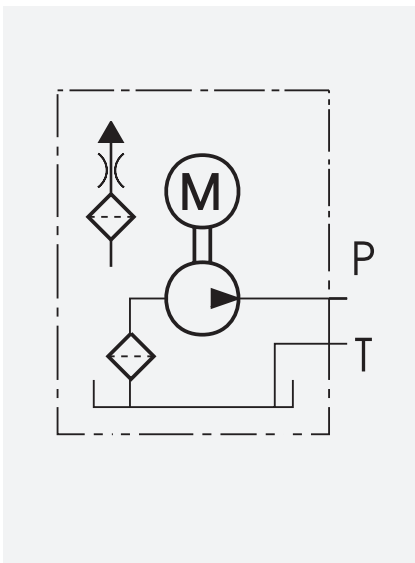




HYDAC "CA" Series compact power units are highly efficient in both performance and size. The units are specially constructed with oil-immersed pump-motor assemblies. In addition, modular valve packages are available to suit your needs. These short-term or intermittent duty-rated units offer practical solutions for a wide variety of unique applications.



Ratings:

- Maximum Pressure: 3045 PSI
- Maximum Flow: 3.9 GPM
- Short term / Intermittent duty

CA Series Compact Power Units

FEATURES

Compact

Pump and motor are internal to the tank. Unit can be portable or installed as an integral part of a new design or existing machine.

Low Noise

Pump and motor are oil-immersed, dampening vibration and noise.

Complete Package

Modular design of controls allows for simple or complex circuit solutions all from one source.

Seamless Reservoir

Deep-drawn steel tank is rugged and minimizes potential leaks.

Pressure Balanced Gear Pump

Allows up to 30% higher volumetric efficiency than non-balanced pump, greatly reducing wear and noise.

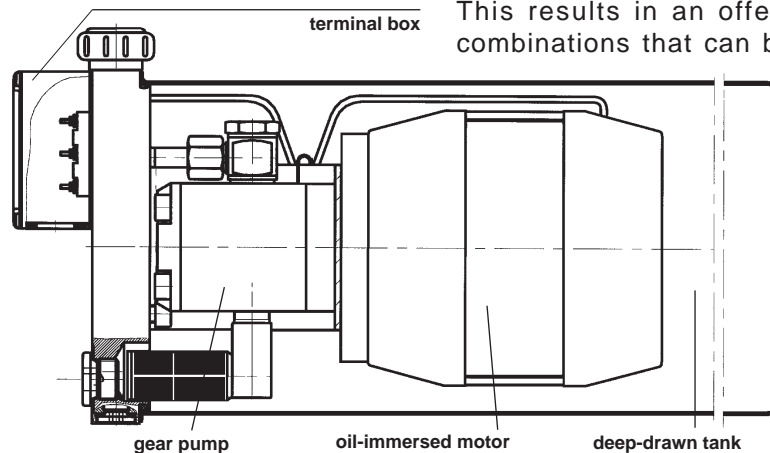
Global Service and Availability

HYDAC is an international company with world-wide resources available to service your needs.

FUNCTION

An electric oil-immersed motor drives a pressure balanced gear pump. Motors with output ranges of .9 to 4.8 HP and speeds of 1800 and 3600 RPM are used

This results in an offering of many combinations that can be adapted to specific applications.



The pressure and direction of the operating fluid's flow is controlled by an extensive range of modular cartridge

valves and/or spool-type directional valves. Standard control blocks and modular stacking valve systems are available. For control tasks which can not be carried out using standard controls, customer specific solutions are found.

CA Series power units are rated for short term (S2) or intermittent (S3) duty. These ratings are detailed in this brochure. A thermostwitch is available to protect the unit from possible excess heat.

Additional assistance with selection and application of all HYDAC products is available by contacting your local distributor or regional HYDAC sales manager.

Contents

CA Series	<i>page</i>
applications	4
basic features and function	<i>cover</i>
control valve options	7, 8, 9, 10
dimensions	5, 6
electrical options	11
end module options	9
HYDAC International locations	<i>back cover</i>
model code and ordering information	2, 3
pressure relief valve	11
special control packages	10
specifications	4
DO3 stacking module	9



RESERVOIR

Code	Filling Volume (gallons)		Usable Volume (gallons)	
	0.9 -1.75 HP	2.15 - 4.80 HP	0.9 -1.75 HP	2.15 - 4.80 HP
05*	1.09	—	0.78	—
07	1.76	1.63	1.40	1.17
09	2.34	2.23	1.87	1.63

*Tank 05 is not available with the 2.15, 2.40, 2.95, 3.50, or the 4.80 HP motors.

MOUNTING

Code	Mounting Position
H	Horizontal
V	Vertical

PUMPS

WITH 3-PHASE AC MOTOR						
Code	Flow Rate (GPM)	Pressure (PSI)	Power (HP)	Full Load Current (AMP)		Motor Speed (RPM)
				220 / 240V	440 / 480V	
1.6 - 210	0.41	3045	0.90	4.4	2.2	1800
2.9 - 170	0.75	2465	0.90	5.2	2.6	1800
2.9 - 210		3045	1.75	8.0	4.0	1800
3.1 - 165	0.8	2392	0.90	4.6	2.3	3600
3.1 - 210		3045	1.75	5.4	2.7	3600
4.4 - 115	1.1	1667	0.90	5.2	2.6	1800
4.4 - 210		3045	1.75	9.8	4.6	1800
6.0 - 85	1.5	1232	0.90	5.2	2.6	1800
6.0 - 170		2465	1.75	10.0	5.0	1800
6.0 - 210		3045	2.40	11.0	5.5	1800
7.6 - 70	1.9	1015	0.90	5.2	2.6	1800
7.6 - 140		2030	1.75	10.2	5.1	1800
7.6 - 185		2682	2.40	11.6	5.8	1800
7.6 - 210		3045	3.50	12.4	6.2	1800
8.9 - 60	2.3	870	0.90	4.8	2.4	3600
8.9 - 120		1740	1.75	8.8	4.4	3600
8.9 - 155		2247	2.40	11.2	5.6	3600
8.9 - 210	3.1	3045	3.50	14.0	7.0	3600
12.0 - 40		580	0.90	4.2	2.1	3600
12.0 - 80		1160	1.75	7.8	3.9	3600
12.0 - 110		1595	2.40	10.8	5.4	3600
12.0 - 160		2320	3.50	14.6	7.3	3600
12.0 - 210		3045	4.80	18.0	9.0	3600
15.1 - 35		3.9	507	0.90	4.6	2.3
15.1 - 70	1015		1.75	8.8	4.4	3600
15.1 - 90	1305		2.40	10.8	5.4	3600
15.1 - 140	2030		3.50	15.8	7.9	3600
15.1 - 180	2610		4.80	19.0	9.5	3600

