BiAR sampling systems

TOP REACTOR SAMPLING SYSTEM

SWISS MADE SINCE 1983

Unit pH measuring

All products are Swiss made in our 4000 m² production facility.

BIAR – EXPERT IN SAMPLING SYSTEMS

DESCRIPTION

BIAR has designed and manufactured a safe and reliable sampling device to meet today's demands of the chemical and pharmaceutical industry.

The system is composed of a magnetically activated piston to take liquid samples from reactors, storage tanks, or vessels.

The reactor manhole is kept closed, eliminating harmful emissions to significantly increase operator safety.

CUSTOMER REFERENCES

BASF, Bayer, DSM, Evonik, Lonza, Merck, Syngenta, Roche...

INOVATIVE

Sample is provided by mechanically displacing the process liquid through a sample pipe loop. Pipe loop material can be alloy or PTFE lined and does not require the use of a pump or any other device which may cause variation of internal process conditions.

Additionally, the closed loop can be equipped with various sensor devices, including in-line pH measurement and temperature control.

SWISS QUALITY

Every reactor sampling device is produced at the headquarters in Switzerland and is thoroughly tested upon completion, including, amongst others a test at full load lasting several hours. This way, we can guarantee that every device satisfies the requirements regarding Swiss quality work.

CERTIFICATIONS

→ ISO 9001
→ CE
→ TR CU
→ ISO 3834-2
→ ATEX
→ TA-LUFT

BIAR – ENGINEERED SOLUTIONS TO FIT YOUR NEEDS

MAIN FEATURES

→ Plug and play device

→ Magneto-pneumatic drive (no dynamic gaskets)

→ No pump, no electricity supply required

→ No suction, no process disruption

→ Works even under fully vacuum conditions

→ Easy and safe operation

→ No environmental exposure

→ No hold up and dead space free

→ Product not sampled will return to the reactor

→ The closed loop provides self-cleaning

→ Unit can be flushed and rinsed in place

→ Numerous varieties of sample receptacles devices

REAL ADVANTAGES FOR YOU

→ Fully representative samplings
→ Continuous pH monitoring option is available in 'real time'
→ Full operator & environment protection
→ Minimizing maintenance
→ No spillage, no product needed to be recycled

GENERAL APPLICATIONS

Sampling device for use in Chemical, Pharmaceutical, Petrochemical & Semiconductor industries to take a sample from reactors or vessels containing:

→ toxic medias

→ flammable medias

→ high value products

→ corrosive medias

→ environmentally unfriendly medias

→ liquids with some particles inside

STANDARD TECHNICAL DATAS

Pressure range:
full vacuum to 232 psi (16 bar)

Temperature range:
-112°F (-80°C) to 392°F (200°C)

Viscosity of max:
2'000 cP (mPa·s)

Air supply:
min. 3 barg / max. 5 barg

BIAR – OUR KNOW-HOW AT YOUR SERVICE

HOW IT WORKS

To avoid dynamic seal and external contamination, a magnetic drive (1) is used to pull the piston (3) which pushes the liquid upward.

The liquid then flows back down through a sampling valve (2) and back to the reactor if not sampled.

Temperature and pH probe can be used for continuous measurement without process interruption.

Watch our video on YouTube
www.youtube.com/watch?v=YqjkJvWmXxY

PRODUCT COMPARISON

	OPTIFLOW	ACTIFLOW	DEEPFLOW
MATERIAL	SS 316L / 1.4404 Other on request	SS 316L / 1.4404 Other on request	PFA or PTFE lining Other on request
MIN. FLANGE CONNECTION	DN 50 / 2''	DN 100 / 4''	DN 50 / 2''
MAX. LENGTH	3 m	4 m	>> 4 m
PRESSURE RANGE	-1 / 16 bars	-1 / 16 bars	-1 / 16 bars
TEMPERATURE RANGE	-80° to +200°C	-80° to +200°C	+1° to +140°C
STREAM BAFFLE AVAILABLE	× (insert in a dip tube or attached to the tank)	✓ (with min. flange connection DN150/6'')	×
HEAT / COOL JACKET	×	✓	✓
PH measurement option available	×	✓	×
T° measurement option available	×	✓ (with min. flange connection DN150/6'')	×
RINSING CONNECTION	✓	✓	✓
COMPATIBLE WITH OUR ACCESSORIES	✓	✓	✓
WORKS WITH PRODUCT CONTAINING SMALL PARTICLES	✓	✓	×

UPR OVERVIEW

CODE	Designation	Description

BIAR REACTOR SAMPLING UPR

UPR 150/21	Reactor Sampling Unit	**Sampling Unit** with connection to **Reactor** sample volume **150 m /** all inner liner components comply with **FDA** (fluoropolymers/elastomers as **PFA, PTFE/FFKM**, **…**)
UPR 150/29	Reactor Sampling Unit	**Sampling Unit** with connection to **Reactor** sample volume **150 ml /** all inner liner fluoropolymers are **conductive** (as **PFA**, **PTFE**, …) and do not comply with FDA

