

FiWaGuard Products for Small Enclosure Fire Protection Systems based on the FiWaGuard-Sensortube



IT'S
YOUR SYSTEM
OPTIMIZED WITH
OUR COMPONENTS

**FiWaRec® Product Catalogue
for FiWaGuard® Components**

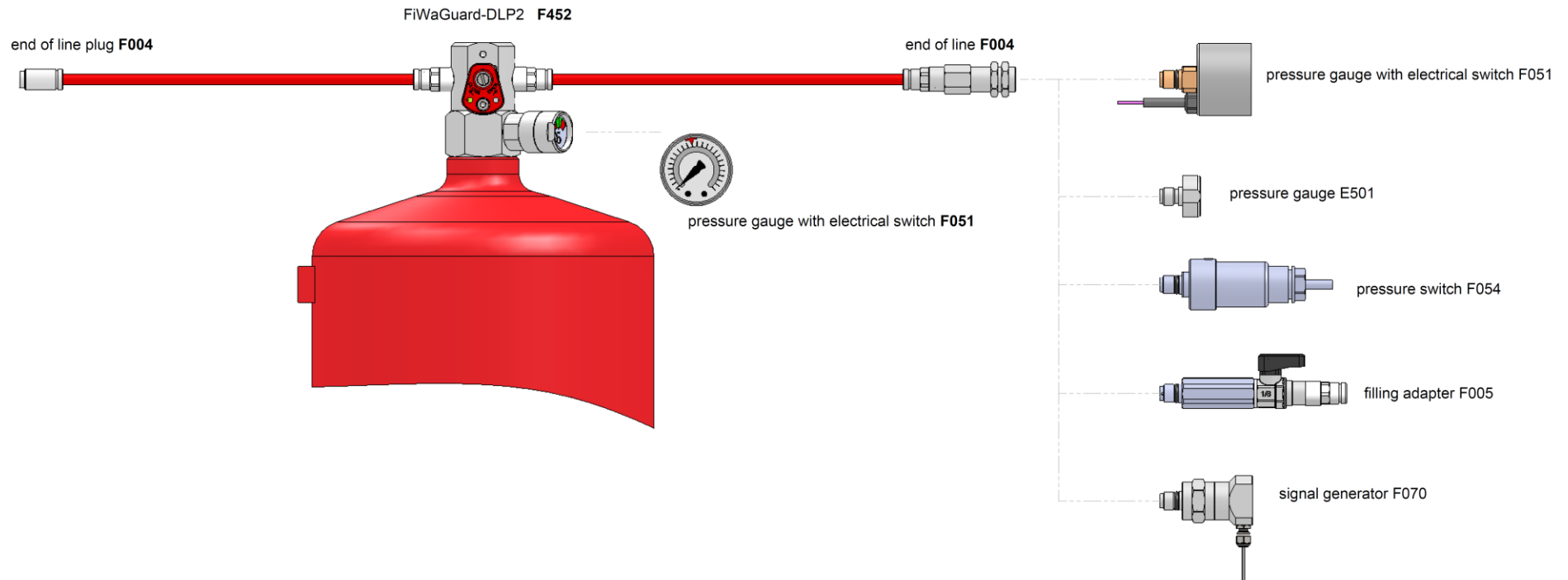


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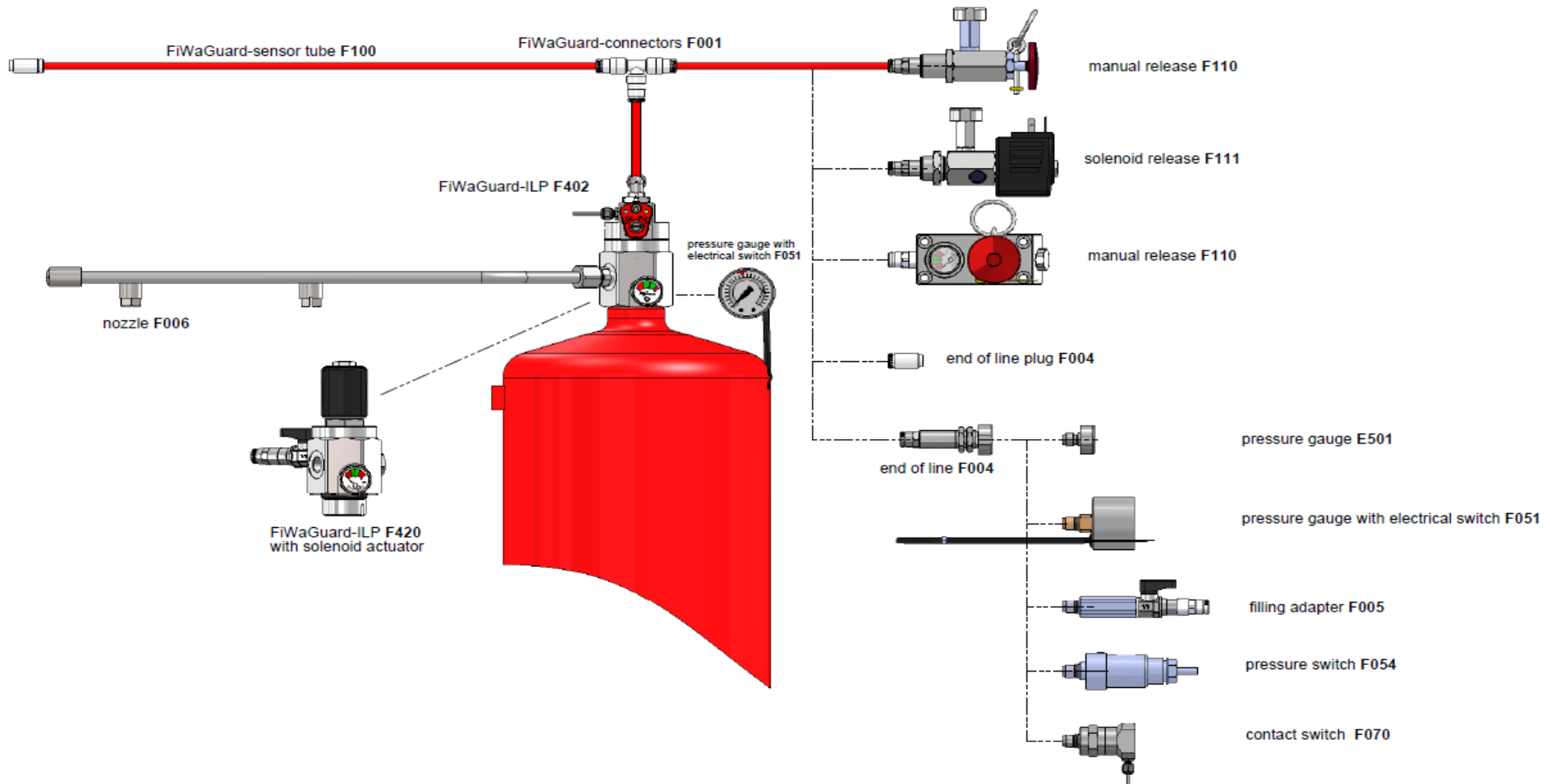
Overview:

FiWaRec® Products for Direct Low Pressure Systems (DLP)



