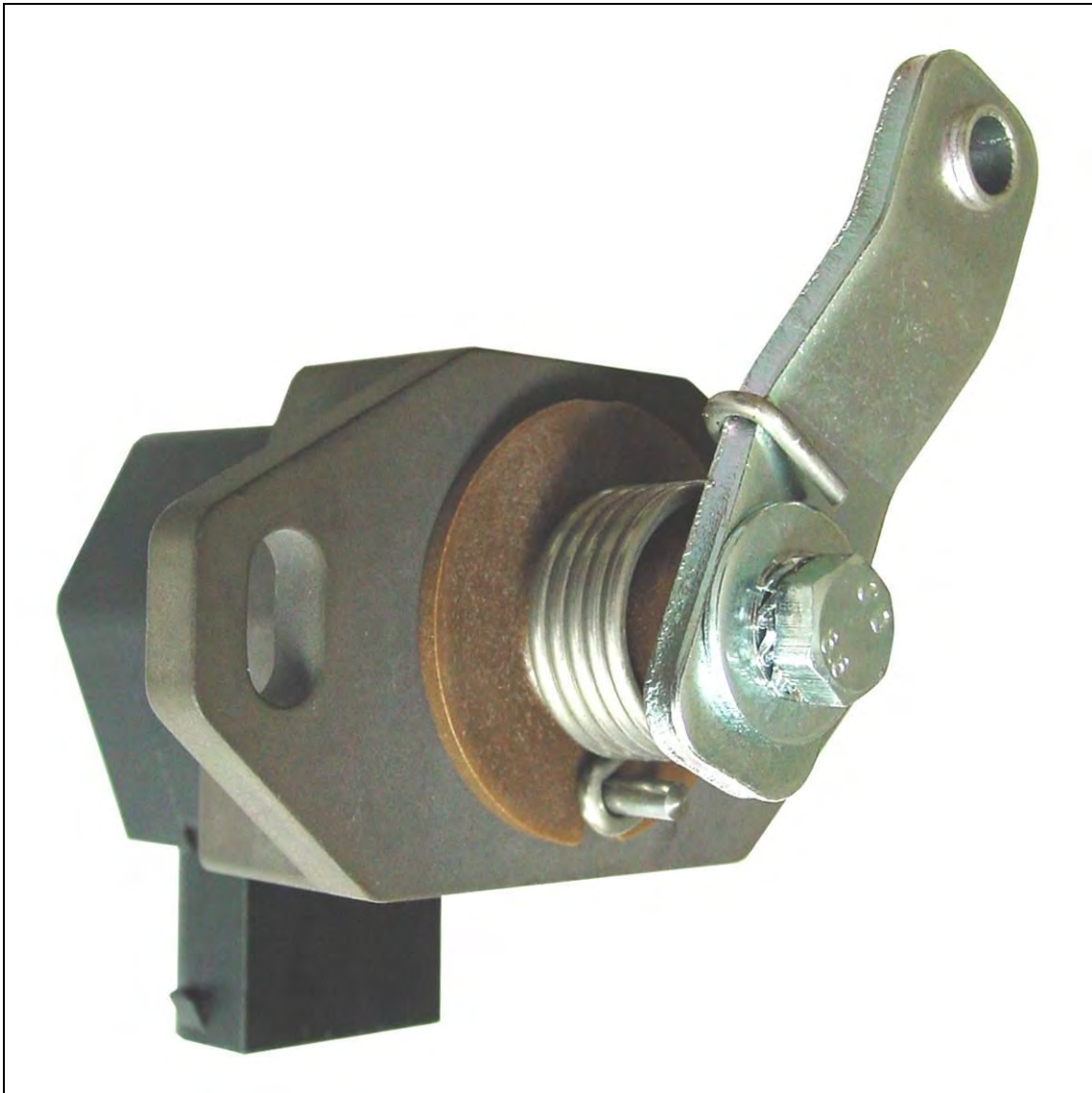


Throttle Position Sensor 974 000 series



1. Mechanical Specifications:

- One return spring
- One additional external return spring required on throttle mechanism in order to be FMVSS 124 compatible
- Easy to be fitted on an existing pedal cable or linkage
- C € certified

