

FEATURES

- The 1/4" full 316 stainless steel Actuator Control System is designed for pilot applications with a basic flow and high safety level
- Reliable and versatile connecting system for tight sealing and high pressure
- The solenoid valves have TÜV certified IEC 61508 Functional Safety data and can be used for high safety (SIL) levels
- The solenoid valves and filter/regulators satisfy all relevant EC Directives

GENERAL

Differential pressure solenoid 0 - 10 bar [1 bar = 100kPa]

Maximum inlet pressure 20 bar

Response times 75 - 100 ms

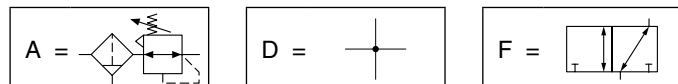
fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, water, oil	-20 to +120°C -40 to + 40°C -50 to + 60°C	FPM (fluoroelastomer) VMQ (silicone) (F)VMQ ((fluoro)silicone)

MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Stainless steel body
Valve & filter/regulator body	AISI 316L SS
Stem	Stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Springs	Stainless steel
Sealings & poppets	FPM, VMQ or (F)VMQ
Rider ring	PTFE
Manifold base plate	AISI 316L SS
Connector pipe	AISI 316L SS
Nuts and bolts	AISI 316L SS

COMPONENT CODIFICATION

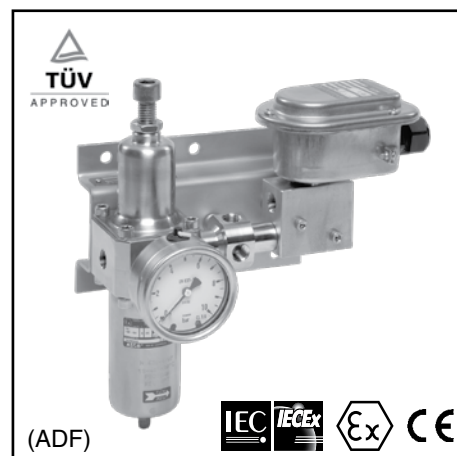
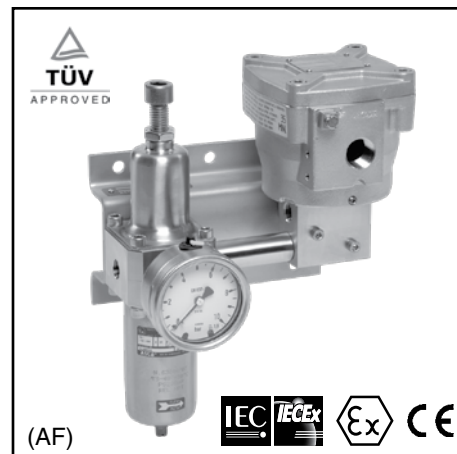


SPECIFICATIONS

Basic configuration: Filter Regulator and 3/2 solenoid valve (AF)

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar)		power level	prefix optional solenoids						assembly code	
		port		min.	max. (PS)		NEMA 7&9	ATEX/IECEX				IP65		
		2→1 / 3→2	2→1 / 3→2					Ex d	Ex e mb	Ex mb	EEx nA			
❖	(mm)	(m³/h)	(l/m)		air (*)	~/=	EV	WSNF	WSEM	PV	WSZN	SC	50 µm	5 µm
U - Universal, FPM sealings and poppets														
1/4	5,7	0,45	7,5	0	10	BP	●	●	●	○	○	●	133471-001	133471-501
1/4	5,7	0,45	7,5	0	10	MP	-	●	●	-	○	●	133471-002	133471-502
1/4	5,7	0,45	7,5	0	10	RP	-	●	●	-	○	●	133471-003	133471-503
1/4	5,7	0,45	7,5	0	10	LP	-	●	-	-	-	-	133471-013	133471-513
U - Universal, VMQ sealings and poppets														
1/4	5,7	0,45	7,5	0	10	BP	●	●	●	○	○	●	133471-004	133471-504
U - Universal, (F)VMQ sealings and poppets														
1/4	5,7	0,45	7,5	0	10	MP	-	●	●	-	○	●	133471-005	133471-505
1/4	5,7	0,45	7,5	0	10	RP	-	●	●	-	○	●	133471-006	133471-506
1/4	5,7	0,45	7,5	0	10	LP	-	●	-	-	-	-	133471-014	133471-514
U - Universal, FPM sealings and poppets, manual reset														
1/4	5,7	0,55	9,2	0	10	BP	●	●	●	○	○	●	133471-007	133471-507
1/4	5,7	0,55	9,2	0	10	MP	-	●	●	-	○	●	133471-008	133471-508
1/4	5,7	0,55	9,2	0	10	RP	-	●	●	-	○	●	133471-009	133471-509
U - Universal, FPM sealings and poppets, manual reset tamperproof														
1/4	5,7	0,55	9,2	0	10	BP	●	●	●	○	○	●	133471-010	133471-510
1/4	5,7	0,55	9,2	0	10	MP	-	●	●	-	○	●	133471-011	133471-511
1/4	5,7	0,55	9,2	0	10	RP	-	●	●	-	○	●	133471-012	133471-512

● Available feature ○ Available feature in DC only - Not available



LP	RP	MP	BP
1,8W	3,6W - 3,7W	5,7W - 5,8W	10,0W-11,2W
Low power	Reduced power	Medium power	Basic power

POWER LEVELS - cold electrical holding values (watt)

ADDITIONAL OPTIONS

- Ex mb/mD (prefix "PV") solenoid can be supplied with various cable lengths
- Compliance with "UL", "CSA" and other local approvals available on request

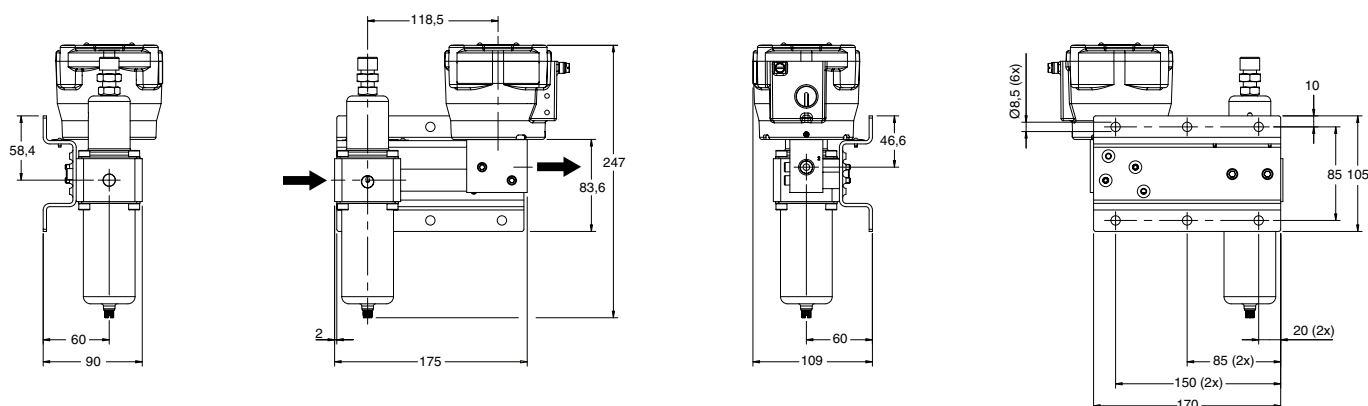
INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The ACS should be mounted vertically and upright for proper draining of the FR unit
- The mounting holes are provided in the manifold support
- Threaded pipe connection = NPT (ANSI 1.20.3)
- Declarations of conformity are available on request
- Ex e mb (prefix "WSEM") execution: solenoid enclosure has a cable gland with integral strain relief for cables with an o.d. from 7 to 12 mm and is provided with an internal and external connection facility for an earthing or bonding conductor
- Ex d (prefix "WSNF") enclosure is provided with a 1/2" NPT threaded entry hole, M20 x 1,5 (prefix "ET") is optional. Both are supplied without cable gland
- All DC solenoids with metal enclosure are provided with switch-off peak voltage suppression diodes
- To comply with IEC 61508 (SIL) the valves must be provided with a specific exhaust protector (as shown on this page) or equal

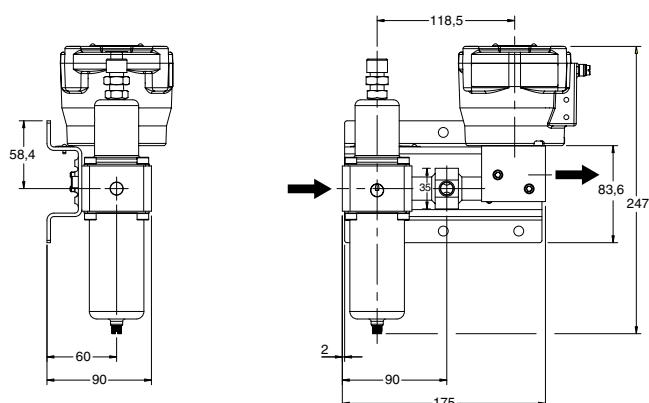
DIMENSIONS (mm), WEIGHT (kg)



Configuration AF with WSNF Solenoid (for other solenoids see page 20)



Configuration ADF with WSNF Solenoid (for other solenoids see page 20)



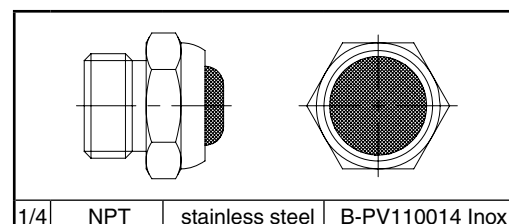
SELECTION OF OTHER CONFIGURATION CODES

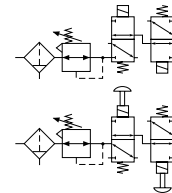
Examples:

AF = 133471-004

ADF = 133471-024 (AF + 020 = 133471-004 + 020 = 133471-024)

EXHAUST PROTECTOR





FEATURES

- The 1/4" full 316 stainless steel Actuator Control System with two solenoid valves connected in series is designed for pilot applications with a basic flow and the highest (SIL) safety level
- When the redundant valve controls an actuator (HFT 1), the actuator will exhaust as long as one of the two solenoid valves (coils) is de-energized.
- Reliable and versatile connecting system for tight sealing and high pressure
- No minimum operating pressure required for operation
- Versions with compact Tamperproof/Manual Reset function. The No Voltage Release (NVR) function guarantee that the valve trips when de-energized
- The solenoid valves have TÜV certified IEC 61508 Functional Safety data and can be used up to SIL 4
- The solenoid valves and filter/regulators satisfy all relevant EC Directives

GENERAL

Differential pressure solenoid 0 - 10 bar [1 bar = 100kPa]

Maximum inlet pressure 20 bar

Response times 75 - 100 ms

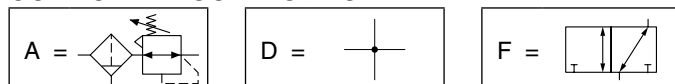
fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, water, oil	-20 to +120°C -40 to + 40°C -50 to + 60°C	FPM (fluoroelastomer) VMQ (silicone) (F)VMQ ((fluoro)silicone)

MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Stainless steel body
Valve & filter/regulator body	AISI 316L SS
Stem	Stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Springs	Stainless steel
Sealings & poppets	FPM, VMQ or (F)VMQ
Rider ring	PTFE
Manifold support	AISI 316L SS
Connector pipe	AISI 316L SS
Nuts and bolts	AISI 316L SS

