SERVO ELECTRO-MECHANICAL INLET GUIDE VANE ACTUATOR FOR IGT25

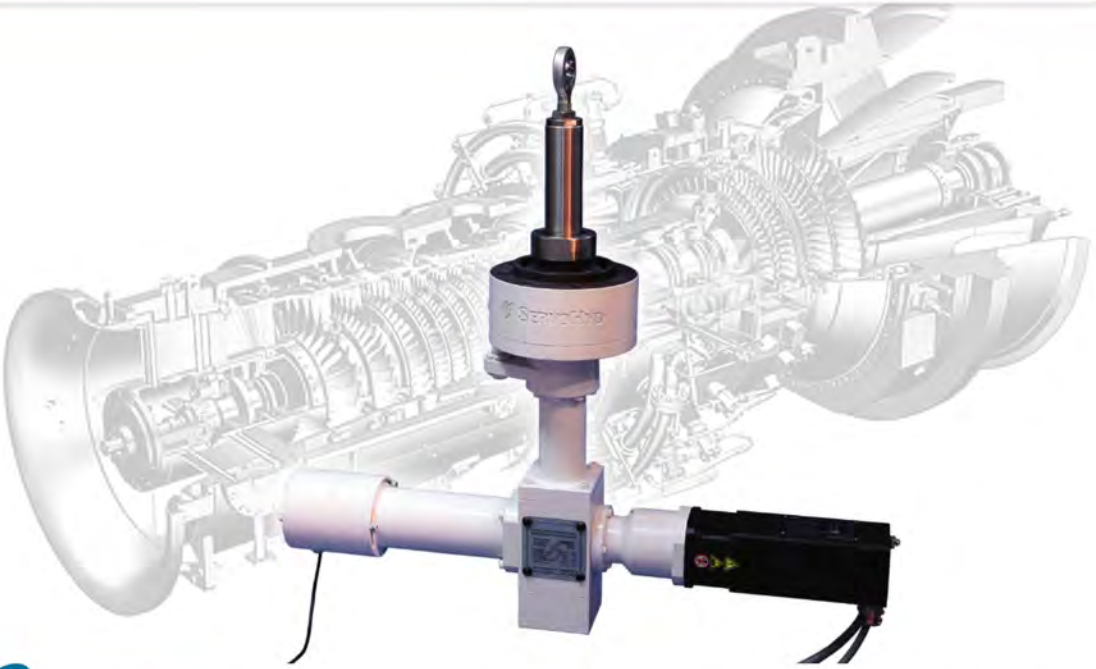
Explosion Proof Standard: Ex II 2 G Ex IIC T4-T6

DESCRIPTION

Servo Electromechanical IGV Actuator is utilized in the Iranian Gas Turbine (IGT25) for adjusting the inlet guide vanes of the compressor. This actuator is one of the most critical and strategic components of gas pipeline compression stations. High-Tech components with a very high accuracy and reliability to operate in hazardous environments are used in this actuator. A compact servo brushless motor supplies the rotary mechanical energy of the actuator and an RVDT sensor generates the position feedback signal. An angular gearbox, a zero backlash harmonic gearbox and a ball screw are used to transfer the power from servo motor to the other components. Servo Electromechanical IGV Actuator is manufactured by ServoHyd Co. for the first time in Iran to surmount this strategic need of our country.

FEATURES

Operating Conditions	
Rated Stroke	180 mm
Maximum Stroke	200 mm
Operating Load	100 kg
Maximum Load	250 kg
Maximum Linear Speed	200 mm/sec
Operating Temperature	-20°C ~ +80°C
Dimensions	70×64×16 cm^3
Weight (approximately)	30 kg
Minimum Di-electric resistance in 500 VDC	5 MΩ
Axis Rotation	±8°
Mounting Type	Flange
RVDT Linearity	±1.5 %FS



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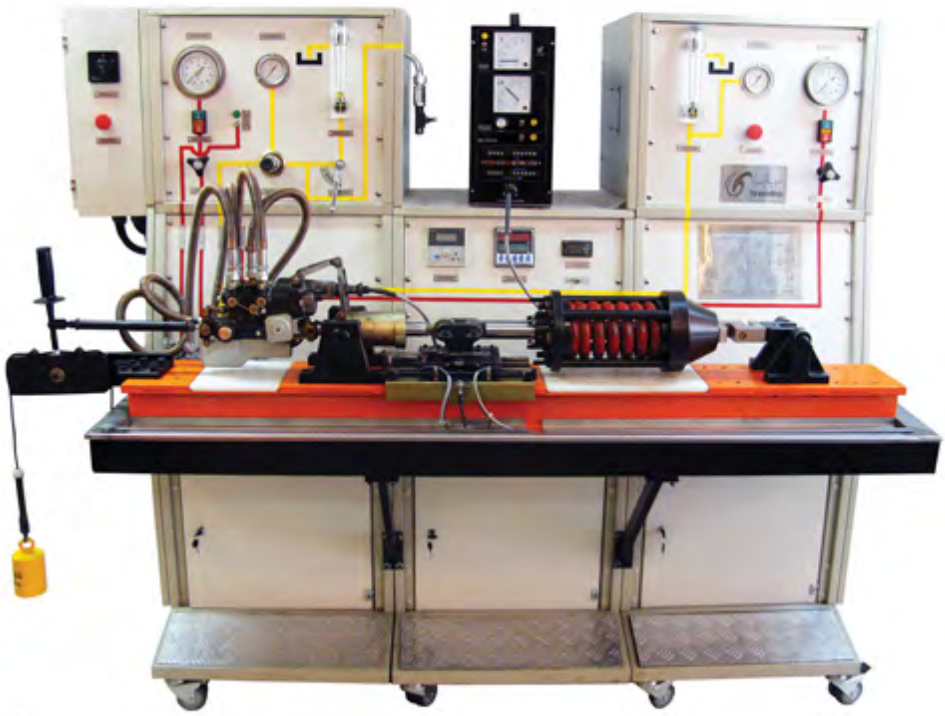
ACTUATOR TESTER

Description

• Dual circuit Hydraulic-mechanical-Electronic testing system for Hydraulic-Electronic actuator
• The capability of measuring and controlling of Supply line pressure, Return line pressure, Operating voltage, System flow rate, Oil temperature, Mechanical reactions and Operating speed.

