

**Fork Lift Transmission
Hydraulic Directional Control Valves**



DESCRIPTION 4 Way - 3 Position - Spring Centered Mobile Transmission Hydraulic Valve, Float Center Spool, ISO 03/NFPA D03/NG6 Mtg Pattern, Push-Pull Coil Series, Push Rod Solenoid End

| ORDERING | | |
|-----------------|-------------------------------|-----------------------------|
| | SWM-G02-C4-D12-30-S005 | 12 Volt DC, with Connector |
| | SWM-G02-C4-D12-30-S006 | 12 Volt DC, with Lead Wires |
| | SWM-G02-C4-D24-30-S005 | 24 Volt DC, with Connector |
| | SWM-G02-C4-D24-30-S006 | 24 Volt DC, with Lead Wires |

PERFORMANCE SPECIFICATIONS

| | | |
|---------------------------------|---|--|
| Mounting Pattern | ISO 03 /NFPA D03 /CETOP 03 / NG 06 | |
| Max. Operating Pressure | 3000 PSI (210 kgf/cm ²) | |
| Max. Flow | 3.1 GPM (12 LPM) at 3000 PSI (210 kgf/cm ²) | |
| Max. Tank Line Back Pressure | 1000 PSI (70kgf/cm ²) | |
| Fluid and Temperature | Hydraulic Oil: -13°F to +194°F (-25°C to +90°C) Engine Oil: -22°F to +212°F (-30°C to +100°C) ATF Dexron: -22°F to +266°F (-30°C to +130°C) | |
| Response Time | ≤ 50 msec on, ≤100 msec off | |
| Max. Frequency of Operation | 250 cycles/min | |
| Permissible Contamination Level | With NAS 1638 Class 12 (ISO 21/18) | |
| Corrosion Resistance Treatment | Zinc Phosphate Compound JIS D1601 Type-3 Class-D Stage-7 | |
| Vibration Tolerance | @ 0.016 in. (0.4mm) displacement @ 6.8G @ 66.7 HZ * 3 Directions | |
| Waterproof Tolerance | JIS 0203S2, to immerse in 86°F (30°C) water @ 3.94 in. (100mm) for 10 minutes | |
| Voltage and Power Consumption | 12 VDC | -10 % to +10% Continuous +11% to +20% 75% for 5 min. each energizing +21% to +30% 50% for 3 min. each energizing |
| | 24 VDC | -10 % to +10% Continuous +11% to +20% 75% for 5 min. each energizing +21% to +30% 50% for 3 min. each energizing |
| Current | 2.4A (DC 12V) | |
| | 1.2A (DC 24V) | |
| Power Consumption | 26.0 Watts | |
| Insulation | Class H | |
| Weight | 3.5 lbs. (1.6 kg) | |

