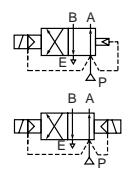




SOLENOID VALVES

pilot operated, high flow, heavy duty
single solenoid / dual solenoid
1/4 to 1



4/2
Series
344

FEATURES

- Rugged forged brass bodied solenoid valves (mono- or bistable function) designed to provide maximum flow
- Solenoid valves have poppet type seats and discs to provide tight sealing
- Main valve discs are power driven in both directions by line pressure (min. ΔP 0,7/1,7 bar)
- The solenoid valves satisfy all relevant EC Directives

GENERAL

Differential pressure 0,7/1,7 - 17 bar [1 bar = 100kPa]
Maximum viscosity 65cST (mm²/s)
Response times 100 - 1000 ms

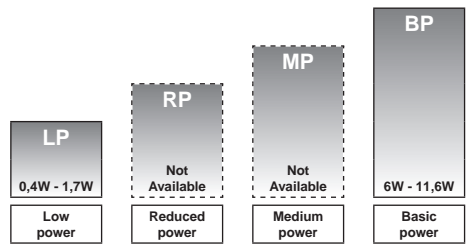
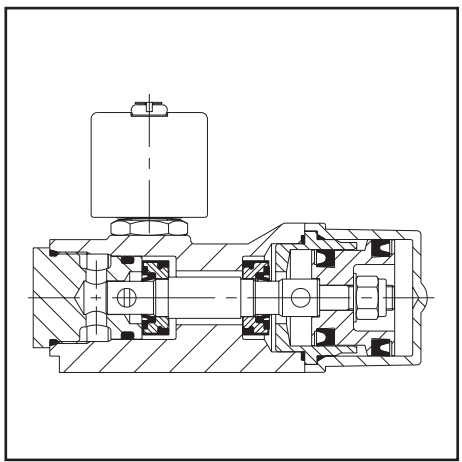
fluids (*)	temperature range (TS)	seal material (*)
air, inert gas, water	-20 to +85°C	NBR (nitrile)



MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Basic Power	Low Power
Body	Brass	Brass
Core tube	Stainless steel	Stainless steel
Core and plugnut	Stainless steel	Stainless steel
Core spring	Stainless steel	Stainless steel
Sealing	NBR	NBR
Disc and poppets	NBR	NBR
Disc holders	CA	CA
Pilot cartridge	CA	-
Shaft gasket	Copper alloy	Copper alloy
Shading coil	Copper	-
Cartridge	-	Welded, packless AISI 430
Seat	Brass	Brass
Seat insert	-	CA
Rider ring	-	PTFE



POWER LEVELS - cold electrical holding values (watt)

SPECIFICATIONS

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)			power level	prefix optional solenoids						basic catalogue number	
				min.	max. (PS)			NEMA 7 & 9	ATEX / IECEx				IP65		
					air (*)	~ ⁽¹⁾			= ⁽²⁾	~/=	Ex d	Ex e mb			
NPT	(mm)	(m ³ /h)	(l/min)					EF	NF	EM	PV	IS	SC	brass	stainless steel
Single Solenoid															
1/4 ⁽³⁾	6,4	0,7	11,6	0,7	9,0	9,0	10,5/11,2	●	●	●	●	-	●	B344A070	-
1/4 ⁽³⁾	6,4	0,7	11,6	0,7	9,0	10,0	LP	○	-	●	○	○	●	B344A370	-
3/8 ⁽⁴⁾	9,5	1,9	31,6	0,7	9,0	9,0	10,5/11,2	●	●	●	●	-	●	B344A072	-
3/8 ⁽⁴⁾	9,5	1,2	20,0	0,7	9,0	10,0	LP	○	-	●	○	○	●	B344A372	-
1/2	9,5	1,9	31,6	0,7	9,0	9,0	10,5/11,2	●	●	●	●	-	●	B344A074	-
1/2	9,5	1,2	20,0	0,7	9,0	10,0	LP	○	-	●	○	○	●	B344A374	-
3/4 ⁽⁵⁾	19,0	4,8	80,0	0,7	9,0	9,0	10,5/11,2	●	●	●	●	-	●	B344A076	-
3/4 ⁽⁵⁾	19,0	4,5	75,0	0,7	9,0	10,0	LP	○	-	●	○	○	●	B344A376	-
1	19,0	4,8	80,0	0,7	9,0	9,0	10,5/11,2	●	●	●	●	-	●	B344A078	-
1	19,0	4,5	75,0	0,7	9,0	10,0	LP	○	-	●	○	○	●	B344A378	-