Features

Power supply	2×4 kW
Hydraulic pumps	2×275 bar
Main testing pressure	60-65 bar
Maximum testing pressure	110 bar
Maximum flow rate	16 lit/min
Mechanical testing force	1.5 ton



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ASCO SOLENOID VALVE
NORMALLY CLOSED

Environmental Condition: MIL-STD-810

Description

"Rava" Solenoid valve is a 2-away normally closed valve, designed to work under high pressure conditions up to 400 bar. It has been utilized due to supply pressure for capsules or to discharge it from the mentioned unit. Within this operational condition, none of two internal and external leakages are permitted.

Features

Solenoid	24 VDC / 21.4 watts
Operating Tempercture	-40°C~+60°C
Proof Pressure	15 bar
Operating Pressure	AIR/ GAS: 0~10 bar | WATER: 0~9 bar | LT. OIL: 0~9 bar
Current Drain at 24 VDC and 70°F	1.0 A (max)
Leakage	40cc/min
Di-electric strength in 1000 VAC	1MΩ
Weight	4.8 kg
Pressure Drop	At 11.3 lpm30 psi (max)
Response time	75~100 ms

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ELECTRO HYDRAULIC SERVO VALVE 5/3

Hydraulic Fluid: MIL-H-5606
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

Description

Servovalve and Servo-Proportional Valves are electrohydraulic, continuously acting valves that transform a changing analog or digital input signal into a stepless hydraulic output (flow or pressure). This case is an electrohydraulic servo-proportional flapper-type valve with separated pilot pressure port and according to aerospace specification.

Features

Rated Current	±40	mA
Rated Pressure	16	MPa
Rated Flow	10 @ 16Mpa	Lit/min
Pilot Rated Pressure	4.5	MPa
Coil Resistance	230	Ω
Maximum Supply Pressure	28	MPa
Threshold	T<0.8	%
Unlinearity	U<7	%
Hysteresis	H<3	%
Unsymmetry	Us<10	%
Pressure Gain	PG >30	%Ps/1%In
Null Bias	NB<2	%
Temperature Null Shift with 100°F variation	T.N.Sh. < ±2	%
Supply Pressure Null Shift with 1000psi change	Ps.N.Sh. <±2	%
Null Shift with return Pressure of (0~20%Ps)	Pr.N.Sh. <±2	%
Amplitude Ratio with -3db	AR>50	Hz
Phase Lag with 90°	Ph>130	Hz
Oil Temperature	-54 ~ 135	°C
Ambient Temperature	-54 ~ 71	°C

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FILTER INDICATOR

Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810
Type of warning: Visual Signaling

Description

Filter indicator is a non-electrical device that will give visual warning by raising a red indicator when the differential pressure across the element exceeds 70±10 psi. Once actuated, the indicator shall remain extended until reset manually.

Features

Operating Pressure:	1500 psig
Proof Pressure:	2250 psig
Operating Temperature:	-65°F to +275°F (-54°C to +135°C)
Endurance Cycling:	2000 cycles
Impulse Cycling:	100000 cycles
Shock Test:	± 20 g
Burst Pressure:	3750 psi, 275°F
Pope out:	60-80 psig differential pressure
Dimensions:	33.3 x 25.5 x 6.3 mm

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FILTER MODULE PERFORMANCE TESTER

Hydraulic Fluid: MIL-H-5606 / MIL-H-6083
Operating Voltage: 220 VAC

Description

Filter module tester can do all functional tests of filter module assembly. Designed software allows the operator to select different tests.

Features

Operating Temperature:	-65°F to +275°F (-54°C to +135°C)
Operating Pressure:	1500 psig
Proof Pressure:	2250 psig
Dimensions:	120 x 100 x 85 cm
Tests:	
Pressure drop	
Leakage	
Proof pressure	
Solenoid operation	
flow indication (6(lit/min) digital flow meter)	
Weight:	450 kg

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FUEL INJECTION NOZZLE OF TURBOJET ENGINE

Hydraulic Fluid: Calibration fluid Mil-F-7024
Environmental Conditions: 65~550°F
6500H

DESCRIPTION

This is a dual orifice pressure- swirl atomizer that is designed to schedules, meters and atomizes the fuel for basic engine combustion which is used on turbojet engine. Fuel enters the fuel nozzle assembly at the inlet fitting, and then passes through a strainer into the piston valve area. At lower pressure fuel passes through the primary porting of the support to the primary. When the fuel pressure reaches 115 psi the piston valve opens and permits fuel to flow through the secondary porting to the secondary nozzle.

FEATURES

Operating Conditions	
Calibration Test Fluid	Mil-C-7024 Type II
Operating Pressure	0 to 400 psi
Maximum Flow Rate	449 to 491 lb/hr
Minimum Flow Rate	24.3 to 26.5 lb/hr
Spray Angel at Max. Flow Rate	84° to 98°
Spray Angel at Min. Flow Rate	78° to 92°
General Specification	
Approximate Weight	0.3 lb
Overall Dimension	1.5 × 2.7 × 2.8 in
Nozzle Face Diameter	0.5 in
Flange	1.4 × 1.4 in
Fitting Thread	0.375 – 24 UNF – 3A

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GEARBOX INTERNAL OIL PUMP ASSEMBLY

Operating Fluid:MIL-PRF-7808
Corrosion Preventive Fluid: MIL-PRF-8188

Description

The gearbox internal oil pump assembly is used in the internal oil system of accessory gearbox. The oil pump contains two gerotor-type pumping element with separate intake ports and one common discharge port. Oil flow and pressure regulation are accomplished remote from the pump.

Features

Weight (Aprroximately)	625 gr
Length (Aprroximately)	63.5 mm
Drive Shaft Spline Data	
No. Teeth	8
Diametral Pitch	32/64
Capacity (at 3500 r/min;120±10°F;100 lbf/in^2)	
Sea Level	1.0 gpm
55,000 ft	0.66 gpm
Operating Range	
Speed	3500 to 6200 rpm
Oil Temperature	-65°F to +250°F
Attitude	0 to 55,000 ft
Operating Pressure	100 psi
Proof Pressure	300 psi

