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Parker 201LG Stainless Steel Valves

2-Way Direct Acting AISI316L Solenoid Valves



ENGINEERING YOUR SUCCESS.



Index

Product description and Market of interest.....	4
Applications and Benefits.....	5
General information and operating principles.....	6
Available functions.....	7
Basic components of 201LG solenoid valves.....	8
Technical vocabulary for using tables.....	9
Sizing a solenoid valve.....	10
Viscosity conversion table and Pressure conversion table.....	15
Temperature conversion table.....	16
Flow rate conversion table.....	17
Actuation.....	18
Valve stamp and product date stamp.....	19
Fluid compatibility Chart.....	20
General description: Material Specification, Installation, Media, electrical parts.....	21
Product availability.....	22
201LG1 Series - 1/8"G.....	23
201LG2 Series - 1/4"G.....	24
201LG3 Series - 3/8"G.....	26
201LG4 Series - 1/2"G.....	27
Electrical parts availability	
22mm electrical parts.....	28
32mm electrical parts.....	31
40mm electrical parts.....	37
37mm electrical parts.....	39
Non-standard housings for 481000 and 481044 series electrical parts.....	40
Accessories.....	43
How to order.....	44

Product Description: Parker 201LG Stainless Steel valves

This range is the best solution for a wide range of applications and any time stainless steel is required, e.g. aggressive environments or aggressive media.

Market of interest

- Process
- Commercial Equipment
- Industrial equipment
- Waste Water treatment
- Food processing (Oenology, olive oil production, food & beverage)
- Offshore



Applications

201LG Series can be used for a wide range of application.

Please also consult our fluid compatibility chart on page 20.

Typical applications for our solutions are:

- Process industry and Process equipment
- Waste Water treatment equipment
- Acid/aggressive media
- Oenology, olive oil production, food & beverage
- Oxygen (degreased version)
- Swimming pools

Benefits

The most valuable features you will find in this product range:

- Modular concept: a wide range of electrical parts can be used with this family, including ATEX, low power, IP67, UL/VDE approved.
- Robust and solid design: areas with mechanical stress have been studied and oversized.
- 2 direct acting versions available:
 - ▶ A compact version with 22mm electrical parts
 - ▶ A robust and high performance version with 32mm electrical parts with superior flow rate (6,2mm orifice)

Technical Information

General Information

Solenoid valves may be defined as electro-mechanical devices for interrupting or diverting the flow of fluids or gases by opening or closing one or more orifices.

The solenoid valve is a combination of three basic components:

1. An electromagnet consisting of a solenoid (windings) and a magnetic yoke.
2. A moveable plunger (which, in some cases, directly opens and closes the valve).
3. A valve body with an orifice, opened or closed by plunger or diaphragm to enable or prevent flow of the medium.

Operating Principles

The term "solenoid" does not refer to the valve itself, but to the operator and coil, also known as "pilot" or "magnetic actuator".

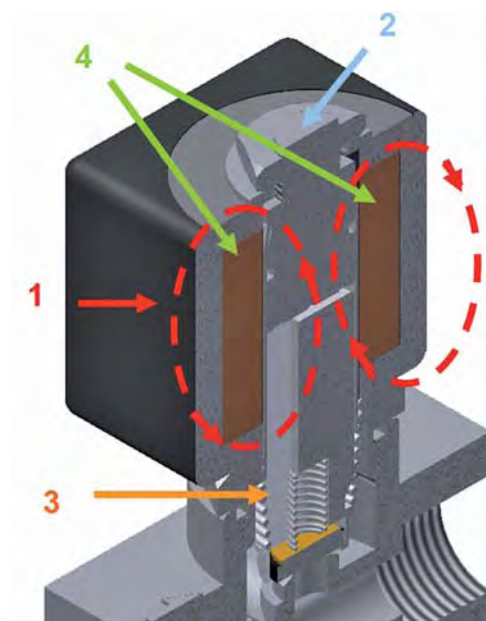
The term "solenoid" derives from a Greek word "solen" which means "channel". The coil, when energized, "channels" a strong magnetic force in the windings. The coil consists of capillary copper wire wound on a support reel.

When electric current is fed into the coil, magnetic flow lines are generated, which are stronger in the centre of the coil. This magnetic flow raises the moveable plunger in the coil until it brings it into contact with the pole piece.

The valve body has an orifice through which the liquid or gas flows when the valve is open.

The moveable plunger has an integral seat which, when the solenoid coil is energised, moves off the valve (direct operated) orifice or diaphragm (pilot operated) orifice opening the valve.

When the coil is de-energised, a return spring brings the plunger back in the original closing position, thus cutting off the flow of the fluid.



1. Flux
2. Pole piece core
3. Plunger
4. Copper Wire

201LG Available Functions

Ranges included in this catalogue are Normally Closed, Direct Acting.

The moveable plunger with integral seat, by the action of the solenoid coil, opens or closes the orifice depending on whether current is supplied to the solenoid (energised or de-energised solenoid) or not.

In this direct operated design the coil itself supplies all the energy required to move the plunger and seat. Operation does not therefore depend on the pressure of the fluid or the flow rate. The solenoid valve can operate from 0 pressure differential up to the value indicated in the tables.

Normally Closed means that, when the coil is not energized, the valve does not permit any flow to pass through.



Technical Information

Basic Components of 201LG Solenoid Valves

Valve Body:

Main part of the solenoid valve including ports, seats and orifice passages.
201LG ranges body material is AISI316L.

Enclosing Tube Assembly:

Cylinder, in stainless steel, hermetically sealed and closed at one end. It is the guide channel of the moveable plunger which is moved magnetically. The solenoid coil is fitted on the external side of the enclosing tube.

Enclosing tube assembly is made by:

- **Pole Piece:** Acts as a stop for the moveable plunger and it is used to shield the magnetic flow. It is made by magnetic stainless steel.
- **Phase Displacement (or Shading) Ring:** 201LG standard is made by copper. It is inserted on the surface of the pole piece to prevent a/c hum. A silver shading ring is available as option in case of use with media having a poor compatibility with copper. Please consult our fluid compatibility Chart at page 20.
- **Enclosing Tube:** made by stainless steel, it is used as a guide for the moveable plunger (=MP). It is assembled with the pole piece and the bonnet.
- **Bonnet:** A threaded nut or square flange which secures the magnetic operator assembly to the valve body.

Moveable Plunger:

Made by stainless steel, magnetic, it is actuated by the solenoid and slides inside the tube.

Plunger Spring (or return Spring):

Used to hold the moveable plunger in position and to return it into position after the action of the solenoid.

Seat Seal (or Pad):

Mounted on the moveable plunger, it is used to close a valve main orifice or a pilot orifice.

Electromagnet (or Solenoid Coil):

Electrical part consisting of a copper windings (solenoid) which, with a magnetic yoke (armature), when electric current flows through it, generates a magnetic flux attracting the plunger.

For technical details, consult the specific section on Electrical parts availability at page 28.

Technical Vocabulary for Using the Tables

The basic technical features of each solenoid valve model are indicated in the tables with the following headings:

Fittings (port size):

Fitting dimensions are defined as threaded in inches (G).

Orifice:

Main orifice diameter in millimetres (nominal diameter).

Flow Coefficient:

Defined as the quantity of water, temp. between +5°C and +30°C, which flows through the solenoid valve with a pressure drop of 1 bar (100 KPa-0.1 MPa), in m³/h (cubic metres per hour) and in l/min (litres per minute).

Minimum Operating Pressure:

The lowest differential pressure required for operation, in bar.

Maximum Differential Pressure (M.O.P.D.):

The highest working differential pressure with 90% of the rated voltage (-10% V_n) applied to the solenoid coil (for a.c.) and with 95% of the rated voltage (-5% V_n) (for d.c.).

Fluid Temperature:

Maximum admissible temperature for the media used.

Seat Disc:

Material used for the seat discs.

Part Number:

Ordering code for pressure vessel only. **Please consult "How to order" section at page 44.**

Housing:

Electrical part enclosure. Standard housing (washer, nut, aluminium plate) is included in the pressure vessel, you might find in this column only housing references for nonstandard coils.

Electrical Part:

Electrical part to be ordered separately.

Please consult "How to order" section at page 44 and "Electrical parts availability" at page 28.

Power Consumption:

Power consumption of a specific electrical part on selected pressure vessel, rated by AC and DC.

Power consumption must be considered in hot condition for the coil, at T_{Amb}: +20°C.

Weight:

Weight of the complete valve without coil, special housings and accessories (kg).

Nominal Pressure:

Ref. UNI EN 1333 (PN) the maximum admissible pressure at 20°C which can be applied to the solenoid valve to check the tightness of the mechanical seals (threads, welds) and the mechanical resistance of the materials. We recommend applying this pressure **simultaneously to all fittings** to avoid damage to the internal parts.

Technical Information

Sizing Solenoid Valves

The correct choice of a solenoid valve is essential as it determines the regulation and performance required for practical application on a system. In order to decide on the exact type of solenoid valve, various parameters have to be known.

However the calculation method, based on the flow coefficient K_v , has proved highly practical as it can be determined on the basis of:

- Required flow rate
- Flow resistance
- Type of fluid and relative viscosity
- Specific gravity and temperature.

This flow coefficient K_v is determined as laid down in the VDI/VDE 2173 standards and represents the flow of water in m^3/h with a temperature from 5 to 30°C which passes through the solenoid valve with a pressure drop of 1 bar (see Fig. 8).

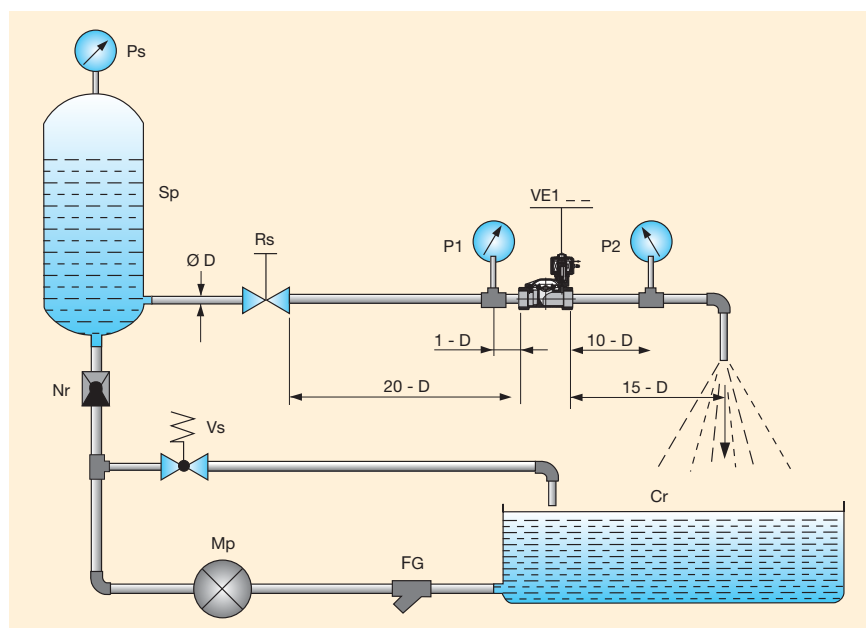
After the existing conditions have been converted into this factor K_v , the type of valve is found by referring to the pages in the specific sections in this catalogue. The parameters used for sizing the solenoid valve are the following:

(consult the conversion tables of the various units of measurement as defined by the ISO

(International Standards Organisation) - I.S.

(International System) set out in this catalogue)

Pressure symbol unit of measurement Working pressure	(P) [bar]	Temperature of the medium symbol unit of measurement	(t) [°C]
Pressure drop symbol unit of measurement Pressure difference between inlet (P1) and outlet (P2) of the solenoid valve when a medium is flowing through the valve ($\Delta P = P1 - P2$).	(ΔP) [bar]	Flow rate: • for liquids symbol unit of measurement	(Q) [m ³ /h]
Flow coefficient symbol unit of measurement	(Kv) [m ³ /h]	• for gases symbol unit of measurement	(Qn) [Nm ³ /h]
Specific gravity of the medium symbol unit of measurement	(Vs) [Kg/dm ³]	• for steam symbol unit of measurement	(Qv) [Kg/h]
		Specific volume symbol unit of measurement	(Vs) [m ³ /Kg]



FG = Grid Filter **Mp** = Pump **Vs** = Safety Valve **Nr** = Check Valve **Sp** = Pressure Tank **Ps** = Static Pressure Manometer

Note:

The flow coefficient used in the USA is known as C_v and represents the water flow rate in US gallons per minute with a pressure drop ΔP of 1 psi.

To convert C_v e C_v
e vice versa use:

$$1 K_v = 0.862 C_v$$

$$1 C_v = 1.16 K_v$$

BY FORMULAE:

a) Solenoid valves for liquids:

Flow rate: $Q = K_v \cdot \sqrt{\frac{\Delta P}{\gamma}}$ where: $Q = \text{m}^3/\text{h}$
 $\Delta P = \text{bar}$
 $\gamma = \text{Kg}/\text{dm}^3$

Flow coefficient:
 $K_v = Q \cdot \sqrt{\frac{\gamma}{\Delta P}}$

In the case of liquids with viscosity greater than 3°E (22 cStokes) the K_v is modified according to the formula:

$$K_{v_1} = K_v + C \quad C = \frac{\delta \cdot \sqrt{K_v}}{200 \cdot Q} + 1$$

where C is the viscosity correction factor calculated by means of the formula:

where:

δ = kinematic viscosity of the fluid expressed in centistokes

K_v = flow rate factor of the solenoid valve

Q = flow rate in m^3/h .

$$\Delta P = \gamma \cdot \left(\frac{Q}{K_v}\right)^2$$

Pressure drop:

b) Solenoid valves for gases:

If $\Delta P \leq 1/2 P_1$ use the following formulae:

Flow rate: $Q_n = 514 \cdot K_v \cdot \sqrt{\frac{\Delta P \cdot P_2}{\gamma n \cdot (273 + t)}}$

where: $Q_n = \text{Nm}^3/\text{h}$ $P_1 = \text{bar}$ $P_2 = \text{bar}$

Flow coefficient: $K_v = \frac{Q_n}{514} \cdot \sqrt{\frac{(273+t) \cdot \gamma n}{\Delta P \cdot P_2}}$

$t = \text{°C}$

$\gamma n = \text{Kg}/\text{m}^3$

Pressure drop: $\Delta P = \frac{(273 + t) \cdot \gamma n \cdot Q_n^2}{P_2 \cdot (514 \cdot K_v)^2}$

If $\Delta P > 1/2 P_1$ use the following formula:

$$Q_n = 757 \cdot K_v \cdot \sqrt{\frac{\Delta P \cdot P_2}{(273 + t) \cdot \gamma n}}$$

c) Solenoid valves for steam:

If $\Delta P \leq 1/2 P_1$ use the following formulae:

Flow rate: $Q_v = 31,7 \cdot K_v \cdot \sqrt{\frac{\Delta P}{V_s}}$

where: $Q_v = \text{Kg}/\text{h}$
 $\Delta P = \text{bar}$
 $V_s = \text{m}^3/\text{Kg}$

Flow coefficient: $K_v = \frac{Q_v}{31,7} \cdot \sqrt{\frac{V_s}{\Delta P}}$

Pressure drop: $\Delta P = V_s \cdot \frac{Q_v^2}{(31,7 \cdot K_v)^2}$

If $\Delta P > 1/2 P_1$ use the following formula:

$$Q_v = 22,4 \cdot K_v \cdot \sqrt{\frac{P_1}{V_s}}$$

Notes:

- Should the value ΔP not be specified, use the following, which is based on experience:
 - For liquids only in the case of free discharge $\Delta P = 90\%$ of the input pressure (P_1).
 - For gases never use a ΔP of more than 50% of the absolute inlet pressure, since the excessive pressure drop may cause an irregular flow rate. In most cases, ΔP can be considered as 10% of the input pressure.
- Specific volume value (V_s) for dry saturated steam, see the table in diagram 3.