Travel angle	42°
Protection classification	IP69K
Storage temperature	-40°C to +95°C
Operating temperature	-40°C to +85°C
Connector	AMP - 6 pins - waterproof (IP69)

- **Options:**
 - IP69K protection
 - Connector kit or customized wire harness
- Technical specification sheet and part numbers are available upon request

2. Electrical Specifications:

- Complies with FMVSS 124 and 72/245/EEC
- E1 number 03 5754

All Electronic Throttle Controls are fitted with programmable Hall Effect Sensors.

The signals generated by the Electronic Throttle Controls will allow a smooth and precise engine speed control.

The output values are programmable and hence can be adapted to the customer's specifications. Electronic Throttle Controls can be connected directly to the engine management system, or engine Electronic Control Module.

For available programmable sensor models, please, refer to pages 3 and 4.

A/ Programmable single analogue sensor with programmable electronic Idle Validation Switch (IVS)

Analogue channel :

Current consumption	< 7,5mA
Supply (Vs)	Between 5V and 28 V DC
Output signal value	Between 5% and 95% (+/- 1%) of 5V DC
Output current	Max 1mA

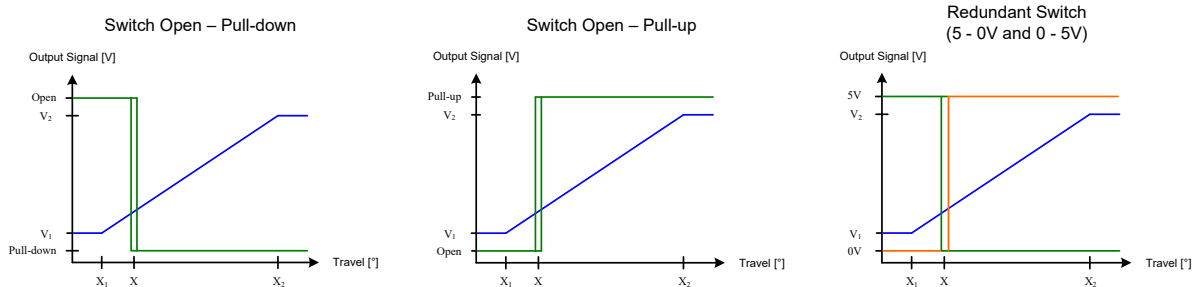
Switch channel option 1 :

Current consumption	< 10mA
Supply (Vs)	Between 8V and 36V DC
Idle Validation Switch	Configurable (Open collector, Pull-up or Pull-down)
Output current	Max 10mA

Switch channel option 2 :

Current consumption	< 10mA
Supply (Vs)	Between 8V and 36V DC
Redundant Idle Validation Switch (2 outputs)	Output 1 : High - Low (5 - 0V) Output 2 : Low - High (0 - 5V)
Output current	Max 1mA / output

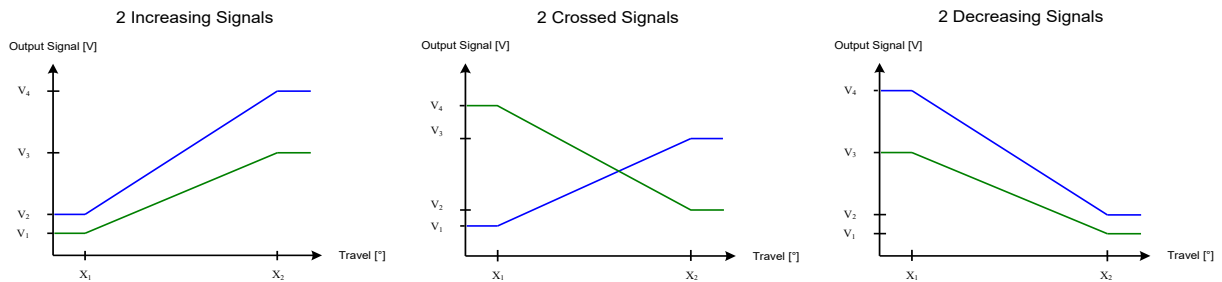
Examples:



B/ Programmable dual output analogue sensor

Current consumption	< 8mA / channel
Supply (Vs)	5V DC / channel
Output channel #1	Between 5% and 95% (+/- 1%) of Vs
Output channel #2	Between 5% and 95% (+/- 1%) of Vs
Output current	Max 1mA / channel

Examples:



C/ Programmable single or dual output digital sensor (PWM)

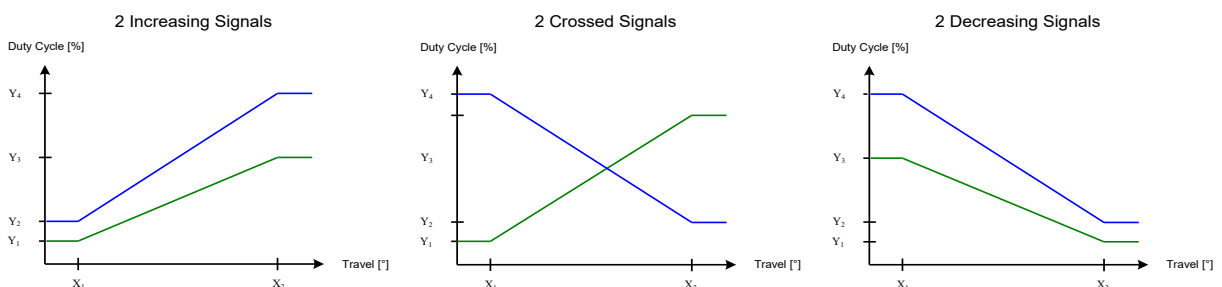
Digital channel(s) :

Current consumption	< 12mA / channel
Supply (Vs)	Between 8 and 36 V DC
Output channel #1	Duty cycle between 5% and 95% (+/- 1%)
Output channel #2	Duty cycle between 5% and 95% (+/- 1%)
Frequency	200Hz to 500Hz +/-15%
Output current	Max 10mA / channel

Optional Switch channel with single digital output :

Current consumption	< 12mA
Supply (Vs)	Between 8V and 36V DC
Idle Validation Switch	Configurable (Open collector, Pull-up or Pull-down)
Output current	Max 10mA

Examples:



3. Options:

A/ CAN J1939

J1939 Parameters:

- J1939 Messages and signals can be activated according to MCS Throttle default values or customer specifications.
- J1939 Parameters like SA (Source Address) or NAME fields can be set according to MCS Throttle default values or customer specifications.
- Optional messages such as DTC (DMx, FMI, MIL, ...) can be activated upon customer request.

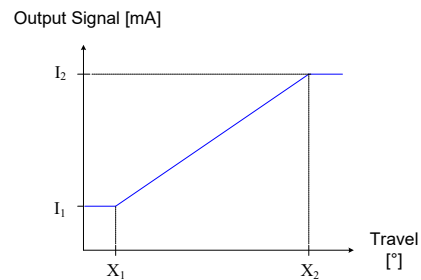
Electrical specifications:

Power Supply	+8 .. 32VDC
Current consumption	40mA max.
J1939 Connector	Deutsch #DT06-3S (J1939/11)



