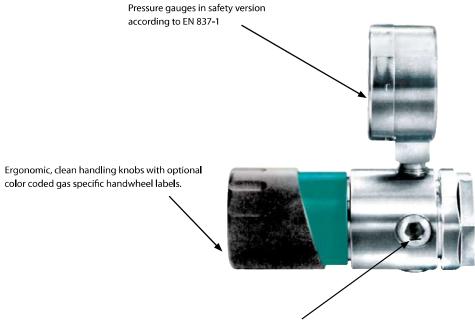


POINT-OF-USE REGULATORS EMD 400



State-of-the-art fittings and connection technology with G 3/8" or tube fitting inlet connection and outlet tube fittings.

Single stage regulators at high performance. Inlet pressure 40 bar.

Outlet pressure range 0.1 - 10.5 bar / 7 - 150 psi, analytical version 0.1 - 2.2 bar / 1.5 - 33 psi.

Available in different versions and combined with angle and straight version regulating and shut-off valves, this results in a unique adaption and makes these modules suitable for the most common laboratory applications and for lab furnitures of all manufacturers: suspended versions, bench mounting, surface and inset wall assembly or mounted on plates.

BASIC DESIGN ASPECTS*

MATERIAL

stainless steel 316L (1.4404) specially cleaned and electro-polished or brass 2.0401.26.

SEALING MATERIAL

Seats: FKM and FFKM with stainless steel, FKM and EPDM with brass. Seals: PCTFE with stainless steel and PVDF with brass. This depends on gas specification and purity requirements. Material is specified in "Technical data".

INNER PARTS

Low maintenance, service friendly regulator unit, particle filter 10 μm SS-filament at the inlet.

DIAPHRAGM

Good protection against burst and corrosion due to diaphragm material Hastelloy.

PERFORMANCE DATA

See flow charts, for different pressures please contact GCE.

GUARANTEED LEAKAGE RATE

 $\leq 1 \times 10^{-9}$ mbar I/s Helium.

PURITY

Cleanness and leak tightness according to the demand of high purity \leq 6.0 applications.

WORKING TEMPERATURE

-20 °C to +70 °C / -4 to 160 °F.

INLET / OUTLET CONNECTIONS

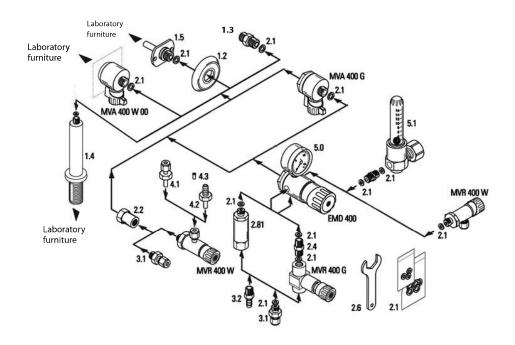
Inlet G 3/8", others with adapters. Outlet tube fitting for 6 mm tube, of the son demand.

*Different data to series specification are listed in the product specifi& "Technical Data".

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NO.	Туре	FUNCTION	MATERIAL	ARTNO.
1.2	Closing cap	Cap to cover the wall connector (1.5).		H19006625
1.3	Adapter fitting G 3/8" m NPT1/4"	Threaded adapter fitting to connect shut-off valve resp. pressure regulator and other male threaded outlets NPT1/4"	stainless steel	H233038150
1.4	Upright pipe conn. G $1/4$ " f > G $1/4$ "m	Connector for table mounting		H28591603
1.5	Wall connector 8 mm > G 3/8"m	Mounting LabSystem components at laboratory furniture walls	brass	H23303403
1.51	Wall connector NPT1/4" f > G 3/8"m	Mounting LabSystem components to laboratory furniture walls	brass stainless steel	H23303203 H23303201
2.1	Sealing 14.0 × 9.0 × 2.0 mm (G 3/8") 11.2 × 5,5 × 1,5 mm (G 1/4") 14.0 × 9.0 × 2,0 mm (G 3/8") 11.2 × 5.5 × 1.2 mm (G 1/4") 11.2 × 5.5 × 1.5 mm (G 1/4") 11.2 × 5.5 × 2.1 mm (G 1/4")	for brass version for stainless steel version	PVDF PVDF PCTFE PCTFE PCTFE PCTFE	H09015916 H09008916 H09010309 H09011809 H09008909 H09009009
2.2	Adapter fitting G 3/8"f > G 1/4" f	Reducing adapter to connect the control valve with the wall connector (1.1)	brass	H23302253
				Subject to change



