

PRESS P/NA - P/NA ECO SERIES

Heavy oil burner series P/NA is an evolution of the traditional heavy oil modulating burners P/N series.

The new range applies a different technology to replace the usual mechanical atomising (high pressure) by "assisted" air/steam atomising (feed pressure 5-8 bar) and taking the related advantages when burning heavy fuels (even vegetal oil).

The upgraded design has been introduced to meet even the worst fuel qualities and to reach anyway the best achievable combustion performance (lower particulate and NOx emissions).

The capacity range is suited to cover applications on steam generators designed for production from 1 to 6 tons/hr of steam or an equivalent capacity in case of other kind of boiler.

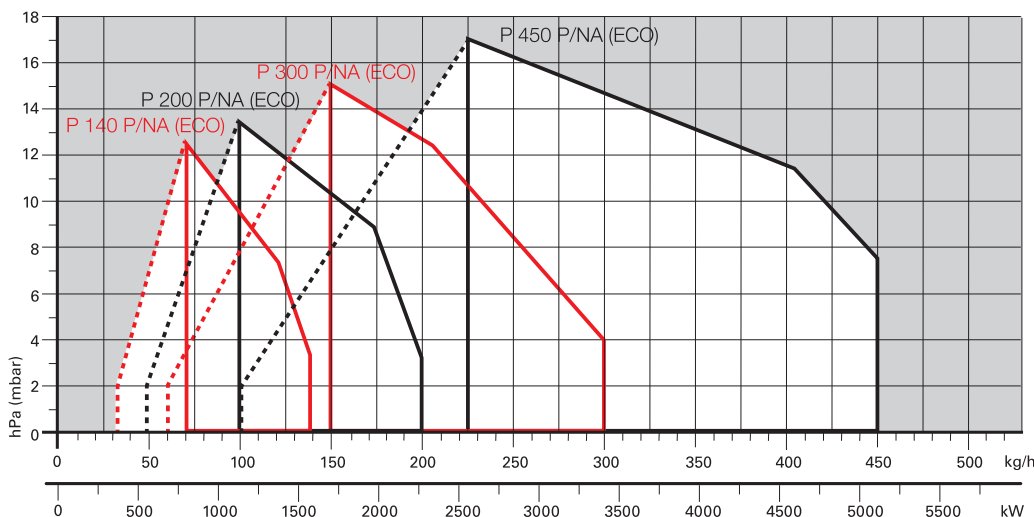
Reliable and smooth ignition is achieved by LPG pilot burner installed into the combustion head.

The control system includes all safety and operation interlocks, making possible the configuration compliance to the latest design norms on world-wide base (i.e. EN 267 - UL 296 - others), by the available options on request.



P 140 P/NA	400/800 ÷ 1600 kW
P 200 P/NA	570/1140 ÷ 2280 kW
P 300 P/NA	683/1710 ÷ 3420 kW
P 450 P/NA	1140/2615 ÷ 5130 kW
P 140 P/NA ECO	400/800 ÷ 1600 kW
P 200 P/NA ECO	570/1140 ÷ 2280 kW
P 300 P/NA ECO	683/1710 ÷ 3420 kW
P 450 P/NA ECO	1140/2615 ÷ 5130 kW