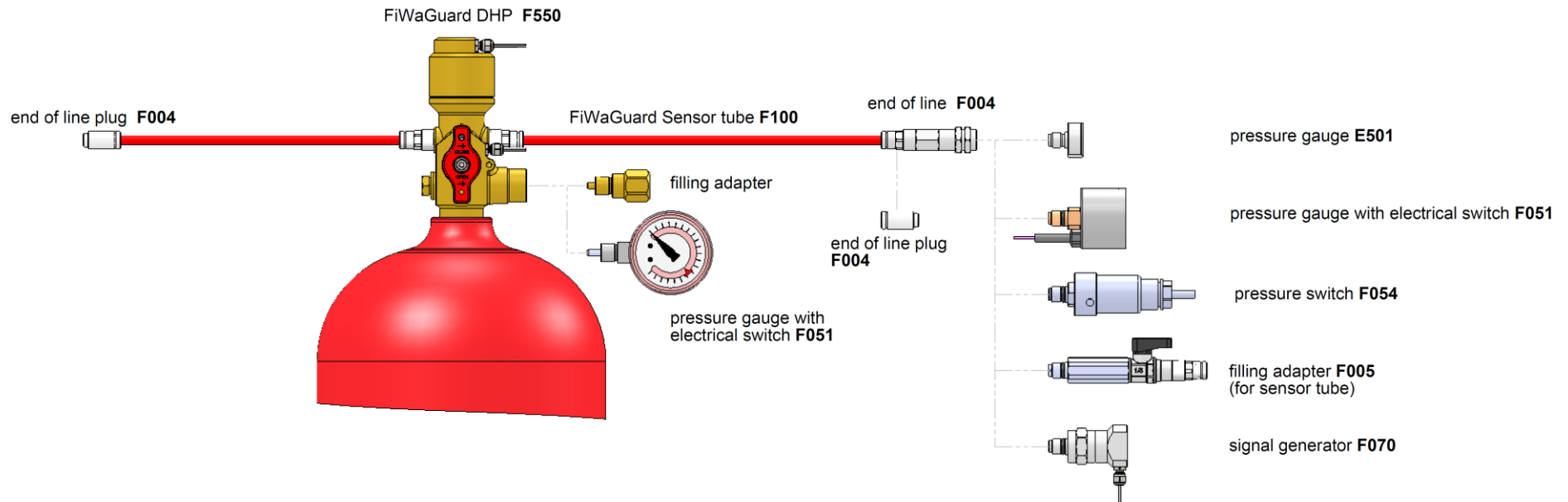
Overview:

FiWaRec® Products for Indirect Low Pressure Systems (ILP)



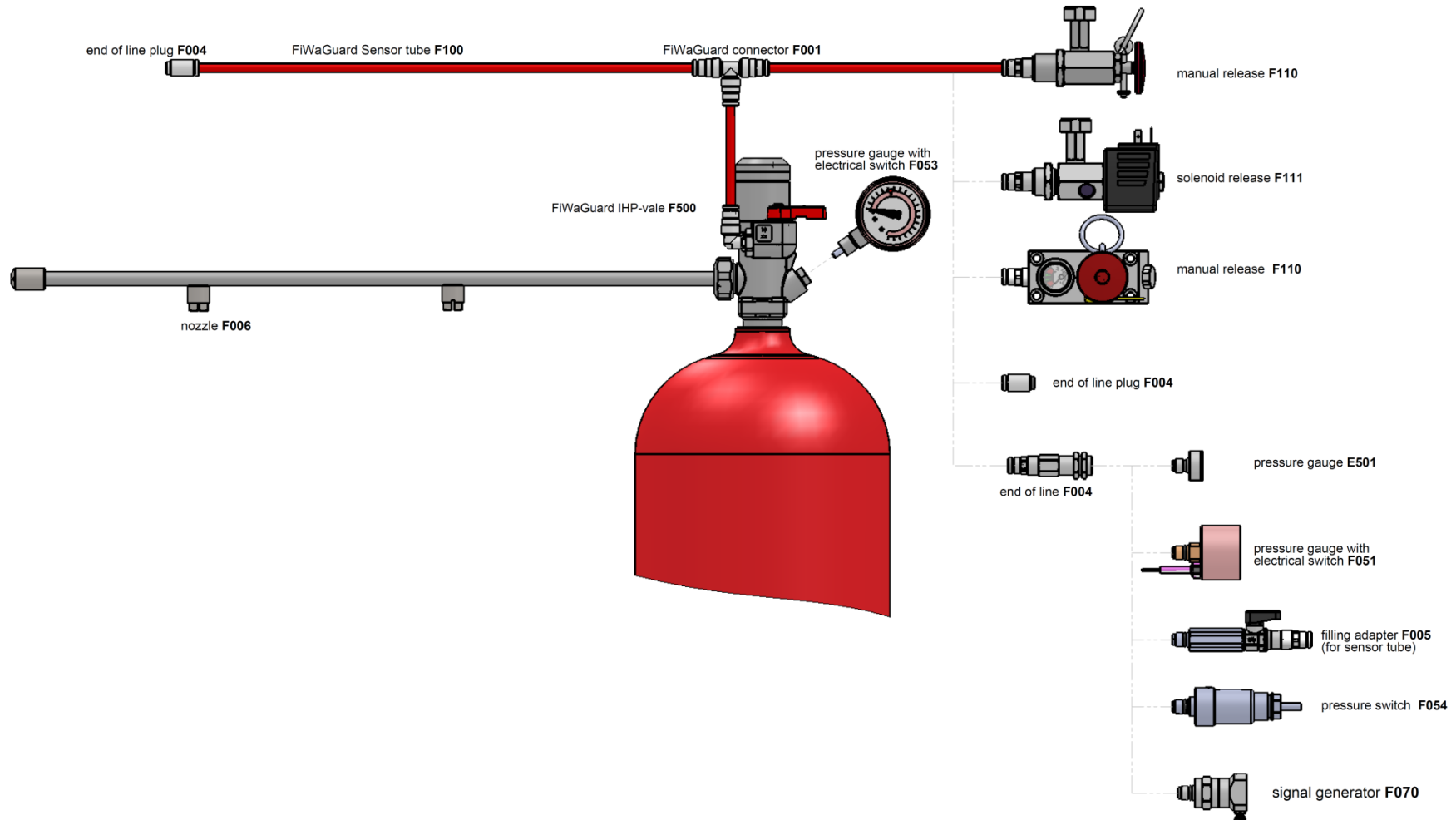
Overview:

FiWaRec® Products for Direct High Pressure Systems (DHP)

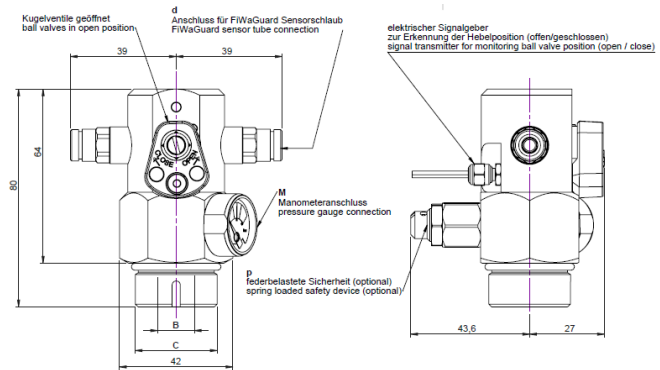


Overview:

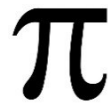
FiWaRec® Products for Indirect High Pressure Systems (IHP)



DLP Cylinder Valves (Type F452)



- Tube Connections for outer $\varnothing 6\text{mm}$ or $\varnothing 8\text{mm}$ available
- Integrated Ball Valve
- Integrated Electrical Position Control of the Ball Valve: Open/Closed
- Approval: TPED (2010/35/EU)
- different Variants upon request

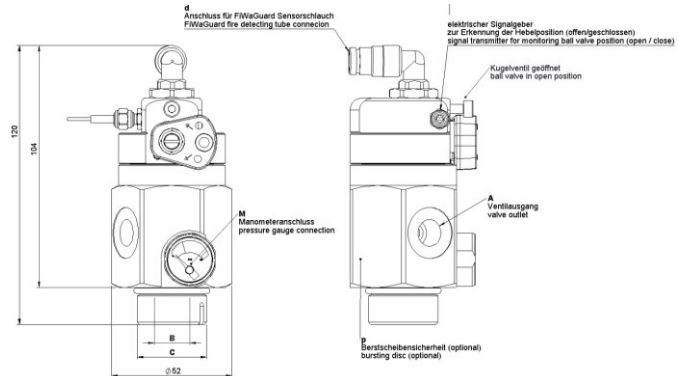


Extinguishing Agents	N2, HFC227ea, FK5-1-12, powder, Liquid Agents, AFFF,...
Pressure Gauge Connection M	M10x1mm (with Non-Return Valve)
Cylinder Thread C	M30x1,5mm
Dip Tube Thread B	M16x1,5mm
Connection for Sensor Tube d	FiWaGuard® – Plug-In Connector for FiWaGuard® – Fire Detecting Tubes with outer $\varnothing 6\text{mm}$ or $\varnothing 8\text{mm}$
Temperature Range	-20° C up to +65° C
Working Pressure	23bar at 15°C (max. 28bar at Tmax) , valid Regulations have to be considered - see hints in the FiWaGuard® manuals
Material of Valve Body	Brass, Nickel-Plated

Basic Variants (others on request)

Article code	With Integrated Electrical Position Control	Safety Device	For Fire Detection Tube
F4520000		/	$\varnothing 6\text{mm}$
F4520001	X		
F4520002		Spring-Loaded Safety Device 30bar	
F4520003	X		$\varnothing 8\text{mm}$
F4520012		/	
F4520013	X		
F4520014		Spring-Loaded Safety Device 30bar	
F4520016	X		

ILP Cylinder Valves (Type F402)



- High Flow Capacity
- no Pressure Loss across the Sensor Tube during Discharge
- Integrated Ball Valve
- Integrated Electrical Position Control of the Ball Valve: Open/Closed
- Approval: TPED (2010/35/EU)
- different Variants upon request



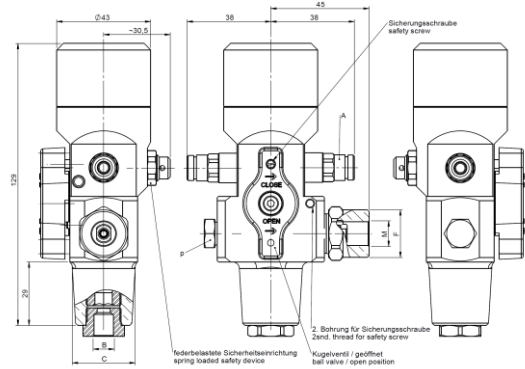
Extinguishing Agents	N2, HFC227ea, FK5-1-12, powder, Liquid Agents, AFFF,...
Pressure Gauge Connection M	M10x1mm (with Non-Return Valve)
Cylinder Thread C	M30x1,5mm
Valve Outlet A	G1/4"
Filling Connection	Filling via Sensor Tube Connection d
Dip Tube Thread B	M16x1,5mm
Connection for Sensor Tube d	FiWaGuard® – Plug-In Connector for FiWaGuard® – Fire Detecting Tubes with outer Ø6mm
Seat Diameter	Ø8mm (DN8)
Temperature Range	-20°C up to +65°C
Working Pressure	23bar at 15°C (max. 28bar at Tmax) , valid Regulations have to be considered - see hints in the FiWaGuard® manuals
Material of Valve Body	Brass, Nickel-Plated

Basic Variants (others on request)

Article code	With Integrated Electrical Position Control	Safety Device	Valve Outlet(s)
F4020000		/	1x G1/4"
F4020001	X	Burst Disc Safety Device 30bar	
F4020008			
F4020009	X	/	2x G1/4"
F4020028			
F4020029	X		

➔ ILP Valves are available with Integrated Solenoid Actuator, too. (Article Code F420)

DHP Cylinder Valves (Type F550/551)



- High Flow Capacity of approx. 1,1kg of CO²/min (with Tube Length of 5m)
- Integrated Ball Valve
- Integrated Electrical Position Control of the Ball Valve: Open/Closed
 - Also integrated Release Control (Pressure Switch)
- Approval: TPED (2010/35/EU)
- different Variants upon request



	Product Range F550 (CO ² , Inert Gases)	Product Range F551 (Clean Agents)
Cylinder Thread C	25E – EN ISO11363-1	
Filling Connection F	W21,8x1/14"	
Pressure Gauge Connection M	M12x1mm	
Dip Tube Thread B	M16x1,5mm, M16x1mm or on request	
Connection for Sensor Tube d	FiWaGuard® – Plug-In Connector for FiWaGuard® – Fire Detecting Tubes with outer Ø6mm	
Seat Diameter	Ø4mm (DN4)	
Safety Burst Disc Device p	Burst Pressure must be calculated in accordance to respective valid Regulations	
Sensor Tube Pressure (Low Pressure)	18bar (+/-1) @ Cylinder Pressure 60bar	
Safety Device (for Low Pressure)	30bar	
Temperature Range	-20° C up to +65° C	
Operating Pressure	max. 250bar valid Regulations have to be considered	max. 200 bar valid Regulations have to be considered
Extinguishing Agents ¹	CO ₂ , Inert Gases	Chemical Extinguishing Agents (Clean Agents)
Material of Valve Body	Brass	

Basic Variants (others on request)

Article code	With Integrated Electrical Position Control	Burst Disc Safety Device Rating
F5500006	X	190bar
F5500005		250bar
F5500000	X	190bar
F5500001		250bar

¹ Gasket materials must be compatible with extinguishing agent

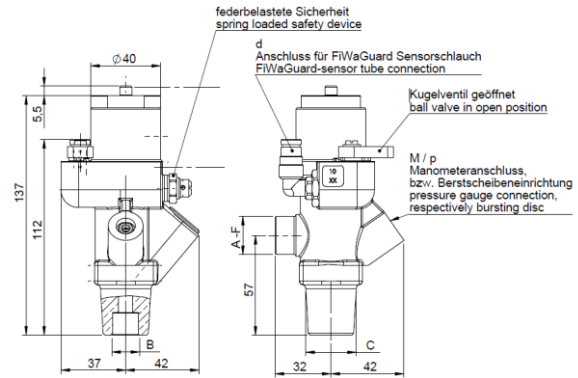
DHP Valves with pressure cylinder (Type F162)