Graphic Sizing

In addition to the arithmetical method, the flow rate Q or other values can be calculated by using the following diagrams:

Diagram 1: for liquids (up to 3°E) (page 24)

Example: Water ($\gamma = 1$). A calculation of the flow rate Q is required, using a solenoid valve with $K_v = 0.6$ at pressure $P_1 = 15$ bar and with a pressure drop of $\Delta P = 9$ bar.

A line is plotted which joins point 1 on the "specific gravity" line, and point 0.6 on the " K_v " line as far as the auxiliary line. The point on this line should be plotted to point 9 on the ΔP line. The straight line plotted crosses the flow rate line " Q " at point 1.8. the value is therefore $Q = 1.8 \text{ m}^3/\text{h}$.

Diagram 2: for gases (page 25)

Example: Air ($\gamma n = 1.3$). A calculation of the flow rate Q_n is required with: $t = 20^\circ\text{C}$, $K_v = 0.6$; $P_1 = 12$ bar; $DP = 3$ bar. Point 20 on the temperature line and point 1.3 on the specific gravity line are joined by a straight line as far as the first auxiliary line. The point found on this line should be plotted to point 0.6 on the " K_v " line and the straight line is extended until it crosses the second auxiliary line. This point should be plotted to the one found on the third auxiliary line at the intersection of the pressure curve "P1" (12 bar) with the pressure drop line " ΔP " (3 bar). The line which joins the latter two points intersects the flow rate line " Q_n " at the value of $80 \text{ Nm}^3/\text{h}$.

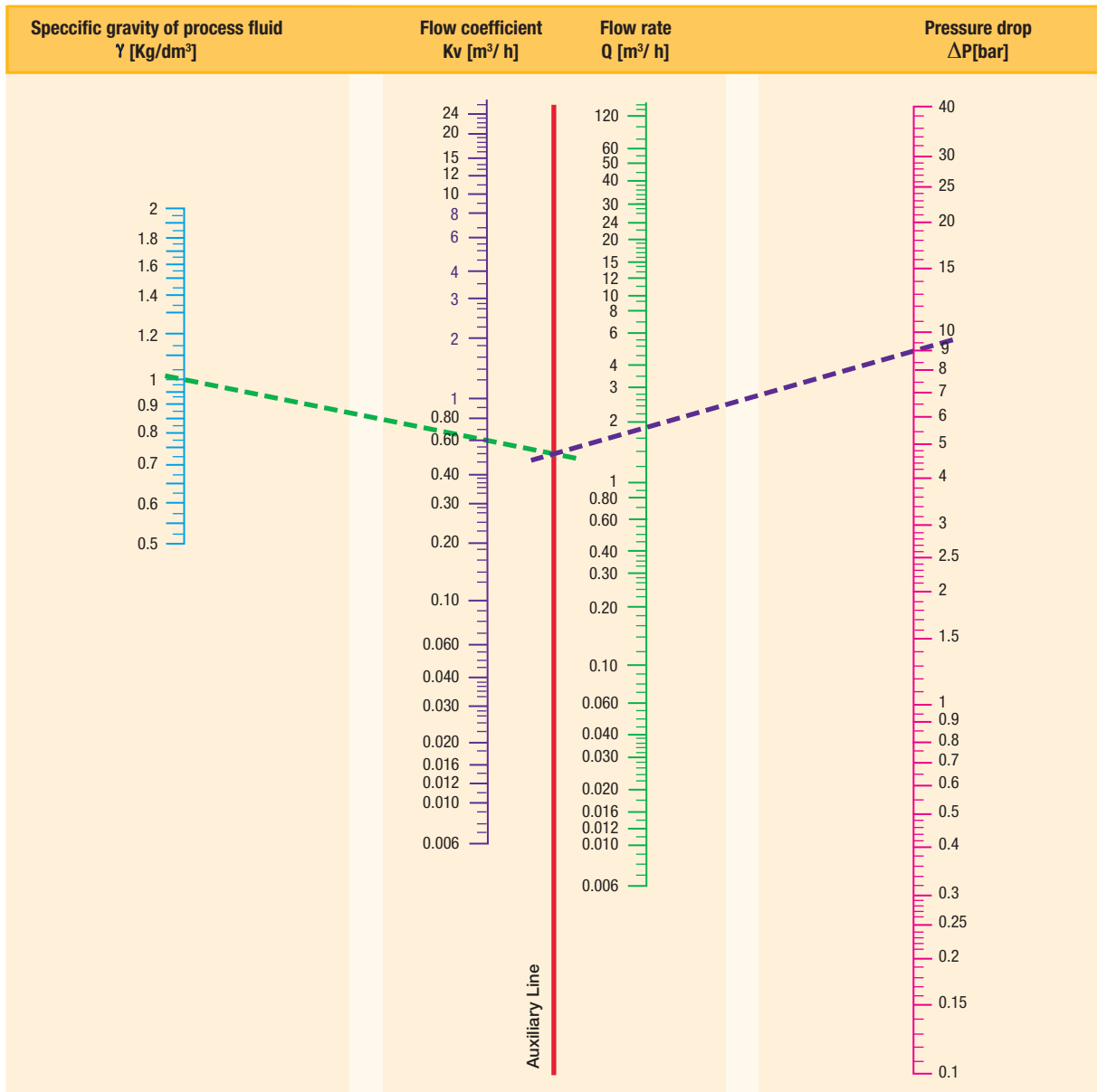
Diagram 3: for dry saturated steam - (page 26)

Example: calculate " Q_v " with: $P_2 = 5$ bar; $\Delta P = 2$ bar; $K_v = 0.5$.

Using the same method as for diagram 1 the various points can be joined up using the auxiliary line and the value Q_v is $36 \text{ kg}/\text{h}$. Naturally, given the possibility of combining various errors graphically (readouts, joining lines, intersections on auxiliary lines etc.), the values obtained from diagrams are approximate and it is therefore advisable to compare them, each time, with the values obtained using formulae.

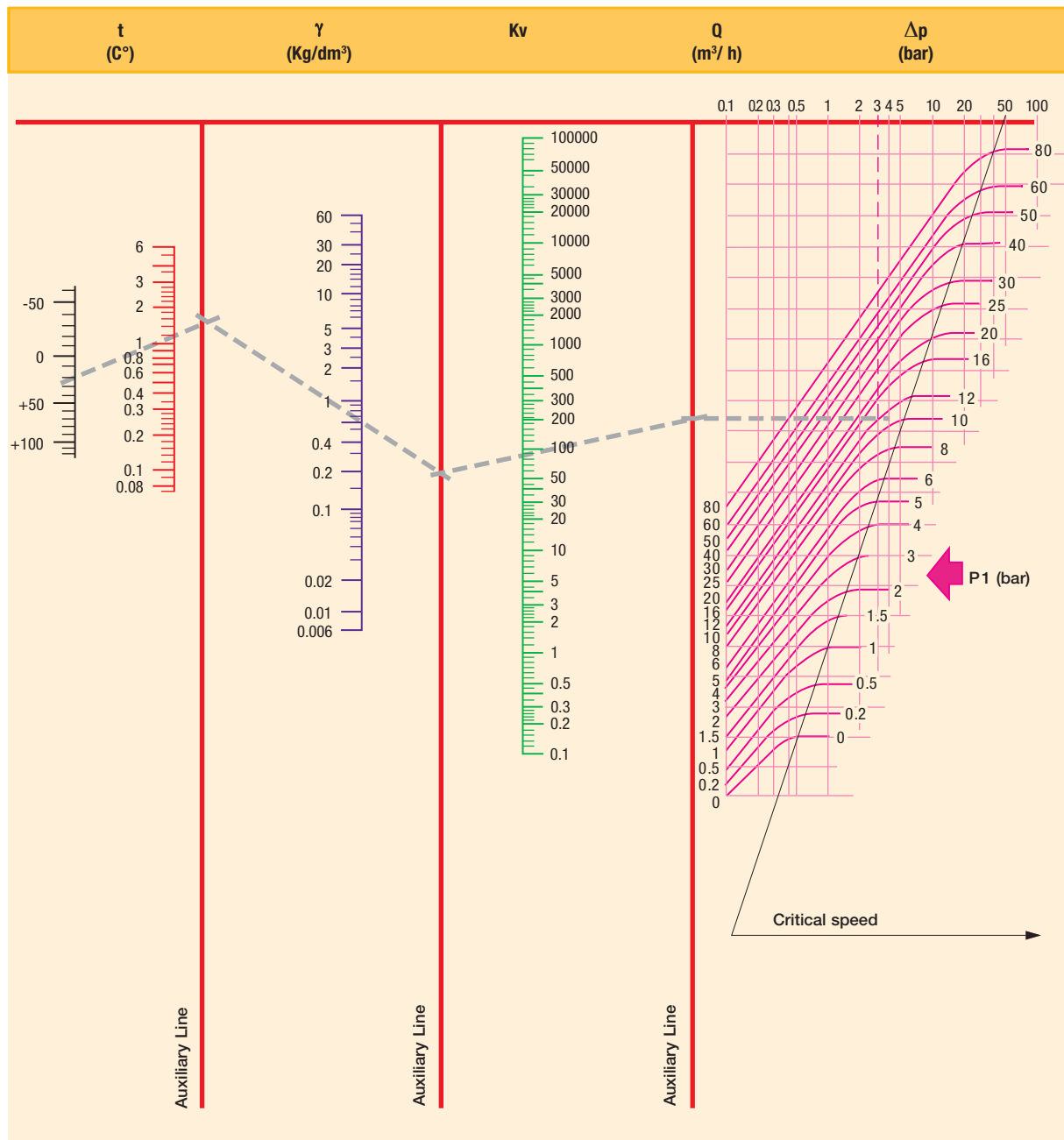
Technical Information

Diagram 1 for liquids (up to 3°E)



Specific gravity of the most common fluids ($\gamma = \text{Kg/dm}^3$) - (t = 15°C - P = 760 mm Hg)					
Acetone	0.79	Benzenol	0.90	Naphtha	0.76
Water	1.00	Beer	1.02	Pentane	0.63
Sea water	1.02	Hexane	0.66	Vegetable oil	0.92
Ethyl alcohol	0.79	Ethane	0.68	Hydraulic oil	0.92
Methyl alcohol	0.81	Diesel oil	0.70	Wine	0.95
Petrol	0.68	Milk	1.03		

Diagram 2 for gases

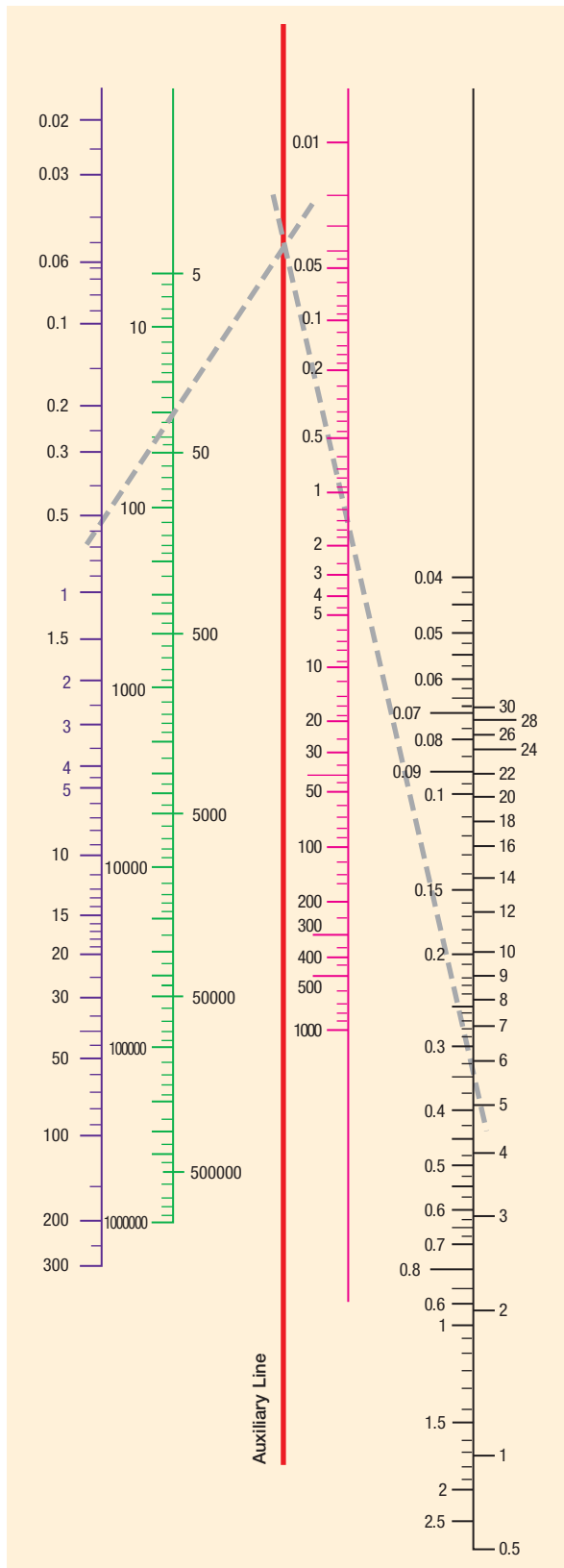


t = Fluid Temperature γ N = Specific Gravity Kv = Flow Coefficient Qn = Flow Rate Δp = Pressure Drop P₁ = Inlet Pressure

Specific gravity of the most common gases ($\gamma = \text{Kg/m}^3$) - (t = 0°C - P = 760mm Hg)					
Acetylene	1.176	Helium	0.179	Natural gas	0.723
Carbon dioxide	1.965	Ethane	1.035	Methane	0.722
Air	1.293	Ethylene	1.259	Carbon monoxide	1.250
Argon	1.780	Hydrogen	0.089	Oxygen	1.429
Nitrogen	1.255			Propane	1.520
Butane	2.000			Steam	0.805

Technical Information

Diagram 3 for Dry Saturated Stem



Kv = Flow Coefficient **Qv** = Flow Rate **Δp** = Pressure Drop **Vs** = Specific Volume **P₂** = Outlet Pressure

Steam (Dry Saturated) Data

P ₂ bar	Temp. °C	Vs m ³ /Kg
0.01	6.6	131.600
0.02	17.1	68.300
0.03	23.7	46.500
0.04	28.6	35.500
0.05	32.5	28.700
0.06	35.8	24.200
0.08	41.1	18.500
0.10	45.4	15.000
0.20	59.7	7.800
0.30	68.7	5.330
0.40	75.4	4.070
0.50	80.9	3.300
0.60	85.5	2.790
0.70	89.5	2.410
0.80	93.0	2.130
0.90	96.2	1.910
1.00	99.1	1.730
1.50	110.8	1.180
2.00	119.6	0.900
2.50	126.8	0.730
3.00	132.9	0.620
3.50	138.2	0.530
4.00	142.9	0.470
4.50	147.2	0.420
5.00	151.1	0.380
5.50	154.7	0.350
6.00	158.1	0.320
6.50	161.2	0.300
7.00	164.2	0.280
7.50	167.0	0.260
8.00	169.6	0.250
8.50	172.1	0.230
9.00	174.5	0.220
9.50	176.8	0.210
10.00	179.0	0.200
110.00	183.2	0.181
120.00	187.1	0.176
13.00	190.7	0.155
14.00	194.1	0.144
15.00	197.4	0.135
16.00	200.4	0.126
17.00	203.4	0.119
18.00	206.2	0.113
19.00	208.8	0.107
20.00	211.4	0.102
22.00	216.2	0.093
24.00	220.8	0.085
26.00	225.0	0.079
28.00	229.0	0.073
30.00	232.8	0.068
32.00	236.4	0.064
34.00	239.8	0.060
36.00	243.1	0.057
38.00	246.2	0.053
40.00	249.2	0.051
45.00	256.2	0.045
50.00	262.7	0.040
55.00	268.7	0.036
60.00	274.3	0.033
65.00	279.6	0.030
70.00	284.5	0.028
80.00	293.6	0.024
90.00	301.9	0.021
100.00	309.5	0.018
150.00	340.5	0.011
200.00	364.2	0.006
225.00	374.0	0.003

Viscosity Conversion Table

201LG Series admissible media viscosity is 2°E.

