



Mix&Match to Get What You Need

Donaldson's Mix&Match system provides the great performance and functional advantages of custom-engineered filters with the convenience and speedy delivery of in-stock parts. Choose your options and build a filter model that exactly suits your cleanliness requirements.

Technical Data

- Operating pressure up to 42 MPa (420 bar).
- Static pressure testing up to 63 MPa (630 bar).
- Fatigue pressure of 2.000.000 cycles at 0-30 MPa (0-300 bar) per NFPA T 3.10.5.1, R2-2000.
- By-pass valve setting 600 kPa (6 bar) per ISO 3968.
- Operating temperature -20 +120°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968 with oil kinematic viscosity 30 cSt at 40°C and density 0,875 kg/dm³.
- Filter head casting in spheroidal cast iron.
- Extruded steel bowl.

Filter Elements

- Synteq® synthetic media: 6-8-11-23 micron, reinforced with wire mesh.
- Collapse resistance 2 MPa (20 bar) per ISO 2941.
- Available high collapse 21 MPa (210 bar) – on customer's request.



Components

		SYNTHETIC MEDIA								CARTRIDGE CODE
		/03		XP10		XP5		/00		
		$\beta_{23\mu m(c)} \geq 1000$		$\beta_{11\mu m(c)} \geq 1000$		$\beta_{9\mu m(c)} \geq 1000$		$\beta_{9\mu m(c)} \geq 1000$		
Family	Collapse	RMF		RMF		RMF		RMF		
AP358	Standard	30	P171715	30	P171714	20	P171713	20	P761392	CM230
	High		on request		P176939		P173106		on request	CM231
AP359	Standard	50	P165136	50	P165006	40	P165041	40	P169429	CM250
	High		on request		P167181		P176613		on request	CM251
AP360	Standard	90	P165138	90	P165015	70	P165043	70	P167838	CM290
	High		on request		P167183		P176616		on request	CM291

RMF = Recommended Maximum Flow in liters/minute with use of standard housing.

BPV = Bypass Valve Setting.

High Collapse elements are non-stock items, request your sales contact for offer and lead-time.

Other medias available on request.

