Pneumatically Actuated Diaphragm Valve

DIASTAR Ten and TenPlus

General

- **Size**: ½"–2"
- **Material**: PVC, CPVC, PROGEF® Standard® PP, PROGEF® Natural PPn, ABS, SYGEF® Standard PVDF, SYGEF® Plus PVDF-HP
- **Diaphragm**: EPDM, FPM, NBR, PTFE/EPDM, PTFE/FPM, PTFE-HP/EPDM, PTFE-HP/FPM
- **Actuator Housing**: Glass-filled PP
- **End Connection**: Solvent cement socket, threaded, flanged, fusion spigot union, fusion socket union, fusion spigot
- **Action**: FC, FO, DA
- **Top Works**: Threaded connection to valve body
- **Standard Pack Quantity**: 1 valve

Key Certifications

- **FDA CFR 21 177.1520**: PP and PVDF
- **FDA CFR 21 177.2600**: EPDM and FPM
- **FDA CFR 21 177.1550**: PTFE
- **USP Class VI (physiological non-toxic)**: EPDM, FPM, PTFE, PP and PVDF

Sample Specification

The DIASTAR Ten and Ten Plus Valves shall be available in fail-safe to close, fail-safe to open and double acting configurations. The actuator housing shall be fully molded glass-filled polypropylene. The pneumatic connection shall be threaded BSP. The actuator bonnet to valve body connection shall be threaded with permanent markings on both the bonnet and body to ensure proper diaphragm compression. The diaphragm material shall be indicated by a color specific insert. Diaphragms of PTFE material shall have an elastomeric backing. The stroke shall be indicated by a graduated indicator. ANSI flanged versions shall meet ANSI B16.5 150lb standards. All valves shall be tested in accordance to ISO9393 and designed to ISO16138 standards. All valves shall be manufactured under ISO9001 for Quality and ISO14001 for Environmental Management. Following assembly, every valve shall be tested and certified bubble tight exceeding Class VI standards.

Material Specification

PVC valves shall meet ASTM D1784 cell classification 12454 standards. CPVC valves shall meet ASTM D1784 cell classification 23447-B standards. PP valves shall meet ASTM D5847-14 cell classification PP0510B66851 standards. ABS valves shall meet ASTM D3965 cell classification 42222 standards. PVDF valves shall be type 1, grade 2 according to ASTM D3222 standards. Valves of all materials shall be RoHS compliant.

Optional Features

- **Pilot Valve**: 24VAC/DC, 110VAC, 2303VAC
- **Positioner**: Digital electro-pneumatic
- **Limit Switches**: Mechanical, inductive
- **High Pressure**: 232 psi max PVC, CPVC, PVDF (water only applications)
- **End Connection**: Alternatives available upon request
- **Face Seals**: Alternatives available upon request
- **Cleaned**: Silicone free/oil free

Pressure Rating

DIASTAR Ten: The combined upstream and downstream process line pressures shall not exceed 150psi when the valve is closed. The process line pressure shall not exceed 150psi when the valve is open.

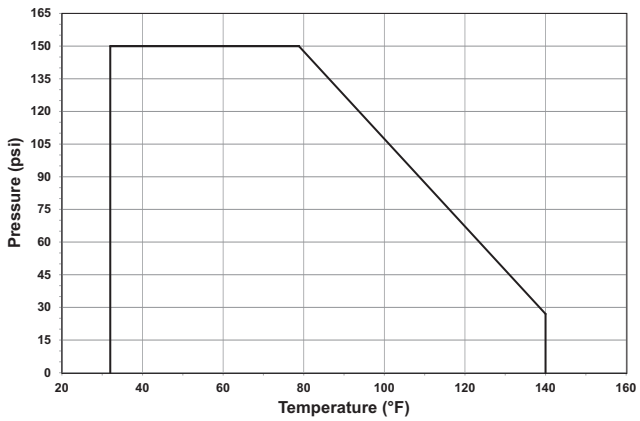
DIASTAR TenPlus: The upstream and downstream process line pressures shall not individually exceed 150psi when the valve is closed. The process line pressure shall not exceed 150psi when the valve is open.