COMPONENT CODIFICATION

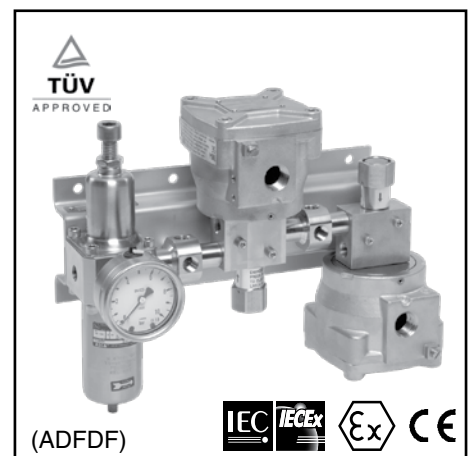
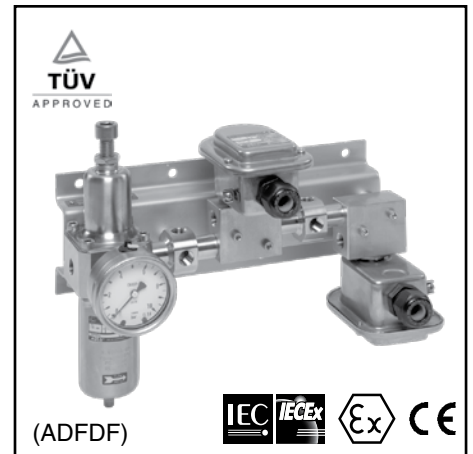


SPECIFICATIONS

Basic configuration: Filter Regulator and 2x 3/2 solenoid valve (AFF)

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar)		power level	prefix optional solenoids						assembly code	
		port		min.	max. (PS)		NEMA 7&9	ATEX/IECEx				IP65		
		2→1 / 3→2	2→1 / 3→2					Ex d	Ex e mb	Ex mb	EE nA		50 µm	5 µm
❖	(mm)	(m³/h)	(l/m)		air (*)	~/=	EV	WSNF	WSEM	PV	WSZN	SC		
U - Universal, FPM sealings and poppets														
1/4	5,7	0,45	7,5	0	10	BP	●	●	●	○	○	●	133472-001	133472-501
1/4	5,7	0,45	7,5	0	10	MP	-	●	●	-	○	●	133472-002	133472-502
1/4	5,7	0,45	7,5	0	10	RP	-	●	●	-	○	●	133472-003	133472-503
1/4	5,7	0,45	7,5	0	10	LP	-	●	-	-	-	-	133472-013	133472-513
U - Universal, VMQ sealings and poppets														
1/4	5,7	0,45	7,5	0	10	BP	●	●	●	○	○	●	133472-004	133472-504
U - Universal, (F)VMQ sealings and poppets														
1/4	5,7	0,45	7,5	0	10	MP	-	●	●	-	○	●	133472-005	133472-505
1/4	5,7	0,45	7,5	0	10	RP	-	●	●	-	○	●	133472-006	133472-506
1/4	5,7	0,45	7,5	0	10	LP	-	●	-	-	-	-	133472-014	133472-514
U - Universal, FPM sealings and poppets, manual reset														
1/4	5,7	0,55	9,2	0	10	BP	●	●	●	○	○	●	133472-007	133472-507
1/4	5,7	0,55	9,2	0	10	MP	-	●	●	-	○	●	133472-008	133472-508
1/4	5,7	0,55	9,2	0	10	RP	-	●	●	-	○	●	133472-009	133472-509
U - Universal, FPM sealings and poppets, manual reset tamperproof														
1/4	5,7	0,55	9,2	0	10	BP	●	●	●	○	○	●	133472-010	133472-510
1/4	5,7	0,55	9,2	0	10	MP	-	●	●	-	○	●	133472-011	133472-511
1/4	5,7	0,55	9,2	0	10	RP	-	●	●	-	○	●	133472-012	133472-512

● Available feature ○ Available feature in DC only - Not available



LP	RP	MP	BP
1,8W	3,6W - 3,7W	5,7W - 5,8W	10,0W-11,2W
Low power	Reduced power	Medium power	Basic power

POWER LEVELS - cold electrical holding values (watt)

ADDITIONAL OPTIONS

- Ex mb/mD (prefix "PV") solenoid can be supplied with various cable lengths
- Compliance with "UL", "CSA" and other local approvals available on request

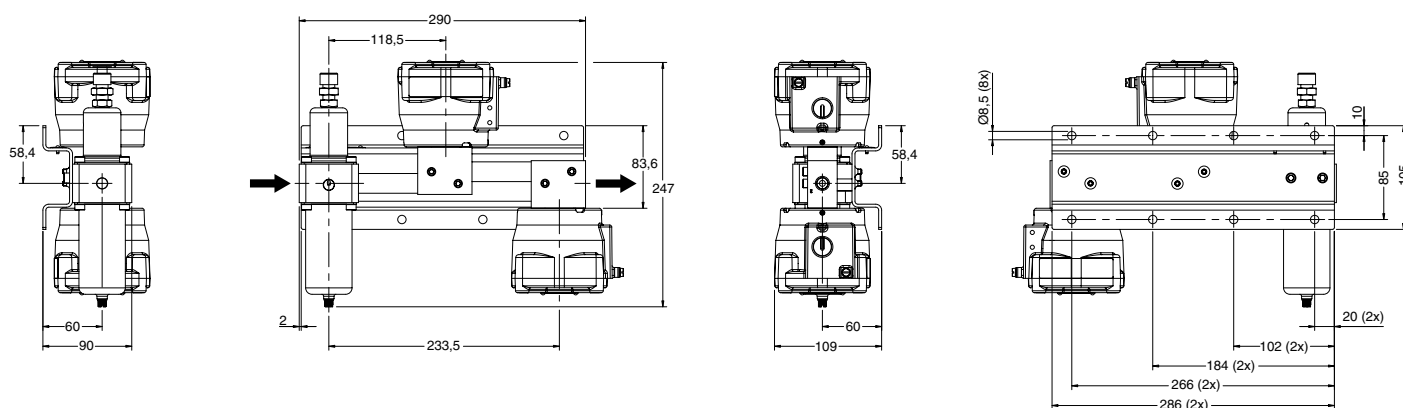
INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The ACS should be mounted vertically and upright for proper draining of the FR unit
- The mounting holes are provided in the manifold support
- Threaded pipe connection = NPT (ANSI 1.20.3)
- Declarations of conformity are available on request
- Ex e mb (prefix "WSEM") execution: solenoid enclosure has a cable gland with integral strain relief for cables with an o.d. from 7 to 12 mm and is provided with an internal and external connection facility for an earthing or bonding conductor
- Ex d (prefix "WSNF") enclosure is provided with a 1/2" NPT threaded entry hole, M20 x 1,5 (prefix "ET") is optional. Both are supplied without cable gland
- All DC solenoids with metal enclosure are provided with switch-off peak voltage suppression diodes
- To comply with IEC 61508 (SIL) the valves must be provided with a specific exhaust protector (as shown on this page) or equal

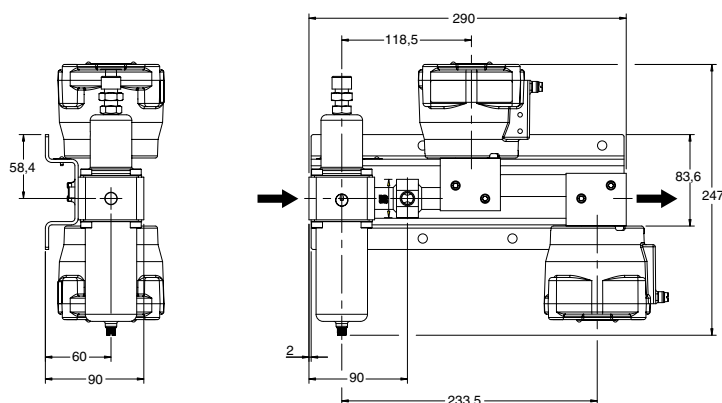
DIMENSIONS (mm), WEIGHT (kg)



Configuration AFF with WSNF Solenoid (for other solenoids see page 20)



Configuration ADFD with WSNF Solenoid (for other solenoids see page 20)



SELECTION OF OTHER CONFIGURATION CODES

Examples:

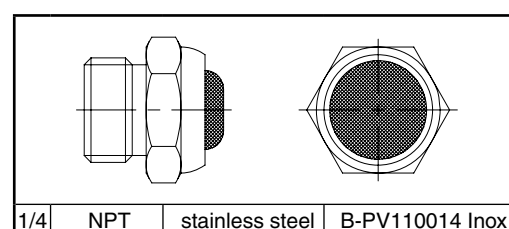
AFF = 133472-004

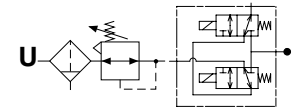
ADFF = 133472-024 (AFF + 020 = 133472-004 + 020 = 133472-024)

AFDF = 133472-044 (AFF + 040 = 133472-004 + 040 = 133472-044)

ADDFD = 133472-064 (AFF + 060 = 133472-004 + 060 = 133472-064)

EXHAUST PROTECTOR





FEATURES

- The 1/4" full 316 stainless steel Actuator Control System with two solenoid valves connected in parallel is designed for pilot applications with a basic flow and high reliability level
- The two solenoid valves share a common valve body resulting in a compact control system
- When the redundant valve controls an actuator, the actuator remains in position as long as one of the two solenoid valves (coils) is energized. To exhaust the actuator both solenoids have to be de-energized
- Reliable and versatile connecting system for tight sealing and high pressure
- For the validity of the functional safety figures a specific exhaust protector should be used
- The solenoid valves and filter/regulators satisfy all relevant EC Directives

GENERAL

Differential pressure solenoid 0 - 10 bar [1 bar = 100kPa]

Maximum inlet pressure 20 bar

Response times 75 - 100 ms

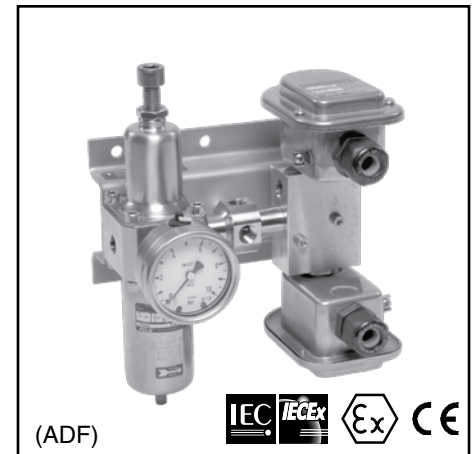
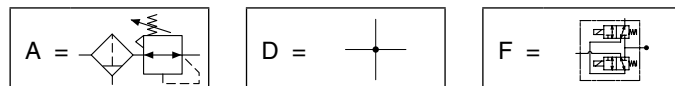
fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas, water, oil	-20 to +120°C -40 to + 40°C -50 to + 60°C	FPM (fluoroelastomer) VMQ (silicone) (F)VMQ ((fluoro)silicone)

MATERIALS IN CONTACT WITH FLUID

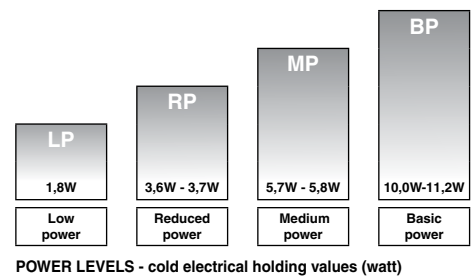
(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Stainless steel body
Valve & filter/regulator body	AISI 316L SS
Stem	Stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Springs	Stainless steel
Sealings & poppets	FPM, VMQ or (F)VMQ
Rider ring	PTFE
Manifold support	AISI 316L SS
Connector pipe	AISI 316L SS
Nuts and bolts	AISI 316L SS