NO.	ТҮРЕ	FUNCTION	MATERIAL	ARTNO.
2.4	Ma l e connector	To connect the control valve MVR 400 G or the flow meter	brass	A000105
	G 1/4"m > G 1/4"m	SVM 400 with the pressure regulator EMD 400	stainless steel	H233026151
2.6	Spanner, wrench size 36	Special LabSystem Spanner for EMD 400, ZB 400, MVE 400E and MVE 400G.	steel plated	H11006401
2.81	Flame arrestor FS 400 G $1/4$ "f > G $1/4$ " m	For the use of acetylene	stainless steel	L000110
3.1	Tube fitting for EMD 400 G 1/4" > tube	Outlet screwed connection for EMD 400.	brass 1/8" brass 6 mm brass 10 mm stainless steel 1/8" stainless steel 6 mm stainless steel 10 mm	A000121U A000123U A000125U A000120U A000122U A000124U
3.2	Hose nozzle fitting for EMD 400 G 1/4" > hose nozzle	Outlet screwed connection for EMD 400, outer diameters of hoze nozzles = inner diameters of hose.	brass 4 mm brass 6 mm brass 8 mm	H03825573 H03825673 H03825773
4.2	Hose nozzle fitting for SVR 400 W G 1/4" > hoze nozzle	Outer diameters of hoze nozzles = inner diameters of hose.	brass 4 mm brass 6 mm brass 8 mm stainless steel 4 mm stainless steel 6 mm	H03825203 H03825303 H03825403 H03825201 H03825301
4.3	Supporting tube 6 x 4 mm		stainless steel	H03804401U
5.0	Pressure gauge RM 50 inlet: G 1/4"m	Enables the use of PE- resp. PTFE-hoses in tube fittings Spring-tube gauge, rating diameter 50 mm, metallic	stainless steel brass	see accessory
5.1	Flow meter SVM 400, without adapter G 1/4" f > G 1/4" f	housing, precision class 2.5. Flow indication with fine adjustment valve 0 – 60 I /h air 0 – 120 I /h air 0 – 960 I /h air 0 – 1500 I /h air		on demand

Legend:

 $\mathbf{f} = \text{female thread}, \mathbf{m} = \text{male thread}$

G 1/4" f > G 1/4" m means: **inlet** G 1/4" female thread and **outlet** G 1/4" male thread.

AVAILABLE ACCESSORY

Large range of mounting and assembling accessory (see Accessory), especially tube fittings and hose adaptors.





POINT-OF-USE REGULATORS EMD 400/404



EMD 400-01



EMD 400-06 wall mounted,



for inert, reactive, flammable and oxidizing gases and gas mixtures, purity max. 6.0,

inlet pressure 40 bar / 600 psi,

outlet pressure range 0.1 – 10.5 bar / 1 – 150 psi

HIGHLIGHTS

- ECD-suitable
- Great variety of assembly possibilities in laboratory furniture due to the modular design of the LabSystem
- Gas type specific colour indication labels according to EN 13792
- Analysis version available

FEATURES

Standard version regulator with gauge, inlet at rear, outlet downwards. May be combined with inlet shut-off valve MVA 400, wall connector, metering valve MVR 400G and MVR 400W, flashback arrestor (FBA), different gauges and diverse accessory (see previous pages).

APPLICATION

For wall, plate, suspended and bench mounting, with great variety of combinations, covering any laboratory gas supply demand.