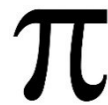
- compact size
 - cylinder volume 0,74l (others available on request)
- integrated ball valve
- available options:
 - reduced flow rate
 - integrated position control of the ball valve
- applicable:
 - for small extinguishing systems
 - as pressure buffer (reduced flow rate)
 - to fill low pressure systems
- approval: TPED 2010/35/EU

cylinder thread	25E – EN ISO11363-1
filling connection	W21,8x1/14"
connection pressure gauge	M12x1mm
dip tube thread	M16x1,5mm, M16x1mm or on request
connection detecting tube	FiWaGuard® – Plug-In Connector for FiWaGuard® – Fire Detecting Tubes with outer Ø6mm
seat diameter	Ø4mm (DN4)
burst disc safety device	burst pressure must be calculated in accordance with respective valid regulations
outlet pressure	18bar (+/-1) @ Cylinder Pressure 60bar
spring-loaded safety device	30 bar
temperature range	-20°C up to +65°C
operating pressure	max. 250 bar respective valid regulations have to be considered
extinguishing agents ¹	CO ₂ , inert gases, chemical extinguishing agents
material valve body	brass

IHP Cylinder Valves (Type F500/501/502)



- Filling Procedure– Easy and Safe - via the Valve Outlet
- High Flow Capacity
- Integrated Ball Valve
- Integrated Electrical Position Control of the Ball Valve: Open/Closed
 - Also integrated Release Control (Pressure Switch)
- Integrated Filling Function for the Sensor Tube
- Approval: TPED (2010/35/EU)
- different Variants upon request



	Product Range F500 (CO ²)	Product Range F501 (Inert Gases)	Product Range F502 (Clean Agents)
Extinguishing Agents	CO ₂	Inert Gases (N ₂ , Argon, Inergen...)	Chemical Extinguishing Agents (HFC227ea, FK5-1-12)
Filling Pressure PW / Filling Ratio for F500	Max. Filling Ratio: 0,75kg/L	with Filling Pressure of 200 bar at +15°C	with a Filling Pressure of 50bar at +15°C
Pressure Gauge Connection M	/	M12x1mm	
Safety Burst Disc Device p	190bar, 250bar	270bar or upon request	95bar or upon request
Cylinder Thread C	25E – EN ISO11363-1		
Valve Outlet A	W21,8x1/14"		
Filling Connection F	Filling: via the Valve Outlet A		
Dip Tube Thread B	M16x1,5mm, M16x1mm or on request		
Connection for Sensor Tube d	FiWaGuard® – Plug-In Connector for FiWaGuard® – Fire Detecting Tubes with outer Ø6mm		
Seat Diameter	Ø8mm (DN8)		
Sensor Tube Pressure (Low Pressure)	18bar (+/-1) @ Cylinder Pressure 60bar		
Safety Device (for Low Pressure)	30bar		
Temperature Range	-20° C up to +65° C		
Operating Pressure	max. 250bar - valid Regulations have to be considered		
Material of Valve Body	Brass		

Basic Variants (others on request)

Article code	With Integrated Electrical Position Control	Burst Disc Safety Device Rating
F5000000	X	250bar
F5000001		190bar
F5000005		250bar
F5000013		190bar

Manual Actuators (Type F110)

→ Only applicable for Indirect Systems (ILP or IHP)

Manual Actuator



Multi-Actuator



- Easy and Secure mounting
- to Trigger all Indirect FiWaGuard® Valves
 - with Pressure Gauge

	Product Range F110
Operating Pressure	23bar at 15°C (max. 28bar at Tmax) , valid Regulations have to be considered - see hints in the FiWaGuard® manuals
Temperature Range	-20°C up to +65°C
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO2, HFC227ea, FK5-1-12, Liquid Agents, AFFF,...
Material of Valve Body	Brass, Nickel-Plated
Connection for Sensor Tube	FiWaGuard® – Plug-In Connector for FiWaGuard® – Fire Detecting Tubes with outer Ø6mm (or Ø8mm on request)

Solenoid Actuators (Type F111)

→ Only applicable for Indirect Systems (ILP or IHP)



- Easy and Secure mounting - by using nut M20x1, 5
- to Trigger all Indirect FiWaGuard® Valves
- with Pressure Gauge

	product range F111
Operating Pressure	23bar at 15°C (max. 28bar at Tmax) , valid Regulations have to be considered - see hints in the FiWaGuard® manuals
Temperature Range	-20°C up to +65°C
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO2, HFC227ea, FK5-1-12, Liquid Agents, AFFF,...
Material of Valve Body	Brass, Nickel-Plated
Voltage	24 VDC (±10%) or 12 VDC (±10%)
Power Consumption	12 WATT
Duty Cycle	100% on-duration
Protection Class	IP65, with cable plug
Electrical Connection	DIN EN 175301-803, Type A (previously DIN 43650A)

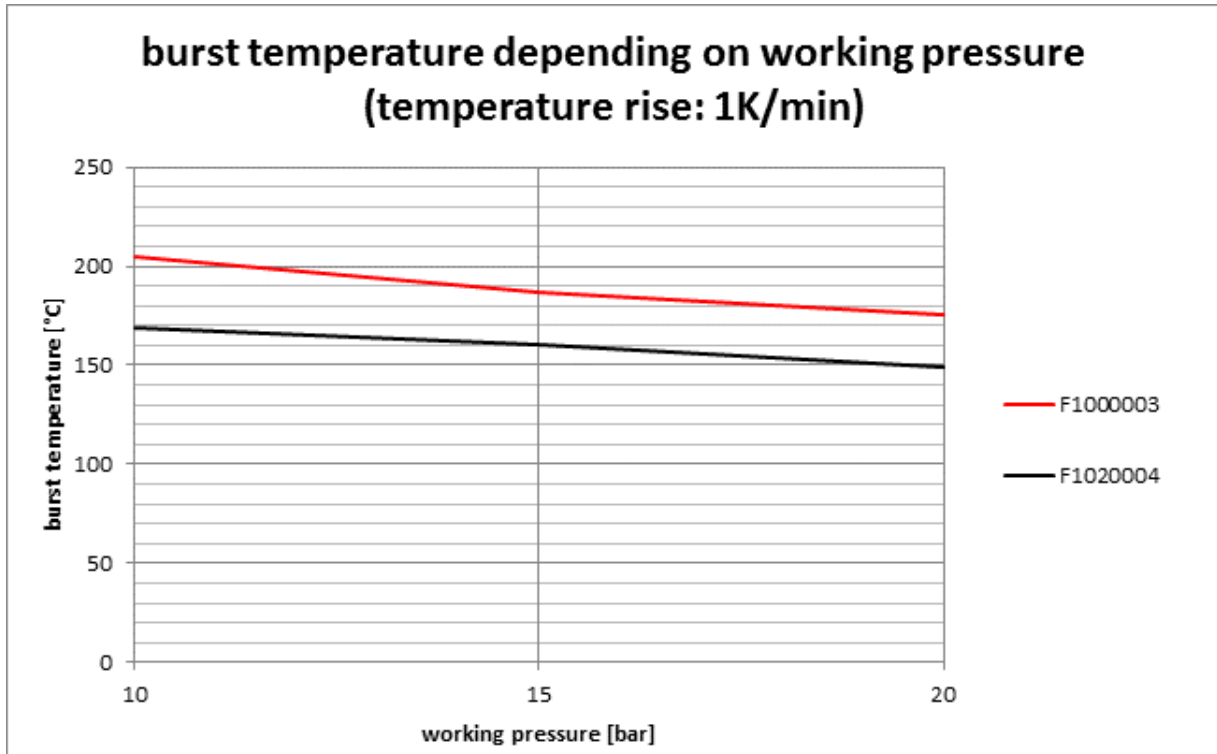
FiWaGuard-Sensortubes (Type F102/100)



