

In the **HWS** Flat Flange Program a large number of outlet valves are offered, designed to suit a wide range of applications.

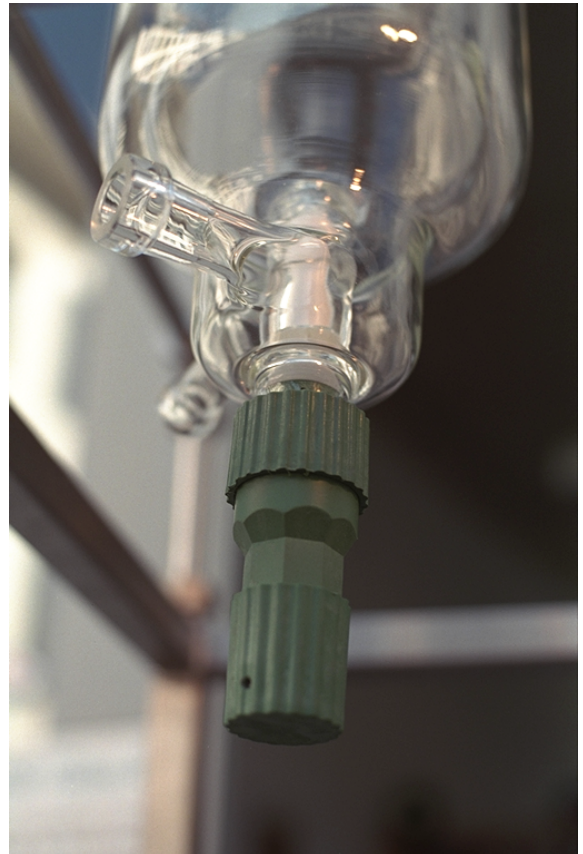
HWS valves are mainly manufactured in PTFE and seal at the bottom of the reactor in order to have a dead volume free closure. In our standard valves an integrated temperature compensation spring gives constant leak free sealing throughout the temperature range by self adjustment.

The used piston principle avoids a fast damage of the spindle or the reactor .

Further advantages are the replaceable tip for an exchange of the spindle and the use of a mechanically stable flange for greater shock resistance.

By the angled glass outlet the liquid run-off is optimally guided.

The Bottom outlet valves are available in sizes DN 10, DN 20 and DN 25 (DN 6 in preparative ??) as standard (model "T", "K" resp. "H", "M" and "Q") and as a plus version the model "L" and "P" with self-adjusting sealing in the run.-off tube.



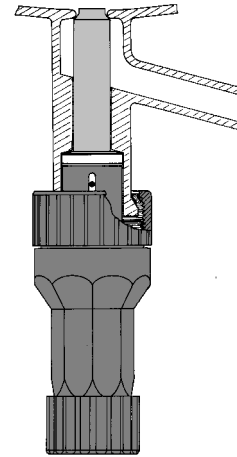
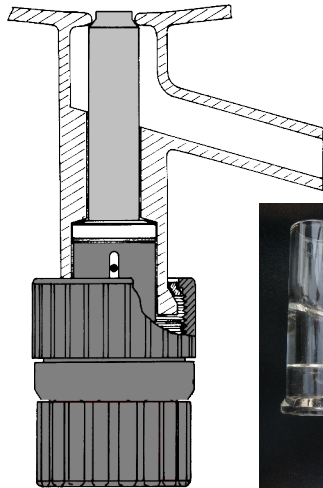
**HWS-Outletvalve model „T“
with heating mantle**

HWS Outlet valve

the right valve for the right time

modell T bzw. H und Q

standard – with approx. 35 mm resp. 70 mm, reasonable in price without missing of security functions; for normal use with liquids of different viscosities.



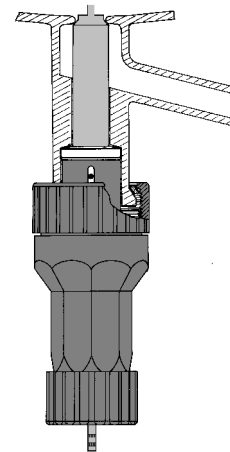
modell K bzw. M und V

similar model in short execution to reduce height. can be exchanged against T, H or Q

modell T/PT, K/PT, H/PT, M/PT, Q/PT

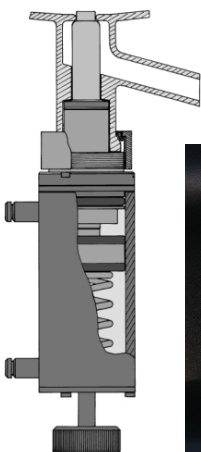
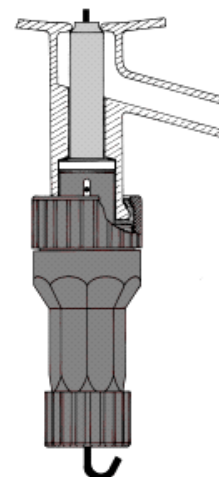
standardversion with an integrated PT 100 or 2 x PT 100 and plug according to your requirement.

