

TECHNICAL INFORMATION

Pneumatic retractable probe housing



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1 Technical data

1.1 Standards

The following standards were applied when manufacturing the retractable probe housing:

- Pressure Equipment Directive

1.2 Material properties

Wetted components			
Probe housing			
EXtract	Stainless steel	Plastic	Seals
810/811/815	1.4404/316L Alloy C22, 2.4602		EPDM, FPM, FFKM
820/825		PVDF, PEEK, PP	EPDM, FPM, FFKM
821		PVDF, PEEK	EPDM, FPM, FFKM
830	1.4404/316L		EPDM (FDA), FPM

Drive unit			
EXtract	Cylinder	Cylinder extension	Seals
All types	1.4404/316L	PA66 GF30	EPDM

1.3 Cleaning ports

Thread	
Without a gland	G 1/8" (female)
With a gland	G 1/4" (female)
With a gland	NPT 1/4" (female)

Cleaning pressure	
	1-4 bar

1.4 Sensors

Gel-filled sensor			
EXtract	l [mm]	d [mm]	PG
810 / 820	225	12	13.5
811 / 821	325	12	13.5
815 / 825	225	12	13.5
830	225	12	13.5
Sensor filled with liquid with a filling spout			
EXtract	l [mm]	d [mm]	PG
810 / 820	280	12	13.5
811 / 821	380	12	13.5
815 / 825	280	12	13.5
830	280	12	13.5

1.5 Pneumatics

Pneumatic hoses		
	External Ø [mm]	Internal Ø [mm]
For control air	6	4
For position feedback	4	2

The following requirements are valid for compressed air:

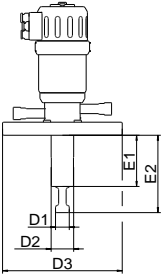
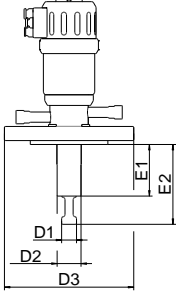
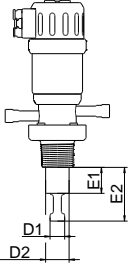
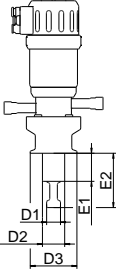
- according to ISO8573-1:2010 [5:4:4]
- filtered, 40 µm, water and oil-free
- 4 - 6 bar
- No continuous air consumption

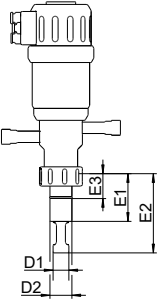
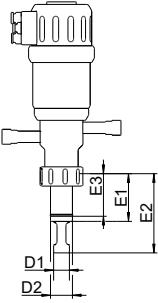
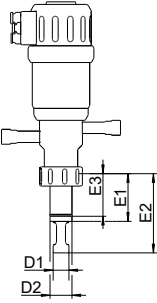
1.6 IP protection class

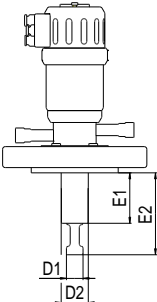
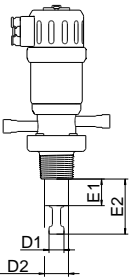
Protection class IP 66 is valid for the drive unit for all types.

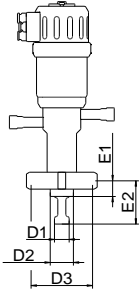
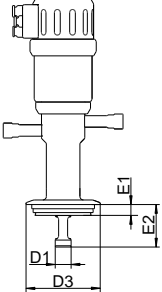
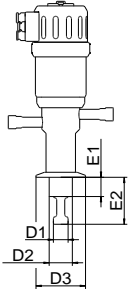
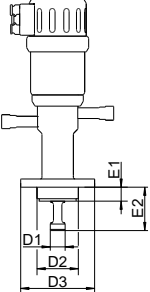
1.7 Dimensions

