

CONTINENTAL

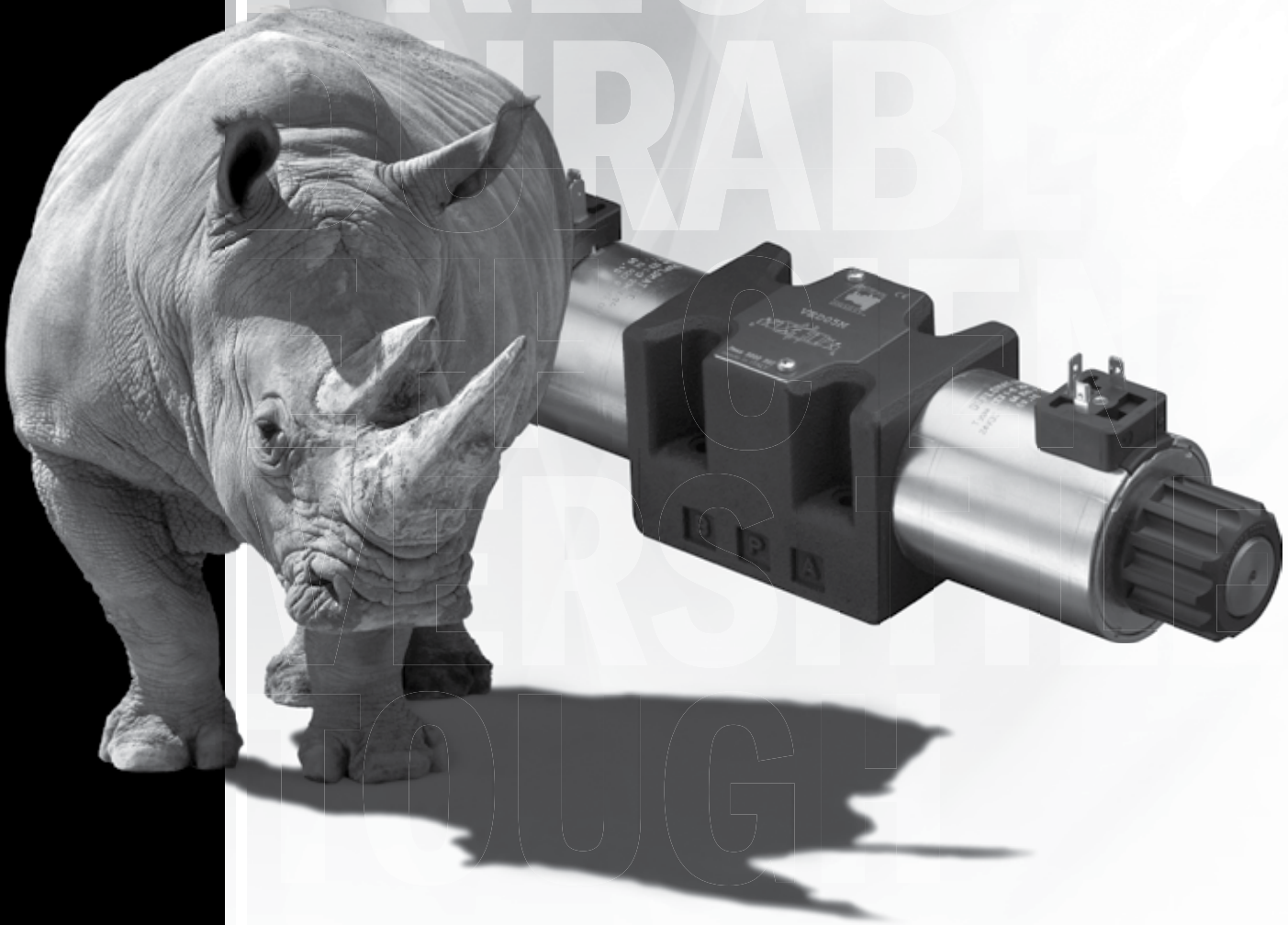


HYDRAULICS

CONTINENTAL HYDRAULICS

VED05M

PROPORTIONAL DIRECTIONAL CONTROL VALVES



VED05M - PROPORTIONAL DIRECTIONAL CONTROL VALVES

VED05M

PROPORTIONAL DIRECTIONAL CONTROL VALVES



DESCRIPTION

Continental Hydraulics VED05M direct operated 4-way proportional valves conform to NFPA D05 and ISO 4401 mounting standards.

