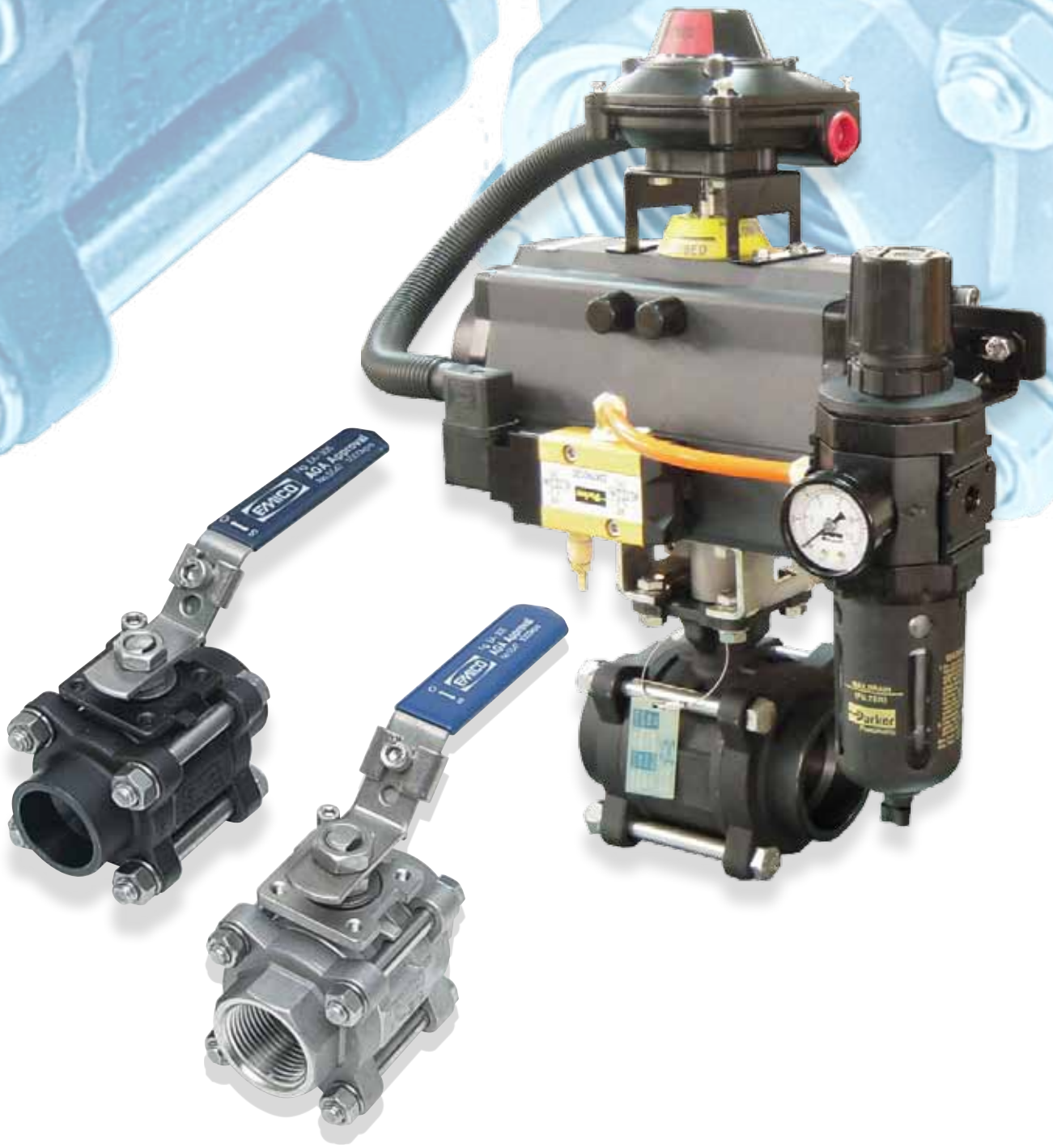
EMICO

3-PIECE, 1000 PSI RATED FIRESAFE BALL VALVES



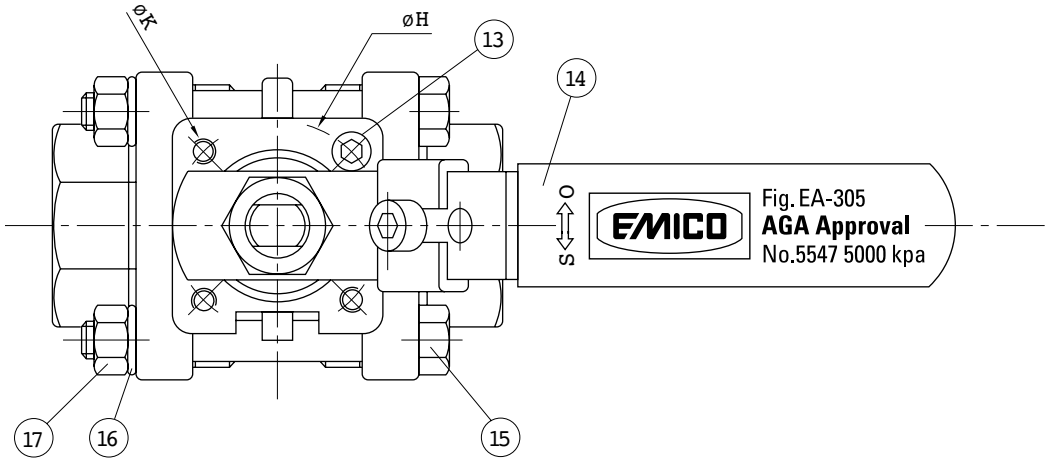
3-PIECE FIRESAFE BALL VALVE FIGURE NUMBERING SYSTEM

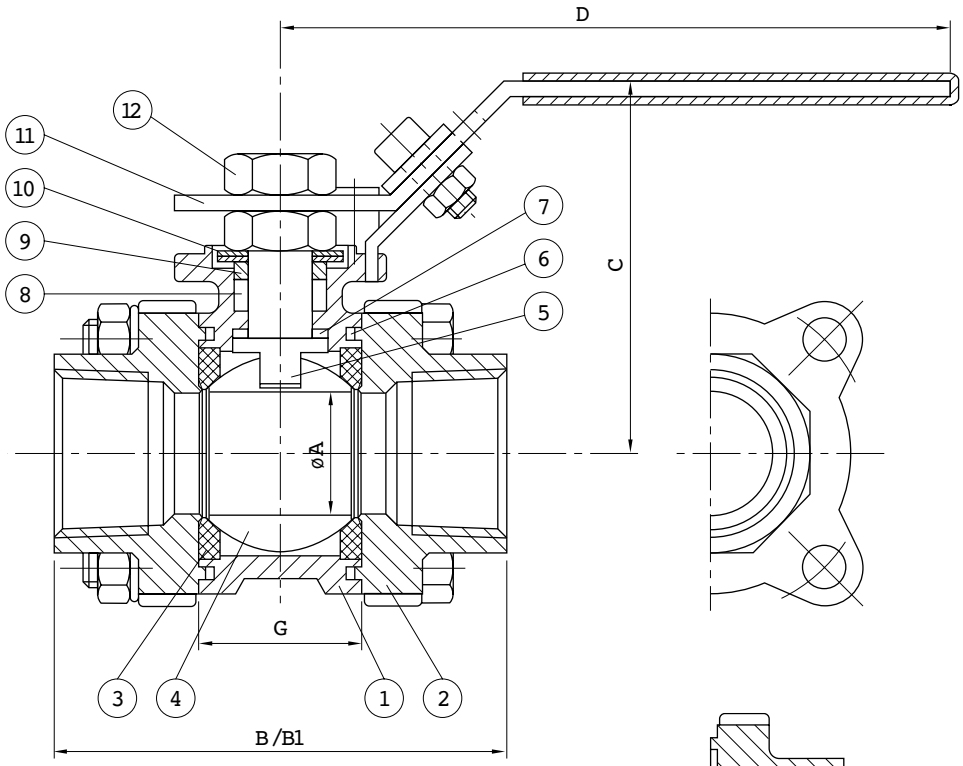
E	A	305	A C	SE SW BW
EMICO BRAND	VALVE SYMBOL	SERIES NUMBER	BODY MATERIAL (Investment Cast)	END CONNECTIONS
	A: BALL VALVE		A: CF8M/316 S/S C: WCB C/STEEL	SE: NPT THREADS TO ASME 1.20.1 SW: SOCKET WELD TO ASME B16.11 BW: BUTT WELD TO ASME B16.25 (pipe & tube ends available)