- enables linear Monitoring and Detection
- flexible Installation in the Hazard Area
- suitable for all FiWaGuard®-Plug-In-Connectors → Quick and Easy Installation
- low Susceptibility / high Reliability
- meets the Requirements of ISO16750-3:2007 for Road Vehicles in conjunction with the FiWaGuard®-Plug-In-Connectors
- Approval: UL-recognized

	F100 - Standard	F102 - HR-Quality
Color	red (RAL3000)	Multi-Layer Tube Black
Operating Temperature	Optimal temperature for long-term use is -40°C to +80°C (higher Temperatures can lead to a Reduction in Service Life) / Steady Load to max. +80°C has been tested. The lowest Operating Temperature is stipulated at minus 40°C.	
UV	/	UV-stabilized
Life Time	Best of our Knowledge and Experience we can contemplate that the Life Time of minimum 8 years can be expected considering Normal Environmental Conditions without any harsh Influences and without contact of aggressive Media	
Dimensions	outer Ø6mm	outer Ø6mm / outer Ø8mm
Tube Length	100m (per roll)	
Material	modified Polyamide (PA)	
Melting Point	approx. +220 degrees Celsius when heating up with 10 K/minute	
Operating Pressure	recommended between 11bar and 23bar within the whole Temperature Range. optimal Filling Pressure: 18bar, depending on Existing Safety Devices	
Burst Pressure	approx. 120 bar @ 20°C (without Flame Impingement)	
Bursting Temperature	Depending on System Pressure and Temperature Rise in K/min (see following page)	
Product approval	UL-approved	UL-approved and tested for long-term use from LPCB in UK

FiWaGuard-Sensortubes (Type F102/100) – follow up

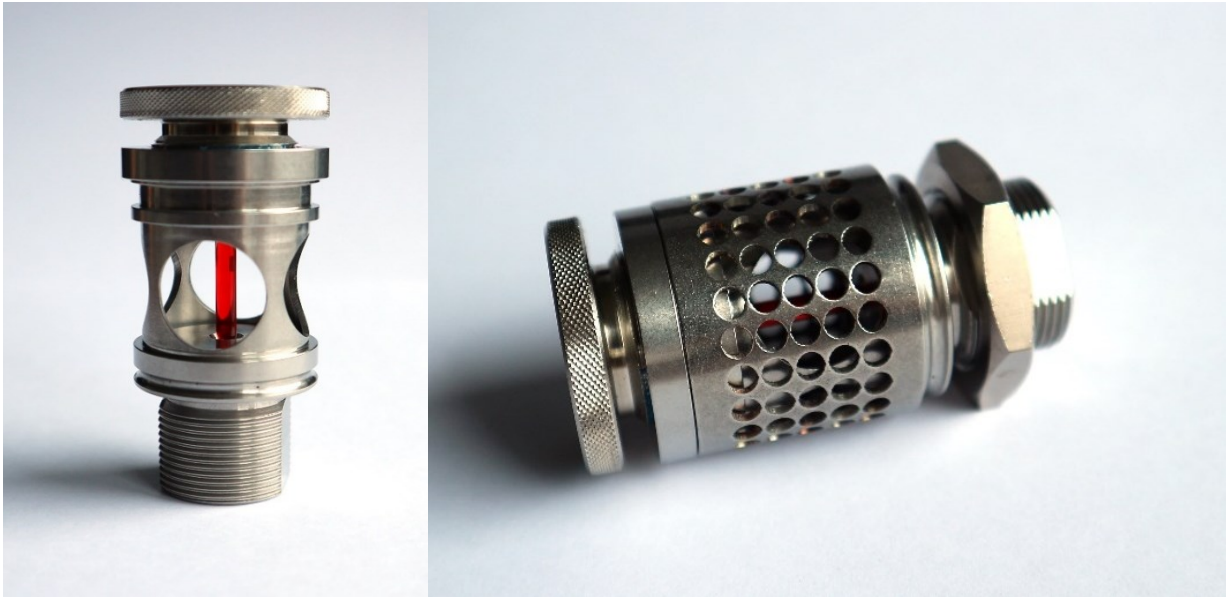


- **F1000003** – Standard Sensortube, red (Single Layer)
 - Normal Chemical Resistance and Water Absorption

- **F1020004** – High Quality Sensortube, black (Multi-Layer)
 - Better Chemical Resistance, no risk for Corrosion in contact with Zinc
 - Very good Resistance against UV Radiation
 - Higher Durability and Reliability
 - Very low Absorption of Water (less than 1%)
 - No changes in Mechanical Characteristics
 - Is tested for Long-Term use and Temperature Detection from LPCB in UK



Glass Bulb Actuation Device (Type F114)

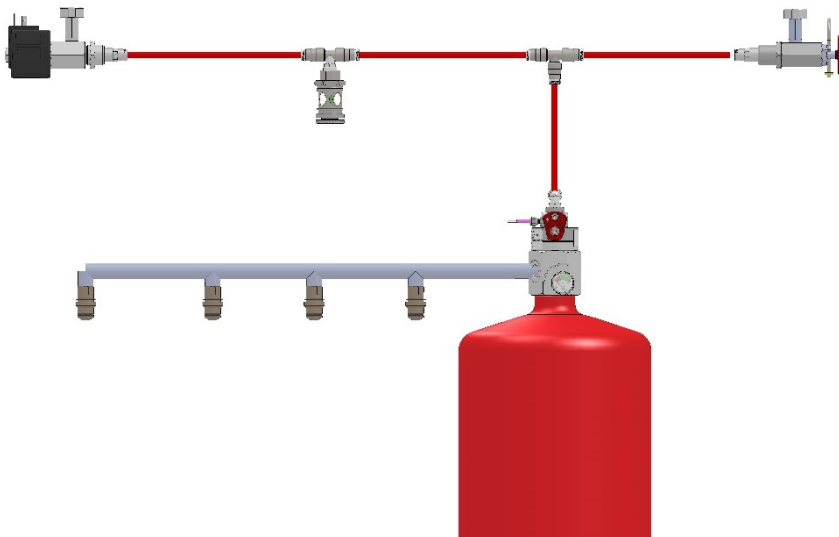


- Made of Stainless Steel
- With G1/8" Connection (female) and Fixing Nut (M20x1mm)

