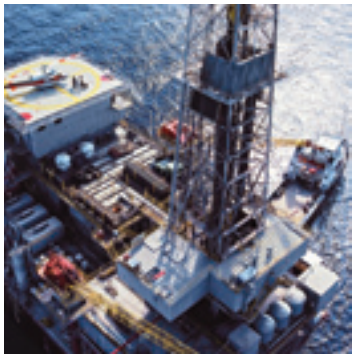


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Air Oil Coolers

LOC Cooling System for Industrial Use

Parker

ENGINEERING YOUR SUCCESS.

The Olaer Group is part of Parker Hannifin since July 1st, 2012. With manufacturing and sales in 14 countries in North America, Asia and Europe, the Olaer Group expands Parker's presence in geographic growth areas and offers expertise in hydraulic accumulator and cooling systems for target growth markets such as oil and gas, power generation and renewable energy.

LOC Cooling System

For industrial use – maximum cooling capacity 45 kW

The LOC cooling system with three-phase AC motor is optimized for use in the industrial sector. The system is supplied ready for installation. An integrated circulation pump makes it possible to cool and treat the oil in a separate circuit – offline cooling. The cooling system can also be equiped with Parker filter unit. Together with a wide range of accessories, the LOC cooling system is suitable for installation in most applications and environments. The maximum cooling capacity is 45 kW at ETD 40 °C. Choosing the right cooler requires precise system sizing. The most reliable way to size is with the aid of our calculation program. This program, together with precise evaluations from our experienced, skilled engineers, gives you the opportunity for more cooling per € invested.

Overheating - an expensive problem

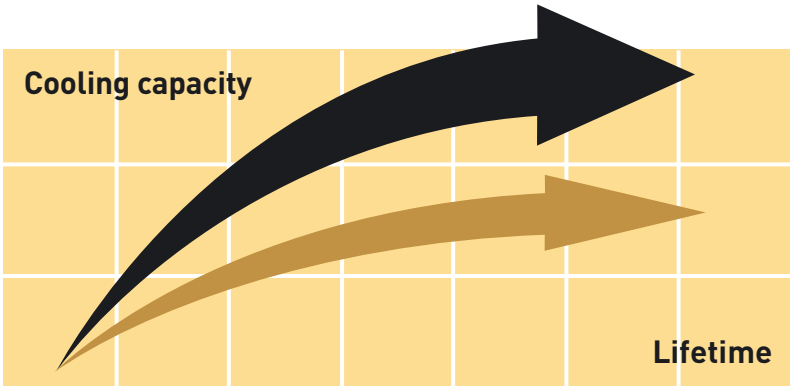
An under-sized cooling capacity produces a temperature balance that is too high. The consequences are poor lubricating properties, internal leakage, a higher risk of cavitation, damaged components, etc. Overheating leads to a significant drop in cost-efficiency and environmental consideration.

Temperature optimisation - a basic prerequisite for cost-efficient operation

Temperature balance in a hydraulic system occurs when the cooler can cool down the energy input that the system does not consume - the system's lost energy:
(Ploss = Pcool = Pin – Pused).
Temperature optimisation means that temperature balance occurs at the system's ideal working temperature – the temperature at which the oil's viscosity and the air content comply with recommended values.

The correct working temperature produces a number of economic and environmental benefits:

- **Extended hydraulic system life.**
- **Extended oil life.**
- **Increased hydraulic system availability - more operating time and fewer shutdowns.**
- **Reduced service and repair costs.**
- **Maintained high efficiency in continuous operation – the system efficiency falls if the temperature exceeds the ideal working temperature.**



Clever design and the right choice of materials and components produce a long useful life, high availability and low service and maintenance costs.

Easy to maintain and easy to retrofit in many applications.