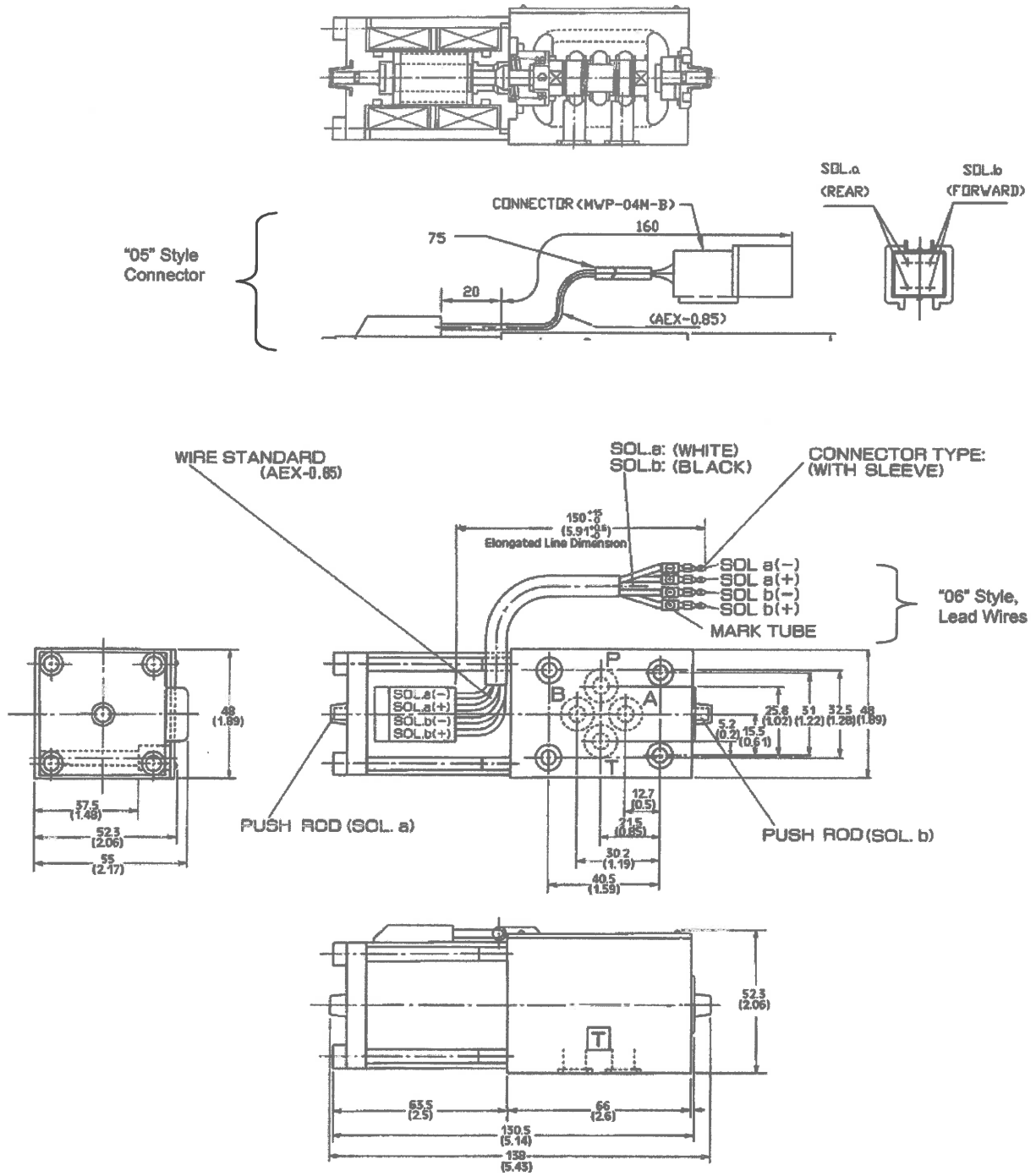
Note: Valve used on Mitsubishi Fork Lift Models FGC15K to FGC30K, P/N 91328-10030

SWM-G02 SERIES

INSTALLATION DIMENSIONS

Unit: mm (inch)

Mobile Transmission Hydraulic Directional Control Valves



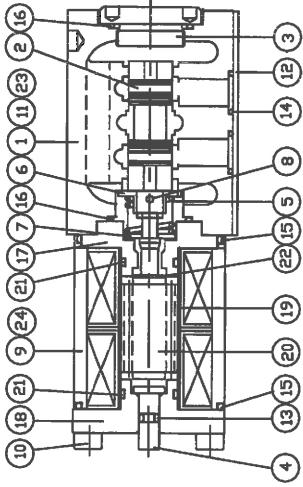
Northman Fluid Power
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Glendale Heights, IL 60139

