325	12.8	120	4.72	423	16.7	3.5	7.7

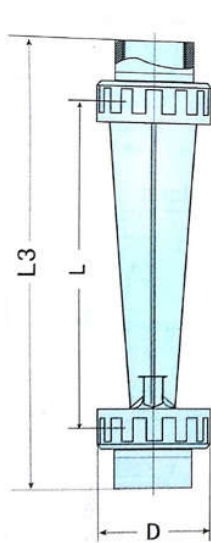
Type TKV - P05M Flow Ranges, Male Connection Details, Dimensions and Weights

Nominal Size mm ins	Water Based Flow Ranges Both Units on One Scale gpm lpm		Male Connections	Dimensions						Weights	
				L		D		L2		kg	lbs
				mm	ins	mm	ins	mm	ins		
12 1/2" 20 3/4"	0.1 – 1.0 0.2 – 2.0 0.5 – 5.0 0.25 – 2.5 0.5 – 5.0 0.8 – 8.0	0.5 – 4.0 1.0 – 7.0 1.8 – 18 1.0 – 10 1.8 – 18 3.0 – 30	1/2" MNPT or MBSPT 3/4" MNPT or MBSPT	99	3.89	42	1.65	170	6.69	0.15	0.33
20 3/4"	1.0 – 10	4.0 – 40	3/4" MNPT or MBSPT	135	5.32	51	2.00	210	8.27	0.2	0.44
25 1"	1.2 – 12 2.0 – 20 2.5 – 25	5.0 – 50 8.0 – 80 10 – 100	1" MNPT or MBSPT	170	6.69	59	2.32	253	9.96	0.4	0.88
50 2"	2.5 – 25 5.0 – 45 7.0 – 70	10 – 100 20 – 180 25 – 250	2" MNPT or MBSPT	223	8.78	72	2.84	317	12.5	0.65	1.4
				290	11.4	100	3.94	400	15.8	2.5	5.5

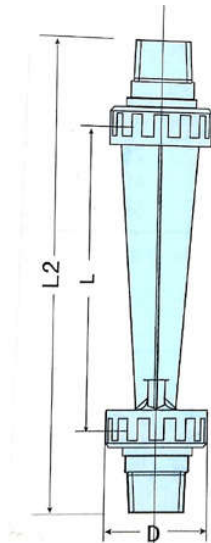
Type TKV – P05G Flow Ranges, Glue Connection Details, Dimensions and Weights

Nominal Size mm ins	Water Based Flow Ranges Both Units on One Scale gpm lpm		Glue Pipe OD	Dimensions								Weights			
				L		D		L1		B1		B2		kg	lbs
				mm	ins	mm	ins	mm	ins	mm	ins	mm	ins		
12 1/2"	0.1 – 1.0 0.2 – 2.0 0.25 – 2.5 0.5 – 5.0 0.8 – 8.0	0.5 – 4.0 1.0 – 7.0 1.0 – 10 1.8 – 18 3.0 – 30	20mm 0.80"	99	3.90	42	1.65	146	5.75	20	0.79	26	1.02	0.15	0.3
				135	5.31	51	2.00	180	7.09	20	0.79	26	1.02	0.2	0.44
20 3/4"	0.8 – 8.0 1.0 – 10	3.0 – 30 4.0 – 40	32mm 1.25"	170	6.69	59	2.32	226	8.90	32	1.26	39	1.54	0.4	0.88
25 1"	1.2 – 12 2.0 – 20 2.5 – 25	5.0 – 50 8.0 – 80 0 – 100	40mm 1.60"	223	8.78	72	2.84	287	11.3	40	1.58	49	1.93	0.65	1.5
50 2"	2.5 – 25 5.0 – 45 7.0 – 70	10 – 100 20 – 180 25 – 250	63mm 2.50"	290	11.4	100	3.94	375	14.8	63	2.48	73	2.87	2.5	5.5
80 3"	25 – 110 40 – 160 50 – 250	80 – 400 150 – 650 200 – 1000	75mm 3.00"	325	12.8	120	4.72	420	16.5	75	2.95	89	3.50	3.5	7.7

