Type 1089 Valve

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Introduction

Scope of Manual

This instruction manual includes mounting, installation, operation, maintenance, and part information for the Type 1089 valve. Refer to separate manuals for instructions covering the actuator, positioner, other instruments and accessories.

No person may install, operate, or maintain a Type 1089 valve without first ● being fully trained and qualified in valve, actuator, and accessory installation, operation, and maintenance, and ● carefully reading and understanding the contents of this manual. If you have any questions about these instructions, contact your Emerson Process Management[™] sales office before proceeding.



Figure 1. Type 1089 Control Valve, Typical Design

Note

Neither Emerson[®], Emerson Process Management, Fisher[®], nor any of their affiliated entities assumes responsibility for the selection, use and maintenance of any product. Responsibility for the selection, use, and maintenance of any product remains with the purchaser and end-user.







Table 1. Specifications			
Sizes	Packing:		
1 through 10 inches	PTFE jam-type packing		
Pressure ratings	Gaskets		
ANSI Class 1500 and 2500, flanged end connections	AFLAS™		
Standard trim	Flow Characteristics		
Unbalanced	Linear, Equal Percentage, or On-off		
Temperature Capabilities	Flow Direction		
To +200°C (+392°F)	Flow is permissible in either direction except with		
Shutoff Classification	must be Flow Down		
Per IEC 60534-4 and ANSI/FCI 70-2. Class IV is standard	Options		
Valve Body	Balanced trim, Anti-Cavitation trim, Noise-Reduction trim, or Body Steam tracing		
Stainless steel 1.4429 (Chrome-Nickel-based forged alloy according to EN10222-5) or Other	Urea Licenser		
forged material as specified	Stamicarbon, Snam Progetti, Chiyoda or others,		
Valve Plug/Stem and Seat Ring	to specify		
Special duplex steel Chrome-Nickel-based (HvD1™ or Ferralium 255™) is standard; Other	Approximate weights		
materials also available	See table 2		
Description	Class 1500 or 2500. Sizes can vary from 1- to		
Type 1089 valves are stem-guided, metal-seated angle valves that have special features for Urea	10-inches, according to design and customer specifications. Standard trim is Unbalanced, but Balanced trim is also available in option.		

angle valves that have special features for Urea service, and have compact block design. Valves can be provided to meet any customer urea plant specification. These valves must be in compliance with different Urea licenser specifications, from Kellogg, SNAM Progetti, Chiyoda, Stamicarbon, BASF or others...

Several features help prevent Urea from collecting and crystallizing on valve parts, such as: valve designed to eliminate dead spaces; seat ring in place by clamping between valve and end connection socket; one-piece valve plug and stem... The 1089 Valves have Pressure Ratings of ANSI

Specifications

Tracing are options as well.

sales office for more details.

Typical specifications for these valves are shown in table 1.

Anti-Cavitation trim, Noise Reduction trim or Steam

Please contact your Emerson Process Management

Size (Inches)	Pressure Rating	Urea Specification	A (mm)	B (mm)	C (mm)	Approximate Weight (Kg)
1	ANSI 1500	CHIYODA	75	210	108	55
2	ANSI 1500	CHIYODA	110	300	130	135
2	ANSI 2500	STAMICARBON	117,5	325	119,5	175
0	ANSI 1500	CHIYODA	135	400	178	303
3	ANSI 2500	SNAM PROGETTI	100	325	120	131
4	ANSI 2500	SNAM PROGETTI	125	400	145	254
6	ANSI 2500	SNAM PROGETTI	165	515	193	600
10	ANSI 1500	CHIYODA	300	800	270	2539

Table 2. General Information on Sizes, ANSI Classes, Global Dimensions and Weights



Figure 2. Dimensions

Installation

Always wear protective gloves, clothing, and eyewear when performing any installation operations to avoid personal injury. To avoid personal injury or property damage resulting from the sudden release of pressure, do not install the valve assembly where service conditions could exceed the limits given in this manual or on the appropriate nameplates. Use pressure-relieving devices as required by government or accepted industry codes and good engineering practices to avoid such injury or damage.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

If installing into an existing application, also refer to the WARNING at the beginning of the Maintenance section in this instruction manual.