TECHNICAL DATA

Body material:	stainless steel 316L (1.4404) specially cleaned and electro polished or
	brass CW614 (CuZn39Pb3) specially cleaned, chrome-plated
Performance:	see chapter 5
Pressure gauge range:	0 – 2.5/6/16 bar (0 – 35/85/235 psi)
	type 404: 0 – 3 / 6 bar (0 – 45/85 psi)
Weight:	0,8 kg
Inlet - outlet:	G 3/8" f - G 1/4" f

øøøØ"



EMD 400-42 plate assembly, inlet from rear



ODDED CODE

Type EMD 400	Variation -01	Materia l BC	Inlet pressure E	Outlet pressure 1	Outlet conn.	Gas type GAS
EMD 400 = standard EMD 404 = analysis version	-01 = standard -06 = plate mounted -41 = bench version -42 = wall assembly -07 = 06 + FBA -10 = 06 + MVR -43 = 41 + MVR	BC = brass chrome- plated SS = stainless steel	0 = 40 bar/ 600 psi	EMD 400: 1 = 0.1 - 1 bar/1 - 15 psi 4 = 0.2 - 4 bar/3 - 60 psi 10 = 0.5 - 10.5 bar/7 - 150 psi EMD 404: 2,2 = 0.1 - 2.2 bar/1.5 - 32 psi 4 = 0.5 - 4 bar/7 - 60 psi 6 = 0.2 - 6 bar/3 - 87 psi	NO 1/8"	同 Bject to change without so be





MVA 400 W



MVA 400 G

For inert, reactive, flammable and oxidizing gases and gas mixtures, purity max. 6.0,

inlet pressure 40 bar / 600 psi

HIGHLIGHTS

- Very fine flow rate adjustment
- Hardened stainless steel cone for a longer life span
- Gas type specificidentification according to EN 13792
- Very easily purged

APPLICATION

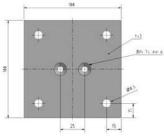
These valves can be combined in many ways with the numerous components of the lab system in particular with the pressure regulator EMD 400.

DESCRIPTION

These regulating valves are characterized by their outstanding operational reliability and extreme leak-tightness. They have very good regulating characteristics and allow for exact delivery for both very small as very large amounts of gas.

TECHNICAL DATA

Stainless steel 1.4301 specially cleaned and electro-polished or				
brass 2.0401.26 specially cleaned, nickel-plated and chrome-plated				
Hastelloy				
hardened stainless steel cone				
PCTFE				
< 1×10 ⁻⁴ mbar I /s Helium (seat)				
< 1×10 ⁻⁷ mbar I /s Helium (outboard)				
yes				
the adjustment knob has approx. 10 turns				
DN 2				
< 0.02				
-25 °C to 70 °C / -13 °F to 158 °F				
approx. 280 g				
MVR-A 400W: G1/4"m - G1/4"f				
MVR-A 400G: G1/4"f - G1/4"f				



W MVA 400 W

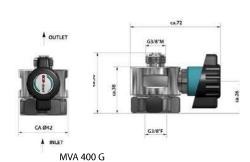
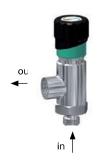


PLATE - MVA 400 W

ORDER CODE Type MVR 400 W	Materia l BC	Inlet pressure E	Inlet G38M	Outlet G38F	Gas type N2
MVR 400 W MVR 400 G	BC = brass chrome-plated SS = stainless steel	E = 40 bar / 600 psi (O ₂) E = 50 bar /725 psi	W: G38M = G3/8"m G: G3/8"f CL6 CL8 BC = brass chrome-plated SS = stainless steel	W: G38F = G3/8"f G: G3/8f CL6 CL8 BC = brass chrome-plated SS = stainless steel	Subject to change without some Subject to change without some some some some some some some some





For inert, reactive, flammable and oxidizing gases and gas mixtures Purity max. 6.0

Inlet pressure 40 bar / 600 psi or 50 bar / 725 psi

SPECIAL FEATURES

- Very fine flow rate adjustment
- Regulating function
- Diaphragm shut-off valve
- Hardened stainless steel cone for a longer life span
- Very easily purged

MVR-A 400 W

APPLICATION

These valves can be combined in many ways with the numerous components of the lab system in particular with the pressure regulator EMD 400 and EMD 3100.