COMPONENT CODIFICATION



(ADF)



SPECIFICATIONS

Basic configuration: Filter Regulator and 3/2 way redundant solenoid valve (AF)

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar)		power level	prefix optional solenoids							assembly code	
		port		min.	max. (PS)		NEMA 7&9	ATEX/IECEX				IP65			
		2→1 / 3→2	2→1 / 3→2		air (*)			Ex d	Ex e mb	Ex mb	EEEx nA				
❖	(mm)	(m³/h)	(l/m)			~/=	~/=	EV	WSNF	WSEM	PV	WSZN	SC	50 µm	5 µm
U - Universal, FPM sealings and poppets															
1/4	5,7	0,3	5,0	0	10	BP	●	●	●	○	○	●	133473-001	133473-501	
1/4	5,7	0,3	5,0	0	10	MP	-	●	●	-	○	●	133473-002	133473-502	
1/4	5,7	0,3	5,0	0	10	RP	-	●	●	-	○	●	133473-003	133473-503	
1/4	5,7	0,3	5,0	0	10	LP		●	-	-	-	-	133473-013	133473-513	
U - Universal, VMQ sealings and poppets															
1/4	5,7	0,3	5,0	0	10	BP	●	●	●	○	○	●	133473-004	133473-504	
U - Universal, (F)VMQ sealings and poppets															
1/4	5,7	0,3	5,0	0	10	MP	-	●	●	-	○	●	133473-005	133473-505	
1/4	5,7	0,3	5,0	0	10	RP	-	●	●	-	○	●	133473-006	133473-506	
1/4	5,7	0,3	5,0	0	10	LP		●	-	-	-	-	133473-014	133473-514	

● Available feature ○ Available feature in DC only - Not available

ADDITIONAL OPTIONS

- Ex mb/mD (prefix "PV") solenoid can be supplied with various cable lengths
- Compliance with "UL", "CSA" and other local approvals available on request
- Special moulded-in solid state components for peak voltage suppression and/or rectification (four diode bridge)

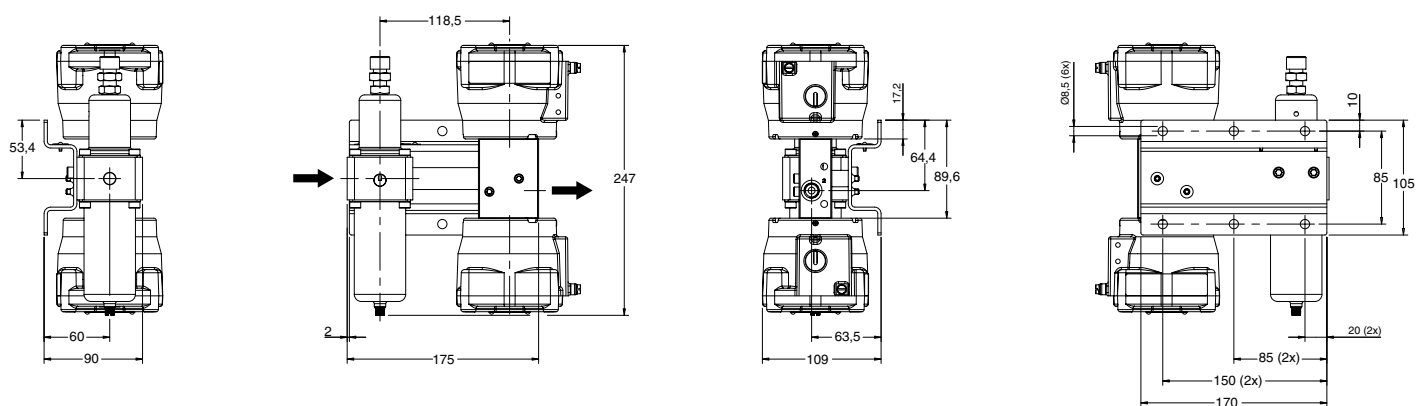
INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The ACS should be mounted vertically and upright for proper draining of the FR unit
- The mounting holes are provided in the valve body
- Threaded pipe connection = NPT (ANSI 1.20.3)
- Declarations of conformity are available on request
- Ex e mb (prefix "WSEM") execution: solenoid enclosure has a cable gland with integral strain relief for cables with an o.d. from 7 to 12 mm and is provided with an internal and external connection facility for an earthing or bonding conductor
- Ex d (prefix "WSNF") enclosure is provided with a 1/2" NPT threaded entry hole, M20 x 1,5 (prefix "ET") is optional. Both are supplied without cable gland
- All DC solenoids with metal enclosure are provided with switch-off peak voltage suppression diodes

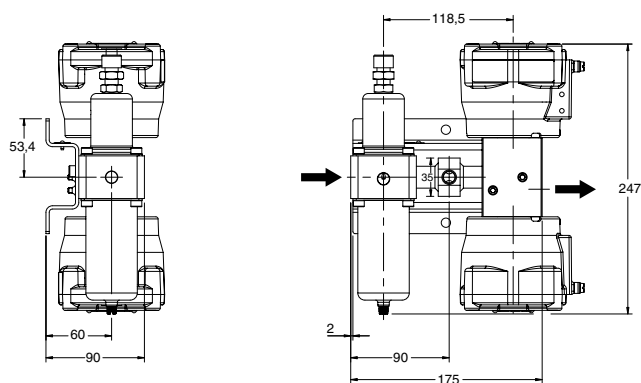
DIMENSIONS (mm), WEIGHT (kg)



Configuration AF with WSNF Solenoid (for other solenoids see page 20)



Configuration ADF with WSNF Solenoid (for other solenoids see page 20)



SELECTION OF OTHER CONFIGURATION CODES

Examples:

AF = 133473-004

ADF = 133473-024 (AF + 020 = 133473-004 + 020 = 133473-024)

EXPLANATION OF TEMPERATURE RANGES OF SOLENOID VALVES

Valve temperature range	The valve temperature range (TS) is determined by the selected seal material, the temperature range for proper operation of the valve and sometimes by the fluid (e.g. steam)
Operator ambient temperature range	The operator ambient temperature range is determined by the selected power level and the safety code
Total temperature range	The temperature range of the complete solenoid valve is determined by the limitations of both temperature ranges above

ELECTRICAL CHARACTERISTICS

Coil insulation class	H
Electrical safety	IEC 335
Standard voltages	DC (=) 24V - 48V AC (~) 24V - 48V - 115V - 230V/50/60Hz; Other voltages are available on request

prefix option	power ratings				operator ambient temperature range (C°) ⁽¹⁾	safety code	electrical enclosure protection (EN 60529)	replacement coil / kit		type ⁽²⁾
	inrush ~	holding ~		hot/cold =				~	=	
	(VA)	(VA)	(W)	(W)				230V/50/60 Hz	24V/DC	
Basic power (BP)										
SC	10,0	10,0	10,0	9,0/11,2	-40 to +55	EN 60730	IP65, moulded	123664-017	400425-142	01
SCDU	10,0	10,0	10,0	9,0/11,2	-40 to +50/55	II3D T100°C/T135°C	IP65, moulded	- ⁽³⁾	- ⁽³⁾	01
WP/WS	10,0	10,0	10,0	9,0/11,2	-40 to +55	EN 60730	IP67, steel /SS	400915-017	400913-142	02
WPDU/WSDU	10,0	10,0	10,0	9,0/11,2	-40 to +55	II3D T135°C	IP67, steel /SS	400915-017	400913-142	02
NF/WSNF	10,0	10,0	10,0	9,0/11,2	-60 to +40/60	II2G Ex d IIC T6/T5, II2D Ex tD	IP67, alu./SS	400915-017	400913-142	03
EM/WSEM	10,0	10,0	10,0	9,0/11,2	-40 to +40	II2G Ex e mb II T3, II2D Ex tD	IP67, steel /SS	400915-017	400913-142	02
PV	-	-	-	9,0/11,2	-40 to +55	II2G Ex mb II T4, II2D Ex mD 21	IP67, moulded	-	- ⁽³⁾	04
EF/EV	12,0	12,0	12,0	9,3/11,6	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	276002-058D	238714-006D	05
ZN	-	-	-	9,0/11,2	-20 to +50	II3GD EEex nA II T3	IP65, moulded	-	- ⁽³⁾	01
WPZN/WSZN	10,0	10,0	10,0	9,0/11,2	-40 to +55	II3GD EEex nA II T4/T3(=)	IP67, steel /SS	400915-017	400913-142	02
Medium Power (MP)										
SC	5,8	5,8	5,8	5,2/5,7	-40 to +90	EN 60730	IP65, moulded	400924-297	400923-442	01
SCDU	5,8	5,8	5,8	5,2/5,7	-40 to +50/75	II3D T100°C/T135°C	IP65, moulded	- ⁽³⁾	- ⁽³⁾	01
WP/WS	5,8	5,8	5,8	5,2/5,7	-40 to +90	EN 60730	IP67, steel /SS	400921-297	400914-442	02
WPDU/WSDU	5,8	5,8	5,8	5,2/5,7	-40 to +90	II3D T135°C	IP67, steel /SS	400921-297	400914-442	02
NF/WSNF	5,8	5,8	5,8	5,2/5,7	-60 to +60/75/90	II2G Ex d IIC T6/T5/T4, II2D Ex tD	IP67, alu./SS	400921-297	400914-442	03
EM/WSEM	5,8	5,8	5,8	5,2/5,7	-40 to +40/75/90	II2G Ex e mb II T5/T4/T3, II2D Ex tD	IP67, steel /SS	400921-297	400914-442	02
ZN	-	-	-	5,2/5,7	-20 to +50	II3GD EEex nA II T3	IP65, moulded	-	- ⁽³⁾	01
WPZN/WSZN	5,8	5,8	5,8	5,2/5,7	-40 to +40/60/90	II3GD EEex nA II T6/T5/T4	IP67, steel /SS	400921-297	400914-442	02
Reduced Power (RP) ⁽⁴⁾										
SC	3,7	3,7	3,7	3,2/3,6	-40 to +55	EN 60730	IP65, moulded	- ⁽⁴⁾	400923-042	01
SCDU	3,7	3,7	3,7	3,2/3,6	-40 to +50/55	II3D T100°C/T135°C	IP65, moulded	- ⁽⁴⁾	- ⁽³⁾	01
WP/WS	3,7	3,7	3,7	3,2/3,6	-40 to +55	EN 60730	IP67, steel /SS	- ⁽⁴⁾	400914-242	02
WPDU/WSDU	3,7	3,7	3,7	3,2/3,6	-40 to +55	II3D T135°C	IP67, steel /SS	- ⁽⁴⁾	400911-242	02
NF/WSNF	3,7	3,7	3,7	3,2/3,6	-60 to +60	II2G Ex d IIC T6, II2D Ex tD	IP67, alu./SS	- ⁽⁴⁾	400914-242	03
EM/WSEM	3,7	3,7	3,7	3,2/3,6	-40 to +40/55	II2G Ex e mb II T6/T5, II2D Ex tD	IP67, steel /SS	- ⁽⁴⁾	400914-242	02
ZN	-	-	-	3,2/3,6	-20 to +50	II3GD EEex nA II T3	IP65, moulded	-	- ⁽³⁾	01
WPZN/WSZN	3,7	3,7	3,7	3,2/3,6	-40 to +55	II3GD EEex nA II T6	IP67, steel /SS	- ⁽⁴⁾	400914-242	02
Low Power (LP) ⁽⁴⁾										
NF/WSNF	1,85	1,85	1,85	1,5/1,8	-60 to +55	II2G Ex d IIC T6, II2D Ex tD	IP67, alu./SS	- ⁽⁴⁾	400914-542	05