FIRING RATES



Useful working field for choosing the burner

Modulation range

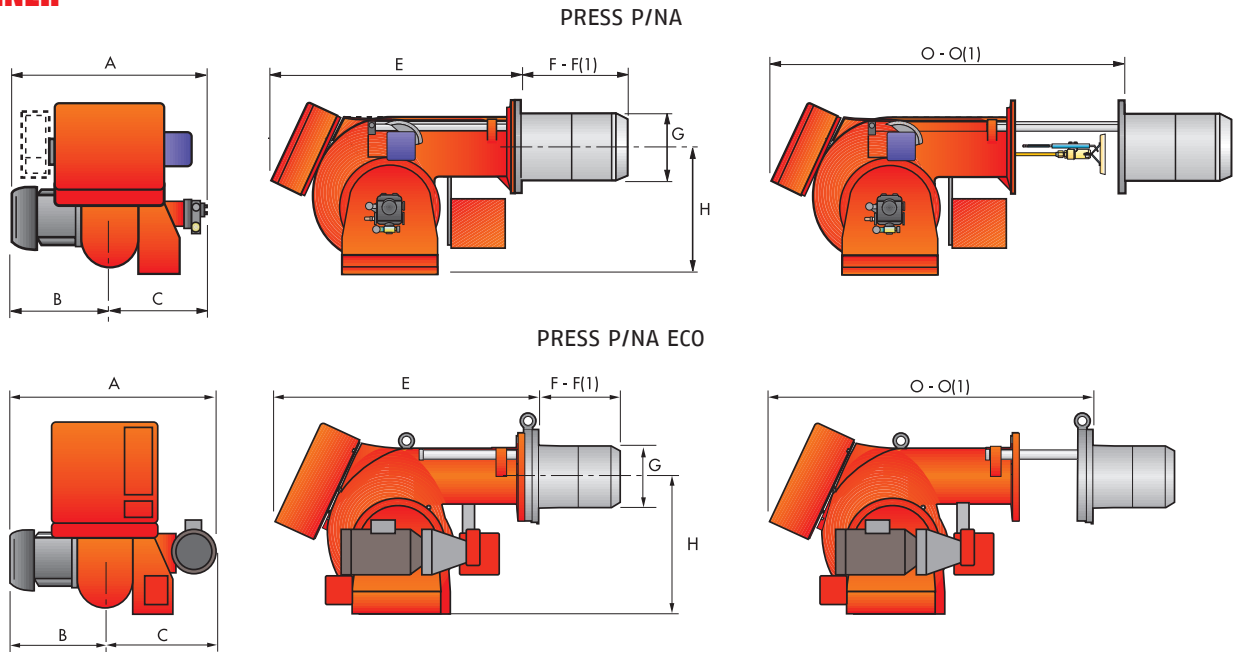
Test conditions conforming to EN267
 Temperature: 20°C
 Pressure: 1013,5 mbar
 Altitude: 0 m a.s.l.

Modulating Heavy Oil Burners with Air/Steam Atomizing

PRESS P/NA - P/NA ECO SERIES

Overall dimensions (mm)

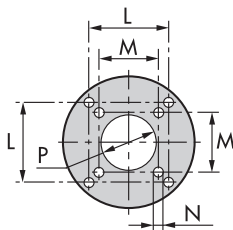
BURNER



MODEL	A	B	C	E	F - F(1)	G	H	O - O(1)
▶ P 140 P/NA	796	396	400	910	323 - 433	222	467	1390 - 1390
▶ P 200 P/NA	796	396	400	910	352 - 462	250	467	1390 - 1390
▶ P 300 P/NA	858	447	411	1020	376 - 506	295	496	1535 - 1685
▶ P 450 P/NA	950	508	442	1090	435 - 565	336	525	1665 - 1820
▶ P 140 P/NA ECO	900	396	504	890	323 - 433	222	467	1370 - 1370
▶ P 200 P/NA ECO	900	396	504	890	352 - 462	250	467	1370 - 1370
▶ P 300 P/NA ECO	984	447	537	1000	376 - 506	295	496	1515 - 1665
▶ P 450 P/NA ECO	1100	508	592	1090	435 - 565	336	525	1665 - 1820

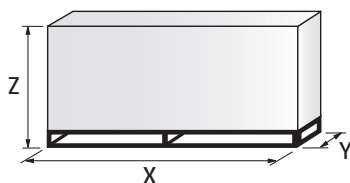
(1) Length with extended combustion head

BURNER - BOILER MOUNTING FLANGE



MODEL	L	M	N	P
▶ P 140 P/NA (ECO)	260	230	M 14	225
▶ P 200 P/NA (ECO)	260	-	M 16	255
▶ P 300 P/NA (ECO)	260	-	M 18	300
▶ P 450 P/NA (ECO)	310	-	M 20	350