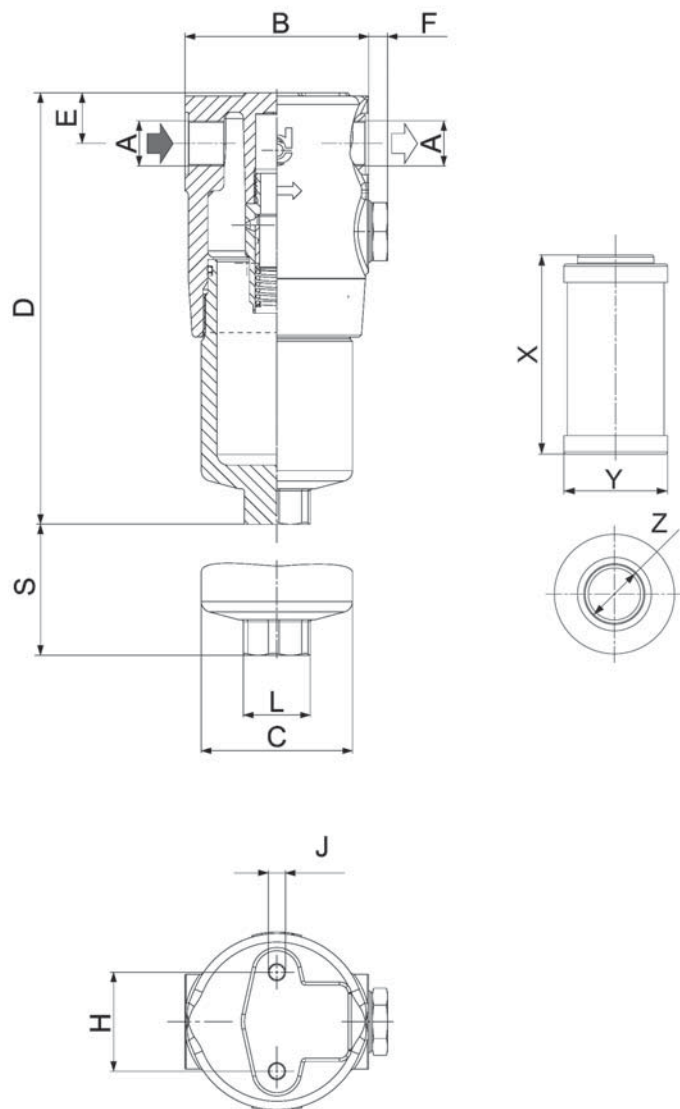
Indicator Choices

Part	Kind		Reference Drawing	Setting (bar)	Contact	Protection Class	Cable Clamp	Max. Values	Remark
P171945	Visual	Differential	H	5					
P171947	Electrical	Differential	K	5	Normally Open/Closed	IP65	PG11	250V AC; 30 VDC; 5A res. and ind.	
P171944	Electrical	Differential	K	5	Normally Open/Closed	IP65	PG11	250V AC; 30 VDC; 5A res. and ind.	with thermostat at min. temperature at 30°C
P761056	Electrical	Differential	L	5	Normally Open/Closed	IP65	PG11	30 V DC; 30 V AC; 0,5 A res. and 0,2 A ind.	

HIGH PRESSURE FILTERS

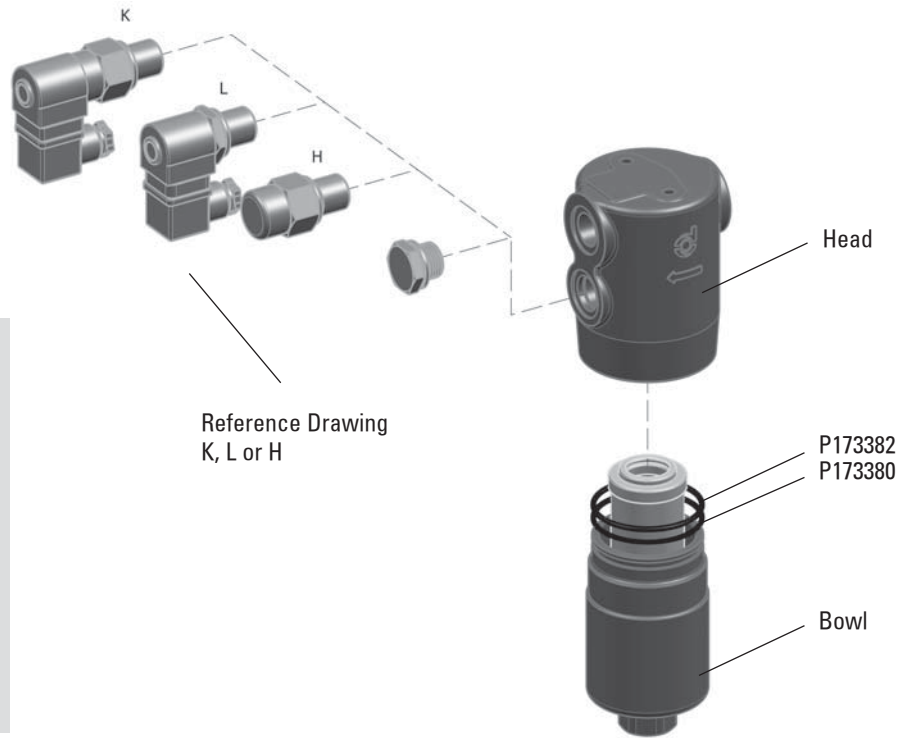


Standard Housing	HOUSING DIMENSIONS													CARTRIDGE DIMENSIONS			POSSIBLE INDICATOR
	A	B	C	D	E	F	H	J	L	M	N	S	BPV	X	Y	Z	
		mm	mm	mm	mm	mm	mm		mm	predrilled holes	plugged	mm	bar	mm	mm	mm	
P766377	G1/2	85	70	197	23	9	46	M8	Hex30	G1/2	yes	40	6	87	46	25,4	P171945 P171947 P171944 P761056
P766378	G1/2	85	70	223	23	9	46	M8	Hex30	G1/2	yes	40	6	113	46	25,4	
P766379	G3/4	85	70	324	23	9	46	M8	Hex30	G1/2	yes	40	6	280	46	25,4	



