

## Description

The type 612 is a compact valve with many features which make it ideal for pharmaceutical and bio-processing applications.

## Sanitary Diaphragm Valve

Manually operated

### Standard Features

- Compact design
- Ultem<sup>®</sup> 1000 handwheel
- Stainless steel bonnet with sanitary internals
- Internal adjustable travel stop (U.S. Pat. 5 377 956)
- Adjustable minimum flow regulator
- Autoclavable
- Visual position indicator
- FDA compliant diaphragms
- 316L stainless steel body
- Triclamp<sup>®</sup>, O.D. Tubing, ISO, and DIN end connections
- Sizes 3/8", 1/2", 3/4"

### Available Options

#### Special connections

Hose barb, tube extensions, Swagelok<sup>®</sup>, Cajon VCR<sup>®</sup>, Ingold<sup>®</sup>, and others available upon request.

#### Fabrications

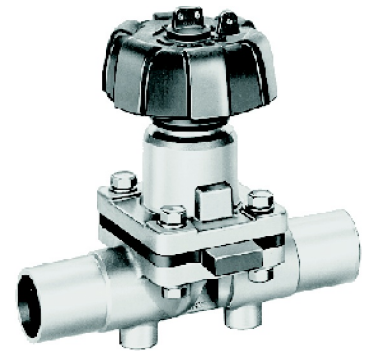
Cluster valve assemblies for both horizontal and vertical orientations, Zero Static T-valves, Duplex, Multiported and custom fabrications upon request.

#### Materials

AL-6XN<sup>®</sup>, Hastelloy<sup>®</sup>, Titanium<sup>®</sup>, and others available upon request.

### Typical Applications

- Pharmaceutical manufacturing
- Bioprocessing
- Cosmetic
- Brewery Service
- Food and Beverage
- Semiconductor
- High Purity Chemicals



Shown with an ISO body

# Type 612 Technical Data

Size (In.)	Nominal bore (mm)	Body Configuration D=straight through	Working pressure (psi)	C <sub>v</sub> -value (gpm)		Connection  Welded spigots	Weight (lbs)
				ISO Connection	O.D. Tubing		
3/8	10	D	0 - 150		2.6	See table	1.0
1/2	15	D	0 - 150		2.6		1.5
3/4	20	D	0 - 150		4.4		1.9

Max. Permissible temperature of working medium: 302° F  
(Depending on the diaphragm material)

The valve will seal against flow in either direction up to a working pressure of 150 psi (gauge pressure)

All pressures values are specified in psi above atmospheric. C<sub>v</sub> values may be different according to body, diaphragm and connection variants. Please see out data sheet "Technical Information"  
\* Consult Factory

Body Configuration	Ref.no.	Diaphragm material	Ref.no.
Tank bottom valve body	B		
2-way valve body	D	Ethylene-propylene Rubber for saturated steam max 302° F	EPDM 13
2-way angled valve body	E		
Multiported valve body	M		
Zero Static T-Valve	T	Ethylene-propylene Rubber for saturated steam max 302° F	EPDM 16
U-bend	U		
		2nd generation, modified Teflon® with Ethylene-propylene backing (2-piece)	TFM/EPDM 50
		2nd generation, modified Teflon® with Ethylene-propylene backing	TFM/EPDM 52
<i>All diaphragms listed conform to the FDA code of Federal Regulations paragraph 177.2600 of section 21.</i>			
Connection	Ref.no.	Control function	Ref.no.
DIN	0	Manually operated	0
DIN 11850/Series 1	16		
DIN 11850/Series 2	17		
DIN 11850/Series 3	18		
Butt weld OD tubing	59		
Sizes 1/4-3/8" 20 gauge .035" wall			
Sizes 1/2-3" 16 gauge .065" wall			
Sizes 4" 14 gauge .083" wall			
ISO	60		
Schedule 10 pipe	63		
Tri-clamp®	80		
O.D. Tubing by Triclamp®	93		
Extended O.D. Tubing	94		
Extended O.D. Tubing by Triclamp®	95		
Body material	Ref.no.	Surface finish	Ref.no.
<b>Investment cast body</b>			
Stainless steel 316 L $\cong$ 1.4435 (BN2) Fe < 0.5%	32		
Stainless steel 1.4539 (UNS N 08904)	33		
<b>Forged Body</b>			
Stainless steel 316 L $\cong$ 1.4435 (ASTM A 182)	40		
Stainless steel 316 L $\cong$ 1.4435 (BN2) Fe < 0.5%	42		
<b>Machined block</b>			
Stainless steel 316 L $\cong$ 1.4435 (ASTMA 479)	41		
<b>Special versions</b>	91	Special versions	UXXXX