CAUTION

The valve configuration and construction materials were selected to meet particular pressure, temperature, pressure drop, and controlled fluid conditions. Because some body/trim material combinations are limited in their pressure drop and temperature range capabilities (especially due to differences in thermal expansion rates), do not apply any other conditions to the valve without first contacting your Emerson Process Management sales office.

1. Before installing the valve, inspect the valve and associated equipment for any damage and any foreign material.

VALVE RATING	VALVE SIZE BOLTING DIAMETER		DIAMETER		TORQUE VALUES			
	Inches				N•	m	Lbf•ft	
	inches	mm	inches		Min	Max	Min	Max
	1		0.875	C3-80	108	119	79	88
	2		0.875	C3-80	108	119	79	88
ANSI Class	3		1.125	C3-80	284	327	209	240
1500	4		1.25	C3-80	478	550	351	404
	6		1.375	C3-80	673	774	495	569
	10		1.875	C3-80	2048	2355	1506	1732
	1		0.875	C3-80	147	162	108	119
	2		1	C3-80	232	267	171	196
		M24		C3-80	360	414	265	304
ANSI Class 2500	3		1.25	C3-80	514	591	378	435
	4		1.5	SA193-B8	1646	1810	1210	1331
	6		2	C3-80	2184	2512	1606	1847
	8		2	C3-80	3084	3547	2268	2608

Table 3. Recommended Torque Values for Bottom Flange Bolting

Table 4. Recommended Torque Values for Side Flange Bolting

	VALVE SIZE	BOLTING I	BOLTING DIAMETER		TORQUE VALUES			
			Inches		N	•m	Lbf•ft	
RAING	Inches	mm	Inches		Min	Max	Min	Max
	1		0.875	C3-80	71	78	52	57
	2		0.875	C3-80	71	78	52	57
ANSI Class	3		1.125	C3-80	189	217	139	160
1500	4		1.25	C3-80	322	370	237	273
	6		1.375	C3-80	455	523	335	385
	10		1.875	C3-80	1520	1748	1118	1285
ANSI Class 2500	1		0.875	C3-80	129	142	95	104
	0		1	C3-80	183	210	135	154
	2	M24		C3-80	360	414	265	304
	3		1.25	C3-80	514	591	378	435
	4		1.5	SA193-B8	1646	1810	1210	1331
	6		2	C3-80	2184	2512	1606	1847
	8		2	C3-80	2433	2798	1789	2057

2. Make certain the valve body interior is clean, that pipelines are free of foreign material, and that the valve is oriented so that pipeline flow is in the same direction as the arrow on the side of the valve.

3. The control valve assembly may be installed in any orientation unless limited by seismic criteria. However, the normal method is with the actuator vertical above the valve. Other positions may result in uneven valve plug and cage wear, and improper operation. With some valves, the actuator may also need to be supported when it is not vertical. For more information, consult your Emerson Process Management sales office.

4. Use accepted piping and welding practices when

installing the valve in the line. For flanged valves, use a suitable gasket between the valve and pipeline flanges.

5. Install a 3-valve bypass around the control valve if continuous operation is required during maintenance.

6. If the actuator and valve are shipped separately, see the Actuator Mounting procedure in the appropriate Actuator Instruction Manual.

7. If the valve was shipped without packing installed in the packing box, install the packing prior to putting the valve into service. Refer to Instructions given in the Packing Maintenance section of this manual.

Personal injury or property damage could result from packing leakage. Valve packing was tightened before shipment; however the packing might require some readjustment to meet specific service conditions. Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

Maintenance

Valve parts are subject to normal wear and must be inspected and replaced as necessary. Inspection and maintenance frequency depends on the severity of service conditions. This section includes instructions for packing lubrication, packing maintenance, adding packing rings, replacing packing, trim removal or replacement.

