



4BAR factory

**Change the
pressure to
change the
future**

Expertise
Passion
Automation

4BAR factory concept

A 4BAR factory is a new SMC concept that significantly reduces CO₂ emissions and power consumption by reducing the supply pressure of compressed air used in factories. It represents an approach that strives to achieve a sustainable society by working with customers to optimise (reduce) pressure to the required level where needed.

Reducing pressure in SMC's own factories has already begun



* SMC factories are aiming to achieve a 4-bar line pressure (0.4 MPa).

We work with our customers to help them optimise operations (reduce pressure) on-site.

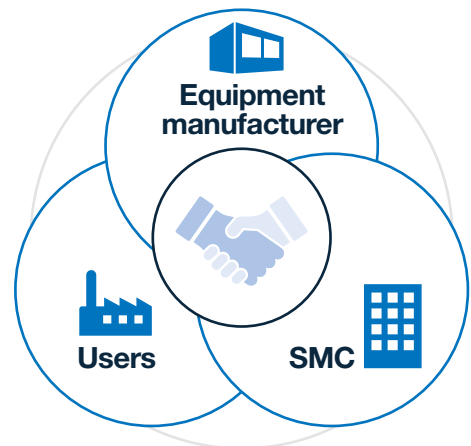
Facility assessment



Meetings



We provide support to customers and equipment/device manufacturers the world over.



Steps toward achieving factory-wide optimisation (pressure reduction)

We work together with customers on-site to provide solutions for pressure optimisation.

Step 1

Visualisation of air flows

- Air consumption calculation and analysis
- What pressures are demanded by which machines?
- Which areas consume the highest amount of air flow rate in operation?
- What air consumption is required while in standby?

