

SGMW Powertrain PT2 engine

**Technical specification from Festo AG & Co. KG
Single source supply**

Version: 1.0

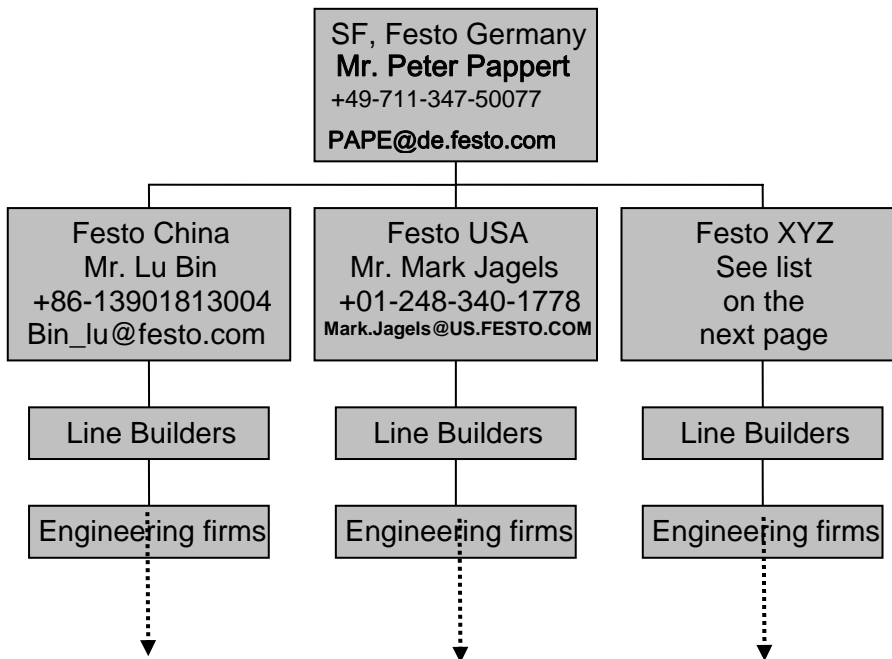
**Technical specifications
Fluid control**

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Fluid control
SGMW PT2
Version 1.0**

Festo project organization for SGMW PT2



**SGMW PT2
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Version 1.0**



Festo China support organization for SGMW PT2



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For any additional information please visit our web sides under www.festo.com.



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General Specifications

All pneumatic components and control systems must comply with international standards. These standards will cover the complete product range. Port threads must comply with ISO 228 (G"-threads).

All solenoids coils and other electro-pneumatic devices will be 24 VDC.

Whenever possible, consideration should be made with respect to the use of Festo fieldbus valve / sensor manifolds. The following interfaces should be used to eliminate control cabinets, simplify layout and reduce costs.






Only Festo "Push-pull" type QS fittings with G-thread must be used with flexible tubing.

Cylinder port mounted flow control valves will be used wherever possible.

All air-controlled equipment must be furnished with manual lock-out valves on the main supply line (OSHA regulations).





Cylinders & Actuators	Typ	Picture	Notes
Short stroke cylinder	ADVU-... AEVU-...		CHINA PRODUCED PRODUCT!
Short stroke cylinder ISO 21287	ADN-... AEN-...		CHINA PRODUCED PRODUCT!
Cylinder ISO 6432	DSN-... DSNU... ESNU...		CHINA PRODUCED PRODUCT!
Cylinder ISO 6431 + VDMA	DNC-...PPV- Diameter 32 to 125 mm		CHINA PRODUCED PRODUCT! Moste modern ISO cylinder with more than 5000 variants for individual applications
Cylinder ISO 6431 + VDMA	DNG-...PPV-A only diameter 160 to 320 mm		Classic ISO cylinder Advantage: Individual cylinder switches can be mounted
Swivel cylinder	DSM-...		Perfect for handling applications up to 270°

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Semi rotary drive	DRQ-... DRQD-...		High torque moments, up to 360°
Linear drive	DGP-... DGPL-...		High modularity with various variants. Strokes up to 4m Often used in CNC machines with protection cover
Linear drive	DGC-...		
Stopper cylinder	STA-... STAF-...		One of the basic products for automated material flow, available with additional functions, e.g. integrated shock absorbers for compensating higher energies
Mini slide	SLF-... SLS-... SLT-...		Wide range of types and functions. Very flat (SLF), high moments (SLT), precise perfect for all handling operations inside machines or inbetween the material flow

Remarks:


All needed accessories please see Festo DK1 CD-ROM or Internet www.festo.com.