HIGH PRESSURE FILTERS

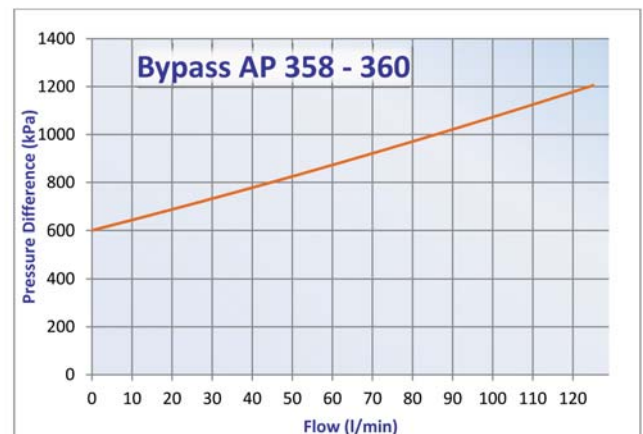
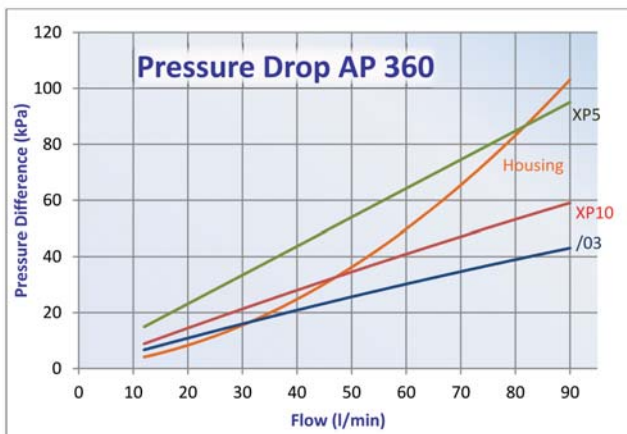
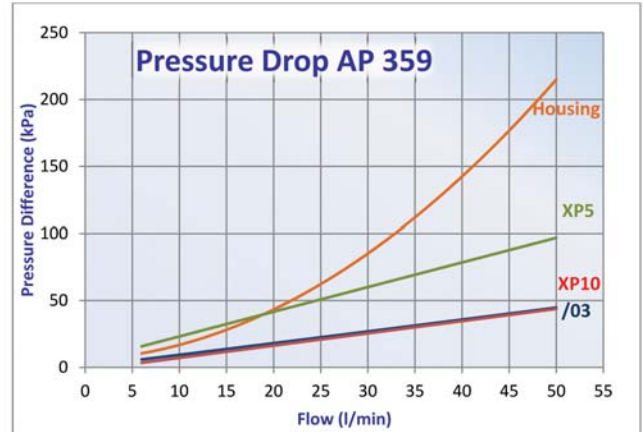
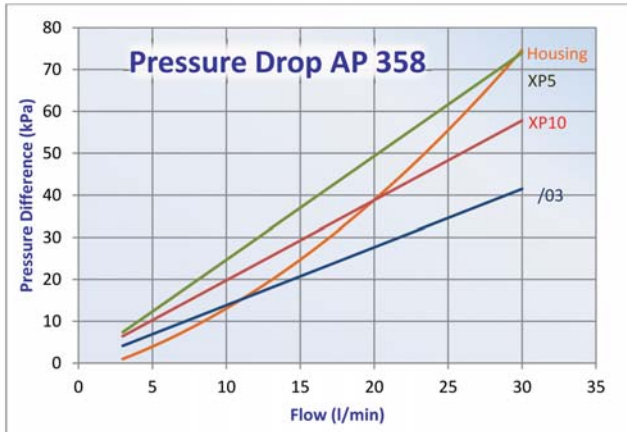
Installation & Service Guidelines



Important

- The bowl thread must be lubricated before spinning on the head to prevent thread damage. Heavyweight gear lube is recommended.
- Oil the O-Rings before assembly.