WITH 1-PHASE AC MOTOR						
Code	Flow Rate (GPM)	Pressure (PSI)	Power (HP)	Full Load Current (AMP)		Motor Speed (RPM)
				110/115V	220/230V	
2.9 - 210	0.75	3045	1.75	28	14	1800
3.1 - 210	0.80	3045	1.75	27	13.5	3600
4.4 - 200	1.1	2900	1.75	28	14	1800
4.4 - 210		3045	2.15	35	17.5	1800
6.0 - 150	1.5	2175	1.75	27	13.5	3600
6.0 - 200		2900	2.40	35	17.5	3600
7.6 - 120	1.9	1740	1.75	28	14	1800
7.6 - 160		2080	2.15	35	17.5	1800
8.9 - 100		1450	1.75	27	13.5	3600
8.9 - 135	2.3	1957	2.40	35	17.5	3600
8.9 - 160		2300	2.95	50	25	3600
12.0 - 70	3.1	980	1.75	27	13.5	3600
12.0 - 100		1450	2.40	35	17.5	3600
12.0 - 120		1740	2.95	50	25	3600
15.1 - 60		3.9	870	1.75	27	13.5
15.1 - 80	1160		2.40	35	17.5	3600
15.1 - 100	1450		2.95	50	25	3600



CONTROLS

Modular Construction Allows for a Wide Selection of Control Options

DUAL VOLTAGE MOTOR

Code	Type	Code	Type
40	3Phase 220-240/ 440-480V 60Hz	85	1Phase 110-115V/ 220-230V 60 Hz

BREATHER

Code	Type
Omit	Standard
1	BF4 -10 micron

THERMAL SWITCH

Code	Type
Omit	None
TS	175°F Set Point

FLANGE TYPE

Code	Type
10	Standard - Horizontal Mounting Flange.
12	Vertical Mounting Flange.
20	Flange for use with "L" series manifolds. Horizontal mounting only.

DESIGN CODE

Determined at factory

START UP CONDITION

Code	At Start Up
Omit	Use when control circuit allows pump to start under no load.
P	Unit includes internal valve to allow pump to start under load.

This option is necessary for single phase units only. Flow must be 1.5 GPM or above to add this option.

GA

Inline module with pressure relief and holding check valve. See pg. 7.



SW5

Same as basic module type "GA" with a 2-way solenoid valve for lifting and lowering of single-acting cylinders. See pg. 7.



CAE

Base Module with relief valve and single station NFFA D03 interface. See pg. 8.



CAL

Base Module with pressure relief valve and 2-way solenoid valve with an interface to add up to 6 stations of NFFA D03 valves. See pg. 8.



L

Base module with relief and check valve to mount "L" series cartridge valve stations. See pg. 10.



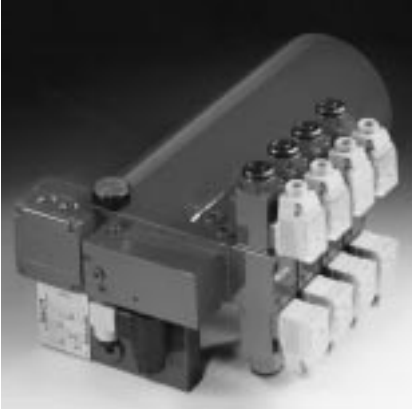
SPECIAL

Circuits customized to customer needs. Please contact the factory. See pg. 10.



CA Series

APPLICATIONS



- Machine Tool Clamping
- Small Presses
- Dock Levelers
- Scissor Lifts
- Man Lifts
- Auto Lifts
- Braking Systems
- Steel Handling
- Wheel Chair Lifts
- Food Industry
- Hose Crimpers
- Compactors
- Hospital Beds
- Dentist Chairs

DUTY RATINGS

S2 - Short Term Operation

The unit operates for a short period of time, reaching its maximum thermal limit. During time at rest, the unit is allowed time to cool to ambient temperature. This type of operation is usually random, not cyclical.
S2= approximately 5 minutes at full load

S3 - Intermittent Operation

The unit operates in a continuous cycle of run time and idle time. During time at rest, it is not allowed to cool to ambient temperature. However, the unit has cooled sufficiently to allow for the next load cycle without exceeding the thermal limit.
S3= approximately 10% on-time per total cycle

Specifications / Engineering Data

GENERAL

Construction	Balanced gear pump driven by oil-immersed AC motor, deep-drawn steel tank, aluminum flange	
Pressure	Up to 3045 PSI (210 bar)	
Flow Rate	0.41 to 3.9 GPM (1.5 to 14.7 LPM)	
Mounting Type	Four threaded mounting holes (3/8" - 16) on unit's flange	
Weight	HP	Weight (lb)
	0.90	26.5
	1.75 to 2.40	29 to 32
	3.50 to 4.80	34 to 42
Ambient Temp.	-4° F to 104° F (-20° C to 40° C)	
Mounting Position	Horizontal or Vertical	

Note: Specified weights apply to dry units with no control valves.