⁽¹⁾ Temperature range can be limited by sealings
⁽²⁾ Refer to the dimensional drawings on page 20

⁽³⁾ Multiple coil kits are available under ATEX/IECEx, contact us - Not available
⁽⁴⁾ AC (~) limited to 127V/50/60Hz or 125V/DC

ELECTRICAL CONNECTIONS

prefix	connection
SC, SCDU, ZN	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm
WP, WS, EM, WSEM, WPZN, WSZN, WPDU, WSDU	M20 cable gland for cables with an outer diameter from 7 to 12 mm. With an internal and external facility for an earthing or bonding conductor
NF, WSNF	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
NFET, WSNFET	M20 x 1,5 threaded cable entry. Enclosures are supplied without cable gland

PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
S	C			D	U		Dustproof (EN 50281-1-1)*	-	●	●	●
E	F						Explosionproof - NEMA 7, 9 - Zinc plated steel conduit	-	-	-	●
E	V						Explosionproof - NEMA 7, 9 - 316 SS conduit	-	-	-	●
E	M						Waterproof IP67 - Metal enclosure (EN/IEC 60079-7+18, 61241-1)*	-	●	●	●
		E	T				Threaded conduit/hole (M20 x 1,5)	-	●	●	●
I	S						Intrinsically safe with SC coil (EN/IEC 60079-11+26, 61241-11)*	-	-	-	-
N	F						Flameproof - Aluminium (EN/IEC 60079-1, 61241-1)*	●	●	●	●
P	V						Encapsulated epoxy moulded (EN/IEC 60079-18, 61241-18)*	-	-	-	○
S	C						Solenoid with spade plug connector (EN/IEC 60730)	-	●	●	●
W	P						Waterproof IP67 - Metal enclosure	-	●	●	●
W	P			D	U		Waterproof IP67 - Metal enclosure, Dustproof (EN 50281-1-1)*	-	●	●	●
W	P			I	S		I.S. with Metal IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	-	-	-	-
W	P			Z	N		Waterproof IP67 - Metal enclosure (EN 50021, 50281-1-1)*	-	●	●	●
W	S						Waterproof IP67 - 316 SS enclosure	-	●	●	●
W	S			D	U		Waterproof IP67 - 316 SS enclosure, Dustproof (EN 50281-1-1)*	-	●	●	●
W	S	E	M				Waterproof IP67 - 316 SS enclosure (EN/IEC 60079-7+18, 61241-1)*	-	●	●	●
W	S			I	S		I.S. with 316 SS IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	-	-	-	-
W	S	N	F				Flameproof - 316 SS (EN/IEC 60079-1, 61241-1)*	●	●	●	●
W	S	Z	N				Waterproof IP67 - 316 SS enclosure (EN 50021, 50281-1-1)*	-	●	●	●
			T				Threaded conduit (1/2" NPT)	-	●	●	●
				H	C		Class H - Battery charging circuit	-	-	-	-
				H	T		Class H - High temperature	-	-	-	-
Z	N						Moulded enclosure (EN 50021, 50281-1-1)*	-	○	○	○
						X	Other special constructions	-	●	●	●

PRODUCT SELECTION GUIDE

STEP 1

Select basic assembly code.

Refer to the specifications table on page 1, 3 or 5.

Example: 133472-001

STEP 2

Select prefix (combination). Refer to the specifications table on page 1, 3 or 5 and the prefix table on page 8, respect the indicated power level.

Example: WSNF

STEP 3

Select suffix (combination) if required.

Refer to the suffix table on page 8, respect the indicated power level.

Example: MS

STEP 4

Select voltage. Refer to standard voltages on page 7.

Example: 230V / 50/60Hz

STEP 5

Final assembly code / ordering number.

Example:

WSNF 133472-001 MS 230V/50/60 Hz

SUFFIX TABLE

suffix					description	power level			
1	2	3	4	5		LP	RP	MP	BP
E					EPDM (ethylene-propylene)	-	-	-	-
J					CR (chloroprene)	-	-	-	-
N					Oxygen service (CR (chloroprene))	-	-	-	-
N	V				FPM (fluoroelastomer) and parts cleaned for oxygen service	●	●	●	●
	C	O			Epoxy coating on all external surfaces	●	●	●	●
	M	B			Mounting bracket	-	-	-	-
			M	O	Push type manual operator	●	●	●	●
			M	S	Screw type manual operator ⁽¹⁾	●	●	●	●
			M		Metering device	-	-	-	-

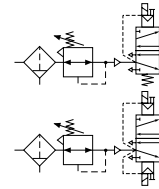
● Available feature

○ Available feature in DC only

- Not available

* ATEX solenoids are also approved according to EN 13463-1 (non electrical valves)

⁽¹⁾ Functional Safety certification is not applicable with this feature



FEATURES

- The 1/4" full 316 stainless steel Actuator Control System is designed for pilot applications with a basic flow and high safety (SIL) level
- Fully assembled and tested system using standard 5/2 551 ASCO solenoid pilot valve and filter/regulator
- Reliable and versatile connecting system for tight sealing and high pressure
- The solenoid valves have TÜV certified IEC 61508 Functional Safety data and can be used for high SIL levels
- For the validity of the functional safety figures specific exhaust protectors as shown in this catalogue page should be used
- The solenoid valves and filter/regulators satisfy all relevant EC Directives

GENERAL

Differential pressure solenoid 0 - 10 bar [1 bar = 100kPa]

Maximum inlet pressure 20 bar

Flow (Qv at 6 bar) 860 l/m (ANR)

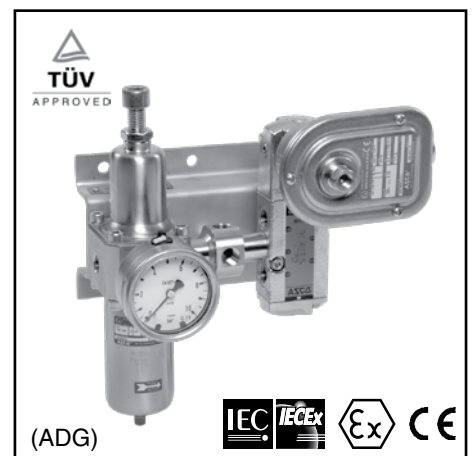
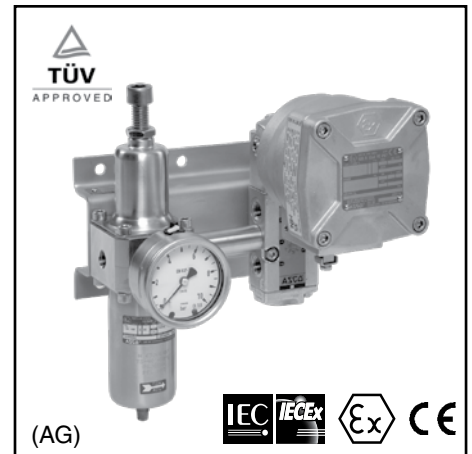
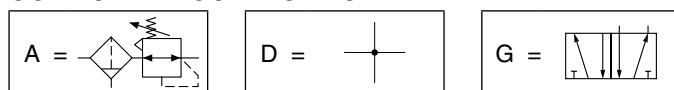
fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas	-40 to + 60°C	VMQ (silicone) + PUR (polyurethane)

MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Stainless steel body
Valve & filter/regulator body	AISI 316L SS
End cover (spring)	Stainless steel
Spool valve internal parts	Stainless steel, POM
Pilot end-cover	Stainless steel
Core tube	Stainless steel
Core and plugnut	Stainless steel
Core spring	Stainless steel
Sealings & discs	VMQ and PUR
Top disc	FPM
Disc holder	POM
Cartridge (Low power)	Welded, packless AISI 430
Seat	Stainless steel
Seat insert	POM
Shading coil	Copper
Rider ring (Low power)	PTFE
Manifold support	AISI 316L SS
Connector pipe	AISI 316L SS
Nuts and bolts	AISI 316L SS

COMPONENT CODIFICATION



LP	RP	MP	BP
0,4W - 1,9W	Not Available	Not Available	11,2W
Low power	Reduced power	Medium power	Basic power

POWER LEVELS - cold electrical holding values (watt)

SPECIFICATIONS basic configuration: Filter Regulator and 5/2 solenoid valve (AG)

pipe size	orifice size	flow coefficient kv		operating pressure differential (bar)		power level	prefix optional solenoids							assembly code	
				min. ⁽¹⁾	max. (PS)		NEMA 7 & 9	ATEX/IECEx (gas/dust)					IP65		
					air (*)			Ex d	Ex e mb	EEEx m	Ex ia	EEEx nA			
(❖)	(mm)	(m³/h)	(l/min)	~/=	~/=	EV	WSNF	WSEM	PV	IS	WSZN	SC	50 µm	5 µm	
Solenoid air pilot operated - spring return (monostable)															
1/4	6	0,75	12,5	0 / 2	10	BP	●	●	●	●	-	●	●	133474-001	133474-501
1/4	6	0,75	12,5	0 / 2	10	LP	○	●	●	○	○	○	●	133474-002	133474-502
Solenoid air pilot operated and return (bistable)															
1/4	6	0,75	12,5	0 / 2	10	BP	●	●	●	●	-	●	●	133474-010	133474-510
1/4	6	0,75	12,5	0 / 2	10	LP	○	●	●	○	○	○	●	133474-011	133474-511

● Available feature ○ Available feature in DC only

⁽¹⁾ Zero minimum is only achieved if external pressure is applied

ADDITIONAL OPTIONS

- Valves configured for external pilot air supply, TPL 20547
- Ex mb (prefix "PV") execution can be supplied in various cable lengths
- Compliance with "UL", "CSA" and other local approvals available on request
- 1/2" NPT (prefix "T") and M20 x 1.5 (prefix "ET") conduits (aluminium or 316 SS) available for steel solenoid housing

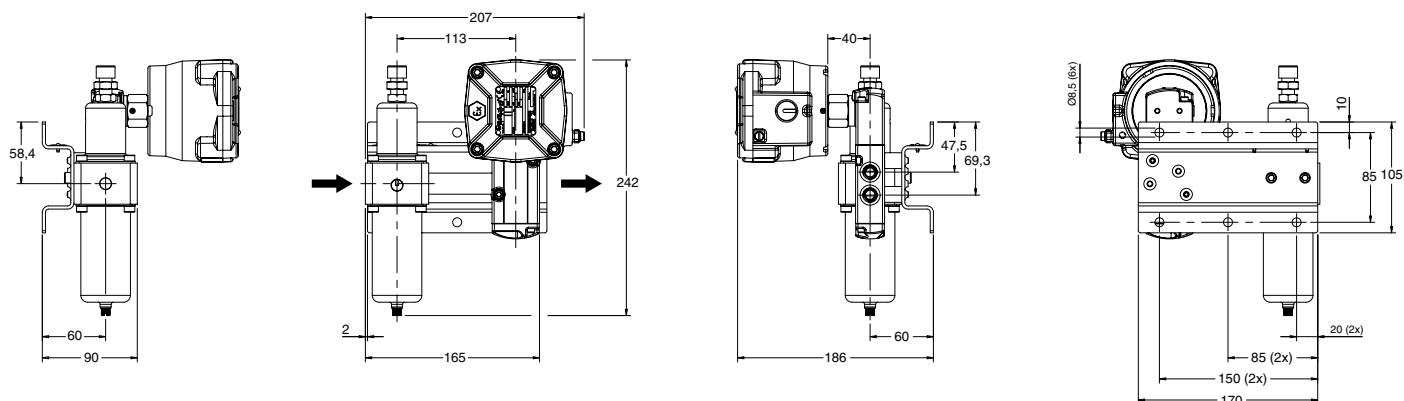
INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The ACS should be mounted vertically and upright for proper draining of the FR unit
- IEC 61508 Functional Safety (Suffix SL), allowable temperature range: -40°C to +60°C.
- It is necessary to connect pipes or fittings to the exhaust ports to protect the internal parts of the spool valve and its pneumatic operator if used outside or in harsh environments (dusts, liquids etc.)
- Threaded pipe connection identifier is NPT (ANSI 1.20.3)
- Prefix "WSNF" enclosure is provided with a 1/2" NPT threaded entry hole [optionally, M20 x 1,5 (prefix "ET")] and is supplied without cable gland
- All DC solenoids with metal enclosure are provided with switch-off peak voltage suppression diodes
- To comply with IEC 61508 (SIL) the valves must be provided with a specific exhaust protector (as shown on this page) or equal