OPERATIONS

These valves are designed to control the direction and oil flow rate based on the amount of current supplied to the solenoid. In event of a loss in electrical power, the centering springs will return the valve spool to the center position.

The valve solenoids can be driven by a variable current power supply or by use of external Power Amplifier Cards designed to maximize the valve performance.

A variety of manual overrides are also available.

TYPICAL PERFORMANCE SPECIFICATIONS

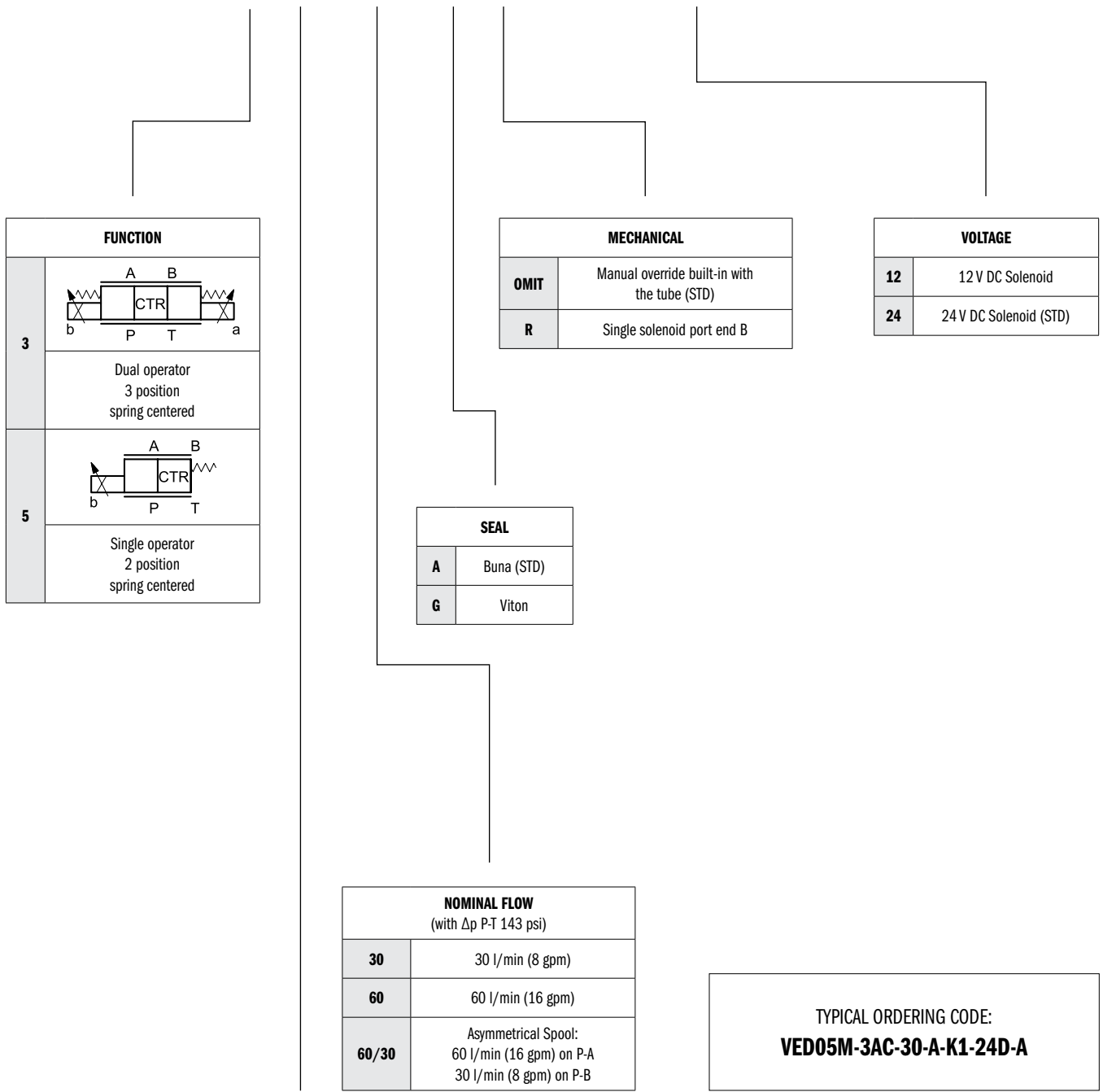
MAXIMUM OPERATING PRESSURE:	P - A - B Ports	4600 psi	320 bar
	T Port	3000 psi	210 bar
FLOW CAPACITY WITH ΔP 145 PSI (10 BAR)	AC/FC 30	8 gpm	30 l/min
	AC/FC 60	16 gpm	60 l/min
MOUNTING SURFACE		NFPA D05 ISO 4401-05-04-0-05	