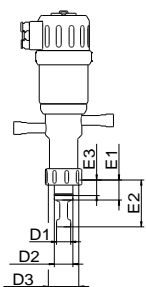
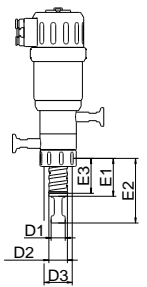
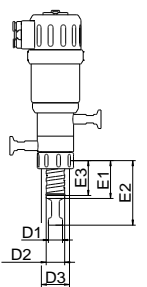
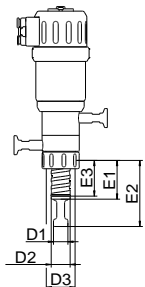
Probe housing								
Measurements [mm]	EXtract		EXtract		EXtract		EXtract	
	810	811	815	825	820	821	830	
A1	180	180	196	196	193	193	238	
A2	350	480	350	350	350	480	350	
B	95	95	95	95	95	95	95	

Process connections EXtract 810/811						
	Flange 4404		Flange C22		NPT	TriClamp
						
Measurements [mm]	EXtract		EXtract		EXtract	EXtract
	810	811	810	811	810	810
E1	71	171	66	166	34	39
E2	107	207	102	202	70	75
D1	19	19	19	19	19	19
D2	31	36	31	36	31	31
D3	-	-	-	-	-	64

Process connections EXtract 815/825			
	Ingold DN 25	Ingold DN 25	Ingold DN 25
			
Measurements [mm]	EXtract	EXtract	EXtract
	815	815	825
E1	54	54	33
E2	90	90	69
E3	28	50	25
D1	18	18	18
D2	25	25	25

Process connections EXtract 820/821			
	Flange		NPT
			
Measurements [mm]	EXtract		EXtract
	820	821	820
E1	58	158	29
E2	94	194	65
D1	19	19	19
D2	31	36	30.5

Process connections EXtract 830					
	DIN 11851	Varivent N	TriClamp		Neumo BioCon.
					
Measurements [mm]	DN50	DN40 - 125	1.5"	2"	DN 50
E1	18	12.3	22	25	17
E2	54	48.3	58	61	48
D1	19	19	19	19	19
D2	30	-	30	30	50
D3	Rd78 x 1/6"	84	50.5	64	89.5

Process connections EXtract 830				
	Ingold DN 25	Ingold HyCIP25	Ingold Hy-CIP50	Ingold Hy-CIP55
				
Measurements [mm]	O-ring position [mm]			
	28	25	50	55
E1	34	29	54	59
E2	70	65	90	95
E3	28	25	50	55
D1	19	19	19	19
D2	25	25	25	25
D3	G 1 1/4"	G 1 1/4"	G 1 1/4"	G 1 1/4"

1.8 Environmental conditions

Ambient temperature -10...70 °C

Transport and storage temperature -20...80 °C

1.9 Extract 810 / 811 / 815 / 830 process conditions

Max. permissible pressure PS: 16 bar

Max. permissible temperature TS: 140 °C:

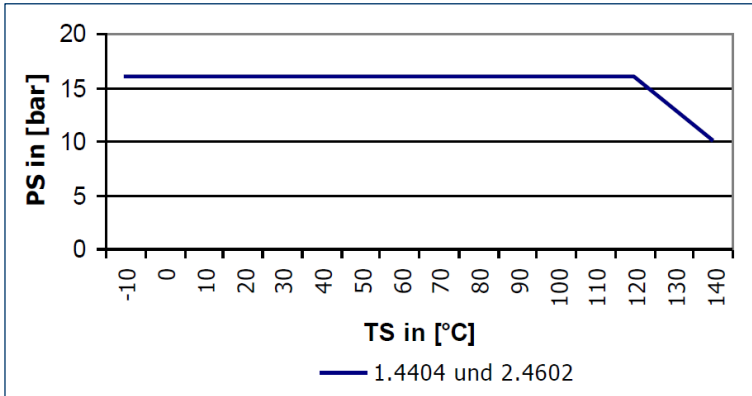


Fig. 1: Pressure temperature diagram Extract 810/811/815/830

1.10 Extract 820 / 821 / 825 process conditions

Max. permissible pressure PS: 10 bar

Max. permissible temperature TS: 140 °C:

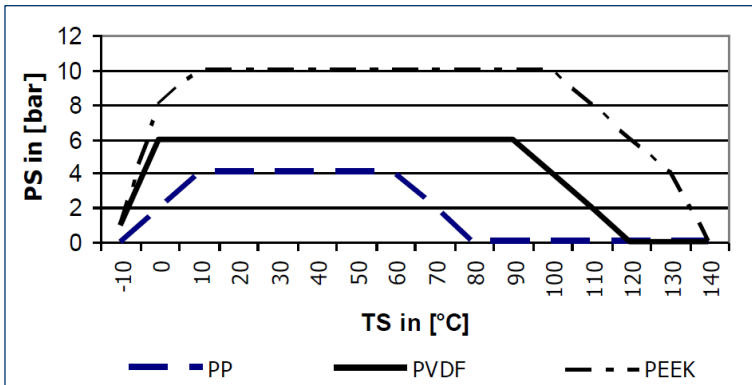


Fig. 2: Pressure temperature diagram Extract 820/821/825

1.11 Identification plate

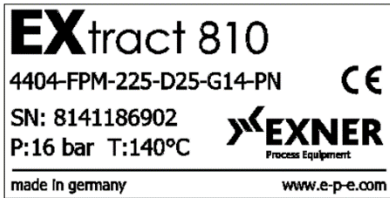
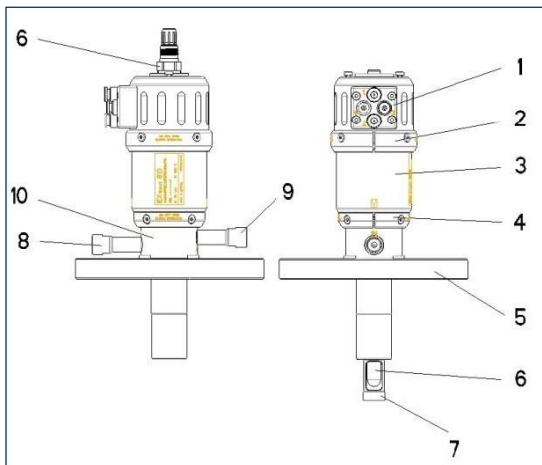


Fig. 3: Identification plate

2 Product description

2.1 EXtract automatic retractable probe housing

2.1.1 Components



1	Pneumatic ports 1-4
2	Upper housing clamp
3	Drive unit
4	Lower housing clamp
5	Process connection
6	Sensor
7	Insertion rod with protection cage
8	Cleaning port "IN"
9	Cleaning port "OUT"
10	Cleaning chamber

Fig. 4: EXtract retractable probe housing

2.1.2 Versions

Retractable probe housings are attached to tanks or pipes using an appropriate process connection. In order to do justice to the various process properties, the EXtract retractable probe housing is manufactured from stainless steel or plastic. You can further choose between different process and cleaning ports, sealing materials, and sensors.

The process pressure and temperature conditions are decisive for the selection of the appropriate probe housing. Stainless steel retractable probe housing can be used for a pressure of up to 16 bar and the plastic model up to 10 bar, temperature-dependent.

EXtract 810/820

EXtract 810 / 820 probe housing is a pneumatically operated retractable probe housing consisting of stainless steel (810) or plastic (820) for the installation of Ø 12mm sensors on tanks or pipes, with an immersion depth of up to 107mm.

The probe housing can be used for:

- Ø 12 mm/225 mm and Ø 12/280 mm sensors with PG13.5 thread (pH glass and ISFET sensors, conductivity, temperature, turbidity or optical sensors)
- Chemicals
- Water treatment
- Particularly rough processes
- For automatic cleaning or calibration of the sensor

EXtract 811/821

EXtract 811 / 821 probe housing is a pneumatically operated retractable probe housing consisting of stainless steel (811) or plastic (821) for the installation of Ø 12mm sensors on tanks or pipes, with an extended immersion depth of up to 207mm.