Technical Data

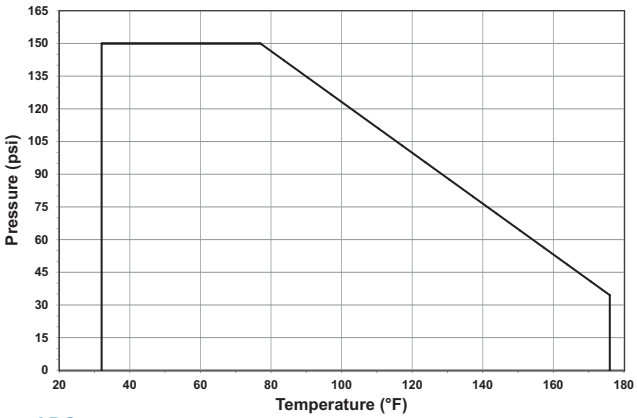
Pressure Temperature Curves

The following graphs are based on a 25 year lifetime water or similar media application

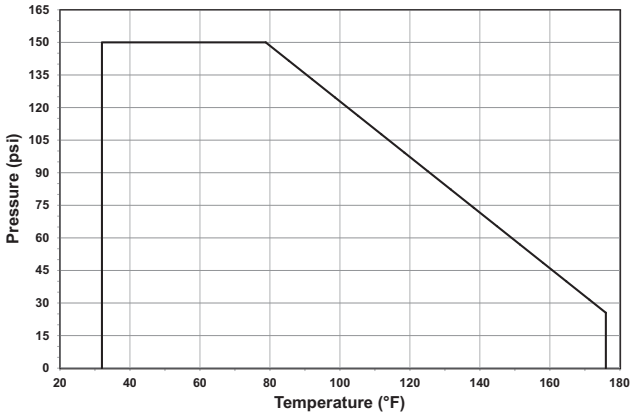
PVC



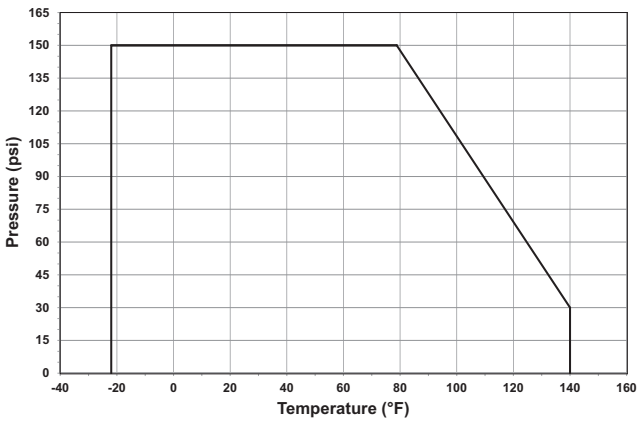
CPVC



PP/PPn



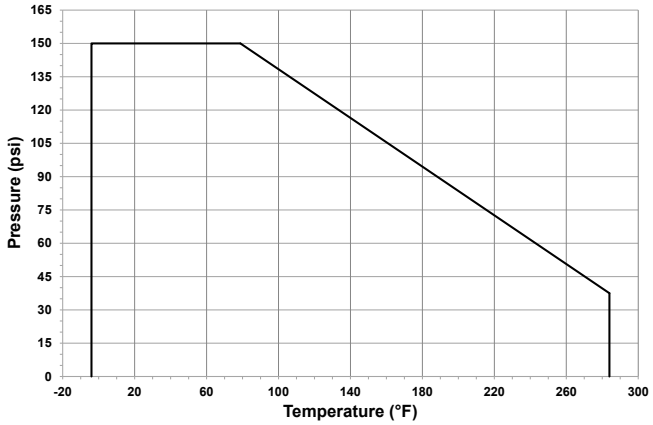
ABS



Pressure Temperature Curves

The following graphs are based on a 25 year lifetime water or similar media application

PVDF



Pressure-Temperature

Material	Temperature Range (°F)	Max Pressure (psi)
PVC	32 to 140	150
CPVC	32 to 176	150
PP/PPn	32 to 176	150
ABS	-40 to 140	150
PVDF	-4 to 284	150