Glass bulb properties

- Response Class – “fast”
- Response Time Index (RTI) - 33(ms)_{1/2} / 59(fts)_{1/2}
- Available Activation Temperature Classes
 - 93°C – green
 - 79°C – yellow
 - 68°C – red
 - (other Temperatures can be offered on request)
- Special Variant for Heavy-Duty use available with additional Protection Cage (Stainless Steel)

Example for Installation in Combination with the FiWaGuard® Sensortube and ILP Valve



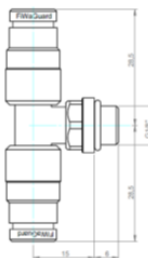
FiWaGuard-Plug-In Connectors (Type F001)



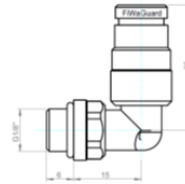
- meets the Requirements of ISO16750-3:2007 for Road Vehicles in conjunction with the FiWaGuard®-Sensor Tube
- meets the highest Tightness Requirements
- Easy and Quick Installation of the FiWaGuard®-Sensor Tube
- Quick and Easy Disassembly of the FiWaGuard®-Sensor Tube by using the FiWaGuard® Disassembling Tool or Multitool
- Nickel-plated Surface
- different Versions available (see below)



F0010002
Ø6 – G1/8"



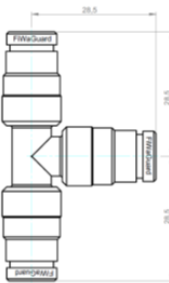
F0010004
Ø6 – Ø6 – G1/8"



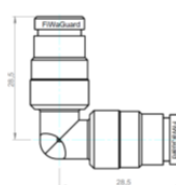
F0010003
Ø6 – G1/8"



F0010005
Ø6 – Ø6

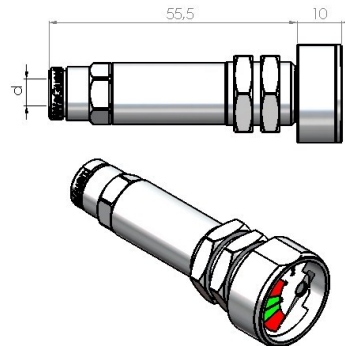


F0010007
Ø6 – Ø6 – Ø6



F0010006
Ø6 – Ø6

FiWaGuard-End-of-Line Adaptors (Type F004)



➔ also available without Gauge or as End-of-Line Plug

Operating Pressure	max. 28bar
Temperature Range	-20°C up to +65°C
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO2, HFC227ea, FK5-1-12, Liquid Agents, AFFF,...
Material of Valve Body	Brass, Nickel-plated
For Tubes	<i>outer Ø6mm / outer Ø8mm</i>

Basic Variants (others on request)

Article code	Type
F0040001	End-of-Line Adaptor with Gauge
F0040002	End-of-Line Plug
F0040003	End-of-Line Adaptor without Gauge

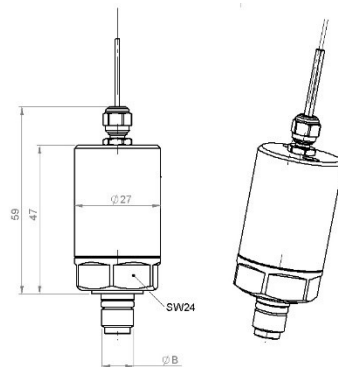
Contact Gauges for High or Low Pressure application (Type F051/053)



- Pressure Gauge for Indication and Monitoring of the Cylinder Pressure and for Signaling of eventual Leaks
- Pressure Measuring Device for use in Gas Extinguishing Systems as per EN 12094-10 (VdS/CE/LPCB; UL/FM-approved Gauges available too)
- High Switching reliability and long Service Life
- design as per EN 837-1 and EN 12094-10
- different Switch Contact Setpoint available
- Ingress Protection Class IP 65
- patented Pressure Gauge Connection M12x1mm: (P) US9,072,925 B2

Scale Range	on request, max. 400bar
Pressure Limitation	steady: 3 / 4 x full scale fluctuating: 2 / 3 x full scale short time: full scale
Temperature Range	-20°C up to +65°C
Connection	M12x1mm (male) → high Pressure Gauges M10x1mm (male) → low Pressure Gauges
Electrical Data	Switching Voltage: 4.5 ... 24 VDC / VAC Switching Current: 5 ... 100 mA Contact Load: max. 2.4 W Switching Contact: breaks (normally closed - NC) or makes (normally open - NO) Potential- Free Contact
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO2, HFC227ea, FK5-1-12, Liquid Agents, AFFF,...

Signal Generator (Type F070)

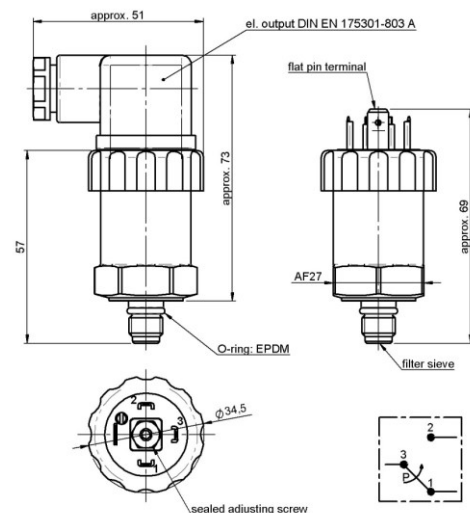
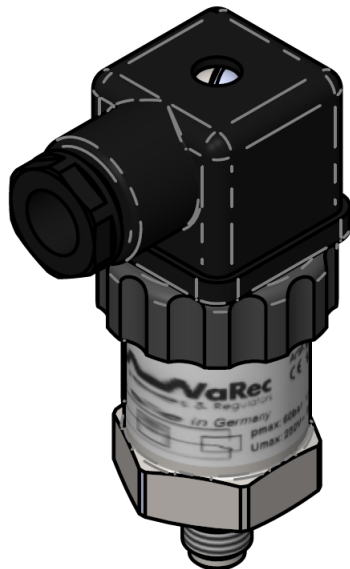


- meets the Highest Tightness Requirements
- Resistant to Mechanical Forces (Shock and Vibration)
- High Reliability caused by a Simple Measurement Principle
- Robust and Compact Design
- Ingress Protection Class IP 65
- available as NC, Change-Over or NO Contact

Operating Pressure	max. 28bar
Temperature Range	-20°C up to +85°C
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO ₂ , HFC227ea, FK5-1-12, Liquid Agents, AFFF,...
Connection	M10x1mm (male) or G1/8" (female)
Available Switch Modes	normally closed - NC normally open – NO Change-Over Contact
Electrical Data	see FiWaGuard-Manual Chapter 23

Pressure Switches (Type F054)

If the pressure within the Detecting Tube drops below the Pressure Switches' preset Set Point, the Switch reacts which for example causes an Alarm or any System Switch-Off because of the Release of the Fire Extinguishing System.