Avoid personal injury from sudden release of process pressure. Before performing any maintenance operations:

• Always wear protective gloves, clothing, and eyewear when performing any maintenance operations to avoid personal injury.

• Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.

• Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve. Drain the process media from both sides of the valve.

• Vent the power actuator loading pressure and relieve any actuator spring pre-compression.

• Use lockout procedures to be sure that the above measures stay in effect while you work on the equipment.

• The valve packing box may contain process fluids that are pressurized, even when the valve has been removed from the pipeline. Process fluids may spray out under pressure when removing the packing hardware or packing rings, or when loosening the packing box pipe plug.

• Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

Packing Lubrication

\Lambda WARNING

Do not lubricate parts when used in oxygen service, or where the lubrication is incompatible with the process media. <u>Any</u> use of lubricant can lead to the sudden explosion of media due to the oil/oxygen mixture, causing personal injury or property damage.

If a lubricator or lubricator/isolating valve is provided for PTFE/composition or other packing that requires lubrication, it will be installed in place of the pipe plug. Use a good quality silicon-base lubricant. Packing used in oxygen service or in processes with temperatures over 260°C (500°F) should not be lubricated. To operate the lubricator, turn the cap screw clockwise to force the lubricant into the packing box. The lubricator/isolating valve operates the same way except the isolating valve must first be opened and then closed after lubrication is completed.



Figure 3. Connection Between Valve and Actuator

Packing Maintenance

If there is undesirable packing leakage, first try to limit the leakage and establish a stem seal by tightening more the packing flange nuts. However, do not over-tighten or excessive friction may result. If leakage continues, replace the packing by following the numbered steps presented in the Packing Replacement section below.

If the packing is relatively new and tight on the valve plug stem, and if tightening the packing flange nuts does not stop the leakage, it is possible that the stem is worn or nicked so that a seal cannot be made. Check the stem for any damage or wear : if necessary, replace it. The surface finish of a new stem is critical for making a good packing seal. If the leakage comes from the outside diameter of the packing, it is possible that the leakage is caused by nicks or scratches round the packing box wall. While replacing the packing according to the Packing Replacement procedure, inspect the valve plug stem and packing box wall for nicks or scratches.

Adding Packing Rings

When using packing with a lantern ring it may be possible to add packing rings above the lantern ring as a temporary measure without removing the actuator from the valve body. 1. Isolate the control valve from the line pressure, release pressure from both sides of the valve body, and drain the process media from both sides of the valve. If using a power actuator, also shut-off all pressure lines to the power actuator, release all pressure from the actuator. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

2. Remove the packing flange nuts and lift the packing flange, upper wiper, and packing follower away from the valve body.

3. It may be possible to dig out the old packing rings on top of the lantern ring, but use care to avoid scratching the valve plug stem or packing box wall. Clean all metal parts to remove particles that would prevent the packing from sealing.

4. Remove the stem connector and slip the packing rings over the end of the valve plug stem.

5. Reassemble the packing follower, upper wiper, packing flange, and packing flange nuts.

6. Reconnect the body-actuator stem connection according to the appropriate actuator instruction manual.

7. Tighten the packing flange nuts only far enough to stop leakage under operating conditions. Check for leakage around the packing follower when the valve is being put into service. Retighten the packing flange nuts as required.

Packing Replacement

Observe the warning at the start of the Maintenance section.

Note

When installing packing rings, prevent entrapping air between the rings. Add the rings one at a time without forcing them below the chamfer of the packing box entrance chamber. As each successive ring is added, the stack should not be pushed down more than the thickness of the added ring.