STEP RESPONSE	0 \rightarrow 100%	50 ms	
	100 \rightarrow 0%	70 ms	
HYSTERESIS	% of Q max	< 6%	
REPEATABILITY	% of Q max	< \pm 1.5%	
POWER SUPPLY		12V DC OR 24V DC	
CONNECTION		DIN 43650	
PROTECTION	IEC 60529	IP65	
WEIGHT:	Single Solenoid	9.7 lbs	4.4 Kg
	Dual Solenoid	13 lbs	5.9 Kg

RANGE TEMPERATURES:	Ambient	-4 to +130° F	-20 to +54° C
	Fluid	-4 to +180° F	-20 to +82° C
FLUID VISCOSITY	Range	60 -1900 SUS	10 - 400 cSt
	Recommended	120 SUS	25 cSt
FLUID CONTAMINATION		ISO 4406:1999 Class 18/16/13	

IDENTIFICATION CODE

VED05M - - - - **K1** - **D** - _____ DESIGN LETTER



FUNCTION	
3	<p>Dual operator 3 position spring centered</p>
5	<p>Single operator 2 position spring centered</p>

MECHANICAL	
OMIT	Manual override built-in with the tube (STD)
R	Single solenoid port end B

VOLTAGE	
12	12 V DC Solenoid
24	24 V DC Solenoid (STD)

SEAL	
A	Buna (STD)
G	Viton

NOMINAL FLOW (with Δp P-T 143 psi)	
30	30 l/min (8 gpm)
60	60 l/min (16 gpm)
60/30	Asymmetrical Spool: 60 l/min (16 gpm) on P-A 30 l/min (8 gpm) on P-B

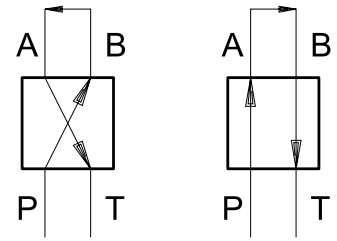
TYPICAL ORDERING CODE:
VED05M-3AC-30-A-K1-24D-A

SPOOLS				
NAME	SYMBOLS	DESCRIPTION	APPLICATION	FUNCTION MATCHING
AC		METER IN / METER OUT	MOTION	3,5
FC		METER IN / METER OUT		3,5

