



Powering Business Worldwide

C

Coils and Electronic Controls

Solenoid valve and Proportional valve coils and electronic controls for proportional valves



Coils and Electronic Controls

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available at:
ATP Hydraulik AG
Aahusweg 8
CH-6403 Küssnacht am Rigi
www.atphydraulik.com

ToughCoils™

Eaton/IH ToughCoils™ have been designed to provide industry leading environmental protection and solenoid performance in a compact and rugged package. ToughCoils™ with integrated connectors are rated up to IP69K environmental protection. ToughCoils™ are available with a variety of popular integrated connection options and with wire leads.

The best in class, one-piece, shell encapsulated, design meets the most stringent environmental requirements for mobile and industrial applications.

The exclusive compact coil design from Eaton/IH, offers the advantage of field retrofitability on all existing, and new, applications.

ToughCoils™ Features

IP69K Environmental Protection - This rating provides protection against the ingress of dust and high pressure jet stream. The IP69K test was designed specifically for rating protection against a high-pressure jet stream, high liquid temperature and close nozzle distance from the enclosure surface. IP69K protection is standard on coils with MetriPac or Deutsch, integrated connectors.

"Thermal Shock Dunk"

Test - Eaton/IH ToughCoils have been qualified to withstand the toughest Mobile Equipment "Thermal Shock Dunk" tests. Integrated Deutsch, MetriPack¹ and Leadwire² connectors exceed "Thermal Shock Dunk" test qualifications at 140°C. The "Thermal Shock Dunk" test requires coils to be heated, reaching a stabilized temperature of 100°C, then immediately immersed in a solution at 0°C. The thermal shock is repeated five times with the coil monitored for dielectric strength in the solution and functional performance is verified.

In addition, ToughCoils™ passed a more severe powered dunk test conducted from 100° C to 0° C with 115% rated voltage applied.

¹MetriPack® 150 and MetriPack® 280 are registered trade marks of Delphi Packard Electric Systems

²Coils with integrated connectors are recommended for applications in harsh environments.

Field Retrofittable -

ToughCoils™ replace all current Eaton coils used on D Frame and Shell type coils. Compact coil dimensions allow substitution in all existing applications. ToughCoils are available for most 8, 10, 12, 16 and 20 series valves. No additional water/weather proofing is required.

Steel Shell Encapsulated

Design - ToughCoils™ provide protection against physical and environmental damage.

Eaton/IH ToughCoils™,
with rated connector,
meet or exceed
all major OEM
environmental
protection requirements



Shown with deutsch connection options

ToughCoils

Model Code S,P,J and H Series Coils

Model Code

MCSC - * - *** - * - ** - * - ** - **10**

1 2 3 4 5 6 7 8

1 Function

MCSC - Solenoid coil

2 Series

S - Size 8 (210 Bar)
P - Size 8 (350 Bar)
J - Size 10, 12, 16, 20 (210 Bar)
H - Size 10, 12, 16, 20 (350 Bar)

3 Voltage Rating

012 - 12 volt
024 - 24 volt
036 - 36 volt
048 - 48 volt
115 - 115 volt
230 - 230 volt

4 Voltage Type

D - DC
B - DC/with flyback diode
A - AC/with full bridge rectifier

5 Connector

G0 - ISO 4400 DIN 43650
Q0 - Spade Terminals
W0 - Flying lead
N0 - Deutsch Male, DT04-2P, Integrated (DC Only)
Mating Connector: Deutsch DT06-2S
Y0 - Amp Jr (DC Only)
Mating Connector: AMP 963040-3 or equivalent
D0 - MetriPack® 150 Male, Integrated (DC Only)
Mating Connector: Delphi 12052641

J0 - MetriPack® 280 Male, Integrated (DC Only)
Mating Connector: Delphi 15300027
E0 - Weather-Pack (Packard) female on wire leads
Mating Connector: Delphi 12010973
F0 - Weather-Pack (Packard) male on wire leads
Mating Connector: Delphi 12015792

Note: Auxillary parts for mating connectors may be required.

6 Lead Length

0 - None
A - 152mm [6.0 in] (Standard length with connector)
B - 610mm [24.0 in] (Standard length without connector)

7 Special Features

00 - None
(Only required if valve has special features, omitted if "00.")