Personal injury or property damage could result from packing leakage. Valve packing was tightened before shipment; however the packing might require some readjustment to meet specific service conditions. Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

1. Isolate the control valve from the line pressure, release pressure from both sides of the valve body, and drain the process media from both sides of the valve. If using a power actuator, also shut off all pressure lines to the power actuator, release all pressure from the actuator. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

2. Remove screws (20.7) from coupling.

3. Loosen and separate coupling parts (20.2) and hexagonal nut (20.5) from valve stem

4. Exhaust all actuator pressure, if any was applied, and disconnect the actuator supply and any leak-off piping.

5. Remove travel indicator (20.1).

6. For actuators with leg posts: loose fixing nuts of both actuator leg posts.

7. For actuators with yoke: loose the screws between yoke and body, or the yoke locknut, if appropriate.

8. Remove actuator from the valve body (1).

9. Loosen and remove hexagonal nuts (8.3) from the packing flange (8.1), so that the packing is not tight on the valve stem. Again, be sure to remove any travel indicator disk and stem locknuts from the valve stem threads.

10. Draw complete packing flange (8.1), and follower if appropriate.

11. Draw packing rings (8.4) carefully off by means of packing worms.

12. Clean packing box. Clean all gasket surfaces with a good wire brush. Clean in the same direction as the surface serrations, not across them.

13. Clean all metal packing parts (packing flange, and follower if appropriate, packing box ring...)

14. Inspect the valve stem threads for any sharp edges that might cut the packing. A whetstone or emery cloth may be used to smooth the threads if necessary.

15. Insert new packing rings (8.4). If desired, packing parts may be pre-lubricated with silicon base grease for easier installation. Slip a smooth-edged pipe over the valve stem, and gently tamp each soft packing part into the packing box, being sure that air is not trapped between adjacent soft parts.

16. Put on complete packing flange (8.1), and follower if appropriate.

17. Tighten nuts (8.3) of packing flange (8.1) for pre-compression.

18. Let it act for 15 minutes.

19. Loose nuts (8.3) of packing flange (8.1), then tighten again for operating conditions. Tighten the packing flange nuts alternately to appropriate torque. Then, tighten the remaining flange nuts until the packing flange is level and in small equal increments until one of the nuts reaches the minimum 90-degree angle to the valve stem.

20. Mount the actuator on the valve body assembly, and reconnect the actuator and valve plug stems according to the procedures in the appropriate actuator Instruction Manual.

Replacing Plug-Stem Assembly and Seat (Complete Trim)

CAUTION

To avoid leakage when the valve is returned to service, use appropriate methods and materials to protect all sealing surfaces of the new trim parts while assembling the individual parts and during installation in the valve body.

To avoid personal injury or property damage due to leaking fluid, avoid damaging gasket-sealing surfaces. Use care to avoid damage to the packing rings caused by dropping or rough handling.

CAUTION

To avoid excessive leakage and seat erosion, the valve plug must be initially seated with sufficient force to overcome the resistance of the seals and contact the seat. You can correctly seat the valve plug by applying the full actuator load. This force will adequately drive the valve plug to the seat. Once this is done, the plug and the seat/cage become a matched set.

Note

Whenever removing or shifting gasketed parts disturbs a gasket seal, a new gasket should be installed upon reassembly. This is necessary to ensure a good gasket seal.

CAUTION

All residual gasket material must be removed from the seat/cage gasket

surfaces. If the gasket surfaces are scored or damaged during this process, smooth them by hand sanding with 360 grit paper using long, sweeping strokes. Failure to remove all residual gasket material and/or burrs from the gasket surfaces will result in leakage.

CAUTION

Inspect the seat, cage and body gasket surfaces. These surfaces must be in good condition, with all foreign material removed. Small burrs less than approximately 0.076 mm (0.003 inches) in height (the thickness of a human hair) can be ignored. Scratches or burrs that run across the serrations are not permitted under any conditions, since they will prevent the gaskets from sealing properly.

Packing and bushing guide have to be replaced at each disassembly of the plug/stem assembly. Sealings have to be replaced at each disassembly of seat. Sealing surfaces must be cleaned.

