



BYPASS OIL CLEANER

**FOR A PERFECT FILTRATION
OF ALL INDUSTRIAL OIL SYSTEMS**

PERFECTLY CLEAN OIL

Cause and effect.

Perfectly clean oil. These are essentials to keep your production machines running smoothly.

Unfortunately, all hydraulic and lubricating systems in production conditions are continually subject to contamination build-up.

Indeed, contamination is the cause of 80% of all oil-related malfunctioning and breakdowns.

What exactly is oil contamination?

Metal particles are well known for their destructive effect on hydraulic machinery.

But the combination of metal particles with water and high temperature affects the oil molecules, cause chemical reactions and the creation of sludge. This sludge accounts for the darker colour of dirty oil. Oil contamination is consequently the combination of solid as well as liquid pollutants.



A unique filter system.

Contrary to conventional oil filters, TRIPLE R Bypass Oil Cleaners have the remarkable ability to remove all three pollutants - with just one type of filter element!

The result? Perfectly clean oil thanks to our 3-in-1 oil purification:

- ▶ Removes up to 99% of all solid contaminants.
- ▶ Reduces water concentration to less than 100 PPM.
- ▶ Eliminates damaging sludge, varnish and oxidation products.

Official International standards.

All TRIPLE R filters have been tested according to the ISO Multipass Tests ISO 4572 and 16889, and have an absolute μ -rating and β -value in compliance with the international filter standards.

What's in it for you?

The guarantee for perfectly clean oil! Because the difference between dirty oil (ISO 23/21/18) and clean oil (ISO 16/14/11) is equal to a factor of 128!

That's 128 times less dirt particles, 128 times less friction and wear, 128 times slower oxidation, 128 times lower risk for serious damage, machine standstill and production loss.



▶ **REDUCE**

A UNIQUE CONCEPT

A massive 114 mm of filter media.

TRIPLE R bypass micro filters are based on operating principles that differ from those for conventional oil filters.

The design of these filters is based on the axial flow principle whereby the oil is forced to flow through 114 mm of media and 3 distinct stages of ever more compact densities! This is an enormous difference in comparison with the ~1 mm thickness of conventional circulation filters.

These 114 mm-thick depth-loading filter elements are always installed in a bypass position, and this ensures that pressure and flow pulses are avoided.



Cellulose as filter medium.

In addition, TRIPLE R uses a specially engineered cellulose filter medium that makes it possible to absorb water from oil and to completely remove resins and oxidation products.

The perfect filter.

Axial filtration, an extra thick filter mass of 114 mm, a specially engineered cellulose material, always bypass installation ... these are key criteria to make TRIPLE R the oil filter with the highest dirt retention capacity, and the guarantee to obtain maximum efficiency when removing contaminants from oil.

3-stage micro filtration.

- Stage 1 the largest dirt particles are retained on top of the filter element.
- Stage 2 smaller particles are trapped in the top zone.
- Stage 3 the finest particles accumulate in the lower compressed zone.
- Zone 2 & 3 water and sludge is absorbed by the engineered cellulose filter material.



MEASURING IS KNOWING

>1.000.000 particles/100 ml oil!?

Oil contamination has a dramatic impact on oil life and machine performance. Therefore it's essential that you know what the state of your oil in your system is. Does your oil contain >1.000.000 particles >5µ per 100 ml or only 5.000 particles?

Measure and check the amount of contamination in your oil by performing a particle count. With the results of these tests, you can take the necessary measures.

NAS, AS and ISO.

ISO 4406 and AS4059 (replaces NAS 1638) are the most common standards which are used to indicate the contamination level of oil.

Pro-active.

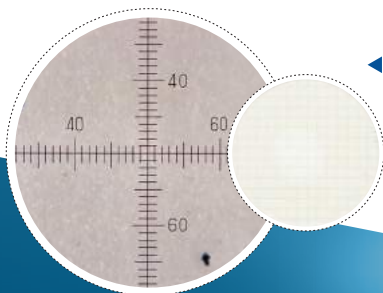
Today, all manufacturers of pumps, valves and other hydraulic parts specify the maximum allowed oil contamination level for their products.

If your oil is dirtier than the indicated specified value, you will void the manufacturer's warranty and you will have to pay for all damages yourself. Be pro-active and make sure you prevent hydraulic breakdowns effectively from the start.

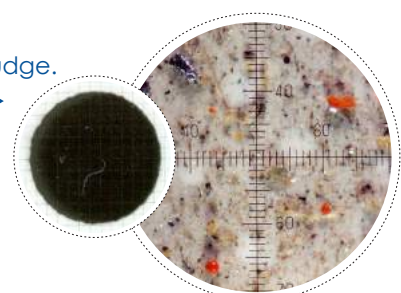
For all hydraulic and lubricating systems, this means avoiding contaminated oil. Make sure your oil remains perfectly clean and you can avoid 80% of breakdowns.