Step 2

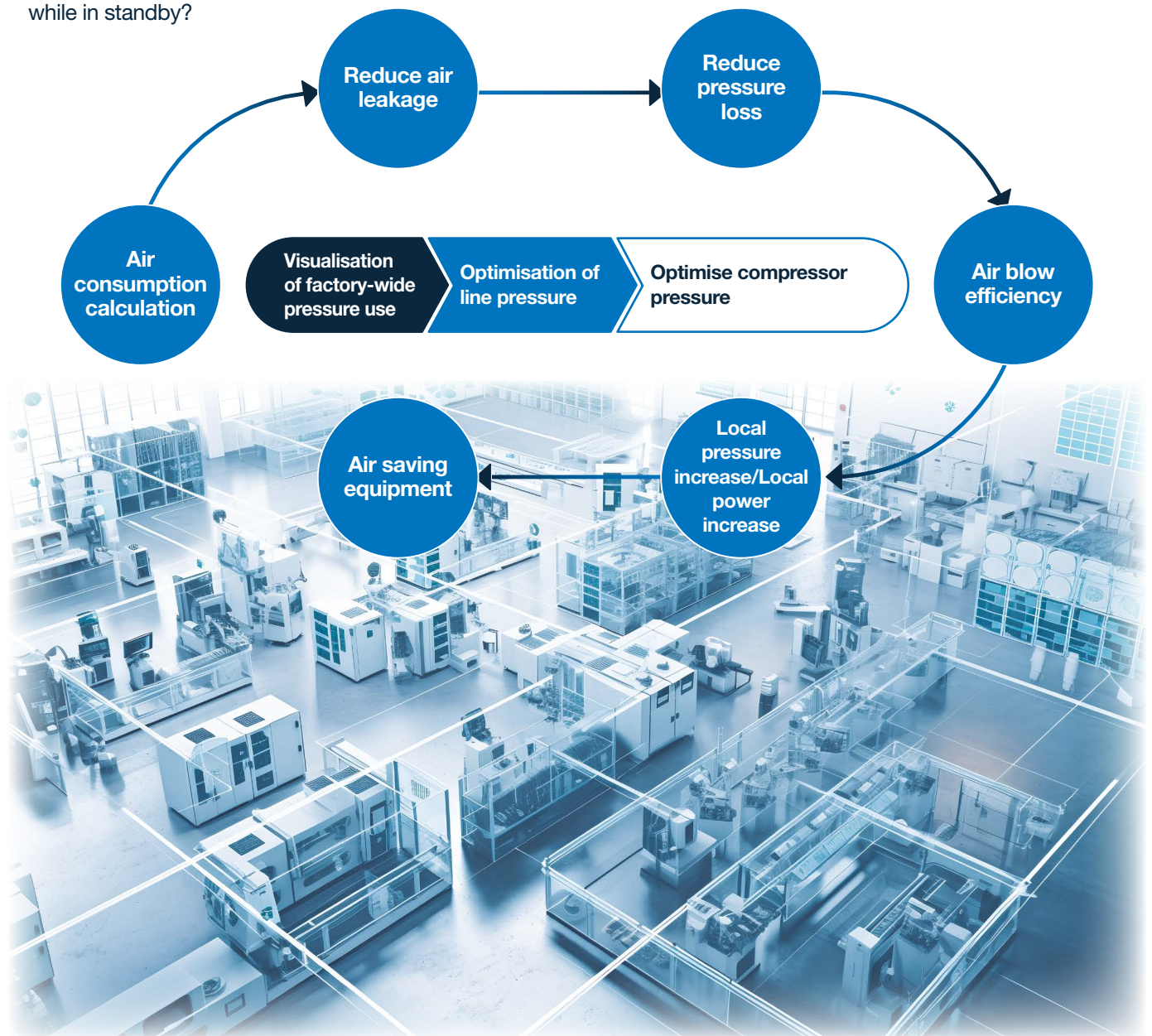
Optimisation of line pressure

- Remove causes of pressure drops for supply
- Confirm operation at low pressure
- Prevent air leakages
- Local pressure increase/Local power increase.

Step 3

Optimise compressor air pressure

- Reduce compressor pressure to the required level of pressure
- Stop high pressure compressors that are not required
- Establish new factories optimised for low pressure use.



Products that underpin the 4BAR factory concept

AIR CONSUMPTION CALCULATION

Visualisation

Status monitoring

3-colour display digital flow switch for large flow
PF3A□H(-L) Series +

A wide range of flow measurement is possible with
1 product



3-screen display high-precision digital pressure switch
ZSE20□(F)/ISE20□ Series +

Display the measured value (current pressure
value)



BLOW EFFICIENCY AIR

High impact pressure

Maintain pre-nozzle pressure to deliver high impact pressure at low pressure settings

Nozzles for blowing
KN Series +

High-pressure blow with minimal pressure loss



High impact pressure

Higher peak pressure

Air saving impact blow gun
IBG Series +

Increased impact force due to higher peak
pressure



Air saving impact blow valve
IBV Series +

Increased impact force due to higher peak
pressure



REDUCE PRESSURE LOSS

Reduce pressure loss

Incorporate components and piping that reduce line pressure drops

Compressed air preparation filter
AFF/AM/AMD Series +

Increased air flow capacity due to lower pressure drop



Blow gun
VMG Series +

Straighter flowing fluid
"improves pressure loss"



S couplers
KK130 Series +

Pressure loss is reduced by special configuration



LOCAL POWER INCREASE/LOCAL PRESSURE INCREASE

Local power increase/ High pushing force

Achieve the same pushing force as an actuator of an equivalent bore size at low pressure settings

Compact cylinder/high power type
CQE Series +

Achieve the pushing force of the next bore size up



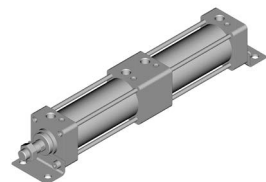
Non-rotating double power cylinder
MGZ Series +

Double extension output power



Tandem cylinder
-XC12 +

This is a cylinder produced with two air cylinders in line allowing double the output force



Air slide table
MXQ Series +

Double piston construction provides twice the output force



Dual rod cylinder
CXS2 Series +

Double piston construction provides twice the output force



Local power increase

Compensate for the reduced force of a low supply pressure

Energy saving, exhaust-recovery booster regulator
VBAE Series +

Increase factory air pressure by 1.7 times



AIR SAVING EQUIPMENT

High efficiency

Max. vacuum pressure at 0.35 MPa

Vacuum unit

ZK2□A Series +

Max. vacuum pressure: -91 kPa (at 0.35 MPa)