● Available feature
 ○ Available feature in DC only
 - Not available

⁽¹⁾ Single solenoid 9 bar on water and dual solenoid 14 bar on water
⁽²⁾ Single and dual solenoid 9 bar on water
⁽³⁾ 3/8" exhaust connection

80086GB-2012/R01

SPECIFICATIONS

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)			power level	prefix optional solenoids						basic catalogue number	
				min.	max. (PS)			NEMA 7 & 9	ATEX / IECEx				IP65		
					air (*)	~ ⁽¹⁾			= ⁽²⁾	Ex d	Ex mb	Ex mb			
NPT	(mm)	(m ³ /h)	(l/min)				~/=	EF	NF	EM	PV	IS	SC	brass	stainless steel
Dual Solenoid															
1/4 ⁽³⁾	6,4	0,7	11,6	0,7	17,0	9,0	6,0/9,7	●	●	●	●	○	●	B344 - 044	-
1/4 ⁽³⁾	6,4	0,7	11,6	0,7	10,0	10,0	LP	○	-	●	○	○	●	B344A344	-
3/8 ⁽⁴⁾	9,5	1,9	31,6	0,7	17,0	9,0	6,0/9,7	●	●	●	●	-	●	B344 - 080	-
3/8 ⁽⁴⁾	9,5	1,2	20,0	0,7	10,0	10,0	LP	○	-	●	○	○	●	B344A380	-
1/2	9,5	1,9	31,6	0,7	17,0	9,0	6,0/9,7	●	●	●	●	-	●	B344 - 082	-
1/2	9,5	1,2	20,0	0,7	10,0	10,0	LP	○	-	●	○	○	●	B344A382	-
3/4 ⁽⁵⁾	19,0	4,8	80,0	0,7	20,0	9,0	6,0/9,7	●	●	●	●	-	●	B344B054	-
3/4 ⁽⁵⁾	19,0	4,5	75,0	0,7	10,0	10,0	LP	○	-	●	○	○	●	B344A354	-
1	19,0	4,8	80,0	0,7	20,0	9,0	6,0/9,7	●	●	●	●	-	●	B344B056	-
1	19,0	4,5	75,0	0,7	10,0	10,0	LP	○	-	●	○	○	●	B344A356	-

- Available feature
 - Available feature in DC only
 - Not available
- (1) Single solenoid 9 bar on water and dual solenoid 14 bar on water
 (2) Single and dual solenoid 9 bar on water
 (3) 3/8" exhaust connection

PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
E	F						Explosionproof - NEMA 7, 9 - Zinc plated steel conduit	○	-	-	●
E	V						Explosionproof - NEMA 7, 9 - 316 SS conduit	○	-	-	●
E	M						Waterproof IP67 - Metal enclosure (EN/IEC 60079-7+18, 61241-1)*	●	-	-	●
		E	T				Threaded conduit/hole (M20 x 1,5)	○	-	-	●
I	S						Intrinsically safe with SC coil (EN/IEC 60079-11+26, 61241-11)*	○	-	-	-
N	F						Flameproof - Aluminium (EN/IEC 60079-1, 60079-31)*	-	-	-	●
P	V						Encapsulated epoxy moulded (EN/IEC 60079-18, 61241-18)*	○	-	-	●
S	C						Solenoid with spade plug connector (EN/IEC 60730)	●	-	-	●
W	P						Waterproof IP67 - Metal enclosure	●	-	-	●
W	P			I	S		I.S. with Metal IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	○	-	-	●
W	S						Waterproof IP67 - 316 SS enclosure	●	-	-	●
W	S	E	M				Waterproof IP67 - 316 SS enclosure (EN/IEC 60079-7+18, 61241-1)*	●	-	-	●
W	S			I	S		I.S. with 316 SS IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	○	-	-	-
W	S	N	F				Flameproof - 316 SS (EN/IEC 60079-1, 60079-31)*	-	-	-	●
							Threaded conduit (1/2" NPT)	●	-	-	●
				H	C		Class H - Battery charging circuit	-	-	-	●
				H	T		Class H - High temperature	-	-	-	●
						X	Other special constructions	●	-	-	●

SUFFIX TABLE

suffix					description	power level			
1	2	3	4	5		LP	RP	MP	BP
E					EPDM (ethylene-propylene)	-	-	-	-
J					CR (chloroprene)	-	-	-	-
N					Oxygen service (CR (chloroprene))	-	-	-	-
N	V				FPM (fluoroelastomer) and parts cleaned for oxygen service	●	-	-	●
V					FPM (fluoroelastomer)	●	-	-	●
	C	O			Epoxy coating on all external surfaces	●	-	-	●
		P			Dry gas, non-lubricated air construction	●	-	-	●
		Q			Long life, quiet operation construction	-	-	-	●
			M	O	Push type manual operator	●	-	-	●

- Available feature
 - Available feature in DC only
 - Not available
- * ATEX solenoids are also approved according to EN 13463-1 (non electrical valves)

PRODUCT SELECTION GUIDE

STEP 1

Select basic catalogue number, including pipe thread identification letter. Refer to the specifications table on page 1.