Performance Curves



HIGH PRESSURE
FILTERS

FPK02&04-AP220

FPK02-AP280

FPK03&04-AP420

FMK-FM

FCK-LC



Open empty housing
in correct order



Remove carton ring
before use



Check if O-ring between
lid and housing is installed and intact



Check if O-Ring on cartridge is installed and
intact

For FK:
Mount O-ring over stud



For Low Pressure cartridges:
Mount spring on cartridge



Mount element in
housing



For Combo 120:
Align arrows as shown



Assemble lid on housing



Assemble bolts and
screws in correct order



Tighten screws, bolts or lid until thread ends
For spin-ons: hand tighten until contact
between O-ring and head is made; and then
continue by hand as indicated on spin-on



Degrease surface where sparepart sticker
will be mounted
Only for cartridge type filters



Sparepart sticker in each sparepart box



Fix sparepart sticker in area indicated –
Ready!



Do not forget seals





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Donaldson's Mix&Match system provides the great performance and functional advantages of custom-engineered filters with the convenience and speedy delivery of in-stock parts. Choose your options and build a filter model that exactly suits your cleanliness requirements.

Technical Data

- Operating pressure
AP 221-222: Up to 42 Mpa (420 bar)
AP 223-224-225: Up to 30 Mpa (300 bar) .
- Static pressure testing
AP 221-222: Up to 63 MPa (630 bar)
AP 223-224-225: Up to 45 Mpa (450 bar) .
- Fatigue pressure of 2.000.000 cycles at 0-30 MPa (0-300 bar) per NFPA T3.10.5.1 R2-2000.
- By-pass valve setting:
AP 221-222: 350 kPa (3,5 bar)
AP 223-224-225: 600 kPa (6 bar) ,
per ISO 3968.
- Operating temperature -20 +120°C.
- Compatibility with hydraulic fluids per ISO 2943.
- Flow rate and pressure drop per ISO 3968
with oil kinematic viscosity 30 cSt at 40°C
and density 0,875 kg/dm³.
- Filter head casting in spheroidal cast iron.
- Extruded steel bowl.

Filter Elements

- Synteq[®] synthetic media: 8-11-23 micron,
reinforced with wire mesh.
- Collapse resistance 2 MPa (20 bar) per ISO 2941.
- Available high collapse 21 MPa (210 bar)
– on customer's request.

Components



		SYNTHETIC MEDIA						CARTRIDGE CODE
		/03		XP10		XP5		
		$\beta_{23(\mu m)} \geq 1000$		$\beta_{11(\mu m)} \geq 1000$		$\beta_{8(\mu m)} \geq 1000$		
Family	Collapse	RMF		RMF		RMF		
AP221	Standard	50	P169797	40	P169447	30	P169446	AP472
	High		on request		P167413		P176637	AP572
AP222	Standard	90	P169450	80	P169449	70	P169798	AP473
	High		on request		P176641		P176640	AP573
AP223	Standard	180	P164172	150	P164164	120	P164592	AP474
	High		on request		P176644		P176643	AP574
AP224	Standard	350	P164174	300	P164166	250	P164594	AP475
	High		P176647		P167186		P176646	AP575
AP225	Standard	450	P164176	400	P164168	350	P164596	AP476
	High		P167412		P176650		P176649	AP576

RMF = Recommended Maximum Flow in liters/minute with use of standard housing.
 BPV = Bypass Valve Setting
 High Collapse elements are non-stock items, request your sales contact for offer and lead-time.
 S= Service Clearance

