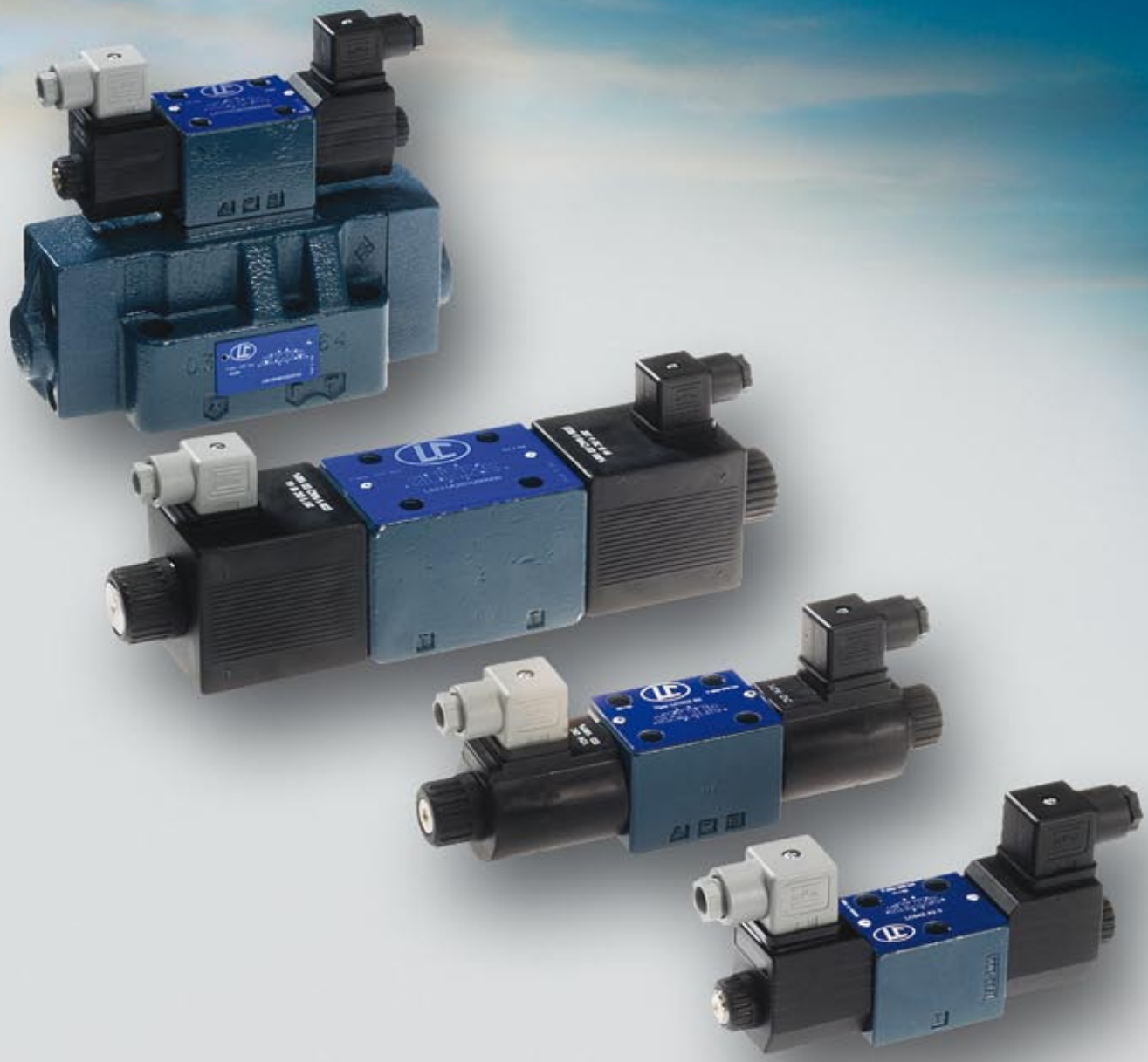

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I - E

oleodinamica

ELETTROVALVOLE CETOP
SOLENOID CETOP VALVES

CONDIZIONI DI FORNITURA E GARANZIA

CONDIZIONI DI FORNITURA
Oleodinamica LC s.r.l., con Stabilimento ed Uffici situati in:
via Artigianale Sedrio, 12 - 12A - 42030 Vezzano sul Crostolo (REGGIO EMILIA) Italia,
distribuisce le proprie valvole attraverso la propria Rete Commerciale in conformità con le condizioni generali di fornitura (contratto) che sono riportate nella modulistica specifica (offerte, conferme d'ordine, fatture) e a tali condizioni farà riferimento per quanto qui non indicato.