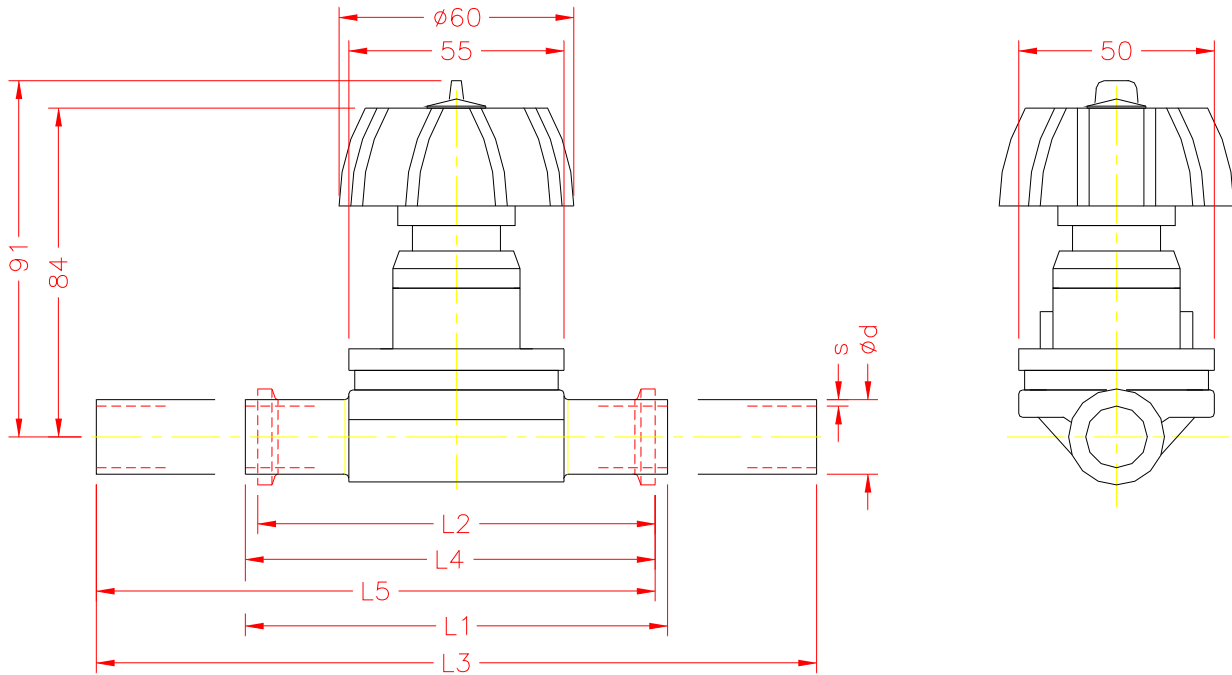
μ-in.	BPE Surface Designation	Ra Average [Note (1)]		Ra Max			
		μ-in.	μm	μ-in.	μm		
32	Mechanical					3	
25	Mechanical	SFV3	25	0.625	30	0.750	1502
20	E-pol	SFV6	20	0.500	25	0.625	1508
20	Mechanical	SFV2	20	0.500	25	0.625	1507
15	E-pol	SFV5	15	0.375	20	0.500	1537
11	Mechanical	SFV1	15	0.375	20	0.500	1536
10	E-pol	SFV4	10	0.250	15	0.375	1516

GENERAL NOTE: All Ra readings are taken across the grain.  
NOTE: (1) The average Ra is derived from two readings taken at different locations.