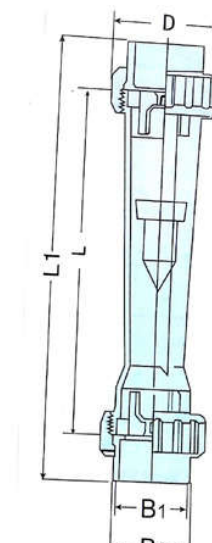
tekVar TKV – P05F, TKV – P05M, TKV – P05G Drawings



TKV – P05F
Female Threaded Connections



TKV – P05M
Male Threaded Connections



TKV – P05G
Glued Pipe Connections

tekVar TKV – P05F, TKV – P05M, TKV – P05G Ordering Code

TKV – P05F - 80gpm - 3 - A - 2 - 1
TKV – P05M - 80gpm - 4 - P - 1 - 2
TKV – P05G - 80gpm - 1.60" - A - 2 - 3

Basic Type:

TKV – P05F, TKV – P05M, TKV – P05G

Max Flow Rate in GPM Units:

Take highest rate of appropriate standard range

Female Process Connections Type TKV – P05F:

1/2" FNPT = 1, 3/4" FNPT = 2, 1" FNPT = 3, 2" FNPT = 4, 2 1/2" FNPT = 5
 1/2" FBSPT = 6, 3/4" FBSPT = 7, 1" FBSPT = 8, 2" FNPT = 9

Male Process Connections Type TKV- P05M :

1/2" MNPT = 1, 3/4" MNPT = 2, 1" MNPT = 3, 2" MNPT = 4, 2 1/2" MNPT = 5
 1/2" FBSPT = 6, 3/4" FBSPT = 7, 1" FBSPT = 8, 2" FBSPT = 9

Glued Pipe Process Connections Type TKV – P05G :

State mm or inches outside diameter as required:
 20mm or 0.8", 32mm or 1.25", 40mm or 1.60", 63mm or 2.50", 75mm or 3.0"

Flow Tube Material:

Acrylonitrile = A, Polycarbonate = P

Float Material:

ABS = 1, AISI 316 = 2

Flow Switch:

High limit type FSH = 1
 Low limit type FSL = 2
 No flow switch = 3



Technical Data Sheet & General Specifications

TekVar Variable Area Flow Sensor Enquiry Form

Please fill out as much as possible and e-mail to Tekflo **Sensors** or your Authorised Distributor

Customer's Name, Project Name, & Location:						
Detail	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6
Quantity						
Media Type ADD any special notes, such as Dirty (D), Clean (C) For liquid solutions please provide density or specific gravity or % solutions by weight.....						
Typical Flow Rate With Units						
Min & Max Flow Rate With Units						
For Gases Confirm Normal (NTP) or Standard Conditions (STP) or Actual Conditions (ATP)						
Confirm flow is upwards vertical flowing (Yes / NO)						
Pressure Range and Units						
Temperature Range and Units						
Viscosity (Liquids Only) and Units						
Explosive Atmosphere and Type Required						
Nominal Pipe Size (N) or ID (I) Specify mm or inches OR:						
Pipe Schedule or Wall Thickness Specify mm or inches						
Straight Pipe Runs Available						
Pipe Material						
Are flow switches required. If so, how many (max 2 per flow tube on plastic TekVar PO5 and PS6 Only						

Tekflo Sensors®

Factory & Flow Laboratories: Block 2, #04 – 685 Balestier Road Singapore 320002 Phone: + 65 (0) 67753340 Fax: + 65 (0) 67791626	Sales and Service: sales@tekflosensors.com Emergency 24-Hour Service: +65 (0) 882 692 768 Website: www.tekflosensors.com Specifications are subject to change without notice
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