8 Design Code

10 - Design code

Specifications

Ratings and Specifications

| | |
|--------------------------------|--|
| Duty Rating | Continuous from 85% to 110% of nominal voltage |
| Operating temperature | 100°C (212°F) continuous @ nominal voltage |
| Lead Wires | 18 gauge, standard 610 mm (24") long, UL style 3173 CSA CL 1251 (meets SAE J1128 XLPE style SXL) |
| Power Rating | S Series: 20W P Series: 23W J Series: 23W H Series: 29W |
| Encapsulant | Glass filled nylon |
| Magnet Wire | U.L. class N, 200°C (392°F) NEMA pub. No. MW 1000, section MW 35 - C (single) |
| Flyback diode (arc suppressor) | Maximum recurrent peak reverse voltage - 800 V (optional) |

Environmental Protection

| Connector | Ip65 | Ip67 | Ip69k | Thermal Shock Dunk |
|--------------------|------|------------------|-------|--------------------|
| G0: DIN 43650 | X* | | | |
| Q0: Spade | | | | |
| Y0: Amp Jr. | X | X ¹ * | | |
| W0: Wire Leads | X | X | | X ¹ |
| N0: Deutsch | X | X | X | X |
| D0: Metri-Pack 150 | X | X | X | X |
| J0: Metri-Pack 280 | X | X | X | X |



CAUTION

Coils may be hot to touch if used in continuous duty applications.

¹Passed environmental testing, but not as robust as other connectors

*Rating dependent on mating connector

ToughCoils

For 8 Size Solenoid Valves
S & P Series Coils

S Series ToughCoils part numbers - 300AA00_____ (Complete Part number is 11 Digits)

| Voltage | G0** Connector | O0 Connector | W0 Connector | N0 Connector | Y0 Connector | D0 Connector | J0 Connector |
|---------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 12VDC | 001A | 009A | 015A | 021A | 026A | 031A | 036A |
| 24VDC | 002A | 010A | 016A | 022A | 027A | 032A | 037A |
| 36VDC | 003A | 011A | 017A | 023A | 028A | 033A | 038A |
| 24VAC | 004A | 012A | 018A | — | — | — | — |
| 115VAC | 005A | — | — | — | — | — | — |
| 230VAC | 006A | — | — | — | — | — | — |
| 12VDC* | 007A | 013A | 019A | 024A | 029A | 034A | 039A |
| 24VDC* | 008A | 014A | 020A | 025A | 030A | 035A | 040A |

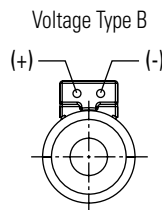
*With flyback diode. (Voltage Type B)

**DIN 43560 mating connector for "G0" style coil – 02-166796.

For other voltages and connectors contact your Eaton representative.

| Std. Voltages | Amperes* |
|---------------|----------|
| 12 DC | 1.67 |
| 24 DC | 0.83 |
| 36 DC | 0.56 |
| 24 AC | 0.93 |
| 115 AC | 0.19 |
| 230 AC | 0.10 |

*Nominal voltage 25°C (77°F).



P Series ToughCoils part numbers - 300AA00_____ (Complete Part number is 11 Digits)

| Voltage | G0** Connector | O0 Connector | W0 Connector | N0 Connector | Y0 Connector | D0 Connector | J0 Connector |
|---------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 12VDC | 041A | 049A | 055A | 061A | 066A | 071A | 076A |
| 24VDC | 042A | 050A | 056A | 062A | 067A | 072A | 077A |
| 36VDC | 043A | 051A | 057A | 063A | 068A | 073A | 078A |
| 24VAC | 044A | 052A | 058A | — | — | — | — |
| 115VAC | 045A | — | — | — | — | — | — |
| 230VAC | 046A | — | — | — | — | — | — |
| 12VDC* | 047A | 053A | 059A | 064A | 069A | 074A | 079A |
| 24VDC* | 048A | 054A | 060A | 065A | 070A | 075A | 080A |

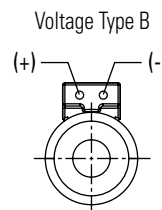
*With flyback diode. (Voltage Type B)

**DIN 43560 mating connector for "G0" style coil – 02-166796.

For other voltages and connectors contact your Eaton representative.

| Std. Voltages | Amperes* |
|---------------|----------|
| 12 DC | 1.92 |
| 24 DC | 0.96 |
| 36 DC | 0.64 |
| 24 AC | 1.06 |
| 115 AC | 0.22 |
| 230 AC | 0.11 |

*Nominal voltage 25°C (77°F).