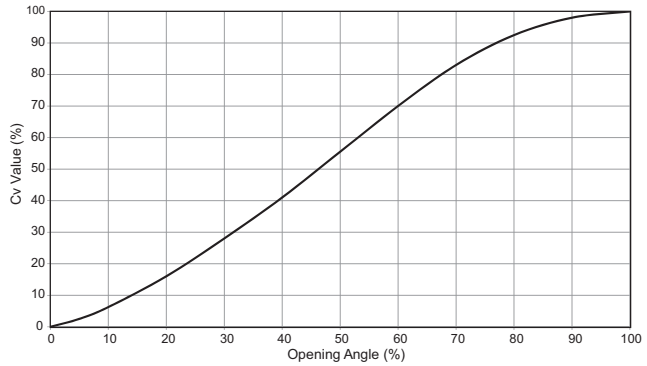
Vacuum Service

DIASTAR Ten and TenPlus Valves are not rated for full vacuum service. Maximum differential pressure of 7.5 psi at 122°F.

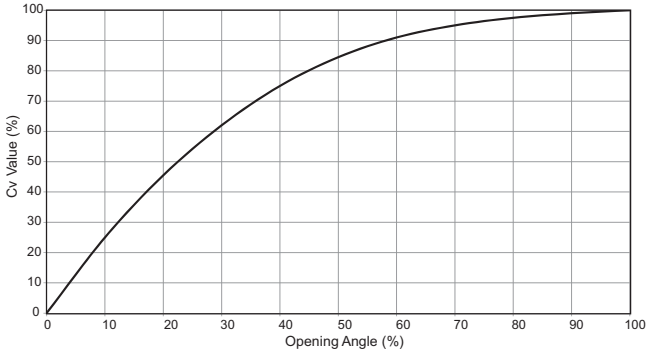
Flow

The following information is based on water applications at 68° F

Flow Characteristics 2-way



Flow Characteristics Type 519



Cv Value - 2-Way

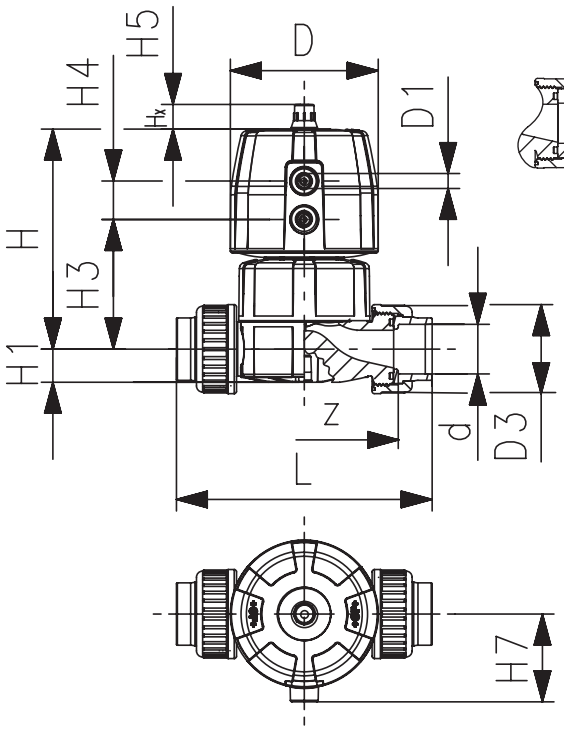
Size (inch)	d (mm)	Cv (gal/min)
½	20	8.4
¾	25	18.3
1	32	32.5
1¼	40	51.3
1½	50	85.3
2	63	116.8