Example: B344A074

STEP 2

Select prefix (combination). Refer to the specifications table on page 1 and the prefix table on page 2, respect the indicated power level.

Example: WSNF

STEP 3

Select suffix (combination) if required. Refer to the suffix table on page 2, respect the indicated power level.

Example: Q

STEP 4

Select voltage. Refer to standard voltages on page 3.

Example: 24V / 50Hz

STEP 5

Final catalogue / ordering number.

Example:

WSNF B344A074 Q 24V / 50 Hz

ORDERING EXAMPLES VALVES:

WSEMT	B	344A070		230V / 50 Hz
ISSC	B	344A374	MO	24V / DC
WPIS	B	344A380	MO	24V / DC
WS	B	344B056	V	24V / DC
EM	B	344 - 082		230V / 50 Hz
PV	B	344A378	CO	24V / DC
EF	B	344G056	MB	240V / 50 Hz

prefix — pipe thread — basic number — voltage suffix

ORDERING EXAMPLES KITS:

WSEM	C302731 ⁽³⁾		
	C302713	V	
ISSC	C316846	MO	
WPIS	C316848	MO	

prefix — basic number — suffix

(2) Prefix EF and EV should always be used in conjunction with change letter G in the basic number

(3) Basic kit number applies to SC coil construction

EXPLANATION OF TEMPERATURE RANGES OF SOLENOID VALVES

- Valve temperature range The valve temperature range (TS) is determined by the selected seal material, the temperature range for proper operation of the valve and sometimes by the fluid (e.g. steam)
- Operator ambient temperature range The operator ambient temperature range is determined by the selected power level and the safety code
- Total temperature range The temperature range of the complete solenoid valve is determined by the limitations of both temperature ranges above

ELECTRICAL CHARACTERISTICS

- Coil insulation class F
- Connector Spade plug
- Connector specification ISO 4400 (cable Ø 6-10 mm)
- Electrical safety IEC 335
- Standard voltages: DC (=) 24V - 48V; Allowable voltage variation +10%, -15%
AC (~) 24V - 48V - 115V - 230V/50Hz; Other voltages and 60Hz are available on request

prefix option	power ratings				operator amb. temp. range (TS) (C°) ⁽¹⁾	safety code	electrical enclosure protection (EN 60529)	replacement coil / kit		type ⁽²⁾
	inrush	holding	hot/cold	=				~	=	
	(VA)	(VA) (W)	(W)	(W)				230 V/50 Hz	24V/DC	
Basic power (BP)										
SC	34,0	15,6	6,0	7,0/9,7	-40 to +75	EN 60730	IP65, moulded	400325-117	400325-142	02
SC	55,0	23,0	10,5	9,0/11,2	-40 to +75	EN 60730	IP65, moulded	400425-117	400425-142	01
WP/WS	34,0	15,6	6,0	7,0/9,7	-40 to +75	EN 60730	IP67, steel/SS	400305-117	400305-142	06
WP/WS	55,0	23,0	10,5	9,0/11,2	-40 to +75	EN 60730	IP67, steel/SS	400405-117	400405-142	05
NF/WSNF	55,0	23,0	10,5	-	-60 to +25/40/60	II2G Ex d IIC Gb T6/T5/T4, II2D Ex t IIIC Db	IP67, alu./SS	400405-117	-	03/04
NF/WSNF	-	-	-	9,0/11,2	-60 to +40/60/75	II2G Ex d IIC Gb T6/T5/T4, II2D Ex t IIIC Db	IP67, alu./SS	-	400405-142	03/04
EM/WSEM	55,0	23,0	10,5	9,0/11,2	-40 to +40	II2G Ex e mb II T3, II2D Ex tD A21	IP67, steel/SS	400909-117	400913-142	05/06
PV	55,0	23,0	10,5	9,0/11,2	-40 to +65	II2G Ex mb II T3(-)/T4(=), II2D Ex mD 21	IP67, moulded	- ⁽³⁾	- ⁽³⁾	07/08
EF	30,0	16,0	6,1	7,0/10,6	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	238214-057D	238314-006D	10
EF	50,0	25,0	10,1	9,0/11,6	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	238614-057D	238714-006D	09
Low power (LP)										
SC	1,5	1,5	1,5	1,7/1,7	-40 to +60	EN 60730	IP65, moulded	400925-097	400925-042	11/12
WP/WS	1,5	1,5	1,5	1,7/1,7	-40 to +60	EN 60730	IP67, steel/SS	400926-097	400926-042	13/14
EM/WSEM	1,5	1,5	1,5	1,7/1,7	-40 to +40/55	II2G Ex e mb II T6/T5, II2D Ex tD A21	IP67, steel/SS	400926-097	400926-042	13/14
PV	-	-	-	1,7/1,7	-40 to +60	II2G Ex mb II T6 / II2D Ex mD 21	IP67, moulded	-	- ⁽³⁾	15/16
EF	-	-	-	1,4/1,4	-40 to +60	NEMA type 7 and 9	NEMA 4X	-	238714-902D	17/18
ISSC	-	-	-	0,4/0,4	-40 to +60	II2G Ex ia IIC T6, II2D Ex iaD 21	IP65, moulded	-	268976-001	19/20
WPIS/WSIS	-	-	-	0,4/0,4	-40 to +60	II2G Ex ia IIC T6, II2D Ex iaD 21	IP67, steel/SS	-	268900-001	13/14