DESCRIPTION

These regulating valves are characterized by their outstanding operational reliability and extreme leak $tightness. They have very good \ regulating \ characteristics \ and \ allow \ for \ exact \ delivery \ for \ both, \ very \ small \ and$ very large amounts of gas.

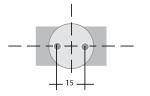
TECHNICAL DATA

Stainless steel 1.4301 specially cleaned and electro-polished or brass 2.04 specially cleaned, nickel-plated and chrome-plated			
Diaphragm:	Hastelloy		
Body seals:	Hardened stainless steel cone/brass cone for SS/BC version		
Seat seals:	PCTFE		
Leakage rate:	< 1×10 ⁻⁴ mbar l /s Helium (seat)		
	< 1×10 ⁻⁷ mbar l /s Helium (outboard)		
Vacuum capable:	Yes		
Fine metering:	Adjustment knob approx. 10 turns		
Nominal width:	DN 2		
Kv-value:	< 0.02		
Working temperature:	-25 °C to 70 °C / -13 °F to 158 °F		
Weight:	Approx. 280 g		
Inlet - Outlet:	MVR-A 400 W: G1/4"m - G1/4"f		
	MAVE A 400 C. C1/4" F C1/4" F		

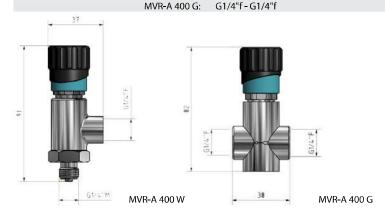


MVR-A 400 G

MOUNTING



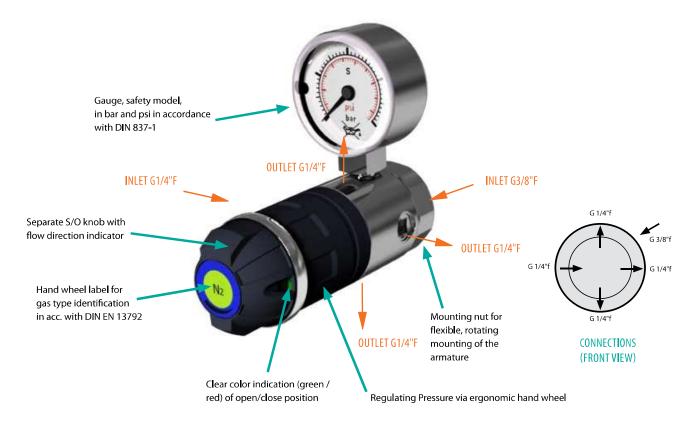
2 bore holes M6 are provided on the MVR-A 400 G for mounting.



Type MVR 400 W	Materia l BC	Inlet pressure E	Inlet G38M	Outlet G38F	Gas type
MVR 400 W MVR 400 G	BC = brass chrome-plated SS = stainless steel	E = 40 bar / 600 psi (O ₂) E = 50 bar /725 psi	W: G14 = G1/4"m G: G14F = G1/4"f CL6 CL8,CL10 BC = brass chrome-plated SS = stainless steel	W: G14F = G1/4"f G: G14F = G1/4"f CL6* CL8 BC = brass chrome-plated SS = stainless steel N04	Bubject to change withoughoti
Outlet: CL6* = tube fitting 6	mm,N06** = hose nozzle 6 mm			N06**	



LABORATORY PRESSURE REGULATOR EMD 3100



PRESSURE REGULATOR WITH SHUT-OFF FUNCTION

This highly compact version of a pressure regulator combines, in a very small space, pressure regulation and shut-off function of gas flow. This is achieved through a successful combination of the pressure regulator parts with few extra shut-off components. Thereby reducing the pressure regulator and shut-off valve, normally as separate components, to a minimum. The structural size achieves the minimum dimensions. With this construction the inlet and outlet can be attached and interchanged with the greatest flexibility. The use of perfected, core components of the Series 400, available since decades, together with a few new elements ensures the performance and high quality of this construction from the beginning.

SERIES SPECIFIC DATA*

VERSION

Single-stage pressure regulator with high performance values Inlet pressure 40 bar.