Multistage ejector

ZL1/ZL3/ZL6 Series +

Max. vacuum pressure: -91 kPa (at 0.35 MPa)



Reduce air consumption

Pulsed intermittent air blow

Pulse blow unit

PU Series +

Air consumption: 50 % reduction



Pulse blow valve

AXTS040-X202 Series +

Air consumption: 50 % reduction



Ionizer gun

IZG10 Series +

Pulse blow saves air



Reduce air consumption

Air consumption between the valve and cylinder reduced

Compact cylinder with solenoid valve

CVQ Series +

Air consumption: Approx. 50 % reduction



Reduce air consumption

Reduce air consumption by eliminating fixed throttles

Precision regulator

IR1000-A/2000-A/3000-A Series +



Reduce air consumption

Zero flow consumption during stand-by mode¹⁾

Ionizer/Bar type

IZS51 Series +



Reduce air consumption

By reducing the pressure on the return stroke, air consumption can be reduced

Air saving speed controller

AS-R/AS-Q Series +



1) With the valve unit installed.

Providing added value to the 4BAR factory concept

The air management system elevates the “4BAR factory” concept by reducing air consumption while equipment is in standby.

Visualisation of production equipment status

Compatible with SMC wireless systems

Compatible with  **OPC UA**
 **PROFINET**  **EtherNet/IP**  **EtherCAT**

Reduce air consumption by lower pressure during equipment standby

Reduce air consumption by shutting off valves depending on equipment shutdown conditions

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SMC Corporation

1-5-5, Kyobashi,
Chuo-ku, Tokyo
104-0031, Japan
Telephone: 03-6628-3000
<https://www.smcworld.com>

Austria	+43 (0)2262622800	www.smc.at	office.at@smc.com	Lithuania	+370 5 2308118	www.smc.lt	info.lt@smc.com
Belgium	+32 (0)33551464	www.smc.be	info@smc.be	Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Bulgaria	+359 (0)2807670	www.smc.bg	sales.bg@smc.com	Norway	+47 67129020	www.smc-norge.no	post.no@smc.com
Croatia	+385 (0)13707288	www.smc.hr	sales.hr@smc.com	Poland	+48 22 344 40 00	www.smc.pl	office.pl@smc.com
Czech Republic	+420 541424611	www.smc.cz	office.at@smc.com	Portugal	+351 214724500	www.smc.eu	apoiocliente.pt@smc.com
Denmark	+45 70252900	www.smc.dk.com	smc.dk@smc.com	Romania	+40 213205111	www.smcromania.ro	office.ro@smc.com
Estonia	+372 651 0370	www.smc.ee	info.ee@smc.com	Russia	+7 (812)3036600	www.smc.eu	sales@smcru.com
Finland	+358 207513513	www.smc.fi	smc.fi@smc.com	Slovakia	+421 (0)413213212	www.smc.sk	sales.sk@smc.com
France	+33 (0)164761000	www.smc-france.fr	supportclient.fr@smc.com	Slovenia	+386 (0)73885412	www.smc.si	office.si@smc.com
Germany	+49 (0)61034020	www.smc.de	info.de@smc.com	Spain	+34 945184100	www.smc.eu	post.es@smc.com
Greece	+30 210 2717265	www.smc.hellas.gr	sales@smchellas.gr	Sweden	+46 (0)86031240	www.smc.nu	order.se@smc.com
Hungary	+36 23513000	www.smc.hu	office.hu@smc.com	Switzerland	+41 (0)523963131	www.smc.ch	helpcenter.ch@smc.com
Ireland	+353 (0)14039000	www.smcautomation.ie	technical.ie@smc.com	Turkey	+90 212 489 0 440	www.smc-turkey.com.tr	satis.tr@smc.com
Italy	+39 03990691	www.smcitalia.it	mailbox.it@smc.com	UK	+44 (0)845 121 5122	www.smc.uk	sales.gb@smc.com
Latvia	+371 67817700	www.smc.lv	info.lv@smc.com	South Africa	+27 10 900 1233	www.smcza.co.za	Sales.za@smc.com

www.smc.eu

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