⁽¹⁾ Temperature range can be limited by sealings

⁽²⁾ Refer to the dimensional drawings on page 4 and 5 - Not available

⁽³⁾ Multiple coil-kits available under ATEX, contact us

OPTIONS & ACCESSORIES

catalogue number	spare parts kit no. ⁽¹⁾		mounting bracket no.		catalogue number	spare parts kit no. ⁽¹⁾		mounting bracket no.	
	~	=				~	=		
B344A070	C302709	C302731	■	single solenoid	B344 - 044	C302741	C302743	■	dual solenoid
B344A370	C316841	C316841	■		B344A344	C316843	C316843	■	
B344A072	C302711	C302733	■		B344 - 080	C302723	C302745	■	
B344A372	C316842	C316842	■		B344A380	C316846	C316846	■	
B344A074	C302711	C302733	■		B344 - 082	C302723	C302745	■	
B344A374	C316842	C316842	■		B344A382	C316846	C316846	■	
B344A076	C302713	C302735	■		B344B054	C302725	C302746	■	
B344A376	C316848	C316848	■		B344A354	C316851	C316851	■	
B344A078	C302713	C302735	■		B344B056	C302725	C302746	■	
B344A378	C316848	C316848	■		B344A356	C316851	C316851	■	

■ Mounting holes in body ⁽¹⁾ Standard prefixes/suffixes are also applicable to kits

ADDITIONAL OPTIONS

- Ex mb (prefix "PV") execution can be supplied in various cable lengths
- Compliance with "UL", "CSA" and other local approvals available on request
- 1/2" NPT (prefix "T") and M20 x 1,5 (prefix "ET") conduits (aluminium or 316 SS) available for steel solenoid housing
- Special moulded-in solid state components for peak voltage suppression and/or rectification (four diode bridge)

INSTALLATION

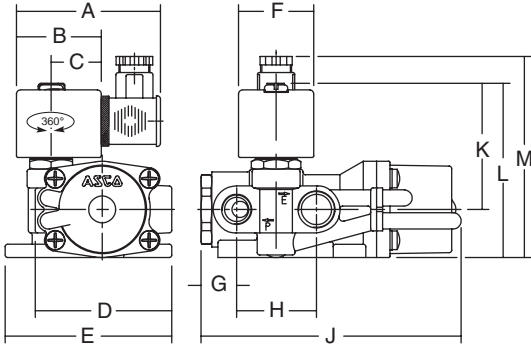
- Multi language installation/maintenance instructions are included with each valve
- The solenoid valves can be mounted in any position without affecting operation
- Important: a minimum operating pressure differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area and unrestricted
- For dual solenoid construction one of the solenoids may be energized momentarily or continuously. Minimum on-time of coil is 0,3 second on air and 1,0 seconds on liquids.
- Threaded pipe connection identifier is B = NPT (ANSI 1.20.3).
- Declarations of conformity are available on request
- Ex e mb (prefix "EM") execution: solenoid enclosure has a cable gland with integral strain relief for cables with an o.d. from 7 to 12 mm and is provided with an internal and external connection facility for an earthing or bonding conductor

DIMENSIONS (mm), WEIGHT (kg)



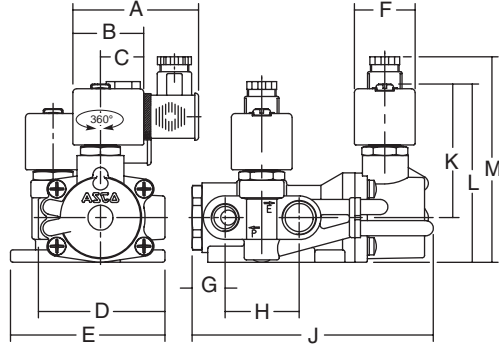
TYPE 01
Epoxy moulded
SC: IEC 335 / ISO 4400