B/ 4-20mA current output signals

Power Supply	+8 .. 32VDC
Current output signal	4 - 20mA



C/ Customized parts available



With long lever

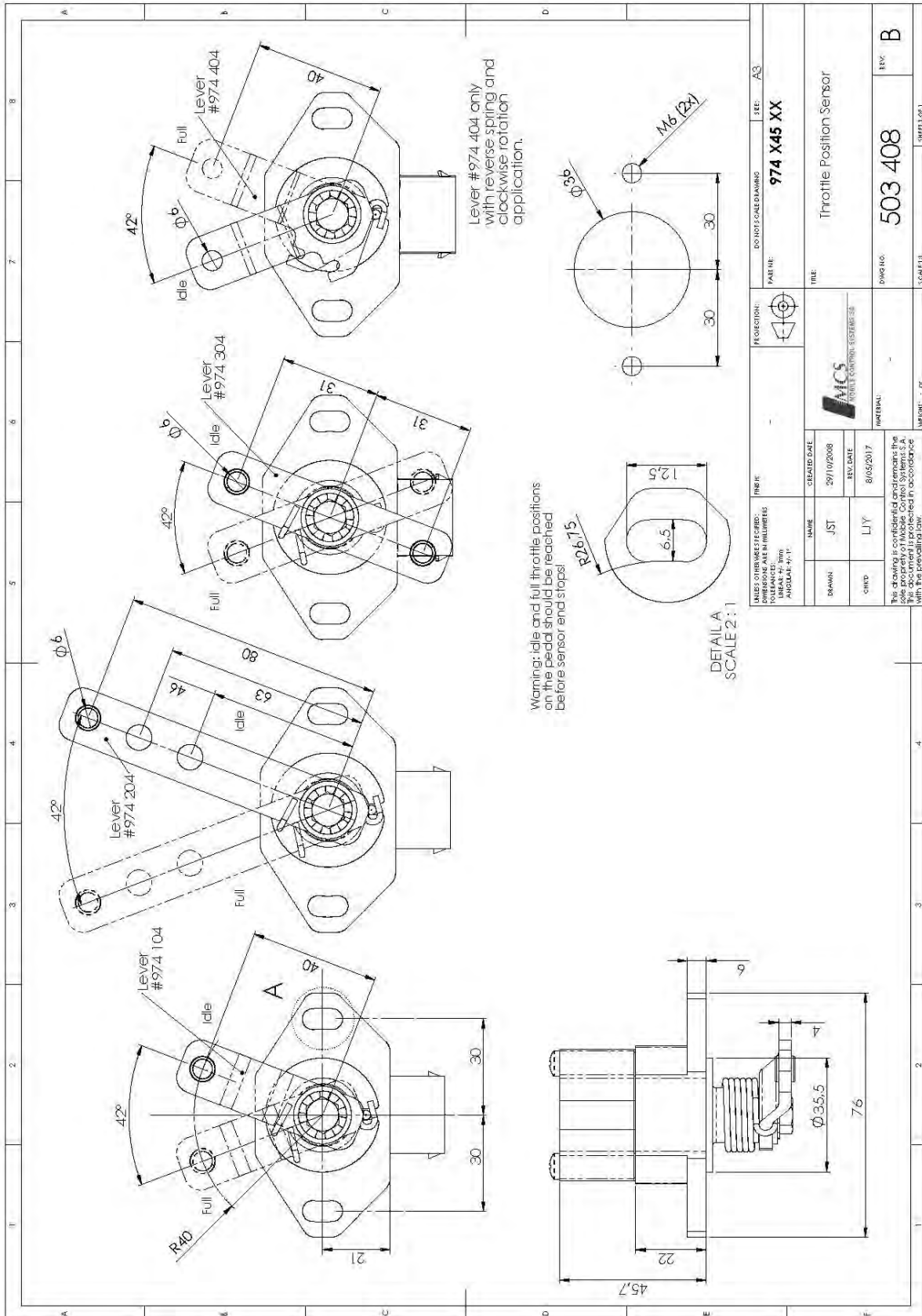


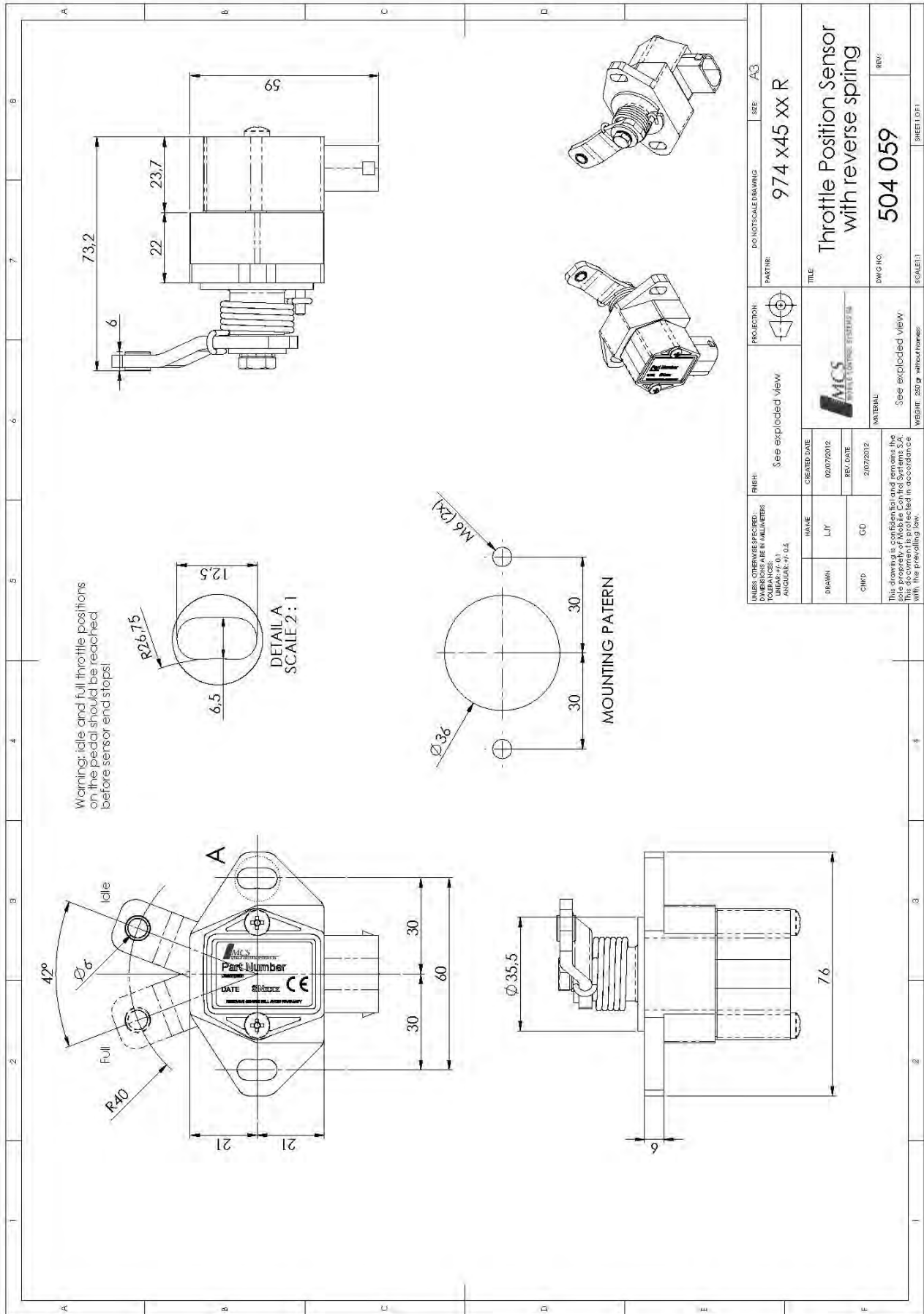
With reverse spring



With dual lever

4. Drawing:





5. Typical Applications:



6. Compatible with the following engines:

- | | | |
|------------------|-----------------|-------------------|
| • CATERPILLAR | • JCB | • PERKINS |
| • CUMMINS | • JOHN DEERE | • RENAULT |
| • DACHAI | • KUBOTA | • SCANIA |
| • DEAWOO | • LIEBHERR | • SHANGHAI DIESEL |
| • DAF | • LOVOL | • SISU DIESEL |
| • DETROIT DIESEL | • MAN | • VOLKSWAGEN |
| • DEUTZ | • MERCEDES-BENZ | • VOLVO |
| • HINO | • MTU | • WEICHAI |
| • ISUZU | • NAVISTAR | • YANMAR |
| • IVECO | • NISSAN | • YUCHAI |