The Australian Gas Association

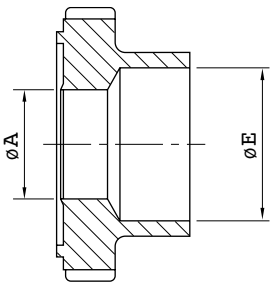
AGA Approval 5547
AG 201
Manual Isolation
15-50mm / 5000kPa

PARTS & MATERIALS				
ITEM	PART	Fig. EA-305A 316 Stainless	Fig. EA-305C Carbon Steel	QTY
1	BODY	ASTM A351 CF8M	ASTM A216 WCB	1
2	END CAPS	ASTM A351 CF8M	ASTM A216 WCB	2
3	SEATS	PTFE +15% G.F.	PTFE +15% G.F.	2
4	BALL	ASTM A351 CF8M	ASTM A351 CF8M	1
5	STEM	SUS 316	SUS 316	1
6	BODY SEALS	GRAPHITE	GRAPHITE	2
7	GASKET	PTFE +15% G.F.	PTFE +15% G.F.	1
8	SEAL	GRAPHITE	GRAPHITE	1
9	GLAND RING	SUS 304	SUS 304	1
10	BELLEVILLE SPRING WASHERS	SUS 301	SUS 301	2
11	HANDLE	SUS 304	SUS 304	1
12	LEVER NUT	SUS 304	SUS 304	1
13	STOP SCREW	SUS 304	SUS 304	1
14	HANDLE COVER	VINYL	VINYL	1
15	BOLTS	SUS 304	SUS 304	4
16	SPRING WASHERS	SUS 304	SUS 304	4
17	BOLT NUTS	SUS 304	SUS 304	4