344 A070 / A370 / A072 / A372 / A074 /
A374 / A076 / A376 / A078 / A378



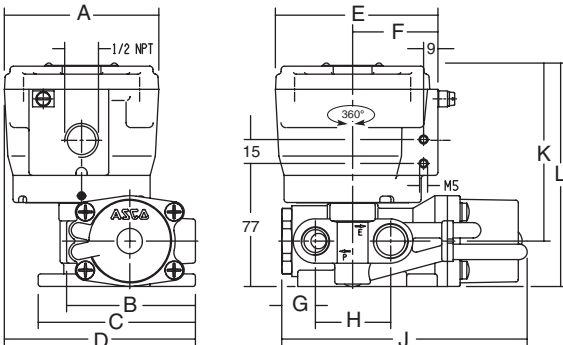
TYPE 02
Epoxy moulded
SC: IEC 335 / ISO 4400

344 - 044 / A344 / - 080 / - 082 / A380 /
- 382 / B054 / A354 / B056 / A356



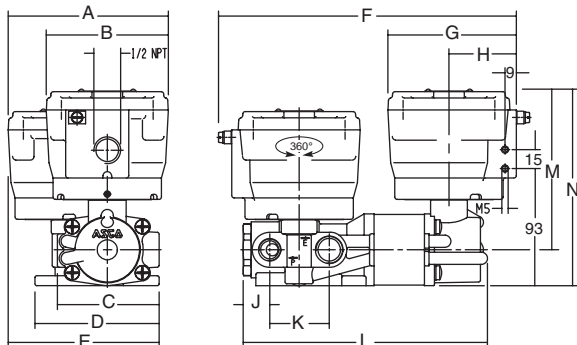
TYPE 03
Aluminium, epoxy coated / AISI 316 SS
NF / WSNF: EN/IEC 60079-1, 60079-31

344 A070 / A072 / A372 / A074 / A076 / A078



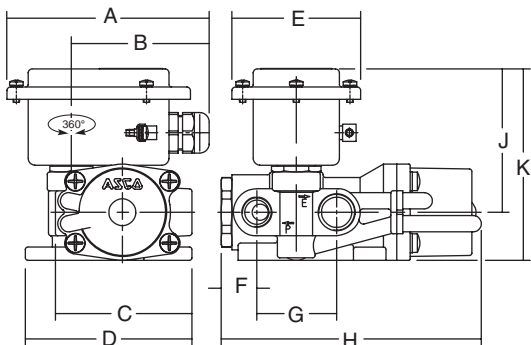
TYPE 04
Aluminium, epoxy coated / AISI 316 SS
NF / WSNF: EN/IEC 60079-1, 60079-31

344 - 044 / - 080 / - 082 / A380 / - 382 / B054 / B056



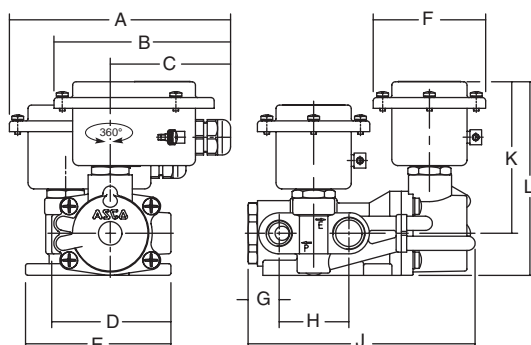
TYPE 05
Metal, epoxy coated / AISI 316 SS
WP / WS: IEC 335
EM / WSEM: EN 60079-7/18 and EN 61241-1

344 A070 / A370 / A072 / A372 / A074 /
A374 / A076 / A376 / A078 / A378



TYPE 06
Metal, epoxy coated / AISI 316 SS
WP / WS: IEC 335
EM / WSEM: EN 60079-7/18 and EN 61241-1

344 - 044 / A344 / - 080 / - 082 / A380 /
- 382 / B054 / A354 / B056 / A356

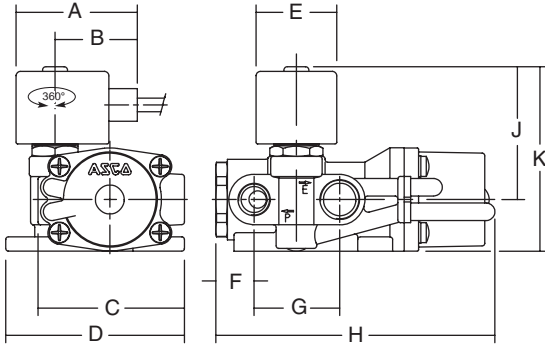


DIMENSIONS (mm), WEIGHT (kg)