Order example	-612	015	U	80	41	13	0	040	94	1537
Type	-612									
Nominal bore (mm)		015								
Body configuration (U)			U							
Connection (ref.no.)				80						
Body material (ref.no.)					41					
Diaphragm material (ref.no.)						13				
Control function (ref.no.)							0			
Pipe main (size)								040		
Pipe main connection (code i.e., 55)									94	
Surface finish (ref.no.)										1537
Special versions (XXXX)										



# Type 612 Dimensional Data



### Take Out Dimension For Standard Connections

Size	DN	Units	Con. Ref. No.		(59)	(80)	(94)	(93)	(95)
			Ød	s	L1	L2	L3	L4	L5
3/8	10	mm	9.53	1.25	108.00	88.90	184.20	98.45	136.55
		in	0.375	0.049	4.252	3.500	7.252	3.876	5.376
1/2	15	mm	12.70	1.65	108.00	88.90	184.20	98.45	136.55
		in	0.500	0.065	4.252	3.500	7.252	3.876	5.376
3/4	20	mm	19.05	1.65	108.00	101.60	184.20	104.80	142.90
		in	0.750	0.065	4.252	4.000	7.252	4.126	5.626

- L1 = Connection Code 59 = Standard butt-weld
- L2 = Connection Code 80 = Standard clamp
- L3 = Connection Code 94 = Standard butt-weld extension (AWF)
- L4 = Connection Code 93 = Standard clamp X butt-weld
- L5 = Connection Code 95 = Standard clamp X butt-weld extension (AWF)

### Optional Spigot Dimensions

Connection Reference No.			DIN 0	DIN 11850 Series 1	DIN 11850 Series 2	DIN 11850 Series 3	ISO 60					
Size	DN	L <sub>1</sub>	s	ø d	s	ø d	s	ø d	s	ø d		
3/8"	10	108	-	-	1	12	1.5	13	2	14	1.6	17.2
1/2"	15	108	1.5	18	1	18	1.5	19	2	20	1.6	21.3

### Drain Angles

Size	DN	Degrees
3/8"	10	60°
1/2"	15	65°
3/4"	20	70°

*Drain angles are for BS O.D. Tubing only.*

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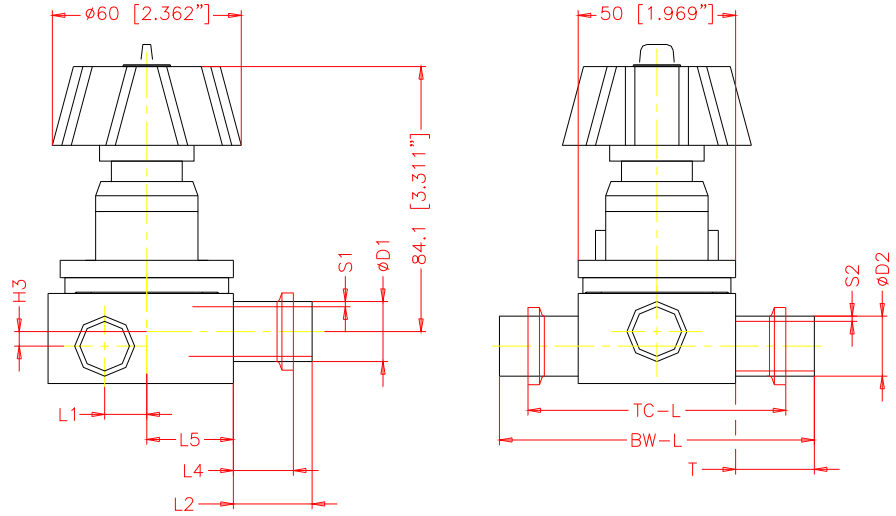
## GEMÜ® Zero Static T-Valve

### Standard Features

- Sterile design
- Mechanical parts isolated from process
- Zero dead-leg with no bacteria entrapment
- Maximum drainage, leaving virtually no residue
- Body machined from 316L stainless steel solid bar stock or specified material
- Compact design
- Minimum tube length of 1.5" for automatic orbital welding