ORDINI
Gli ordini devono pervenire in forma scritta e devono riportare le seguenti indicazioni:
a) data e luogo di emissione dell'ordine;
b) esatta denominazione della società acquirente con indirizzo completo;
c) sottoscrizione di un suo legale rappresentante con indicazione della relativa qualifica;
d) numero offerta società fornitrice (se esistente);
e) codice di ordinazione completo, con eventuale descrizione della merce ordinata;
f) numero di pezzi;
g) termine indicativo di consegna (eventuale);
h) vettore (eventuale);
L'ordine e da ritenersi valido alle condizioni generali di fornitura LC.
I termini di consegna indicati, o eventualmente scambiati, saranno da ritenersi essenziali solo in caso di specifico accordo sottoscritto dalle parti, fornitore ed acquirente.

GARANZIA
La garanzia LC ha durata di un anno a partire dalla data di fornitura del materiale.
Qualora l'acquirente ritenga che uno o piu prodotti siano viziati per cause imputabili a LC, l'acquirente si impegna a contestare immediatamente a LC la presenza dei pretesi vizi, mediante l'invio di una relazione tecnica dettagliata, affinché LC possa constatare, attraverso un tecnico di propria fiducia, se i vizi denunciati sussistano effettivamente.
Nell'ipotesi che il tecnico di fiducia LC abbia constatato la presenza di difetti imputabili ad Oleodinamica LC s.r.l., quest'ultima si impegna a riparare o a sostituire la valvola entro un congruo termine. Da parte sua l'acquirente si impegna a non chiedere la risoluzione del contratto se non decorso il congruo termine senza che la valvola sia stata riparata o sostituita.
Ogni restituzione in garanzia di valvole ritenute difettose dovrà essere preventivamente autorizzata per iscritto da Oleodinamica LC s.r.l. e dovrà essere effettuata franco destino, allegando una dettagliata descrizione delle anomalie riscontrate e delle condizioni di impiego.
La garanzia non si applica alle valvole che siano state contaminate, impiegate erroneamente o manomesse senza controllo o autorizzazione di LC Oleodinamica, così come la garanzia non si applica qualora siano state apportate modifiche a circuiti o a impianti tali da influenzare negativamente il funzionamento della valvola stessa.
Qualora la valvola fornita debba essere assemblata in impianti potenzialmente in grado di cagionare danni a terzi di importo di gran lunga superiore al prezzo della valvola stessa, l'acquirente si impegna ad adottare tutti i mezzi di sicurezza possibili per evitare qualsiasi danno, essendo consapevole che la produzione in serie a prezzi di mercato del prodotto stesso comporta il rischio, pur limitato, della presenza di pezzi difettosi.

PRESCRIZIONI D'USO
E' fatto divieto all'acquirente di adibire le valvole a usi diversi da quelli descritti nei disegni tecnici o nei cataloghi Oleodinamica LC s.r.l..
Qualora l'acquirente intenda adibire le valvole fornite ad usi diversi ha l'obbligo di chiedere preventivamente specifica autorizzazione a Oleodinamica LC s.r.l..
Le valvole LC sono sottoposte a collaudi funzionali conformemente alle specifiche riportate nella relativa documentazione tecnica. Poiché le effettive e dettagliate condizioni di funzionamento dell'apparecchiatura dell'acquirente possono non essere integralmente riproducibili nei laboratori di prova LC, la completa idoneità all'uso è responsabilità dell'acquirente stesso.
Generalmente egli validerà il prodotto attraverso la costruzione di uno o più prototipi da sottoporre ad un completo ciclo di prove funzionali.

DICHIARAZIONE
Le valvole e i gruppi integrati descritti nel presente catalogo sono destinati ad essere incorporati in macchine a cui si applica la Direttiva CEE 98/37/CE (Direttiva Macchine) e successivi emendamenti. E' fatto divieto di mettere in funzione le valvole o i blocchi integrati prima che la macchina in cui sono incorporati sia dichiarata conforme alle disposizioni della direttiva citata.

GIURISDIZIONE
In caso di contestazione in cui Oleodinamica LC s.r.l. sia convenuta, è esclusivamente competente il foro di Reggio Emilia.