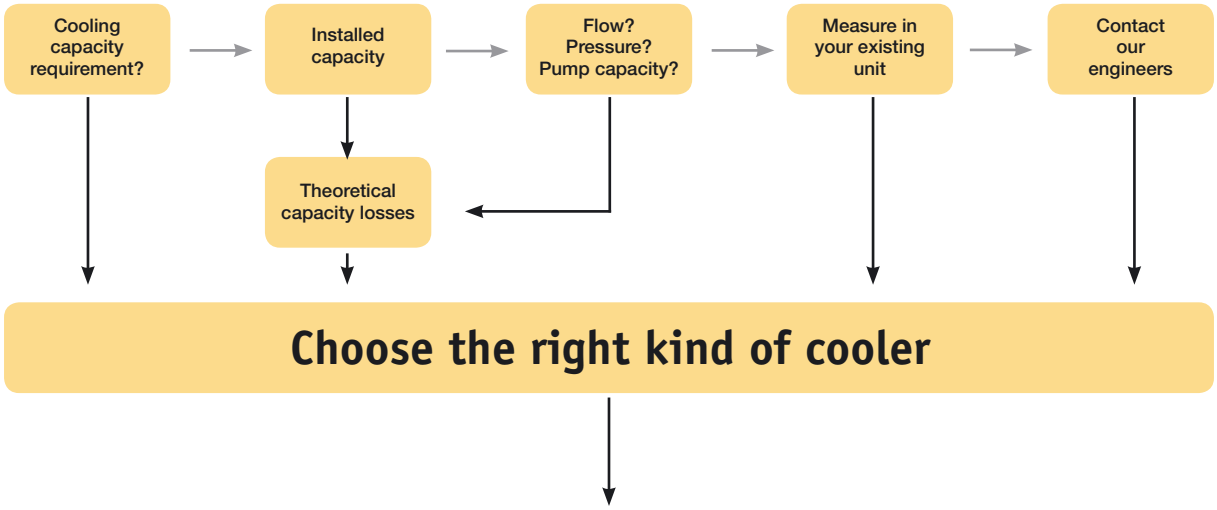
Integrated ciculation pump produces and even flow with low pressure pulsations.

Quiet fan and fan motor.

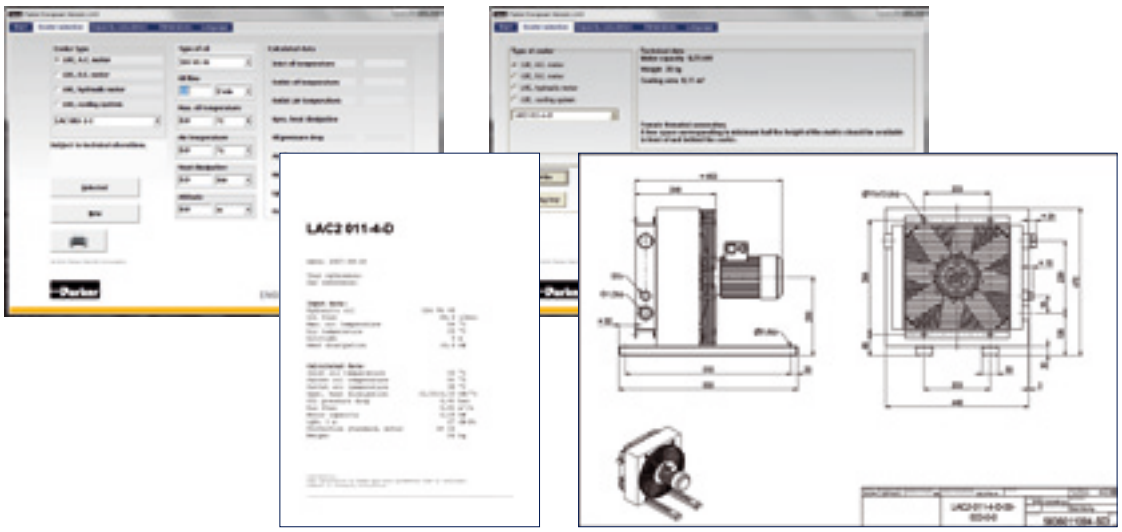
Cooler matrix with low pressure drop and high cooling capacity.

Compact design and low weight.

Calculate the Cooling Capacity Requirement



Enter your values ....