FLUID SPECIFICATIONS

Operating Fluid	Antiwear type industrial hydraulic oils
Viscosity Range	Minimum : 50 ssu
	Maximum: 1800 ssu
	Optimum : 60 to 400 ssu
Filtration	Maximum permissible contamination : ISO 19/16
Oil Temperature	-4° F to 176° F (-20° C to 80° C)

ELECTRICAL SPECIFICATIONS

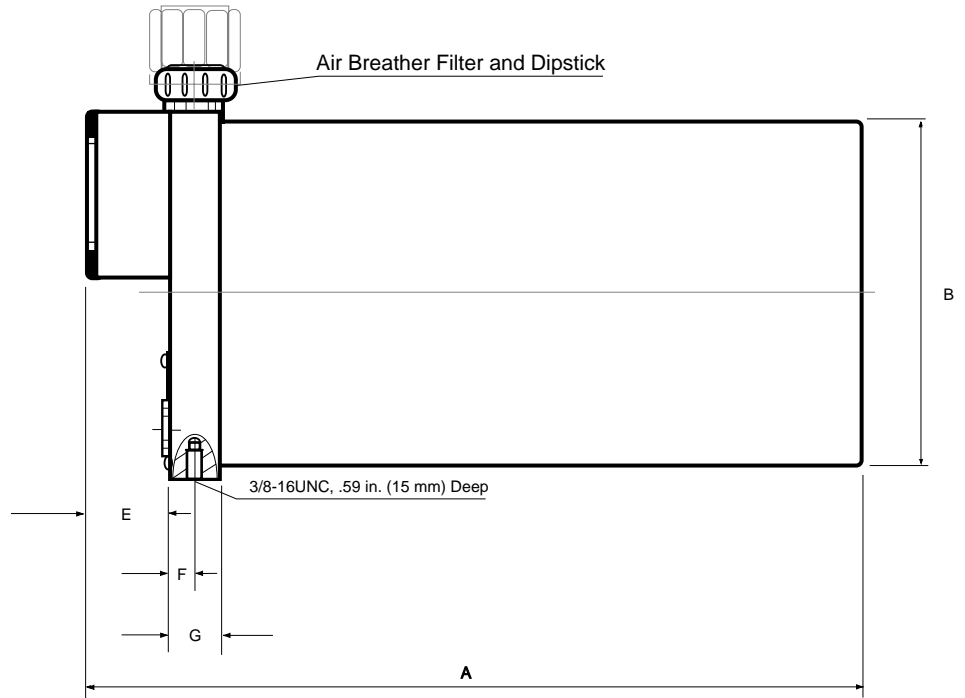
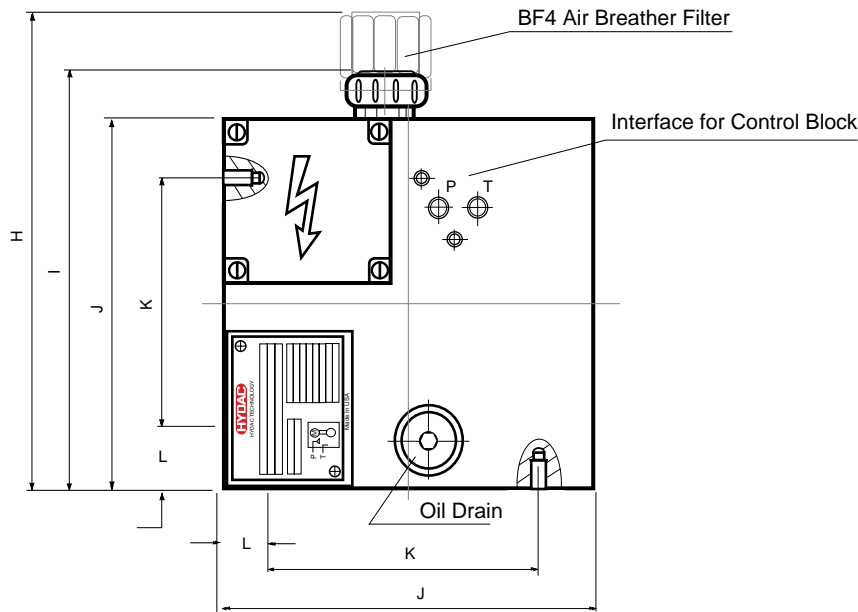
Motor	Voltage	3-Phase Motor 220-240/440-480V - 60HZ Single Phase 110-115/220-230V - 60HZ
	Amp Draw	See Pages 2 and 3
	Connection Type	Terminal strip in terminal box
	Terminal Box	DIN 40050-IP54
	Motor Rotation	Clockwise rotation only
Thermal Switch	Actuating Temperature	175° F (80° C)
	Switchback Hysteresis	20° - 50° F
	Maximum Voltages	250V AC / 60V DC
	Contact	Normally closed
	Connection	In terminal box

NOTE:

Single phase motors can not be started under load. In control circuits where loading can not be avoided, it must be clearly stated when ordering. Please see Model Code page for details on ordering this feature.

CA Series Dimensions

For #10 and #12 Flange



CA SERIES

(inches)

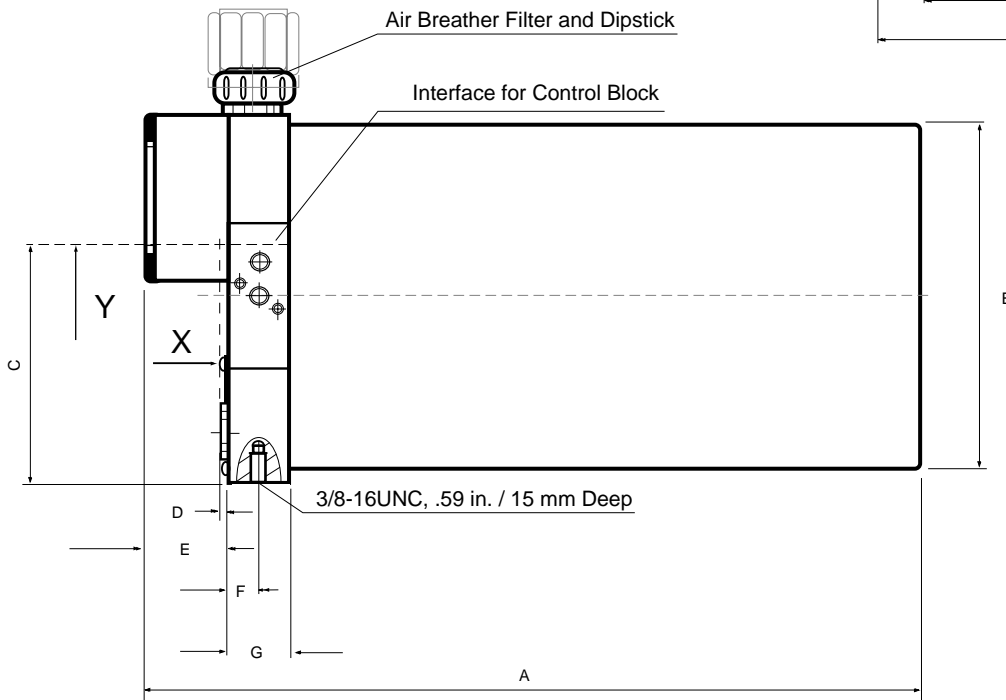
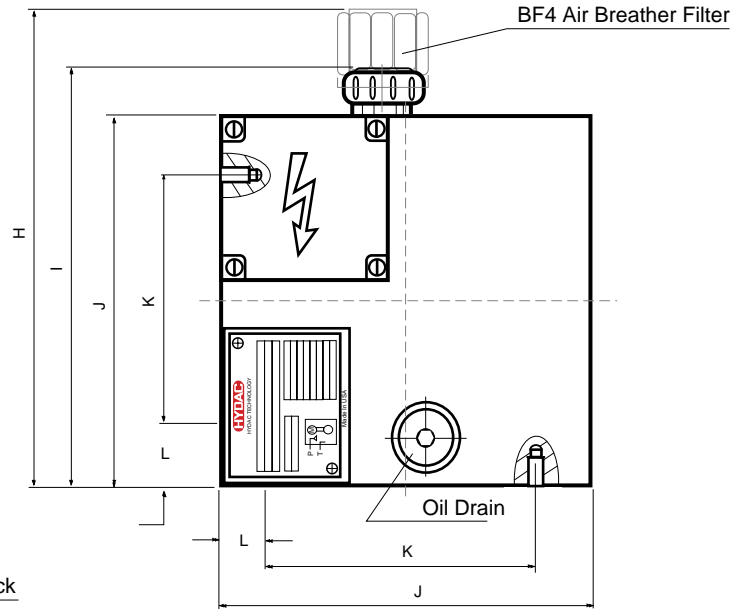
Model	A	B	E	F	G	H	I	J	K	L
CA8R-05	14.84	6.69	1.57	0.49	0.96	9.01	7.91	7.09	5.00	1.04
CA8R-07	19.90									
CA8R-09	24.21									