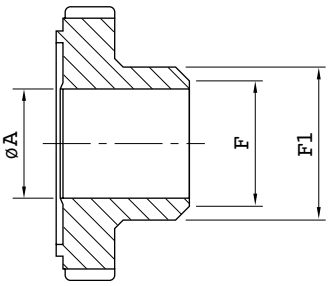




* B1 Length for BW End



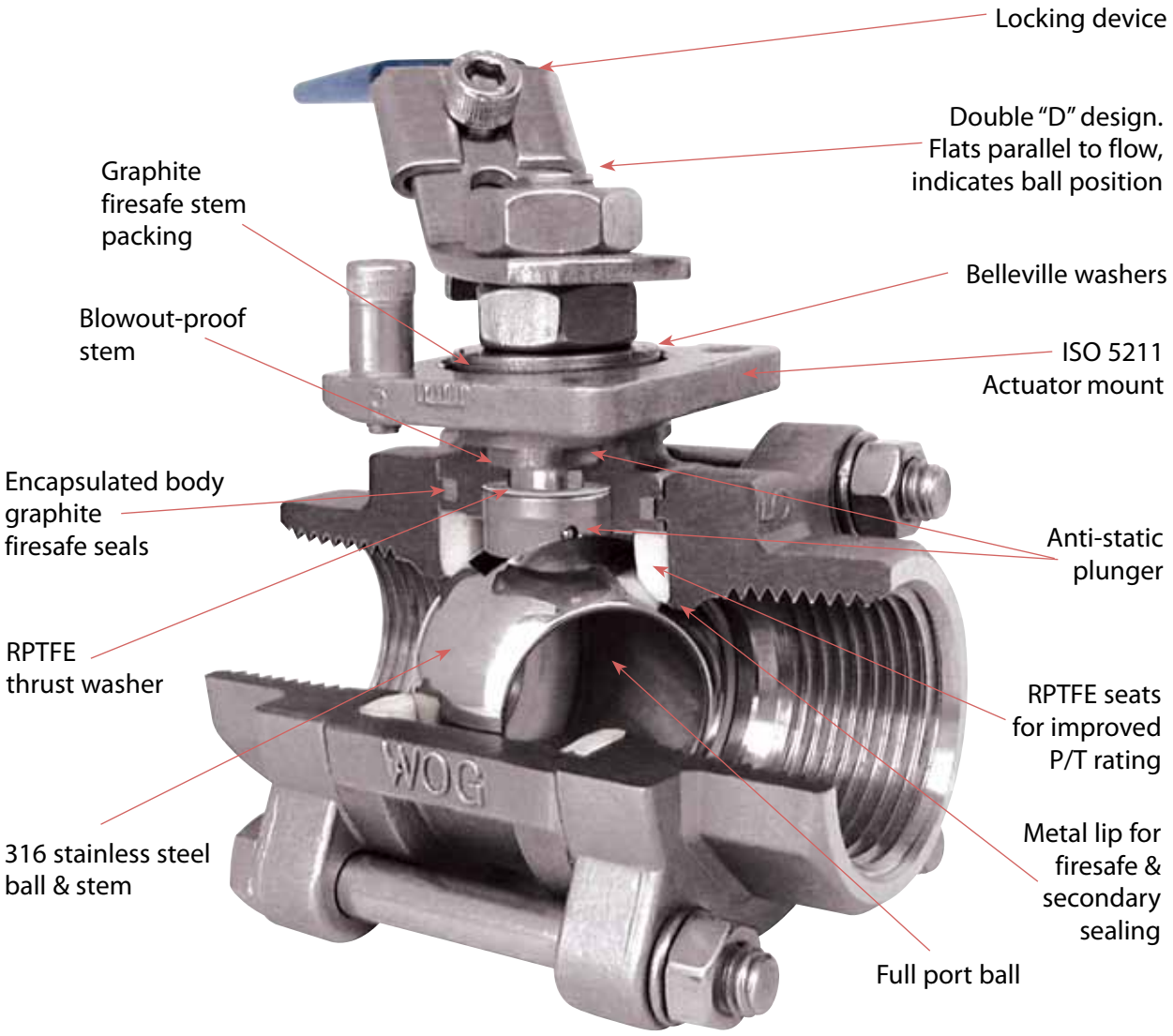
SOCKET WELD

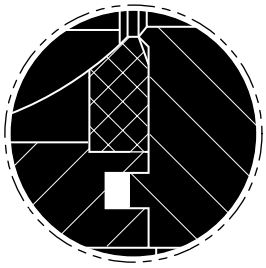


BUTT WELD

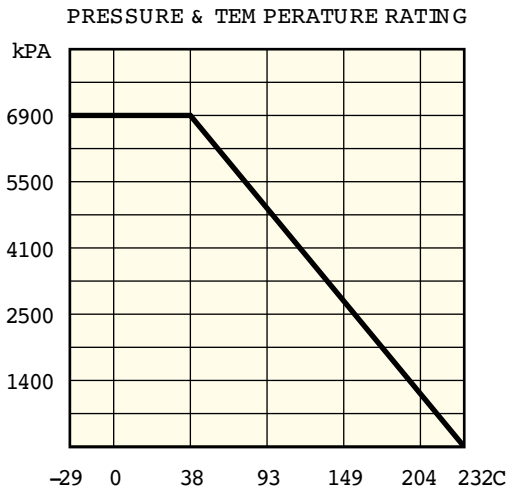
DIMENSIONS (mm)											
Size	A	B	B1	C	D	E	F	F1	G	H	K
8	10	65	70	46.5	110	14	13	17.2	21.5	36	M5
10	12.5	65	70	46.5	110	17.7	13	17.2	21.5	36	M5
15	16	75	75	52.5	110	21.9	17	21.3	25.2	36	M5
20	20	80	90	55	110	27.2	22	26.9	27.7	36	M5
25	24.5	90	100	70.8	135	34	28	33.7	33	42	M5
32	32	110	110	76	135	42.7	37	42.4	41.2	42	M5
40	38	120	125	88.2	165	48.8	43	48.3	49.3	50	M6
50	50	140	150	96.83	165	61.3	54	60.3	63.6	50	M6