<p>Clamping units</p>	<p>KPE-... KE-C (for DNC cylinders)</p>		<p>Standard products, especially to desing safe functions inside machines (by clamping the piston rod in case of no pressure)</p>
<p>Handling – Pick & place Linear module</p>	<p>HMP-... HMPL-...</p>		<p>Complete unit for handling applications (one or more axis versions), with all intergaretd functions (end switches, mid-positions, shock absorbers)</p>
<p>Grippers</p>	<p>HGD-... HGP-... HGR-... HGW-... HGPP-...</p>		<p>A wide range of different grippers, which fit perfectly to our modular handling system. Festo offers a complete engineering and key turn solutions for your handling applications!</p>
<p>Vacuum generators and Suction cups</p>	<p>VN-... VAD-... ESG-... VAS-...</p>		<p>More than 2000 combination possibilities of suction cups, connectors, vacuum generators (also in-line), for complete vacuum operated applications</p>

Remarks:

All needed accessories please see Festo DKI CD-ROM or Internet www-festo.com.


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<p>Proximity Sensors for Cylinders and Actuators</p>	<p>SM-...</p>		<p>With M12 connector! Together with M12 connectors at e.g. valves and pressure switches, all pneumatic components can be installed with one type of connectors (Time saving!)</p>
<p>Status indicator</p>	<p>SIE-...</p>		<p>In different dimensions and functions (also NPN standard) Inductive and optical versions possible</p>

Valves ISO 5599/1	Typ	Picture	Notes
Solenoid ISO-valve M12 central plug	MEBH-...		M12 central plug (Time saving, due to one unique plug in the whole machine and only one connector for both coils)
Pneumatic valve	J-... VL-...		
Solenoid ISO-valve M12 plug on each coil	MDH-...-M12-... JMDH-...-M12-...		use only in combination with controls system from FANUC
Valves ISO 15407-1	Typ	Picture	Notes
Solenoid valve M12 central plug	VSVA-...		M12 central plug
Pneumatic valve	J-... VL-...		

Remarks:

All needed accessories please see Festo DKI CD-ROM or Internet www.festo.com.
Up to 3 single solenoids, a valve terminal may use instead!

Ball Valves 2/2 way valves	Typ	Picture	Notes
Ball valves for fluid control (water, gas, air ...)	VAPB-... DAPZ-... DRD-... DRE-... DAPS-... QH-...		Complete ball valve combinations including actuator, switch box are pre-assembled available.

Remarks:




Accessories please see Festo DKI CD-ROM or Internet www.festo.com

In combination with other pneumatic products and control products (valve terminals), complete control solutions for any kind of fluid handling could be realized and specified. I.e. for:

- Water treatment plants
- Cooling water
- Paint shop
- Test plants
- Washing plants


Festo has different departments for this kind of applications.

Please see internet www.festo.com, industry segment "processindustry"!

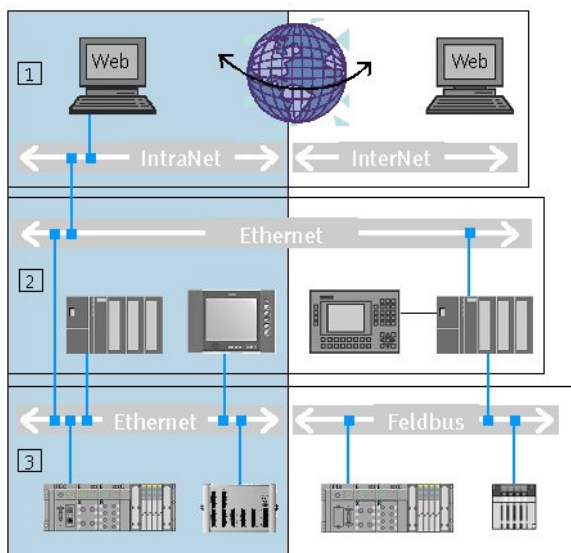
Valve terminals	Typ	Picture	Notes
Valve terminal ISO 5599/2	Typ 04 - 5/2 – 5/3 solenoid - ISO valves - Digital Inputs - Digital outputs - Analog inputs - Analog outputs - Multi I/O's - Siemens – Rockwell - DeviceNet - Profibus - Interbus-S		M12 plug I/O terminals. Available for all common types of BUS systems
Valve terminal ISO 5599/2 and ISO 15407-2	Typ 44 - 5/2 – 5/3 solenoid - ISO size 01 (26mm) - Digital Inputs - Digital outputs - Analog inputs - Analog outputs - Multi I/O's - Siemens – Rockwell - DeviceNet - Profibus - Interbus-S		
Valve terminal	Type CPV / CPA - 300 /1200 l/min - 5/2 – 5/3 –3/2 valves - Multipin connector - AS-I - DeviceNet - Profibus - Interbus-S - Electrical I/O's		CHINA assembled! Complete terminals (final assembly and adaptations in China) More compact and lighter as ISO valve terminals, with directly integrated BUS connection

Please note attachments for configuration!