ToughCoils

For 10, 12, 16 and 20 Size Solenoid Valves
J & H Series Coils

300AA00____ (Complete Part number is 11 Digits)

| Voltage | G0** Connector | Q0 Connector | W0 Connector | N0 Connector | Y0 Connector | D0 Connector | J0 Connector |
|---------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 12VDC | 081A | 089A | 095A | 101A | 106A | 111A | 116A |
| 24VDC | 082A | 090A | 096A | 102A | 107A | 112A | 117A |
| 36VDC | 083A | 091A | 097A | 103A | 108A | 113A | 118A |
| 24VAC | 084A | 092A | 098A | — | — | — | — |
| 115VAC | 085A | — | — | — | — | — | — |
| 230VAC | 086A | — | — | — | — | — | — |
| 12VDC* | 087A | 093A | 099A | 104A | 109A | 114A | 119A |
| 24VDC* | 088A | 094A | 100A | 105A | 110A | 115A | 120A |

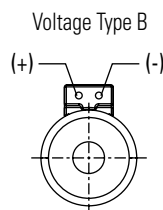
*With flyback diode. (Voltage Type B)

**DIN 43560 mating connector for "G0" style coil – 02-166796.

For other voltages and connectors contact your Eaton representative.

| Std. Voltages | Amperes* |
|---------------|----------|
| 12 DC | 1.92 |
| 24 DC | 0.96 |
| 36 DC | 0.64 |
| 24 AC | 1.06 |
| 115 AC | 0.22 |
| 230 AC | 0.11 |

Nominal voltage 25°C (77°F).



H Series ToughCoils part numbers - 300AA00____ (Complete Part number is 11 Digits)

| Voltage | G0** Connector | Q0 Connector | W0 Connector | N0 Connector | Y0 Connector | D0 Connector | J0 Connector |
|---------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 12VDC | 121A | 129A | 135A | 141A | 146A | 151A | 156A |
| 24VDC | 122A | 130A | 136A | 142A | 147A | 152A | 157A |
| 36VDC | 123A | 131A | 137A | 143A | 148A | 153A | 158A |
| 24VAC | 124A | 132A | 138A | — | — | — | — |
| 115VAC | 125A | — | — | — | — | — | — |
| 230VAC | 126A | — | — | — | — | — | — |
| 12VDC* | 127A | 133A | 139A | 144A | 149A | 154A | 159A |
| 24VDC* | 128A | 134A | 140A | 145A | 150A | 155A | 160A |

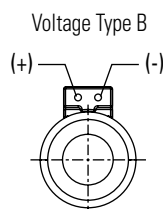
*With flyback diode. (Voltage Type B)

**DIN 43560 mating connector for "G0" style coil – 02-166796.

For other voltages and connectors contact your Eaton representative.

| Std. Voltages | Amperes* |
|---------------|----------|
| 12 DC | 2.42 |
| 24 DC | 1.21 |
| 36 DC | 0.81 |
| 24 AC | 1.34 |
| 115 AC | 0.28 |
| 230 AC | 0.14 |

*Nominal voltage 25°C (77°F).