DESIGN





Seat and Graphite Body Seal Detail



DESIGN

WALL THICKNESS:	-	EN12516-1, PN63
BODY:	-	Investment Castings
TEST, SHELL & SEAT:	-	API 598. Shell Test Pressure 10350 kPa
SEALING:	-	Bubble-tight bi-directional
WORKING PRESSURE:	-	6900 kPa (1000 PSI)
FIRESAFE TEST:	-	API 607 Edition 4. Tested and Certified in USA
APPROVALS:	-	AGA Approval No. 5547 for 5000 kPa Code of Compliance: AG 201 (Manual Isolation)
TEMPERATURE RANGE:	-	-29°C to 232°C

MATERIALS

BODY & ENDS:	-	A351 CF8M (316) Stainless Steel A 216 WCB Carbon Steel
BALL & STEM:	-	316 Stainless Steel
SEATS:	-	PTFE + 15% GF
GLAND PACKING & SEALS:	-	Graphite
LEVER & LOCK:	-	304 Stainless Steel with Plastic Grip

FEATURES

FULL PORT:	-	No pressure drop
ANTI-STATIC PLUNGER:	-	Positive earthing of ball and stem to valve body. Prevents static electricity build-up in ball.
BLOWOUT-PROOF STEM:	-	Internally fitted back-seated stem provides anti-blowout function under pressure.
LOCKING DEVICE ON LEVER:	-	Open and closed position locks.
BELLEVILLE WASHERS ON STEM:	-	Live loaded gland packing for long cycle life.
ISO5211 ACTUATOR MOUNT:	-	Standard mounting for all modern pneumatic actuators.
ACTUATION OPTIONS:	-	Spring-close and double-acting actuated valves from stock or stock components.
END CONNECTION OPTIONS:	-	NPT. Socket weld or butt weld ends to suit pipe or tube in carbon steel or 316 stainless steel.
HEAT NUMBERED, DATED:	-	Fully certified and traceable. Date of manufacture on body castings.
REPAIR KITS:	-	Comprising seats, body seals, gland packing and thrust washer from stock.
SIZE RANGE:	-	8mm through 100mm
PRESSURE RELIEF:	-	Internal pressure equalising vent (ball drilled with upstream pressure relief vent hole) can be supplied for certain applications (i.e. ammonia, chlorine, etc.) Heating of trapped media in body cavity can cause pressure rise, permanently distorting seats or ball.