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HYDRAULIC FILTER MODULE

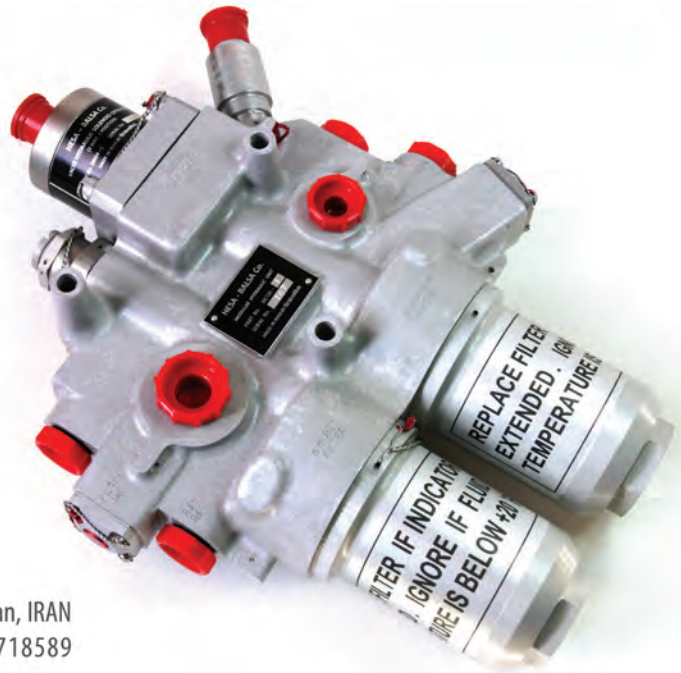
Hydraulic Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810
Preservation Hydraulic: MIL-H-6083

Description

This assembly is set to filter the media when enters and exits. In addition, it controls decreasing or increasing pressure, flow direction, and maximum pressure through pressure switch, relief valve and solenoid valve respectively. The pressure drop of each of two filters are measured and controlled by a specific pressure indicator individually . This assembly has to pass endurance test under temperature of 130°C and fluid 1700 psi for 100000 cycles.

Features

Operating Temperature:	-65°F to +275°F (-54°C to +135°C)
Operating Pressure:	1500 psig
Proof Pressure:	2250 psig
Pressure Drop at 3.0 gpm & +70°F (+21°C):	
Ports 1 & 2 (valve energized)	75 psid (max)
Ports 2 & 3 (valve de-energized)	50 psid (max)
Current Drain at 30 vdc & +70°F (+21°C):	2.2 amps (max)
Electrical Connector:	GS02-10SL-4P-001(cannon or equivalent)
Overall Dimensions:	10.50 x 8.25 x 3.0 in
Weight (dry):	6.2 lbs



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SERVO HYDRAULIC TRANSMISSION

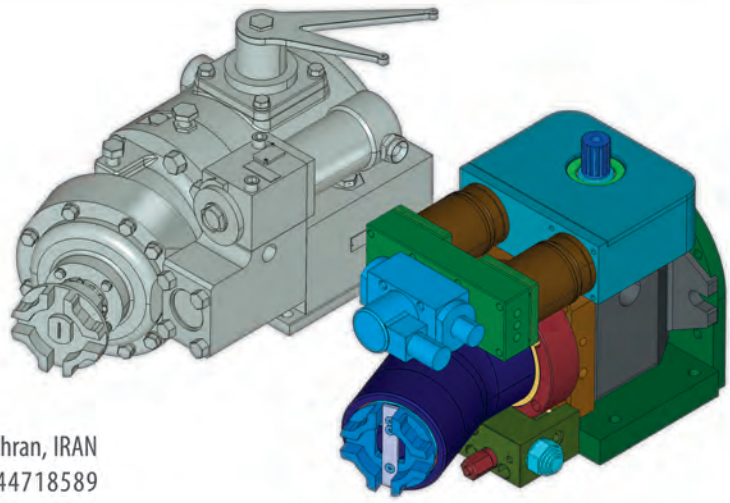
Hydraulic Fluid: Compatible with common hydraulic fluids
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810

Description

Hydrostatic transmissions have been widely used in heavy and special vehicles. A hydraulic transmission can be defined as a 'pump-controlled motor'. In this case, it consists of a variable-displacement pump, servo system for control the pump and a fixed-displacement motor. By regulating the displacement of the pump, a continuously variable speed can be achieved.The displacement of variable-displacement axial-piston pump is regulated by the swash plate angle using a hydraulic servomechanism.

Features

Mechanical Power:	3 kw
Maximum Output Torque:	50 N.m
Transmission Ratio:	0 to ±1 Continuously
Speed Output:	0 to ±1500 rpm Continuously
External Leakage:	~ 0
Dimensions:	38×24×20 cm
Frequency Response:	10 Hz – No load servo 2 Hz – at 2000 kg/m^2 Inertia
High Reliability	
Adjustable Maximum Transmission Ratio	
Temperature Limits:	Fluid : -65°F to 275°F Ambient: -65°F to 160°F
Filter Rating recommended:	For normal operation ß10 ≥ 75 (10 µm absolute) For longer life ß5 ≥ 75 (5 µm absolute)



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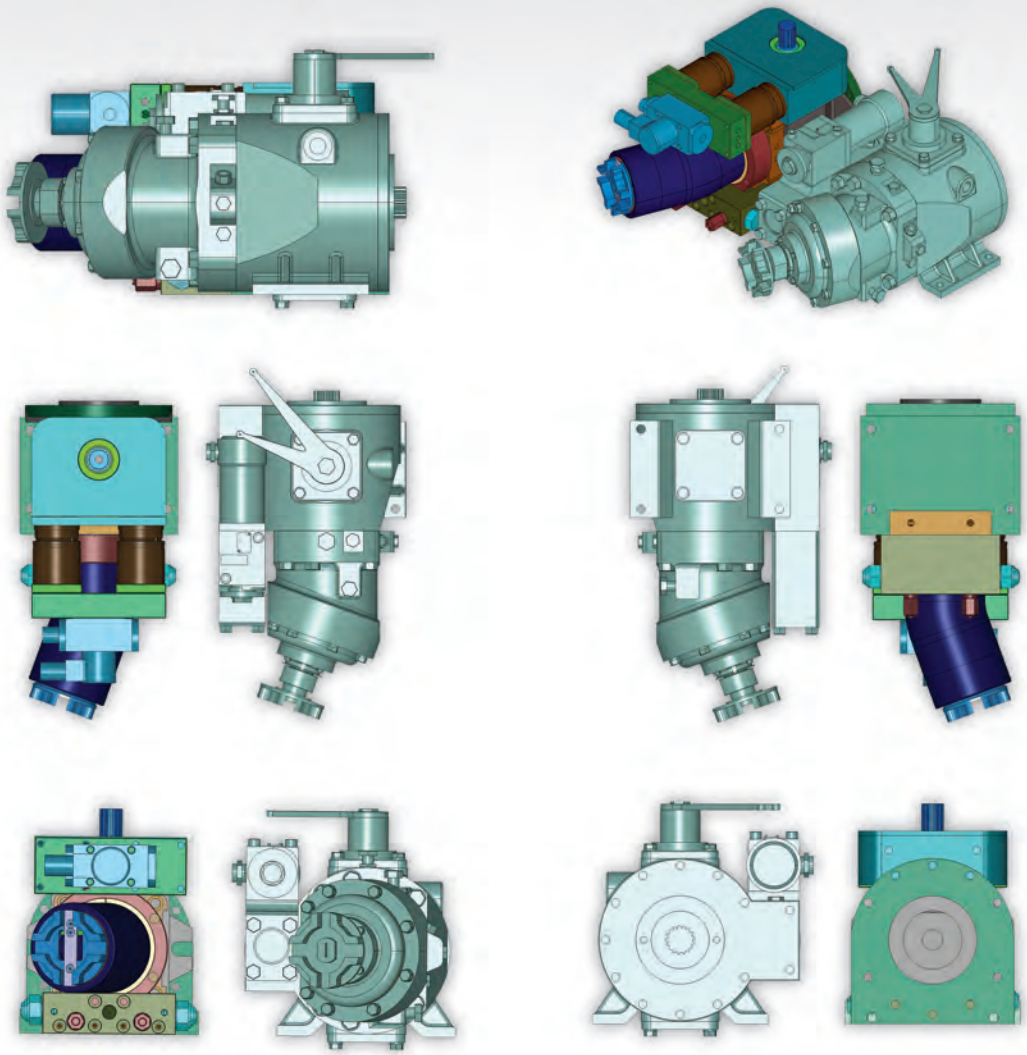
SERVO HYDRAULIC TRANSMISSION