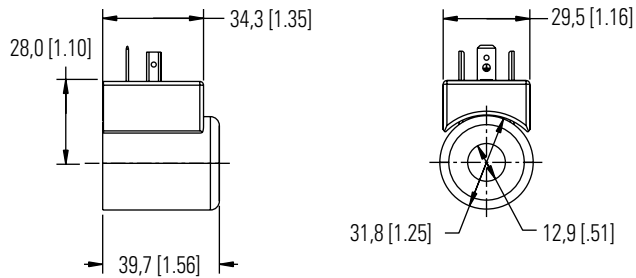


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

S and P Series Coils

J & H Series Coils

Dimensions

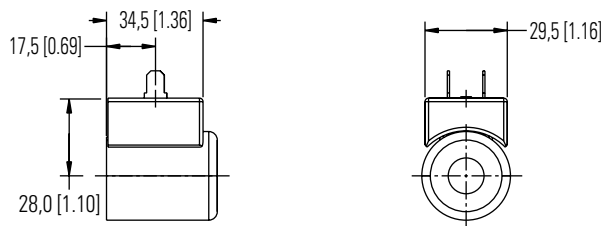


G0
DIN 43650-A Connector

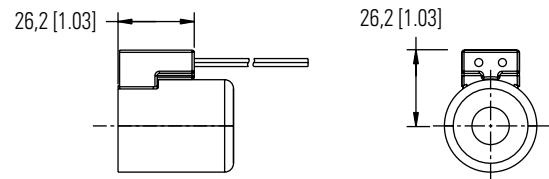


Shown with integrated Deutsch Connector

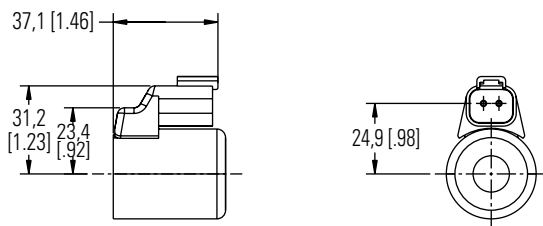
C



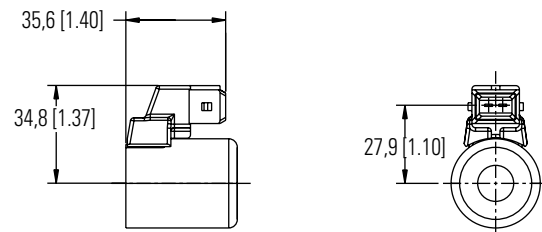
Q0
Spade Connector



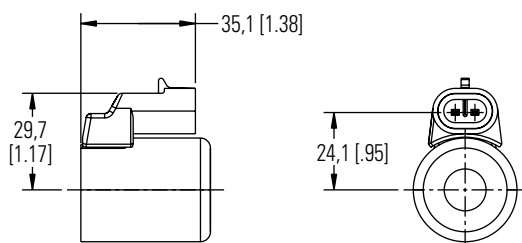
W0
Leadwire



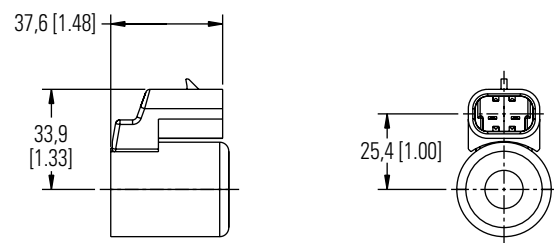
N0
Deutsch Male DTO4-2P integrated connector



Y0
AMP Junior Timer integrated connector



D0
Metri-Pack 150 Male, integrated connector

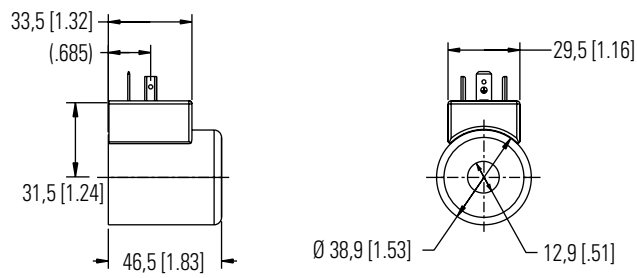


J0
Metri-Pack 280 Male, integrated connector

J Series Coils

Dimensions

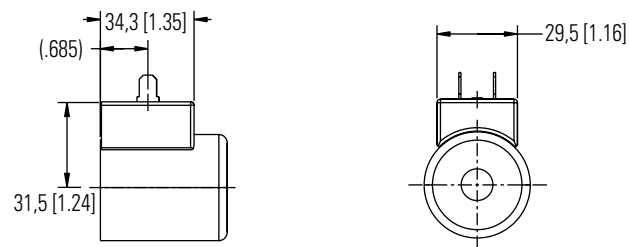
C



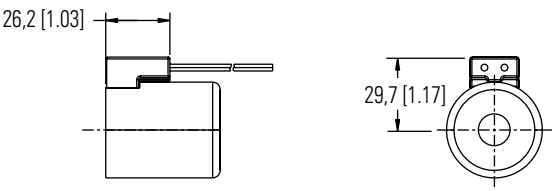
G0
DIN 43650-A Connector



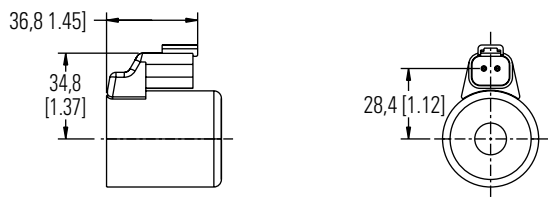
Shown with integrated Metri-Pack 150 Connector