VED05M - PROPORTIONAL DIRECTIONAL CONTROL VALVES

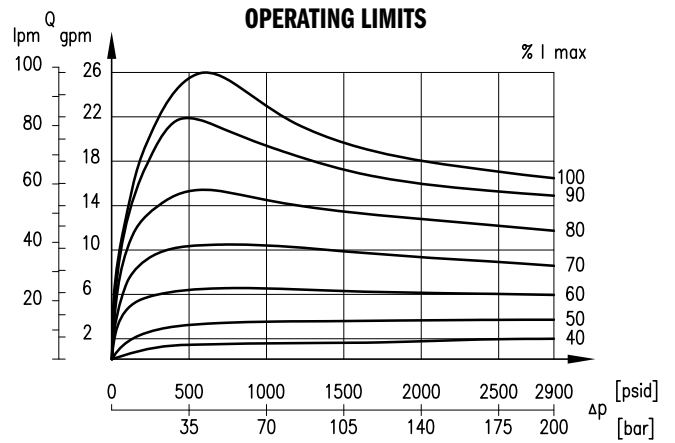
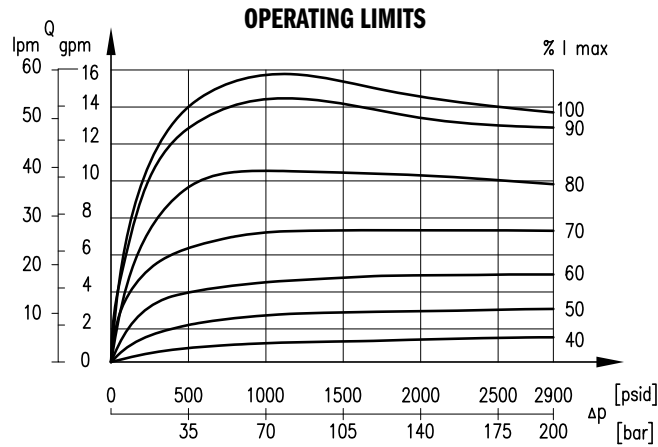
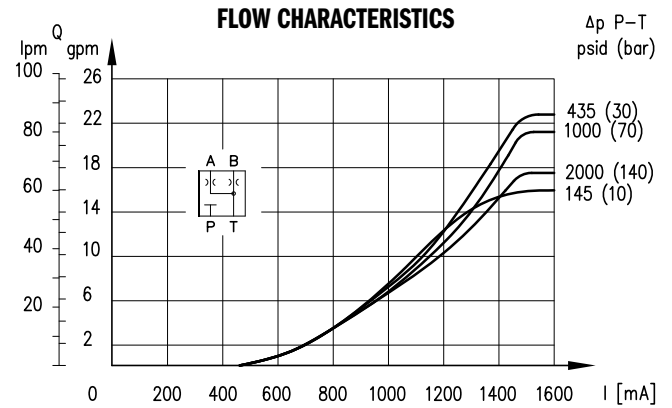
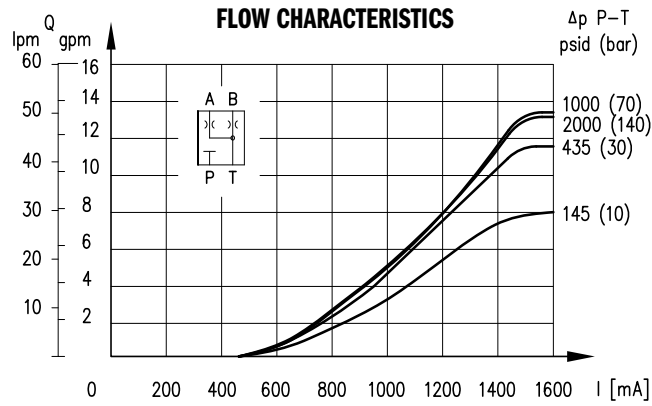
PERFORMANCE CURVES FOR FC SPOOLS

Curves obtained with mineral oil with viscosity of 170 sus (36 cSt) at 122°F (50°C); the Δp values are measured between P and T (full loop) valve ports.



FC-30

FC-60

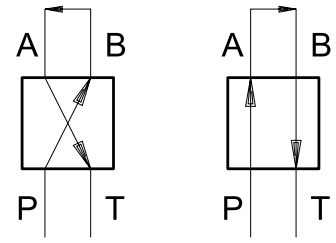


NOTES:

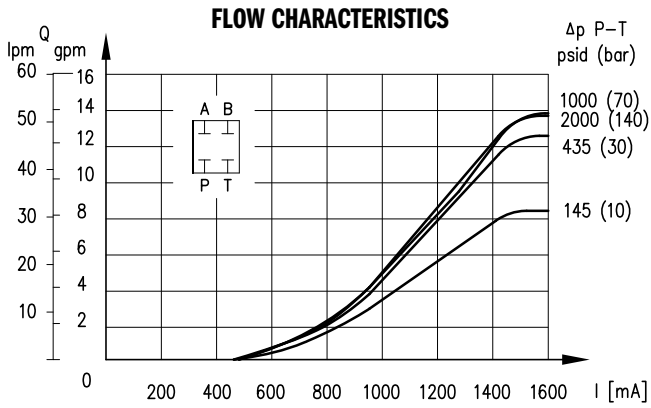
Curve obtained with current supplied to solenoid, **VED05M** 24V DC version.