UA	Pump Unit	**A**lmatec pump **U**nit
UB	Ball Unit	**Ball** Unit with ball, seats and gaskets
UD	Sample tube Unit	Sample **Dip** tube Unit with gasket, tube Ø12/9x4000 mm
pHS	End cap pH Unit	Cover with PG13.5 thread for **pH** probe, plugged (**Standard**)
pHI	End cap pH Unit Intrac	Cover for **Intrac pH** probe
UJ	Seal Unit	Seal Unit for sight glass WITHOUT BALL (only with pump)
UK	SS Ball valve 3/8" Unit	SS Ball valve 3/8" with 2-hole-connection flange
UL	Unit vent return	**Loop** Unit for vent
UM	Diaphragm valve Unit	PVDF 3/8" diaphragm valve with 2 hole flange and strut
UT	Transfer Unit	PVDF **Transfer** Unit with GL45 thread adapter
UV	Venturi Unit	Injector Unit (**Venturi**) with 3/4" connection

BIAR VALVES AND ACCESSORIES

PLI	PFA lined sampling valve with flange connection
BLB	Bayonet safety plug for BIAR sampling valves
FAV	Bayonet elbow adapter for BIAR sampling valves
ZRV	SS piston injector with sight glass
ZSV	SS piston injector without sight glass
ZRP	PFA lined piston injector with sight glass
ZSP	PFA lined piston injector with PTFE lined SS sample cylinder

BIAR MATERIAL CODE

01	1.4404 (SS 316L)
02	1.4301 (SS 304)
20	PTFE pure (FDA)
21	PFA pure (FDA)
29	PFA conductive (do not comply with FDA)
30	FKM (Viton®, FDA)
52	PTFE with long carbon fibres, conductive (do not comply with FDA), Valflon® F117
54	FEP [MVQ (silicone) core] (FDA)
57	PTFE with 25% carbon, conductive (do not comply with FDA), Lubriflon® 225
99	FFKM 8703 (FDA)

UPR-PLI

REACTOR SAMPLING UNIT
WITH SAMPLING VALVE

REAKTOR PROBENAHMESYSTEME
MIT PROBENAHMEVENTIL

SYSTEME POUR CUVE
AVEC VANNE DE PRELEVEMENT

Material | Werkstoff | Matière
1.4404 / 1.4408
All wetted parts PFA coated (nature or antistatic) / PTFE / TFM®1600 / Perfluorelastomers

Technical information

TS	**°C (°F)**	-20/180°C (-29 /356°F)
PS	**(bar)**	10 *
Sample volume	**(ml)**	150
Reactor flange connexion		min. DN50/2”
Dip tube	**(mm)**	ø12/9 x 4000
Weight	**(kg)**	23.50

*the maximum admissible working pressure is given from the lowest nominal pressure of the accessories added to the device

ACCESSORIES		
Piston injector | Kolbenspritze | Seringue	**Ref. 01706901**	**p. 4.120**
Elbow adapter | Winkeladapter | adaptateur coudé	**Ref. 01949901**	**p. 4.020**
Bottle | Flasche | Bouteille	**Ref. 01706301**	**p. 5.020**

CODIFICATION EXAMPLE

1	/	2	-	3
UPR150		**21 or 29**		PLI

[1] *Reactor Sampling Unit – Volume 150ml / **UD** ~4m*
[2] *All wetted parts PFA coated (fluorpolymers and perfluorelastomers FDA complient)* ***21**= PFA nature / **29**= PFA antistatic*
[3] *Sampling valve Stainless Steel cast body*

UPR-UT

REACTOR SAMPLING UNIT
WITH TRANSFERT UNIT

REAKTOR PROBENAHMESYSTEME
MIT TRANSFEREINHEIT

SYSTEME POUR CUVE
AVEC UNITE DE TRANSFERT

Material | Werkstoff | Matière
PFA nature / PVDF / Perfluorelastomers

Technical information

Sample volume	**(ml)**	150
Reactor flange connexion		min. DN50/2”
Dip tube	**(mm)**	ø12/9 x 4000
Weight	**(kg)**	18.70

	TS (C°)	-20 / +25	40	60	80
PS (bar) *	PN6 (bar)	6	4.8	3.8	2.8

*the maximum admissible working pressure is given from the lowest nominal pressure of the accessories added to the device

ACCESSORIES

Bottle | Flasche | Bouteille	**Ref. 01706301**	**p. 5.020**

CODIFICATION

1	/	2	-	3
UPR150		21		UT

[1] *Reactor Sampling Unit – Volume 150ml / **UD** ~4m*
[2] *All wetted parts PFA coated (fluorpolymers and perfluorelastomers FDA complient)*
[3] *PVDF Transfert Unit, GL45 thread*

PUMP UNIT
AIR-OPERATED DIAPHRAGM PUMP

PUMPE EINHEIT
DRUCKLUFT MEMBRANPUMPE

UNITÉ POMPE
POMPE À DIAPHRAGME PNEUMATIQUE

Fixed to
The UPR

Material | Werkstoff | Matière
PTFE / PTFE conductive

OPTION : Transport Cart
(product brochure p.8)