(mm)

Model	A	B	E	F	G	H	I	J	K	L
CA8R-05	377	170	40	12.5	24.5	229	201	180	127	26.5
CA8R-07	505									
CA8R-09	615									

CA Series-Control Type "L" Dimensions

For #20 Flange



CA FOR CONTROL TYPE "L"

(inches)

Model	A	B	C	D	E	F	G	H	I	J	K	L
CA8R-05	15.28											
CA8R-07	20.32	6.69	4.31	0.14	1.57	0.71	1.42	9.01	7.91	7.09	5.00	1.04
CA8R-09	24.65											

(mm)

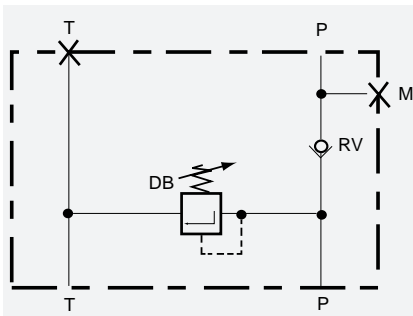
Model	A	B	C	D	E	F	G	H	I	J	K	L
CA8R-05	388											
CA8R-07	516	170	109.5	3.5	40	18	36	229	201	180	127	26.5
CA8R-09	626											

Reference lines X and Y are used to calculate installation dimensions when the "L" Series Modular Stacking Valve System is used.

CONTROL TYPE GA



Inline module with an integral pressure relief valve and check valve. The unit has SAE O-ring ports for use with a basic hydraulic circuit when control valves will not be mounted on the power unit.



Control Options

Model Code Example

GA	R	250 V 2500
----	---	------------

Type GA

Relief Valve

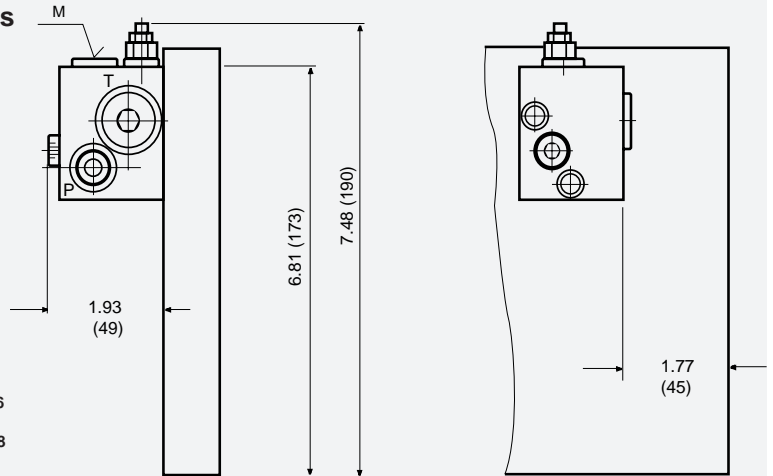
See page 11 for selection

Check Valve

Omit "R" for no check valve

Dimensions

in (mm)



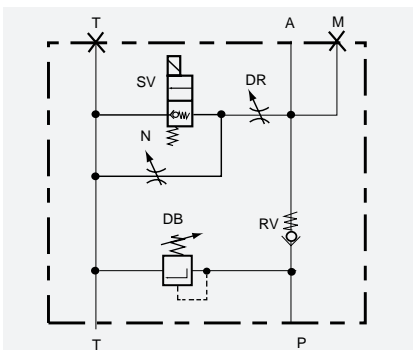
Port M, P = SAE-6

Port T = SAE-8

CONTROL TYPE SW5



Base module with relief valve, check valve and 2 position / 2-way solenoid valve. This module can be used with a single acting cylinder in lifting/lowering and load holding circuits.