... suggested solution

Better energy consumption means not only less environmental impact, but also reduces operating costs, i.e. more cooling per € invested.

More Cooling per €

with precise calculations and our engineers' support

Optimal sizing produces efficient cooling. Correct sizing requires knowledge and experience. our calculation program, combined with our engineers' support, gives you access to this very knowledge and experience. The result is more cooling per € invested. The user-friendly calculation program can be downloaded from www.olaer.se

Valuable system review into the bargain
A more wide-ranging review of the hydraulic system is often a natural element of cooling calculations. Other potential system improvements can then be discussed – e.g. filtering, offline or online cooling, etc. Contact us for further guidance and information.

Parker Hannifin's quality and performance guarantee insurance for your operations and systems
A constant striving towards more cost-efficient and environment friendly hydraulic systems requires continuous development. Areas where we are continuously seeking to improve performance include cooling capacity, noise level, pressure drop and fatigue. Meticulous quality and performance tests are conducted in our laboratory. All tests and measurements take place in accordance with standardised methods - cooling capacity in accordance with EN1048, noise level ISO 3743, pressure drop EN 1048 and fatigue ISO 10771-1.

Technical specification

- LOC is designed primarily for synthetic oils, vegetable oils and mineral oil type HL/HLP in accordance with DIN 51524. Maximum oil temperature 100 °C.
- Maximum negative pressure in the inlet line is 0.4 bar with an oil-filled pump. Maximum pressure on the pump's suction side is 0.5 bar.
- Maximum working pressure for the pump is 10 bar. For information about suction height, pressure, etc. see the QPM3 pump manual.

3-PHASE MOTOR

3-phase asynchronous motors in accordance with IEC 60034-1	
Nominal voltage	*
Insulation class	F
Rise of temperature	B
Protection class	IP 55
Recommended ambient temperature	-20 °C – +40 °C

MATERIAL

Pump housing	Aluminum
Cooler matrix	Aluminum
Fan blades/hub	Glass fibre reinforced polypropylene/ Aluminum
Fan housing	Steel
Fan guard	Steel
Other parts	Steel
Surface treatment	Electrostatically powder-coated