### Typical Applications

- WFI point-of-use
- DI systems
- SIP (steam-in-place)
- CIP (clean-in-place)
- Sampling
- Product transfer
- Draining
- Diverting applications of critical process fluids



D1 x D2	Units	D1	s1	D2	s2	H3	L1	Code 59			Code 94			Code 80		
								L2	T	BW-L	L2	T	BW-L	L4	L5	TC-L
1/2 x 1/2	mm in	12.7 0.500	1.65 0.065	12.7 0.500	1.65 0.065	1.45 0.1	9.4 0.4	20.0 0.8	20.0 0.8	90.0 3.5	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
1/2 x 3/4	mm in	12.7 0.500	1.65 0.065	19.05 0.750	1.65 0.065	4.63 0.2	12.9 0.5	20.0 0.8	25.0 1.0	100.0 3.9	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
1/2 x 1	mm in	12.7 0.500	1.65 0.065	25.4 1.000	1.65 0.065	7.8 0.3	16.5 0.6	20.0 0.8	25.0 1.0	100.0 3.9	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
1/2 x 1 1/2	mm in	12.7 0.500	1.65 0.065	38.1 1.500	1.65 0.065	14.15 0.6	23.5 0.9	20.0 0.8	25.0 1.0	100.0 3.9	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
1/2 x 2	mm in	12.7 0.500	1.65 0.065	50.8 2.000	1.65 0.065	20.5 0.8	30.6 1.2	20.0 0.8	30.0 1.2	110.0 4.3	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
1/2 x 2 1/2	mm in	12.7 0.500	1.65 0.065	63.5 2.500	1.65 0.065	26.85 1.1	37.6 1.5	20.0 0.8	30.0 1.2	110.0 4.3	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
3/4 x 3/4	mm in	19.05 0.750	1.65 0.065	19.05 0.750	1.65 0.065	4.63 0.2	12.9 0.5	25.0 1.0	25.0 1.0	100.0 3.9	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
3/4 x 1	mm in	19.05 0.750	1.65 0.065	25.4 1.000	1.65 0.065	7.8 0.3	16.5 0.6	25.0 1.0	25.0 1.0	100.0 3.9	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
3/4 x 1 1/2	mm in	19.05 0.750	1.65 0.065	38.1 1.500	1.65 0.065	14.15 0.6	23.5 0.9	25.0 1.0	25.0 1.0	100.0 3.9	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
3/4 x 2	mm in	19.05 0.750	1.65 0.065	50.8 2.000	1.65 0.065	20.5 0.8	30.6 1.2	25.0 1.0	30.0 1.2	110.0 4.3	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5
3/4 x 2 1/2	mm in	19.05 0.750	1.65 0.065	63.5 2.500	1.65 0.065	26.85 1.1	37.6 1.5	25.0 1.0	30.0 1.2	110.0 4.3	38.1 1.5	44.9 1.8	139.7 5.50	19.7 0.8	27.5 1.1	89.4 3.5

TOL ±1mm Note: Dimension subject to change

Size	¼	⅜	½	¾	1	1½	2	2½	3	4	6
DN	8	10	15	20	25	40	50	65	80	100	150

Order Example	-612	015	T	80	41	13	0		040	94	1537					
Type of valve	-612															
Size DN	015															
Body configuration	T															
Connection (valve body)	80															
Body material	41															
Diaphragm material	13															
Control function	0															
Actuator size																
Locking device																
Pipe main size	040															
Pipe main connection	94															
Surface finish	1537															
Special version (XXXX)																