Model Code Example

SW5T	Z	250 V 2500	G3000	+	W230-Z4
------	---	------------	-------	---	---------

Type SW5

Solenoid Valve

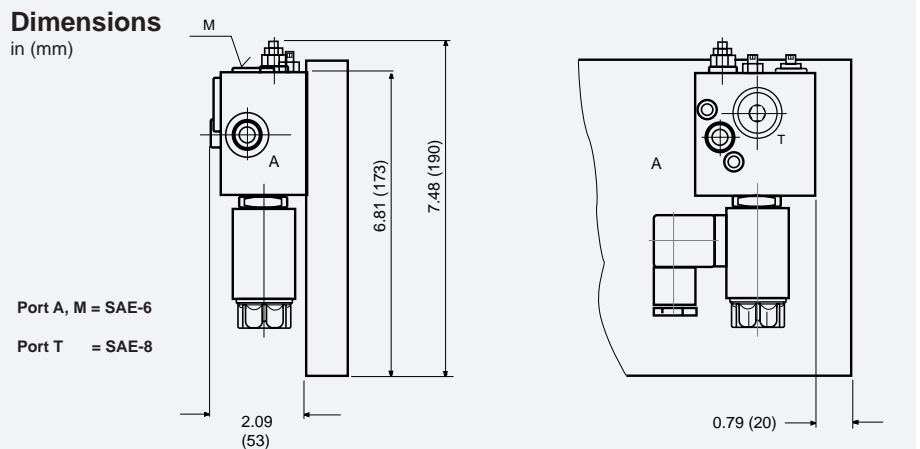
Solenoid Valve
Electrical Options
See page 11

Pressure Gauge & Range
Omit for no gauge

Relief Valve
See Page 11

Dimensions

in (mm)



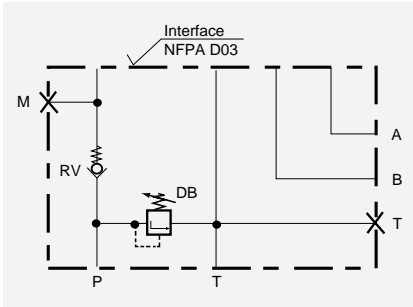
Port A, M = SAE-6

Port T = SAE-8

CONTROL TYPE CAE

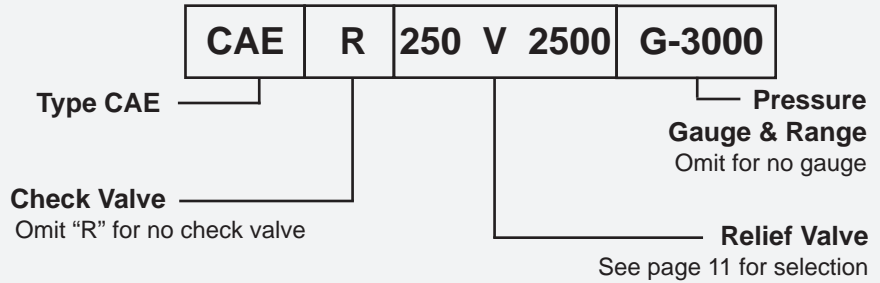


Base module with integral relief and check valve. Provides a single station mounting surface for an NFPA D03 directional valve.



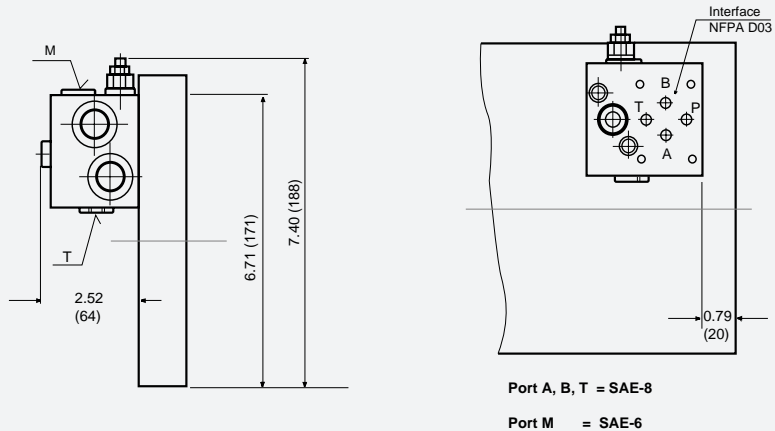
Control Options

Model Code Example



Dimensions

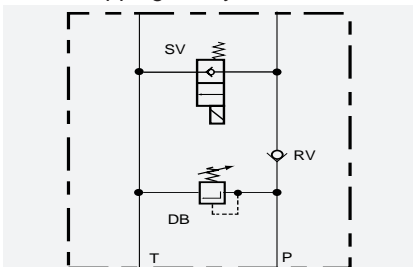
in (mm)



CONTROL TYPE CAL

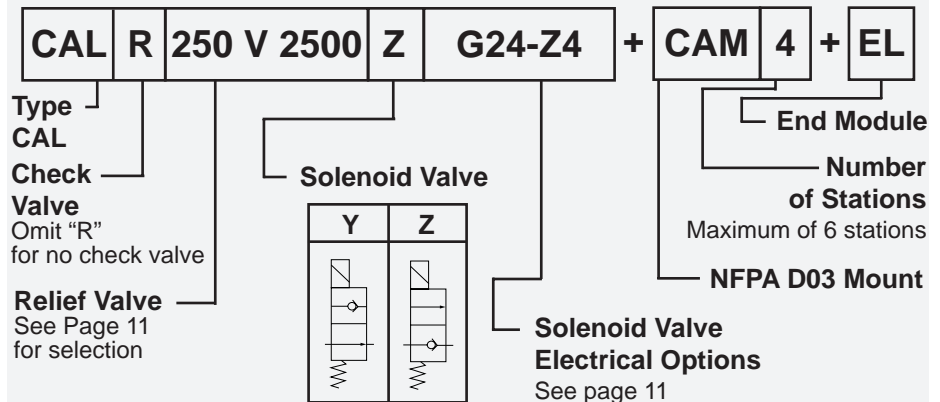


Provides up to 6 station mounting of NFPA D03 valves. Basic module has a system relief valve, 2-position / 2-way solenoid dump valve and a check valve. The number of stations must be specified, along with an end module for capping the system.



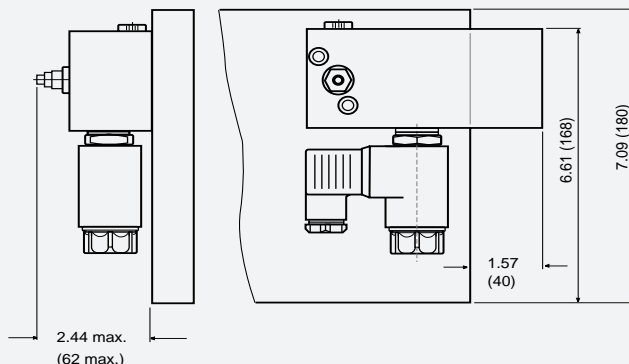
Detailed on the following page are modules that are used along with base type "CAL" to build up to a 6 station D03 manifold.