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inquiry@northmanfp.com

Ph: 847-285-1624
Fx: 847-285-1764

SWMF0109-1

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1 2 3 4 5 6 7 8



***VALE SPEC.**

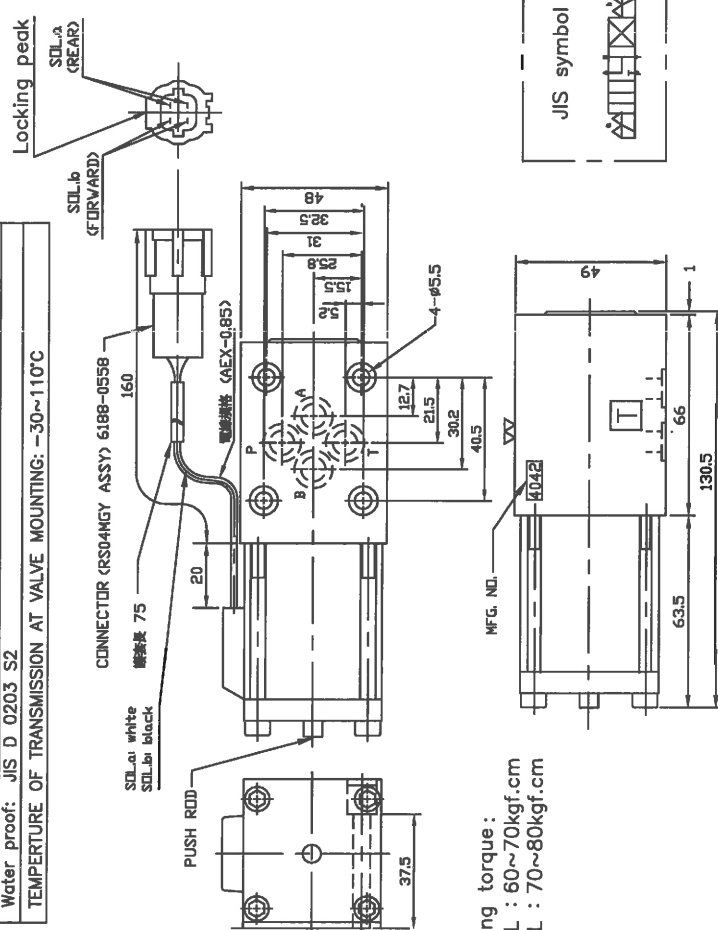
| | |
|---|---------------------------|
| Maximum operating pressure(P.A.B) | 30 kgf/cm ² |
| maximum flow | 10 L/min |
| Maximum permissible pressure(T) | 20 kgf/cm ² |
| Maximum internal leakage A,B, port respective (neutral position P=30 kgf/cm ² Oil temp.: 45±5°C) | 40 cc/min |
| Response (rate voltage > (Oil temp.: 45±5°C coil temp.=30±5°C) | 50msec |
| Vibration--resisting | JIS D 1601 3--D (STAGE 7) |
| Maximum contamination level | NAS 12 |
| Corrosion--prevent process | Phosphate coatings |

***SOLENOID SPEC.**

| | |
|-------------------------------|-----------------|
| rate voltage | DC12V |
| Maximum current (at 24V 20°C) | 2.4A |
| Voltage tolerance allowed | DC12.5±2.5V |
| Allowed energizing time | |
| Voltage | energizing rate |
| 10~13.2V(rate~110%) | 100% |
| 13.2~14.4V(110~120%) | 75% |
| 14.4~15V(120~133.3%) | 50% |

***OPERATING SPEC.**

Hydraulic oil: ATF DEXRON Oil temp.: -30~130°C
 Water proof: JIS D 0203 S2
 TEMPERATURE OF TRANSMISSION AT VALVE MOUNTING: -30~110°C



Mounting torque:
 M5*65L : 60~70kgf.cm
 M5*45L : 70~80kgf.cm

| NO. 序號 | DESCRIPTION 零件名稱 | Q'TY 數量 | SPEC 規格 | PRODUCT ID 產品編號 | DWG NO. 圖號 |
|--------|----------------------|---------|--------------------------|-----------------|------------|
| 24 | 接線座 CONNECTOR | 1 | 6188-0588 (RSD4MGY ASSY) | 171701 | |
| 23 | 本體固定螺絲 BOLT | 4 | M5*45L | 121197 | |
| 22 | E 形環 E RING | 1 | E-4(SUS304) | 120353 | |
| 21 | 口形環 VITON O-RING | 2 | AS568-015 70° | 120235 | |
| 20 | 電磁管 ARMATURE | 1 | | 171011 | AEAC*006 |
| 19 | 電磁管後蓋 TUBE CAP | 1 | | 171004 | AEAC*005 |
| 18 | 磁管前蓋 TUBE HEAD | 1 | | 171013 | AEAC*003 |
| 17 | 口形環 VITON O-RING | 2 | AS568-020 90° | 171012 | AEAC*002 |
| 16 | 口形環 VITON O-RING | 2 | SM-40 HS70 | 120313 | |
| 15 | 口形環 VITON O-RING | 4 | AS568-012 90° | 120231 | |
| 14 | 口形環 VITON O-RING | 1 | P-3 HS80° | 120288 | |
| 12 | PVC 底座墊 BOTTOM PLATE | 1 | | 170963 | AAAA008 |
| 11 | 彈簧銷 SPRING PIN | 4 | ø8*26.5 | 121298 | AAAA*005 |
| 10 | 線圈固定螺絲 BOLT | 4 | M5*65 | 121174 | |
| 9 | 線圈 COIL | 1 | D12-31-C001 | 171702 | AEAD0002 |
| 8 | 固定鎖 LOCK PIN | 1 | ø2*7.3L | 120316 | AEAE0007 |
| 7 | 彈簧墊 RETAINER(B) | 1 | | 171017 | AEAAA006 |
| 6 | 彈簧墊 RETAINER(A) | 1 | | 171016 | AEAAA005 |
| 5 | 彈簧 SPRING | 1 | | 171015 | AEAA0004 |
| 4 | 推桿 PUSH ROD | 1 | | 171007 | AEACB001 |
| 3 | 塞頭 CIR PLUG | 1 | C4 | 171009 | AEAA0002 |
| 2 | 滑塊 SPOOL | 1 | | 520125 | AEABB001 |
| 1 | 本體 BODY | 1 | | 510021 | AEAA0001 |