PERFORMANCE CURVES FOR AC SPOOLS

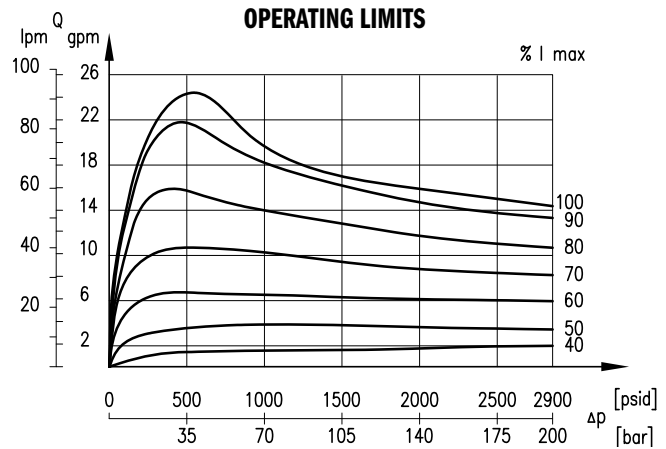
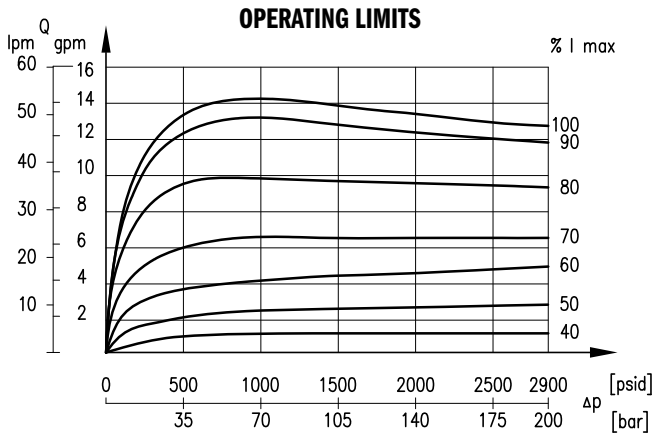
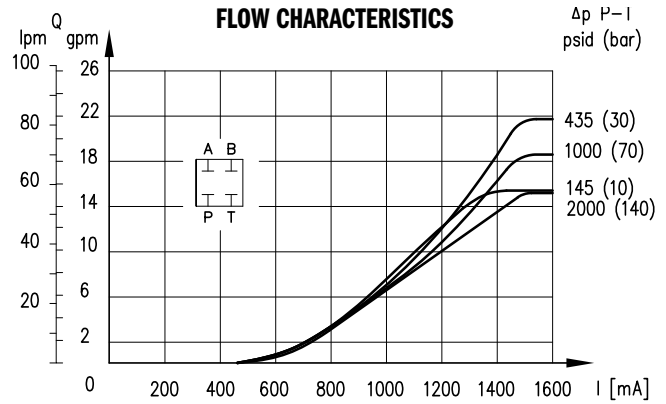
Curves obtained with mineral oil with viscosity of 170 sus (36 cSt) at 122°F (50°C); the Δp values are measured between P and T (full loop) valve ports.