1. Disassembly of actuator (see Packing Replacement paragraph). Observe all warnings and cautions.

2. Loosen and remove hexagonal nuts (9.2) between body (1) and flange (3).

3. Remove tube (2) together with flange (3).

4. Remove seat (4) from body (1).

5. By loosening hexagonal nuts (8.3) and removing gland (8.1), observe that the plug-stem (6) is not falling out.

6. Draw off the plug-stem (6).

7. Remove packing (see Packing Replacement section). Observe all warnings and cautions.

8. Remove base ring (8.6) and bushing guide (8.11).

9. Clean sealing surface of the packing box of the body (1).



Figure 4. Type 1089 Valve Assembly



Figure 5. Detail of Special Trim With Guiding Rings

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10. Insert new bushing guide (8.11) and base ring (8.6).

11. Check sealing surface to be according to Caution instructions in this section.

12. Insert the new plug-stem (6) into the body (1).

13. Insert new seat (4) with new sealing ring (5) into the body (1).

14. Mount tube (2) together with flange (3) on the seat (4) carefully, screw crosswise (see tables 3 and 4 for torque values).

15. Assembly of packing (see Packing Replacement section). Observe all warnings and cautions.

16. Mount actuator, bolt coupling together.

Lapping Seats

A certain amount of leakage should be expected with metal-to-metal seating in any valve body. If the leakage becomes excessive (more than expected Leakage Class), however, the condition of the seating surfaces of the valve plug and seat can be improved by lapping (Deep nicks should be machined out rather than ground out). Use a good quality lapping compound of a mixture of 280 to 600-grit. Apply the compound to the bottom of the valve plug (area of contact between plug and seat).

Use the following procedure to lap the seating surfaces:

1. Install the main components of the valve (stem/plug, seat, tube, flanges) without compressing the packing.

2. Secure the flanges with studs and nuts.

3. Attach a handle, such as a piece of strap iron secured by stem locknuts, to the valve stem. Rotate the handle alternately in each direction to lap the seat.

4. After lapping, disassemble as necessary. Clean the seating surfaces, replace the gaskets, reassembly (taking care to return the seat ring to its original position), and test for shutoff. Repeat the lapping procedure if necessary.

Parts Ordering

Each valve is assigned to a Serial Number, which can be found on the valve body. This same number also appears on the actuator nameplate when the valve body is shipped from the factory as part of a control valve assembly. Refer to the number when contacting your Emerson Process Management sales office for technical assistance or when ordering replacement parts.

When ordering replacement parts, also be sure to include the 11-character or 7-character part number for each part required from the following part lists.

Note

Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Process Management should not, under any circumstances, be used in any Fisher valve, because they will void your warranty, might adversely affect the performance of the valve, and might jeopardize worker and workplace safety.

Note

Neither Emerson, Emerson Process Management, Fisher, nor any of their affiliated entities assumes responsibility for the selection, use and maintenance of any product. Responsibility for the selection, use, and maintenance of any product remains with the purchaser and end-user.

Parts List

Numerous available combinations of valve parts make selection of some parts difficult; when ordering valve parts for which a part number is not listed, provide the valve Serial Number with the order, permitting proper selection of replacement parts to be made at the factory.

The part lists below present most of the recommended spare parts you can order for different combination of Urea licensers, sizes and ANSI Classes. A few other combinations are also available on request.

For the main parts (body, seat-cage, stem-plug...), contact your Emerson Process Management sales office, and provide the valve Serial Number.

UREA LICENSER: CHIYODA

Standard Valve (1089.00) with Urea Licenser: CHIYODA

Size 2-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58165F012
7	Plug (18mm Port) guiding ring	2663279
8	Packing	
8.1	Packing flange	33468G4G012
8.2	Packing stud	0128996
8.3	Packing nuts	0540218
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	14839G5G012
8.7	Guide Bushing	2193868
9	Small parts	
9.1	Flange stud	2134993
9.2	Flange nut	2135043
17	Studs	0568031
18	Nuts	0540218

Size 10-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58205F012
7	Plug (210mm Port) guiding ring	2627027
7	Plug (196mm Port) guiding ring	2135841
8	Packing	
8.1	Packing flange	2156709
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2082713
8.5	Washer	2385112
8.6	Base ring	2626926
8.7	Guide Bushing	2193809
9	Small parts	
9.1	Flange stud	2135035
9.2	Flange nut	2135086
17	Studs	1710192
18	Nuts	0127817