Centistokes cStokes mm ² /S	°Engler °E	Saybolt Universal Second SSU	Rewood Second N°1 SRW N°1
1	1	-	-
12	2	65	55
22	3	100	90
30	4	140	120
28	5	175	155
45	6	210	185
60	8	275	245
75	10	345	305
90	12	415	370
115	15	525	465
150	20	685	610
200	26	910	810
300	39	1 385	1 215
400	53	1 820	1 620
500	66	2 275	2 025
750	97	3 365	2 995
1 500	197	6 820	6 075

Pressure Conversion Table

BAR	N/cm ²	MPa	Psi
0.1	1	0.01	1.45
0.2	2	0.02	2.90
0.5	5	0.05	7.25
1.0	10	0.10	14.50
2.0	20	0.20	29.01
3.0	30	0.30	43.51
4.0	40	0.40	58.01
5.0	50	0.50	72.52
6.0	60	0.60	87.02
7.0	70	0.70	101.52
8.0	80	0.80	116.03
9.0	90	0.90	130.53
10.0	100	1.00	145.03
11.0	110	1.10	159.54
12.0	120	1.20	174.04
13.0	130	1.30	188.54
14.0	140	1.40	203.05
15.0	150	1.50	217.55
16.0	160	1.60	232.05
17.0	170	1.70	246.56
18.0	180	1.80	261.06
19.0	190	1.90	275.56
20.0	200	2.00	290.07
25.0	250	2.50	362.58
30.0	300	3.00	435.10
40.0	400	4.00	580.13
50.0	500	5.00	725.17
60.0	600	6.00	870.20
70.0	700	7.00	1 015.23
80.0	800	8.00	1 160.26
90.0	900	9.00	1 305.30
100.0	1 000	10.00	1 450.33

Technical Information

Temperature Conversion Table

°C	K	°F	°C	K	°F	°C	K	°F	°C	K	°F
-50	223	-58,0	1	274	33,8	51	324	123,8	105	378	221
-49	224	-56,2	2	275	35,6	52	325	125,6	110	383	230
-48	225	-54,4	3	276	37,4	53	326	127,4	115	388	239
-47	226	-52,6	4	277	39,2	54	327	129,2	120	393	248
-46	227	-50,8	5	278	41,0	55	328	131,0	125	398	257
-45	228	-49,0	6	279	42,8	56	329	132,8	130	403	266
-44	229	-47,2	7	280	44,6	57	330	134,6	135	408	275
-43	230	-45,4	8	281	46,4	58	331	136,4	140	413	284
-42	231	-43,6	9	282	48,2	59	332	138,2	145	418	293
-41	232	-41,8	10	283	50,0	60	333	140,0	150	423	302
-40	233	-40,0	11	284	51,8	61	334	141,8	155	428	311
-39	234	-38,2	12	285	53,6	62	335	143,6	160	433	320
-38	235	-36,4	13	286	55,4	63	336	145,4	165	438	329
-37	236	-34,6	14	287	57,2	64	337	147,2	170	443	338
-36	237	-32,8	15	288	59,0	65	338	149,0	175	448	347
-35	238	-31,0	16	289	60,8	66	339	150,8	180	453	356
-34	239	-29,2	17	290	62,6	67	340	152,6	185	458	365
-33	240	-27,4	18	291	64,4	68	341	154,4	190	463	374
-32	241	-25,6	19	292	66,2	69	342	156,2	195	468	383
-31	242	-23,8	20	293	68,0	70	343	158,0	200	473	392
-30	243	-22,0	21	294	69,8	71	344	159,8	205	478	401
-29	244	-20,2	22	295	71,6	72	345	161,6	210	483	410
-28	245	-18,4	23	296	73,4	73	346	163,4	215	488	419
-27	246	-16,6	24	297	75,2	74	347	165,2	220	493	428
-26	247	-14,8	25	298	77,0	75	348	167,0	225	498	437
-25	248	-13,0	26	299	78,8	76	349	168,8	230	503	446
-24	249	-11,2	27	300	80,6	77	350	170,6	235	508	455
-23	250	-9,4	28	301	82,4	78	351	172,4	240	513	464
-22	251	-7,6	29	302	84,2	79	352	174,2	245	518	473
-21	252	-5,8	30	303	86,0	80	353	176,0	250	523	482
-20	253	-4,0	31	304	87,8	81	354	177,8	255	528	491
-19	254	-2,2	32	305	89,6	82	355	179,6	260	533	500
-18	255	-0,4	33	306	91,4	83	356	181,4	265	538	509
-17	256	1,4	34	307	93,2	84	357	183,2	270	543	518
-16	257	3,2	35	308	95,0	85	358	185,0	275	548	527
-15	258	5,0	36	309	96,8	86	359	186,8	280	553	536
-14	259	6,8	37	310	98,6	87	360	188,6	285	558	545
-13	260	8,6	38	311	100,4	88	361	190,4	290	563	554
-12	261	10,4	39	312	102,2	89	362	192,2	295	568	563
-11	262	12,2	40	313	104,0	90	363	194,0	300	573	572
-10	263	14,0	41	314	105,8	91	364	195,8	310	583	590
-9	264	15,8	42	315	107,6	92	365	197,6	320	593	608
-8	265	17,6	43	316	109,4	93	366	199,4	330	603	626
-7	266	19,4	44	317	111,2	94	367	201,2	340	613	644
-6	267	21,2	45	318	113,0	95	368	203,0	350	623	662
-5	268	23,0	46	319	114,8	96	369	204,8	360	633	680
-4	269	24,8	47	320	116,6	97	370	206,6	370	643	698
-3	270	26,6	48	321	118,4	98	371	208,4	380	653	716
-2	271	28,4	49	322	120,2	99	372	210,2	390	663	734
-1	272	30,2	50	323	122,0	100	373	212,0	400	673	752

$$^{\circ}\text{C} = (\text{F}-32) \times 5/9$$

$$\text{K} = ^{\circ}\text{C} + 273$$

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32$$

Flow Rate Conversion Table

l/min	m ³ /h	l/min	m ³ /h	l/min	m ³ /h
0.1	0.01	25	1.5	190	11.4
0.2	0.01	30	1.8	200	12.0
0.5	0.03	35	2.1	250	15.0
1.0	0.06	40	2.4	300	18.0
1.5	0.09	45	2.7	350	21.0
2.0	0.12	50	3.0	400	24.0
2.5	0.15	60	3.6	450	27.0
3.0	0.18	70	4.2	500	30.0
3.5	0.21	80	4.8	550	33.0
4.0	0.24	90	5.4	600	36.0
4.5	0.27	100	6.0	650	39.0
5.0	0.30	110	6.6	700	42.0
6.0	0.36	120	7.2	750	45.0
7.0	0.42	130	7.8	800	48.0
8.0	0.48	140	8.4	850	51.0
9.0	0.54	150	9.0	900	54.0
10.0	0.60	160	9.6	950	57.0
15.0	0.90	170	10.2	1000	60.0
20.0	1.20	180	10.8	-	-

$$\text{m}^3/\text{h} = \text{l}/\text{min} \times 0.06$$

$$\text{l}/\text{min} = \text{m}^3/\text{h} \times 16.67$$

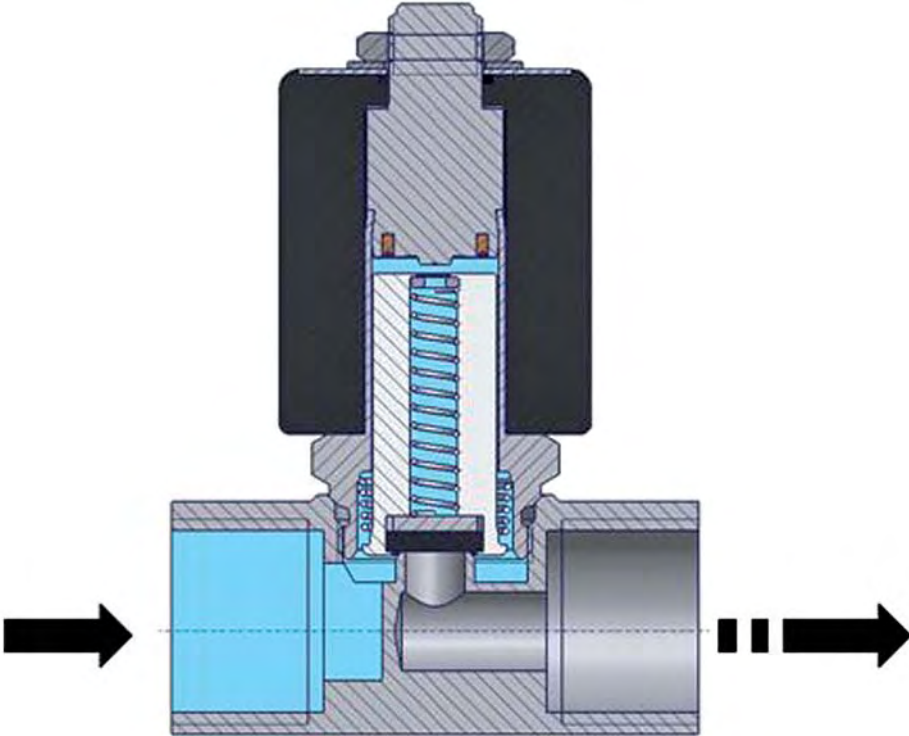
$$\text{m}^3/\text{sec} = \text{m}^3/\text{h} \times 2.778 \times 10^{-4}$$