Model Code Example



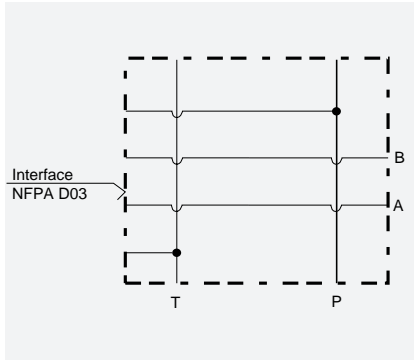
CAL Base Module Dimensions

in (mm)



D03 MODULE - CAM

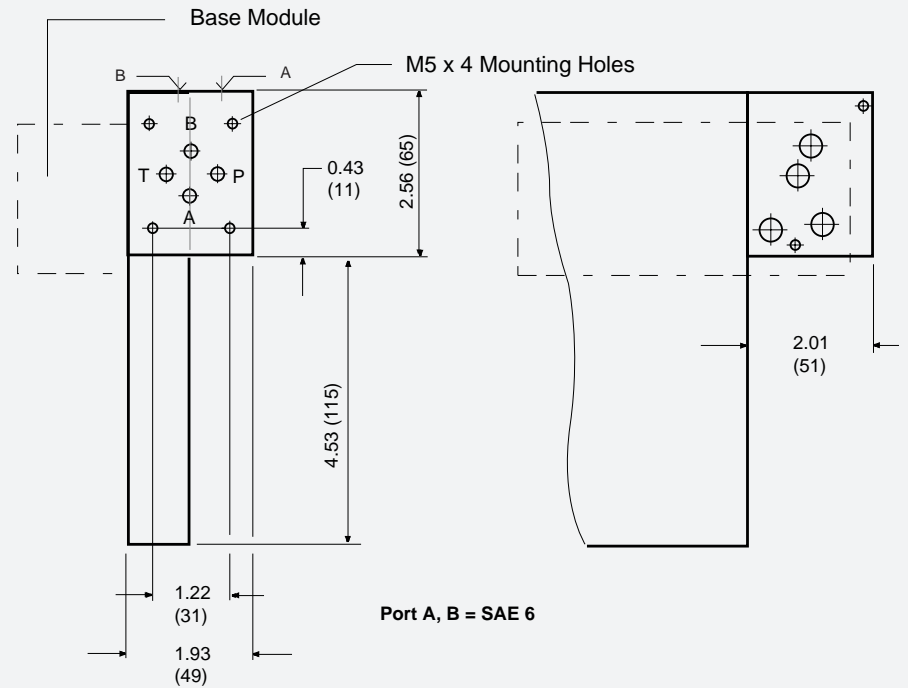
Detailed on this page are the modules that are used along with base type "CAL" to build up to a 6 station D03 manifold.



For use with base module type "CAL". The "CAM" modules are the stackable units that fit between the base module and the end plate. Each one accepts a single NFPA D03 valve.

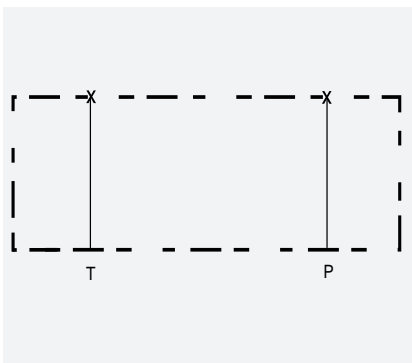
CAM Stacking Module Dimensions

in (mm)



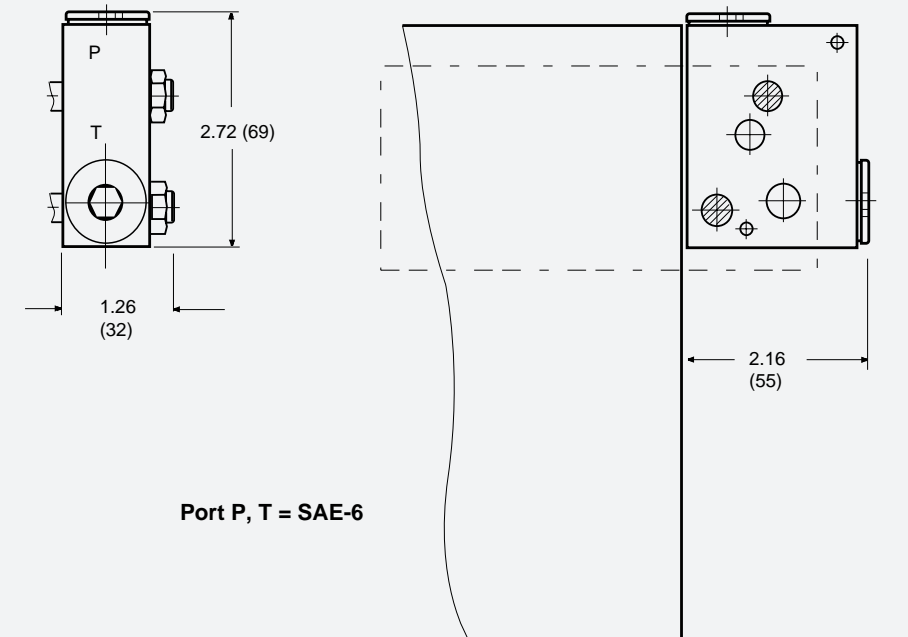
END MODULE - EL

For use with the base module type "CAL". One end module is used as shown on the model code example on the previous page. The purpose of this module is to cap the stack of CAM stations. The entire stack is then fixed to the base module using tie rods



"EL" End Module Dimensions

in (mm)



CONTROL TYPE L

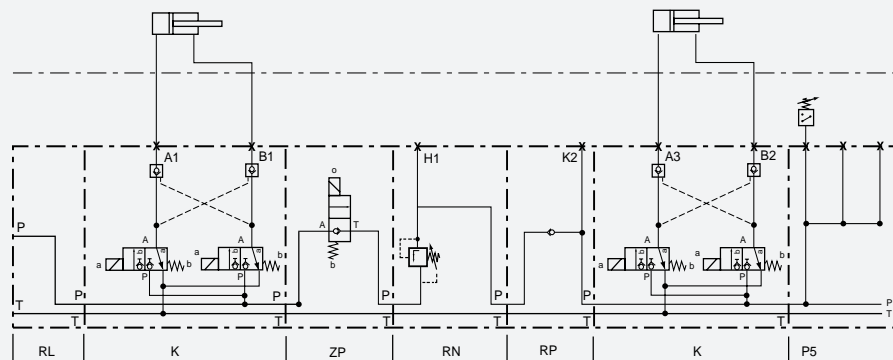
Control Type "L" is a modular stacking valve system that offers a variety of cartridge valve control modules that are stacked together to build a working hydraulic circuit. The valve stack is assembled with two tie rods.

