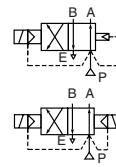




# SOLENOID VALVES

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.  $\Delta P$  0,7/1,7 bar)
- The solenoid valves satisfy all relevant EC Directives

## GENERAL

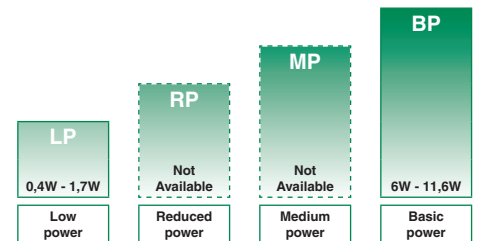
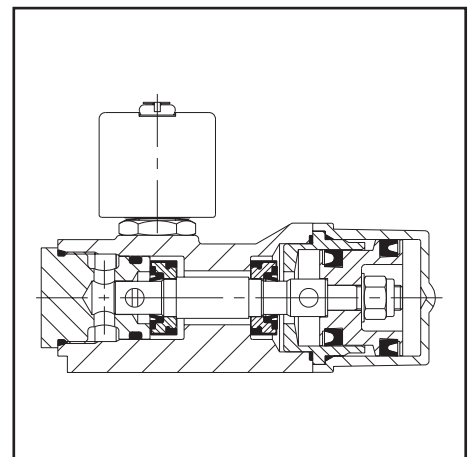
Differential pressure 0,7/1,7 - 17 bar [1 bar = 100kPa]  
Maximum viscosity 65cST (mm<sup>2</sup>/s)  
Response times 100 - 1000 ms

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 (*)	~ <sup>(1)</sup>			= <sup>(2)</sup>	~/=	EF				NF
NPT	(mm)	(m <sup>3</sup> /h)	(l/min)											brass	stainless steel
<b>Single Solenoid</b>															
1/4 <sup>(3)</sup>	6,4	0,7	11,6	0,7	9,0	9,0	10,5/11,2	●	●	●	●	●	●	B344A070	-
1/4 <sup>(3)</sup>	6,4	0,7	11,6	0,7	9,0	10,0	LP	○	-	●	○	●	●	B344A370	-
3/8 <sup>(4)</sup>	9,5	1,9	31,6	0,7	9,0	9,0	10,5/11,2	●	●	●	●	●	●	B344A072	-
3/8 <sup>(4)</sup>	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 <sup>(5)</sup>	19,0	4,8	80,0	0,7	9,0	9,0	10,5/11,2	●	●	●	●	●	●	B344A076	-
3/4 <sup>(5)</sup>	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

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

- <sup>(4)</sup> 1/2" exhaust connection
- <sup>(5)</sup> 1" exhaust connection

## 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)	(m³/h)	(l/min)				~/=	EF	NF	EM	PV	SC	brass	stainless steel
<b>Dual Solenoid</b>														
1/4 <sup>(3)</sup>	6,4	0,7	11,6	0,7	17,0	9,0	6,0/9,7	●	●	●	●	●	B344 - 044	-
1/4 <sup>(3)</sup>	6,4	0,7	11,6	0,7	10,0	10,0	LP	○	-	●	○	●	B344A344	-
3/8 <sup>(4)</sup>	9,5	1,9	31,6	0,7	17,0	9,0	6,0/9,7	●	●	●	●	●	B344 - 080	-
3/8 <sup>(4)</sup>	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 <sup>(5)</sup>	19,0	4,8	80,0	0,7	20,0	9,0	6,0/9,7	●	●	●	●	●	B344B054	-
3/4 <sup>(5)</sup>	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
- (4) 1/2" exhaust connection
- (5) 1" 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 IP66/67 - Metal enclosure (EN/IEC 60079-7,-18 and -31)*	●	-	-	●
		E	T				Threaded conduit/hole (M20 x 1,5)	●	-	-	●
N	F						Flameproof - Aluminium (EN/IEC 60079-1, 60079-31)*	○	-	-	●
P	V						Encapsulated epoxy moulded (EN/IEC 60079-18)*	○	-	-	●
S	C						Solenoid with spade plug connector (EN/IEC 60730)	●	-	-	●
W	P						Waterproof IP67 - Metal enclosure	●	-	-	●
W	S						Waterproof IP67 - 316 SS enclosure	●	-	-	●
W	S	E	M				Waterproof IP66/67 - 316 SS enclosure (EN/IEC 60079-7,-18 and -31)*	●	-	-	●
W	S	N	F				Flameproof - 316L 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
N	V				FPM (fluoroelastomer) and parts cleaned for oxygen service	●	-	-	●
V					FPM (fluoroelastomer)	●	-	-	●
		C			Epoxy coating on all external surfaces	●	-	-	●
		O			Dry gas, non-lubricated air construction	●	-	-	●
		P			Long life, quiet operation construction	-	-	-	●
		Q			Push type manual operator	●	-	-	●
			M	O					