AC-30



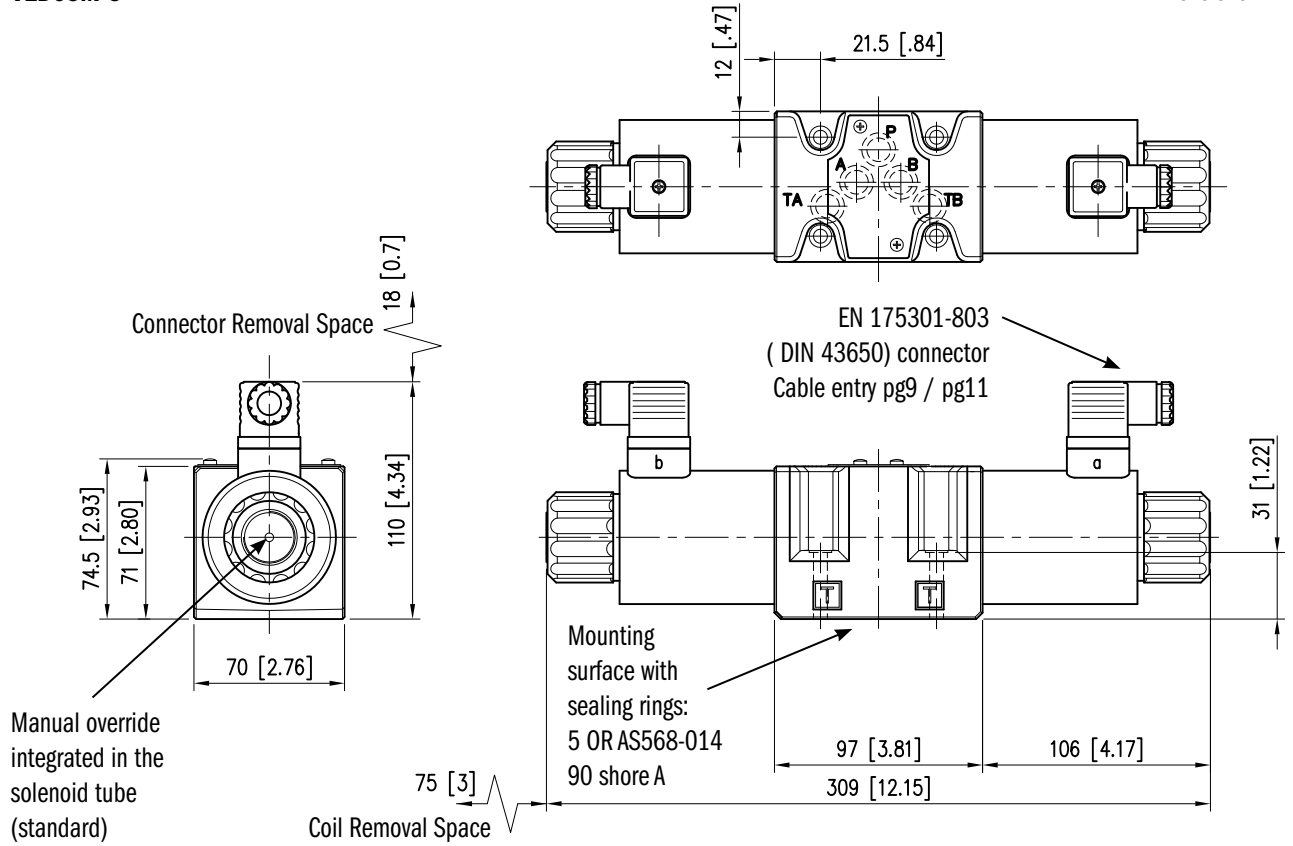
AC-60



OVERALL AND MOUNTING DIMENSIONS FOR VED05M

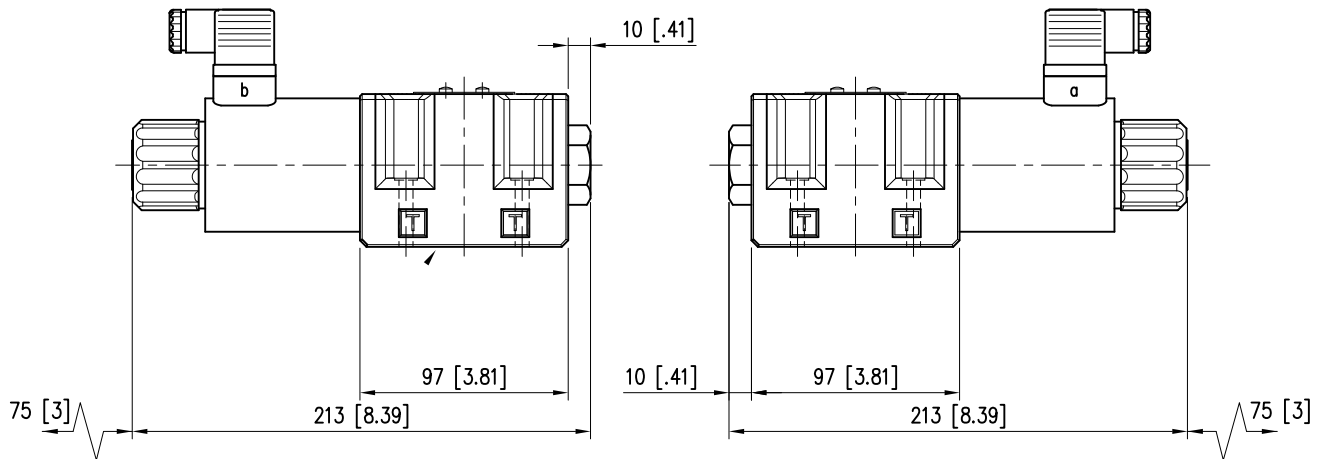
VED05M-3

Dimensions in mm [IN]