Alternative Housing Choices

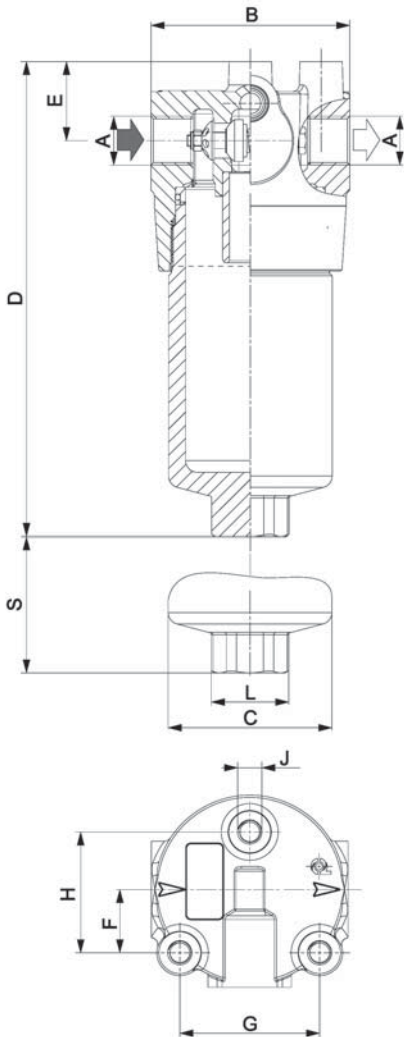


Family	Alternative Housing (see thread for indicator)	DIMENSIONS HOUSING													POSSIBLE INDICATOR	
		A	B	C	D	E	F	G	H	J	L	M	N	S		BPV
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	predilled holes	plugged	mm		bar
AP221	P766380	G1/2	85	70	200	34	27,5	60,5	52,5	M10	Hex30	9/16-18 UNF	yes	40	3,5	P763975 P763976 P171087
AP222	P766381	G3/4	85	70	310	34	27,5	60,5	52,5	M10	Hex30	9/16-18 UNF	yes	40	3,5	
AP223	P766387	G1 1/4	140	105	252,5	36,5	28,5	94	57	M12	Hex30	G1/2	yes	47	3,5	P761058 P761057
AP224	P766388	G1 1/4	140	105	345,5	36,5	28,5	94	57	M12	Hex30	G1/2	yes	47	3,5	
AP225	P766389	G1 1/2	140	105	467,5	36,5	28,5	94	57	M12	Hex30	G1/2	yes	47	3,5	

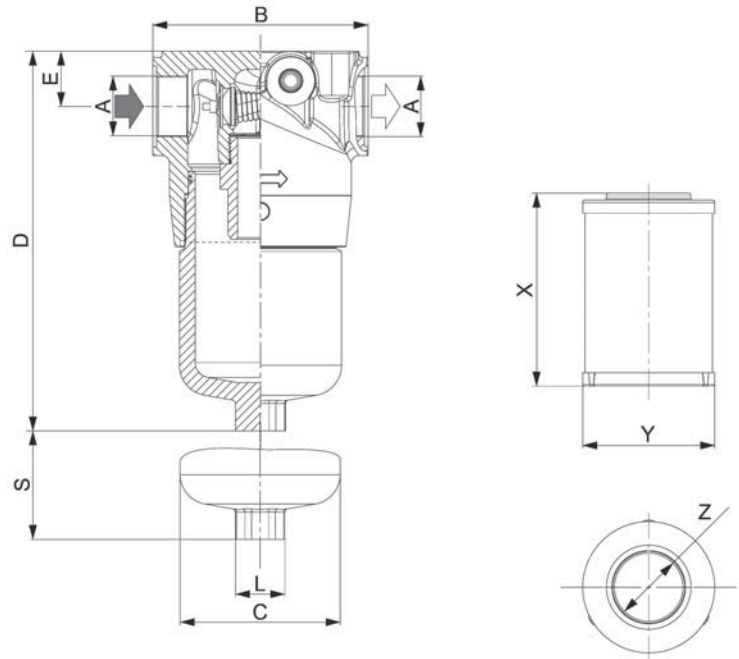
HIGH PRESSURE FILTERS



Standard Housing without Cartridge	HOUSING DIMENSIONS														CARTRIDGE DIMENSIONS			POSSIBLE INDICATOR
	A	B	C	D	E	F	G	H	J	L	M	N	S	BPV	X	Y	Z	
		mm	mm	mm	mm	mm	mm	mm		mm	predilled holes	plugged	mm	bar	mm	mm	mm	
P766385	G1/2	85	70	200	34	27,5	60,5	52,5	M10	Hex30	G1/2	yes	40	3,5	113	50	24	P761058 P761057
P766386	G3/4	85	70	310	34	27,5	60,5	52,5	M10	Hex30	G1/2	yes	40	3,5	207	50	24	
P766382	G1 1/4	140	105	252,5	36,5	28,5	94	57	M12	Hex30	9/16-18 UNF	yes	47	6	115	78	43	P763975 P763976 P171087
P766383	G1 1/4	140	105	345,5	36,5	28,5	94	57	M12	Hex30	9/16-18 UNF	yes	47	6	208	78	43	
P766384	G1 1/2	140	105	467,5	36,5	28,5	94	57	M12	Hex30	9/16-18 UNF	yes	47	6	330	78	43	