N.B.
- Il presente catalogo annulla e sostituisce i precedenti.
- Oleodinamica LC s.r.l. si riserva il diritto di cessare la produzione o di variare le specifiche o i disegni di qualsiasi modello di valvola senza preavviso e senza incorrere in obblighi.
- Tutti i diritti sono riservati. E' fatto espresso divieto di qualunque riproduzione parziale o totale del presente catalogo.

DATI TECNICI D'USO

COLLAUDO FUNZIONALE
Tutte le curve di funzionamento riportate a catalogo sono state rilevate utilizzando olio minerale con grado di viscosità ISO-VG32 alla temperatura di 40°C.. Tutte le valvole vengono collaudate a queste condizioni su banchi prova che assicurano un grado di filtrazione assoluta di 15 micron (NAS 9).

VALORI LIMITE DI TEMPERATURA
Temperatura ambiente da –20°C a +50°C
Temperatura olio da –20°C a +80°C

A**TTACCHI DELLE VALVOLE CON COLLETTORE**
Gli attacchi filettati sono normalmente del tipo "G", gas cilindrico (BSPP) nelle dimensioni da G ¼" a G 1".
Sono disponibili altri tipi di attacchi filettati.

GUARNIZIONI
O-RING: Acrilo – Nitrite Butadiene NBR (BUNA-N) standard per temperature comprese tra –20°C e +100°C. A richiesta sono disponibili in FLUOROCARBONIO FPM (Viton) ed in altre mescole.
ANELLI ANTIESTRUSIONE: LUBRIFLON – PTFE – PBK.

CONSERVAZIONE A MAGAZZINO DELLE VALVOLE NUOVE
Le valvole vanno conservate protette nel loro involucro termoretraibile, in luogo asciutto, lontane dall'irraggiamento solare o da sorgenti di calore e di ozono (evitare la vicinanza con motori elettrici funzionanti) in un ambiente con temperatura tra –20°C e +50°C.

INSTALLAZIONE DELLE VALVOLE
Si raccomanda di seguire scrupolosamente la seguente procedura:
· Assicurarsi che la base di fissaggio non sia sporca o in cattive condizioni (vd. Catalogo)
· Assicurarsi che gli O-ring siano integri e correttamente montati
· Non serrare viti o raccordi con momento di serraggio superiore al valore massimo indicato sul catalogo

TENSIONE DI ALIMENTAZIONE
Per ottenere un corretto funzionamento ed una lunga durata di esercizio delle bobine è necessario che le variazioni della tensione di alimentazione non siano superiori al +5% -10% della tensione nominale.

INTERMITTENZA DI FUNZIONAMENTO DIN VDE 0580
L'intermittenza di funzionamento ED di un elettromagnete è il valore percentuale del tempo di inserzione $\mathbf{t_i}$ rispetto al tempo completo di funzionamento $\mathbf{t_c}$, dove $\mathbf{t_c}=\mathbf{t_i}+\mathbf{t_r}$ con $\mathbf{t_r}$ = tempo di riposo.
$ED = (\mathbf{t_i} / \mathbf{t_c}) \cdot 100\ \%$
Tutte le bobine funzionano con ED=100% purchè non venga superato il valore limite di temperatura per la loro classe di isolamento.

PROTEZIONE EN 60529
Sono disponibili bobine con protezione IP65/IP69K.

FLUIDO IDRAULICO
Si raccomanda l'impiego di OLI A BASE MINERALE con caratteristiche fisico-chimiche idonee all'utilizzo in apparati oleodinamici.
OLI A BASE MINERALE tipo HL (DIN 51524 parte 1)
OLI A BASE MINERALE tipo HLP (DIN 51524 parte 2)
Si prega di consultare LC Oleodinamica prima dell'eventuale utilizzo di fluidi "ecologici" (generalmente a base vegetale o poliglycolica).
Classe di viscosità: secondo gli standard ISO DIN, viene espressa con il n. ISO-VG, che indica la viscosità media a 40°C (mm^2/s o centiStokes – cSt-).
- Vd. Tab. A -

CONTAMINAZIONE – FILTRAZIONE
CONSIDERAZIONI GENERALI: i maggiori costruttori ed utilizzatori di componenti e sistemi oleodinamici riconoscono che la eccessiva contaminazione del fluido è la principale causa di guasti e disfunzioni negli impianti oleodinamici. Le particelle abrasive che circolano nel fluido provocano l'erosione delle parti in movimento, che porta all'usura dei componenti e al conseguente malfunzionameno dell'impianto.
Si raccomanda di mantenere il livello di contaminazione per lo meno ai valori nominali indicati in tabella, adottando i sistemi di filtrazione più idonei allo scopo.