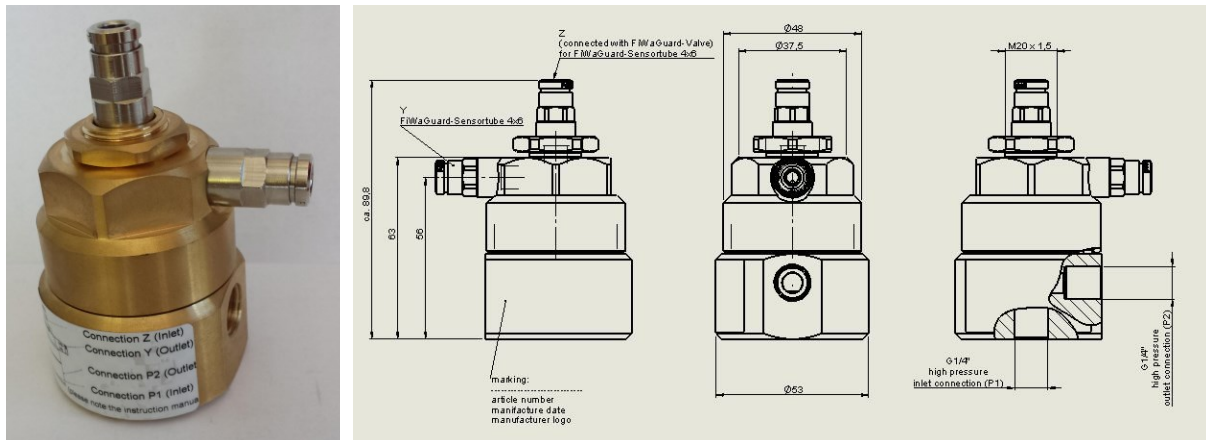


F0540007; F0540008; F0540009:

Pressure Range of Set Point for Switch	1 – 16bar Available Settings: 5bar, 11bar or for free Adjustment on Place
Operating Pressure	max. 60bar
Electrical Data	Switching Power: max. 28VDC / 2A or max. 250VAC / 4A Switching Frequency: max. 100/min Switching Contact: Change-Over Contact (normally closed – NC) (normally open – NO) Potential- Free Contact
Ingress Protection Class	IP65
Temperature Range	-20°C up to +80°C
Connection	M10x1mm (male)

FiWaGuard-Selector Valve (Type F150)

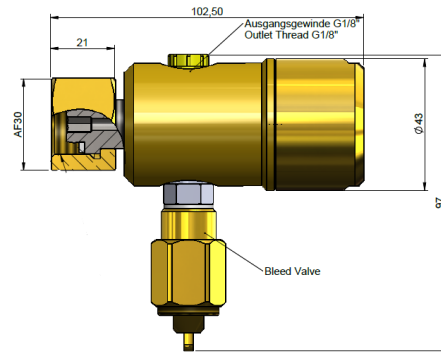
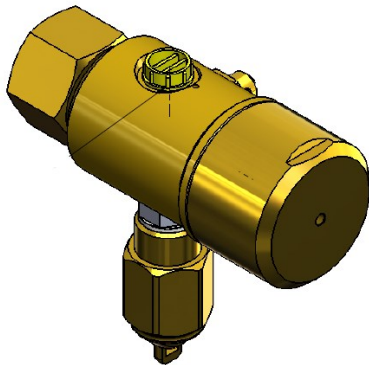
→ Only applicable for Indirect Systems (ILP or IHP)



- To use one Automatic Fire Suppression Cylinder Valve to cover more than one Hazard Area
 - (up to 5 different Areas per FiWaGuard®-Indirect-Valve)
- Only to use with FiWaGuard®-Indirect-Valves like:
 - FiWaGuard®-ILP (F401/F402/F420)
 - FiWaGuard®-IHP (F500/F501/F502)
- Controlled by FiWaGuard® Sensortube (Tube Pressure min. 15bar)
- Working Pressure up to 250bar (in the Extinguishing Line)
- High Flow Rate
- Suitable for various Gases and Agents

Operating Pressure	max. 250bar
Temperature Range	-20°C up to +65°C
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO ₂ , HFC227ea, FK5-1-12, Liquid Agents, AFFF,...
Material of Valve Body	Brass
Connection threads	2x G1/4" (Connections for Extinguishing Line) 2x G1/8" (with FiWaGuard Fittings for Sensortube Ø 4x6mm)
Seat Diameter	Ø6,9mm (DN6,9)
Classification	FiWaGuard® – Selector Valves Type F150 are Pressurized Equipment according to art. 3.3 of the Pressure Equipment Directive Therefore, a CE marking as per PED is not permissible

Pressure Regulator for Cylinder Valves (Type F804)



- meets highest Requirements.
- meets the highest Operational Reliability
- Operating up to 250bar Inlet Pressure
- Compact and Robust Design
- Equipped with Bleed Valve and 30bar Pressure Relief Device

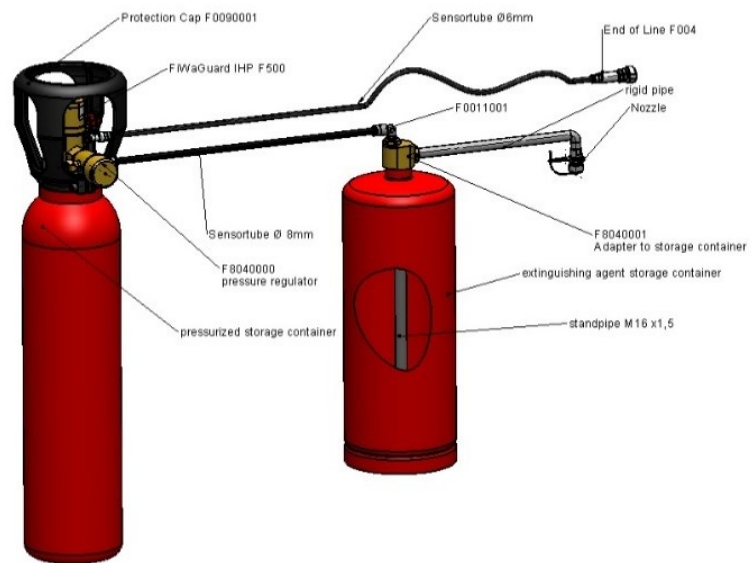
Seat Diameter	Ø4mm (DN4)
Operating Pressure	max. 300bar
Temperature Range	-20°C up to +65°C
Outlet Pressure	18bar (+/-1) @ Cylinder Pressure 60bar
Extinguishing Agents ¹	CO ₂ , Inert Gases, compressed Air,...
Material of Valve Body	Brass
Inlet Thread	W21,8x1/14"
Outlet Thread	G1/8"