$$\text{m}^3/\text{sec} = \text{l}/\text{min} \times 1.667 \times 10^{-5}$$

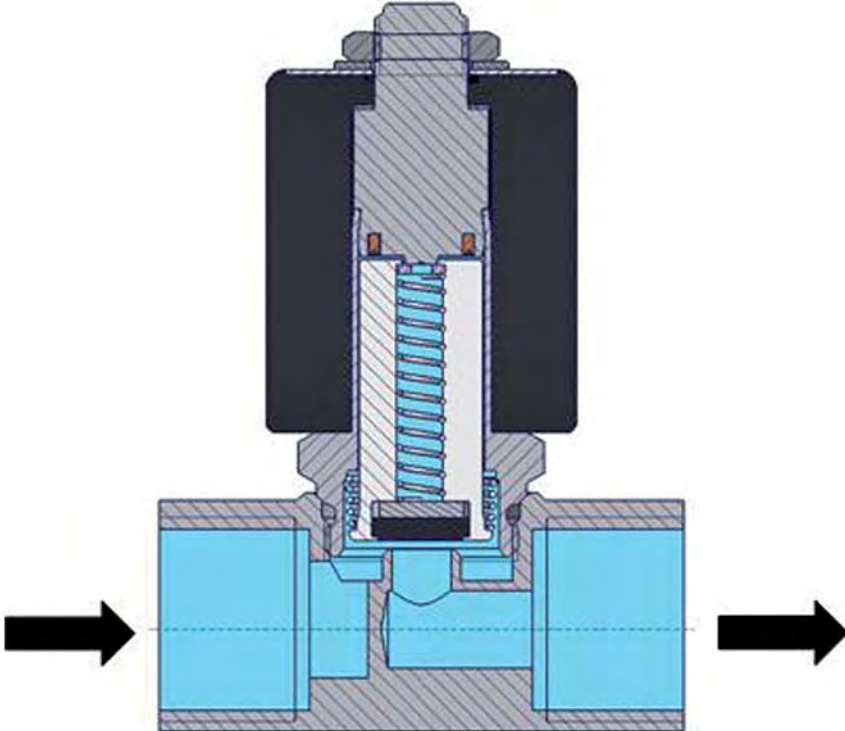
Technical Information

Actuation

2 way - Direct operated - Normally closed



Coil not energized - Plunger in the close position - **No flow**



Coil energized - Plunger in the open position - **Full flow**

Valve Identification

Model Stamp and Production Date Stamp



G	46	09	201LG2GVG2
Manufacturing Location: Gessate	Week	Year	Model

Fluid Compatibility Chart

Fluid	Temperature	Stainless Steel	FKM	EPDM	PTFE	Copper	Silver*
ACETONE		NR	S	S	NR	S	S
ACETYLENE, DRY	+20°C	S	NR	S	S	NR	S
ACID - BORIC	+20°C	S	S	S	S	NR	S
ACID - CHROME	<40% +20°C	S	S	NR	S	NR	S
ACID - CITRIC	<10% +20°C	S	S	NR	S	NR	S
ACID - HYDROCHLORIC	1% +20°C	S	S	S	S	NR	NR
ACID - LACTIC	+20°C	S	S	NR	NR	NR	S
ACID - NITRIC	<10% +20°C	S	S	NR	S	NR	NR
ACID - PHOSPHORIC	<10% +20°C	S	S	NR	S	NR	NR
ACID - PICRIC	<10% +20°C	S	S	NR	S	NR	S
ACID - SALICYLIC	<10%	S	S	NR	S	NR	S
ACID - SULPHURIC	<20%	NR	NR	NR	S	NR	NR
ACID - SULPHUROUS	<5%, +20°C	NR	NR	NR	S	NR	NR
AIR		S	S	NR	S	S	S
ALCOHOL - AMYL ALCOHOL		S	NR	S	S	S	S
ALCOHOL - BUTYL ALCOHOL		S	S	NR	S	S	S
ALCOHOL - ETHYL ALCOHOL		S	NR	S	S	S	S
ALCOHOL - METHYL ALCOHOL		S	NR	S	S	S	S
ALCOHOL - PROPYL ALCOHOL		S	S	S	S	S	S
AMMONIA, GAS (ANHYDROUS)	+60°C	S	NR	S	S	NR	S
ANILINE		S	NR	NR	S	NR	NR
ARGON		S	S	NR	S	S	S
BEER		S	S	S	S	S	S
BENZINE (LEADED AND UNLEADED)		S	S	NR	S	NR	NR
CHLOROFORM	+20°C	S	S	NR	S	NR	NR
CIDER		S	S	NR	S	NR	NR
COFFEE		S	S	NR	S	S	S
CREAM		S	S	NR	S	S	S
CYCLOHEXANE		S	S	NR	S	NR	NR
ETHYL CHLORIDE		NR	NR	NR	NR	NR	NR
ETHYLENE GLYCOL		S	S	NR	NR	NR	NR
EXHAUST GAS		S	S	NR	NR	NR	NR
FIRE RESISTANT - NON AQUEOUS HYDRAULIC FLUID		S	S	NR	S	NR	S
FIRE RESISTANT - OIL IN WATER EMULSIONS		S	S	NR	S	NR	S
FIRE RESISTANT - WATER IN OIL EMULSIONS		S	S	NR	S	NR	S
FIRE RESISTANT - WATER - GLYCOL SOLUTIONS		S	S	NR	S	NR	S
FOOD PRODUCTS		S	S	NR	U	NR	S
HELIUM		S	S	NR	S	S	S
KEROSENE JP-1 TO JP-3		S	S	NR	S	S	S
LEMON AND ORANGE JUICE		F	S	NR	NR	S	S
MERCURY		S	S	NR	S	NR	NR
MILK		F	S	NR	U	S	S
NAPHTA		S	S	NR	U	NR	NR
NITROGEN		S	S	S	S	S	S
OIL - ANIMAL OIL		S	S	NR	U	S	S
OIL - ASTM OIL 1, 2, 3		S	S	NR	U	S	S
OIL - DIESEL OIL		S	S	NR	S	S	S
OIL - ESTABLE OIL		S	S	NR	S	S	S
OIL - EXTRA LIGHT, MEDIUM		S	S	NR	S	S	S
OIL - FUEL OIL		S	S	NR	U	NR	S
OIL - GREASING OIL		S	S	NR	S	NR	S
OIL - HEAVY		S	S	NR	S	NR	S
OIL - SILICONE OIL		S	S	NR	S	S	S
OIL - TRANSFORMER OIL		S	S	NR	U	NR	S
OIL - VEGETABLE OIL		S	S	NR	U	NR	S
OZONE GAS/LIQUID	On request	T	S	S	S	NR	S
PERCHLORETHYLENE	+20°C	F	S	NR	S	NR	NR
PHENOL		S	S	NR	U	NR	NR
POTASSIUM SULFATE		T	S	S	S	S	S
SOAPY WATER		S	S	S	S	NR	NR
SODIUM HYDROXIDE		T	NR	S	S	S	S
STOLUENE (TOLUOL)		S	S	NR	S	S	S
TRICHLORETHYLENE		T	S	NR	S	S	S
TURPENTINA		S	S	NR	S	S	S
VINEGAR		T	NR	NR	S	NR	NR
WATER		S	S	S	S	S	S
WATER - DEIONISED/DISTILLED		S	S	NR	U	S	S
WATER - DEMINERALISED		T	S	S	S	S	S
WATER - DRINKABLE		S	S	S	S	S	S
WATER - HOT AND STEAM		S	NR	S	S	S	S
WATER - OXYGENATED	ON REQUEST	S	S	S	S	S	S
WATER - SEA SALT		T	S	S	S	S	S
WHISKEY		S	S	NR	U	S	S
XYLENE		S	S	NR	U	S	S

Legenda: S = Satisfactory, T = Test to verify, F = Fair, U = No Data Available, NR = Not Recommended Unless Otherwise Stated
Media are at 100% Concentration and Room Temperature (except where differently specified). In case of different temperature, please ask for Parker assistance.
* On request

General Description

Material Specifications

Valve Body:

AISI316L Stainless Steel

Enclosing tube:

AISI 303 Stainless Steel

Plunger:

AISI 430F Stainless Steel

Spring:

AISI 302 Stainless Steel

Seals:

FKM

Shading ring:

Copper - Standard

Silver - optional (Consult Factory)

Installation

The valves can be mounted in any position. It is however recommended to install them with the coil in vertical position above the body.

Media

These valves have been developed to achieve the best performances with a wide range of media.

Please consult fluid compatibility chart at page 20.

Electrical Parts

A wide range of electrical parts can be used with this range.

The complete offer of electrical parts is described at pages 28-39.

Please consult also the "How to order" section at page 44 to select the product configuration which fits your application requirements.

Product Availability

201LG Series Pressure Vessel

This catalogue has been designed to make selection as easy as possible. The structure allows you to find your valve step by step, beginning with the most basic features and gradually focusing on more and more precise details.

A wide range of configurations for this solenoid valve family is available: port sizes from 1/8" to 1/2" with BSP port threads.

Please consult the following pages 23 to 27 to find out our product solutions.

In the table herebelow you might also find an explanation of the general description system for 201LG family range.

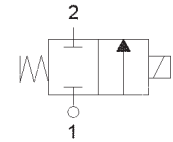
Please note:

Electrical parts available are not included in the description system herebelow which refers to pressure vessel only.

Please consult in detail the "How to order" section at page 44.

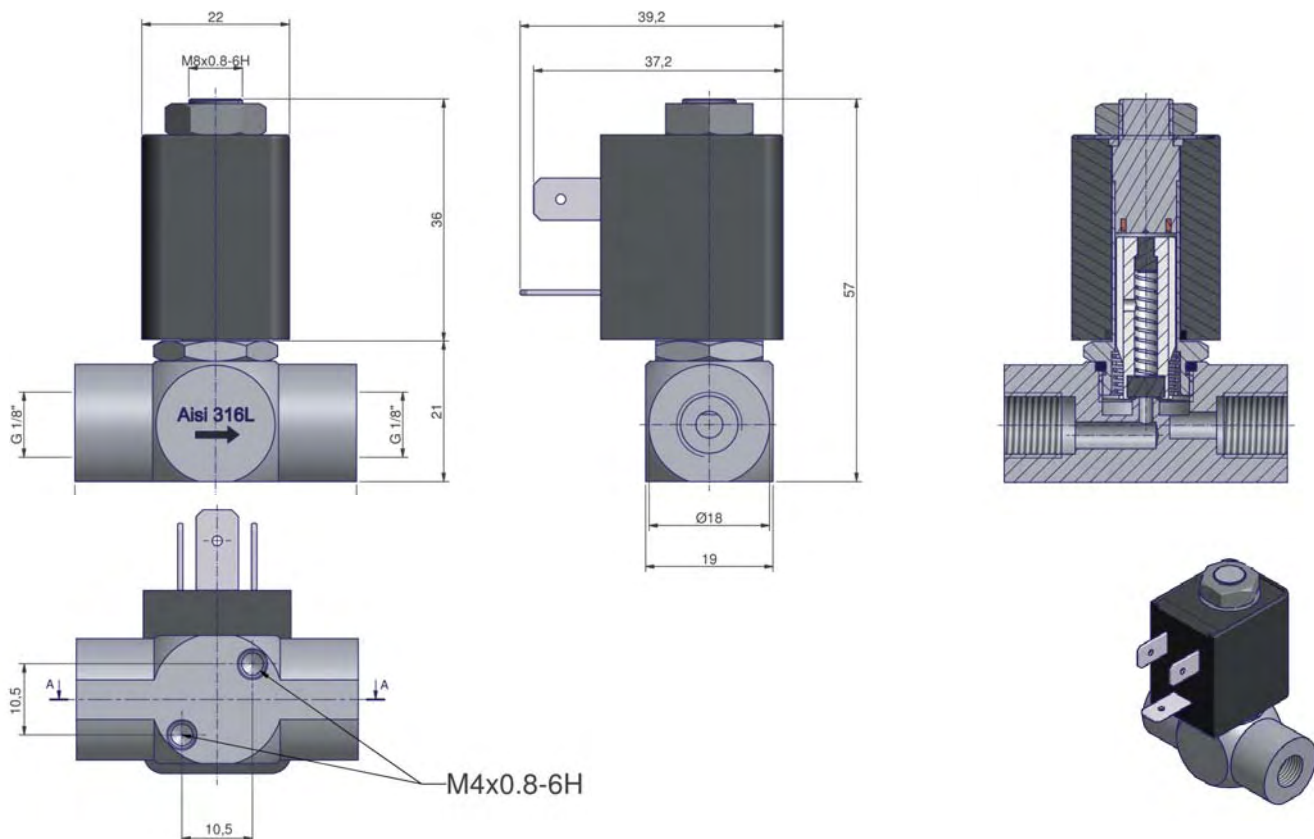
2	0	1	L	G 4	U	V	G	7	
2									Number of Ways: 2, 3, 4, ...
	0								Design/Style: 0-Direct acting, 2-Dia phragm center pilot, 3-Diaphragm hung, ...
		1							Function: 1-Normally closed, 2-Normally open, 3-Universal, 4-Directional control
			L						Body Material: L = AISI316L machined body
				G					Port size: G1-1/8"G, G2-1/4"G, G3-3/8"G, G4-1/2"G
					U				Orifice size: G-from 1.42 to 1.6 mm, J-from 1.81 mm to 2.0 mm, L-from 2.25 mm to 2.51 mm, N-from 2.83 to 3.16, P-from 3.17 to 3.55, S-from 4.51 mm to 5.0 mm, U-from 5.63 mm to 6.31 mm.
						V			V-FKM, T-PTFE, E-EPDM
							G		Engineering design location: G-Gessate
								7	Operator size: 7-14.5 sleeve diameter, 2-10.0 mm sleeve diameter





201LG1 Series - 1/8"G Compatible with 22mm Electrical parts

Port Size G	Orifice mm	Flow Factors		Admissible Differential Pressure Bar Max.			Fluid Temp. C°	Seat Disc	Reference Number		Power Consumption (W)		Weight g	Dim. Ref.
		m ³ /h	l/min	Minimum Pressure	Differential Pressure AC	DC			Pressure Vessel	Compatible electrical part	DC	AC		
1/8"G	1.5	0.06	1.00	0	20	15	140	FKM	201LG1GVG2	WB4.5/WB5.0	5.0	4.5	94	1
	1.5	0.06	1.00	0	-	15	140	FKM	201LG1GVG2	482605	5.0	-	94	1
	1.5	0.06	1.00	0	16	10	140	FKM	201LG1GVG2	488980	2.5	2.0	94	1
	1.5	0.06	1.00	0	16	10	140	FKM	201LG1GVG2	482606	2.5	2.0	94	1
1/8"G	2.0	0.11	1.83	0	15	10	140	FKM	201LG1JVG2	WB4.5/WB5.0	5.0	4.5	94	1
	2.0	0.11	1.83	0	-	10	140	FKM	201LG1JVG2	482605	5.0	-	94	1
	2.0	0.11	1.83	0	12	7	140	FKM	201LG1JVG2	488980	2.5	2.0	94	1
	2.0	0.11	1.83	0	12	7	140	FKM	201LG1JVG2	482606	2.5	2.0	94	1
1/8"G	2.5	0.14	2.33	0	10	7	140	FKM	201LG1LVG2	WB4.5/WB5.0	5.0	4.5	94	1
	2.5	0.14	2.33	0	-	7	140	FKM	201LG1LVG2	482605	5.0	-	94	1
	2.5	0.14	2.33	0	8	5	140	FKM	201LG1LVG2	488980	2.5	2.0	94	1
	2.5	0.14	2.33	0	8	5	140	FKM	201LG1LVG2	482606	2.5	2.0	94	1

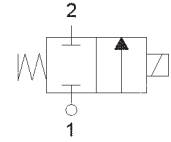


All dimensions are in mm

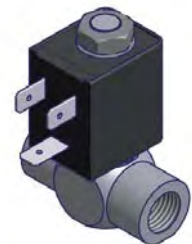
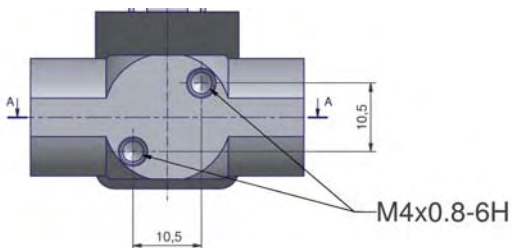
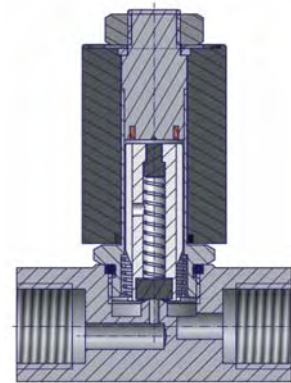
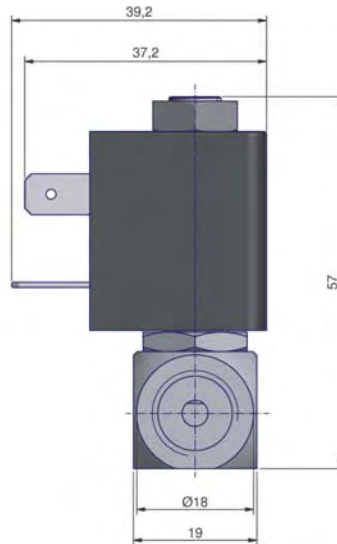
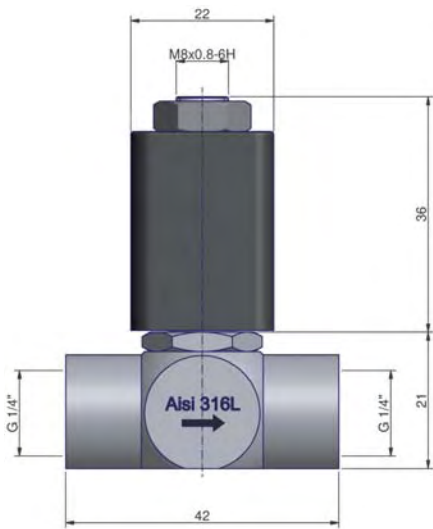
Dimensional Drawing N° 1

Product Availability

201LG2 Series - 1/4"G Compatible with 22mm electrical parts

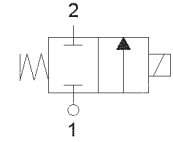


Port Size G	Orifice mm	Flow Factors		Admissible Differential Pressure Bar Max.			Fluid Temp. C°	Seat Disc	Reference Number		Power Consumption (W)		Weight g	Dim. Ref.
		m ³ /h	l/min	Minimum Pressure	Differential Pressure AC	DC			Pressure Vessel	Compatible electrical part	DC	AC		
1/4"G	1.5	0.06	1.00	0	20	15	140	FKM	201LG2GVG2	WB4.5/WB5.0	5.0	4.5	86	2
	1.5	0.06	1.00	0	-	15	140	FKM	201LG2GVG2	482605	5.0	-	86	2
	1.5	0.06	1.00	0	16	10	140	FKM	201LG2GVG2	488980	2.5	2.0	86	2
	1.5	0.06	1.00	0	16	10	140	FKM	201LG2GVG2	482606	2.5	2.0	86	2
1/4"G	2.0	0.11	1.83	0	15	10	140	FKM	201LG2JVG2	WB4.5/WB5.0	5.0	4.5	86	2
	2.0	0.11	1.83	0	-	10	140	FKM	201LG2JVG2	482605	5.0	-	86	2
	2.0	0.11	1.83	0	12	7	140	FKM	201LG2JVG2	488980	2.5	2.0	86	2
	2.0	0.11	1.83	0	12	7	140	FKM	201LG2JVG2	482606	2.5	2.0	86	2
1/4"G	2.5	0.14	2.33	0	10	7	140	FKM	201LG2LVG2	WB4.5/WB5.0	5.0	4.5	86	2
	2.5	0.14	2.33	0	-	7	140	FKM	201LG2LVG2	482605	5.0	-	86	2
	2.5	0.14	2.33	0	8	5	140	FKM	201LG2LVG2	488980	2.5	2.0	86	2
	2.5	0.14	2.33	0	8	5	140	FKM	201LG2LVG2	482606	2.5	2.0	86	2