This model allows the constant temperature control of the liquids down to almost zero volume..



modell T/B, K/B, H/B, M/B

standardversion with a built-in PTFE hose in the valve for gasing of the reactants in the middle of the bottom of the reactor is possible.

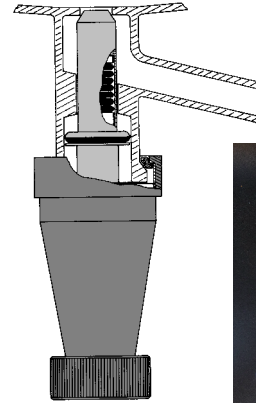


modell PT, PH bzw. PQ

this model represents a pneumatic controlled run-off valve with adjustable stem travel for problem free remote control of the run-off under different conditions. Exchange with manual valves is possible. By the modular construction the valve can be adapted to other systems.

modell L bzw. P

Plus version – this model has an adjustable seal in the PTFE spindle to guarantee an excellent to the glass-body preventing any liquids escaping any other way than via the run-off.



Modell	bore mm	material*	cat.no.	
			with glass	without glass
T	10mm	PTFE	3200 100	3200 155
K	10mm	PTFE	3200 600	3200 600
T/PT	10mm	PTFE	3200 190*	3200 195*
K/PT	10mm	PTFE	3200 690	3200 695
T/B	10mm	PTFE	3200 900	3200 955
K/B	10mm	PTFE	3200 910	3200 915
H	20mm	PTFE	3200 200	3200 255
M	20mm	PTFE	3200 700	3200 755
H/PT	20mm	PTFE	3200 290*	3200 295*
M/PT	20mm	PTFE	3200 790*	3200 795*
H/B	20mm	PTFE	3200 930	3200 935
M/B	20mm	PTFE	3200 950	3200 955
Q	25mm	PTFE	3202 200	3202 255
Q/PT	25mm	PTFE	3202 290*	3202 295*
PT	10mm	PTFE	3251 100	3250 100
PH	20mm	PTFE	3251 200	3250 200
L	10mm	PTFE	3200 300	3200 355
P	20mm	PTFE	3200 400	3200 455

added code for

Execution	PTFE with Viton-O-Ring	V
Execution	PTFE with Kalrez-O-Ring	K
Execution	PTFE-Compound	R
Execution	PTFE-Compound with Viton-O-Ring	RV
Execution	PTFE-Compound with Kalrez-O-Ring	RK

(other execution are possible)

* je nach Ausführungsart mit zusätzlichen Kennbuchstaben bzw. -zahlen

bitte fragen sie bei Bedarf nach

bottom outlet valves

spare parts

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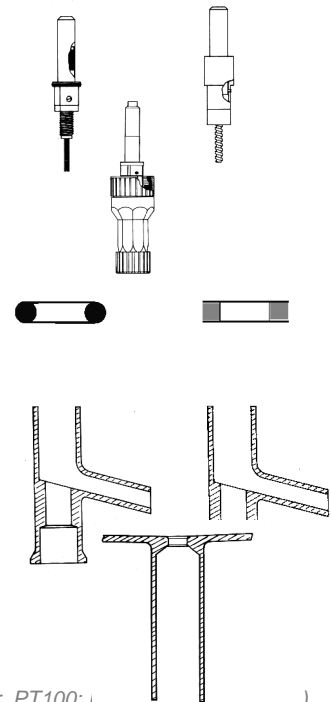
Meß- und Regeltechnik,
Laborelektronik

To ensure optimal use and enable a long application with HWS-outlet valves we offer a great variety of spare- and exchange parts. Beside the wear parts you can even get alternative or substitution valves.

For the optimal glassblower applications of our outlet valves our offer includes all glass parts and/or special executions.

1. substitute valve stem for HWS-bottom outlet valves, complete deliverable for models: T, H, K, M, T/B, H/B, PT, PH, L, P
2. substitute valves complete, however without glass parts for problem free exchange or substitution deliverable for models: T, H, K, M, T/PT, H/PT, T/B, H/B, L, P
3. exchange seals seals in Viton/PTFE , Silikon/PTFE or O-ring in Silikon/FEP and Kalrez deliverable for models: T, H, K, M, T/B, H/B, T/PT, H/PT, PT, PH
4. glass parts for manufacture of new articles or for reparation ready to use with side run off (45° angled) optional with melting ring for heatable outletvalves deliverable for models: T, H, K, M, T/B, H/B, T/PT, H/PT, PT, PH, L, P
5. valve seats with long flanged socket and melting siphon with included conical nipple.