AP 221-222



AP 223-224-225

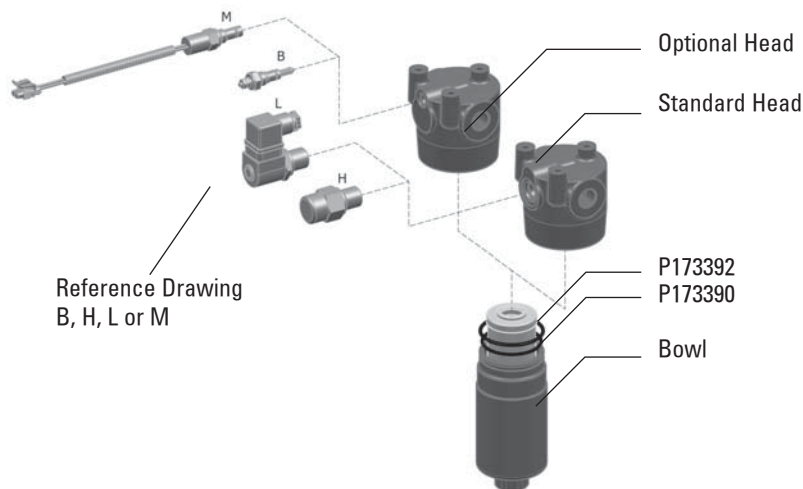
HIGH PRESSURE
FILTERS

Indicator Choices

Part	Kind		Reference Drawing	Setting (bar)	Contact	Protection Class	Cable Clamp	Max. Values
P763975	Electrical	Differential	B	2,75	Normally Open			6-30V DC; 0,2 A
P763976	Electrical	Differential	B	2,75	Normally Closed			6-30V DC; 0,2 A
P761058	Visual	Differential	H	3				
P761057	Electrical	Differential	L	3	Normally Open/Closed	IP65	PG11	30 V DC; 0,5 A res. and 0,2 A ind.
P171087	Electrical	Differential	M	2,75	Normally Open		Packard Connector	6-30 V DC; 200 mA