Valve with Balanced Trim (1089.01) with Urea Licenser: CHIYODA

Size 3-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58204F012
7	Piston Ring set (for plug 50mm Port)	2156601
7.1	Guiding ring	2213591
7.2	Keilpac ring	2193906
8	Packing	
8.1	Packing flange	2156687
8.2	Packing stud	0567655
8.3	Packing nuts	0567663
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	2135876
8.7	Guide Bushing	2193868
9	Small parts	
9.1	Flange stud	2135019
9.2	Flange nut	2135051
17	Studs	0568031
18	Nuts	0567663

Size 6-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58218F012
7	Piston Ring set (for plug 120mm Port)	1824155
7.1	Guiding ring	2019361
7.2	Keilpac ring	2135949
7	Gasket set (for plug 136mm Port)	2639157
7.1	Guiding ring	2627272
7.2	Keilpac ring	2627299
8	Packing	
8.1	Packing flange	2639173
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2627337
8.11	Guide Bushing	2193833
9	Small parts	
9.1	Flange stud	2135027
9.2	Flange nut	2135078
17	Studs	1710192
18	Nuts	0127817

Valve with Noise Attenuation Cage (1089.10) with Urea Licenser: CHIYODA

Size 1-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58170F012
8	Packing	
8.1	Packing flange	1824228
8.2	Packing stud	0128996
8.3	Packing nuts	0540218
8.4	Packing ring	2038153
8.5	Washer	0148091
8.6	Base ring	2136236
8.7	Guide Bushing	2193841
17	Studs	0568031
18	Nuts	0540218

Valve with Anticavitation Trim (1089.70) with Urea Licenser: CHIYODA

Size 3-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58204F012
7	Plug (40mm Port) guiding ring	2135795
7	Plug (30mm Port) guiding ring	2428814
8	Packing	
8.1	Packing flange	2156695
8.2	Packing stud	1710206
8.3	Packing nuts	0646873
8.4	Packing ring	2528282
8.5	Washer	2155865
8.6	Base ring	2135906
8.11	Guide Bushing	2193833
9	Small parts	
9.1	Flange stud	2135019
9.2	Flange nut	2135051
17	Studs	1710192
18	Nuts	0127817

UREA LICENSER: STAMICARBON

Standard Valve (1089.00) with Urea Licenser: STAMICARBON

Size 2-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q58140F012
7	Plug (40mm Port) guiding ring	2527995
7	Plug (30mm Port) guiding ring	2596075
8	Packing	
8.1	Packing flange	2595818
8.2	Packing stud	0128996
8.3	Packing nuts	2599244
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	2596016
8.7	Guide Bushing	2596091
9	Small parts	
9.1	Flange stud	2596113
9.2	Flange nut	2596121
17	Studs	1399438
18	Nuts	2599244
Size	3-Inch - ANSI 2500	
Kov	Description	Part Number

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5	Seat O-ring	1Q58198F012
7	Plug (45mm Port) guiding ring	2135795
8	Packing	
8.1	Packing flange	2515881
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2667916
8.7	Guide Bushing	2193833
9	Small parts	
9.1	Flange stud	2668955
9.2	Flange nut	2668963
17	Studs	2483009
18	Nuts	0127540

Size 6-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57203F012
7	Plug (120mm Port) guiding ring	2572796
8	Packing	
8.1	Packing flange	2515881
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2667916
8.7	Guide Bushing	2193833
9	Small parts	
9.1	Flange stud	2597071
9.2	Flange nut	2596164
17	Studs	2483009
18	Nuts	0127540

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Valve with Balanced Trim (1089.01) with Urea Licenser: STAMICARBON

Size 3-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q58199F012
7	Plug (65mm Port) guiding ring	2668424
8	Packing	