| 加工一般公差 | 核准 | 審核 | 設計 | 製圖 | 單位 | 比例 | 圖號 |
|-------------|----|----|----|----|----|-----|----------|
| > 0 ±0.1 | / | / | / | / | mm | 2/5 | AEC00002 |
| > 6 ±0.2 | / | / | / | / | 公厘 | | |
| > 30 ±0.3 | / | / | / | / | 公斤 | | |
| > 120 ±0.5 | / | / | / | / | 個 | | |
| > 315 ±0.8 | / | / | / | / | | | |
| > 1000 ±1.2 | / | / | / | / | | | |

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 北部精機股份有限公司

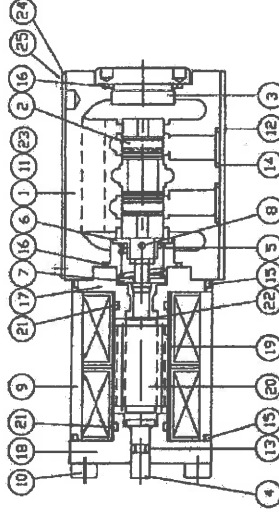
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 機種: SVM-G02-C4-D12 -30-S003
 產品編號: 613162
 圖號: AEC00002

| | | | | |
|----|------|-----|----|------|
| 次序 | 更改內容 | 負責人 | 日期 | 設變編號 |
| | | | | |

Not AVAILABLE

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1 2 3 4 5 6 7 8



*VAIVE SPEC.

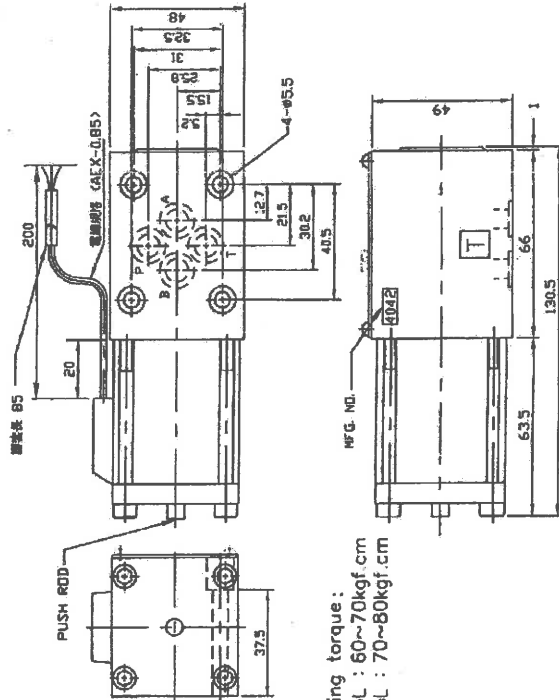
| | |
|---|--------------------------|
| Maximum operating pressure(P.A.B) | 30 kgf/cm ² |
| Maximum flow | 10 L/min |
| Maximum permissible pressure(T) | 20 kgf/cm ² |
| Maximum internal leakage A,B port respective (neutral position P=30 kgf/cm ² Oil temp.:45±5°C) | 40 cc/min |
| Response (rate voltage) | 50msec |
| (Oil temp.:45±5°C coil temp.=30±5°C) | |
| Vibration--resisting | JIS D 1601 3-D (STAGE 7) |
| Maximum contamination level | NAS 12 |
| Corrosion-prevent process | Phosphate coatings |

*SOLENOID SPEC.