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Valve terminals	Typ	Picture	Notes
Valve terminal	<p>Type CPX/MPA valve terminal</p> <p>MPA1/MPA2 size</p> <ul style="list-style-type: none"> - 360 - 700 l/min - 2/2, 3/2, 5/2 – 5/3 solenoid or mono stable valves - Digital Inputs - Digital outputs - Analog inputs - Analog outputs - Multi I/O's - Internal diagnostics - FEC controller inside (PLC) - Ethernet TCP/IP - Web Server - DeviceNet - Profibus - Interbus-S - CC link 		<p>Complete terminals (final assembly and adaptations in China)</p> <p>Most modern valve terminal + electrical terminal concept. Diagnostics, Parameter setting and all BUS systems available</p>


Easy integration in PLC concepts and different IT platforms:



CPX valve terminal and PX terminal are a high performance distributed I/O system with or without pneumatics. Because of the availability of different kind of fieldbus interfaces and / or Ethernet communication on the same system, a straight easy and cost effective automation & control concept could be realized. Additional PC based controllers allow local control & data management.







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Remote I/O	Typ	Picture	Notes
Distributed Remote I/O	CPX terminal - Digital Inputs - Digital outputs - Analog inputs - Analog outputs - Multi I/O's - Internal diagnostics - FEC controller (PC) - Ethernet TCP/IP - Web Server - DeviceNet - Profibus - Interbus-S - CC link		Complete terminals (final assembly and adaptations in China)







Smart controllers	Typ	Picture	Notes
Smart PC based controllers (PLC)	FEC-... - Digital Inputs - Digital outputs - Analog inputs - Analog outputs - Serial interface - Ethernet TCP/IP - Web Server		Complete cabinets assembled in China available Powerfull small PLC unit, especially for decentralized applications, e.g. sub function in big automated production lines

Remarks:






Programming software, tools and additional products for FEC, like HMI systems (FED) are available. Please see Festo DKI CD-ROM or Internet www-festo.com.


Check valves	Typ	Picture	Notes
Non return valves	H-... HGL-...-B HAB-...		Necessary especially to build up safe pneumatic functions
Flow control valve	GRO-... GRLO-... GRU-... GRE-...		Precise control of flow rate and behaviour in pneumatic circuits
One way flow control valve	GR-... GRLA-... GRLZ-...		Precise control of flow rate and behaviour directly at the cylinder (speed)
Ball valve drive unit	VAPB-... DAPZ-... DRD-... DRE-... DAPS-...		Control of pneumatic and also liquid flow in big installations
Rapid exhaust valve	SE-... SEU-...		For maximum cylinder speed
Differential pressure valve	LRL-...		For constant pressure on side, independent of pressure changes on the supply side






Manual valves	Typ	Picture	Notes
Swivel valves Manual valves	RW-... RS-... RO-...		
Pressure converter	Typ	Picture	Notes
PE converter Vacuum switch	SDE-... PENV-... VPEV-...		
Pressure switch	Typ	Picture	Notes
Pressure switch Can only be used with deviation request from SGMW!	SDE1-...		Available with M12 plug for common installation concept in the whole machine
Silencer	Typ	Picture	Notes
Silencer	U-... U-...-B		








Compressed air service units	Typ D-Serie	Picture	Notes
Filter	LF-...		Air supply units of the D-Series - Standard in the automotive industry worldwide - robust and modular (final assembly of complete units)
Pressure regulator	LR-... LRB-...		(final assembly of complete units)
Precision pressure regulator	LRP-...		(final assembly of complete units)
Slow start On / off valves	HEL-... HEE-... HE-...		(final assembly of complete units)
Filter regulator	LFR-...		(final assembly of complete units)
Lubricator	LOE-...		(final assembly of complete units)