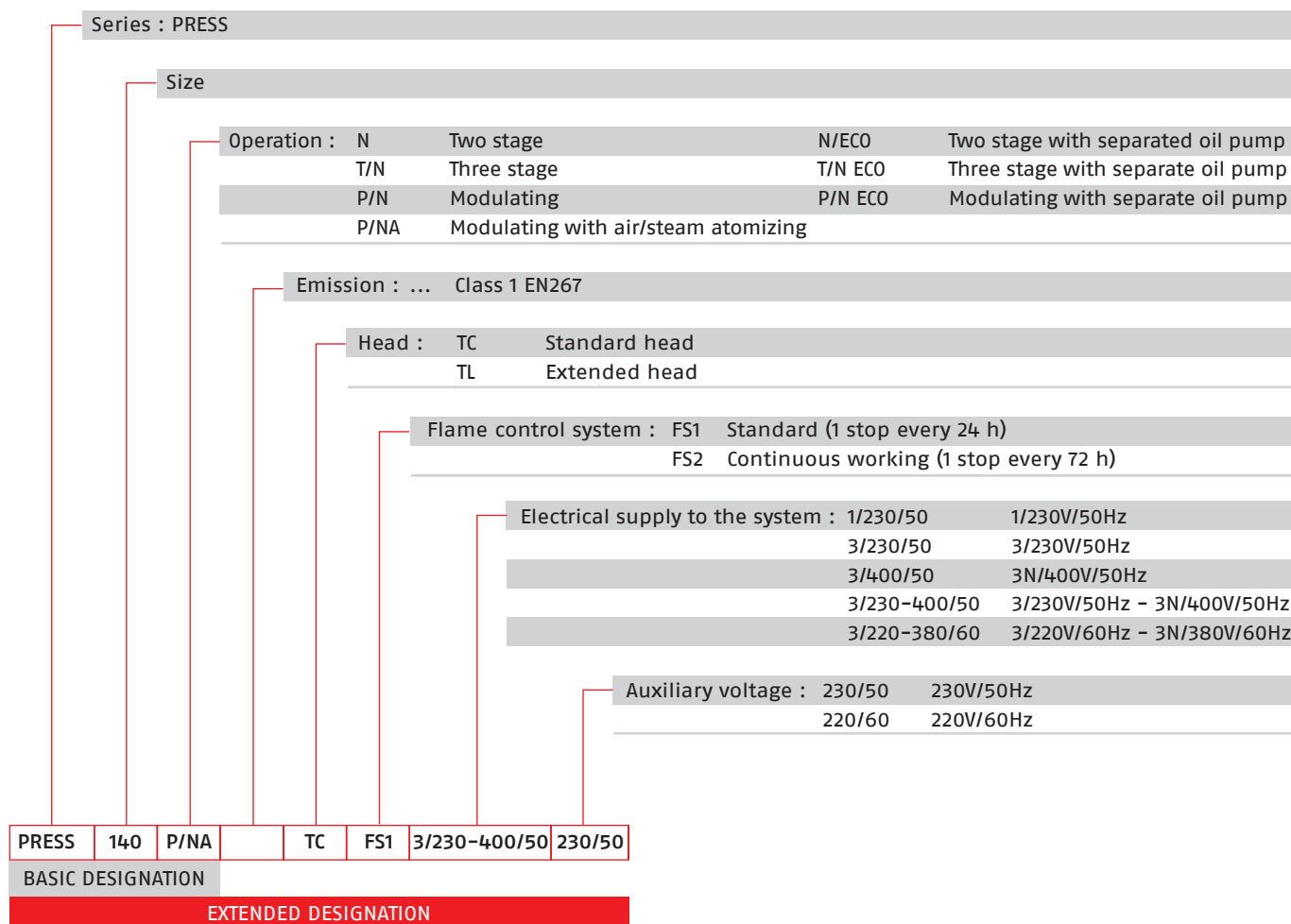
PACKAGING



MODEL	X	Y	Z	kg
▶ P 140 P/NA (ECO)	1740	990	950	180
▶ P 200 P/NA (ECO)	1740	990	950	220
▶ P 300 P/NA (ECO)	2040	1080	1125	238
▶ P 450 P/NA (ECO)	2040	1080	1125	300

Specification

DESIGNATION OF SERIES



Modulating Heavy Oil Burners with Air/Steam Atomizing

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Specification

STATE OF SUPPLY

Monoblock forced draught oil burner with two-stage progressive or modulating operation, with a specific kit, fully automatic, made up of:

- Air suction circuit lined with sound-proofing material
- Fan with forward curved blades high performance pressure levels
- Air damper for air setting and automatic oil output regulator controlled by a servomotor with variable cam
- Fan motor at 2850 rpm, three-phase 400V with neutral, 50Hz
- Combustion head, that can be set on the basis of the combustion output, fitted with:
 - stainless steel end cone, resistant to corrosion and high temperatures
 - ignition electrodes
 - flame stability disk
- Gears pump for high pressure fuel supply, fitted with:
 - filter
 - pressure regulator
 - connections for installing a pressure gauge and vacuumeter
 - internal by-pass for single pipe installation
- Heavy oil kit cartridges
- Pipes heating cable (P/NA ECO version)
- Oil pump motor at 1400 rpm (P/NA ECO version)
- Valve unit with a double oil safety valve on the output circuit
- LPG pilot burner ignition
- Electrical preheater for heavy oil
- Safety oil pressure switch
- Photocell for flame detection
- Burner safety control box, fitted with control function for the correct positioning of the servomotor and possibility of post-ventilation by just changing the electric wiring
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP X0D (IP 40) electric protection level.

Standard equipment:

- 2 flexible pipes for connection to the oil supply network
- 2 nipples for the connection to the pump
- Wiring looms fittings for electrical connections
- 4 screws for fixing the burner flange to the boiler
- 2 slide bar extensions (for the extended head models of P 300 P/NA and P 450 P/NA)
- Gasket for flange
- Starter*
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

* for versions with star-delta starting

PRESS P/NA - P/NA ECO SERIES

Available models

CODE	MODEL					HEAT OUTPUT		TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
						(kW)	(kg/h)			
3808515	P 140	P/NA	TC	3/230-400/50	230/50	400/800-1600	33,7/67,4-134,9	11,5	-	
3808525	P 140	P/NA	TC	3/220-380/60	220/60	400/800-1600	33,7/67,4-134,9	11,5	-	
3808516	P 200	P/NA	TC	3/230-400/50	230/50	570/1140-2280	48/96,12-192,2	12,5	-	
3808526	P 200	P/NA	TC	3/220-380/60	220/60	570/1140-2280	48/96,12-192,2	12,5	-	
3808517	P 300	P/NA	TC	3/230-400/50	230/50	683/1710-3420	57,6/144,1-288,3	25	-	
3808527	P 300	P/NA	TC	3/220-380/60	220/60	683/1710-3420	57,6/144,1-288,3	25	-	
3808519	P 450	P/NA	TC	3/400/50	230/50	1140/2615-5130	96,1/220,5-432,6	37	-	
3808529	P 450	P/NA	TC	3/380/60	220/60	1140/2615-5130	96,1/220,5-432,6	37	-	

Net calorific value: 11,16 kWh/kg; 9600 kcal/kg

The burners of PRESS series are in according to 2004/108 - 2006/95 - 2006/42 EC Directive and EN 267 Norm.

For ECO model, ask for specific code.

Viscosity

The modulating burner P/NA series can burn different heavy oil types from 50 up to 600 cSt @ 50°C (up to 80°E @ 50°C).

For different viscosity levels Riello recommends 3 different configurations:

- 1) PRESS P/NA version for viscosity up to 60°E (450 mm²/s, cSt), Type BUNKER C / USA n° 6:
 - with 2800 rpm oil pump installed directly on fan motor shaft
 - heavy oil heating cartridges factory installed on nozzle, pump and valves group (see available codes in the table above)
- 2) PRESS P/NA ECO version for viscosity up to 60°E (450 mm²/s, cSt), Type BUNKER C / USA n° 6:
 - with separate 1400 rpm low speed pump
 - heavy oil heating cartridges factory installed on nozzle, pump and valves group (please ask for specific code)
- 3) PRESS P/NA and PRESS P/NA ECO versions for viscosity up to 80°E (600 mm²/s, cSt), Type CHINESE OIL n° 60: as versions 1) or 2) with pipes heating cable factory installed (please ask for specific code)

Special configuration on demand:

- Steam oil pre-heater on P/NA ECO models.