- Available feature ○ Available feature in DC only - Not available
- \* ATEX/IECEx valves using these solenoids are approved according to EN 13463-1 (non electrical)

## 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
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<sup>(6)</sup> ———  
 pipe thread ———  
 basic number<sup>(6)</sup> ———  
 voltage suffix

## ORDERING EXAMPLES KITS:

WSEM	C302731
	C302713 <sup>(7)</sup> V
ISSC	C316846 MO

prefix ———  
 basic number ———  
 suffix

<sup>(6)</sup> Prefix EF and EV should always be used in conjunction with change letter G in the basic number

<sup>(7)</sup> 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°) <sup>(1)</sup>	safety code	electrical enclosure protection (EN 60529)	replacement coil / kit		type <sup>(2)</sup>	
	inrush	holding	hot/cold				~	=		
	(VA)	(VA)	(W)				230 V/50 Hz	24V/DC		
<b>Basic power (BP)</b>										
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 tb IIIC Db	IP66/67, 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 tb IIIC Db	IP66/67, 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 IIC Gb T3, II2D Ex tb IIIC Db	IP66/67, 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 IIC Gb T3(-)/T4(=), II2D Ex mb IIIC Db	IP67, moulded	- <sup>(3)</sup>	- <sup>(3)</sup>	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
<b>Low power (LP)</b>										
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 IIC Gb T6/T5, II2D Ex tb IIIC Db	IP66/67, steel/SS	400926-097	400926-042	13/14
PV	-	-	-	1,7/1,7	-40 to +60	II2G Ex mb IIC Gb T6, II2D Ex mb IIIC Db	IP67, moulded	-	- <sup>(3)</sup>	15/16
EF	-	-	-	1,4/1,4	-40 to +60	NEMA type 7 and 9	NEMA 4X	-	238714-902D	17/18

<sup>(1)</sup> Temperature range can be limited by sealings

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

<sup>(3)</sup> Multiple coil-kits available under ATEX, contact us

**OPTIONS & ACCESSORIES**

catalogue number	spare parts kit no. <sup>(1)</sup>		mounting bracket no.	catalogue number	spare parts kit no. <sup>(1)</sup>		mounting bracket no.
	~	=			~	=	
B344A070	C302709	C302731	■	B344 - 044	C302741	C302743	■
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	■

single solenoid

dual solenoid

■ Mounting holes in body <sup>(1)</sup> 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**

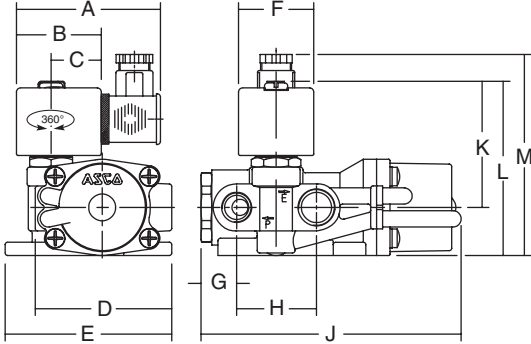
- Multi language installation/maintenance instructions are included with each valve
- The solenoid valves can be mounted in any position without affecting operation
- Important: a minimum operating pressure differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping 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)