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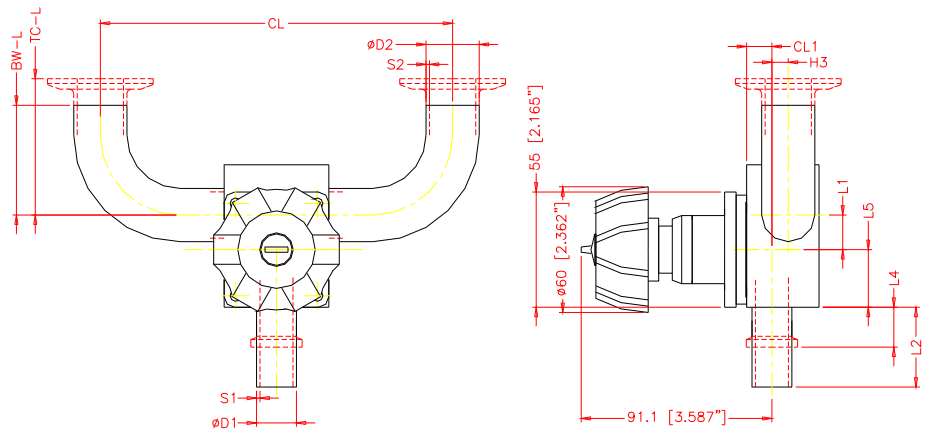
## GEMÜ® Zero Static U-Bend Valve

### Standard Features

- Sterile design
- Mechanical parts isolated from process
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### Typical Applications

- WFI point-of-use
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- Sampling
- Product transfer
- Draining
- Diverting applications of critical process fluids



D1 x D2	Units	D1	s1	D2	s2	H3	L1	Code 59		Code 94		CL	Code 94		Code 80	
								L2	L2	L4	L5		BW-L	TC-L		
1/2 x 1/2	mm in	12.7 0.500	1.65 0.065	12.7 0.500	1.65 0.065	1.45 0.1	9.4 0.4	20.0 0.8	38.1 1.5	19.7 0.8	27.5 1.1	216.4 8.5	76.2 3.0	41.3 1.6		
1/2 x 3/4	mm in	12.7 0.500	1.65 0.065	19.05 0.750	1.65 0.065	4.63 0.2	12.9 0.5	20.0 0.8	38.1 1.5	19.7 0.8	27.5 1.1	216.4 8.5	76.2 3.0	41.3 1.6		
1/2 x 1	mm in	12.7 0.500	1.65 0.065	25.4 1.000	1.65 0.065	7.8 0.3	16.5 0.6	20.0 0.8	38.1 1.5	19.7 0.8	27.5 1.1	216.4 8.5	76.2 3.0	50.8 2.0		
1/2 x 1 1/2	mm in	12.7 0.500	1.65 0.065	38.1 1.500	1.65 0.065	14.15 0.6	23.5 0.9	20.0 0.8	38.1 1.5	19.7 0.8	27.5 1.1	254.5 10.0	95.3 3.8	69.9 2.8		
1/2 x 2	mm in	12.7 0.500	1.65 0.065	50.8 2.000	1.65 0.065	20.5 0.8	30.6 1.2	20.0 0.8	38.1 1.5	19.7 0.8	27.5 1.1	305.3 12.0	120.7 4.8	88.9 3.5		
1/2 x 2 1/2	mm in	12.7 0.500	1.65 0.065	63.5 2.500	1.65 0.065	26.85 1.1	37.6 1.5	20.0 0.8	38.1 1.5	19.7 0.8	27.5 1.1	343.4 13.5	139.7 5.5	108.0 4.3		
3/4 x 3/4	mm in	19.05 0.750	1.65 0.065	19.05 0.750	1.65 0.065	4.63 0.2	12.9 0.5	25.0 1.0	38.1 1.5	19.7 0.8	27.5 1.1	216.4 8.5	76.2 3.0	41.3 1.6		
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3/4 x 1 1/2	mm in	19.05 0.750	1.65 0.065	38.1 1.500	1.65 0.065	14.15 0.6	23.5 0.9	25.0 1.0	38.1 1.5	19.7 0.8	27.5 1.1	254.5 10.0	95.3 3.8	69.9 2.8		
3/4 x 2	mm in	19.05 0.750	1.65 0.065	50.8 2.000	1.65 0.065	20.5 0.8	30.6 1.2	25.0 1.0	38.1 1.5	19.7 0.8	27.5 1.1	305.3 12.0	120.7 4.8	88.9 3.5		
3/4 x 2 1/2	mm in	19.05 0.750	1.65 0.065	63.5 2.500	1.65 0.065	26.85 1.1	37.6 1.5	25.0 1.0	38.1 1.5	19.7 0.8	27.5 1.1	343.4 13.5	139.7 5.5	108.0 4.3		