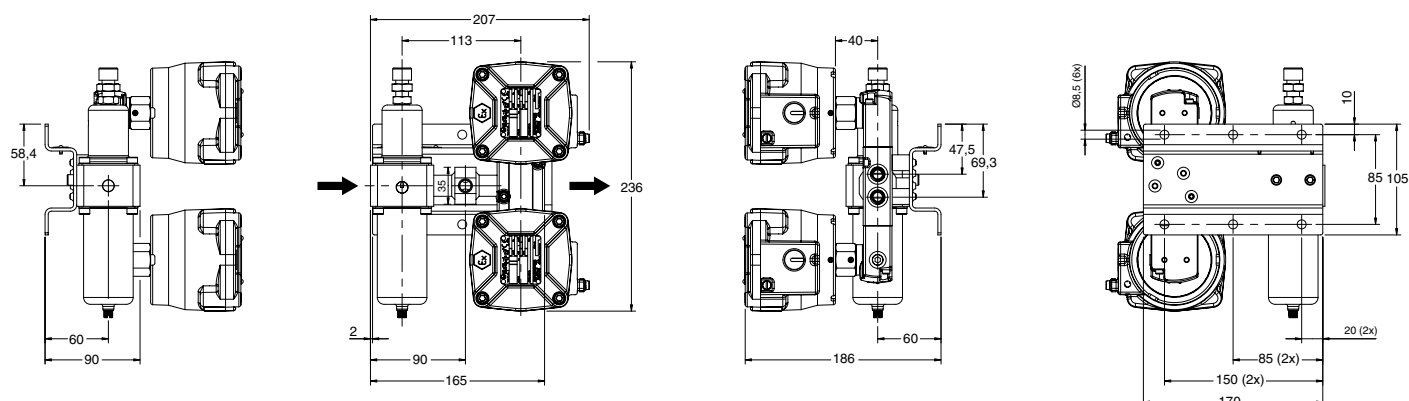
DIMENSIONS (mm), WEIGHT (kg)



Configuration AG with WSNF Solenoid (for other solenoids see page 20)



Configuration ADG with WSNF Solenoid (for other solenoids see page 20)



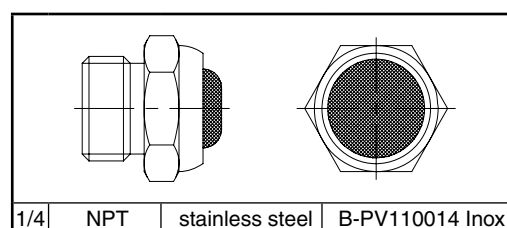
SELECTION OF OTHER CONFIGURATION CODES

Examples:

AG = 133474-004

ADG = 133474-024 (AG + 020 = 133474-004 + 020 = 133474-024)

EXHAUST PROTECTOR



EXPLANATION OF TEMPERATURE RANGES OF SOLENOID VALVES

Valve temperature range	The valve temperature range (TS) is determined by the selected seal material, the temperature range for proper operation of the valve and sometimes by the fluid (e.g. steam)
Operator ambient temperature range	The operator ambient temperature range is determined by the selected power level and the safety code
Total temperature range	The temperature range of the complete solenoid valve is determined by the limitations of both temperature ranges above

ELECTRICAL CHARACTERISTICS

Coil insulation materials H

Connector Spade plug

Connector specification ISO 4400 (cable Ø 6-10 mm)

Electrical safety IEC 335

Standard voltages: DC (=) 24V - 48V

AC (~) 24V - 48V - 115V - 230V/50Hz; Other voltages are available on request

prefix option	power ratings				operator ambient temperature range	safety code	electrical enclosure protection (EN 60529)	replacement coil		type (2)
	inrush ~	holding ~		hot/ cold =				~	=	
	(VA)	(VA)	(W)	(W)				(C°) (1)		
Basic power (BP)										
SC	55	23	10,5	9/11,2	-40 to +75	EN 60730	IP65, moulded	400425-117	400425-142	01
SCDU	55	23	10,5	9/11,2	-40 to +75	II3D IP65 T 200°C(~/135°C(=)	IP65, moulded	- (4)	- (4)	01
WS	55	23	10,5	9/11,2	-40 to +75	EN 60730	IP67, 316 SS	400405-117	400405-142	02
WSDU	55	23	10,5	9/11,2	-40 to +75	II3D IP67 T 200°C	IP67, 316 SS	400405-117	400405-142	02
WSNF	55	23	10,5	-	-60 to +25/40/60	II2G Ex d IIC T6/T5/T4, II2D Ex tD	IP67, 316 SS	400405-117	-	03
WSNF	-	-	-	9/11,2	-60 to +40/60/75	II2G Ex d IIC T6/T5/T4, II2D Ex tD	IP67, 316 SS	-	400405-142	03
WSEM	55	23	10,5	9/11,2	-40 to +40	II2G Ex e mb II T3, II2D Ex tD	IP67, 316 SS	400909-117	400913-142	02
PV	55	23	10,5	9/11,2	-40 to +65	II2G Ex mb II T3(~/T4(=), II2D Ex mD 21	IP65, moulded	-(4)	-(4)	04
EV	50	25	17,1	9/11,6	-40 to +52/40	NEMA type 7 and 9	NEMA 4X	274614-058D	274714-006D	05
WSZN	55	23	10,5	9/11,2	-40 to +50/60	II3GD EEx nA II T3(~/T4(=)	IP67, 316 SS	400405-117	400405-142	02
Low power (LP)										
SC	1,5	1,5	1,5	1,7/1,7	-40 to +60	EN 60730	IP65, moulded	400925-097	400925-042	01
WS	1,5	1,5	1,5	1,7/1,7	-40 to +60	EN 60730	IP67, 316 SS	400926-097	400926-042	02
WSNF	-	-	1,9	- /1,9	-60 to +75/80	II2G Ex d IIC T6/T5, II2D Ex tD	IP67, 316 SS	- (4)	- (4)	03
WSEM	1,5	1,5	1,5	1,7/1,7	-40 to +40/55	II2G Ex e mb II T6/T5, II2D Ex tD	IP67, 316 SS	400926-097	400926-042	02
PV	-	-	-	1,7/1,7	-40 to +60	II2G Ex mb II T6, II2D Ex mD 21	IP65, moulded	-	- (4)	04
EV	-	-	-	1,4/1,4	-40 to +60	NEMA type 7 and 9	NEMA 4X	-	274714-902D	05
ISSC (3)	-	-	-	0,4/0,4	-40 to +60	II1G Ex ia IIC T6, II2D Ex iaD 21	IP65, moulded	-	268976-001	06
WSIS (2)	-	-	-	0,4/0,4	-40 to +60	II1G Ex ia IIC T6, II2D Ex iaD 21	IP67, 316 SS	-	268900-001	02
WSZN	1,5	1,5	1,5	1,7/1,7	-40 to +60	II3GD EEx nA II T6	IP67, 316 SS	400926-097	400926-042	02

⁽¹⁾ Temperature range can be limited by sealings

⁽²⁾ Refer to the dimensional drawings on page 20

⁽³⁾ Intrinsically safe pilots: Check the electrical characteristics in the corresponding catalogue pages (ISSC operators)

⁽⁴⁾ Multiple coil kits available under ATEX, contact us

- Not available

prefix option	safety parameters				
	U _i = (DC) (V)	I _i (mA)	P _i (W)	L _i (μH)	C _i (mF)
Low power (LP)					
ISSC	32	500	1,5	0	0
WSIS	32	500	1,5	0	0

ELECTRICAL CONNECTIONS

prefix	connection
SC, SCDU, ZN	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm
WP, WS, EM, WSEM, WPZN, WSNZ, WPDU, WSDU	M20 cable gland for cables with an outer diameter from 7 to 12 mm. With an internal and external facility for an earthing or bonding conductor
NF, WSNF	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
NFET, WSNFET	M20 x 1,5 threaded cable entry. Enclosures are supplied without cable gland

PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
S	C			D	U		Dustproof (EN 50281-1-1)*	-	-	-	●
E	F						Explosionproof - NEMA 7, 9 - Zinc plated steel conduit	○	-	-	●
E	V						Explosionproof - NEMA 7, 9 - 316 SS conduit	○	-	-	●
E	M						Waterproof IP67 - Metal enclosure (EN/IEC 60079-7+18, 61241-1)*	●	-	-	●
		E	T				Threaded conduit/hole (M20 x 1,5)	●	-	-	●
I	S			S	C		Intrinsically safe with SC coil (EN/IEC 60079-11+26, 61241-11)*	○	-	-	-
N	F						Flameproof - Aluminium (EN/IEC 60079-1, 61241-1)*	●	-	-	●
P	V						Encapsulated epoxy moulded (EN/IEC 60079-18, 61241-18)*	○	-	-	●
S	C						Solenoid with spade plug connector (EN/IEC 60730)	●	-	-	●
W	P						Waterproof IP67 - Metal enclosure	●	-	-	●
W	S						Waterproof IP67 - 316 SS enclosure	●	-	-	●
W	S	E	M				Waterproof IP67 - 316 SS enclosure (EN/IEC 60079-7+18, 61241-1)*	●	-	-	●
W	P			D	U		Waterproof IP67 - Metal enclosure, Dustproof (EN 50281-1-1)*	-	-	-	●
W	S			D	U		Waterproof IP67 - 316 SS enclosure, Dustproof (EN 50281-1-1)*	-	-	-	●
W	P			I	S		I.S. with Metal IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	○	-	-	-
W	P			Z	N		Waterproof IP67 - Metal enclosure (EN 50021, 50281-1-1)*	●	-	-	●
W	S			I	S		I.S. with 316 SS IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	○	-	-	-
W	S	N	F				Flameproof - 316 SS (EN/IEC 60079-1, 61241-1)*	●	-	-	●
W	S	Z	N				Waterproof IP67 - 316 SS enclosure (EN 50021, 50281-1-1)*	○	-	-	●
Z	N						Moulded enclosure (EN 50021, 50281-1-1)*	●	-	-	●
		T					Threaded conduit (1/2" NPT)	●	-	-	●
				H	T		Class H - High temperature	-	-	-	●
						X	Other special constructions	●	-	-	●

SUFFIX TABLE

suffix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
			M	O			Push type manual operator	○/●	-	-	●
S	L						Certified IEC 61508 Functional Safety data (Series 551) ⁽¹⁾	○/●	-	-	●

● Available feature

○ Available feature in DC only

- Not available

* ATEX solenoid valves are also approved according to EN 13463-1 (non electrical valves)

⁽¹⁾ Not to use with MO suffix

PRODUCT SELECTION GUIDE

STEP 1

Select the fluid temperature range and seal material from the general table on page 9. Select basic assembly code.