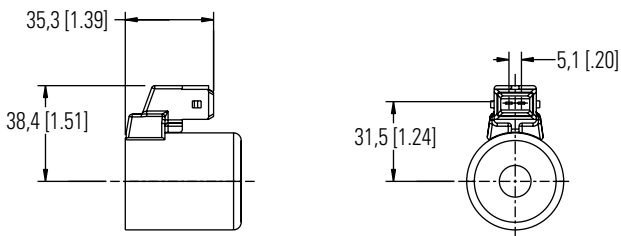
Q0
Spade Connector



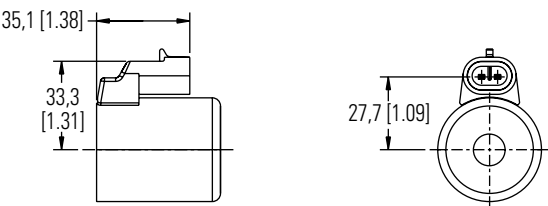
W0
Leadwire



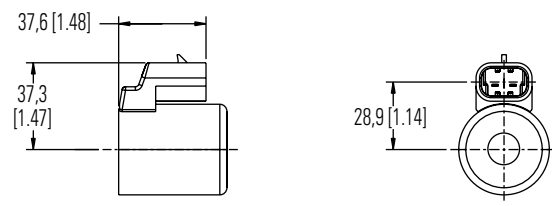
N0
Deutsch Male DTO4-2P integrated connector



Y0
AMP Junior Timer integrated connector



D0
Metri-Pack 150 Male, integrated connector

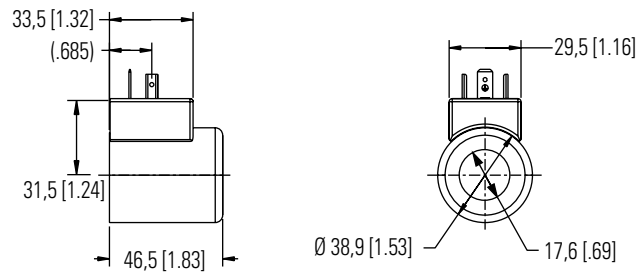


J0
Metri-Pack 280 Male, integrated connector

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

H Series Coils

Dimensions

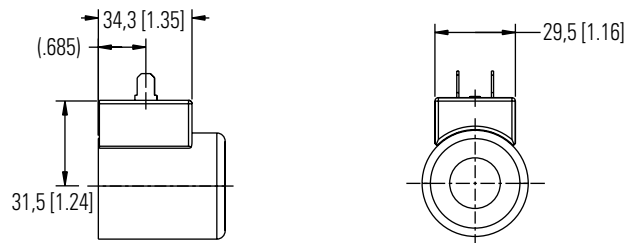


G0
DIN 43650-A Connector

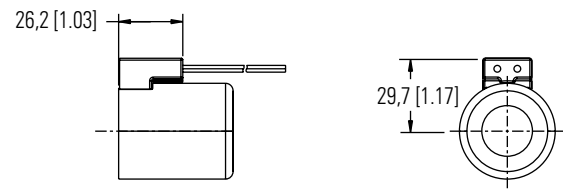


Shown with integrated MetriPack 280 Connector

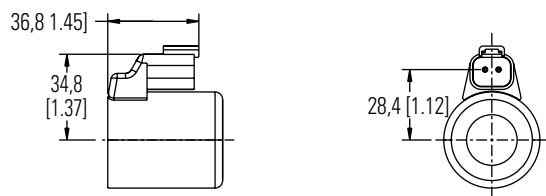
C



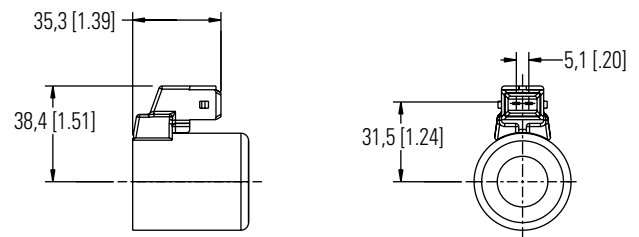
Q0
Spade Connector



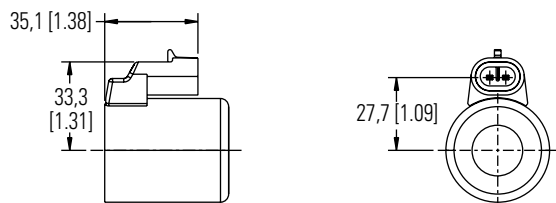
W0
Leadwire



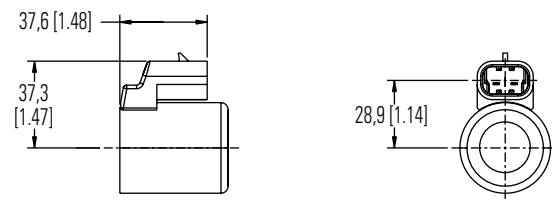
N0
Deutsch Male DTO4-2P integrated connector



Y0
AMP Junior Timer integrated connector



D0
Metri-Pack 150 Male, integrated connector



J0
Metri-Pack 280 Male, integrated connector