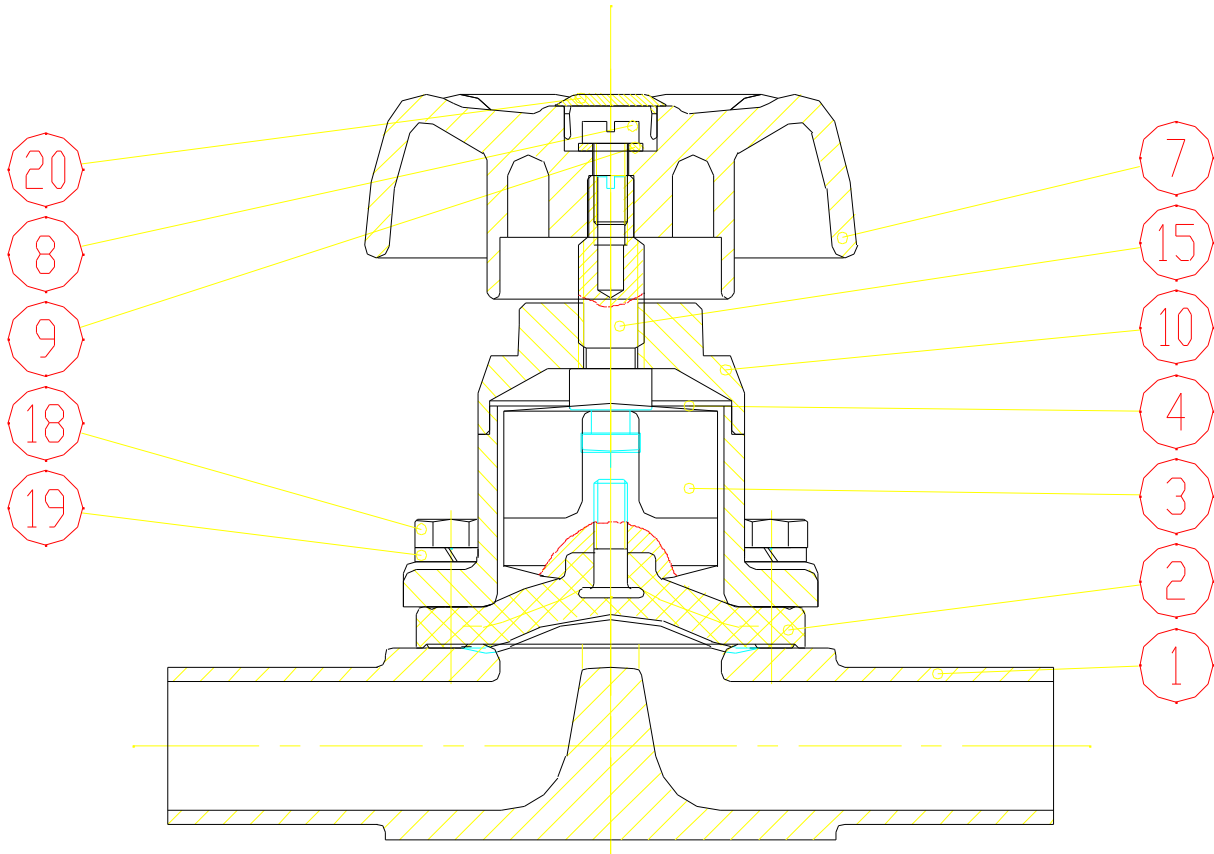
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Body material					41											
Diaphragm material						13										
Control function							0									
Actuator size																
Locking device																
Pipe main size									040							
Pipe main connection										94						
Surface finish											1537					
Special version (XXXX)																



# Type 612 Spare Parts



<b>ITEM</b>	<b>PART</b>
1	Valve Body
2	Diaphragm
3	Compressor
4	Bearing Plate
7	Hand Wheel
8	Bolt
9	Washer
10	Bonnet
15	Threaded Spindle
18	Bolt
19	Washer
20	Cap
30	Nut
32	Hex Nut