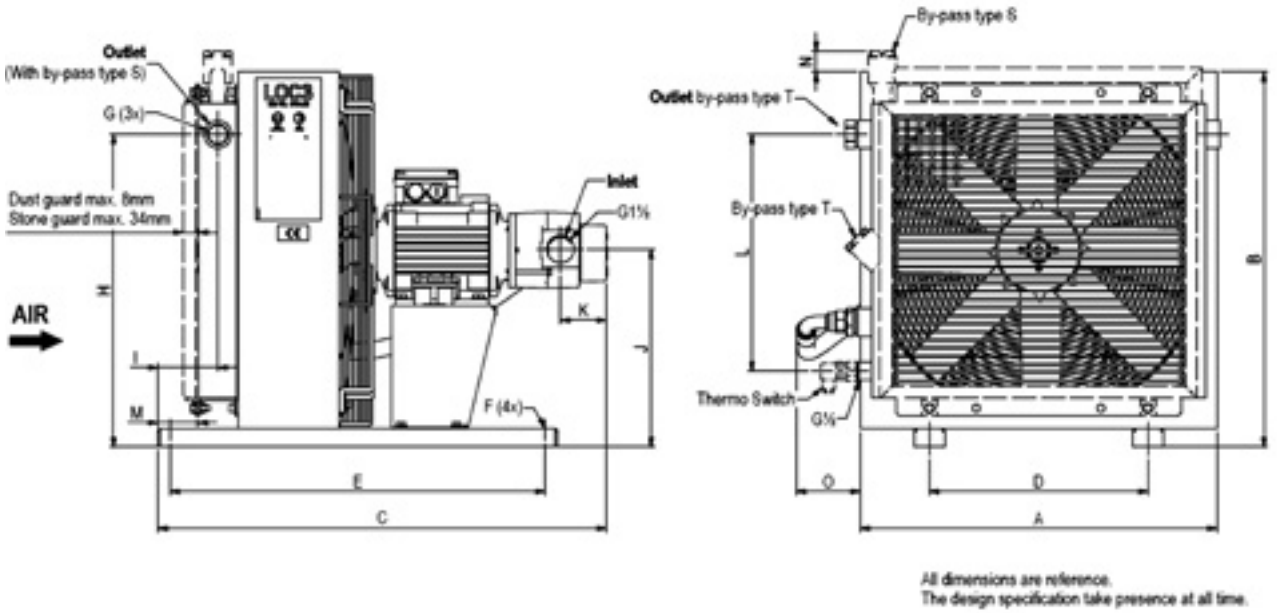
CONTACT PARKER HANNIFIN FOR ADVICE ON

- Oil temperatures > 100 °C
- Oil viscosity > 100 cSt
- Aggressive environments
- Ambient air rich in particles
- High-altitude locations

* = See separate instructions for electric motor.

TYPE	Nom. oil flow l/min	Cooling capacity in kW at EDT 40 °C	Cooling capacity kW/°C	Acoustic pressure level LpA dB(A) 1m*	No. of poles/ Capacity kW	Weight kg (approx)
LOC3 004 - 4 - D - A	20	2.7	0.07	57	4-0.75	23
LOC3 007 - 4 - D - A	20	5.6	0.14	64	4-0.75	30
LOC3 007 - 4 - D - B	40	7.2	0.18	64	4-.075	30
LOC3 007 - 4 - D - C	60	8.0	0.20	65	4-1.50	36
LOC3 007 - 4 - D - D	80	8.4	0.21	65	4-1.50	36
LOC3 011 - 4 - D - A	20	9.2	0.23	70	4-0.75	34
LOC3 011 - 4 - D - B	40	10.4	0.26	70	4-0.75	34
LOC3 011 - 6 - D - C	40	7.6	0.19	61	6-1.10	40
LOC3 011 - 6 - D - D	55	8.8	0.22	61	6-1.10	40
LOC3 011 - 4 - D - C	60	12.0	0.30	70	4-1.50	40
LOC3 011 - 4 - D - D	80	13.2	0.33	70	4-1.50	40
LOC3 016 - 4 - D - A	20	11.2	0.28	74	4-1.50	45
LOC3 016 - 4 - D - B	40	15.6	0.39	74	4-1.50	45
LOC3 016 - 6 - D - C	40	12.4	0.31	64	6-1.10	45
LOC3 016 - 6 - D - D	55	14.0	0.35	64	6-1.10	45
LOC3 016 - 4 - D - C	60	18.0	0.45	74	4-1.50	45
LOC3 016 - 4 - D - D	80	19.6	0.49	74	4-1.50	45
LOC3 023 - 4 - D - B	40	21.2	0.53	77	4-1.50	53
LOC3 023 - 6 - D - C	40	16.8	0.42	67	6-1.10	53
LOC3 023 - 6 - D - D	55	18.4	0.46	67	6-1.50	53
LOC3 023 - 4 - D - C	60	24.4	0.61	77	4-2.20	62
LOC3 023 - 4 - D - D	80	26.8	0.67	77	4-2.20	62
LOC3 033 - 6 - A - D	55	26.0	0.65	74	6-2.20	92
LOC3 033 - 4 - A - C	60	32.0	0.80	85	4-3.00	76
LOC3 033 - 4 - A - D	80	34.8	0.87	85	4-3.00	76
LOC3 044 - 6 - A - D	55	34.0	0.85	77	6-2.20	98
LOC3 044 - 4 - A - C	60	40.0	1.00	86	4-3.00	85
LOC3 044 - 4 - A - D	80	44.8	1.12	86	4-3.00	85

* = Electric motors specified are calculated for max. working pressure 6 bar at 125 cSt and 50 Hz, 4 bar at 125 cSt and 60 Hz. If you require higher pressure, please contact us for a choice of motors with a higher output.
** = Noise level tolerance ± 3 dB(A).



All dimensions are reference.
The design specification take presence at all time.

Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
LOC3 004-4-D-A	267	284	542	134	420	Ø9	G1	206	88	159	62	90	55	67	123
LOC3 007-4-D-A	365	395	602	203	510	Ø9	G1	292	83	214	62	80	50	45	105
LOC3 007-4-D-B	365	395	615	203	510	Ø9	G1	292	83	214	74	80	50	45	105
LOC3 007-4-D-C	365	395	667	203	510	Ø9	G1	292	83	214	87	80	50	45	105
LOC3 007-4-D-D	365	395	680	203	510	Ø9	G1	292	83	214	100	80	50	45	105
LOC3 011-4-D-A	440	470	626	203	510	Ø9	G1	366	83	252	62	175	50	41	103
LOC3 011-4-D-B	440	470	639	203	510	Ø9	G1	366	83	252	74	175	50	41	103
LOC3 011-4-D-C	440	470	691	203	510	Ø9	G1	366	83	252	87	175	50	41	103
LOC3 011-4-D-D	440	470	704	203	510	Ø9	G1	366	83	252	100	175	50	41	103
LOC3 011-6-D-C	440	470	717	203	510	Ø9	G1	366	83	252	87	175	50	41	103
LOC3 011-6-D-D	440	470	730	203	510	Ø9	G1	366	83	252	100	175	50	41	103
LOC3 016-4-D-A	496	526	687	203	510	Ø9	G1	427	83	280	62	300	50	46	107
LOC3 016-4-D-B	496	526	699	203	510	Ø9	G1	427	83	280	74	300	50	46	107
LOC3 016-4-D-C	496	526	712	203	510	Ø9	G1	427	83	280	87	300	50	46	107
LOC3 016-4-D-D	496	526	725	203	510	Ø9	G1	427	83	280	100	300	50	46	107
LOC3 016-6-D-C	496	526	738	203	510	Ø9	G1	427	83	280	87	300	50	46	107
LOC3 016-6-D-D	496	526	725	203	510	Ø9	G1	427	83	280	100	300	50	46	107
LOC3 023-4-D-B	580	610	729	356	610	Ø14	G1	509	98	322	74	385	65	44	104
LOC3 023-4-D-C	580	610	770	356	610	Ø14	G1	509	98	322	87	385	65	44	104
LOC3 023-4-D-D	580	610	783	356	610	Ø14	G1	509	98	322	100	385	65	44	104
LOC3 023-6-D-C	580	610	770	356	610	Ø14	G1	509	98	322	87	385	65	44	104
LOC3 023-6-D-D	580	610	783	356	610	Ø14	G1	509	98	322	100	385	65	44	104
LOC3 033-4-A-C	692	722	798	356	610	Ø14	G1 1/4	619	103	378	87	326	70	38	99
LOC3 033-4-A-D	692	722	810	356	610	Ø14	G1 1/4	619	103	378	100	326	70	38	99
LOC3 033-6-A-D	692	722	825	356	610	Ø14	G1 1/4	619	103	378	100	326	70	38	99
LOC3 044-4-A-C	629	866	823	356	610	Ø14	G1 1/4	780	103	450	87	504	70	59	99
LOC3 044-4-A-D	629	866	835	356	610	Ø14	G1 1/4	780	103	450	100	504	70	59	99
LOC3 044-6-A-D	629	866	850	356	610	Ø14	G1 1/4	780	103	450	100	504	70	59	99

Key for LOC3 cooling systems

All positions must be filled in when ordering

EXAMPLE:	LOC3 -	011 -	6 -	A -	C -	L -	50 -	S20 -	D -	00 -	0
	1	2	3	4	5	6	7	8	9	10/11	12

1. TYPE OF COOLING SYSTEM

= LOC3

2. COOLER SIZE

004, 007, 011, 016, 023, 033, 044

3. NUMBER OF POLES, MOTOR

4 - pole	= 4
6 - pole	= 6

4. VOLTAGE AND FREQUENCY

230/400V 50Hz[1)]	= A
460 alt 480V 60Hz1[1)]	= B
230/400V 50Hz alt 480V 60Hz[2)]	= D
500V 50Hz (not standard)	= E
400/690V 50Hz, 460 alt 480V 60Hz	= F
525V 50Hz. 575V 60Hz	= G
Motor for special voltage (stated in plain language)[3)]	= X

[1)] = for LOC3 033 to LOC3 044.
[2)] = for LOC3 007 to LOC3 023.
[3)] For other options contact Parker Hannifin for assistance. All motors apply to IEC 60034, IEC 60072 and EN 50347.