Up to 20 modules may be tied together to provide a nearly unlimited amount of unique solutions for simple or complex applications.

Valve modules include a wide variety of pressure and directional control featuring 100% continuous duty-rated coils and leak-free performance. This system is ideal for clamping and load holding applications.

Control type "L" is detailed in HYDAC Catalog #HHD-L.03/98. A model code selected there can be added to the end of the power unit model code to specify a complete system.

Control Type "L" Application - Sample Circuit



SPECIAL

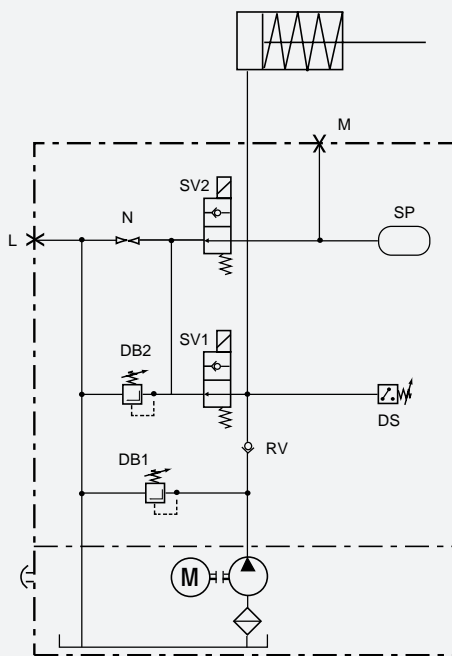
Customized control packages can be designed and then flange mounted to the hydraulic power unit to meet customer specific needs.

As seen in this catalog, several control options are available. These are designed to handle the most common hydraulic circuits and are produced and supplied as standard components.

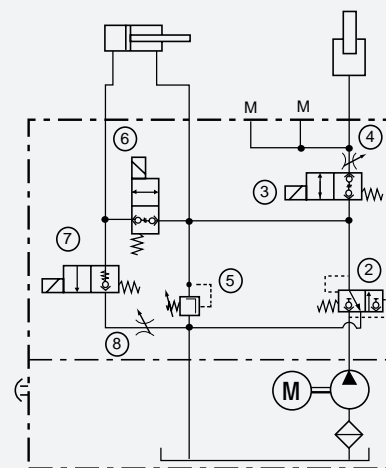
Special designs are implemented in situations where our standard module offering does not meet the application needs. Particularly when low cost / high volume requirements are involved; or, when physical size, weight, and appearance are factors.

Please contact your distributor sales representative or HYDAC directly for assistance with Special Controls.

Specially Designed System - Example



Hydraulic Braking Circuit

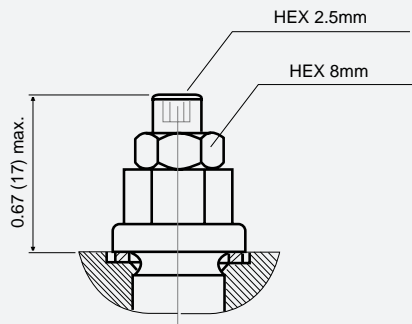


Dock Leveler Circuit

PRESSURE RELIEF VALVE

Dimensions

in (mm)



Model Code Example

250 V 1500

Pressure Range

Code	Range
100 V	up to 1500 PSI
250 V	up to 3000 PSI

Pre-Set Relieving Pressure

State cracking pressure in PSI.
Omit - Valve will be set to maximum pressure capability of the pump/motor combination selected.

ELECTRICAL OPTIONS

Selection Table

Code	Voltage	Connection Type
G12-Z4	12V DC	3-Pin DIN43650-AF2P611
G12L	12V DC	4 inch Flying Leads
G24-Z4	24V DC	3-Pin DIN43650-AF2P611
G24L	24V DC	4 inch Flying Leads
W110-Z4	110V AC	3-Pin DIN43650-AF2P611
W230-Z4	230V AC	3-Pin DIN43650-AF2P611

UNITED STATES AND CANADA:

USA
HYDAC Technology Corporation
HYDRAULIC DIVISION
445 Windy Point Drive
Glendale Heights, IL 60139
Tel.: (630) 545-0800
Fax: (630) 545-0033

CANADA
HYDAC Corporation
14 Federal Road
Welland, Ontario
L3B 3P2
Tel.: 905 / 7149322
Fax: 905 / 7144664

FOREIGN COUNTRIES:

AUSTRIA
(Bulgaria, Slovenia, Croatia, Rest of Yugoslavia, Romania)

HYDAC Hydraulik Ges. m.b.H.
Industriestr. 3
A-4066 Pasching
Tel.: 0 72 29 / 6 18 11-0
Fax: 0 72 29 / 6 18 11-35
Teletex: (0 61) 3 73 24 48

AUSTRALIA

HYDAC Pty. Ltd.
111 Dohertys Road
Altona North.
AUS-Vic. 3025
postal address:
P.O. Box 224
Altona North.
AUS-Vic. 3025
Tel.: 3 / 93 69 89 10
Fax: 3 / 93 69 89 12

BRAZIL

HYDAC Limitada
Rua 12 de Outubro, no. 421
CEP 09941-210 - Jd. Canhema
BR-Diadema-SP
Tel./Fax: 011 / 4071-2253

CHILE

MAURICIO HOCHSCHILD S.A.I.C.
Avenida Senador
Jaime Guzman 3535
RCH-Renca-Santiago
Tel.: 2 / 6 41 44 91, 6 41 11 95
Fax: 2 / 6 41 13 23
Telex: 242 565

CHINA

HYDAC Technology (Shanghai) Ltd.
271 Luchun Road
Shanghai Minhang
Economic & Technological
Development Zone
RC-Shanghai 200245
Tel.: 21 / 64633510
Fax: 21 / 64300257

CZECH. REPUBLIC

HYDAC spol. s.r.o.
Chýnovská 535
CZ-39111 Planá nad Luznicí
Tel.: 361 / 891412,
891424,
891570
Fax: 361 / 891270