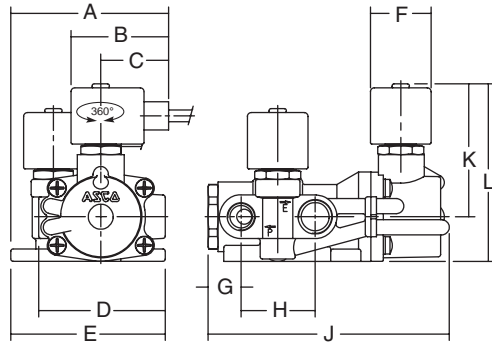
TYPE 07
Epoxy encapsulated
PV: EN/IEC 60079-18 and EN/IEC 61241-18

344 A070 / A370 / A072 / A372 / A074 /
A374 / A076 / A376 / A078 / A378



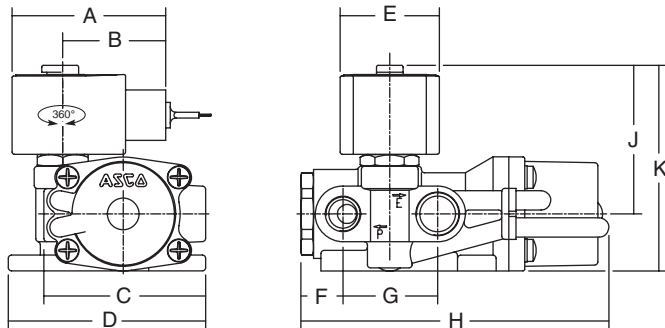
TYPE 08
Epoxy encapsulated
PV: EN/IEC 60079-18 and EN/IEC 61241-18

344 - 044 / A344 / - 080 / - 082 / A380 /
- 382 / B054 / A354 / B056 / A356



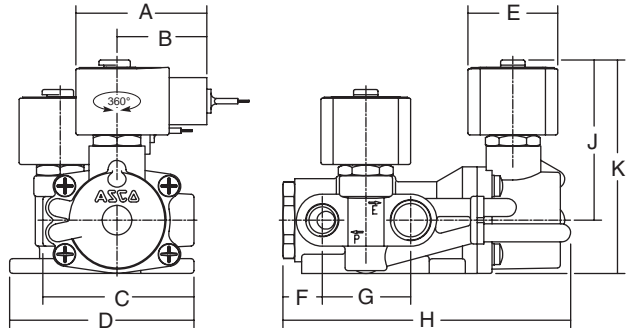
TYPE 09
Epoxy encapsulated
EF: ICS-6 ANSI / NEMA Type 7 and 9
NOTE: applicable to solenoid only

344 G070 / G370 / G072 / G372 / G074 /
G374 / G076 / G376 / G078 / G378



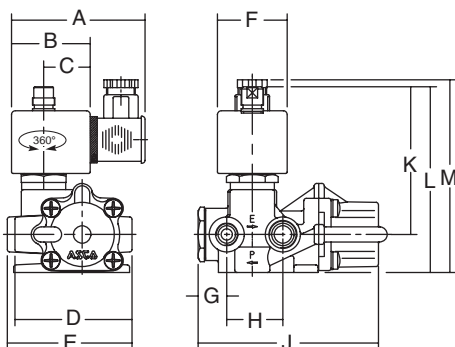
TYPE 10
Epoxy encapsulated
EF: ICS-6 ANSI / NEMA Type 7 and 9
NOTE: applicable to solenoid only

344 G044 / G344 / G080 / G082 / G380 /
G382 / G054 / G354 / G056 / G356



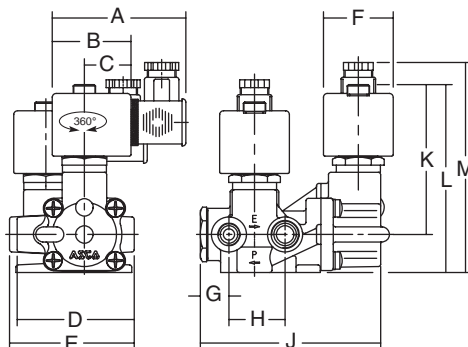
TYPE 11
Epoxy moulded
SC: IEC 335 / ISO 4400