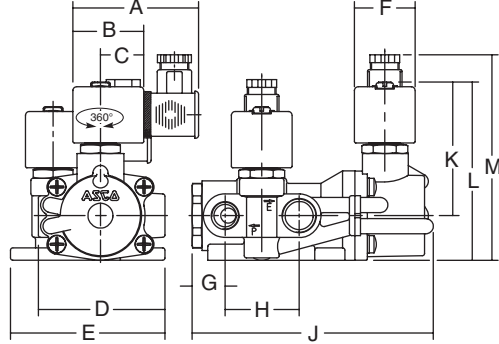
**TYPE 01**  
Epoxy moulded  
SC: IEC 335 / ISO 4400

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



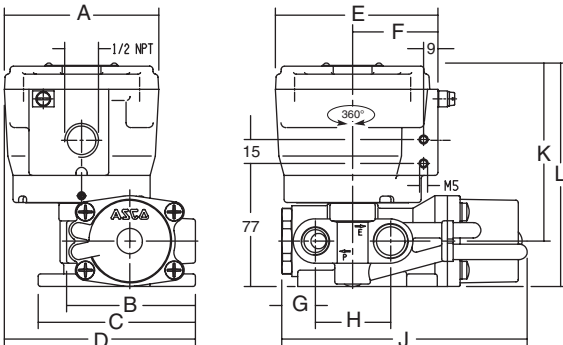
**TYPE 02**  
Epoxy moulded  
SC: IEC 335 / ISO 4400

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



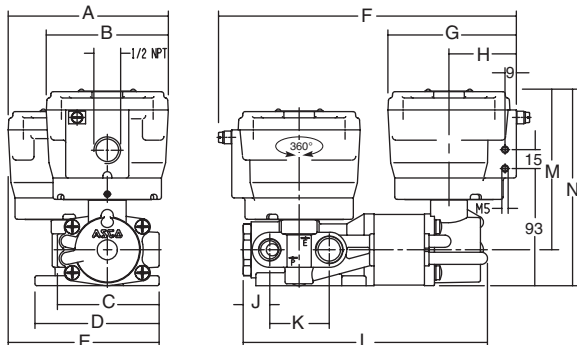
**TYPE 03**  
Aluminium, epoxy coated / AISI 316L SS  
NF / WSNF: EN/IEC 60079-1, 60079-31

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



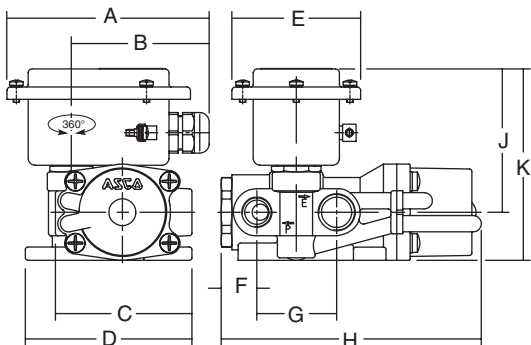
**TYPE 04**  
Aluminium, epoxy coated / AISI 316L SS  
NF / WSNF: EN/IEC 60079-1, 60079-31

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



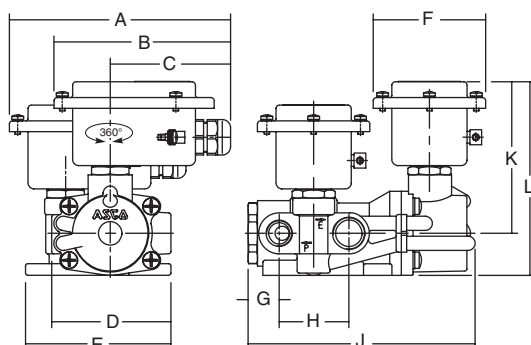
**TYPE 05**  
Metal, epoxy coated / AISI 316 SS  
WP / WS: IEC 335  
EM / WSEM: EN/IEC 60079-7+18+31