VED05M-5

VED05M-5R



ELECTRICAL DATA FOR VED05M

The proportional solenoid consists of tube and coil. The coil is mounted on the tube and fastened to it by a retainer nut.

The coils may be indexed to any position allowing for convenient location of the connector.

The declared IP degree is guaranteed for all valves only if the connector has been wired and mounted correctly on the coil.

NOMINAL VOLTAGE	V DC	12	24
RESISTANCE AT 68° F		3.2 Ω	8.65 Ω
CURRENT AT 68° F		2.60 A	1.60 A
DUTY CYCLE		100%	
ELECTROMAGNETIC COMPATIBILITY (EMC)		European Directive 2004/108/EC	
IP DEGREE IEC 60529		IP 65	
CLASS OF PROTECTION FOR INSULATION	Copper Wire	Class H (356° F)	
	Coil	Class F (311° F)	

ACCESSORY ELECTRONICS

Some external digital amplifiers are available to be coupled to the valve for better control and to improve the valve performances.

See Continental Hydraulics Control Amplifier Catalog for products to match your requirements.

VEA-3E-A: DIN Connector - Gray

VEA-3F-A: DIN Connector - Black

APPLICATION DATA

FLUIDS

All pressure drops shown on these data pages are based on 170 SUS fluid viscosity and 0.87 specific gravity. For any other specific gravity (G1) the pressure drop (ΔP) will be approx. $\Delta P_1 = \Delta P (G_1/G)$. See the chart for other viscosities.

FLUID VISCOSITIES	Cst	10	14.5	32	36	43	54	65	76	86	108	216	324	400
	SUS	60	75	150	170	200	250	300	350	400	500	1000	1500	1900
MULTIPLIER		0.77	0.81	0.97	1.00	1.04	1.10	1.15	1.20	1.24	1.31	1.56	1.72	1.83

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 180 degrees F causes the accelerated degradation of seals as well as degradation of the fluids physical and chemical properties.

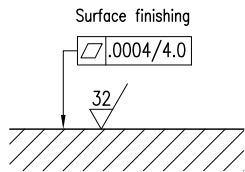
From a safety standpoint, temperatures above 130 degrees F are not recommended.

INSTALLATION

VED05M valves can be installed in any position without impairing correct operation.

Ensure that there is no air in the hydraulic circuit.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed, fluid can easily leak between the valve and support surface.



BOLT KITS

BD05-163-B	Valve Only	1013160
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NOTES:

1. Bolt kit consists of: Qty. 4 screws 1/4-20 UNC x 1-3/4 and lock washers
2. The recommended torque value for the fasteners is: 6 lb.ft. (8.13 Nm)

SEAL KIT

BUNA SEAL KIT V*D05M DES B	1013142
VITON SEAL KIT V*D05M DES B	1013146

SUBPLATES

AD05JESPS16S	Aluminium	SAE-16	1013140
DD05JESPS16S	Ductile	SAE-16	1013141

NOTES:

1. Max pressure aluminium subplate: 3000 psi max pressure ductile subplate: 5000 psi
2. Always verify that subplate port size is proper for the application
3. Kit consists of 1 subplate and 2 SAE-04 plugs for pilot and drain ports as they are unused



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PRECISE
DURABLE
EFFICIENT
VERSATILE

ABOUT CONTINENTAL HYDRAULICS

Rugged, durable, high-performance, efficient—the reason Continental Hydraulics' products are used in some of the most challenging applications across the globe. With a commitment to quality customer support and innovative engineering, Continental's pumps, valves, power units, mobile and custom products deliver what the markets demand. Continental has been serving the food production, brick and block, wood products, automotive and machine tool industries since 1962. Learn how our products survive some of the most harsh environments.

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