EGYPT

Yasser Fahmy Hydraulic Eng.
65-66-68 Saudi Building, Kobbba
P.O. Box 6550 Sawah 11813
ET-Cairo
Tel.: 2 / 45 20 192, 45 30 922,
45 30 0923
Fax: 2 / 45 30 638

FINLAND

HYDAC OY
Martinkyläntie 67
FIN-01720 Vantaa
Tel.: 03 58-9 / 8 54 50 50
Fax: 03 58-9 / 85 45 05 20

FRANCE

HYDAC S.à.r.l.
Zone Industrielle du Heid
Rue R. Schumann
F-57350 Stiring-Wendel
Tel.: 03 87 29 26 00
Fax: 03 87 85 90 81

GERMANY

HYDAC
Technology GmbH
Postfach 1251
D-66273 Sulzbach/Saar
Industriegebiet
D-66280 Sulzbach/Saar
Tel.: 0 68 97 / 509-01
Fax: 0 68 97 / 509-454
Telex: 4 429 331

GREAT BRITAIN

HYDAC-FLUPAC Limited
Woodstock Road
GB-Charlbury, Oxfordshire
OX7 3ES
Tel.: 01608 / 811211
Fax: 01608 / 811259
E-Mail: flupac@flupac.co.uk

GREECE

AUTOMATION SYSTEM S.A.
Spirou Patsi 62
GR-11855 Athens
Tel.: 1 / 3 41 16 00
Fax: 1 / 3 42 27 59
Telex: 226892 chat gr

HUNGARY

HYDAC Hidraulika
és Szűrőtechnikai Kft.
Dolmány u. 18-20
H-1131 Budapest
Tel./Fax: 1 / 3 59 93 59

INDIA

HYDAC HYCOM INDIA PVT. Ltd.
114, Mahavir Industrial Estate
Opp. Ravi Industrial Estate
Off Mahakali Caves Road
Andheri (E)
IND-Bombay 400 093
Tel.: 22 / 8386223
Fax: 22 / 8386223

IRAN

Iran Hydraulic Systems Co. Ltd.
310, Mirdamad Ave.
Bazar Bozorg Mirdamad
P.O. Box 19395-3636
IR-Teheran
Tel.: 21 / 8 88 35 18
Fax: 21 / 8 88 90 89
Telex: 213636, Attn. D5067

ITALY

HYDAC S.p.A.
Via Copernico 8
I-20060 Cassina de Pecchi (Mi)
Tel.: 2 / 95 34 30 92
Fax: 2 / 95 34 43 57

JAPAN

HYDAC Co. Ltd.
2-5-12 Kita-Kasai
Edogawa-ku
J-Tokyo
Tel.: 3 / 3804-7060
Fax: 3 / 3804-7062

LUXEMBOURG

FRIEDERICH-HYDROPART
S.A.R.L.
Route d'Esch
C.P. 38
L-3801 Schifflange
Tel.: 54 52 44
Fax: 54 52 48
Telex: 1236 cried lu

MEXICO

Herlo Hidraulica, S.A.
Calzada Vallejo No. 923
Col. Nueva Industrial Vallejo
CP. 07750
MEX-Mexico, D.F.
Tel.: 5 / 567-5400
Fax: 5 / 567-5554

NETHERLANDS

HYDAC B.V.
Postbus 447
NL-5700 AK Helmond
Panovenweg 41
NL-5708 HR Helmond
Tel.: (0) 4 92 / 52 88 38
Fax: (0) 4 92 / 52 75 74

POLAND

HYDAC Sp. z o.o.
ul. Reymonta
PL-43-190 Mikolów
Tel.: 32 / 2 26 26 55
Fax: 32 / 3 26 40 42
Telex: 312981 hydac pl

PORTUGUAL

Gustavo Cudell Lda.
Rua Eng. Ferreira Dias, 954
P-4100 Porto
Tel.: 2 / 6102004
Fax: 2 / 6103070
Telex: 27271

MOVICONTROL LDA
Praca Pedra Verde, 217-222
P-4100 Porto
Tel.: 2 / 6104176
Fax: 2 / 6104475
Telex: 29192 movipo

SINGAPORE

Hydac Technology Pte Ltd.
32 Kallang Pudding Road # 06-05
Elite Industrial Building 1
SGP-Singapore 349313
Tel.: 741 / 7458
Fax: 741 / 0434

SLOVAKIA

HYDAC, s.r.o.
Schmidtova 14
SK-03601 Martin
Tel.: 842 / 35893
Fax: 842 / 35894

SOUTH-AFRICA
(Namibia, Zimbabwe)

Hytec of Southern Africa (Pty) Ltd.
P.O. Box 8
ZA-Maraisburg, 1700 (Transvaal)
Tel.: 11 / 6731210, 6732213
Fax: 11 / 6730212

SPAIN

Bultz S.A.
Paseo de Arriola, 15
E-20009 San Sebastian
Tel.: 43 / 217000
Fax: 43 / 217207
Telex: 36540

SWEDEN

HYDAC Fluidteknik AB
Karlsbodavägen 41, Mariehäll
Box 20112
S-16102 Bromma
Tel.: 8 / 4452970
Fax: 8 / 4452990

SWITZERLAND

RUAL S.A. Hydraulics
Via Cantonale 69
CH-6964 Davesco-Lugano
Tel.: 91 / 935 00 80
Fax: 91 / 942 38 84

RUAL S.A. - T.B. Bern

Zentweg 21
CH-3006 Bern
Tel.: 31 / 9 31 62 44
Fax: 31 / 9 31 66 42

RUAL S.A. - T.B. St. Gallen

Langgasse 91
CH-9008 St. Gallen
Tel.: 71 / 2 42 66 77
Fax: 71 / 2 45 27 90

THAILAND

Pneumax Co., Ltd.
2447/5 New Petburi Road
Near Ekamai Junction
Bangkapi, Huaykwang
T-10310 Bangkok
Tel.: 2 / 3181972, 3180086
Fax: 2 / 3198180

Aerofluid Co. Ltd.
600/441 Moo 14, Paholyothin Rd.
T-Lamlookka Patumthanee 12130
Tel.: 2 / 536-7129, 536-7153,
536-8069, 536-8070,
536-6228, 992-1664-7
Fax: 2 / 536-7131