RAPPORTO DI FILTRAZIONE BETAx: è il rapporto tra il numero di particelle all'ingresso e all'uscita del filtro che hanno diametro maggiore di x micron.

GRADO DI FILTRAZIONE ASSOLUTA ISO 4572: è il diametro x della particella più grande, con BETAx≥75.

CLASSE DI CONTAMINAZIONE ISO 4406: è espressa da 3 numeri che indicano rispettivamente: il numero di particelle di diametro maggiore o pari a 4 micron (c); il numero di particelle di diametro maggiore o pari a 6 micron(c); il numero di particelle di diametro maggiore o pari a 14 micron(c), contenute in 1 ml di fluido.

CLASSE DI CONTAMINAZIONE NAS 1638: è espressa da un numero che indica il numero di particelle contenute in 100 ml di fluido suddivise per classi dimensionali.
- Vd. Tab. B -

SALES, DELIVERY AND WARRANTY TERMS

SALES AND DELIVERY TERMS

Oleodinamica LC s.r.l., with factory and offices situated at:
via Artigianale Sedrio, 12 - 12A - 42030 Vezzano sul Crostolo (REGGIO EMILIA) Italia,
distributes its valves throught its sales network in compliance with the delivery terms (contract) shown in the specific documents (offers, order, confirmations, invoices), and those conditions shall be applicable for all what not specified here.

ORDERS

All orders shall be in written form and shall show the
following information:
a) date and place where the order is issued;
b) full name and address of the purchasing company;
c) signature of a legal representative, with indication of his/her qualification;
d) reference of the suppliers offer (when applicable);
e) complete ordering code and eventual description of the valves ordered;
f) number of pieces;
g) delivery time requested (eventual)
h) carrier (eventual).
The order will be considered valid at the LC Oleodinamica delivery terms.
The delivery terms requested or shown, and eventually notified in writing, can be considered essential only in case of specific signed agreement between both parties, supplier and buyer.

WARRANTY

The LC limited warranty lasts for a period of 12 months starting from the delivery date of the valve.
If the buyer deems that one or more products are faulty due to improper manufacturing, he undertakes to notify immediately the presence of these faults to the supplier, by means of detailed written report, so that LC may verify, through an expert of its own trust, whether the complained faults are really present.
Once the LC expert has verified that the notified faults are effectively present and that they are due to manufacturing defects, Oleodinamica LC s.r.l. undertakes to repair or to replace the valve within an adeguate term and the buyer undertakes not to ask for contract cancellation before the adeguate term to repair or replace the valve has expired.
Written permission for warranty returns must be obtained from Oleodinamica LC s.r.l. prior to shipment. All warranty returns shall be shipped freight pre-paid and shall include a detailed description of the malfunction and of the working conditions. The warranty does not cover products which have been contaminated, used improperly or tampered without control and approval of Oleodinamica LC s.r.l.. Similarly the warranty is not valid if changes are made to the circuits or systems which could negatively affect the valve function. If the valve supplied must be assembled in systems which could cause damages to third parties exceeding by for the price of the valve, the buyer undertakes to adapt all safety measures in order to avoid any damage, since he recognizes that mass production of the valves at market prices entails the risk, even if limited, that occasional faulty valves may result.

USER'S INTRUCTIONS

The buyer shall not use the vave for purposes different from what pointed out in the relevant drawings or in the Oleodinamica LC s.r.l. catalogues. If the buyer wants to use the valves for other purposes he shall ask specific approval from Oleodinamica LC s.r.l..
All LC valves are tested and checked in compliance with the specifications shown by the relevant documents. Since the actual detailed performance of the buyer's equipment cannot be totally reproduced in LC's testing laboratory, the full assurance of suitability of LC valves in the buyer's applications is the responsibility of the buyer.
Generally the buyer will validate the valve in his own application by manufacturing a prototype to be submitted to a full testing program.

STATEMENT

The valves and the multifunction integrated blocks described in this catalogue can be employed in systems or machines falling into the specifications of EEC Directive 89/37/CE (Machine Directive) and later amendments. The valves and the blocks shall not be operated before the complete machine is verified to be in compliance with the requirements of the above mentioned Directive.