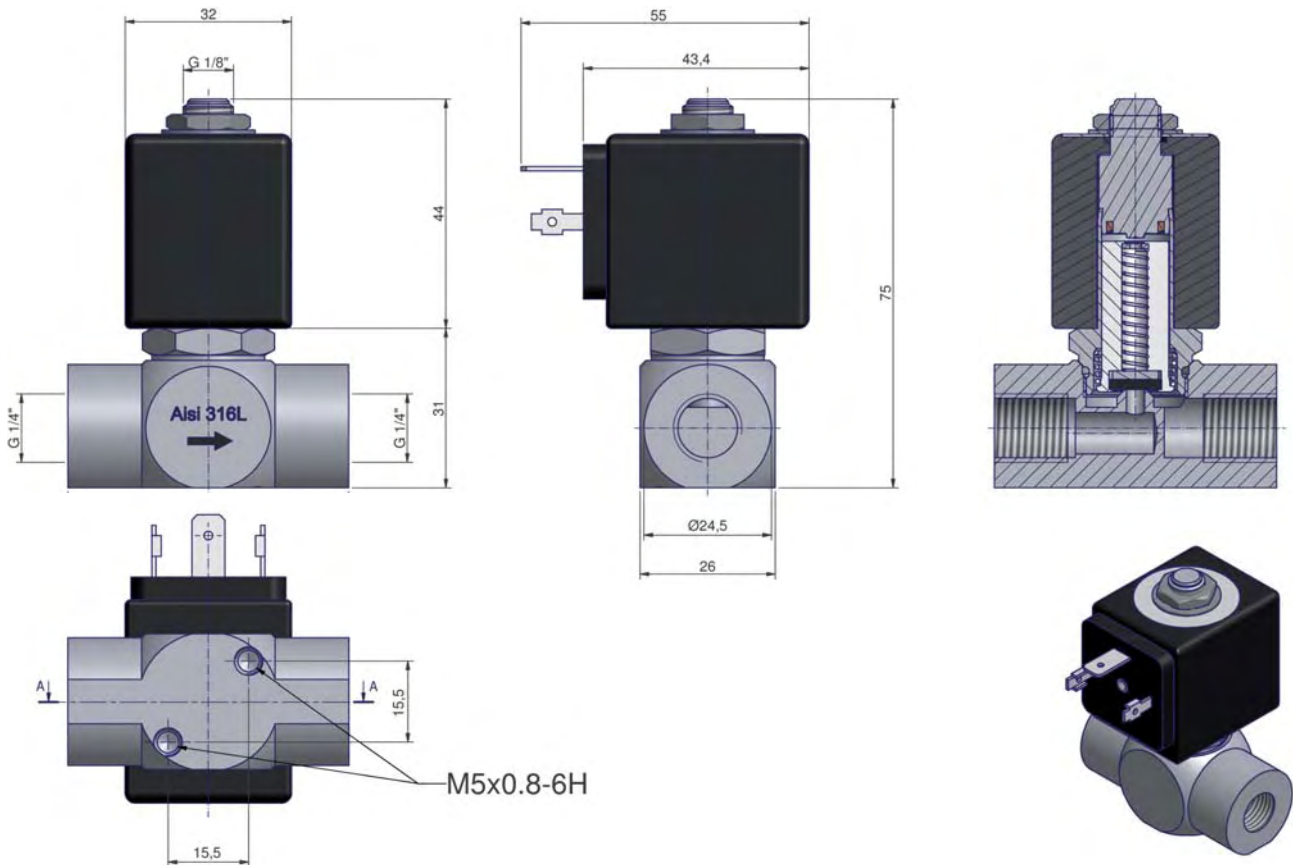
All dimensions are in mm

Dimensional Drawing N° 2



201LG2 Series - 1/4" G Compatible with 32mm, 37mm and 40mm electrical parts

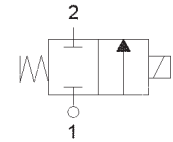
Port Size G	Orifice mm	Flow Factors m ³ /h l/min		Admissible Differential Pressure Bar Max.			Fluid Temp. C°	Seat Disc	Pressure Vessel	Reference Number			Power Consumption (W)		Weight g	Dim. Ref.
				Minimum Pressure	Differential Pressure AC	DC				Housing	Compatible electrical part	DC	AC			
1/4" G	3.0	0.27	4.5	0	8	8.0	140	FKM	201LG2NMG7	-	481865	9	8	219	3	
	3.0	0.27	4.5	0	8	-	140	FKM	201LG2NMG7	-	483510	-	9	219	3	
	3.0	0.27	4.5	0	8	8.0	140	FKM	201LG2NMG7	-	496081	9	8	219	-	
	3.0	0.27	4.5	0	11	10.0	140	FKM	201LG2NMG7	-	491514	12	11	219	3	
	3.0	0.27	4.5	0	11	10.0	140	FKM	201LG2NMG7	-	496082	12	11	219	-	
	3.0	0.27	4.5	0	19	11.0	140	FKM	201LG2NMG7	-	492425	14	14	219	3	
	3.0	0.27	4.5	0	9	7.5	140	FKM	201LG2NMG7	4270. 4538	481000	8	8	219	-	
	3.0	0.27	4.5	0	19	-	140	FKM	201LG2NMG7	4270. 8520	481044	-	14	219	-	
	3.0	0.27	4.5	0	6	8.0	140	FKM	201LG2NMG7	-	495905	8	8	219	-	
1/4" G	3.5	0.36	6.0	0	6	6.0	140	FKM	201LG2PVG7	-	481865	9	8	219	3	
	3.5	0.36	6.0	0	6	-	140	FKM	201LG2PVG7	-	483510	-	9	219	3	
	3.5	0.36	6.0	0	6	6.0	140	FKM	201LG2PVG7	-	496081	9	8	219	-	
	3.5	0.36	6.0	0	8	7.0	140	FKM	201LG2PVG7	-	491514	12	11	219	3	
	3.5	0.36	6.0	0	8	7.0	140	FKM	201LG2PVG7	-	496082	12	11	219	-	
	3.5	0.36	6.0	0	14	6.0	140	FKM	201LG2PVG7	-	492425	14	14	219	3	
	3.5	0.36	6.0	0	6	5.5	140	FKM	201LG2PVG7	4270. 4538	481000	8	8	219	-	
	3.5	0.36	6.0	0	14	-	140	FKM	201LG2PVG7	4270. 8520	481044	-	14	219	-	
	3.5	0.36	6.0	0	6	6.0	140	FKM	201LG2PVG7	-	495905	8	8	219	-	



All dimensions are in mm

Dimensional Drawing N° 3

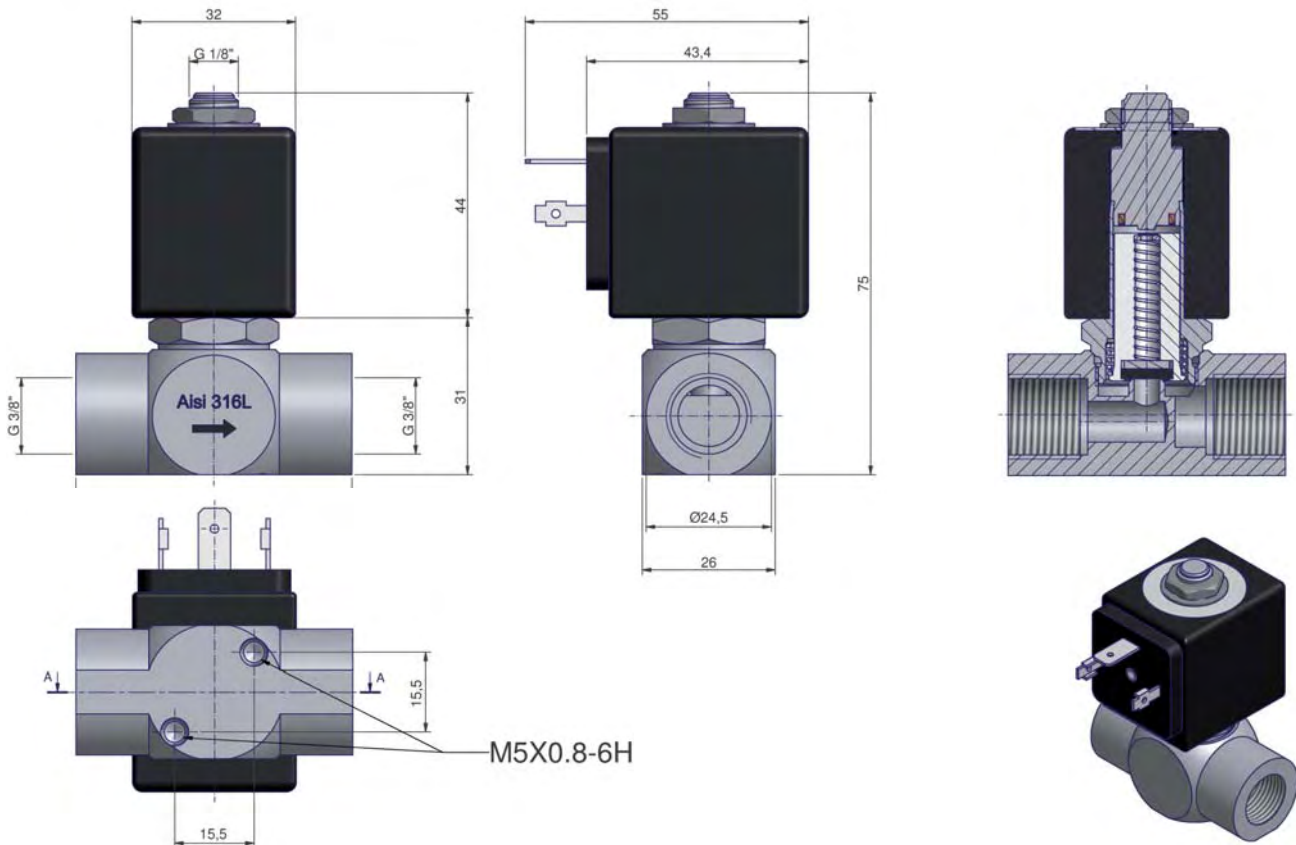
Product Availability



201LG3 Series - 3/8" G

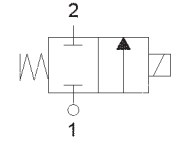
Compatible with 32mm, 37mm and 40mm electrical parts

Port Size G	Orifice mm	Flow Factors m ³ /h l/min		Admissible Differential Pressure Bar Max.			Fluid Temp. C°	Seat Disc	Pressure Vessel	Reference Number			Power Consumption (W)		Weight g	Dim. Ref.
				Minimum Pressure	Differential Pressure AC	DC				Housing	Compatible electrical part	DC	AC			
3/8" G	5.0	0.66	11	0	3.0	3.0	140	FKM	201LG3SVG7	-	481865	9	8	201	4	
	5.0	0.66	11	0	3.0	-	140	FKM	201LG3SVG7	-	483510	-	9	201	4	
	5.0	0.66	11	0	3.0	3.0	140	FKM	201LG3SVG7	-	496081	9	8	201	-	
	5.0	0.66	11	0	4.0	4.0	140	FKM	201LG3SVG7	-	491514	12	11	201	4	
	5.0	0.66	11	0	4.0	4.0	140	FKM	201LG3SVG7	-	496082	12	11	201	-	
	5.0	0.66	11	0	7.0	3.5	140	FKM	201LG3SVG7	-	492425	14	14	201	4	
	5.0	0.66	11	0	3.0	2.5	140	FKM	201LG3SVG7	4270. 4538	481000	8	8	201	-	
	5.0	0.66	11	0	7.0	-	140	FKM	201LG3SVG7	4270. 8520	481044	-	14	201	-	
3/8" G	6.2	0.78	13	0	2.0	2.0	140	FKM	201LG3UVG7	-	481865	9	8	201	4	
	6.2	0.78	13	0	2.0	-	140	FKM	201LG3UVG7	-	483510	-	9	201	4	
	6.2	0.78	13	0	2.0	2.0	140	FKM	201LG3UVG7	-	496081	9	8	201	-	
	6.2	0.78	13	0	3.0	2.0	140	FKM	201LG3UVG7	-	491514	12	11	201	4	
	6.2	0.78	13	0	3.0	2.0	140	FKM	201LG3UVG7	-	496082	12	11	201	-	
	6.2	0.78	13	0	4.5	2.5	140	FKM	201LG3UVG7	-	492425	14	14	201	4	
	6.2	0.78	13	0	2.5	1.5	140	FKM	201LG3UVG7	4270. 4538	481000	8	8	201	-	
	6.2	0.78	13	0	4.5	-	140	FKM	201LG3UVG7	4270. 8520	481044	-	14	201	-	
6.2	0.78	13	0	2.0	2.0	140	FKM	201LG3UVG7	-	495905	8	8	201	-		