344 A070 / A370 / A072 / A372 / A074 /
A374 / A076 / A376 / A078 / A378



TYPE 12
Epoxy moulded
SC: IEC 335 / ISO 4400

344 - 044 / A344 / - 080 / - 082 / A380 /
- 382 / B054 / A354 / B056 / A356

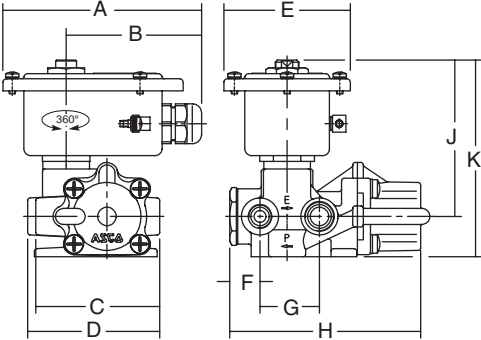


DIMENSIONS (mm), WEIGHT (kg)



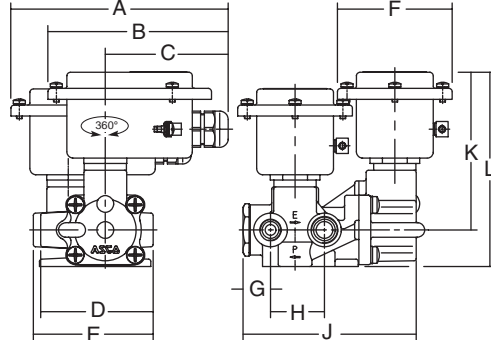
TYPE 13
 Metal, epoxy coated / AISI 316 SS
 WP / WS: IEC 335
 EM / WSEM: EN 60079-7/18 and EN 61241-1
 WPIS / WSIS: EN/IEC 60079-11+26 / 61241-11

344 A070 / A370 / A072 / A372 / A074 /
 A374 / A076 / A376 / A078 / A378



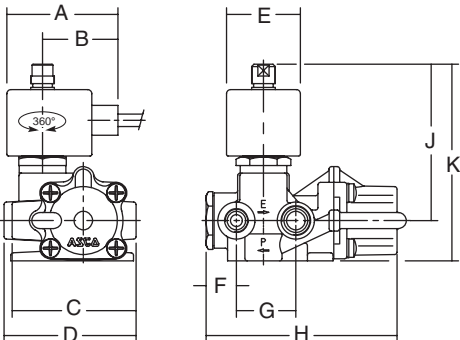
TYPE 14
 Metal, epoxy coated / AISI 316 SS
 WP / WS: IEC 335
 EM / WSEM: EN 60079-7/18 and EN 61241-1
 WPIS / WSIS: EN/IEC 60079-11+26 / 61241-11

344 -044 / A344 / -080 / -082 / A380 /
 -382 / B054 / A354 / B056 / A356



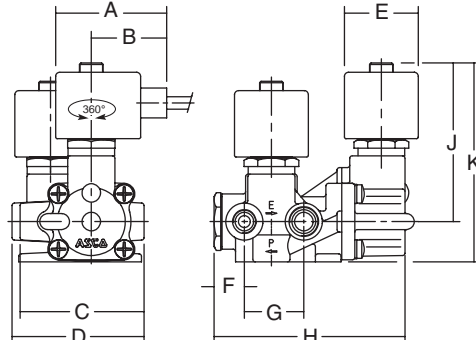
TYPE 15
 Epoxy encapsulated
 PV: EN/IEC 60079-18 and EN/IEC 61241-18

344 A070 / A370 / A072 / A372 / A074 /
 A374 / A076 / A376 / A078 / A378



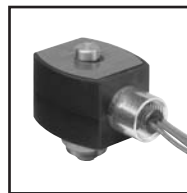
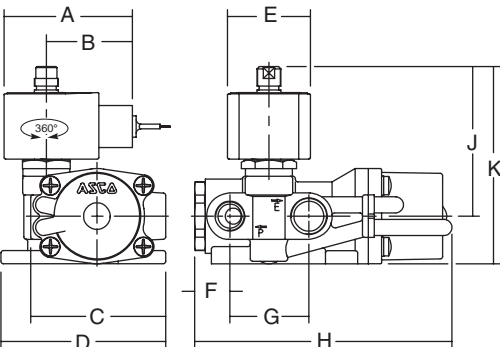
TYPE 16
 Epoxy encapsulated
 PV: EN/IEC 60079-18 and EN/IEC 61241-18

344 -044 / A344 / -080 / -082 / A380 /
 -382 / B054 / A354 / B056 / A356



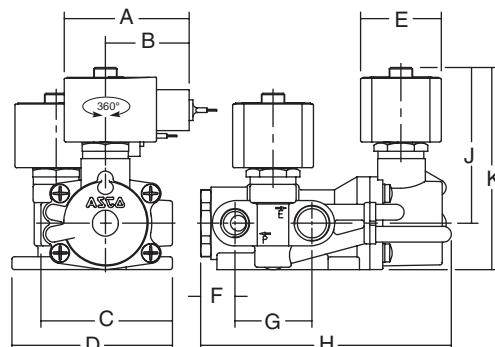
TYPE 17
 Epoxy encapsulated
 EF: ICS-6 ANSI / NEMA Type 7 and 9
 NOTE: applicable to solenoid only