5. PUMP SIZE

Displacement 15 cm^3/r	= A
Displacement 30 cm^3/r	= B
Displacement 45 cm^3/r	= C
Displacement 60 cm^3/r	= D
Special	= X

6. BYPASS VALVE, PUMP

No bypass valve	= O
Built-in bypass valve, 5 bar internal	= L
Built-in bypass valve, 10 bar internal	= H
Built-in bypass valve, 5 bar external	= K
Built-in bypass valve, 10 bar external	= M

7. THERMO CONTACT

For temperature alarm, not for direct control of electric motor.

No thermo contact	= 00
40 °C	= 40
50 °C	= 50
60 °C	= 60
70 °C	= 70
80 °C	= 80
90 °C	= 90

8. COOLER MATRIX

Standard	= 000
Two-pass	= T00
Built-in, pressure-controlled bypass, single-pass	
2 bar	= S20
5 bar	= S50
8 bar	= S80
Built-in, pressure-controlled bypass, two-pass*	
2 bar	= T20
5 bar	= T50
8 bar	= T80
Built-in temperature and pressure-controlled bypass, single-pass	
50 °C, 2.2 bar	= S25
60 °C, 2.2 bar	= S26
70 °C, 2.2 bar	= S27
90 °C, 2.2 bar	= S29
Built-in temperature and pressure-controlled bypass, two-pass*	
50 °C, 2.2 bar	= T25
60 °C, 2.2 bar	= T26
70 °C, 2.2 bar	= T27
90 °C, 2.2 bar	= T29

* = not valid for LOC 004

9. MATRIX GUARD

No guard	= 0
Stone guard	= S
Dust guard	= D
Dust and stone guard	= P

10. FILTER UNIT

No filter unit	= 0
Filter unit	= X

Please contact Parker Hannifin for guidance and information regarding filter units.

11. PRESSURE DROP INDICATOR

No pressure drop indicator.	= 0
Pressure drop indicator	= X

12. STANDARD/SPECIAL

Standard	= 0
Special	= Z

With our specialist expertise, industry knowledge and advanced technology, we can offer a range of different solutions for coolers and accessories to meet your requirements.

Take the Next Step

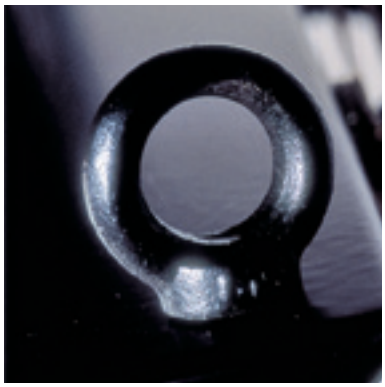
- choose the right accessories

Supplementing a hydraulic system with a cooler, cooler accessories and an accumulator gives you increased availability and a longer useful life, as well as lower service and repair costs. All applications and operating environments are unique. A well-planned choice of the following accessories can thus further improve your hydraulic system. Please contact Parker Hannifin for guidance and information.

Pressure-controlled bypass valve *Integrated*
Allows the oil to bypass the cooler matrix if the pressure drop is too high. Reduces the risk of the cooler bursting, e.g. in connection with cold starts and temporary peaks in pressure or flow. Available for single-pass or two-pass matrix design.

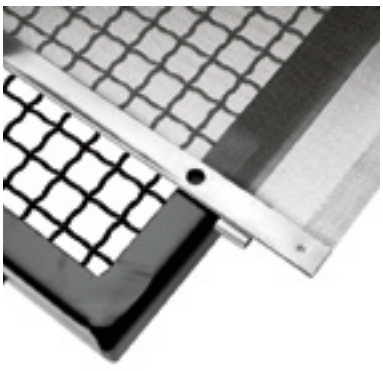
Thermo contact
Sensor with fixed set point, for temperature warnings. Can be used for more cost-efficient operation and better environmental consideration through the automatic control of the fan motor, either on or off.