EXtract 815/825

EXtract 815 / 825 probe housing is a pneumatically operated retractable probe housing consisting of stainless steel (810) or plastic (825) for the installation of Ø 12mm sensors on tanks or pipes, with an Ingold DN25 gland and PTFE scraper.

EXtract 830

EXtract 830 probe housing is a pneumatically operated retractable probe housing consisting of stainless steel or the installation of Ø 12mm sensors on tanks or pipes.

The probe housing can be used for:

- Ø 12 mm/225 mm and Ø 12/280 mm sensors with PG13.5 thread (pH glass and ISFET sensors, conductivity, temperature, turbidity or optical sensors)
- Food
- Pharmaceuticals
- Hygienic applications
- For automatic cleaning or calibration of the sensor

2.1.3 Drive unit

Compressed air is fed via the pneumatic connections on the drive unit. The pneumatic drive drives the insertion rod into the process medium up to its maximum immersion depth. For safety reasons, this is only possible with an installed sensor.

2.1.4 Measure

When the stop position for the "measuring" position is reached, the control unit receives pneumatic position notification. In this position the sensor head is immersed in the drive unit and cannot be removed. The sensor measures the chemical or physical process liquid properties.

2.1.5 Service

The sensor can be cleaned, rinsed and calibrated during the course of the process. For this purpose the probe housing must be moved to the "service" position. Here, too, pneumatic position feedback is triggered when the final position is reached. In the "service" position the insertion rod seals the cleaning chamber against the process to prevent leakage of process liquid. The cleaning liquid is introduced into the cleaning chamber via the cleaning port "IN" and subsequently drained via the cleaning port "OUT".

2.2 Process integration

Control unit

The automatic control unit EXmatic can be used to operate the retractable probe housing EXtract. It is optimally adapted to the probe housing functions.

Transmitter

The retractable probe housing inserts a sensor into the process liquid, which transmits its measuring results to a transmitter.

Process control [PCS]

The external control unit and transmitter can be connected to a process control system. The measuring and cleaning intervals are controlled automatically, dependent on the measurement results.

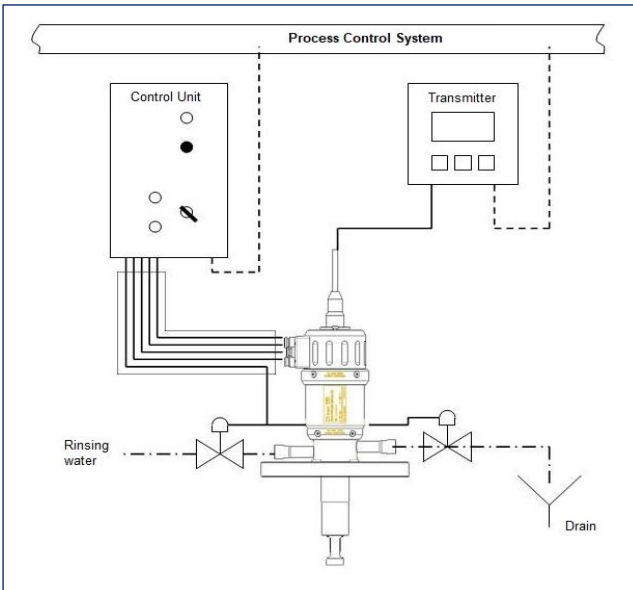


Fig. 5: Process flow

Pressure / Temperature

The process temperature must be between $-10\text{ }^{\circ}\text{C}$ and $140\text{ }^{\circ}\text{C}$. Observe the pressure and temperature diagrams in chapters 1.9 "Extract 810 / 811 / 815 / 830 process conditions" and 1.10 "EXtract 820 / 821 / 825 process conditions"

Installation position

Basically, the probe housing can be operated in any position. In order to obtain reliable measurement results, the sensor properties are decisive.