The new AS4059 and ISO 4406

		>2µm	>5µm	>15µm	>25µm	>50µm	>100µm	RECOMMENDATIONS	ISO 4406
		4µm(c)	6µm(c)	>14µm(c)	>21µm(c)	>38µm(c)	>70µm(c)		>4µ / >6µ / >14µ
Triple R Filtered oil	Class 0	780	304	54	10	2	0		11 / 9 / 6
	Class 1	1.560	609	109	20	4	1	High pressure systems	12 / 10 / 7
	Class 2	3.120	1.217	217	39	7	1	Test stands	13 / 11 / 8
	Class 3	6.250	2.432	432	76	13	2	Hydrostatic transmissions	14 / 12 / 9
	Class 4	12.500	4.864	864	152	26	4	Servo valves	15 / 13 / 10
	Class 5	25.000	9.731	1.731	306	53	8	Variable flow pumps	16 / 14 / 11
New oil	Class 6	50.000	19.462	3.462	612	106	16	Ball & roller bearings	17 / 15 / 12
	Class 7	100.000	38.924	6.924	1.224	212	32	General proportional	18 / 16 / 13
	Class 8	200.000	77.849	13.849	2.449	424	64	Medium pressure systems	19 / 17 / 14
Dirty oil	Class 9	400.000	155.698	27.698	4.898	848	128	Low pressure systems	20 / 18 / 15
	Class 10	800.000	311.396	55.396	9.796	1.696	256	Not suitable for hydraulic systems	21 / 19 / 16
	Class 11	1.600.000	622.792	110.792	19.592	3.392	512		22 / 20 / 17
	Class 12	3.200.000	1.245.584	221.584	39.184	6.784	1.024	23 / 21 / 18	



◀ **Membrane A:** Class 4: no oxidation, no sludge.
Membrane B: Class 12: a lot of sludge. ▶

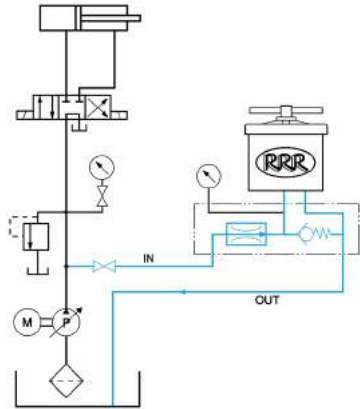


▶ **RECYCLE**

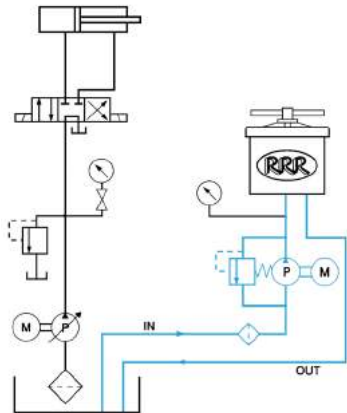


FROM 0 TO 400 BAR

BY-PASS SETUP



OFF-LINE SETUP



The ideal filter system and filter element are available for every application.

TRIPLE R offers a wide range of filter elements and filter systems:

Filter elements at 2 μ , 3 μ , 5 μ and 10 μ absolute for mineral oil, synthetic oils, water glycol and phosphate esters; water absorbing or water-repellent filter elements; 8 types and 18 different models in all.

TRIPLE R has filter systems for engines, lubricating systems, all hydraulic installations, turbines, compressors and you can always choose between a permanent installation or a mobile filter rig.



RETURN ON INVESTMENT

Every investment must produce a return. Investing in oil management results in an immediate return.

Several studies have shown that carefully planned oil management can deliver savings of up to 80% on all oil-related costs:

FULL FLOW FILTERS

Up to **-75%**

Expensive full flow filters life extended 2 to 4 times longer. (Fx = 4)

PRODUCTION LOSS

Up to **-80%**

Breakdowns, machine downtime and production loss are reduced to a minimum. (Fx = 5)

RETURN ON INVESTMENT CALCULATION			
N° of machine	6	Labour cost/hour	€40,00
Operating hours/year	5,000	Current machine availability %	93
Machine cost/hour	€51,00		
Downtime hours caused by: $5,000 \times 6 \times 7\% = 2,100$			
Mechanical or electric faults (65%)		=	1,365
Hydraulic faults (35%)		=	735
of which caused by the fluid (80%)		=	588
Fluid related downtime costs	$588 \times € 51,00$	=	€ 29,988
Labour cost for repair	$588 \times € 40,00$	=	€ 23,520
TOTAL MAINTENANCE COST		=	€ 53,508
Fluid service will prevent 80% of fluid related costs. Remains 20%			
Remaining downtime hours	$588 \times 20\%$	=	117,6
Reduction in downtime cost	$€ 29,988 \times 20\%$	=	€ 5,998
Reduction in labour cost	$€ 23,520 \times 20\%$	=	€ 4,704
TOTAL REMAINING	$€ 53,508 \times 20\%$	=	€ 10,702
TOTAL SAVINGS		=	€ 42,806

MALFUNCTION, BREAKDOWN

Up to **-80%**

Wear and failure of pumps, valves, sealing rings and other components are prevented. (Fx = 5)

OIL CONSUMPTION

Up to **-90%**

The same oil can be used up to 10 years or 50,000 hours. (Fx = 10)

Imagine what your return on investment will be and calculate how much you can actually save on the basis of your machine cost and your machine availability.

The mission of our oil cleaning and oil management experts is to provide our customers with industry-leading high spec, low cost solutions; advice you can count on.



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