Pressure Regulator for Cylinder Valves (Type F804) – follow up

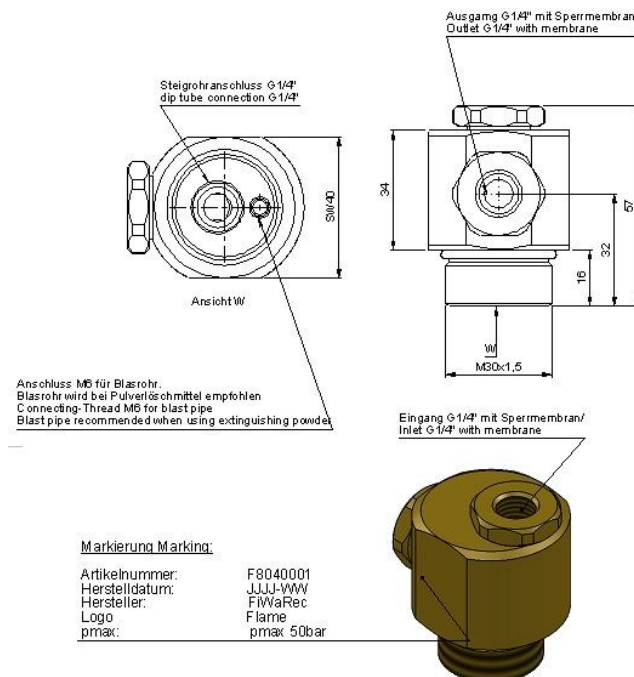
- FiWaRec Pressure Regulators Type F804 for use in Combination with High Pressure Cylinder Valves to reduce the Downstream Pressure
- Adequate Valves from FiWaRec® are the CO² and Inert Gas Variants from Product Groups:
 - IHP Valves F500/F501
 - High Pressure Cylinder Valves F202/F242
 - Solenoid Cylinder Valves F203/F243



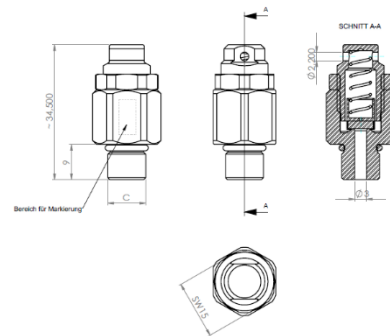
schematic view



Valve Head/Valve Adaptor for Agent Cylinder



Spring-Loaded Safety Device (Type F803)



Spring-loaded Safety Valves

- are direct-acting Safety Valves
- prevent an overstepping of a preset by blowing off some Pressure
- close again when reaching an uncritical Pressure Range
- Simple and fast Assembling and Disassembling of the Safety Valve by using an adequate Tool
- Nickel-plated Surface
- different Variants available

Operating Pressure	45bar (please consider the nominal relief Pressure)
Temperature Range	-20°C up to +65°C
Types of Gases and Extinguishing Agents	Inert Gases (Nitrogen, Argon,...), CO2, HFC227ea, FK5-1-12, Liquid Agents, AFFF,...
Material of Valve Body	Brass, Nickel-Plated
Seat Diameter	Ø3mm (DN3)
Connection Thread	G1/8" or G1/4" (others on request)

FiWaGuard Nozzles (Type F006)



- Nozzles for different Extinguishing Agents – Powder, Liquid Agents, Foam, Inert Gas, CO2,...
- Brass, Nickel-plated Brass, Stainless Steel
- with / without Protection Cap
- Connection Thread G1/4" (female)
- Special Versions with Full Cone Spray in two Different Angles available



F0060014

SW15; Ø20; G1/4"

Stainless Steel

Particle Filter included (<1mm)

Full cone approx. 64°

Cap: Stainless Steel with Rope

(for wide Coverage)

F0060015

SW15; Ø20; G1/4"

Stainless Steel

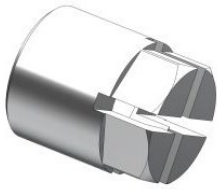
Particle Filter included (<1mm)

Full cone approx. 15°

Cap: Stainless Steel with Rope

(for long Spray)

FiWaGuard Nozzles (Type F006) – follow up



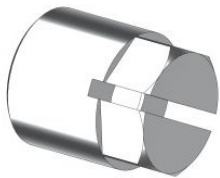
F0060001
Ø16x19; SW14; G1/4"
Brass, Nickel-plated
Cross Slots, broad



F0060002
Ø16x19; SW14; G1/4"
Brass, Nickel-plated
Side Slot, broad



F0060003
Ø16x19; SW14; G1/4"
Brass, Nickel-plated
Sloped Slot 45°, broad



F0060004
Ø16x19; SW14; G1/4"
Brass, Nickel-plated
Slot, broad



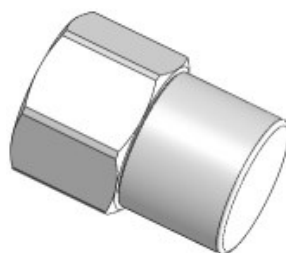
F0060005
Ø16x19; SW14; G1/4"
Brass, Nickel-plated
3 Slots, narrow



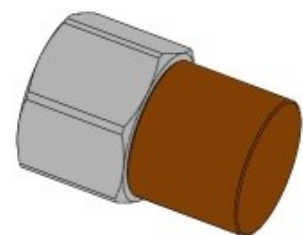
F0060006
Ø16x25; G1/4"
Brass, Nickel-plated
3 Bore Holes



F0060007
Ø16x25; G1/4"
Brass, Nickel-plated
centric Bore Hole

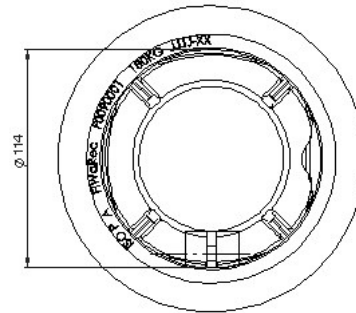
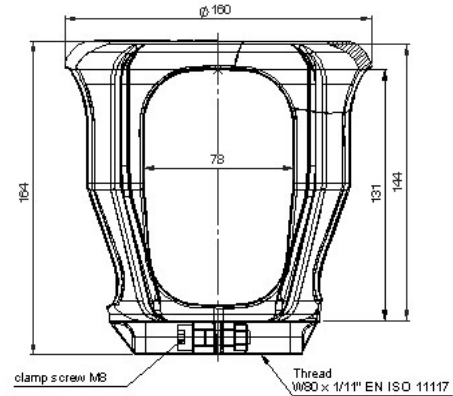


F0060010
SW16x24; G1/4"
Stainless Steel
3 Slots, narrow
Cap: Stainless Steel



F0060011
SW16x25; G1/4"
Stainless Steel
3 Slots, narrow
Cap: NBR

FiWaRec Valve Guard (Type F009)



* Test Report from Notified Body upon request

- Meets the Requirements of EN ISO 11117 (tested by BAM)
 - For Cylinder Assemblies with Package Weights up to max. 180kg
 - Cylinder Connection Thread W80x1/11"
- Suitable for different Valve Types
 - Especially for F202/F242, F203/F243 and FiWaGuard Valves
- The Cap can be left on the Cylinder even when the Valve is in Use
 - Large Openings ensure a good access to all Valve Connections and Functions
- Made of Steel, painted in Black for Corrosion Protection

FiWaGuard Accessories (Type F010/005)



F0100004
Dismounting Tool



F0100006
Multitool



F0100008 – F0100011
Grommets



F0100012 / F0100013
Tube Mountings



F0100014
Tube Deburr Tool



F0100017
Tube Scissor



F0100018 - F0100022
Cable Ties in Different Variations



F005
Filling Adaptors

For more details and information like

- Datasheets
- Technical Drawings
- Instruction Manuals
- Additional Catalogues
- ...

Please send a request to: sales@fiwarec.de

Or visit the download area on our website under:

<http://fiwarec.de/de/login.html>

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