JURISDICTION

In case of a dispute where OOleodinamica LC s.r.l. is summoned before court, the Court of law in Reggio Emilia (Italy) is exclusively competent: drafts, acceptance of settlement, dispatches without or with C.O.D. do not constitute a derogation from this clause of jurisdiction even in case Oleodinamica LC s.r.l. should be pursued for concession or continence of cause. When Oleodinamica LC s.r.l. is the plantiff, it will be able to recur both to the Court of Law in Reggio Emilia and to that where the other party resides.

Notes

- *The present catalogue cancels and supersedes all the previous issues.*
- *Oleodinamica LC s.r.l. reserves the right to stop production or to change specifications and dimensions of any valve without prior notice and without incurring in any obbligation.*
- *All rights are reserved. It is specifically forbidden to reproduce partially or totally the present catalogue.*

TECHNICAL DATA

FUNCTIONAL TESTING

All performance curves in this catalogue are obtained using mineral based hydraulic oil with 32 cSt viscosity at 40°C (ISO VG 32 viscosity class). All valves go through functional testing at these conditions before shipment.
Our test stands ensure 15 micron Absolute Filtration (NAS 9).

TEMPERATURE RANGES

Ambient Temperature from –20°C to +50°C
Oil Temperature from –20°C to +80°C

PORTS

G sizes (BSPP) from G 1/4" to G 1" are standard; other threads can be manufactured upon request.

SEALS

O-RINGS: Acryl – Nitrile Butadiene Rubber NBR (BUNA-N) standard for temperature between –20°C and +100°C. Fluorocarbo FPM (Viton) and other compounds are available on request.
BACKUP RINGS: Lubriflon – PTFE – PBK.

STOCKING OF NEW VALVES

encapsulated by a protective wrapping, the valves shall not be exposed to direct sun light nor to source of heat or ozone (like electric motors running) and kept in a dry place at a temperature between –20°C and +50°C.

VALVES INSTALLATION

It is recommended to follow these steps:
- *inspect the sub-plate to ensure that it is in good conditions and no external contaminant is present.*
- *Check that O-Rings are intact and correctly positioned.*
- *Don't tighten screws or connectors more than the maximum torque specified in the catalogue.*

INLET VOLTAGE

To obtain correct operation and long life of coils it is necessary that the operating voltage fluctuations do not exceed +5% -10% of nominal voltage.

WORKING DUTY

The working duty ED of a coil is the ratio between energized time t_i *and full cycle time* t_c *where* $t_c = t_i + t_r$ *and* t_r *= de-energized time.*
ED = $(t_i/t_c) \cdot 100$ *%*
All coils are rated for ED = 100 % provided that temperature limit of their insulation class is not exceeded.

PROTECTION EN 60529

On request coils with IP65/IP69K protection.

HYDRAULIC FLUID

It must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:
MINERAL OIL FLUIDS HL (DIN 51524 part1)
MINERAL OIL FLUIDS HLP (DIN 51524 part2)
For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult LC Oleodinamica.
Viscosity class: with ISO-DIN, the viscosity class is expressed by ISO-VG (no.); the no. Indicates the average kinematic viscosity at 40°C in mm^2/s *or centiStoks (cSt).*
- See Tab. A -

CONTAMINATION – FILTRATION

GENERAL INFORMATION: Manufacturers and users of hydraulic equipment admit that contamination is the most likely cause of malfunction or failure in hydraulic systems and reduces security and reliability of components and systems. Metal particles flowing throughout the circuit scratch moving surfaces so that contamination level, if not controlled, increases very rapidly.
It is strongly recomended to mantain contamination level at least at nominal values shown below, choosing adequate filtration products.

FILTRATION RATIO BETAx: It's the ratio between the number of particles before and after the filter with diameter larger than X micron.

ABSOLUTE FILTRATION RATIO ISO 4572: It's the diameter X of the largest particle with BETAx≥ 75.

CONTAMINATION CLASS ISO 4406: it's expressed by 3 scale numbers representing respectively: the number of particles equal to or larger than 4 micron (c); the number of particles equal to or larger than 6 micron (c); the number of particles equal to or larger than 14 micron(c), contained in 1 ml of fluid.