3 Ordering structure

3.1 Retractable probe housing EXtract 810

Code	Probe housing, material (wetted parts)	
4404	Stainless steel 1.4404 / 316L	
HC22	Alloy C22, 2.4602	
XXXX	Special version	
Code	Material (wetted parts)	
EPD	EPDM	
FPM	FPM	
FKM	FFKM	
XXX	Special version	
Code	Sensor	
225	225 mm PG 13.5 gel-filled	
280	280 mm PG 13.5 filled with liquid	
XXX	Special version	
Code	Process connection	
D32	Flange DN32	
D40	Flange DN40	
D50	Flange DN50	
A14	Flange ANSI 1 1/4"	
A12	Flange ANSI 1 1/2"	
A20	Flange ANSI 2"	
N14	NPT M 1 1/4"	
T20	Tri Clamp 2"	
XXX	Special version	
Code	Cleaning port	
G18	G 1/8" (female)	
G14	G 1/4" (female)	
N14	NPT 1/4" (female)	
XXX	Special version	
Code	Position feedback	
PN	Pneumatics	
EL	Electric (NAMUR)	
EXtract 810		Order code

Example: EXtract 810-4404-EPD-225-D32-G18-PN

3.2 Retractable probe housing EXtract 811

EXtract 811	Code	Probe housing, wetted material				
	4404	Stainless steel 1.4404 / 316L				
	HC22	Alloy C22, 2.4602				
	XXXX	Special version				
		Code	Seals, wetted material			
		EPD	EPDM			
		FPM	FPM			
		FKM	FFKM			
		XXX	Special version			
			Code	Sensor		
			325	325 mm PG 13.5 gel-filled		
			380	380 mm PG 13.5 filled with liquid		
			XXX	Special version		
				Code	Process connection	
				D40	Flange DN40	
				D50	Flange DN50	
				A12	Flange ANSI 1 1/2"	
				A20	Flange ANSI 2"	
				XXX	Special version	
					Code	Cleaning port
					G18	G 1/8" (female)
					G14	G 1/4" (female)
					N14	NPT 1/4" (female)
				XXX	Special version	
				Code	Position feedback	
				PN	Pneumatics	
				EL	Electric (NAMUR)	
	EXtract 811					Order code

Example: EXtract 811-4404-EPD-325-D40-G18-PN

3.3 Retractable probe housing EXtract 815

EXtract 815	Code	Probe housing, wetted material		
	4404	Stainless steel 1.4404 / 316L		
	HC22	Alloy C22, 2.4602		
	XXXX	Special version		
		Code	Seals, wetted material	
		EPD	EPDM	
		FPM	FPM	
		FKM	FFKM	
		XXX	Special version	
		Code	Sensor	
		225	325 mm PG 13.5 gel-filled	
		280	380 mm PG 13.5 filled with liquid	
		XXX	Special version	
		Code	Process connection	
		IN28	Ingold DN25 G1 1/4" O-ring position 28 mm	
		IN50	Ingold DN25 G1 1/4" O-ring position 50 mm	
		XXXX	Special version	
		Code	Cleaning port	
		G18	G 1/8" (female)	
		G14	G 1/4" (female)	
		N14	NPT 1/4" (female)	
		XXX	Special version	
		Code	Position feedback	
	PN	Pneumatics		
	EL	Electric (NAMUR)		
			Order code	

Example: EXtract 815-4404-EPD-225-IN28-G18-PN

3.4 Retractable probe housing EXtract 820

	Code	Probe housing, wetted material		
	PP	PP		
	PVDF	PVDF		
	PEEK	PEEK		
	XXXX	Special version		
		Code	Seals, wetted material	
		EPD	EPDM	
		FPM	FPM	
		FKM	FFKM	
		XXX	Special version	
		Code	Sensor	
		225	225 mm PG 13.5 gel-filled	
		280	280 mm PG 13.5 filled with liquid	
		XXX	Special version	
		Code	Process connection	
		D50	Flange DN50	
		A20	Flange ANSI 2"	
		N14	NPT M 1 1/4"	
		XXX	Special version	
		Code	Cleaning port	
		G18	G 1/8" (female)	
		G14	G 1/4" (female)	
		N14	NPT 1/4" (female)	
	XXX	Special version		
	Code	Position feedback		
	PN	Pneumatics		
	EL	Electric (NAMUR)		
EXtract 820			Order code	

