TFR1 In-Tank Return Line Filter Assemblies

Hy-Pro TFR1 in-tank filter assemblies are ideal for particulate contamination removal in high velocity hydraulic power unit return line and compact mobile hydraulic OEM installations.

Max Operating Pressure: 150 psi (10 bar)

HY-PRO

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Inside to out flow.

The dirtiest fluid in your system can be found before the filter element in the filter housing. Here, contaminants collect in the filter media and unless disposed of properly, can wreak havoc on your system after element service. That's why when you service the TFR1 element, which utilizes inside-to-outside flow, you remove all the dirt and contaminated fluid with the element.

Dirt removal's never been so easy.

Included with each TFR1 element is a specially designed tool to make element removal easier than ever. Simply squeeze the tool into the top of the element and release to seat inside the endcap, then pull using the handle to remove both the filter and all of the dirt contained inside from your system.



Eliminate aeration.

Smaller reservoirs with higher turnover and less settling time typically lead to aeration as fluids are churned and recirculated. The unique TFR1 element design minimizes turbulence and integral diffuser tube prevents aeration in compact hydraulic and high velocity return line applications by maintaining a column of fluid outside the filter element and above the fluid line to ensure your fluids are returned clean and without aeration.



TFR1 Specifications

Operating Temperature	Fluid Temperat 30°F to 225°F (0°C to 105°C)	ure Ambient Te -4°F to 140° (-20C to 60C	mperature F				Μ	1inimum distance Flement lengt	e for element removal h + 2.0 in [50.8 mm]					
Operating Pressure	150 psi (10 bar) r	maximum		_			-	2.44 in	0.875 in [22.2 mm]					
Pressure Switch Trigger	22 psi (1.5 bar) 45 psi (3.1 bar)			-	3.59 in [91.1 mm]		1.625 in [41.3 mm]		1/8" - 27 NPT					
Visual Gauge	0-22 psi (0-1.5 ba 0-45 psi (0-3.1 ba	ar), green to red ar), green to red		-	1.625 ir [41.3 mn		0.688	in nml						
Element	100 psid (6.9 bar	d)		-	(16)									
Collapse Rating					7.90 in [200.8 mm]									
Integral Bypass Setting	25 psid (1.7 bard bard) option, sel Assembly Part N the end of Repla	l) standard. For 50 p ect Bypass Option " umber Builder and cement Element pa	sid (3.4 3" in add "-50" to rt number.	- [24! (L11) 13.83 in	(L8) .67 in 5.6 mm]									
Materials of	Head			[351.4 mm]	-		1							
Construction	Diffuser Powder coated of	or plated steel		-	+									
	Element Bypass Plated steel	s Valve		-										
Media Description	M G8 Dualglass, ou rated, high perfo hydraulic & lubri	r latest generation o prmance glass media cation fluids. βx _[C] ≥	of DFE a for all 4000	· ·	5.56 in [141.3 mm]	3.52 in [89.4 mm] 2-Hα 0.4 [10.1	ble Mounting Path	tern 4-Hole Ø 0.39 in [9.8 mm]	Mounting Pattern 3.51 in [89.1 mm]					
	A G8 Dualglass hig media combinec removal scrim. β	4.38 in [111.1 mm]		4.57 in [116.0 mm]		4.49 in [114.0 mm]	45°							
	W Stainless steel w media $\beta x_{[C]} \ge 2$ (f	ire mesh 3x ≥ 2)		1" / 1- (NPT/BS	1/4" [126.0 P/SAE)	mm] [91.4 Reservo	mm] ir Hole	Ø 3.60 in [91.4 mm] Reservoir Ho	B.C. Ø 4.96 ir le [126.0 mm]					
Fluid Compatibility	Petroleum and n other specified s	nineral based fluids ynthetic fluids use f	(standard). luorocarbor	For polyol e seal option	ster, phospha or contact fa	nte ester, and ictory.	d							
Filter	Filter assembly clean element ΔP after actual viscosity correction should not exceed 10% of filter assembly bypass setting. See below for viscosity correction formula. For applications with extreme cold start condition contact Hy-Pro for sizing recommendations.													
Sizing	Step 1: Calculate ΔP coefficient for actual viscosity													
	Using Savbolt	t Universal Seco	nds (SUS)		Using Ce	ntistokes	(cSt)							
		Actual Operating	Actual S	pecific		Actua	al Operating	Ac	tual Specific					
	$\Delta P = $ Coefficient	Viscosity1 (SUS)	K Grav	'ity	ΔP Coefficien	= Visc	osity ¹ (cSt)		Gravity					
		150	0.8	6			32		0.86					
	Step 2: Calculate actual clean filter assembly ΔP at both operating and cold start viscosity Actual Assembly Clean ΔP = Flow Rate X ΔP Coefficient (from Step 1) X Assembly ΔP Factor (from sizing table)													
ΔP Factors ¹	Model Ler	ngth Units	Media 1M	3M	6M	10M	16M	25M	**W					
	TFR1 L6	psid/gpm	0.5640	0.4759	0.3688	0.3308	0.3236	0.3117	0.0571					
		bard/lpm	0.0103	0.0087	0.0067	0.0060	0.0059	0.0057	0.0010					
	L8	psid/gpm bard/lpm	0.4846 0.0088	0.4090 0.0074	0.3170 0.0058	0.2842 0.0052	0.2781 0.0051	0.2679 0.0049	0.0491 0.0009					
	L11	psid/gpm	0.3379	0.2852	0.2210	0.1982	0.1939	0.1868	0.0342					
		bard/lpm	0.0062	0.0052	0.0040	0.0036	0.0035	0.0034	0.0006					

Max flow rates and ΔP factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula for viscosity change.