Hydraulic Fluid: Compatible with common hydraulic fluids
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810



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HYDRAULIC VALVE 2/2 NORMALLY OPEN

Hydraulic Fluid: MIL-H-5606 / MIL-H-6083
Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

Description

Hydraulic valve is manufactured to closed hydraulic fluid path by electrical demand.

Features

Rated Flow Capacity:	1.4 gpm at 140 psid in room temperature
Solenoid Actuator:	24-28 VDC
Operation Pressure:	600-2250 psi
Rated Pressure:	1500 psi
Proof Pressure:	2250 psi
Burst Pressure:	3750 psi
External Leakage:	~ 0
Maximum Internal Leakage:	5 cc/min at 1500 psi
Weight:	Max 190 gr
Temperature Limits:	Fluid : -65°F to 275°F Ambient: -65°F to 160°F
Vibration:	±10g at xyz
Endurance Cycling:	20000 cycles
Reliability:	MTBF: 8000 hours According to Technical Manual

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KAVAPNEUMATICSOLENOID VALVE
NORMALLY CLOSED

Environmental Condition: MIL-STD-810

Description

"Kava" Solenoid valve is a 3-way/2-position normally closed valve, designed to be utilized in portable pneumatic testers and works under the pressure up to 150 bar. Within this operational condition, internal and external leakages are not permitted.

Features

Solenoid	single coil,28 VDC
Proof Pressure	225 bar
Operating Pressure	150bar
Current Drain at 27 VDC	1.0 A (max)
Leakage	3 bubble/min (max) At 150 bar
Dimension	170×170×80 mm^3
Weight	2.6kg
Ports	M18×1.5

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MANUAL SERVO VALVE

Environmental Condition: MIL-STD-810
Operating Fluid: MIL-H-5606 / MIL-H-6083

Description

This catalog covers features of manually operated slide type servo valve used to control fluid flow to the rudder actuators.

Features

Operating Temperature	-65°F to 275°F
Nominal Flow Rate	0.68±0.07 GPM
Rated Pressure	3000 psi
Proof Pressure	4500 psi
Burst Pressure	7500 psi
Lap Leakage (between pressure and return)	Max. 40cc/min (when 3000 psi applied to the pressure port) Min. 10cc/min (when 3000 psi applied to the pressure port)
Endurance	5,000,000 cycles

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MANUAL SERVO VALVE

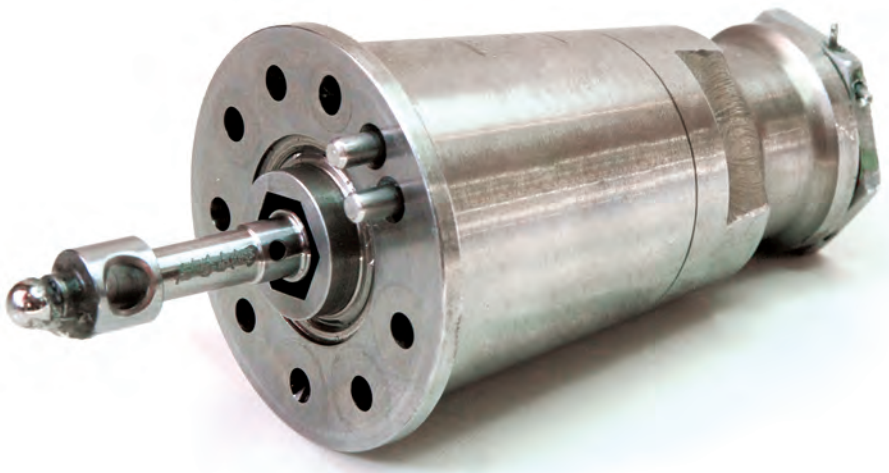
Operating Fluid : MIL-H-5606/ MIL-H-6083
Environmental Condition: MIL-STD-810

Description

This catalog covers features of manually operated side type servo valve used to control fluid flow to the horizontal stabilizer actuators.

Features

Nominal Flow Rate	1.95±0.20 GPM
Operating Pressure	3000 psi
Proof Pressure	4500 psi
Burst Pressure	7500 psi
Operating Temperature	-65°F to 275°F
Lap Leakage (between pressure and return)	Max. 40cc/min (when 3000 psi applied to the pressure ports)
Lap Leakage (between systems)	Max. 0.7cc/min (pressure differential of 100psi between systems)
Endurance	5,000,000 cycles



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METERING SET SUB- ASSEMBLY

DESCRIPTION

Metering Set sub-assembly consists of three main parts including Metering Nozzle Body, Orifice Cone and Primary Distributer. The fuel at low pressure reaches the primary distributer and forced through its tangential slots, emerges into swirl chamber at high velocity. The fuel moves toward the orifice of the orifice cone in a spiral path and emerges from the orifice in a conical sheet, which breaks up into droplet. When the inlet pressure reaches the higher value, fuel flow through the secondary path and directly reaches the orifice cone and forced through its tangential slots, emerges into swirl chamber at high velocity. This again leads the fuel to breaks up into droplet. The final result is the atomized fuel which is the main task of Metering Set sub-assembly.