CONTAMINATION CLASS NAS 1638: It's expressed by one scale numbers representing the number of particles of different size ranges contained in 100 ml of fluid.
- See Tab. B -

TABELLE VISCOSITA' E CONTAMINAZIONE

VISCOSITY CLASS AND FILTRATION DATA

- Tabella A

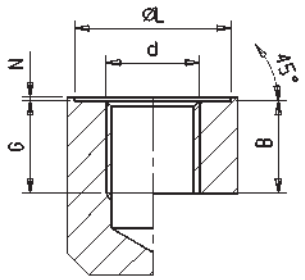
- **Calsse di viscosità** *Viscosity class*	**Viscosità cinematica** *Kinematic viscosity*		
	MASSIMA A 0°C MAXIMUM AT 0°C	**MEDIA A 40°C MEDIUM AT 40°C**	**MINIMA A 100°C MINIMUM AT 100°C**
ISO VG 10	90	10	2.4
ISO VG 22	300	22	4.1
ISO VG 32	420	32	5.0
ISO VG 46	780	46	6.1
ISO VG 68	1400	68	7.8
ISO VG 100	2560	100	9.9

- Tabella B

- **TIPO DI IMPIANTO TIPO DI VALVOLA** *TYPE OF SYSTEM TYPE OF VALVE*	**SPECIFICHE L.C. SUL GRADO DI CONTAMINAZIONE DELL'OLIO** *L.C. FILTRATION RECCOMENDATIONS*			
	CAPACITA' DI FILTRAZIONE NOMINALE *NOMINAL FILTRATION* **(micron)**	**FILTRAZIONE ASSOLUTA SECONDO ISO 4572** *ABSOLUTE FILTRATION RATING ISO 4572* **(BETA$_x$ ≥ 75)**	**CLASSE DI CONTAMINAZIONE SECONDO:** *CONTAMINATION CLASS ACCORDING TO:*	
			ISO 4406	**NAS 1638**
Apparati o componenti funzionanti ad ALTA PRESSIONE >250 bar APPLICAZIONI GRAVOSE Valvole e componenti poco tolleranti alla contaminazione dell'olio. ***System/components operating at HIGH PRESSURE >250 bar HIGH DUTY CYCLE APPLICATIONS Systems/components with LOW dirt tolerance***	10	X = 10...12	19 / 17 / 14	8
Apparati o componenti funzionanti a MEDIA PRESSIONE APPLICAZIONI GRAVOSE Valvole e componenti mediamente tolleranti alla contaminazione dell'olio. ***System/components operating at MEDIUM HIGH PRESSURE HIGH DUTY CYCLE APPLICATIONS Systems/components with moderately dirt tolerance***	15	X = 12... 15	20 / 18 / 15	9
Apparati o componenti funzionanti a BASSA PRESSIONE <100 bar APPLICAZIONI POCO GRAVOSE Valvole e componenti ben tolleranti alla contaminazione dell'olio. ***System/components operating at LOW PRESSURE <100 bar LOW DUTY CYCLE APPLICATIONS Systems/components with GOOD dirt tolerance***	25	X = 15... 25	21 / 19 / 16	10

SPECIFICHE DEGLI ATTACCHI - *PORT DETAILS*

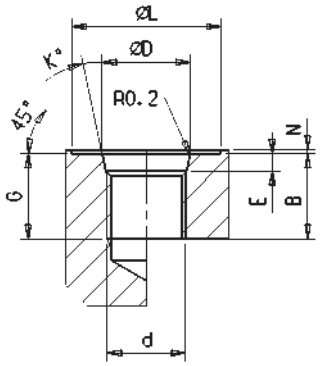
ATTACCHI - *PORTS*



DIN 3852/2

Filettature *Thtreads* UNI-ISO 228 d	G - B	Ø - L*	N max
G 1/4	13	19	1
G 3/8	13	25	1
G 1/2	15	29	1,5
G 3/4	17	36	1,5
G 1"	19	45	2
-	-	-	-

*** Non conforme alla norma DIN 3852/2** - *Different from DIN 3582/2 standard*



ISO 11926-1 / SAE J514

Filettature *Thtreads* ASA-B1-1 d		G - B	Ø - L	Ø - D	E	K	N max
7/16-20 UNF-2B	SAE 4	12	19	12,5	2,4	12°	1
9/16-18 UNF-2B	SAE 6	13	26	15,6	2,5	12°	1
3/4-16 UNF-2B	SAE 8	15	30	20,6	2,6	15°	1,5
7/8-14 UNF-2B	SAE 10	17	34	23,9	2,6	15°	1,5
1 1/16-12 UN-2B	SAE 12	20	41	29,2	3,3	15°	1,5
1 5/16-12 UN-2B	SAE 16	20	50	35,5	3,3	15°	2
-	-	-	-	-	-	-	-