Temperature-controlled bypass valve *Integrated*
Allows the oil to bypass the cooler matrix if the pressure drop is higher than 2,2 bar or less than the chosen temperature. The bypass closes when the oil temperature increases. Different closing temperatures available. Available for singlepass or two-pass matrix design



Lifting eyes
For simple installation and relocation.

Temperature-controlled 3-way valve *External*
Same function as the temperature-controlled bypass valve, but positioned externally.
Note: must be ordered separately.



Stone guard/Dust guard
Protects components and systems from tough conditions.

Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements.

It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker.

For further information, call our European Product Information Centre at 00800 27 27 53 74.

AEROSPACE

Key Markets
- Aircraft engines
- Business and general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles and launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products
- Flight control systems and components
- Fluid conveyance systems
- Fluid metering delivery and atomization devices
- Fuel systems and components
- Hydraulic systems and components
- Inert nitrogen generating systems
- Pneumatic systems and components
- Wheels and brakes

CLIMATE CONTROL

Key Markets
- Agriculture
- Air conditioning
- Food, beverage and dairy
- Life sciences and medical
- Precision cooling
- Processing
- Transportation

Key Products
- CO_2 controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hoses and fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves

ELECTROMECHANICAL

Key Markets
- Aerospace
- Factory automation
- Food and beverage
- Life science and medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery and converting
- Primary metals
- Semiconductors and electronics
- Textile
- Wire & cable

Key Products
- AC/DC drives and systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives and controls
- Structural extrusions

FILTRATION

Key Markets
- Food and beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil and gas
- Power generation
- Process
- Transportation

Key Products
- Analytical gas generators
- Compressed air and gas filters
- Condition monitoring
- Engine air, fuel and oil filtration and systems
- Hydraulic, lubrication and coolant filters
- Process, chemical, water and microfiltration filters
- Nitrogen, hydrogen and zero air generators

FLUID & GAS HANDLING

Key Markets
- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food and beverage
- Fuel and gas delivery
- Industrial machinery
- Mobile
- Oil and gas
- Transportation
- Welding

Key Products
- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hoses
- PTFE and PFA hoses, tubing and plastic fittings
- Rubber and thermoplastic hoses and couplings
- Tube fittings and adapters
- Quick disconnect couplings

HYDRAULICS

Key Markets
- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil and gas
- Power generation and energy
- Truck hydraulics

Key Products
- Diagnostic equipment
- Hydraulic cylinders and accumulators
- Hydraulic motors and pumps
- Hydraulic systems
- Hydraulic valves and controls
- Power take-offs
- Rubber and thermoplastic hoses and couplings
- Tube fittings and adapters
- Quick-disconnect couplings

PNEUMATICS

Key Markets
- Aerospace
- Conveyor and materials handling
- Factory automation
- Food and beverage
- Life science and medical
- Machine tools
- Packaging machinery
- Transportation and automotive

Key Products
- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators and grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie-rod cylinders
- Vacuum generators, cups and sensors

PROCESS CONTROL

Key Markets
- Chemical and refining
- Food, beverage and dairy
- Medical and dental
- Microelectronics
- Oil and gas
- Power generation

Key Products
- Analytical sample conditioning products and systems
- Fluoropolymer chemical delivery fittings, valves and pumps
- High purity gas delivery fittings, valves and regulators
- Instrumentation fittings, valves and regulators
- Medium pressure fittings and valves
- Process control manifolds

SEALING & SHIELDING

Key Markets
- Aerospace
- Chemical processing
- Consumer
- Energy, oil and gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products
- Dynamic seals
- Elastomeric O-rings
- EMI shielding
- Extruded and precision-cut, fabricated elastomeric seals
- Homogeneous and inserted elastomeric shapes
- High temperature metal seals
- Metal and plastic retained composite seals
- Thermal management

Notes

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