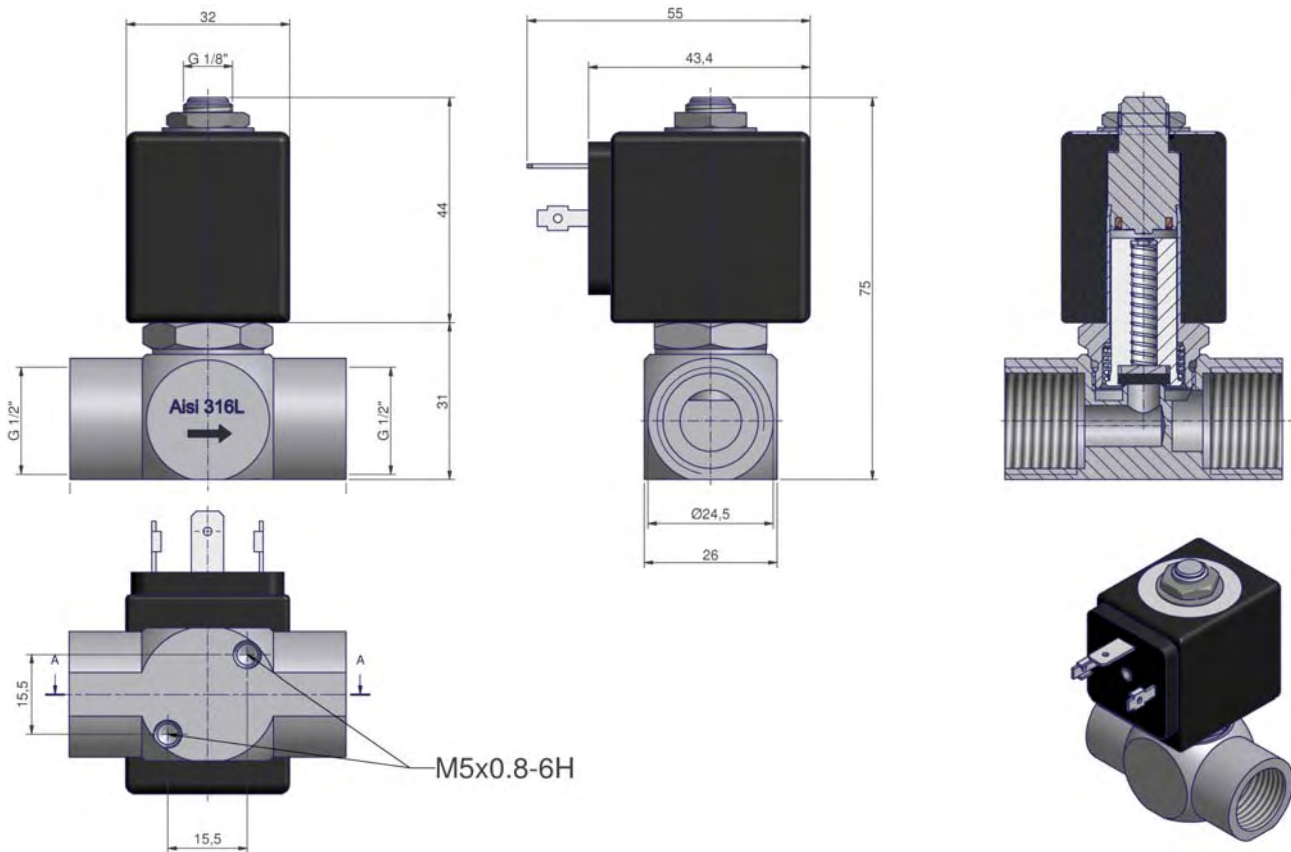
All dimensions are in mm

Dimensional Drawing N° 4



201LG4 Series - 1/2" G Compatible with 32mm, 37mm and 40mm electrical parts

Port Size G	Orifice mm	Flow Factors m ³ /h l/min		Admissible Differential Pressure Bar Max.			Fluid Temp. C°	Seat Disc	Pressure Vessel	Reference Number			Power Consumption (W)		Weight g	Dim. Ref.
				Minimum Pressure	Differential Pressure AC	DC				Housing	Compatible electrical part	DC	AC			
1/2" G	5.0	0.66	11	0	2.0	3.0	140	FKM	201LG4SVG7	-	481865	9	8	177	5	
	5.0	0.66	11	0	2.0	-	140	FKM	201LG4SVG7	-	483510	-	9	177	5	
	5.0	0.66	11	0	2.0	3.0	140	FKM	201LG4SVG7	-	496081	9	8	177	-	
	5.0	0.66	11	0	3.0	4.0	140	FKM	201LG4SVG7	-	491514	12	11	177	5	
	5.0	0.66	11	0	3.0	4.0	140	FKM	201LG4SVG7	-	496082	12	11	177	-	
	5.0	0.66	11	0	7.0	3.5	140	FKM	201LG4SVG7	-	492425	14	14	177	5	
	5.0	0.66	11	0	3.0	2.5	140	FKM	201LG4SVG7	4270. 4538	481000	8	8	177	-	
	5.0	0.66	11	0	7.0	-	140	FKM	201LG4SVG7	4270. 8520	481044	-	14	177	-	
1/2" G	6.2	0.78	13	0	2.0	2.0	140	FKM	201LG4UVG7	-	481865	9	8	177	5	
	6.2	0.78	13	0	2.0	-	140	FKM	201LG4UVG7	-	483510	-	9	177	-	
	6.2	0.78	13	0	2.0	2.0	140	FKM	201LG4UVG7	-	496081	9	8	177	5	
	6.2	0.78	13	0	3.0	2.0	140	FKM	201LG4UVG7	-	491514	12	11	177	5	
	6.2	0.78	13	0	3.0	2.0	140	FKM	201LG4UVG7	-	496082	12	11	177	-	
	6.2	0.78	13	0	4.5	2.5	140	FKM	201LG4UVG7	-	492425	14	14	177	5	
	6.2	0.78	13	0	2.5	1.5	140	FKM	201LG4UVG7	4270. 4538	481000	8	8	177	-	
	6.2	0.78	13	0	4.5	-	140	FKM	201LG4UVG7	4270. 8520	481044	-	14	177	-	
6.2	0.78	13	0	2.0	2.0	140	FKM	201LG4UVG7	-	495905	8	8	177	-		



All dimensions are in mm

Dimensional Drawing N° 5

Electrical Parts Availability

22 mm Electrical Parts

WB Series - Standard Coil Bi-Frequency and UL approved, F Class, IP65

Coil manufactured with H Class copper wire, moulded in thermoplastic material polyester with 30% glass fibre. IP65 protection rate with DIN 43650B three pin connector.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

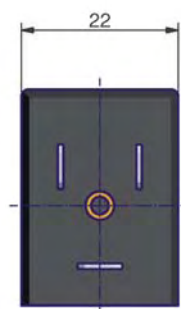
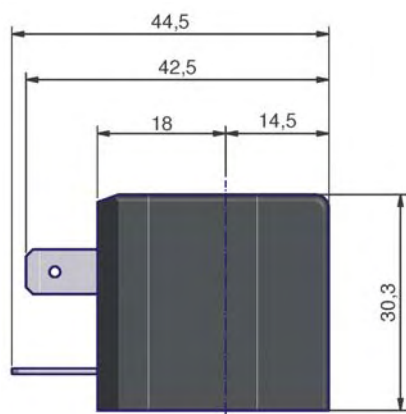
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
115/50-60	4.5 W	WB 4.5 115/50-60	-	-10°C to +50°C	F Class 155°C	6
230/50-60	4.5 W	WB 4.5 230/50-60	-	-10°C to +50°C	F Class 155°C	6
24/50-60	4.5 W	WB 4.5 24/50-60	-	-10°C to +50°C	F Class 155°C	6
240/50-60	4.5 W	WB 4.5 240/50-60	-	-10°C to +50°C	F Class 155°C	6
42/50-60	4.5 W	WB 4.5 42/50-60	-	-10°C to +50°C	F Class 155°C	6
48/50-60	4.5 W	WB 4.5 48/50-60	-	-10°C to +50°C	F Class 155°C	6
115/60 UR	4.5 W	WB4.5 115/60 UR	UL	-10°C to +50°C	F Class 155°C	6
208-240/60 UR	4.5 W	WB4.5 208-240/60 UR	UL	-10°C to +50°C	F Class 155°C	6
24/60 UR	4.5 W	WB4.5 24/60 UR	UL	-10°C to +50°C	F Class 155°C	6
110 DC	5 W	WB 5.0 110 DC	-	-10°C to +50°C	F Class 155°C	6
12 DC	5 W	WB 5.0 12 DC	-	-10°C to +50°C	F Class 155°C	6
24 DC	5 W	WB 5.0 24 DC	-	-10°C to +50°C	F Class 155°C	6

Voltage

Tolerances: -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

Duty: Continuous duty coil (100%ED)

Weight: 100 g with plug



488980 Series - Low Power 22 mm Coil, F Class, IP65

This miniature coil is designed for valves equipped with a miniature tube assembly. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Easy to mount in confined space - offers shock and corrosion protection.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

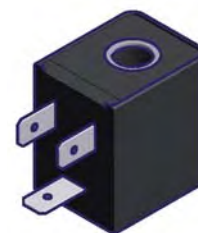
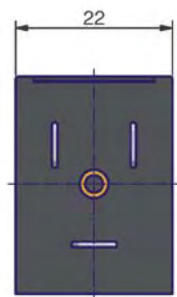
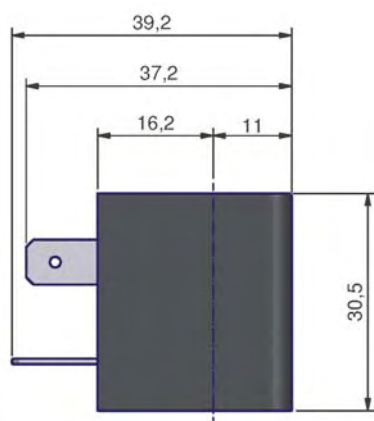
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
110-115/50	2 W	4889800A	-	-40°C to +50°C	F Class 155°C	7
220/50; 230/50	2 W	4889803D	-	-40°C to +50°C	F Class 155°C	7
110-115/60	2 W	4889806J	-	-40°C to +50°C	F Class 155°C	7
230/60; 220/60	2 W	4889807J	-	-40°C to +50°C	F Class 155°C	7
24/50	2 W	488980A2	-	-40°C to +50°C	F Class 155°C	7
48/50	2 W	488980A4	-	-40°C to +50°C	F Class 155°C	7
24/60	2 W	488980B2	-	-40°C to +50°C	F Class 155°C	7
12 DC	2.5 W	488980C1	-	-40°C to +50°C	F Class 155°C	7
24 DC	2.5 W	488980C2	-	-40°C to +50°C	F Class 155°C	7
48 DC	2.5 W	488980C4	-	-40°C to +50°C	F Class 155°C	7
110 DC	2.5 W	488980C5	-	-40°C to +50°C	F Class 155°C	7

Voltage

Tolerances: -10% to +10% of the nominal voltage

Duty: Continuous duty coil (100%ED)

Weight: 100 g with plug



All dimensions are in mm

Dimensional Drawing N° 7

Electrical Parts Availability

22 mm Explosion Proof Electrical Parts Encapsulated electrical parts "m"

Application: Control of solenoid valves in dangerous areas where explosion proof protection EEx m II T4 or T5 is required.

Benefits: Coil and magnetic circuit encapsulated in synthetic material - offering shock and corrosion protection. AC coils with integrated thermal fuse. Small size for ease of mounting in confined spaces.

These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC "ATEX"

Voltage	Power Consumption	Reference	Approvals	Type of Protection Gas	Dust	Ambient Temperature	Class of insulation	Dim. Drawing
24V DC	5 W	482605C2	LCIE 02 ATEX 6014 X	II 2 G - Eex m II T4	II 2 D - 130°C	-40°C to +50°C	F Class 155°C	-
110- 115/50	2 W	4826060A*	LCIE 02 ATEX 6014 X	II 2 G - Eex m II T5	II 2 D - 95°C	-40°C to +50°C	F Class 155°C	7
220/50, 230/50	2 W	4826063D*	LCIE 02 ATEX 6014 X	II 2 G - Eex m II T5	II 2 D - 95°C	-40°C to +50°C	F Class 155°C	7
24/50	2 W	482606A2*	LCIE 02 ATEX 6014 X	II 2 G - Eex m II T5	II 2 D - 95°C	-40°C to +50°C	F Class 155°C	7
24 DC	2.5 W	482606C2*	LCIE 02 ATEX 6014 X	II 2 G - Eex m II T5	II 2 D - 95°C	-40°C to +50°C	F Class 155°C	7

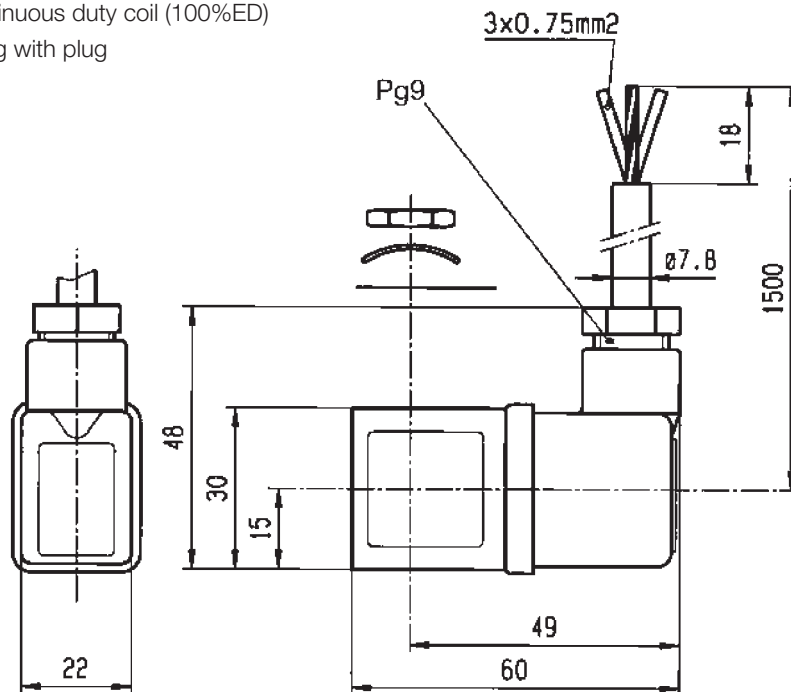
* with 1.5 m CABLE and DIN PLUG, IP65

Voltage

Tolerances: -10% to +10% of the nominal voltage

Duty: Continuous duty coil (100%ED)

Weight: 150 g with plug



All dimensions are in mm

Dimensional Drawing N° 7

32 mm Electrical Parts Availability

481865 Series - Standard Coil Mono-Frequency, F Class, IP65

Encapsulated in synthetic material, Connector for 2P+E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only. This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

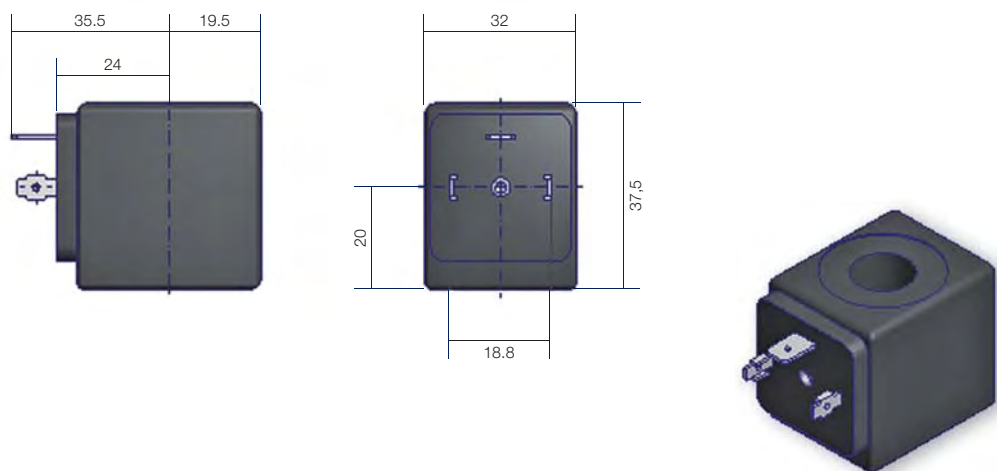
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/50	8 W	481865A2	-	-40°C to +50°C	F Class 155°C	8
48/50	8 W	481865A4	-	-40°C to +50°C	F Class 155°C	8
110/50	8 W	481865A5	-	-40°C to +50°C	F Class 155°C	8
220-230/50	8 W	4818653D	-	-40°C to +50°C	F Class 155°C	8
380/50	8 W	481865A9	-	-40°C to +50°C	F Class 155°C	8
24/60	8 W	481865B2	-	-40°C to +50°C	F Class 155°C	8
230/60	8 W	481865J3	-	-40°C to +50°C	F Class 155°C	8
115/60	8 W	481865K8	-	-40°C to +50°C	F Class 155°C	8
12 DC	9 W	481865C1	-	-40°C to +50°C	F Class 155°C	8
24 DC	9 W	481865C2	-	-40°C to +50°C	F Class 155°C	8
48 DC	9 W	481865C4	-	-40°C to +50°C	F Class 155°C	8
110V DC	9 W	481865C5	-	-40°C to +50°C	F Class 155°C	8