UNI-ISO 6149-1

Filettature *Thtreads* ISO 261 d	G - B	Ø - L	Ø - D	E	K	N max
M18x1,5	15,5	29	19,8	2,4	15°	1,5

JIS B 2351

Filettature *Thtreads* UNI-ISO 228 d	G - B	Ø - L	Ø - D	E	K	N max
G 1/4	13	24	15,6	2,5	15°	1

CAPITOLO 1 - LC02 - LC04

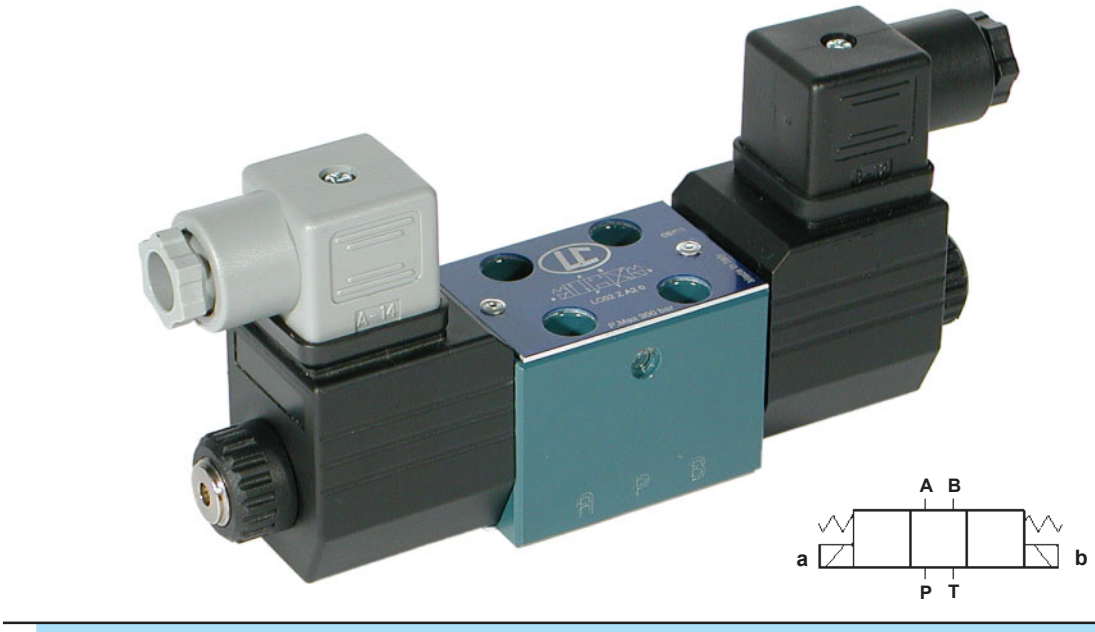
Grandezza / *size* LC02: NG4 ISO 4401-02 CETOP RP121 H-4.2-4 R02
Grandezza / *size* LC04: NG4 CETOP RP121 H-4.2-4 P02

LC02 Z	**Elettrovalvole dirette controllo direzione** *Solenoid operated directional valves*	1.05.
LC04 Z	**Elettrovalvole dirette controllo direzione** *Solenoid operated directional valves*	1.10.
LC04MC Z LC04MCT Z	**Elettrovalvole modulari dirette controllo direzione** *Solenoid operated modular directional valves*	1.20.
LC04 AD	**Elettrovalvole dirette controllo direzione antideflagranti** *Solenoid operated directional valves with explosion proof coils*	1.25.
LC04 OP	**Valvole controllo direzione a comando oleodinamico o pneumatico** *Oil/air operated directional valves*	1.30.
LC04 LV	**Valvole controllo direzione con comando a leva** *Lever operated directional valves*	1.40.
LC04M VR	**Valvole modulari di ritegno semplici e pilotate** *Modular direct and pilot operated check valves*	1.50.
LC04M VM	**Valvole modulari limitatrici di pressione** *Modular pressure relief valves*	1.60.
LC04M VF	**Valvole modulari di controllo portata** *Modular flow regulator valves*	1.70.
LC04M VFCU	**Valvole modulari compensate di controllo portata** *Modular pressure compensated flow regulator valves*	1.80.
LC04M VRPM	**Valvole modulari riduttrici di pressione** *Modular pressure reducing valves*	1.90.
LC04M VSPM	**Valvole modulari di sequenza** *Modular sequence valves*	1.100.
LC04 VFCU	**Valvole compensate di controllo portata** *Pressure compensated flow regulator valves*	1.110.
LC04M RL	**Valvole modulari compensate rapido - lento** *Modular compensated valves quick - slow*	1.120.
PA 02	**Piastre per elettrovalvole LC04 (alluminio)** *Plates for solenoid valves LC04 (alluminium)*	1.130.