Downstream pressure range 0.2 - 10.5 bar / 7 - 150 psi, Analysis version (EMD 3104) 0.1 - 2.2 bar / 1.5 - 33 psi.

MATERIAL

Stainless steel 316L (1.4404) specially cleaned and electro-polished or brass CW614 CuZn39Pb3 nickel-plated and chrome-plated.

SEAL MATERIAL

Seat: FKM and FFKM with stainless steel, FKM and EPDM with brass.

Seals: PCTFE with stainless steel and PVDF with brass in dependent upon gas used. Material is specified in each case in the "Technical Data".

INNER PARTS

Low-mainenance, easy to service, pressure regulating unit, with particle-filter in stainless steel and 50 μ m mesh at inlet G3/8"f and 100 μ m at inlet G1/4"f.

MODULAR SYSTEM FOR MAXIMUM FLEXIBILITY OF CONFIGURATION AND SCOPE OF APPLICATION

The basic version is available in the form of flush or surface wall mounting, bench mounted or hanging version. The use of system components allows for countless variations. The combination possibilities with the configurations of inlets and outlets can be tailored to the customers wishes: with regulating valve in elbow and straight versions (DN5), with additional inlet shut-off valve (in elbow or straight form), with flow meter or with diverse wall adaptors.

In this modular form this point-of-use system is particularly compatible and suitable for all lab applications and lab furnishings.

DIAPHRAGM

Increased safety against burst and corrosion defects with the Hastelloy diaphragm.

GUARANTEED LEAKAGE RATES

< 1×10 -9 mbar I/s Helium (outboard),

< 1×10⁻⁶ mbar I/s Helium (seat)

PURITY

Purity and leakage rates comply with the requirements for applications with high gas purity ≤ 6.0 .

WORKING TEMPERATURE

-25 °C to +70 °C / -13 to 160 °F.

INLET / OUTLET CONNECTIONS

Inlet G 3/8"f, outlet G 1/4"f adaptors and compression fittings for met ਸ਼ੁੱਟ or imperial tubes available on request.

*Differing data of the individual products are listed under "Technical Data".



LABORATORY PRESSURE REGULATORS EMD 3100 - SURFACE MOUNTED



Wall mounted rear inlet straight (Version W)



Plate mounted inlet, from top (Version P)





Bench mounted bottom inlet (Version T)

top inlet

Single-stage, for inert, reactive, flammable and oxidizing gases and gas mixtures, purity max. 6.0. EMD 3100: Inlet pressure 40 bar, downstream pressure 0.1-10 bar EMD 3104 (analytic version): Inlet pressure 12 bar, downstream pressure 0.1-4.4 bar

SPECIAL FEATURES

- Pressure regulator with integrated shut-off function
- Coloured identification of shut-off positions
- Highly compact form
- ECD-compliant
- Ergonomic positioning of the operational elements
- User-friendly system solutions for laboratory applications
- Adjustment knob with gas type identification according to DIN EN 13792
- Analytic version optionally available

DESCRIPTION

The basic version of this pressure regulator with gauge includes an integrated quick- closing function. The gas type is indicated on the front side of the pressure regulator with the appropriate decal. The wall mounting use a wall adapter or a wall mounting plate; the gas supply is brought in through the wall. Further installation versions (on mounting plates) allow for the gas supply to come from the top or the bottom. The bench mounting or the wallmounted version is simply and flexibly accomplished with the help of the same adaptor. Numerous other variations are possible.

APPLICATION

This highly compact, space saving designed laboratory point-of-use regulator is suitable for surface wall mounting, for installation on tables or a wallmounted version as well as the installation in diverse supply channels. The systems versatile configuration options cover all the customary lab applications and fit to all laboratory furnishings. An analytic version (LAB 3104) is specially designed for low pressure applications in the automotive industry and offers extremely fine adjustment possibilities for pressure and flow rate.