TFR1 Part Number Builder

TFR1						_		_				
	Connection	Le Le	ength	Bypass	Indicator	L 	Special Options] [Vedia	Seal		
Connect	tion	G16 G20 N16 S16 S20	1" G thre 1.25" G th 1" NPT 1" SAE 1.25" SAE	ad (BSPP) hread (BSPP)							
Element Length ²	[6 8 11	6" (15 cm 8" (20 cm 11" (28 ci	n) nominal n) nominal m) nominal								
Bypass		2 ³ 3 ⁴	Integrate Integrate	ed bypass - 2 ed bypass - 5	5 psid (1.7 ba 0 psid (3.4 ba	r) r)						
Pressure Indicato	e r	DX E G X	Electric p Electric s Visual pro No indica	ressure swit witch with fl essure gaug ator (port plu	tch (DIN conn ying leads (3- e ugged)	ecti wire	on) e connectior	1)				
Special Options		R⁵ W	Exclude d Reservoir	liffuser tube r weld flange	2							
Media Selectio	n	G8 1 1M 3M 6M 10M 16M 25M	Dualglass $\beta_{3_{[C]}} \ge 40$ $\beta_{5_{[C]}} \ge 40$ $\beta_{7_{[C]}} \ge 40$ $\beta_{12_{[C]}} \ge 40$ $\beta_{12_{[C]}} \ge 4$ $\beta_{12_{[C]}} \ge 4$	00 00 00 000 000 000 000	3 6 1 2	68 [A A 0A 5A	Dualglass + $\beta 5_{[C]} \ge 400$ $\beta 7_{[C]} \ge 400$ $\beta 12_{[C]} \ge 400$ $\beta 22_{[C]} \ge 40$	- M 0 00 00	ater rem	oval	2 2 4 7 1	Stainless wire mesh SW 25μ nominal W 40μ nominal 4W 74μ nominal 49W 149μ nominal
Seals		B V E-WS	Nitrile (B Fluoroca EPR seals	una) rbon s + stainless	steel support	me	esh					

fluid level when sizing. To protect against foaming, using longer lengths is recommended. Standard Bypass Rating. Consult Hy-Pro for alternate valve setting. When selected, add "-50" to end of replacement element part number. Excluding diffuser tube can result in reservoir foaming in high flow density applications. For all up to date option details and compatibilites, please reference our Contamination Solutions Price List or contact customer service.

Replacement	To determine replacement elements, use corresponding codes from your assembly part number:									
Flements	Bypass Code	Filter Element Part Number	Example							
2.00	2	HPTFR1L[Element Length Code] – [Media Selection Code][Seal Code]	HPTFR1L6-6MV							
	3	HPTFR1L[Element Length Code] – [Media Selection Code][Seal Code] – 50	HPTFR1L6-6MV-50							





Filtration starts with the filter.

Lower ISO Codes: Lower Total Cost of Ownership Hy-Pro filter elements deliver lower operating ISO Codes so you know your fluids are always clean, meaning lower total cost of ownership and reducing element consumption, downtime, repairs, and efficiency losses.

DFE Rated Filter Elements DFE is Hy-Pro's proprietary testing process which extends ISO 16889 Multi Pass testing to include real world, dynamic conditions and ensures that our filter elements excel in your most demanding hydraulic and lube applications.

Delivery in days, not weeks From a massive inventory of ready-to-ship filter elements to flexible manufacturing processes, Hy-Pro is equipped for incredibly fast response time to ensure you get your filter elements and protect your uptime.

More than just filtration Purchasing Hy-Pro filter elements means you not only get the best filters, you also get the unrivaled support, training, knowledge and expertise of the Hy-Pro team working shoulder-to-shoulder with you to eliminate fluid contamination.

Elements that go beyond industry standard.

Advanced DFE rated filter elements deliver lower operating ISO Codes with high efficiency particulate removal and retention efficiency. With integral element bypasses and a range of media options down to $\beta 3_{[c]} > 4000$ + water absorption, you get the perfect element for your application, every time.





Minimize the mess.

With most of the assembly inside the reservoir, the top loading TFR1 housing provides easy and clean access during element service – no slippery spin-ons to handle. Specially designed keyway cover and bolt arrangement mean lost parts during element service become a thing of the past.

Want to find out more? Get in touch.

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