FEATURES

Operating Conditions	
Calibration Test Fluid	MIL-C-7024 Type II
Operating Pressure	0 to 400 psi
Maximum Flow Rate (primary & secondary path)	449 to 491 lb/hr
Minimum Flow Rate (primary path)	24.3 to 26.5 lb/hr
Spray Angel at Max. Flow Rate	84° to 98°
Spray Angel at Min. Flow Rate	78° to 92°
General Specification	
Approximate Weight	0.024 lb
Overall Dimension	3/8"-36 UNS-2B, O.DIA: 0.50" Length: 0.87"

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NORMALLY CLOSE HYDRAULIC VALVE 3W2P

Hydraulic Fluid: MIL-H-5606
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

Description

This valve controls flow direction between two cylinders. Its volume and weigh is so small compared to delivered pressure and flow rate. To guarantee proper operation under mechanical shock, vibration, and 30000 cycles of endurance test, geometrical tolerances about 0.01 mm are required. To tolerate environmental condition it is necessary to use such material that has corrosion resistance properties. The material should pass salt spray test for 1000 hrs. it should be mentioned that coating material should pass salt spray test for 400 hrs.

Features

Rated Flow Capacity:	1.0 gpm at 250 psid in room temperature
Solenoid Actuator:	18-28 VDC
Operation Pressure:	600-2250 psi
Nominal Pressure:	1500 psi
Proof Pressure:	2250 psi
Burst Pressure:	3750 psi
External Leakage:	~ 0
Maximum Internal Leakage:	5 cc/min at 1500 psi
Pressure Drop:	at 1 gpm 240 psi MAX
Weight:	Max 320gr
Temperature Limits:	Fluid : -65°F to 275°F Ambient: -65°F to 160°F
Vibration:	±10g at 3 cordinates (x,y,z)
Filtration:	25 micron Absolute
Endurance Cycling:	20000 cycles
Reliability:	MTBF: 8000 hours According to Technical Manual
Lubricants:	

Only Hydraulic Fluid Conforming to MIL-H-5606 is used to lubricate seals during installation and assembly. A light coating of petrolatum conforming to MIL-H-6083 will be permitted.

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NOSE LANDING ELECTRICAL SOLENOID

Hydraulic Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810 & MIL-S-4040
Electrical Connector: M81511/02H08-04P1

Description

Features

Solenoid	single coil, continues duty, 30 VDC
Operating pressure	3000 psi
Proof Pressure	4500 psig
Burst Pressure	7500 psig
Current Drain at 30 VDC and 21°C	1.0Amps (max)
Solenoid Dimensions	Φ22.3×59.4 mm
Di-electric strength in 1000 VAC	1 MΩ
Weight	75 gr
Endurance cycling	20000 cycles

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PISTON AND SLEEVE SUB- ASSEMBLY

DESCRIPTION

Piston & Sleeve sub-assembly which used in the dual orifice pressure-swirl atomizer is a main part of the valve. at lower pressures fuel passes through the primary porting of the support to the primary path. However, when the fuel pressure reaches 115 psi, the piston valve opens and permits fuel to flow through the secondary path.

FEATURES

Operating Conditions	
Calibration Test Fluid	MIL-C-7024 Type II
Operating Pressure	0 to 400 psi
Maximum Flow Rate	449 to 491 lb/hr
Minimum Flow Rate	24.3 to 26.5 lb/hr
Hysteresis @ 135 psi	Within 4 PPH of 135 up reading
General Specification	
Approximate Weight	0.023 lb
Overall Dimension	0.406"-36 UNS-2B, O.DIA: 0.483" Length: 0.99"

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PNEUMATIC BLEED AIR PILOT VALVE 2W2P NORMALLY CLOSE

Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

Description

This Solenoid Valve is Pilot for Bleed Air Shut-off and Line Check Valve. The significant features of this valve are small volume and low weight. It particularly can operate at a temperature of (-65°F to 350°F) It is expected to have as lowest as possible leakage and operate correctly in temperature shock conditions. This requirement necessitate geometrical accuracy about 0.01mm. To tolerate high temperature condition it is necessary to use such material that has corrosion resistance properties. The material should pass salt spray test for 1000 hrs. it should be mentioned that coating material should pass salt spray test for 400 hrs.

Features

Rated Flow Capacity:	1.0 gpm at 250 psid in room temperature
Solenoid Actuator:	24-28 VDC
Operation Pressure:	8 - 100 psi
Nominal Pressure:	100 psi
Burst Pressure:	400 psi
Leakage:	20 cc/sec at 114psi & 60°F
Weight:	Max 90 gr
Temperature Limits:	Fluid : Hot Air, 650°F Ambient: -65°F to 160°F
Vibration:	±10g at 3 cordinates (x,y,z)
Endurance Cycling:	15000 cycles
Reliability:	MTBF: 8000 hours According to Technical Manual

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POWER SUPPLY UNIT

Power: 7.7 kw
Operating voltage: 380 VAC

Description

Hydraulic power unit is designed according an integrated modular system of valves for various functions.

Features

Operating Pressure	100-3600 psig
Pump flow Rate	0-42 lit/min
Oil reservoir capacity	150 lit
High pressure filtration	10µm
Low pressure filtration	50 µm
Cooling System	380 VAC - 50 Hz

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PRESSURE RELIEF VALVE

Hydraulic Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810

Description

This relief valve has 200 psi pressure drop in 6 gpm rated flow. It has adjustable element that allow the user to adjust opening pressure 500 psi to 2600 psi.

Features

Pressure drop at 6 gpm:	2140 psig
Operating Temperature:	-65°F to +275°F (-54°C to +135°C)
Leakage:	at 1500 psig, 1.5 cc/min MAX
Resaet Leakage:	at 1640 psig, 4.5 cc/min MAX
Operating Pressure:	1500 psi
Proof Pressure:	2250 psi
Burst Pressure:	3750 psi
Endurance Cycling:	50000 cycles

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PRESSURE SWITCH

Hydraulic Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810
Connector: MS3143HS10SL-3S
Pressure Port External Dimensions per MS 33656 0.4375˝ - 20UNF-3A

Description

Pressure switch is used in system to alert pressure increase or decrease.
weight to operating pressure ratio is small, so that only Ti can be used in it to satisfy this constraint. Endurance limit of this device should reach 100,000 cycles. To guarantee this requirement, Mechanical and metallurgical stability of its spring and surface roughness in mating parts are demanded.