TECHNICAL DATA

Body:	Stainless steel 316L (1.4404) specially cleaned and electro-polished or brass
	CW614 (CuZn39Pb3) specially cleaned, nickel-plated and chrome-plated
Gauge:	Safety gauge according to EN 837-1
	Nominal width 50 mm, class of accuracy 2.5
Pressure gauge range:	0 – 2.5 / 6 / 16 bar, 0 – 3 / 6 bar (Type 3104)
Dimensions (w×h×d):	Approx. 50×100×108 mm
Weight:	Approx. 0.64 kg (Basic body)
Inlet - Outlet:	G 3/8"f or G 1/4"f, G 1/4"m (depending on version)
	NPT1/4"f (available for version with rear wall adapter)
Temperature range:	-25 °C to +70 °C / -13 to 160 °F



Basic body (VERSION O)

-	N	n	n	F	η.	-	Λ	n	г
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ORDER CODE Type EMD 3100	Periphery -01	Material BC	Upstream pressure E	Downstream pressure	Surface mounted versions	Inlet CL6	Outlet	Gas type GAS
EMD 3100	-01= Pressure regulator	BC= Brass	E= 40 bar	1.5= 0.2 – 1.5 bar	0= Basic modu l e	G1/4	G1/4	Please
= Standard	(MD)	SS=Stainless	D=12 bar	4= 0.2 – 4 bar	P= Plate Mounting	= w/o*	=w/o*	specify
EMD 3104	-06= MD + Pre-shut-off	steel	(on l y for	10= 0.5 – 10.5 bar	W= Wall Mounting	CL6**	CL6**	tice
= Analysis	valve		EMD 3104)	EMD 3104:	T= Bench mount	CL8**	CL8**	it no
version	-07= MD +LP-flame		A= 1.5 bar ***	2.2 = 0.1 - 2.2 bar	standard	CL10**	CL10**	thou
	arrestor			4 = 0.5 - 4 bar	TA= Bench mount 30° angle			e Wi
	-08= MD +LP-MVAR				H= Hanging version standar	d		nang
	-10= MD + Pre-shut-off				HW= Hanging version wall			ب به ط
	valve + LP-MVAR				adapter			ject
*G1/4"F. G3/8"F or	NPT1/4"F (depending on version).							Sub

^{**} CL = compression fitting for tube; standard: 6 mm. Other compression fittings for imperal or metric tubes available on request. *** Type A is available for Acetylene only.

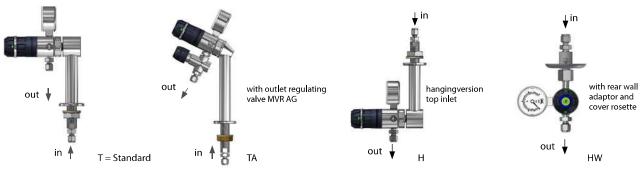


LABORATORY PRESS REGULATORS EMD 3100 - VARIATIONS

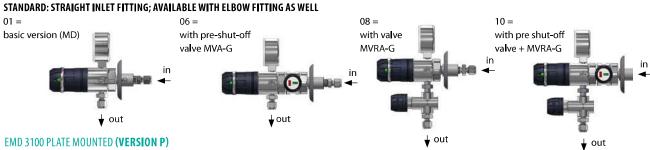
COMBINABLE WITH EMD 3100 - SHUT-OFF VALVES AND REGULATING VALVES WITH SHUT-OFF FUNCTION

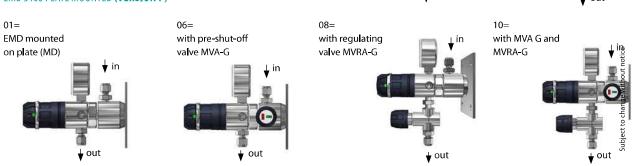


EMD 3100 AS BENCH MOUNT (VERSION T) AND HANGING VERSION (VERSION H)



EMD 3100 WALL MOUNTED WITH REAR WALL ADAPTOR (VERSION W)

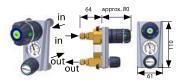






P1=22 bar; P2=10.5 bar P1=40 bar; P2=10.5 bar P1=9 bar; P2=4 bar P1=40 bar; P2=4 bar P1=4 bar; P2=1.5 bar P1=20 bar; P2=1.5 bar