0	Packing	
8.1	Packing flange	2595818
8.2	Packing stud	0128996
8.3	Packing nuts	2599244
8.4	Packing ring	2654601
8.5	Washer	2516063
8.7	Base ring	2668475
9	Small parts	
9.1	Flange stud	2668955
9.2	Flange nut	2668963
10	Plug (65mm Port) Keilpac ring	1Q58200G012
17	Studs	1399438
18	Nuts	2599244

Size 6-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57203F012
7	Plug (95mm Port) guiding ring	2668297
7	Plug (120mm Port) guiding ring	2597055
8	Packing	
8.1	Packing flange	2515881
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2667916
8.7	Guiding bushing	2193833
9	Small parts	
9.1	Flange stud	2597071
9.2	Flange nut	2596164
10	Plug (95mm Port) Keilpac ring	2517124
10	Plug (120mm Port) Keilpac ring	2135949
17	Studs	2483009
18	Nuts	0127540

Size 8-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57165F012
7	Plug (147mm Port) guiding ring	2597276
7	Plug (177mm Port) guiding ring	2596407
8	Packing	
8.1	Packing flange	2515881
8.2	Packing stud	1710206
8.3	Packing nuts	0127680

8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2596288
8.7	Guide Bushing	2193833
9	Small parts	
9.1	Flange stud	2596156
9.2	Flange nut	2596164
10	Plug (147mm Port) Keilpac ring	1601598
10	Plug (177mm Port) Keilpac ring	2597292
17	Studs	2483009
18	Nuts	0127540

Valve with Noise Attenuation Cage (1089.10) with Urea Licenser: **STAMICARBON**

Size 1-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57202F012
8	Packing	
8.1	Packing flange	2632225
8.2	Packing stud	0128996
8.3	Packing nuts	2599244
8.4	Packing ring	2038153
8.5	Washer	0148091
8.6	Base ring	2632233
8.11	Guide Bushing	2193841
9	Small parts	
9.1	Flange stud	2597659
9.2	Flange nut	2597667
17	Studs	0568031
18	Nuts	2599244

Size 3-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q58198F012
7	Plug (25mm Port) guiding ring	2668939
8	Packing	
8.1	Packing flange	2595818
8.2	Packing stud	0128996
8.3	Packing nuts	2599244
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	2668971
8.7	Guide Bushing	2596091
9	Small parts	
9.1	Flange stud	2668955
9.2	Flange nut	2668963
17	Studs	1399438
18	Nuts	2599244

Size 4-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q58206F012
7	Plug (20mm Port) guiding ring	2516012
8	Packing	
8.1	Packing flange	2595818
8.2	Packing stud	0128996
8.3	Packing nuts	2599244
8.4	Packing ring	2654601
8.5	Washer	2516063
8.6	Base ring	2595788
8.11	Guide Bushing	2193868
9	Small parts	
9.1	Flange stud	2516098
9.2	Flange nut	2516101
17	Studs	0568031
18	Nuts	2599244

Size 6-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57203F012
7	Plug (32mm Port) guiding ring	2492479
7	Plug (120mm Port) guiding ring	2572796
8	Packing	
8.1	Packing flange	2515881
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2595753
8.11	Guide Bushing	2516128
9	Small parts	
9.1	Flange stud	2515946
9.2	Flange nut	2482282
17	Studs	2483009
18	Nuts	0127540

Valve with Noise Attenuation Cage and Balanced Trim (1089.11) with Urea Licenser: STAMICARBON

Size 6-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57203F012
7	Plug (120mm Port) guiding ring	2597055
8	Packing	
8.1	Packing flange	2631962
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2631903
8.7	Guiding bushing	2193833

9	Small parts	
9.1	Flange stud	2597071
9.2	Flange nut	2596164
10	Plug (120mm Port) Keilpac ring	2135949
17	Studs	2483009
18	Nuts	0127540

Valve with Anticavitation Trim (1089.70) with Urea Licenser: STAMICARBON

Size 6-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q57203F012
7	Plug (40mm Port) guiding ring	2492479
8	Packing	
8.1	Packing flange	2515881
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2595753
8.11	Guide Bushing	2516128
9	Small parts	
9.1	Flange stud	2515946
9.2	Flange nut	2482282
17	Studs	2483009
18	Nuts	0127540