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/IEC 60079-7+18+31

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

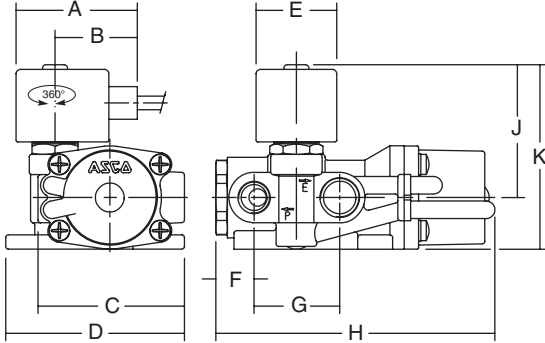


## DIMENSIONS (mm), WEIGHT (kg)



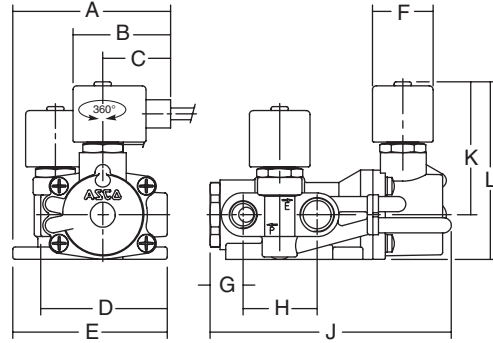
**TYPE 07**  
Epoxy encapsulated  
PV: EN/IEC 60079-18

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



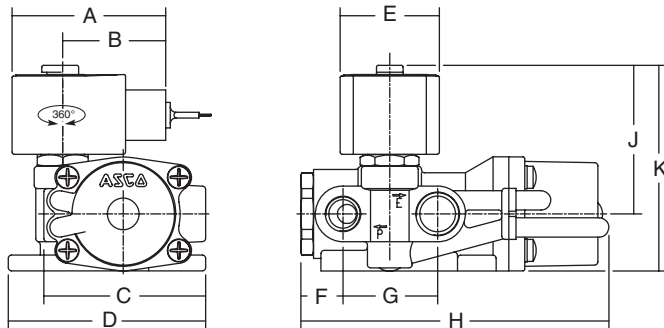
**TYPE 08**  
Epoxy encapsulated  
PV: EN/IEC 60079-18

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



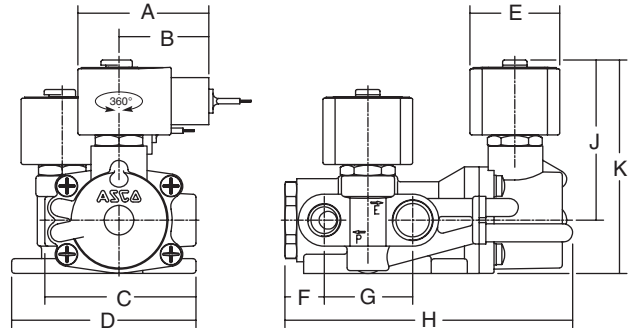
**TYPE 09**  
Epoxy encapsulated  
EF: ICS-6 ANSI / NEMA Type 7 and 9  
NOTE: applicable to solenoid only

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



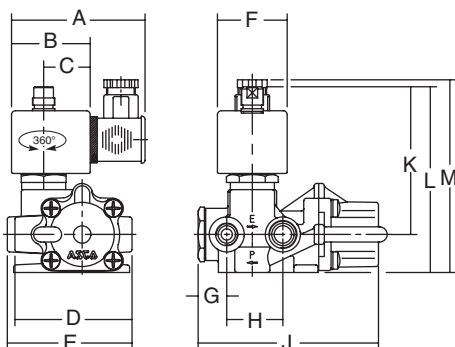
**TYPE 10**  
Epoxy encapsulated  
EF: ICS-6 ANSI / NEMA Type 7 and 9  
NOTE: applicable to solenoid only

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



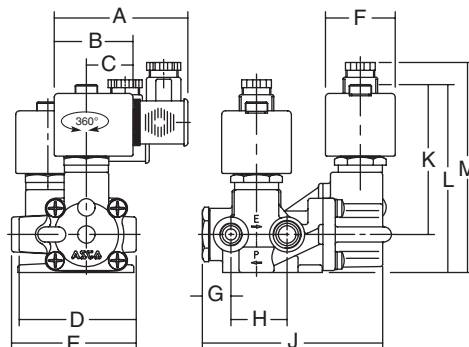
**TYPE 11**  
Epoxy moulded  
SC: IEC 335 / ISO 4400