| | |
|-------------------------------|-----------------|
| rate voltage | DC12V |
| Maximum current (at 12V 20°C) | 2.4A |
| Voltage tolerance allowed | DC12.5±2.5V |
| Allowed energizing time | energizing rate |
| 10~13.2V(rate~110%) | 100% |
| 13.2~14.4V(110~120%) | 75% |
| 14.4~15V(120~133.3%) | 50% |

*OPERATING SPEC.

| | |
|--|----------------------|
| Hydraulic oil: ATF DEXRON | Oil temp.: -30~130°C |
| Water proof: JIS D 0203 S2 | |
| TEMPERATURE OF TRANSMISSION AT VALVE MOUNTING: -30~110°C | |



Mounting torque:
M5*65L : 60~70kgf cm
M5*45L : 70~80kgf cm

| NO. | DESCRIPTION 零件名稱 | Q'TY 數量 | SPEC 規格 | PRODUCT ID 產品編號 | DWG NO. 圖號 |
|-----|------------------------|------------|---------------|--------------------|---------------|
| 25 | 九頭十字螺絲 (BOLT) | 4 | M3*6L | 120414 | |
| 24 | 軟片 -20 (NAMEPLATE) | 1 | | 171752 | |
| 23 | 本體固定螺絲 (BOLT) | 4 | M5*45L | 121197 | |
| 22 | E 形環 (E RING) | 1 | E-4(CSUS304) | 120353 | |
| 21 | O 形環 (VITON O-RING) | 2 | ASS68-015 70" | 120235 | |
| 20 | 電壓 (ARMATURE) | 1 | | 171011 | AEACA006 |
| 19 | 電磁管 (TUBE) | 1 | | 171004 | AEAC0005 |
| 18 | 磁管管蓋 (TUBE CAP) | 1 | | 171013 | AEACA003 |
| 17 | 磁管前蓋 (TUBE HEAD) | 1 | | 171012 | AEACA002 |
| 16 | O 形環 (VITON O-RING) | 2 | ASS68-020 90" | 120239 | |
| 15 | O 形環 (VITON O-RING) | 2 | SM-40 HS70 | 120313 | |
| 14 | O 形環 (VITON O-RING) | 4 | ASS68-012 90" | 120231 | |
| 13 | O 形環 (VITON O-RING) | 1 | P-3 HS80" | 120288 | |
| 12 | PVC 壓墊板 (BOTTOM PLATE) | 1 | | 170963 | AAAA0008 |
| 11 | 彈簧銷 (SPRING PIN) | 4 | Ø8*26.5 | 121298 | AAAA8005 |
| 10 | 鎖圈固定螺絲 (BOLT) | 4 | M5*65 | 121174 | |
| 9 | 螺圈 (COIL) | 1 | DI2-30-C006 | 171978 | AEAD0006 |
| 8 | 固定銷 (B) (LOCK PIN) | 1 | Ø2*7.3L | 120316 | AEAE0007 |
| 7 | 彈簧墊 (B) (RETAINER(B)) | 1 | | 171017 | AEAA0006 |
| 6 | 彈簧墊 (A) (RETAINER(A)) | 1 | | 171016 | AEAA0005 |
| 5 | 彈簧 (SPRING) | 1 | | 171015 | AEAA0004 |
| 4 | 推桿 (PUSH ROD) | 1 | | 171007 | AEAC8001 |
| 3 | 蓋頭 (CIR PLUG) | 1 | | 171009 | AEAA0002 |
| 2 | 閥性 (SPOOL) | 1 | C4 | 520125 | AEABC001 |
| 1 | 本體 (BODY) | 1 | | 510021 | AEAA1001 |

| | |
|-------------|----------|
| 加工一般公差 | > 0 ±0.1 |
| 核准 | 編號 |
| > 6 ±0.2 | 審校 |
| > 30 ±0.3 | 設計 |
| > 120 ±0.5 | 製圖 |
| > 315 ±0.8 | 單位 |
| > 1000 ±1.2 | 比例 |

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| | |
|------|------------------------|
| 名稱 | 外形尺寸圖 組合圖 |
| 機種 | SVM-G02-C4-DW -30-S006 |
| 產品編號 | 613499 |
| 圖號 | AEC00006 |

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|----|------|-----|----|------|
| 次序 | 更改內容 | 負責人 | 日期 | 變更編號 |
|----|------|-----|----|------|

AVAILABLE