Voltage

Tolerances: -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

Duty: Continuous duty coil (100%ED)

Weight: 130 g (without plug)



All dimensions are in mm

Dimensional Drawing N° 8

Electrical Parts Availability

32 mm Electrical Parts Availability

483510 Series - Standard Bi-Frequency Coil, F Class, IP65

Encapsulated in synthetic material, Connector for 2P+E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

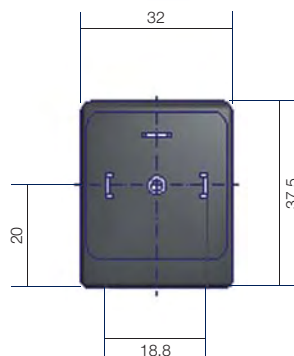
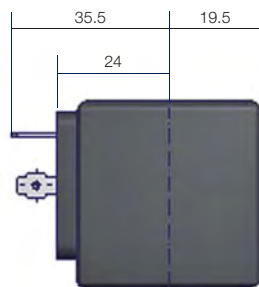
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
12/50-60	9 W	4835101W	-	-40°C to +50°C	F Class 155°C	8
24/50-60	9 W	483510P0	-	-40°C to +50°C	F Class 155°C	8
48/50-60	9 W	483510S4	-	-40°C to +50°C	F Class 155°C	8
110-115/50 120/60	9 W	483510S5	-	-40°C to +50°C	F Class 155°C	8
220-240/50 240/60	9 W	483510S6	-	-40°C to +50°C	F Class 155°C	8

Voltage

Tolerances: -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

Duty Continuous duty coil (100%ED)

Weight: 130 g (without plug)



All dimensions are in mm

Dimensional Drawing N° 8

496081 Series - IP67 Coil with two 500 mm flying leads, F Class

Encapsulated in synthetic material. Protection rate IP67 as per DIN 40050. Connection: 2x500 mm cables

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Earthing: as no wire for earth connection is supplied, please note that at least one part of valve, pipes, or system in which the valve is mounted must have earth connection.

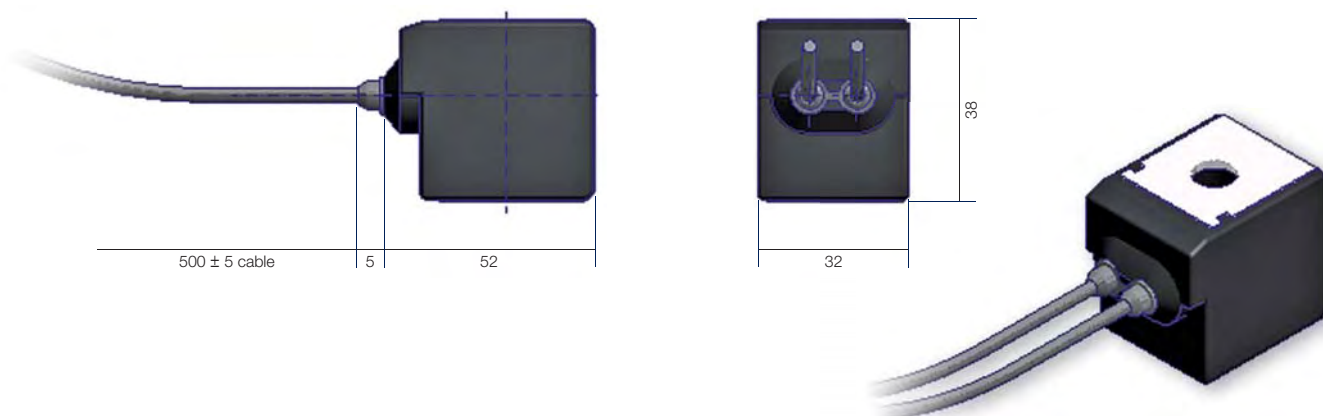
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/50 - 24/60	9 W	496081P0	-	-40°C to +50°C	F Class 155°C	9
110-115/50 120/60	9 W	496081S5	-	-40°C to +50°C	F Class 155°C	9
220-240/50 240/60	9 W	496081S6	-	-40°C to +50°C	F Class 155°C	9
24 DC	9 W	496081C2	-	-40°C to +50°C	F Class 155°C	9
12 DC	9 W	496081C1	-	-40°C to +50°C	F Class 155°C	9

Voltage

Tolerances: -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

Duty: Continuous duty coil (100%ED)

Weight: 180 g



All dimensions are in mm

Dimensional Drawing N° 9

Electrical Parts Availability

32 mm Electrical Parts Availability

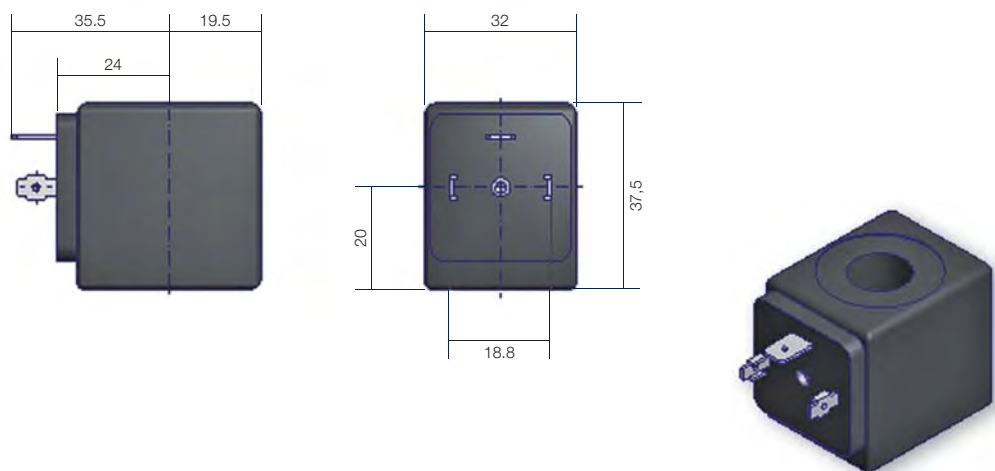
491514 Series - 32 mm UL - Recognized Coil

This is an encapsulated assembly comprising a coil, integral magnetic-iron path and snap-on plug connection. The synthetic material encapsulated provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection.

This coil is UL-approved as a recognized component for the insulation Class F, conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/60	13 W	491514B2	UL	-40°C to +50°C	F Class 155°C	8
24DC	16 W	491514C2	UL/VDE	-40°C to +50°C	F Class 155°C	8
110/50 120/60	13 W	491514P3	UL	-40°C to +50°C	F Class 155°C	8
220/50 240/60	13 W	491514Q3	UL	-40°C to +50°C	F Class 155°C	8

Specification: UL recognized coil - UL file E125678



All dimensions are in mm

Dimensional Drawing N° 8

496082 Series- IP67 Coil with two 500mm flying leads, F Class

Encapsulated in synthetic material. Protection rate IP67 as per DIN 40050. Connection: 2x500mm cables. This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Earthing: as no wire for earth connection is supplied, please note that at least one part of valve, pipes, or system in which the valve is mounted must have earth connection.

This coil is UL-approved as a recognized component for the insulation Class F, conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/60	13 W	496082B2	UL	-40°C to +50°C	F Class 155°C	9
110/50 120/60	13 W	496082P3	UL	-40°C to +50°C	F Class 155°C	9
208-240/60	13 W	496082U3	UL	-40°C to +50°C	F Class 155°C	9
220/50 240/60	14 W	496082Q3	UL	-40°C to +50°C	F Class 155°C	9
24 DC	16 W	496082C2	UL	-40°C to +50°C	F Class 155°C	9
12 DC	16 W	496082C1	UL	-	-	9

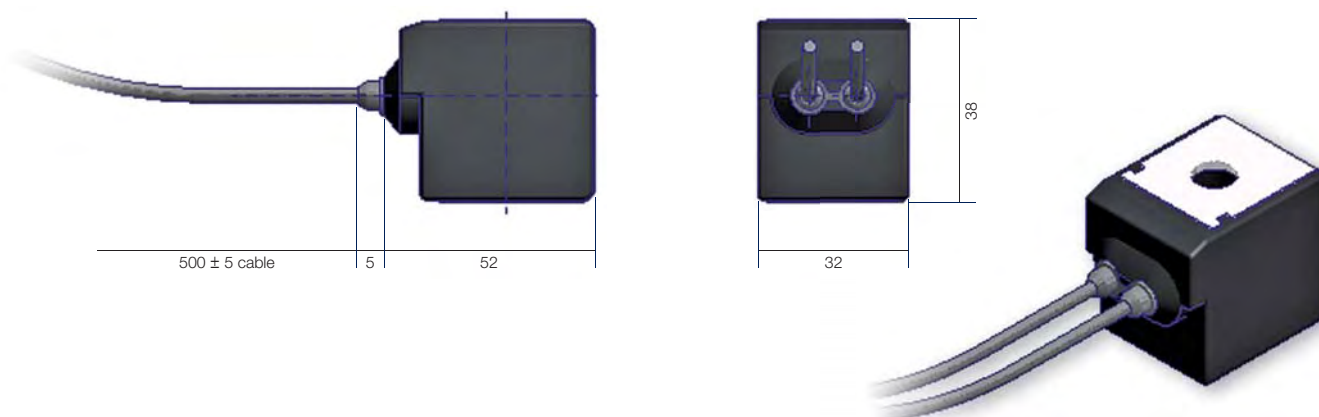
Specification: UL recognized coil - UL file E125678

Voltage

Tolerances: -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

Duty: Continuous duty coil (100%ED)

Weight: 180 g



All dimensions are in mm

Dimensional Drawing N° 9

Electrical Parts Availability

32 mm Electrical Parts Availability

492425 Series - High Temperature/High Power H Class, IP65

Encapsulated in synthetic material, Connector for 2P + E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

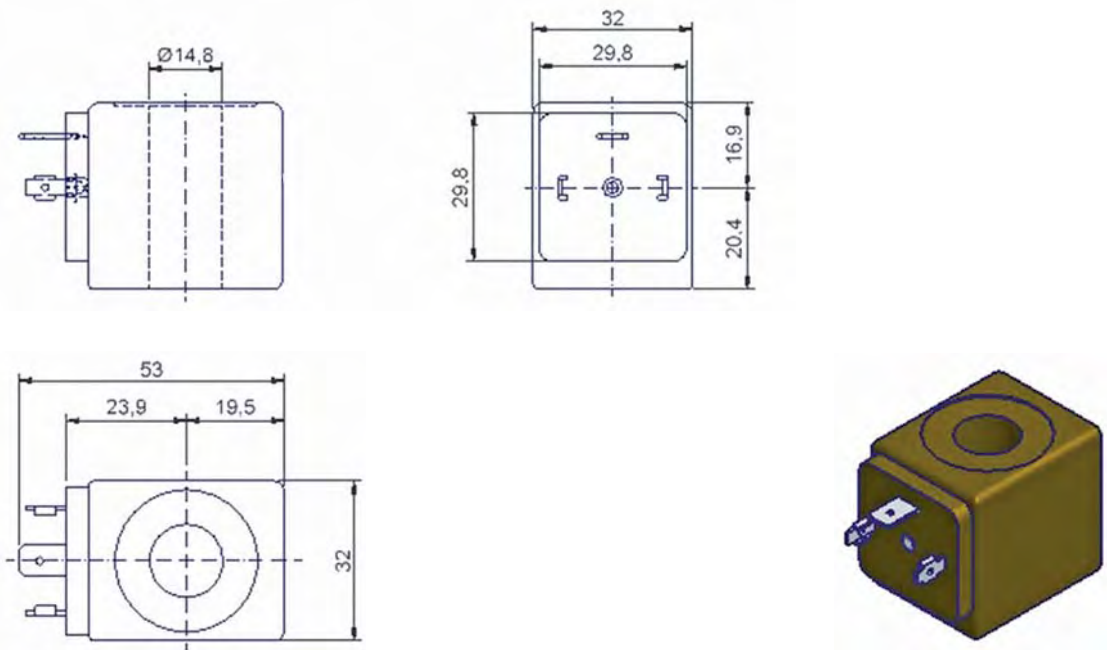
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/50	14 W	492425A2	-	-40°C to +80°C	H Class 180°C	10
110/50	14 W	492425A5	-	-40°C to +80°C	H Class 180°C	10
230/50	14 W	492425F4	-	-40°C to +80°C	H Class 180°C	10
24 DC	14 W	492425C2	-	-40°C to +80°C	H Class 180°C	10

Voltage

Tolerances: -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

Duty: Continuous duty coil (100%ED)

Weight: 130 g (without plug)



All dimensions are in mm

Dimensional Drawing N° 10

40mm Electricl Parts Availability

481000 Series - Standard F Class Coil with screw terminals

The coil winding is completely encapsulated in synthetic material. Electrical connection with screw terminals for wire up to 1.5 mm.

This coil conforms to the IEC/GENELEC safety standards and complies with European low-voltage directive 73/23/EC. This coil must be used with a metallic housing.

Please consult page 40-42 to identify non-standard metallic housings availability.

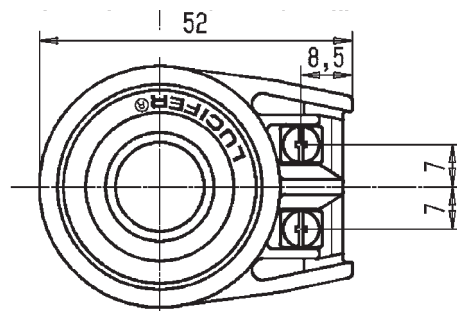
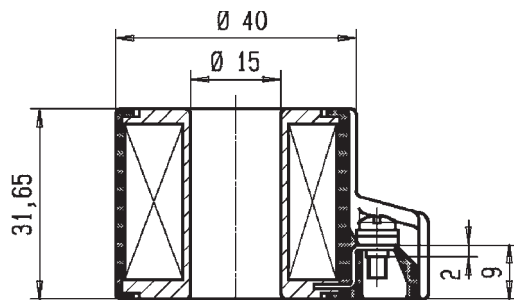
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
110-115/50	8 W	481000A	-	-40°C to +50°C	F Class 155°C	11
220/50, 230/50	8 W	4810003D	-	-40°C to +50°C	F Class 155°C	11
240/60; 220/60	8 W	4810004K	-	-40°C to +50°C	F Class 155°C	11
380/50; 440/60	8 W	4810005P	-	-40°C to +50°C	F Class 155°C	11
110-115/60	8 W	4810006J	-	-40°C to +50°C	F Class 155°C	11
24/50	8 W	481000A2	-	-40°C to +50°C	F Class 155°C	11
48/50	8 W	481000A4	-	-40°C to +50°C	F Class 155°C	11
24/60	8 W	481000B2	-	-40°C to +50°C	F Class 155°C	11
12 DC	8 W	481000C1	-	-40°C to +50°C	F Class 155°C	11
24 DC	8 W	481000C2	-	-40°C to +50°C	F Class 155°C	11
48 DC	8 W	481000C4	-	-40°C to +50°C	F Class 155°C	11
110 DC	8 W	481000C5	-	-40°C to +50°C	F Class 155°C	11
42/50; 48/60	8 W	481000S7	-	-40°C to +50°C	F Class 155°C	11

Voltage

Tolerances: -10% to +10% of the nominal voltage

Duty: Continuous duty coil (100%ED)

Weight: 130 g (without plug)



All dimensions are in mm

Dimensional Drawing N° 11

Electrical Parts Availability

40 mm Electrical Parts Availability

481044 Series - High Power Coil with screw terminals

The coil winding is completely encapsulated in synthetic material. Electrical connection with screw terminals for wire up to 1.5 mm.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

This coil must be used with a metallic housing.