Example: EXtract 820-PP-FPM-225-D50-G18-PN

3.5 Retractable probe housing EXtract 821

	Code	Probe housing, wetted material				
	PVDF	PVDF				
	PEEK	PEEK				
	XXXX	Special version				
		Code	Seals, wetted material			
		EPD	EPDM			
		FPM	FPM			
		FKM	FFKM			
		XXX	Special version			
		Code	Sensor			
		325	325 mm PG 13.5 gel-filled			
		380	380 mm PG 13.5 filled with liquid			
		XXX	Special version			
		Code	Process connection			
		D50	Flange DN50			
		A20	Flange ANSI 2"			
		N14	NPT M 1 1/4"			
		XXX	Special version			
		Code	Cleaning port			
		G18	G 1/8" (female)			
		G14	G 1/4" (female)			
		N14	NPT 1/4" (female)			
		XXX	Special version			
		Code	Position feedback			
		PN	Pneumatics			
		EL	Electric (NAMUR)			
EXtract 821						Order code

Example: EXtract 821-PVDF-FPM-325-D50-G18-PN

3.6 Retractable probe housing EXtract 825

EXtract 825	Code	Probe housing (wetted material)		
	PP	PP		
	PVDF	PVDF		
	PEEK	PEEK		
	XXXX	Special version		
		Code	Sealing (wetted material)	
		EPD	EPDM	
		FPM	FPM	
		FKM	FFKM	
		XXX	Special version	
		Code	Sensor	
		225	225 mm PG 13.5 gel-filled	
		280	280 mm PG 13.5 filled with liquid	
		XXX	Special version	
		Code	Process connection	
		IN25	Ingold DN25 G1 1/4" O-ring position 25 mm	
		XXXX	Special version	
		Code	Cleaning port	
		G18	G 1/8" (female)	
		G14	G 1/4" (female)	
		N14	NPT 1/4" (female)	
	XXX	Special version		
		Code	Position feedback	
		PN	Pneumatics	
		EL	Electric (NAMUR)	
			Order code	

Example: EXtract 825-PP-FPM-225-IN25-G18-PN

3.7 Retractable probe housing EXtract 830

Code	Probe housing, wetted material	
4404	PP	
XXXX	Special version	
Code	Seals, wetted material	
EPD	EPDM / FEP (FDA/USP VI)	
FPM	FPM (Viton) / FEP	
XXX	Special version	
Code	Sensor	
225	225 mm PG 13.5 gel-filled	
280	280 mm PG 13.5 filled with liquid	
XXX	Special version	
Code	Process connection	
IN28	Ingold DN25 (G 1 1/4") O-ring pos. 28 mm	
IH25	HyCIP® Ingold (G1 1/4") O-ring pos. 25mm	
IH50	HyCIP® Ingold (G1 1/4") O-ring pos. 50mm	
IH55	HyCIP® Ingold (G1 1/4") O-ring pos. 55mm	
VARN	Varivent N DN40-125	
TC15	TriClamp 1.5" (OD Ø 50.5 mm)	
TC20	TriClamp 2" (OD Ø 64 mm)	
BCT5	NEUMO BioControl 50	
MV50	DIN 11851 DN50 (milk pipe)	
XXXX	Special version	
Code	Cleaning port	
G18	G 1/8" (female)	
G14	G 1/4" (female)	
N14	NPT 1/4" (female)	
XXXX	Special version	
Code	Position feedback	
PN	Pneumatics	
EL	Electric (NAMUR)	
EXtract 830		Order code

Example: EXtract 830-PP-FPM-225-IN28-G18-PN

4 Spare parts and accessories

The probe housing serial number must always be quoted for spare parts and accessories orders.