Features

Operating Pressure:	1500 psig
Proof Pressure:	4500 psig
Burst Pressure:	7500 psig
Electrical rating:	28VDC,5 AMP resistive load
Endurance cycling:	100000 cycles
Weight:	0.19 lbs
Dimensions:	0.9 in DIA max, Length 3 in
Electrical rating:	28 VDC,5amp resistive loads
Lubrication:	needless to lubricate
Vibration:	±10g at 3 cordinates (x,y,z)
Break contact A-B at 800 ±100 psig increasing pressure	
Make contact A-B at 500 ±100 psig decreasing pressure	

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Tel (6 lines): +98 21 44754476, Fax: +98 21 44718589

PRESSURE SWITCH

Max Operating Pressure: 350 bar
Max Adjustable Pressure: 140-350 bar

Description

Pressure switch is used in system to alert pressure increase or decrease. The internal electrical micro-switch is act when the operating pressure reaches the set value. This pressure switches are available in tow pressure range, from 140 to 350 bar, and they can be subplate mounting or 1/4" BSP threated port type.

Features

Pressure Adjustable Range	6 to 140 / 10 to 350 bar
Max Operating Pressure	350bar
Power Supply	125/250 AC – 30/250 DC
Ambient Temperature Range	-20 °C ~ +50 °C
Fluid Temperature Range	-20 °C ~ +80 °C
Fluid Viscosity Range	25 cSt
MTBF Mechanical parts	10,000,000 switches
MTBF Electrical contacts	20,000,000 switches
Fluid Contamination Degree	according to ISO 4406:1999 class 20/18/15
Electrical Insulation	according to EN 60204 > 1 M Ω @ 500 VDC
Protection Class	according to EN 60529: IP65

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VARIABLE DELIVERY PUMP PERFORMANCE TESTER

Hydraulic Fluid: MIL-H-5606
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

Description

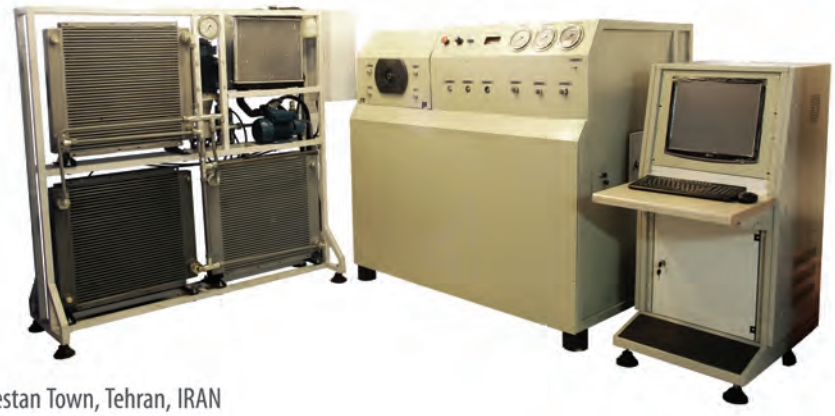
THE VARIABLE DELIVERY PUMP PERFORMANCE TESTER is designed in accordance with MIL-P-19692E to examine the performance of versatile variable delivery pumps with the flow rate smaller than 38 lpm (10 gpm) and discharge pressures up to 310 bar (4500 psi). Special compact design of the hydraulic system leads to very high hydraulic impedance of the tester and implementing high response servo valves improved the response time of the hydraulic circuit. The powerful 30 kW motor with 6000 rpm speed generates the inlet power of the pump and a heat exchanger unit dissipates the heat generated by the pump, orifices and motor during the tests. Sophisticated valve components design and accurate sensors (flow rate, temperature, pressure and torque sensors) in addition to the advanced high frequency data acquisition system and very user friendly software, simplified the tester control and reporting process. These features enabled the tester to accurately perform all performance tests including transient tests such as response time, pressure pulsation and maximum transient pressure and also static tests such as calibration and heat rejection tests according to MIL-P19692E.

Features

Tester Standard Specifications According to	MIL-P-19692E
Hydraulic Fluid	Mineral Oil (MIL-H-5606)
Maximum Pressure	310 bar
Maximum Flow Rate	38 lpm

Static Performance Tests:
- Calibration
- Heat Rejection

Dynamic Performance Tests:
- Response Time
- Pressure Pulsation
- Maximum Transient Pressure



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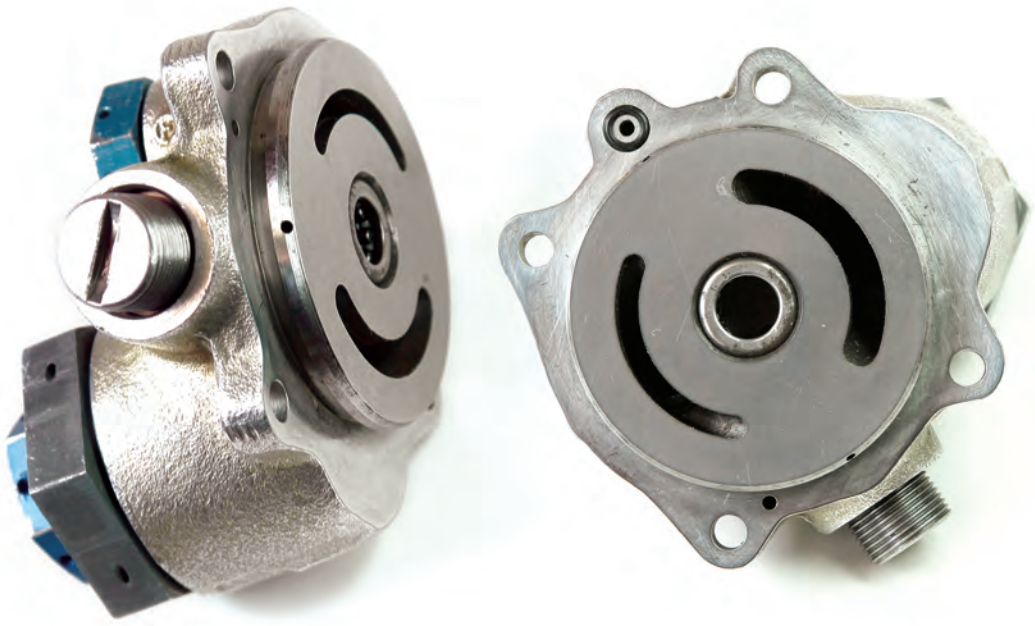
VARIABLE DELIVERY PUMP VALVE PLATE

Features

Standard Specifications According to	DAAJ01-73-C-0300
Hydraulic Fluid	Mineral Oil (MIL-H-5606)
Rated Inlet Pressure	1 bar
Rated Discharge Pressure	103.5 bar
Maximum Full Flow Pressure	93 bar
Rated Flow Rate	27 lpm



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RAVAPNEUMATICSOLENOID VALVE
NORMALLY CLOSED

Environmental Condition: MIL-STD-810

Description

"Rava" Solenoid valve is a 2-away normally closed valve, designed to work under high pressure conditions up to 400 bar. It has been utilized due to supply pressure for capsules or to discharge it from the mentioned unit. Within this operational condition, none of two internal and external leakages are permitted.