CERTIFICATION AND APPROVAL

TEST REPORT

VALVE FIRE TEST
SOFT-SEATED BALL VALVE

PER API STANDARD 607, FOURTH EDITION

SIZE AND RATING: 1/2" - CLASS 600

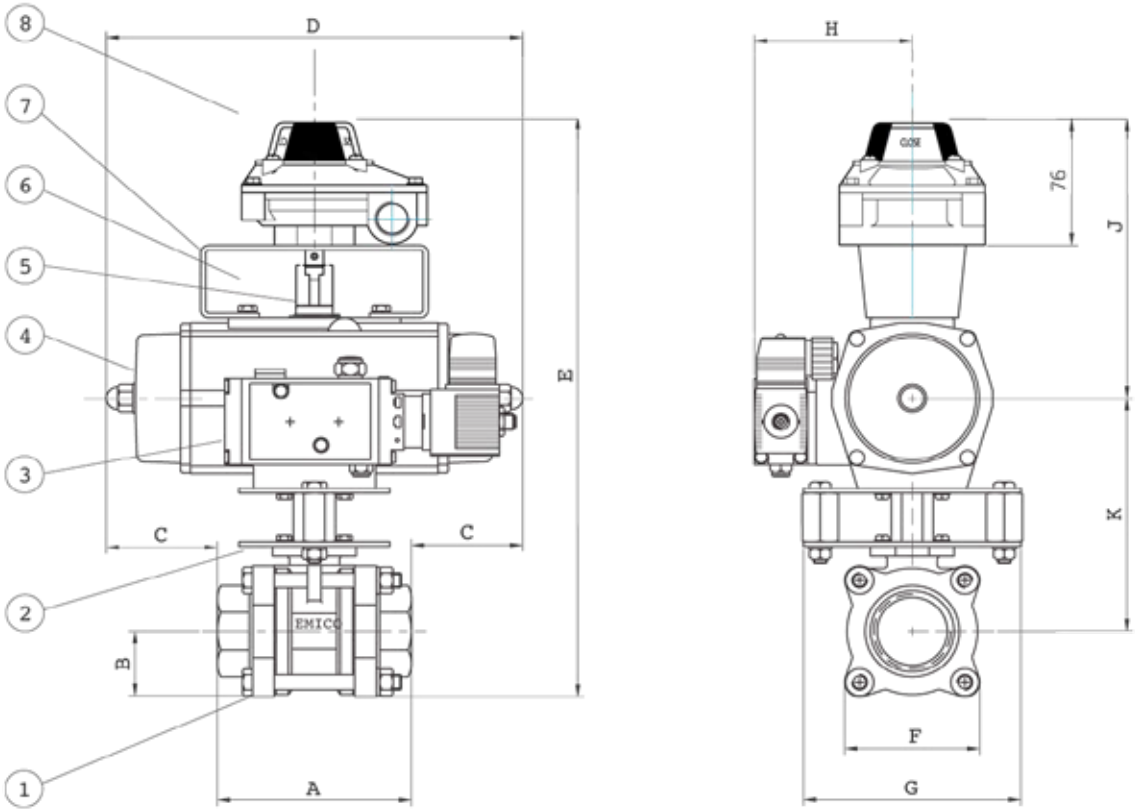
VALVE MODEL NO.: EA-305

SwRI TEST NO.: 6-573

PREPARED FOR: EAYUAN METAL INDUSTRIAL CO., LTD.
4F-1, NO.378, SEC. 1
WEN HSIN ROAD
TAICHUNG, TAIWAN, R.O.C.

SOUTHWEST RESEARCH INSTITUTE

ITEM	DESCRIPTION	MATERIAL
1	Ball Valve-EMICO 3 piece Fire Safe, NPT/SW/BSP ends	CS/SS
2	Mounting Bracket (Valve/Actuator)	SS
3	3/2 or 5/2 Way Solenoid Valve - Brand Optional	Poly/Brass
4	Pneumatic Actuator (S/R or D/A) - EMICO	AL. Alloy
5	Coupling/Actuator/Limit Switch	SS
6	Visual Position Indicator	ABS/Poly
7	Mounting Bracket (Limit Switch/Actuator)	CS
8	Limit Switch - ALS-200 (Mechanical or Proximity)	AL. Alloy



Emico Ball Valves		Actuator Model	Solenoid Valve	Limit Switch	DIMENSIONS (mm)									
Part No.	Size (mm)	Spring Return	3/2 Way		A	B	C	D	E	F	G	H	J	K
EA 305C EA 305A	15	EA-SR52/10	OPTIONAL	ALS-200	75	23	22	147	256	45	68	70	142	91
	20	EA-SR52/10			80	27	46	147	264	54	68	83	142	95
	25	EA-SR63/11			90	31	57	168	284	61	80	90	150	103
	32	EA-SR75/10			110	37	47	184	317	74	80	90	156	124
	40	EA-SR83/10			120	40	65	204	347	81	130	95	161	146
	50	EA-SR92/10			140	50	64	262	377	100	130	100	165	162

Emico Ball Valves		Actuator Model	Solenoid Valve	Limit Switch	DIMENSIONS (mm)									
Part No.	Size (mm)	Double Acting	5/2 Way		A	B	C	D	E	F	G	H	J	K
EA 305C EA 305A	15	EA-DA40	OPTIONAL	ALS-200	75	23	22	120	244	45	68	70	136	85
	20	EA-DA40			80	27	46	120	252	54	68	83	136	89
	25	EA-DA52			90	31	57	147	272	61	80	90	144	97
	32	EA-DA63			110	37	47	168	299	74	80	90	152	110
	40	EA-DA63			120	40	65	168	302	81	130	95	152	114
	50	EA-DA75			140	50	64	204	338	100	130	100	158	130

Note: All dimensions are approximate only and not as-built.

FEATURES

- Emico fire-safe 3-piece ball valves can be fitted with Spring Return & Double Acting pneumatic actuators.
- Valves have actuators sized for full rated line pressure (6900 kPa) and based on 550 kPa air supply.
- Mounting brackets and drive couplings manufactured in stainless steel.
- Valve/actuator mounting can be easily removed for gland packing adjustment.
- Drive couplings have stainless steel fold-down locking tabs to secure gland nut against loosening.
- EMICO valves have ISO 5211 mounting flanges for actuation.
- Actuators have Namur-standard air connections and accessory mounts.
- "Bolt-on" accessories include solenoid valves, limit switches, speed controls and silencers.