EXtract	Accessories	Order number
810/811/815/830	Blind plug set G1/8" 1.4404	2-086-32-001
810/811/815	Blind plug set G1/8" 2.4602 / C22	2-086-34-001
810/811/815	Sensor cable protective device EXtract 8XX	2-150-03-001
815/825/830	Safety weld-in socket DN25 straight, 40mm, 1.4404 / 316L	2-087-33-001
815/830	Safety weld-in socket DN25 inclined, 40mm, 1.4404 / 316L	2-087-33-002
815/825/830	Safety bracket SK25 for welding socket DN25 (Ingold)	2-140-33-002
820/821/825	Blind plug set G1/8" PVDF	2-086-23-001
820/821/825	Blind plug set G1/8" PP	2-086-22-001
820/821/825	Blind plug set G1/8" PEEK	2-086-29-001
830	Cleaning gland for EXtract830(M) TriClamp 3/4" Ø10.3 (2 pcs. with EPDM sealing) for HyCIP® G1 1/4"	2-069-33-007
830	Cleaning gland for EXtract830(M) TriClamp 3/4" Ø10.3 (2 pcs. with FPM sealing) for HyCIP® G1 1/4"	2-069-33-008
810/811/815/825 820/821/830	Power stage terminal NAMUR sensor	2-110-00-003
	Set connecting cable position switch, 2m (NAMUR)	2-125-03-001
	Set connecting cable position switch, 5m (NAMUR)	2-125-03-002

4.1 Drive unit with pneumatic or electric position feedback

EXtract	Spare part	Order number
810/811/815/825 820/821/830	Drive unit for sensor L = 225/325 mm	2-075-03-001
	Drive unit for sensor L = 280/380 mm	2-075-03-002
	Drive unit for sensor L = 225/325 mm inductive (NAMUR)	2-075-03-007
	Electrical limit switch EXtract8XX(M) NAMUR	2-117-00-001

4.2 Sealing kits

EXtract	Spare part	Order number
810/820	EPDM sealing kit	2-123-40-001
	FPM sealing kit	2-123-41-001
	FFKM sealing kit	2-123-42-001
811/821	EPDM sealing kit	2-123-40-002
	FPM sealing kit	2-123-41-002
	FFKM sealing kit	2-123-42-002
815/825	EPDM sealing kit	2-123-40-012
	FPM sealing kit	2-123-41-012
	FFKM sealing kit	2-123-42-012
830 IN28	EPDM /FEP (FDA/USP VI) sealing kit	2-123-40-003
	FPM / FEP sealing kit	2-123-41-003
830 HyCIP®	EPDM /FEP (FDA/USP VI) sealing kit	2-123-40-004
	FPM / FEP sealing kit	2-123-41-004
830 TC15/TC20 + MV50 VARN / BCT5	EPDM /FEP (FDA/USP VI) sealing kit	2-123-40-005
	FPM / FEP sealing kit	2-123-41-005

4.3 Insertion rods

EXtract	Spare part	Order number
810	Insertion rod 1.4404 / 316L	2-061-33-004
	Insertion rod 2.4602 / Alloy C22	2-061-34-004
811	Insertion rod 1.4404 / 316L	2-061-33-005
	Insertion rod 2.4602 / Alloy C22	2-061-34-005
815	Insertion rod 1.4404 / 316L	2-061-33-006
	Insertion rod 2.4602 / Alloy C22	2-061-34-006
820	Insertion rod PP	2-061-22-004
	Insertion rod PVDF/Alloy C22	2-061-23-004
	Insertion rod PEEK	2-061-29-004
821	Insertion rod PVDF/Alloy C22	2-061-23-005
	Insertion rod PEEK	2-061-29-005
825	Insertion rod PP	2-061-22-011
	Insertion rod PVDF/Alloy C22	2-061-23-011
	Insertion rod PEEK	2-061-29-011
830	Insertion rod 1.4404 / 316L	2-061-33-004

5 Certificates and compliances

All freely available certificates and conformities can be found in their most current form in the “Downloads” section of our website.

To access the following address, enter it into your browser or scan the QR code below. Then select the relevant product and document from the list.

<https://e-p-e.com/en/downloads>



Depending on the product, additional certificates (e.g. material, surface, etc.) are available. If necessary, please send a corresponding request to Exner Process Equipment GmbH.



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