deliverable for valve executions DN 10 und DN 20



Ventil DN 10 : T = standard; K = short type; PT = pneumat. valve; T/PT = with integr. PT100; i)
 Ventil DN 20 : H = standard; M = short type; PH = pneumat. valve; H/PT = with integr. PT100; P = Linea (Plusversion)
 Ventil DN 25 : Q = standard; PQ = pneumat. valve, Q/PT = with integr. PT100

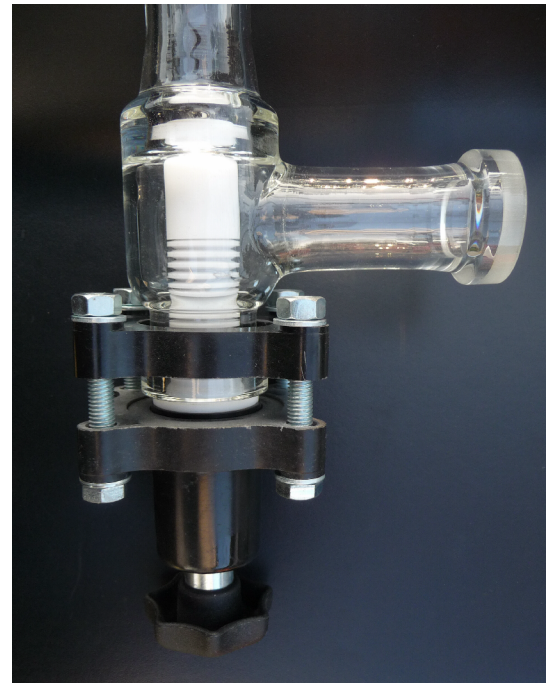
	Material-art	Best-Nr.										
		T	H	K	M	PT	Q	PH	T/PT	H/PT	L	P
exchange stem	*	3200110	3200210	3200610	3200710	3250110	3202210	3250210	-	-	3200310	3200410
exchange valve	*	3200155	3200255	3200655	3200755	3250155	3202255	3250255	3200195	3200295	3200355	3200455
exchange seal	Viton/PTFE	3200150	3200250	3200150	3200250	3250150	3202250	3200250	3200150	3200250	-	-
exchange seal	Silikon/FEP	3200151	3200251	3200151	3200251	3250151	3202251	3200251	3200151	3200251	-	-
exchange seal	Kalrez	3200152	3200252	3200152	3200252	3250152	3202252	3200252	3200152	3200252	-	-
glass parts	Duran®	3200160	3200260	3200160	3200260	3200160	3202260	3200260	3200160	3200260	3200360	3200460
glass parts/ collar	Duran®	3200165	3200265	3200165	3200265	3200165	3202265	3200265	3200165	3200265	3200365	3200465
valve seat	Duran®	4800057	4800056	4800057	4800056	4800057	4800054	4800056	4800057	4800056	4800057	4800056
head seal 1901730P	Kalrez	1900925P	1901730P	1900925P	1901730P	1900925P	1902445P	1901730P	1900925P	1901730P	1900925P	1900925P
head seal 1901730V	Viton	1900925V	1901730V	1900925V	1901730V	1900925V	1902445V	1901730V	1900925V	1901730V	1900925V	1900925V
• added code letter for execution												
execution	PTFE	(Standard)					-					
execution	PTFE-Compound						R					
execution	PTFE with Viton-O-Ring						V					
execution	PTFE with Kalrez-O-Ring						K					
execution	PTFE-Compound with Viton-O-Ring						RV					
execution	PTFE-Compound with Kalrez-O-Ring						RK					

In the **HWS** Flat Flange Program a large number of outlet valves are offered, designed to suit a wide range of applications.

HWS-Faltenbalg – Ablaufventile sind PTFE-Ventile, bei denen eine tottraumfreie Abdichtung am Gefäßboden erfolgt. Die grosse Öffnung und die optimierte Gewindeübersetzung ermöglicht eine schnelle Entleerung des Behältnisses. Die statische Abdichtung ermöglicht einen langfristigen Einsatz.

Ein weiterer Vorteile ist die Verwendung eines stoßunempfindlichen Planflansches mit niedriger Bauhöhe als Schutz vor mechanischer Beschädigung.

Die Ablaufventile gibt es in der Größe DN 15 / DN 25 / DN 40 als Standardversion und als pneumatisch betätigbares Ventil.