Cv Value - Zero Static

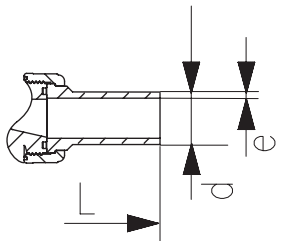
Main (mm)	Branch (mm)	Cv (gal/min)
20	20	3.9
25	20	6.0
25	25	8.0
32	20	5.4
32	25	7.1
32	32	15.6
40	20	5.7
40	25	8.0
40	32	10.3
40	40	12.6
50	20	5.8
50	25	10.8
50	32	13.9
50	40	35.4
50	50	45.1
63	20	5.7
63	25	10.1
63	32	12.4
63	40	31.8
63	50	41.2
63	63	50.5
90	20	5.7
90	25	7.2
90	32	9.0
90	50	43.6
90	63	48.7
110	20	5.5
110	25	7.2
110	32	9.2
110	50	42.3
110	63	46.3

Dimensions

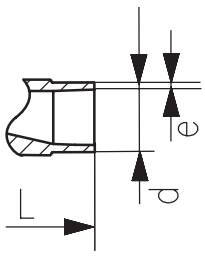
The following tables are shown in millimeters unless otherwise specified



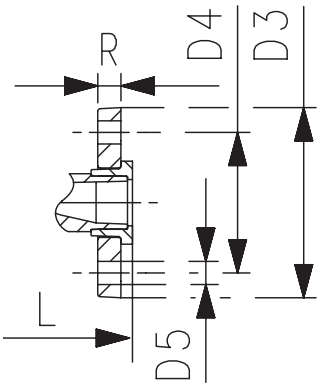
514 Socket/Threaded



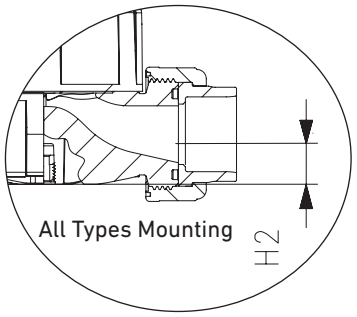
514 IR/Butt

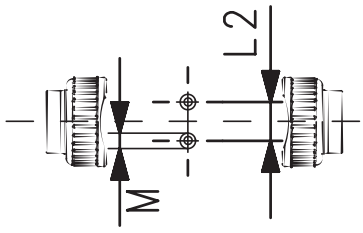


515 IR/Butt



517 Flanged





All Types Mounting Base

All Types and Materials

Size (inch)	d (mm)	D3	L2	H1	H2	M	Hx
½	20	43	25	14	12	M6	7
¾	25	51	25	18	12	M6	10
1	32	58	25	22	12	M6	13
1¼	40	72	45	26	15	M8	15
1½	50	83	45	32	15	M8	19
2	63	100	45	39	15	M8	23

DIASTAR Ten All Materials

Size (inch)	d (mm)	D	D1	H	H3	H4	H7
½	20	68	G⅛"	101	60	24	43
¾	25	96	G⅛"	132	73	25	57
1	32	96	G⅛"	143	84	25	57
1¼	40	120	G⅛"	173	99	26	69
1½	50	150	G¼"	214	119	36	88
2	63	150	G¼"	226	132	36	88

DIASTAR TenPlus All Materials

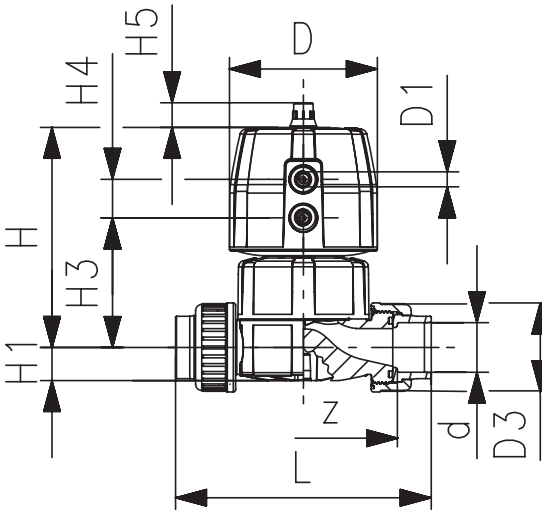
Size (inch)	d (mm)	D	D1	H	H3	H4	H7
½	20	96	G⅛"	127	68	25	57
¾	25	96	G⅛"	132	73	25	57
1	32	120	G⅛"	167	93	26	69
1¼	40	150	G¼"	196	101	36	88
1½	50	180	G¼"	239	124	37	103
2	63	180	G¼"	251	137	37	103