Please consult page 40-42 to identify non-standard metallic housings availability.

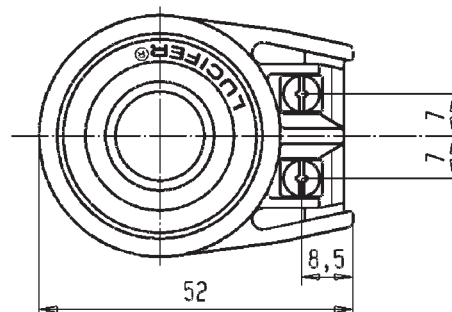
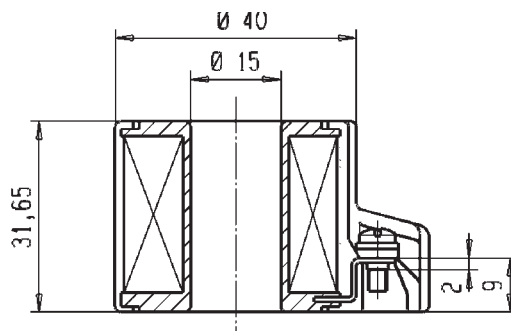
Voltage	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
115/60; 100/50	14 W	4810440P	-	-40°C to +50°C	H Class 155°C	12
24/50	14 W	481044A2	-	-40°C to +50°C	H Class 155°C	12
110/50	14 W	481044A5	-	-40°C to +50°C	H Class 155°C	12
220/50	14 W	481044A7	-	-40°C to +50°C	H Class 155°C	12
230/50	14 W	481044F4	-	-40°C to +50°C	H Class 155°C	12
230/60; 200/50	14 W	481044S2	-	-40°C to +50°C	H Class 155°C	12

Voltage

Tolerances: -10% to +10% of the nominal voltage)

Duty: Continuous duty coil (100%ED)

Weight: 130 g (without plug)



All dimensions are in mm

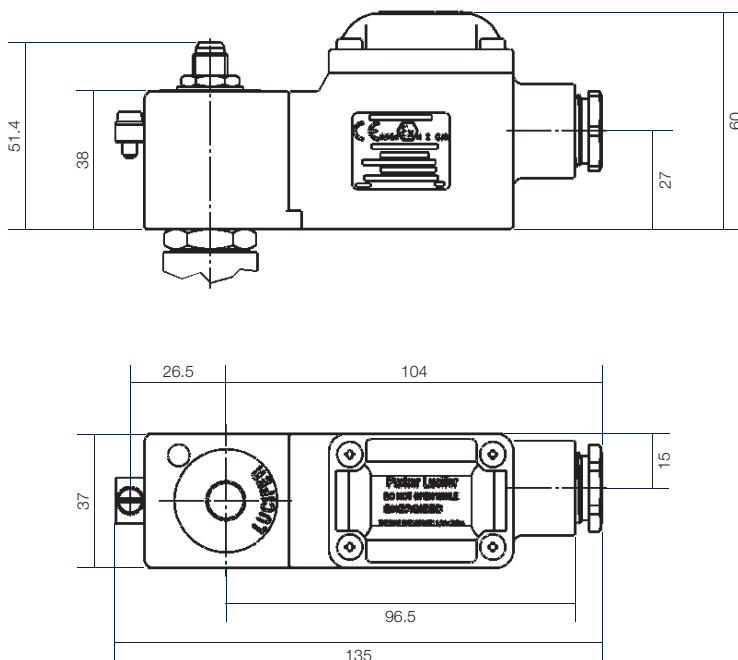
Dimensional Drawing N° 12

37mm Electrical Parts Availability

495905 Series - Explosion-Proof II 2 G-EEx dm IIC T4

Coil/housing assembly encapsulated in synthetic material (H class). Protection degree: IP67. Cable connection through cable gland M20x1.5 (DIN 46320).

Voltage	Power Consumption	Reference	Approvals	Type of Protection Gas	Dust	Ambient Temperature	Class of insulation	Dim. Drawing
24 DC	8 W	495905C2	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
48 DC	8 W	495905C4	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
110 DC	8 W	495905C5	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
24/50	8 W	495905A2	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
48/50	8 W	495905A4	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
240/60	8 W	495905B8	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
115/50	8 W	495905E5	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
230/50	8 W	495905F4	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13
115/60	8 W	495905K8	LCIE02 ATEX 6451 X	II 2 G -Eex dm IIC T4	II 2D - +130°C	-40 to +65 °C	-	13



All dimensions are in mm

Dimensional Drawing N° 13

Non-Standard Housings

For 481000 and 481044 Series Electrical Parts with screw terminals

4270 Series Standard Housing

This metal housing offers the ideal protection against shocks and corrosion - rotatable 360°. This housing can be used with 481000 and 481044 series electrical parts.

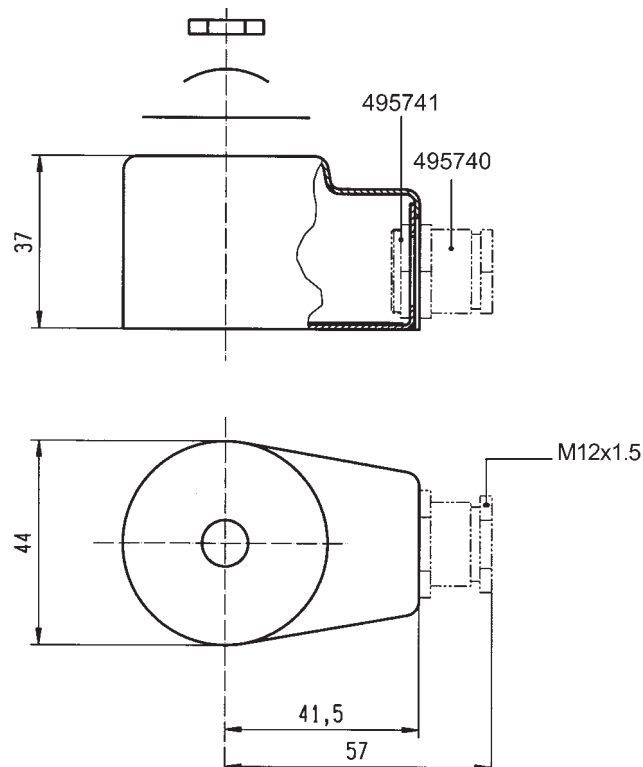
Material: Epoxy-coated steel

Degree of Protection: IP according to IEC/EN60529
IP10 with armoured conduit
IP44 with cable gland

Electrical Connection: Can be made with armoured conduit or cable gland M12x1.5, Part N° 495740 and N°495741 to be ordered separately.
Grounding connection by screw M3 on the inside of the housing base plate.

Dimensions: See dimensional "Drawing N°14"

Weight: 120 g



All dimensions are in mm

Dimensional Drawing N° 14

4538 Series Waterproof and Dustproof Housing

This enclosure is dust and waterproof. It corresponds to the degree of "international protection" IP67 according to IEC/EN60529. Corrosion resistant, the metal housing offers good protection for the coil against shocks. This housing must be equipped with **481000 Series** electrical parts.

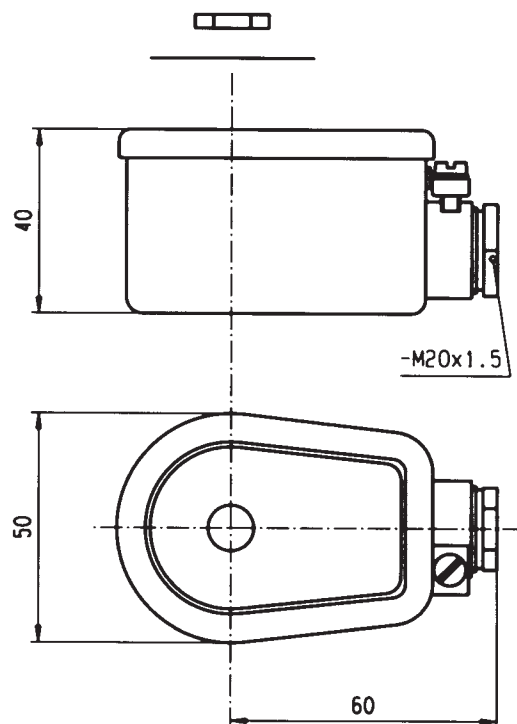
Material: Galvanized passivated steel

Degree of Protection: IP67 according to IEC/EN 60529

Electrical Connection: Cable connection by cable gland according to DIN46320. Cable with outer diameter 6.5-13.5mm (M20x1.5) can be simply sealed using a rubber gland resilient sealing rings. The enclosure is internally and externally fitted with grounding and earthing screw terminals.

Dimensions: See dimensional "Drawing N°15"

Weight: 180 g



All dimensions are in mm

Dimensional Drawing N° 15

For 481000 and 481044 Series Electrical Parts with screw terminals

8720 Series Waterproof and Dustproof Housing

This enclosure is dust and waterproof. It corresponds to the degree of "international protection" IP67 according to IEC/EN60529. Corrosion resistant, the metal housing offers good protection for the coil against shocks. This housing must be equipped with 481044 Series electrical parts.

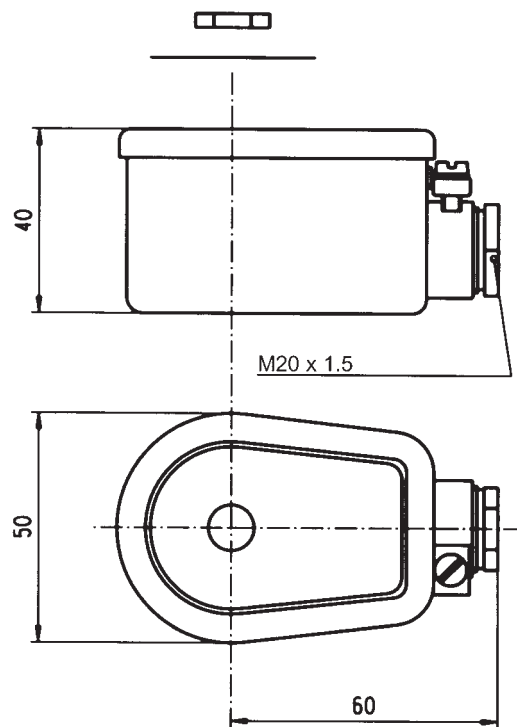
Material: Galvanized passivated steel

Degree of Protection: IP67 according to IEC/EN 60529

Electrical Connection: Cable connection by cable gland according to DIN46320. Cable with outer diameter 6.5-13.5mm (M20x1.5) can be simply sealed using a rubber gland resilient sealing rings. The enclosure is internally and externally fitted with grounding and earthing screw terminals.

Dimensions: See dimensional "Drawing N°16"

Weight: 180 g



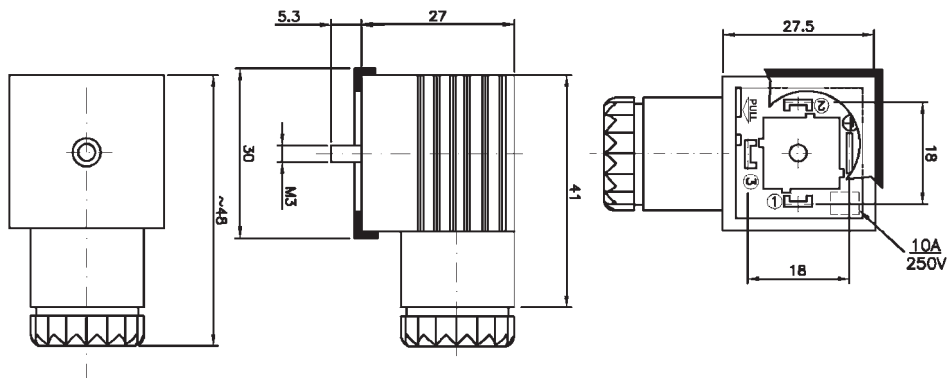
All dimensions are in mm

Dimensional Drawing N° 16

Connectors

2P + E DIN 43650A Plug

Maximum A	Cable Section	Nominal Voltage	Reference	Dimensional Drawing
16 A	6-10 mm ²	250-/300V=	600003 PLUG	17

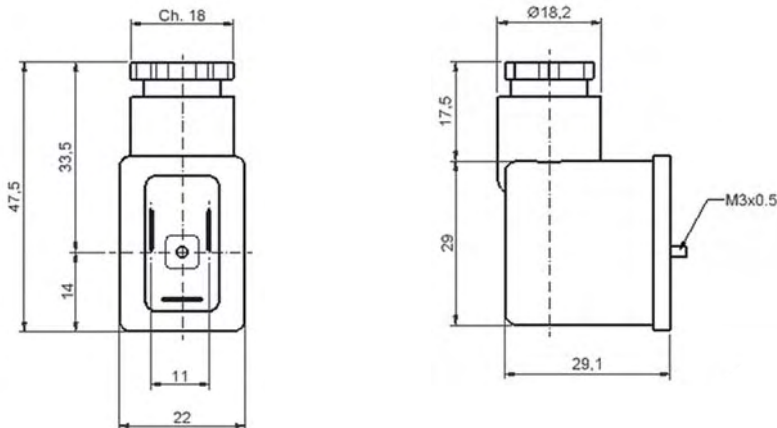


All dimensions are in mm

Dimensional Drawing N° 17

2P + E DIN 43650A Plug

Maximum A	Cable Section	Nominal Voltage	Reference	Dimensional Drawing
16 A	6-10 mm ²	250-/300V=	600040	18



All dimensions are in mm

Dimensional Drawing N° 18

How to Order

A complete solenoid valve is composed by 3 elements: the **Pressure Vessel**, the **Housing** and the **Coil**. 201LG Series pressure vessel is supplied with the standard housing integrated. Standard housing is composed by washer and nut for 22 mm range, and washer, nut and nameplate for 32 mm range.

Pressure vessel, electrical parts, non-standard housings and accessories must be ordered separately.

Step 1

Select the pressure vessel reference needed at pages 23 to 27.



Step 2

Select coil at pages 28 to 39.



Step 3

For 481000 and 481044 electrical parts only.
Please select the non-standard housing reference you need at pages 40 to 42.

Step 4

Select accessories at page 44.



Ordering a product or a configuration not listed in the catalogue

When an application demands a combination of features not listed in the catalogue, use the significant description system indicated at page 17 to specify the exact valve needed. Parker FCDE personnel will assist in determining the applicability, availability and price of the new product.

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At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



AEROSPACE

Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO₂ controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



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