TORQUE DETAILS

Valve Size (mm)	Valve* Break Torque	EMICO Fig. SW or NPT	MAST (Nm) 316 SS Stem
15	4.0 Nm	EA 305	10.1
20	5.60 Nm	EA 305	10.1
25	12.80 Nm	EA 305	23.9
32	15.40 Nm	EA 305	23.9
40	24.50 Nm	EA 305	47.5
50	33.60 Nm	EA 305	47.5

MAINTENANCE PROCEDURE

ACTUATED VALVES

- Remove or loosen actuated mounting sufficient to raise stem nut lock washer
- Tighten stem nut in rotations of 1/6 of a turn to ensure re-alignment of the stem nut lock washer with stem nut flats
- Replace stem nut lock washer over stem nut ensuring fold-down tabs fit snugly over flats on stem nut
- Replace and re-tighten actuator/mounting bracket assembly and drive coupling

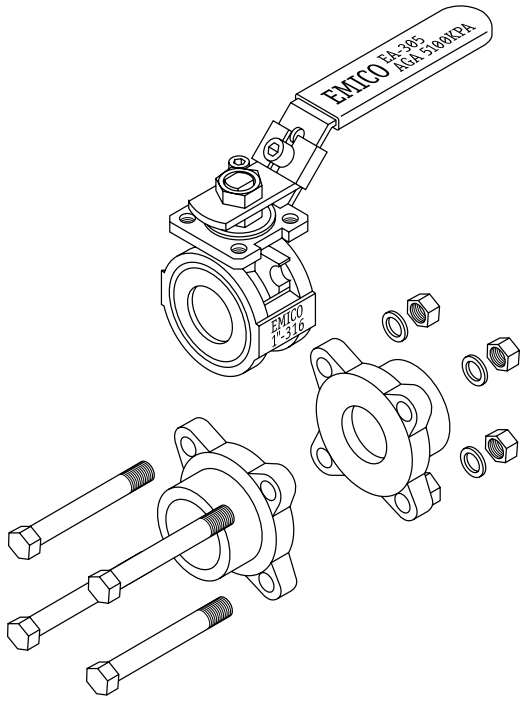
INSTALLATION PROCEDURE

INSTALLATION

Drop-out centre section permits pipework assembly without barrel unions either side of valve.
Valves with socket-weld ends must be dismantled (after spot-welding) to avoid heat-damage to PTFE seals during full welding process.
Adjoining pipework must have sufficient clearance to allow release of centre section without damage to spigots on end connections. Refer to illustration.

RE-ASSEMBLY

Original Graphite body-seals can be re-used if not disturbed or damaged during valve dismantling and attachment of ends.
Re-tighten nuts to manufacturer's recommended torque (as shown in the table below).



Valve size (mm)	15	20	25	32	40	50
Torque (Nm)	19	22	25	31	41	41

THREADED VALVES

1. Clean valve and pipe threads thoroughly. Emico firesafe 3-piece ball valves have NPT threads.
2. Apply sealing paste or PTFE thread-seal to threaded pipe or nipple.
3. Attach ball valve to pipe or nipple using a wrench on the connecting end, not the opposite end, to prevent valve distortion.
4. The assembled joints can be tested for air or gas leakage using soapy water or other approved leak protection procedure.
5. 3-piece valves can be dismantled and re-assembled with the original graphite body joints if care is taken to avoid damage to these components at all times during the procedure.

SOCKET WELD VALVES

1. Clean pipe and valve ends prior to welding.
2. With valve in open position, insert pipe into valve end, within approximately 2mm of end stop.
3. Tack weld.
4. Loosen bolts and remove centre section or swing it away from welding area to avoid heat damage to seats. Take care to protect ball, seats and gasket surfaces from weld splatter or other damage.
5. Carry out fillet-weld and allow ends to cool.
6. Re-assemble using original graphite body joints, unless sealing surfaces are damaged or show leakage during pressure test, which will require replacement seals.

MAINTENANCE PROCEDURE

MANUAL VALVES

- Remove lever nut and lever
- Re-tension gland packing by tightening stem nut
- Replace lever and lever nut

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