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

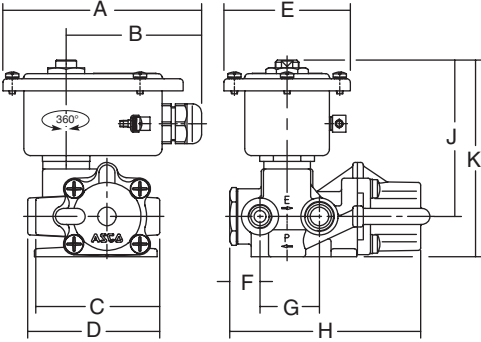


### DIMENSIONS (mm), WEIGHT (kg)



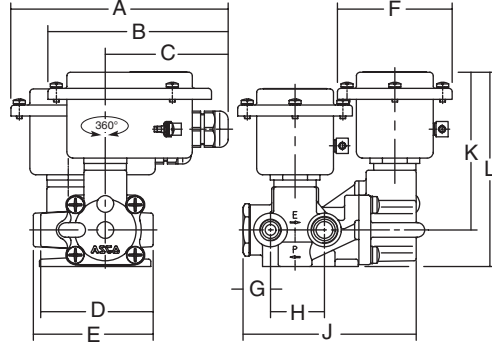
**TYPE 13**  
Metal, epoxy coated / AISI 316 SS  
WP / WS: IEC 335  
EM / WSEM: EN/IEC 60079-7+18+31

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



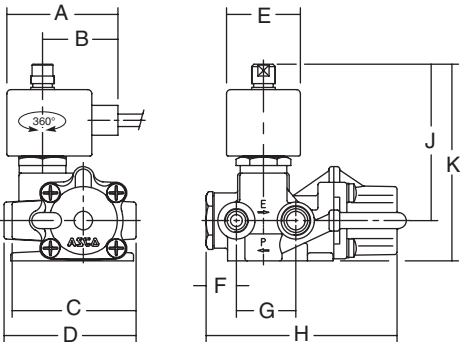
**TYPE 14**  
Metal, epoxy coated / AISI 316 SS  
WP / WS: IEC 335  
EM / WSEM: EN/IEC 60079-7+18+31

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



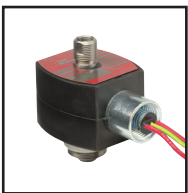
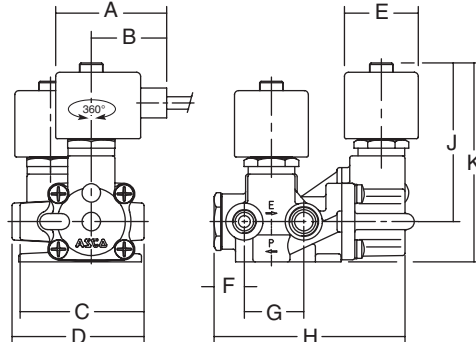
**TYPE 15**  
Epoxy encapsulated  
PV: EN/IEC 60079-18

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



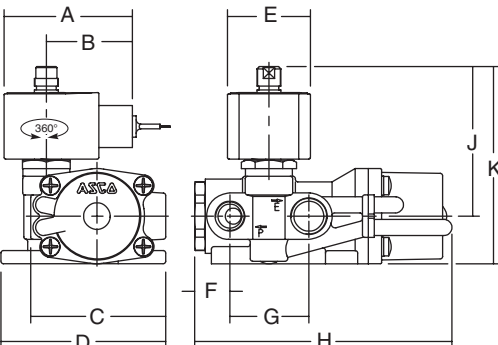
**TYPE 16**  
Epoxy encapsulated  
PV: EN/IEC 60079-18

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



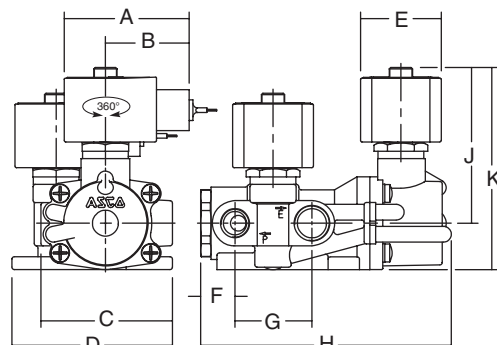
**TYPE 17**  
Epoxy encapsulated  
EF: ICS-6 ANSI / NEMA Type 7 and 9  
NOTE: applicable to solenoid only

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	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
14	WP, WS, EM / WSEM	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

### SECTIONAL DRAWING