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Lock-out valve for main supply lines	HE-G-...		Can be locked for safety in case of maintenance (no pressure in the machine as long as the locker is fixed) GM standard
Pressure booster	DPA-...		For installing a separate pressure circuit for higher forces, independent from the main circuit. Doubling of pressure, e.g. 4-8 bar
Adsorbition dryer	LDF-...		For perfect air quality in the main supply line (dry and clean)
Seat Checker	Modular supply		application in CNC machine
Run-On Timer Module for Seal Air			application in CNC machine

Accessories	Typ	Picture	Notes
Tubes CETOP RP 54 P	PUN-... PAN-... PLN-...		A wide range of different tubes for all kind of environment conditions additionally available




<p>Quick coupling sockets</p>	<p>KD-... KS-... MKV-...</p>		
<p>Push-in fittings</p>	<p>QS-...-G...</p>		<p>Push-pull connector for easy and fast commissioning and maintenance with G-thread</p>
<p>Pipes and fittings for air supply as well as for other medias</p>	<p>PQ-... CQ-...</p>		
<p>Reservoir</p>	<p>CRVZS-...</p>		
<p>Drip Leg</p>	<p>DNC-100-...-SA-203603</p>		<p>to put in front of the maintenance units to remove large pollutants</p>

Blanking Plug	B-...		
Reducing Nipple	D-...		
Double Nipple	E-...		
Double Nipple	ESK-...		for angular compensation
Bulkhead Connector	SCM-...		
Sleeve	QM-... QMR-...		
Distributor Block	FR-...		

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Software tools	Typ	Picture	Notes
Basic product information	DKI CD-ROM Product catalogue		All 20.000 pneumatic products Software tools for engineering and optimizing of applications Pictures 2D / 3D CAD datas Technical datas Near every language
	Fluid Draw		
	CAD 3 D		

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E-business@festo	Typ	Picture	Notes
Basic product information	CD-ROM DK1 Internet		Support via electronic media on the Internet or on CD-ROM – from the initial idea through to after-sales service
Online Shop	Internet		Festo product catalogue, including accessories : <ul style="list-style-type: none"> • Price/availability check • Shopping-basket management • Online ordering • Order confirmation • Order tracking
E-Procurement	Internet Online connection of customers IT platforms		Customer-specific electronic product catalogues <ul style="list-style-type: none"> • Connection of EDP systems • BMEcat, ecl@ss, UNSPSC, EDI... • Experience with over 100 projects • Covisint, Ariba ...

“Ready to use “-systems and solutions

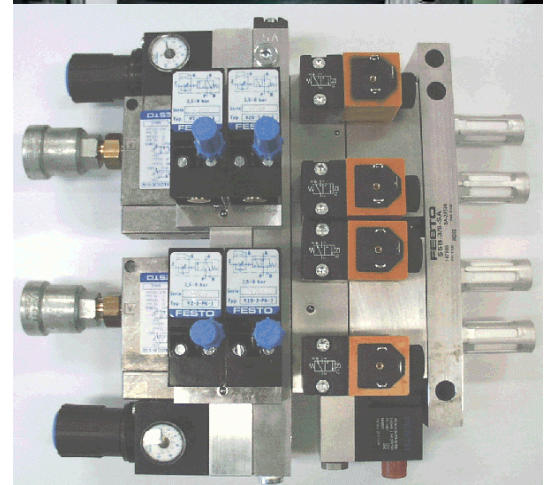
Festo offers for customers and even for projects pre-assembled ready to use products and systems.

The Festo SA –and Systemtechnic department workout with worldwide hundreds of high qualified engineers optimized and application oriented taylor made pneumatic and electric solutions.

The range of solutions could be ready mounted service units, ready to use cabinets, complete 2, 3, ... axis pick – and place handling units including control devices, documentations and installation. Also taylor made product modifications or even complete developments are possible – In any cases this solution could cut cost's in all phases of a plant life cycle.

Benefits:

- Less components
- Less spare parts and easier spare part handling
- Function modules allow better service and maintenance
- Tested units for faster installation and start-up
- Better performance
- Less suppliers
- Easy handling
- Better use of core competence of suppliers
- Cutting life cycle costs



A various range of speacial designed system solutions are available, i.e. a seat checker product range for the control of the correct position of motor blocks or other engine parts. Please see www.festo.com or contact our AMI project managers.