Type 514 PVC/CPVC

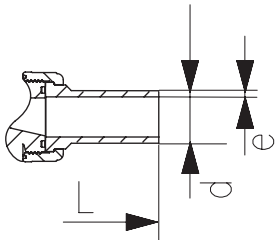
	IPS Socket		Threaded NPT	
Size (inch)	L	z	L	z
½	141	96	128	96
¾	163	114	152	114
1	176	122	166	122
1¼	204	140	192	140
1½	230	160	222	160
2	268	190	266	190

Type 517 PVC/CPVC

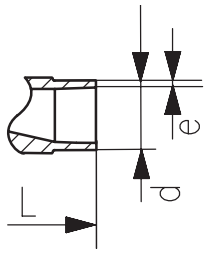
Size	ANSI Flanged				
(inch)	L	D3 (inch)	D4 (inch)	D5 (inch)	R (inch)
½	130	3.74	2.36	0.63	0.63
¾	150	4.13	2.76	0.63	0.67
1	160	4.53	3.11	0.63	0.71
1¼	180	5.51	3.5	0.63	0.63
1½	200	5.91	3.86	0.63	0.71
2	230	6.5	4.76	0.75	0.71



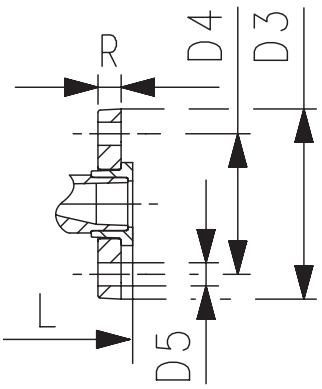
514 Socket/Threaded



514 IR/Butt



515 IR/Butt



517 Flanged

Type 514 ABS

	Metric Socket		
d(mm)	L	z
20	128	96
25	152	114
32	166	122
40	192	140
50	222	160
63	266	190

Type 517 ABS

	ANSI Flanged				
Size (inch)	L	D3 (inch)	D4 (inch)	D5 (inch)	R (inch)
½	130	3.74	2.36	0.63	0.63
¾	150	4.13	2.76	0.63	0.67
1	160	4.53	3.11	0.63	0.71
1¼	180	5.51	3.5	0.63	0.63
1½	200	5.91	3.86	0.63	0.71
2	230	6.5	4.76	0.75	0.71

Type 514 PP

	Metric IR/Butt		Metric Socket		Threaded NPT	
d(mm)	L	e	L	z	L	z
20	196	1.9	128	100	132	98
25	221	2.3	150	118	154	118
32	234	2.9	162	126	172	128
40	260	3.7	184	144	196	148
50	284	4.6	210	164	222	176
63	321	5.8	248	194	266	218

Type 515 PP

	Metric IR/Butt	
d(mm)	L	e
20	124	1.9
25	144	2.3
32	155	2.9
40	176	3.7
50	193	4.6
63	223	5.8

Type 517 PP

Size	ANSI Flanged				
(inch)	L	D3 (inch)	D4 (inch)	D5 (inch)	R (inch)
½	130	3.74	2.36	0.63	0.63
¾	150	4.13	2.76	0.63	0.67
1	160	4.53	3.11	0.63	0.71
1¼	180	5.51	3.5	0.63	0.63
1½	200	5.91	3.86	0.63	0.71
2	230	6.5	4.76	0.75	0.71

Type 517 PVDF

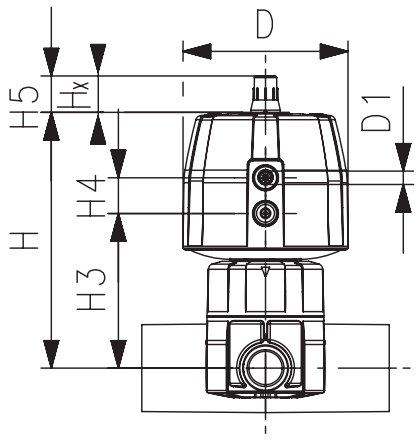
Size	ANSI Flanged				
(inch)	L	D3 (inch)	D4 (inch)	D5 (inch)	R (inch)
½	130	3.74	2.36	0.63	0.63
¾	150	4.13	2.76	0.63	0.67
1	160	4.53	3.11	0.63	0.71
1¼	180	5.51	3.5	0.63	0.63
1½	200	5.91	3.86	0.63	0.71
2	230	6.5	4.76	0.75	0.71