344 G070 / G370 / G072 / G372 / G074 /
 G374 / G076 / G376 / G078 / G378



TYPE 18
 Epoxy encapsulated
 EF: ICS-6 ANSI / NEMA Type 7 and 9
 NOTE: applicable to solenoid only

344 G044 / G344 / G080 / G082 / G380 /
 G382 / G054 / G354 / G056 / G356



DIMENSIONS (mm), WEIGHT (kg)



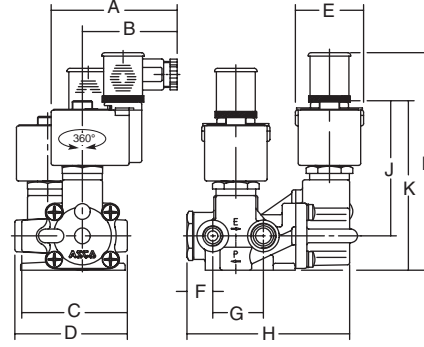
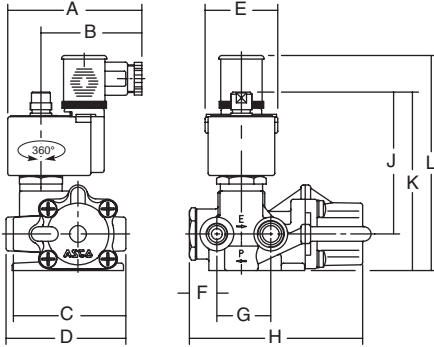
TYPE 19
PP moulded
ISSC: EN/IEC 60079-11+26 / 61241-11

344A370 / A372 / A374 / A376 / A378



TYPE 20
PP moulded
ISSC: EN/IEC 60079-11+26 / 61241-11

344 - A344 / A380 / - 382 / A354 / A356



type	prefix option	power level	A	B	C	D	E	F	G	H	J	K	L	M	N	weight
01	SC	BP	80	50	30	81	98	45	21	38	154	74	102	119	-	4,40 kg
02	SC	BP	75	45	27	81	114	39	21	47	154	86	115	132	-	4,70 kg
03	NF / WSNF	BP	97	81	94	124	102	54	21	47	154	112	140	-	-	5,50 kg
04	NF / WSNF	BP	97	102	81	94	124	255	102	54	21	47	194	112	140	7,00 kg
05	WP, WS, EM / WSEM	BP	120	82	81	94	77	21	47	154	85	113	-	-	-	4,55 kg
06	WP, WS, EM / WSEM	BP	150	180	82	81	98	77	21	47	154	103	131	-	-	4,80 kg
07	PV	BP	67	43	81	94	45	21	47	154	73	102	-	-	-	4,45 kg
08	PV	BP	101	62	43	81	98	39	21	47	154	85	113	-	-	4,70 kg
09	EF	BP	77	51	81	99	50	21	47	154	74	103	-	-	-	4,45 kg
10	EF	BP	70	48	81	99	48	21	47	154	86	114	-	-	-	4,70 kg
11	SC	LP	85	50	30	91	99	45	21	47	159	89	118	122	-	4,40 kg
12	SC	LP	85	50	30	81	114	45	21	47	154	86	115	132	-	4,70 kg
13	WP, WS, EM / WSEM	LP	120	82	81	99	76	21	47	154	89	118	-	-	-	4,45 kg
13	WPIS, WSIS	LP	120	82	81	99	76	21	47	154	89	118	-	-	-	4,45 kg
14	WP, WS, EM / WSEM	LP	150	120	82	81	99	76	21	47	154	103	131	-	-	4,80 kg
14	WPIS, WSIS	LP	150	120	82	81	99	76	21	47	154	103	131	-	-	4,80 kg
15	PV	LP	67	45	81	99	45	21	47	154	89	118	-	-	-	4,45 kg
16	PV	LP	67	45	81	99	45	21	47	154	86	118	-	-	-	4,80 kg
17	EF	LP	77	52	81	99	50	21	47	154	89	118	-	-	-	4,45 kg
18	EF	LP	77	52	81	99	50	21	47	154	86	125	-	-	-	4,70 kg
19	ISSC	LP	89	67	81	99	48	21	47	154	89	118	142	-	-	4,55 kg
20	ISSC	LP	89	67	81	99	48	21	47	154	86	115	158	-	-	4,90 kg

SECTIONAL DRAWING