Example: 133474-001

STEP 2

Select prefix (combination). Refer to the specifications table on page 9 and the prefix table on page 12, respect the indicated power level.

Warning: The ambient temperature range of your application may not exceed the temperature range of your operator.

Example: WSEM

STEP 3

Select suffix (combination) if required. Refer to the suffix table on page 12, respect the indicated power level.

Example: MO

STEP 4

Select voltage. Refer to standard voltages on page 11.

Example: 230V / 50Hz

STEP 5

Final assembly code / ordering number.

Example:

WSEM 133474-001 MO 230 V / 50 Hz

ORDERING EXAMPLES:

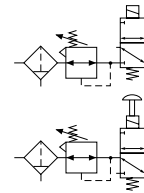
SC	133474-001	230V / 50 Hz
SC	133474-001	230V / 50 Hz
SC	133474-001 SL	230V / 50 Hz
SC	133474-510 MO	230V / 50 Hz
SCHT	133474-510 MO	230V / 50 Hz
ISSC	133474-510 MO	24V / DC
WSIS	133474-002	24V / DC
WSIS	133474-001 MO	230V / 50 Hz
EV	133474-001 MO	240V / 60 Hz

prefix _____

basic number _____

voltage _____

suffix _____



FEATURES

- The 1/2" full 316 stainless steel Actuator Control System is designed for pilot applications with a basic flow and high safety level
- Fully assembled and tested system using standard 327 ASCO solenoid pilot valve and Filter regulator
- Reliable and versatile connecting system for tight sealing and high pressure
- No minimum operating pressure required for operation
- The solenoid valves have TÜV certified IEC 61508 Functional Safety data and can be used for high SIL levels
- The solenoid valves and filter/regulators satisfy all relevant EC Directives

GENERAL

Differential pressure solenoid 0 - 10 bar [1 bar = 100kPa]

Maximum inlet pressure 20 bar

Response time < 100 ms

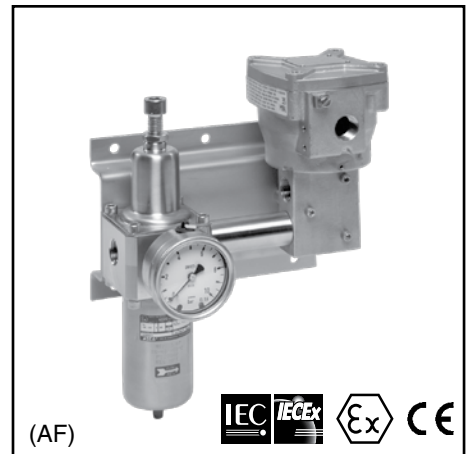
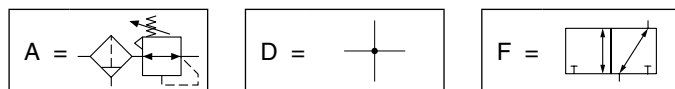
fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas	- 10 to + 90°C - 25 to + 60°C - 40 to + 40°C - 50 to + 60°C	FPM (fluoroelastomer) NBR (nitrile) VMQ (silicone) (F)VMQ ((fluoro)silicone)

MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Stainless steel body
Valve & filter/regulator body	AISI 316L SS
Stem	Stainless steel
Core tubel	Stainless steel
Core and plugnut	Stainless steel
Springs	Stainless steel
Seals	FPM, NBR, VMQ or (F)VMQ
Rider ring	PTFE
Manifold support	AISI 316L SS
Connector pipe	AISI 316L SS
Nuts and bolts	AISI 316L SS

COMPONENT CODIFICATION



LP	RP	MP	BP
Not Available	3,6W - 3,7W	Not Available	10W - 14,1W
Low power	Reduced power	Medium power	Basic power

POWER LEVELS - cold electrical holding values (watt)

SPECIFICATIONS

Basic configuration: Filter Regulator and 3/2 solenoid valve (AF)

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar)		power level	prefix optional solenoids						assembly code	
				min.	max. (PS)		NEMA 7&9	ATEX/IECEX				IP65		
					air (*)			Ex d	Ex e mb	Ex mb	EEx nA			
❖	(mm)	(m³/h)	(l/min)		~/=	~/=	EV	WSNF	WSEM	PV	WSZN	SC	50 µm	5 µm
U - Universal, FPM sealings and poppets														
1/2	12	1,5	25,0	0	10	14,1/14	-	●	●	-	○	●	133475-004	133475-504
U - Universal, NBR sealings and poppets														
1/2	12	1,5	25,0	0	10	10/10	-	●	●	-	○	●	133475-001	133475-501
U - Universal, (F)VMQ sealings and poppets														
1/2	12	1,5	25,0	0	10	10/10	-	●	●	-	○	●	133475-007	133475-507
U - Universal, FPM sealings and poppets, manual reset														
1/2	12	1,8	30,0	0	10	3,7/3,6	-	●	-	-	○	●	133475-006	133475-506
U - Universal, NBR sealings and poppets, manual reset														
1/2	12	1,5	30,0	0	10	3,7/3,6	-	●	●	-	○	●	133475-002	133475-502
U - Universal, VMQ sealings and poppets, manual reset														
1/2	12	1,8	30,0	0	10	3,7/3,6	-	●	●	-	○	●	133475-008	133475-508

● Available feature - Not available ○ Available feature in DC only

ADDITIONAL OPTIONS

- Manual operator MO (push type) and MS (screw type)
- 3/8" pipe thread execution
- 1/2" NPT (prefix "T") and M20 x 1,5 (prefix "ET") conduits (aluminium or 316 SS) available for steel solenoid housing
- Solid state components for peak voltage suppression and/or rectification

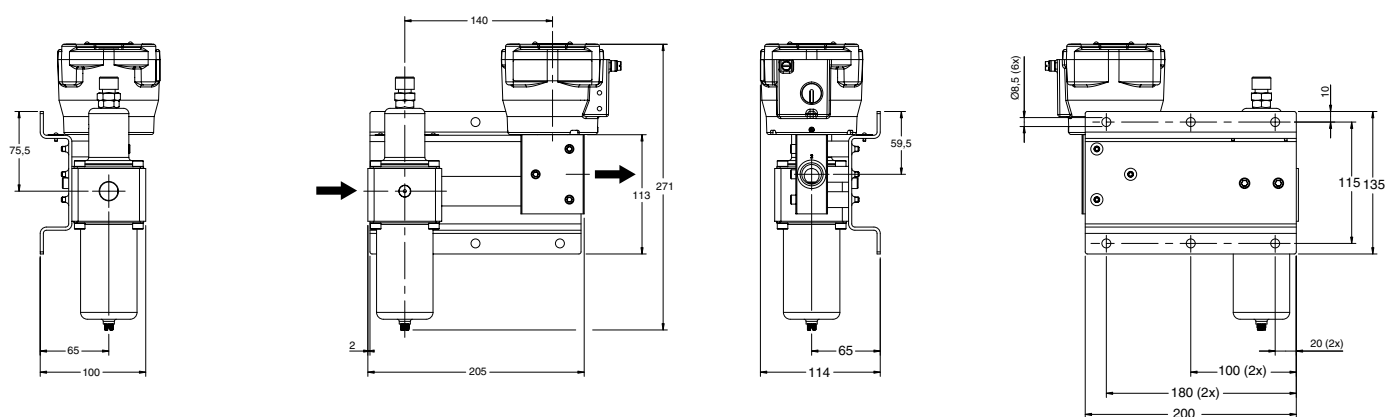
INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The ACS should be mounted vertically and upright for proper draining of the FR unit
- The mounting holes are provided in the valve body
- Threaded pipe connection identifier is NPT (ANSI 1.20.3)
- Declarations of conformity are available on request

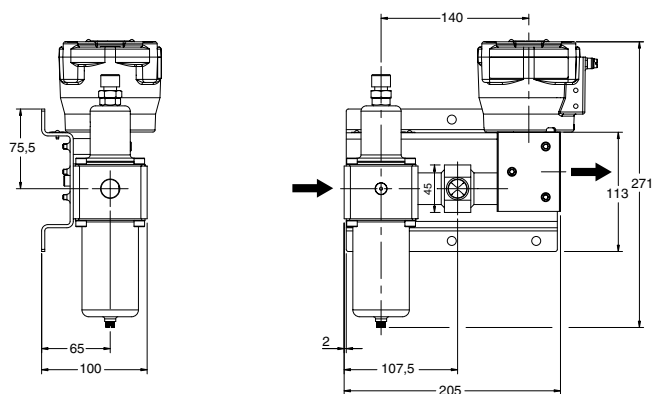
DIMENSIONS (mm), WEIGHT (kg)



Configuration AF with WSNF Solenoid (for other solenoids see page 20)



Configuration ADF with WSNF Solenoid (for other solenoids see page 20)



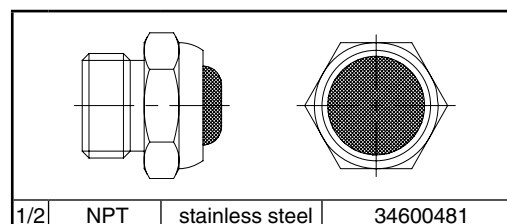
SELECTION OF OTHER CONFIGURATION CODES

Examples:

AF = 133475-004

ADF = 133475-024 (AF + 020 = 133475-004 + 020 = 133475-024)

EXHAUST PROTECTOR



FEATURES

- The 1/2" full 316 stainless steel Actuator Control System with two solenoid valves connected in series is designed for pilot applications with a basic flow and high safety level
- When the redundant valve controls an actuator (HFT 1), the actuator will exhaust as long as one of the two solenoid valves (coils) is de-energized.
- Reliable and versatile connecting system for tight sealing and high pressure
- The solenoid valves have TÜV certified IEC 61508 Functional Safety data and can be used up to SIL 4
- The solenoid valves and filter/regulators satisfy all relevant EC Directives

GENERAL

Differential pressure solenoid 0 - 10 bar [1 bar = 100kPa]

Maximum inlet pressure 20 bar

Response time < 100 ms

fluids (*)	temperature range (TS)	seal materials (*)
air, inert gas	- 10 to + 90°C - 25 to + 60°C - 40 to + 40°C - 50 to + 60°C	FPM (fluoroelastomer) NBR (nitrile) VMQ (silicone) (F)VMQ ((fluoro)silicone)

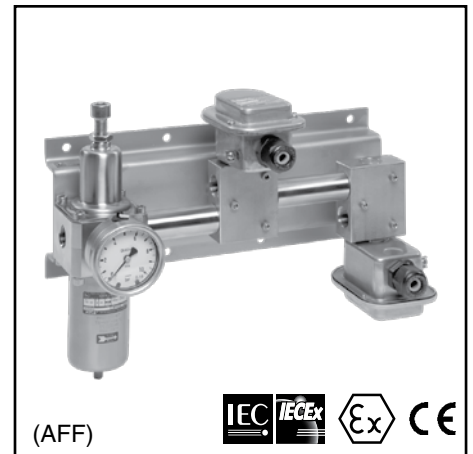
MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

	Stainless steel body
Valve & filter/regulator body	AISI 316L SS
Stem	Stainless steel
Core tubel	Stainless steel
Core and plugnut	Stainless steel
Springs	Stainless steel
Seals	FPM, NBR, VMQ or (F)VMQ
Rider ring	PTFE
Manifold support	AISI 316L SS
Connector pipe	AISI 316L SS
Nuts and bolts	AISI 316L SS