Technical information

Pump size			DN 15	DN 25
Dimensions	| Maße	| Dimensions	L | L | L mm (in.)	166 (6.5)	220 (8.7)
			W | B | l mm (in.)	189 (7.4)	255 (10.0)
			H | H | H mm (in.)	240 (9.4)	320 (12.6)
Nominal port size	| Anschluss	| Connection	NPT	½"	1"
Air connection	| Luftanschluss	| Connection air	BSP	R¼	R¼
Weight	| Gewicht	| Poids	PTFE kg (lb)	12 (26)	29 (64)
Discharge volume	| Verdrängungsvolumens	| Volume refoulement	l	0.1	0.34
Suction lift dry	| Saughöhe, trocken	| Hauteur aspiration sec	with cylinder valves	3 (9.8)	4 (13.1)
	mWC (ft) | mWS (ft) |mCE (ft)		with ball valves	2 (6.6)	3 (9.8)
Suction lift wet	| Saughöhe Produktgefüllt	| Hauteur aspiration rempli	mWC (ft) | mWS (ft) |mCE (ft)	9,5 (31.2)	9,5 (31.2)
Driving pressure	| Antriebsdruck	| Pression d'entraînement	max. bar (psig)	7 (100)	7 (100)
Operating T°	| Betriebstemperatur	| T° d'utilisation	max. °C (°F)	120 (248)	120 (248)
Particle size	| Feststoff-Korngröße	| Taille particules (with ball valves)	max. mm (in.)	4 (0.16)	6 (0.24)

UPR-UV

VENTURI UNIT

VENTURI EINHEIT

UNITÉ VENTURI

Material | Werkstoff | Matière
1.4404/PTFE/TFM®1600

Technical information			
PN	**bar (PSI)**	10 (150)	
TS	**°C (°F)**	max. 180 (360)	
Air or N2 supply	**bar (PSI)**	max. 5 (75)	G3/8” connection
Suction height	**mm (water column)**	max. 6000 (235”)	

Efficiency venturi - air supply vs. vacuum (water column)
Pumpenwirkungsgrad | Rendement du système venturi

BALL VALVE
BALL VALVE 3/8" WITH 2-HOLE-CONNECTION FLANGE

KUGELHAHN
KUGELHAHN 3/8" MIT 2-LOCH-ANSCHLUSSFLANSCH

VANNE A BILLE
VANNE 3/8" AVEC BRIDE 2 TROUS DE RACCORDEMENT

Material | Werkstoff | Matière
1.4408/1.4404/TFM®1600

Technical information

PN	**bar (PSI)**	16 (232)
TS	**°C (°F)**	-20/200 (-4/392)
Outlet connection	**(inch)**	G3/8”

MEMBRANE VALVE
3/8" DIAPHRAGM VALVE WITH 2 HOLE FLANGE AND STRUT

MEMBRANVENTIL
3/8" MIT 2-LOCH-ANSCHLUSSFLANSCH UND STREBE

VANNE A MEMBRANE
3/8" AVEC BRIDE 2 TROUS DE RACCORDEMENT ET RENFORT

Material | Werkstoff | Matière
PVDF/TFM®1600/1.4301

Technical information

PN	**bar (PSI)**	16 (87)
TS	**°C (°F)**	-20/80°C (-4/392°F)
Outlet connection	**(inch)**	G3/8”

	TS (C°)	-20	40	60	80
PS	PN6 (bar)	6	4.8	3.8	2.8

UL

LOOP UNIT
FOR GAZ VENT RECYCLING

SCHLEIFENEINHEIT
FÜR ENTLÜFTUNGSGAZRECYCLING

UNITÉ BOUCLE
POUR RECYCLAGE GAZ ÉVENT

Material | Werkstoff | Matière
PFA/PVDF

Technical information		
PN	**bar (PSI)**	10 (150)
Vent connection	**(inch)**	G¼”
UM connection	**(inch)**	G3/8”

UPR-pHS/pHI

PH METERING UNIT

PH MESSEINHEIT

UNITÉ DE MESURE PH

Material | Werkstoff | Matière
PFA / PFA conductive

Technical information

Depends on model | je nach Modell |Selon modèle

OPTIONS	
Electrode type | Elektrode Type | Type électrode (Expl|Bspl: http://www.mt.com/int/en/home/products/Process-Analytics/pH-probe.html)	Standard
Retractable electrode type | Wechselelektrode Typ | Type électrode rétraclable (Expl|Bspl: http://www.mt.com/int/en/home/products/Process-Analytics/sensor-cleaning-housing/retractable-housing.html)	Intrac

BIAR SA
Rte du Gd-St-Bernard 16
CH-1933 Sembrancher
SWITZERLAND

Tel. +41 27 779 11 11
Fax +41 27 779 11 12
contact@biar.com