**HWS-Ablaufventil
mit Faltenbalg,**

H | W | S | bottom outlet valve

„bellow stem“

bellow stem – bottom outlet valve

modell „FB15“

standard version

regulator unit	Kunststoff
bellow stem	PTFE
valve bore	15 mm

modell „FB25“

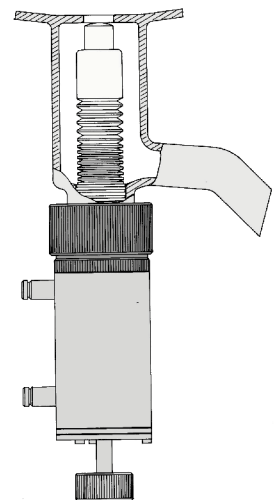
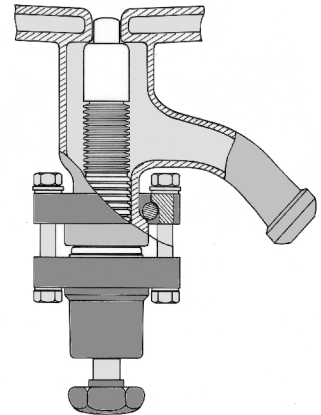
valve bore	25 mm
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modell „FB40“

valve bore	40 mm
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modell „PFB15 – PFB 40“

outletvalve, pneumatic,
stroke length adjustable
troublefree remote control and exchange with
standard valves.
also available for other valves



modell	bore mm	stem int*	cat. no.	
			with glaspart	without glaspart
FB 15	15 mm	PTFE	3240 015	3240 115
FB 25	25 mm	PTFE	3240 025	3240 125
FB 40	40 mm	PTFE	3240 040	3240 140
PFB 15	15 mm	PTFE	3251 415	3250 415
PFB 40	25 mm	PTFE	3251 425	3250 425
PFB 40	40 mm	PTFE	3251 440	3250 440

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In the **HWS** Flat Flange Program a large number of outlet valves are offered, designed to suit a wide range of applications.

HWS-outletvalve model „Silitec“ are PTFE-siphon valves, which provide a cavity free seal on the bottom of the vessel. By its integrated clip and its engineered hub with a self-adjusting arbor pressure point it guarantees a high density even under bad thermal conditions. The used siphon in PTFE with an integrated o-ring seal in Perflour avoids damages on the valve seat. The big opening and the optimized screw-transformation allows a precision dosing as well as a fast emptying of the vessel.

An integrated torque assurance avoids damages caused by over tightening.

A further advantage is the use of a flat flange which is insusceptible to shock with low installation height as a prevention of mechanical damages. By its integrated cone in the outlet system an optimal guidance of the draining of the medium is guaranteed and the sealing system is additionally protected.

The outlet valves are available in execution DN 50 as a standard version and with an adjustable sealing surface and additional safety sealing, as well as a pneumatic valve control as an optional extra.



**HWS-outlet valve
model Silitec,**

H | W | S | outlet valves

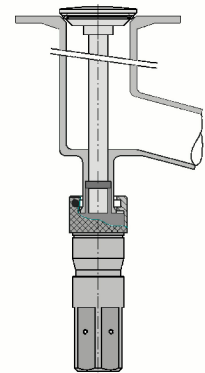
„Silitec“

model Silitec T

model Silitec T

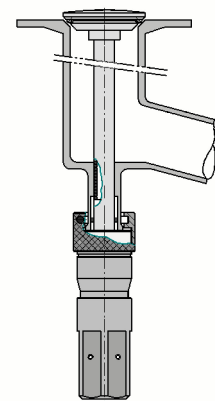
standard version with hub of 20 mm. low cost valve without reduction of the safety functions; for standard applications with fluids of different viscosities..

unit:	PP
Befestigungsschraube:	stainless steel
stem and head	PTFE (TFM)
head seal	Perfluor (Kalrez o.ä.)
bottom seal	PTFE / Viton (option: silicon/FEP coated or Kalrez seal)



model Silitec L

optional version with an adjustable sealing surface for complete outlet and additional safety sealing for maximum assurance.

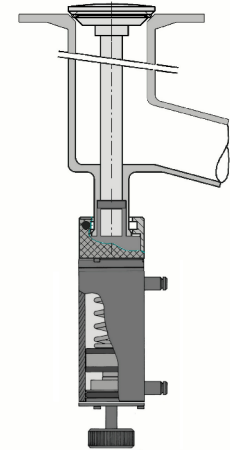


model Silitec PT

pneumatically actuated outlet valve with an adjustable hub for problem free control of the outlet even under difficult conditions.

A later exchange with a hand-operated valve is of course still possible.

By its modular construction this valve is even configurable to other outlet systems.



- compatible to FDA regulation -

model	bore mm	material*	cat.no.	
			with glasspart	without
Silitec T	50 mm	PTFE / Perfluor	3220 000-TL	3220 055-TL
Silitec L	50 mm	PTFE / Perfluor	3220 100-TL	3220 155-TL
Silitec PT	50 mm	PTFE / Perfluor	3220 300	3220 355