Modulating Heavy Oil Burners with Air/Steam Atomizing

PRESS P/NA - P/NA ECO SERIES

Burner accessories

Available for P/NA and P/NA ECO versions

Y-jet air/steam atomising nozzles - type 15 AG 45°



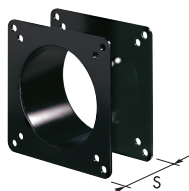
Effective nozzle delivery depends from many factors. Particular small variations of air/steam atomising pressure or viscosity at the nozzle, cause big oil delivery variations. Therefore, to choose the right nozzle it is so necessary to consider all parameters listed in the table below.

NOZZLE 15 AG 45°	VISCOSITY @ NOZZLE	OIL DENSITY	OIL DELIVERY (kg/h)					AIR CONSUMPTION AT 4 bar (kg/h)		SUGGESTED AIR/ STEAM PRESSURE	CODE
			cSt	kg/m ³	6 bar	5 bar	4 bar	3 bar	2 bar		
▶ 60	5	850	112	94	75	60	32	2,5	8,4	2	3045000
	10	875	95	80	60	41	20	5,9	13,9	3	
	20	900	75	60	42	25	n.a.*	10	20	4	
	30	925	68	55	36	20	n.a.*	11,3	21,7	4	
▶ 70	5	850	130	110	90	70	36	2,9	9,9	2	3045001
	10	875	111	95	78	48	25	6,8	16	3	
	20	900	88	70	50	30	n.a.*	11,9	23	4	
	30	925	80	64	44	24	n.a.*	13,2	25,4	4	
▶ 80	5	850	150	130	105	80	40	3,3	11,3	2	3045002
	10	875	127	108	85	55	30	7,8	18,3	3	
	20	900	100	80	55	35	n.a.*	13,6	26,2	4	
	30	925	91	73	51	30	n.a.*	15	28,9	4	
▶ 100	5	850	187	158	130	100	50	4,2	14	2	3045003
	10	875	158	135	100	70	35	9,8	22,8	3	
	20	900	126	105	70	40	n.a.*	17	32,7	4	
	30	925	114	91	65	35	n.a.*	18,8	34,2	4	
▶ 130	5	850	243	200	170	130	60	5,4	18,3	2	3045004
	10	875	206	173	130	95	40	12,7	29,7	3	
	20	900	163	131	90	55	n.a.*	22	42,6	4	
	30	925	148	118	82	45	n.a.*	24,4	47	4	
▶ 160	5	850	299	260	210	160	80	6,7	22,5	2	3045005
	10	875	253	215	170	115	50	15,7	36,5	3	
	20	900	201	161	115	65	n.a.*	27,1	52,4	4	
	30	925	182	145	102	58	n.a.*	30	57,9	4	
▶ 200	5	850	374	330	260	215	105	8,3	28,1	2	3045006
	10	875	317	270	215	145	60	19,6	45,7	3	
	20	900	252	203	140	85	n.a.*	33,9	65,5	4	
	30	925	228	182	120	70	n.a.*	37,5	72,4	4	
▶ 225	5	850	421	365	285	220	110	9,4	31,7	2	3045007
	10	875	357	311	240	160	70	22,1	51,4	3	
	20	900	280	225	156	100	n.a.*	38,2	73,7	4	
	30	925	256	205	141	60	n.a.*	42,2	81,4	4	
▶ 250	5	850	468	410	340	250	120	10,4	35,2	2	3045008
	10	875	396	340	270	180	80	24,5	57,1	3	
	20	900	315	252	175	110	n.a.*	42,4	81,9	4	
	30	925	285	228	150	85	n.a.*	46,8	90,5	4	
▶ 275	5	850	514	430	360	270	130	11,5	38,6	2	3045009
	10	875	436	365	300	190	85	27	62,8	3	
	20	900	346	277	193	120	n.a.*	46,7	90	4	
	30	925	313	250	175	95	n.a.*	51,6	99,5	4	
▶ 300	5	850	560	470	400	300	150	11,5	38,6	2	3045010
	10	875	476	410	340	200	90	29,3	68,5	3	
	20	900	378	302	210	130	n.a.*	51	98,2	4	
	30	925	342	273	190	100	n.a.*	56,3	108,6	4	

* This matching is not available.

Burner accessories

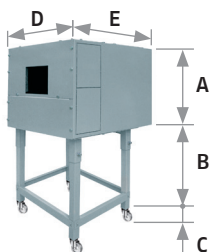
Spacer kit



If burner head penetration into the combustion chamber needs reducing, varying thickness spacers are available, as given in the list.