Installation & Service Guidelines

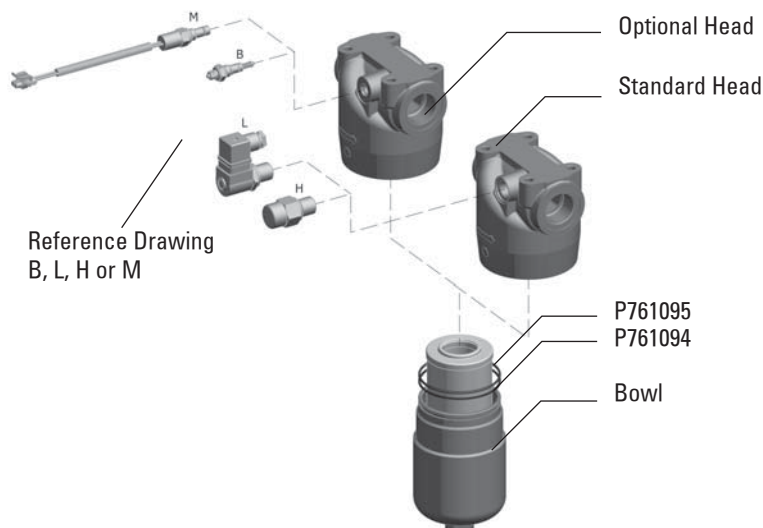
AP 221-222



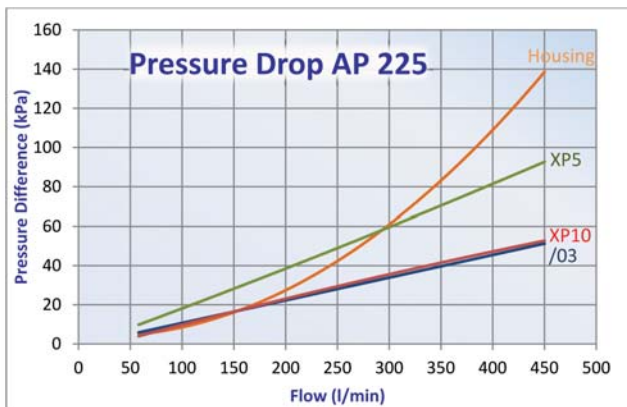
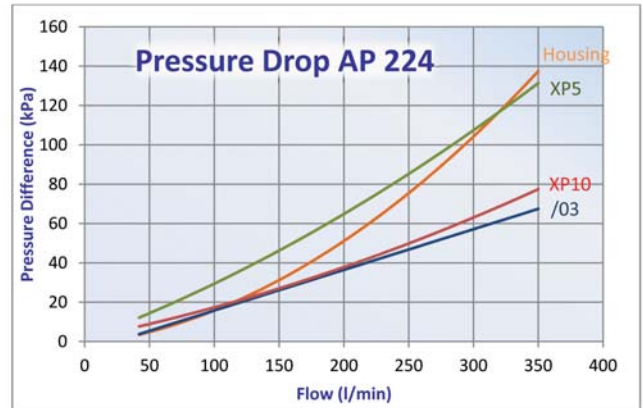
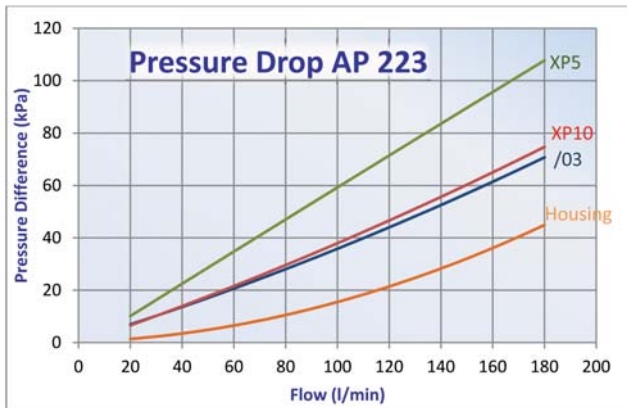
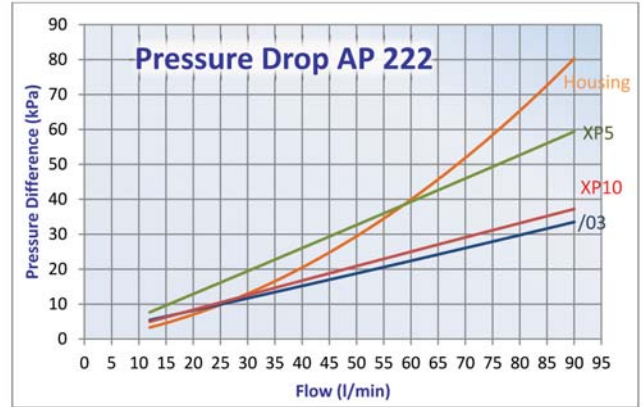
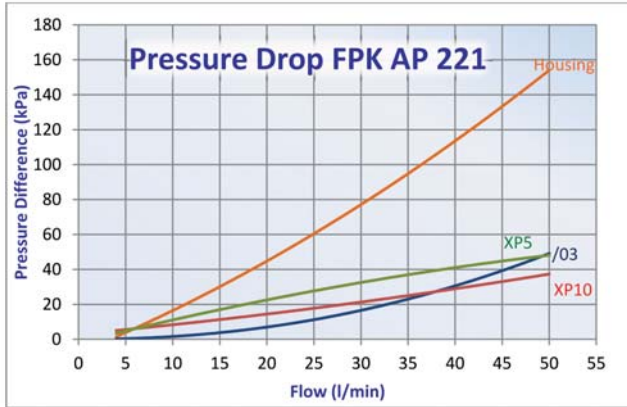
Important

- The bowl thread must be lubricated before spinning on the head to prevent thread damage. Heavyweight gear lube is recommended.
- Oil the O-Rings before assembly.

AP 223-224-225



Performance Curves



HIGH PRESSURE
FILTERS