FUMEHOOD PRESSURE REGULATOR EMD 3100 - BUILT-IN VERSIONS D AND Z

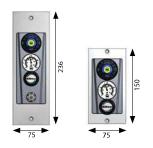


Wall mounted with cover plate inlet and outlet from behind

(Version D)

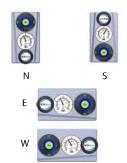
Wall mounted with cover plate, inlet behind outlet in front

(Version Z)



(Version ZP) (Version DP)

EMD 3100 BUILT - IN VERSION ADJUSTMENT KNOB ORIENTATION



Single-stage, for inert, reactive, flammable and oxidizing gases and gas mixtures, purity max. 6.0. EMD 3100: Inlet pressure 40 bar, downstream pressure 0.1-10 bar EMD 3104 (analytic version): Inlet pressure 12 bar, downstream pressure 0.1-4.4 bar

SPECIAL FEATURES

- Pressure regulator with integrated shut-off function
- Coloured identification of shut-off positions
- Highly compact form
- ECD-compliant
- Ergonomic positioning of the operational elements
- User-friendly system solutions for laboratory applications components
- Adjustment knob with gastype identification according to DIN EN 13792
- Analytic version optionally available
- Easy to install

DESCRIPTION

The built-in version is made of a single body mounted on a metal plate. It includes an integrated quick-closing function (shut-off), a regulating valve and a gauge that are all covered by a panel. Four different mounting orientation variants are available (gauge position rotated by 90° for better readability). With the most compact "Version D" the gas is supplied (inlet and outlet) from behind the cover plate. Version Z allows for Gas supply from behind as well, while the outlet is at the front and integrated in the cover panel.

APPLICATION

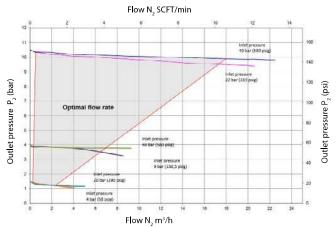
This highly compact, space saving built-in version of the EMD3100 point-of-use regulator is designed to fit into walls, gas channels, fume hoods and all laboratory furniture systems. The analytic version (LAB 3104) is specially designed for low pressure applications in the automotive industry and offers extremely fine adjustment possibilities for pressure and flow rate.

TECHNICAL DATA

BASICS: PAGE 3 - DIVERGENT DATA:

Pressure gauge range:	0 – 2.5 / 6 / 16 bar, 0 – 3 / 6 bar (Type 3104)
Dimensions ($w \times h \times d$):	Version Z (D): 61×149 (110)× max. 164 (144) mm
	Version ZP (DP): 75×236 (150)× max 164 (variable) mm
Weight:	Version D(Z): 1.3 kg (1.4 kg)
	Version DP(ZP): 1.4 kg (1.5 kg)
Inlet - Outlet:	G 1/4"f

LAB SYSTEM 3100 - FLOW CHARTS FOR P2 = 1.5 BAR, 4.0 BAR AND 10.5 BAR



ORDER CODE Type EMD 3100	Periphery -01	Materia l BC	Upstream pressure E	Downstream pressure	Built-in versions D	Mounting orientation N	P	Inlet CL6	Outlet CL6	Gas type ਤੂੰ GAS
EMD 3100 = Standard EMD 3104 = Analysis version	-01= Pressure regulator (MD) -08= MD +MVAR	BC= Brass SS= Stainless steel	E= 40 bar D= 12 bar (only for EMD 3104) A= 1.5 bar**	4= 0.2 – 4 bar 10= 0.5 – 10.5 bar	D= Inlet and outlet from behind Z= Inlet from behind, outlet front	N= North E= East S= South W= West	./. = w/o P=Additional mounting plate	0=G1/4"f CL6* CL8* CL10*	0=G1/4"f CL6* CL8* CL10*	Please specify devinen ordering

^{*} CL = compression fitting for tube 6 mm - standard. Other compression fittings for imperal or metric tubes available on request. ** Type A is available for Acetylene only.