Festo Didactic -

Training provider in the field of production and process automation

World market leader as:

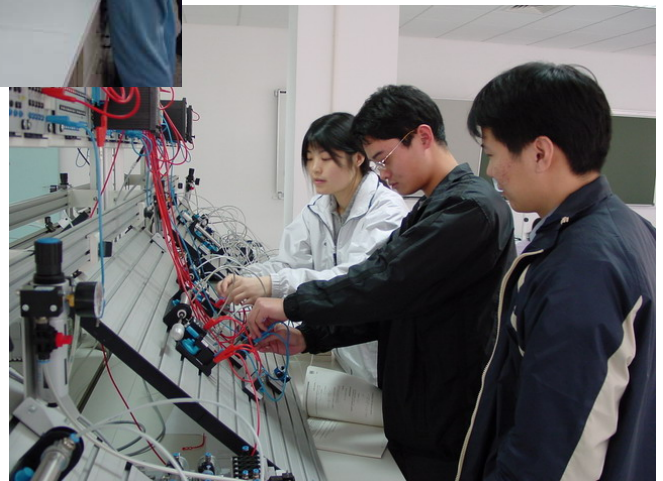
- Supplier of equipment for learning centres and training rooms
- Provider of training and consultancy in automation technology and mechatronics

Customers:

- Companies
- Training centres
- Universities and schools (I.e. Tongji university)

Main trainings and seminars about:

- Basic pneumatic
- Advanced pneumatic
- Basic electropneumatic
- Advanced electropneumatic
- Basic hydraulic
- Advanced hydraulic
- Basic eletrohydraulic
- Advanced electrohydraulic





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Version of this document	Author	Date	Note
1.0	Peter Pappert / Thorsten Weiss	2006-11-15	Product speification for vender

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Product	Delivery Time (Week) (Normally)				
	In China	In Germany	In Italy	In Japan	In U.S.A.
ADVU / AEVU	2	1	1	4	2
AND / AEN	4	1	1	4	2
DSN / DSNU / ESNU	2	1	1	4	2
DNC	2	1	1	4	2
DNG	4	1	1	4	2
DSM	4	1	1	4	2
DRQ / DRQD	4	1	1	4	2
DGP / DGPL	2	1	1	4	2
DGC	4	1	1	4	2
STA / STAF	4	1	1	4	2
SLF / SLS / SLT	4	1	1	4	2
KPE	4	1	1	4	2
KE-C	4	1	1	4	2
HMP / HMPL	4	2	2	4	2
HGD / HGP / HGR / HGW / HGPP	4	1	1	4	2
VN / VAD / ESG / VAS	4	1	1	4	2
SM	4	1	1	4	2
SIE	4	1	1	4	2
MEBH	2	1	1	4	2
J / VL	4	1	1	4	2
MDH / JMDH	4	1	1	4	2
VSVA	4	1	1	4	2
VAPB / DAPZ / DRD / DRE / DAPS / QH	4	1	1	4	2
Typ 04	4	2	2	4	2
Typ 44	4	2	2	4	2
CPV / CPA	2	2	2	4	2
CPX / MPA	4	2	2	4	2
FEC	4	2	2	4	2
H / HGL / HAB	1	1	1	4	2
GRO / GRLO / GRU / GRE	4	1	1	4	2
GR / GRLA / GRLZ	1	1	1	4	2
SE / SEU	1	1	1	4	2
LRLI	4	1	1	4	2

Product	Delivery Time (Week) (Normally)				
	In China	In Germany	In Italy	In Japan	In U.S.A.
RW / RS / RO	4	1	1	4	2
SDE / PENV / VPEV	4	1	1	4	2
SDE1	4	1	1	4	2
U / U-B	1	1	1	4	2
LF	1	1	1	4	2
LR / LRB	1	1	1	4	2
LRP	4	1	1	4	2
HEL / HEE / HE	4	1	1	4	2
LFR	1	1	1	4	2
LOE	1	1	1	4	2
HE-G	4	1	1	4	2
DPA	4	1	1	4	2
LDF	4	1	1	4	2
PUN / PAN / PLN	1	1	1	4	2
KD / KS / MKV	1	1	1	4	2
QS	1	1	1	4	2
PQ / CQ	4	1	1	4	2
CRVZS	4	1	1	4	2
B / D / E / ESK / SCM / QM / QMR / FR	4	1	1	4	2

The delivery terms documented are empirical values. Please understand that we cannot guarantee the standard delivery times set out for the individual categories. Non-compliance in individual cases does not automatically mean that we are in default and does not entitle you to make a complaint or seek compensation for any damages.