Features

Solenoid	single coil,27 VDC
Operating Temperature	-50°c ~ +50°c
Proof Pressure	410 bar
Operating Pressure	330 bar
Current Drain at 27 VDC	1.0 A (max)
Leakage	3 bubble/min (max) At 330
barVibration	1g
Dimension	150×150×300 mm^3
Weight	1.5 kg
Ports	M18×1.5

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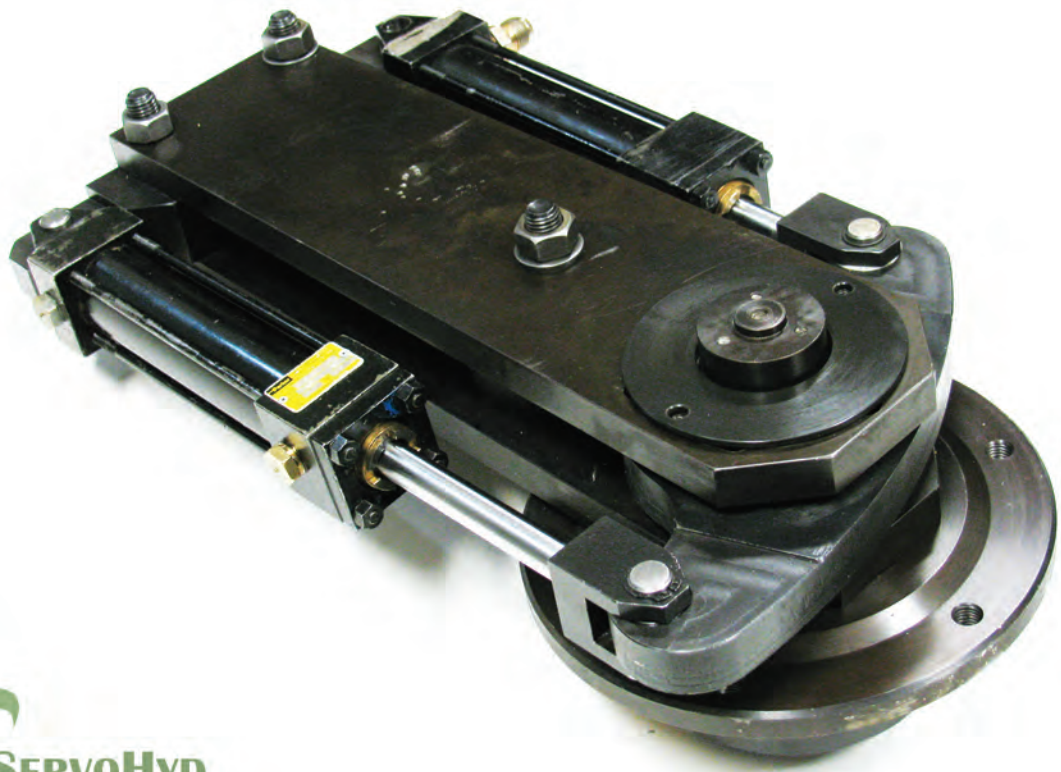
ROTARY HYDRAULIC ACTUATOR

Power: 280W

Features

Nominal Torque:	800 Nm
Rotational Velocity:	25 deg/s
Rotational Range:	±30 deg
Maximum Torque:	1000 Nm
Hydraulic Pressure:	160 bar
Band width:	5Hz



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ELECTRO HYDRAULIC SERVO VALVE 5/3

Hydraulic Fluid: MIL-H-5606
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

Description

Servovalve and Servo-Proportional Valves are electrohydraulic, continuously acting valves that transform a changing analog or digital input signal into a stepless hydraulic output (flow or pressure). This case is an electrohydraulic servo-proportional flapper-type valve with separated pilot pressure port and according to aerospace specification.

Features

Rated Current	±40	mA
Rated Pressure	16	MPa
Rated Flow	10 @ 16Mpa	Lit/min
Pilot Rated Pressure	4.5	MPa
Coil Resistance	230	Ω
Maximum Supply Pressure	28	MPa
Threshold	T<0.8	%
Unlinearity	U<7	%
Hysteresis	H<3	%
Unsymmetry	Us<10	%
Pressure Gain	PG >30	%Ps/1%In
Null Bias	NB<2	%
Temperature Null Shift with 100°F variation	T.N.Sh. < ±2	%
Supply Pressure Null Shift with 1000psi change	Ps.N.Sh. <±2	%
Null Shift with return Pressure of (0~20%Ps)	Pr.N.Sh. <±2	%
Amplitude Ratio with -3db	AR>50	Hz
Phase Lag with 90°	Ph>130	Hz
Oil Temperature	-54 ~ 135	°C
Ambient Temperature	-54 ~ 71	°C

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SERVO VALVE PERFORMANCE TESTER

Standard Specification Tester According to: SAE-ARP 490
Maximum Pressure: 3600 psi
Maximum Flow: 20 lit/min
Electrical: 380 VAC - 50 HZ

Description

Electro hydraulic servo valve test system is designed to provide automated, semi-automated and manual testing of a wide range of aerospace and industrial electro hydraulic servo and proportional valves and associated components.