UREA LICENSER: SNAM PROGETTI

Standard Valve (1089.00) with Urea Licenser: SNAM PROGETTI

Size 3-Inch - ANSI 2500

Description	Part Number
Seat O-ring	1Q58204F012
Packing	
Packing flange	1714929
Packing stud	0567655
Packing nuts	0567663
Packing ring	2654601
Washer	0148148
Base ring	1710184
Guide Bushing	1709488
Small parts	
Flange stud	1703633
Flange nut	0432920
Studs	0128880
Nuts	0567663
	Description Seat O-ring Packing Packing flange Packing stud Packing nuts Packing ring Washer Base ring Guide Bushing Small parts Flange stud Flange nut Studs Nuts

Size 4-Inch - ANSI 2500

Key	Description	Part Number
5	Seat O-ring	1Q58199F012
8	Packing (20mm stem)	171 1000
8.1	Packing flange	1714929
8.2	Packing stud	0567655
8.3	Packing nuts	0567663
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	1710184
8.11	Guide Bushing	2193868
8	Packing (30mm stem)	
8.1	Packing flange	1582798
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	1710133
8.11	Guide Bushing	2135914
9	Small parts	
9.1	Flange stud	1703641
9.2	Flange nut	1703676
17	Studs (20mm stem)	0568031
17	Studs (30mm stem)	1710192
18	Nuts(20mm stem)	2599244
18	Nuts (30mm stem)	0127817

Size 6-Inch - ANSI 2500

Description	Part Number
Seat O-ring	1Q58217F012
Packing	
Packing flange	1582801
Packing stud	1710206
Packing nuts	0646873
Packing ring	2038145
Washer	2385112
Base ring	1710095
Guide Bushing	2193809
Small parts	
Flange stud	1703668
Flange nut	0436798
Studs	1710192
Nuts	0127817
	Description Seat O-ring Packing Packing flange Packing stud Packing nuts Packing ring Washer Base ring Guide Bushing Small parts Flange stud Flange nut Studs Nuts

Valve with Noise Attenuation Cage (1089.10) with Urea Licenser: SNAM PROGETTI

Size 2-Inch - PN 325

Key	Description	Part Number
5 8	Seat O-ring Packing	1Q58169F012

1089 Valve

8.1	Packing flange	1714929
8.2	Packing stud	0128996
8.3	Packing nuts	0540218
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	1710184
8.11	Guide Bushing	2193868
9	Small parts	
9.1	Flange stud	1951939
9.2	Flange nut	0432920
17	Studs	0568031
18	Nuts	2599244

UREA LICENSER: KELLOG

Valve with Noise Attenuation Cage (1089.10) with Urea Licenser: KELLOG

Size 2-Inch - ANSI 1500

Key	Description	Part Number
5	Seat O-ring	1Q58140F012
8	Packing	
8.1	Packing flange	2158086
8.2	Packing stud	0567655
8.3	Packing nuts	0567663
8.4	Packing ring	2654601
8.5	Washer	0148148
8.6	Base ring	2260069
8.11	Guide Bushing	2193868
9	Small parts	
9.1	Flange stud	2134993
9.2	Flange nut	2135043
17	Studs	0568031
18	Nuts	2599244

Size 4-Inch - ANSI 1500

Kev	Description
T C J	Description

Part Number

5	Seat O-ring	1Q58206F012
8	Packing	
8.1	Packing flange	2158043
8.2	Packing stud	1710206
8.3	Packing nuts	0127680
8.4	Packing ring	2528282
8.5	Washer	2515865
8.6	Base ring	2260034
8.11	Guide Bushing	2193833
9	Small parts	
9.1	Flange stud	2260093
9.2	Flange nut	2260123
17	Studs	1710192
18	Nuts	0127817



Figure 6. Typical Type 1089 Valve Assembly and Packing Arrangement

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