COMPONENT CODIFICATION

A =	D =	F =
-----	-----	-----



(AFF)



(ADDFD)



LP Not Available Low power	RP 3,6W - 3,7W Reduced power	MP Not Available Medium power	BP 10W - 14,1W Basic power
----------------------------------	------------------------------------	-------------------------------------	----------------------------------

POWER LEVELS - cold electrical holding values (watt)

SPECIFICATIONS

Basic configuration: Filter Regulator and 2x 3/2 solenoid valve (AFF)

pipe size	orifice size	flow coefficient Kv		operating pressure differential (bar)		power level	prefix optional solenoids						assembly code	
				min.	max. (PS)		NEMA 7&9	ATEX/IECEX				IP65		
					air (*)			Ex d	Ex e mb	Ex mb	EEx nA			
❖	(mm)	(m³/h)	(l/min)		~/=	~/=	EV	WSNF	WSEM	PV	WSZN	SC	50 µm	5 µm
U - Universal, FPM sealings and poppets														
1/2	12	1,5	25,0	0	10	14,1/14	-	●	●	-	○	●	133476-004	133476-504
U - Universal, NBR sealings and poppets														
1/2	12	1,5	25,0	0	10	10/10	-	●	●	-	○	●	133476-001	133476-501
U - Universal, (F)VMQ sealings and poppets														
1/2	12	1,5	25,0	0	10	10/10	-	●	●	-	○	●	133476-007	133476-507
U - Universal, FPM sealings and poppets, manual reset														
1/2	12	1,8	30,0	0	10	3,7/3,6	-	●	-	-	○	●	133476-006	133476-506
U - Universal, NBR sealings and poppets, manual reset														
1/2	12	1,5	30,0	0	10	3,7/3,6	-	●	●	-	○	●	133476-002	133476-502
U - Universal, VMQ sealings and poppets, manual reset														
1/2	12	1,8	30,0	0	10	3,7/3,6	-	●	●	-	○	●	133476-008	133476-508

● Available feature - Not available ○ Available feature in DC only

ADDITIONAL OPTIONS

- Manual operator MO (push type) and MS (screw type)
- 3/8" pipe thread execution
- 1/2" NPT (prefix "T") and M20 x 1,5 (prefix "ET") conduits (aluminium or 316 SS) available for steel solenoid housing
- Solid state components for peak voltage suppression and/or rectification

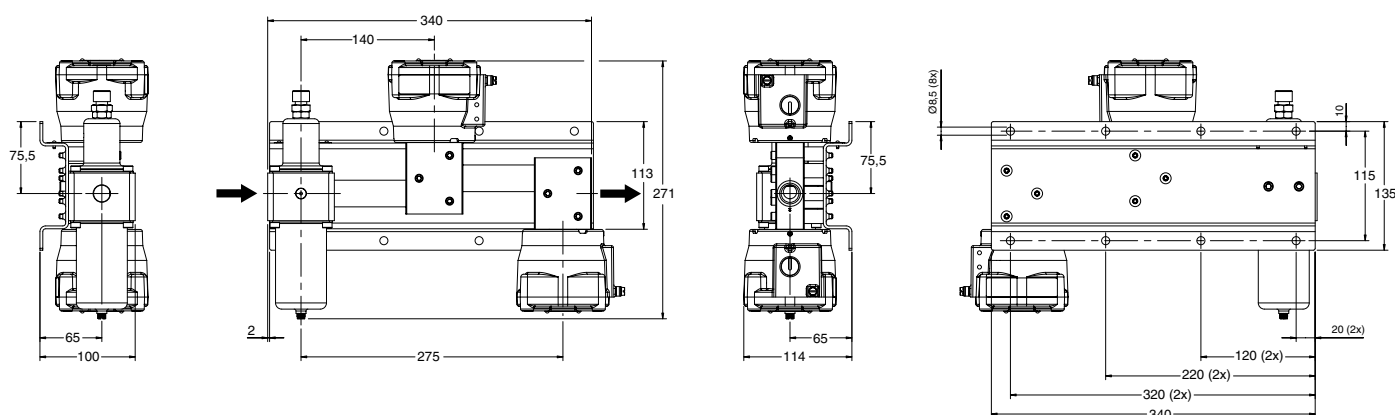
INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The ACS should be mounted vertically and upright for proper draining of the FR unit
- The mounting holes are provided in the valve body
- Threaded pipe connection identifier is NPT (ANSI 1.20.3)
- Declarations of conformity are available on request

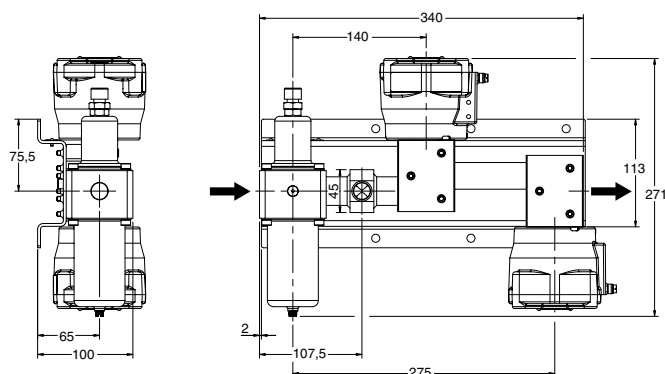
DIMENSIONS (mm), WEIGHT (kg)



Configuration AFF with WSNF Solenoid (for other solenoids see page 20)



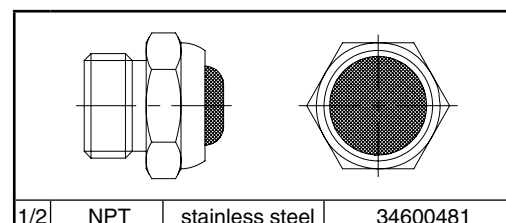
Configuration ADFD with WSNF Solenoid (for other solenoids see page 20)



SELECTION OF OTHER CONFIGURATION CODES

AFF = 133476-004
 ADFD = 133476-024 (AFF + 020 = 133476-004 + 020 = 133476-024)
 ADFD = 133476-044 (AFF + 040 = 133476-004 + 040 = 133476-044)
 ADFD = 133476-064 (AFF + 060 = 133476-004 + 060 = 133476-064)

EXHAUST PROTECTOR



EXPLANATION OF TEMPERATURE RANGES OF SOLENOID VALVES

Valve temperature range	The valve temperature range (TS) is determined by the selected seal material, the temperature range for proper operation of the valve and sometimes by the fluid (e.g. steam)
Operator ambient temperature range	The operator ambient temperature range is determined by the selected power level and the safety code
Total temperature range	The temperature range of the complete solenoid valve is determined by the limitations of both temperature ranges above

ELECTRICAL CHARACTERISTICS

Coil insulation class	F
Electrical safety	IEC 335
Standard voltages:	DC (=) 24V - 48V
	AC (~) 24V - 48V - 115V - 230V/50/60 Hz; Other voltages are available on request

prefix option	power ratings				operator ambient temperature range (C°) ⁽¹⁾	safety code	electrical enclosure protection (EN 60529)	replacement coil / kit		type ⁽²⁾
	inrush ~	holding ~		hot/cold =				~	=	
	(VA)	(VA)	(W)	(W)				230V/50/60 Hz	24V/DC	
Basic power (BP)										
SC	10,0	10,0	10,0	9/10	-40 to +60	EN 60730	IP65, moulded	400924-197	400923-342	01
SC	14,1	14,1	14,1	11/14	-40 to +90	EN 60730	IP65, moulded	400924-697	400923-642	01
SCDU	10,0	10,0	10,0	9/10	-40 to +50/60	II3D T100°C/T135°C	IP65, moulded	-(3)	-(3)	01
SCDU	14,1	14,1	14,1	11/14	-40 to +50/90	II3D T200°C/T135°C	IP65, moulded	-(3)	-(3)	01
WP/WS	10,0	10,0	10,0	9/10	-40 to +60	EN 60730	IP67, steel/SS	400921-197	400911-342	02
WP/WS	14,1	14,1	14,1	11/14	-40 to +90	EN 60730	IP67, steel/SS	400921-697	400911-642	02
WPDU/WSDU	10,0	10,0	10,0	9/10	-40 to +60	II3D T135°C	IP67, steel/SS	400921-197	400911-342	02
WPDU/WSDU	14,1	14,1	14,1	11/14	-40 to +50/90	II3D T200°C/T135°C	IP67, steel/SS	400921-697	400911-642	02
NF/WSNF	10,0	10,0	10,0	9/10	-60 to +40/60	II2G Ex d IIC T6/T5, II2D Ex tD	IP67, alu./SS	400921-197	400911-342	03
NF/WSNF	14,1	14,1	14,1	11/14	-60 to +40/60/90	II2G Ex d IIC T6/T5, II2D Ex tD	IP67, alu./SS	400921-697	400911-642	03
EM/WSEM	10,0	10,0	10,0	9/10	-40 to +40/60	II2G Ex e mb II T4/T3, II2D Ex tD	IP67, steel/SS	400921-197	400911-342	02
EM/WSEM	14,1	14,1	14,1	11/14	-40 to +40	II2G Ex e mb II T3, II2D Ex tD	IP67, steel/SS	400921-697	400911-642	02
ZN	-	-	-	9/10	-20 to +50	II3GD EEx nA II T3	IP65, moulded	-	-(3)	01
ZN	-	-	-	11/14	-20 to +50	II3GD EEx nA II T3	IP65, moulded	-	-(3)	01
WPZN/WSZN	10,0	10,0	10,0	9/10	-40 to +60	II3GD EEx nA II T4	IP67, steel/SS	400921-197	400911-342	02
WPZN/WSZN	14,1	14,1	14,1	11/14	-40 to +50/90	II3GD EEx nA II T3	IP67, steel/SS	400921-697	400911-642	02
Reduced Power (RP) ⁽⁴⁾										
SC	3,7	3,7	3,7	3,2/3,6	-40 to +55	EN 60730	IP65, moulded	- (4)	400923-042	01
SCDU	3,7	3,7	3,7	3,2/3,6	-40 to +50/55	II3D T100°C/T135°C	IP65, moulded	- (4)	- (3)	01
WP/WS	3,7	3,7	3,7	3,2/3,6	-40 to +55	EN 60730	IP67, steel/SS	- (4)	400914-242	02
WPDU/WSDU	3,7	3,7	3,7	3,2/3,6	-40 to +55	II3D T135°C	IP67, steel/SS	- (4)	400911-242	02
NF/WSNF	3,7	3,7	3,7	3,2/3,6	-60 to +60	II2G Ex d IIC T6, II2D Ex tD	IP67, alu./SS	- (4)	400914-242	03
EM/WSEM	3,7	3,7	3,7	3,2/3,6	-40 to +40/55	II2G Ex e mb II T6/T5, II2D Ex tD	IP67, steel/SS	- (4)	400914-242	02
ZN	-	-	-	3,2/3,6	-20 to +50	II3GD EEx nA II T3	IP65, moulded	-	- (3)	01
WPZN/WSZN	3,7	3,7	3,7	3,2/3,6	-40 to +55	II3GD EEx nA II T6	IP67, steel/SS	- (4)	400914-242	02

⁽¹⁾ Temperature range can be limited by sealings

⁽²⁾ Refer to the dimensional drawings on page 20

⁽³⁾ Multiple coil kits are available under ATEX/IECEx, contact us

- Not available

⁽⁴⁾ AC (~) limited to 127V/50/60Hz or 125V/DC

ELECTRICAL CONNECTIONS

prefix	connection
SC, SCDU, ZN	Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm
WP, WS, EM, WSEM, WPZN, WSZN, WPDU, WSDU	M20 cable gland for cables with an outer diameter from 7 to 12 mm. With an internal and external facility for an earthing or bonding conductor
NF, WSNF	1/2" NPT threaded cable entry. Enclosures are supplied without cable gland
NFET, WSNFET	M20 x 1,5 threaded cable entry. Enclosures are supplied without cable gland

PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
S	C			D	U		Dustproof (EN 50281-1-1)*	-	●	-	●
E	F						Explosionproof - NEMA 7, 9 - Zinc plated steel conduit	-	-	-	-
E	V						Explosionproof - NEMA 7, 9 - 316 SS conduit	-	-	-	-
E	M						Waterproof IP67 - Metal enclosure (EN/IEC 60079-7+18, 61241-1)*	-	●	-	●
		E	T				Threaded conduit/hole (M20 x 1,5)	-	●	-	●
I	S						Intrinsically safe with SC coil (EN/IEC 60079-11+26, 61241-11)*	-	-	-	-
N	F						Flameproof - Aluminium (EN/IEC 60079-1, 61241-1)*	-	●	-	●
P	V						Encapsulated epoxy moulded (EN/IEC 60079-18, 61241-18)*	-	-	-	-
S	C						Solenoid with spade plug connector (EN/IEC 60730)	-	●	-	●
W	P						Waterproof IP67 - Metal enclosure	-	●	-	●
W	P			D	U		Waterproof IP67 - Metal enclosure, Dustproof (EN 50281-1-1)*	-	●	-	●
W	P			I	S		I.S. with Metal IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	-	-	-	-
W	P			Z	N		Waterproof IP67 - Metal enclosure (EN 50021, 50281-1-1)*	-	●	-	●
W	S						Waterproof IP67 - 316 SS enclosure	-	●	-	●
W	S			D	U		Waterproof IP67 - 316 SS enclosure, Dustproof (EN 50281-1-1)*	-	●	-	●
W	S	E	M				Waterproof IP67 - 316 SS enclosure (EN/IEC 60079-7+18, 61241-1)*	-	●	-	●
W	S			I	S		I.S. with 316 SS IP67 enclosure (EN/IEC 60079-11+26, 61241-11)*	-	-	-	-
W	S	N	F				Flameproof - 316 SS (EN/IEC 60079-1, 61241-1)*	-	●	-	●
W	S	Z	N				Waterproof IP67 - 316 SS enclosure (EN 50021, 50281-1-1)*	-	●	-	●
		T					Threaded conduit (1/2" NPT)	-	●	-	●
				H	C		Class H - Battery charging circuit	-	-	-	-
				H	T		Class H - High temperature	-	●	-	●
Z	N						Moulded enclosure (EN 50021, 50281-1-1)*	-	○	-	○
						X	Other special constructions	-	●	-	●

* ATEX solenoid valves are also approved according to EN 13463-1 (non electrical valves)

PRODUCT SELECTION GUIDE

STEP 1

Select the fluid temperature range and seal material from the general table on page 13 or 15. Select, based on the selected seal material (if applicable), the basic assembly code.

Example: 133476-503

STEP 2

Select prefix (combination):

Select the appropriate operator from the prefix table on the left. Select for this operator in the electrical characteristics table on page 13 or 15: the power level (LP,RP,MP,BP) the type of electrical enclosure protection and the desired temperature class.

Warning: the ambient temperature range of your application may not exceed the temperature range of your operator

(see also on page 17 the section: Explanation of temperature ranges of solenoid valves).

Example: WSEM 133476-503

STEP 3

Select suffix (combination) if required. Refer to the suffix table on page 18.

Example: VMO

STEP 4

Select voltage. Refer to standard voltages on page 17.

Example: 230V/50Hz

STEP 5

Final assembly code / ordering number.

Example:

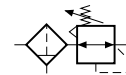
WSEM 133476-503 VMO 230V/50 Hz

SUFFIX TABLE

suffix					description	power level			
1	2	3	4	5		LP	RP	MP	BP
E					EPDM (ethylene-propylene)	-	-	-	-
J					CR (chloroprene)	-	-	-	-
N					Oxygen service (CR (chloroprene))	-	-	-	-
N	V				FPM (fluoroelastomer) and parts cleaned for oxygen service	-	-	-	-
V					FPM (fluoroelastomer)	-	●	-	●
	C	O			Epoxy coating on all external surfaces	-	●	-	●
	M	B			Mounting bracket	-	-	-	-
		P			Dry gas, non-lubricated air construction	-	-	-	-
		Q			Long life, quiet operation construction	-	-	-	-
			M	O	Push type manual operator	-	-	-	●
			M	S	Screw type manual operator ⁽¹⁾	-	-	-	●
			M		Metering device	-	-	-	-

● Available feature ○ Available feature in DC only - Not available

⁽¹⁾ Functional Safety certification is not applicable with this feature



FEATURES

- Stainless steel filter/regulator intended for use in potentially explosive atmospheres caused by gases, vapours, mists and/or dust according to: (ATEX directive 94/9/EC).
- SAFETY CODE:** II 2G/D c IIC X T85°C (T6) (ZONE 1-21) Explosion group IIC
- Compliance with the essential health and safety requirements has been assured with European Standards **EN 13463-1** and **EN 13463-5**
- Filter/Regulator with reinforced diaphragm with PTFE lining and all metal parts in 316L stainless steel for a standard pressure of max. 20 bar
- Built-in overpressure relieving function
- Filtering effect by centrifugation of the air and 50 microns filtering element
- Large operating temperature -40°C to +80°C
- Body, bonnet and internal parts in 316L stainless steel according to ASTM A 182/NACE MR 01.75
- Large bowl capacity



GENERAL

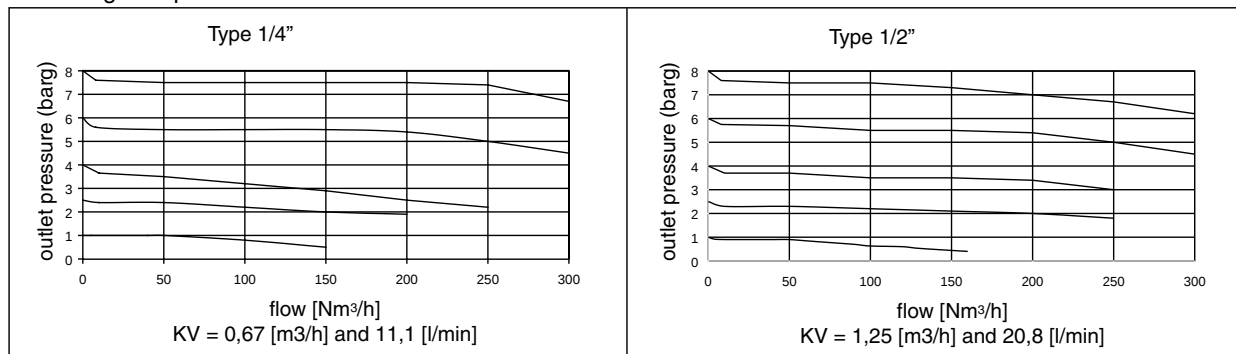
Fluids	Compressed air and neutral gas
Ports	1/4 NPT and 1/2 NPT
Maximum inlet pressure	20 bar (16 bar for automatic drain)
Adjustable pressure	0,8 to 8 bar [1bar = 100 kPa]
Hysteresis	< 0,2 bar
Filtering size	50 µm
Ambient temperature	-40° to +80°C ⁽¹⁾
Maximum flow (Qv at 6.3 bar)	See specifications and charts

CONSTRUCTION

Body	AISI 316L SS
Bowl	AISI 316L SS
Filtering element	AISI 316L SS
Diaphragm	EPDM with PTFE lining and NBR O-rings
Condensate drain	Manual drain
Pressure adjusting screw	Allen head screw with locking nut

PRESSURE DROP vs. AIR FLOW CURVE

at 20 barg inlet pressure



ADDITIONAL OPTIONS

- Other pipe threads are available on request
- Threaded connections BSP or with flanges
- EPDM/FPM gaskets
- With a 5 µm filtering element the max. flow is reduced by approx. 15%
- Stainless steel pressure gauge (0-10 bar scale division), kit number: C117814. Other scale divisions on request

INSTALLATION

- Installation/maintenance instructions are included with each filter/regulator
- Filter/Regulator must be installed with the bowl in vertical position
- Air flow direction indicated by an arrow
- Pipe connection has standard thread according to NPT (ANSI 1.20.3)

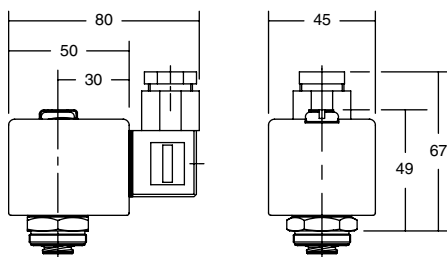
⁽¹⁾ -50/-55/-60°C low temperature options are available on request.

DIMENSIONS (mm), WEIGHT (kg)



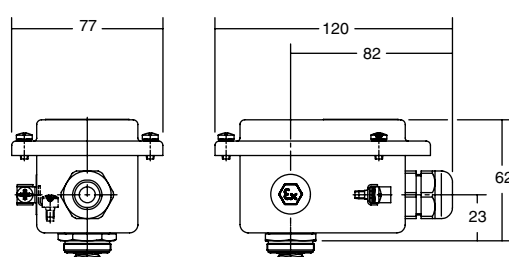
TYPE 01:

Epoxy moulded
SC: IEC 335 / ISO 4400
SCDU: EN 50281-1-1
ZN: EN 50021, 50281-1-1



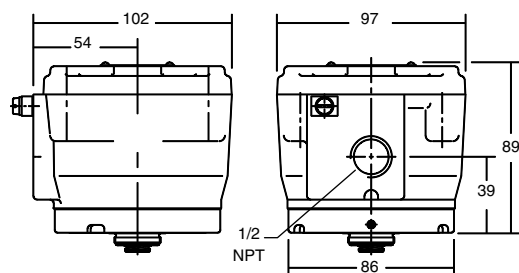
TYPE 02:

Metal, epoxy coated / AISI 316 SS
WP / WS: IEC 335
EM / WSEM: EN/IEC 60079-7+18, 61241-1
WPZN / WSZN: EN 50021, 50281-1-1
WPDU / WSDU: EN 50281-1-1



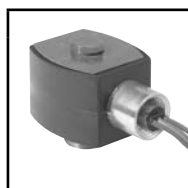
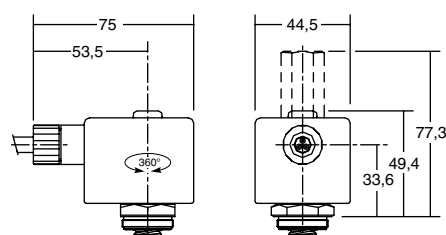
TYPE 03:

Aluminium, epoxy coated / AISI 316 SS
NF / WSNF: EN/IEC 60079-1, 61241-1



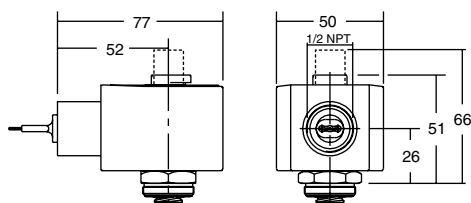
TYPE 04:

Epoxy encapsulated
PV: EN/IEC 60079-18, 61241-18



TYPE 05:

Epoxy encapsulated
EF and EV: NEMA type 7, 9 / ICS-6 ANSI



TYPE 06:

PP moulded
ISSC: EN/IEC 60079-11+26 / 61241-11