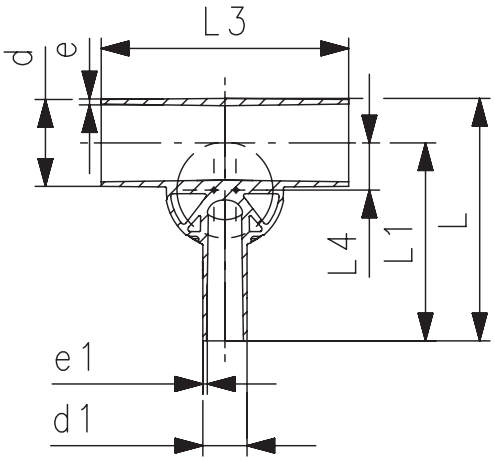
Type 514 PVDF

	Metric IR/Butt		Metric Socket		Threaded NPT	
d(mm)	L	e	L	z	L	z
20	196	1.9	128	100	132	98
25	220	1.9	150	118	154	118
32	234	2.4	162	126	172	128
40	258	2.4	184	144	196	150
50	284	3.0	210	164	222	176
63	320	3.0	248	194	266	218

Type 515 PVDF

	Metric IR/Butt	
d(mm)	L	e
20	124	1.9
25	144	1.9
32	155	2.4
40	176	2.4
50	193	3.0
63	223	3.0





Zero Static

d-d1	Valve					PVDF		PP/PPn	
(mm)	(mm)	L	L1	L3	L4	e	e1	e	e1
20-20	20	117	96	162	12	1.9	1.9	1.9	1.9
25-20	25	133	108	162	16	1.9	1.9	2.3	1.9
25-25	25	133	108	162	16	1.9	1.9	2.3	2.3
32-20	25	142	120	162	19	2.4	1.9	2.9	1.9
32-25	25	142	120	162	19	2.4	1.9	2.9	2.3
32-32	32	145	120	160	19	2.4	2.4	2.9	2.9
40-20	32	149	128	180	23	2.4	1.9	3.7	1.9
40-25	32	149	128	180	23	2.4	1.9	-	-
40-32	32	149	128	180	23	2.4	2.4	-	-
40-40	32	174	153	180	23	2.4	2.4	3.7	3.7
50-20	25	160	134	180	27	3.0	1.9	4.6	1.9
50-25	32	160	134	180	28	3.0	1.9	4.6	2.3
50-32	32	160	134	180	28	3.0	2.4	4.6	2.9
50-40	63	209	169	209	33	3.0	2.4	-	-
50-50	63	209	169	209	33	3.0	3.0	-	-
63-20	25	177	144	180	33	3.0	1.9	5.8	1.9
63-25	32	177	144	180	35	3.0	1.9	5.8	2.3
63-32	32	177	144	180	35	3.0	2.4	5.8	2.9
63-40	63	225	192	220	39	3.0	2.4	-	-
63-50	63	225	192	220	39	3.0	3.0	-	-
63-63	63	225	192	220	39	3.0	3.0	-	-
90-20	32	205	159	190	47	4.3	1.9	-	-
90-25	32	205	159	190	47	4.3	1.9	-	-
90-32	32	205	159	190	47	4.3	2.4	-	-
90-50	63	254	207	250	51	4.3	3.0	-	-
90-63	63	254	207	250	51	4.3	3.0	-	-
110-20	32	227	171	190	56	5.3	1.9	-	-
110-25	32	227	171	190	56	5.3	1.9	-	-
110-32	32	227	171	190	56	5.3	2.4	-	-
110-50	63	276	219	250	60	5.3	3.0	-	-
110-63	63	276	219	250	60	5.3	3.0		