BURNER	SPACER THICKNESS S (mm)	KIT CODE
▶ P 140 P/NA - P 200 P/NA	102	3000722
▶ P 300 P/NA	130	3000723
▶ P 450 P/NA	130	3000751

Sound proofing box



If noise emission needs reducing even further, sound-proofing boxes are available. In case of generator heights, where a lower dimension "B" is required, ask for the Box Support Kit code 20065135. The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable for outdoor use.

BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	BOX CODE
▶ P 140 - 200 P/NA	C4/5	850	160 - 980	110	980	930	10	3010404
▶ P 300 - 450 P/NA	C7	1255	160 - 980	110	1140	1345	10	3010376

(*) Average noise reduction according to EN 15036-1 standard

Self-cleaning filter



For cleaning heavy oil from dirty particles and impurities, it is equipped with a thermostatic heater for oil with 60°E viscosity at 50°C.

FILTER TYPE	FILTERING DEGREE (µm)	FILTER CODE
▶ Ø = 1"1/2 (60°E at 50°C)	300	3010022

HEATER / THERMOSTAT TYPE	HEATER / THERMOSTAT CODE
▶ Thermostatic heater with LED	3010060
▶ Heater	3010061
▶ Thermostat (two-stage / regulable)	3010062

Cartridge filter



For cleaning heavy oil from dirty particles and impurities, it is equipped with a cartridge system equipped with electronic resistance for oil with 7°E viscosity at 50°C.

BURNER	FILTER CODE
▶ P 140 P/NA - P 200 P/NA - P 300 P/NA - P 450 P/NA	3005209

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Burner accessories

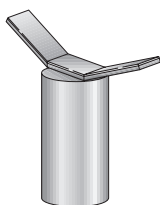
Gas separator bottle



Gas separator bottle connects the burner oil circuit to the main ring circuit. It allows to recover heat in excess and discharge return circuit gas.

BURNER	CODE
► P 140 P/NA - P 200 P/NA	3000748
► P 300 P/NA - P 450 P/NA	3010012

Burner support



For easier maintenance, a mobile burner support has been designed, which means the burner can be dismantled without the need of forklift trucks.

BURNER	SUPPORT CODE
► P 300 P/NA - P 450 P/NA	3000731

Accessories for modulating operation



To obtain modulating operation, the PRESS P/NA series of burners requires a regulator.

BURNER	REGULATOR TYPE	REGULATOR CODE
► P 140 P/NA - P 200 P/NA - P 300 P/NA - P 450 P/NA	RWF 40	3010211



The relative temperature or pressure probes fitted to the regulator, must be chosen on the basis of the application.

BURNER	PROBE TYPE	RANGE (°C) (bar)	PROBE CODE
► P 140 - 200 - 300 - 450 P/NA	Temperature PT 100	-100 ÷ 500°C	3010110
► P 140 - 200 - 300 - 450 P/NA	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
► P 140 - 200 - 300 - 450 P/NA	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
► P 140 - 200 - 300 - 450 P/NA	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873

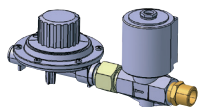


Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor.

BURNER	POTENTIOMETER KIT CODE
► P 140 P/NA - P 200 P/NA - P 300 P/NA - P 450 P/NA	3010021

Burner accessories

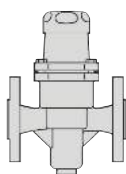
Gas/LPG Pressure regulator and SSOV for pilot burner (inlet pressure 0,5-7 bar)



To be applied on gas/LPG bottle when not already available.

TYPE	CODE
▶ HPR 1910	3010405

Air/steam pressure regulator



To be installed on the air/steam supply line according to supply system.

TYPE	CODE
▶ BRV	3010406

Steam valve over 10 bar or 180°C



To be applied for pressure from 10 to 15 bar or temperature from 180°C to maximum 200°C.

TYPE	CODE
▶ ODE	on demand

Water separator bottle



To be installed on the air/steam supply line in order to prevent water droplets to the nozzle supply.

TYPE	CODE
▶ WSB	on demand