Features

Static Performance:
Flow Gain
Pressure Gain
Null Characteristics
Supply and Return Pressure Drift
Null Leakage
Proof Pressure
Threshold Charactristics
Hystrisis
Dynamic Performance:
Frequency Response
Amplitude Ratio
Phase Lag

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SHUT OFF HYDRAULIC VALVE 2W2P

Hydraulic Fluid: MIL-H-5606
Preserved Hydraulic Fluid: MIL-H-6083
Environmental Condition: MIL-STD-810
Connector, Electric, Circular, Miniature and Quick Disconnect: MIL-C-26482

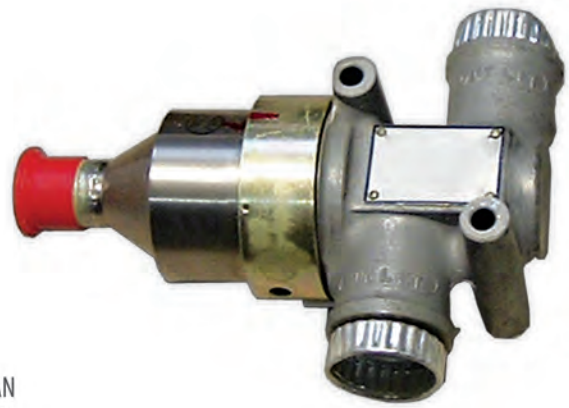
Description

Hydraulic valve is manufactured to closed hydraulic fluid path by electrical demand.

Features

Rated Flow Capacity:	1.7 gpm at 120 psid in room temperature
Solenoid Actuator:	18-28 VDC
Operation Pressure:	600-2250 psi
Nominal Pressure:	1500 psi
Proof Pressure:	2250 psi
Burst Pressure:	3750 psi
External Leakage:	~ 0
Maximum Internal Leakage:	5 cc/min at 1500 psi
Weight:	600 gr
Temperature Limits:	Fluid : -65°F to 275°F Ambient: -65°F to 160°F
Vibration:	±10g at 3 cordinates (x,y,z)
Filtration:	25 micron Absolute
Endurance Cycling:	20000 cycles
Reliability:	MTBF: 8000 hours According to Technical Manual
Lubricants:	

Only Hydraulic Fluid Conforming to MIL-H-5606 is used to lubricate seals during installation and assembly. A light coating of petrolatum conforming to MIL-H-6083 will be permitted.



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SPOOL-SLEEVE SOLENOID VALVE 212

Hydraulic Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810 & MIL-S-4040

Description

Features

Solenoid	single coil,27 VDC
Operating Temperature	-45°c ~ +60°c
Proof Pressure	200 bar
Operating Pressure	155bar
Current Drain at 27 VDC and 21°C	1.0 A (max)
Leakage	5(cc/min)max At 155 bar
Pressure Drop	At 6.5gpm 14 bar (max)
Solenoid valveDimensions	Φ49×94 mm
Di-electric strength in 1000 VAC	1 MΩ
Weight	315 gr
Response time	0.2 s

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TRANSMISSION OIL PUMP

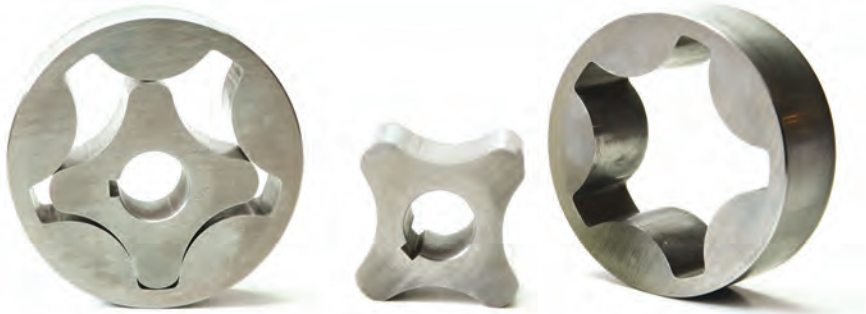
Operating Fluid: MIL-L-7808
Corrosion Preventire Fluid:C-105

Description

Gerotor pumps are internal gear pumps without the crescent. The rotor is the internal gear, and the idler is the external gear. They are primarily suitable for clean, low pressure applications such as lubrication systems or hot oil filtration systems.

Features

Weight:	
Elements	0.23 kg
Pump assembly	0.86 kg
Rated Performance:	
11.9 gpm at	4500 rpm
	16 in.hg absolute inlet pressure
	80 psi min. discharge pressure
Operating Range:	
Oil Temperature	-65°F to +250°F
Operating Pressure	80 psi - 150 psi
Endurance:	
10000 hrs with not 10% loss in rated performance	
Operating 20 hrs without loss of rated performance with following limit conditions:	
150 psig Discharge Pressure	
10 in.hg Absolute Inlet Pressure	
+250°F Oil Temp.	
-65°F Oil Temp.	
4500 rpm	



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Maximum Flow: 20 lit/min
Electrical: 380 VAC - 50 HZ

Description

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Features

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Flow Gain
Pressure Gain
Null Characteristics
Supply and Return Pressure Drift
Null Leakage
Proof Pressure
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Hystrisis
Dynamic Performance:
Frequency Response
Amplitude Ratio
Phase Lag

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SOLENOID VALVE
SPOOL & SLEEVE

Hydraulic Fluid: MIL-H-5606
Environmental Condition: MIL-STD-810
Electrical Connector: GS02-10SL-4P-001

Description

This valve controls flow direction. To do that, it is necessary to achieve surface roughness and dimensional accuracy tolerances up to ±0.1µm and ±0.5µm respectively during manufacturing to have as lowest as possible leakage. One of the requirements to adjust pressure in a range of 40±3 psi, operate at voltage in 15±0.5 v and Drop-out at voltage in 1.5±0.5 v is to achieve dimensional accuracy about 0.01 mm.
These capabilities have to be remained during service life. Hence, one of the stabilization processes should be done on qualified raw material and the geometrical accuracy is required to be about 0.01 mm.
This assembly has to pass hermetic seal test without any malfunction.

Features

Solenoid:	single coil, continues duty, 18-30 VDC
Proof Pressure:	2250 psig
Burst Pressure:	3750 psig
Current Drain at 30 VDC:	2.2 Amps (max)
Leakage:	1 (cc/min) max At 1500 psig
Pressure Drop:	At 3 gpm 50 psi (max)
Solenoid Dimensions:	135 mm
Sleeve Dimensions:	63.2 x 31.15 mm
Vibration:	±10g at 3 cordinates (x,y,z)

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VARIABLE DELIVERY PUMP ENVIRONMENTAL TESTER

Description

Variable Delivery Pump Environmental Tester is designed according to SAE-AS1969A standard document to test the variable delivery pumps under different unfavorable conditions. This tester is manufactured by several equipment and accurate sensors to do the "Low Temperature", "Thermal Shock", "Vibration Test" and two thousand hours "Endurance Test".

Features

Maximum Pressure	320 bar
Nominal Flow Rate	40 lpm
Nominal Motor Power	25 kW
Nominal Motor Speed	6000 rpm
Temperature Range	-54 ~ +135 °C

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