LC02 Z

Elettrovalvole dirette controllo direzione

Solenoid operated directional valves



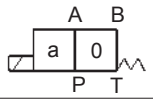
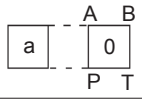
CARATTERISTICHE TECNICHE
Grandezza: NG4 ISO4401-02 CETOP RP 121 H- 4.2- 4 - R02 (CETOP 2)

Portata massima: 25 l/min
Pressione massima d'esercizio su A-B-P: 310 bar
Pressione massima in T: dinamica = 180 bar - statica = 210 bar

TECHNICAL CHARACTERISTICS
Size: NG4 ISO4401-02 CETOP RP 121 H- 4.2- 4 - R02 (CETOP 2)

Max flow: 25 l/min
Max operating pressure on A-B-P: 310 bar
Max pressure in T: dynamic=180 bar - static=210 bar

TIPI DI CIRCUITI • *SPOOL TYPES*

Nuovo codice *New code*	Vecchia sigla *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*
			
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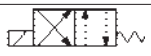
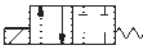
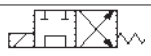
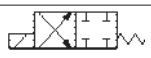
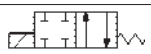
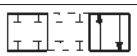
Y301	A11C		
A301	A11S		
A361	A14S		
B301	B11C		
B361	B14C		
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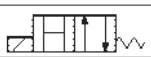
C361	C14A		
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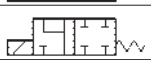
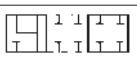
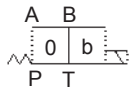
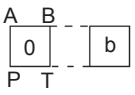
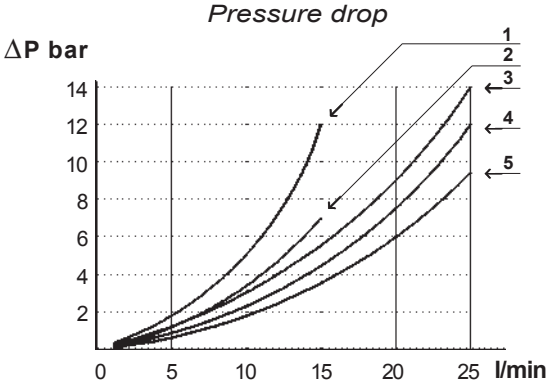
D361	D14C		
E301	E11C		
E361	E14C		
K301	K11C		
N301	N11C		
T301	T11C		
			
X401	A12A		
Y401	A12C		
A401	A12S		
A471	A13S		
B471	B12C		
B401	B13C		
C471	C12A		
C401	C13A		
D471	D12C		
D401	D13C		
E401	E12C		
E471	E13C		
K401	K12C		
N401	N12C		
T409	T12C		

Nuovo codice *New code*	Vecchia sigla *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*
A201	A2		
B201	B2		
C201	C2		
D201	D2		
E201	E2		
G201	G2		
G209	H2		
K201	K2		
K209	R2		
L201	M2A		
M201	M2C		
N201	N2		
L501	M2A/D		
M501	M2C/D		
N501	N2/D		

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*				
	P>T	P>A	P>B	A>T	B>T
A2 - A11S - A12S - A13S - A14S	2	1	1	1	1
B2 - B11C - B12C - B13C - B14C G2 - H2 - K2 - R2 - K11C - K12C		4	4	5	5
C2 - C11A - C12A - C13A - C14A	4	4	4	5	5
D2 - D11C - D12C - D13C - D14C		4	4	5	5
E2 - E11C - E12C - E13C - E14C T11C - T12C		4	4	5	5
A11A - A12A		4	4	5	5
A11C - A12C - M2C - M2A - N2		3	3	4	4
N11C - N12C		4	4		

Cadute di pressione
Pressure drop



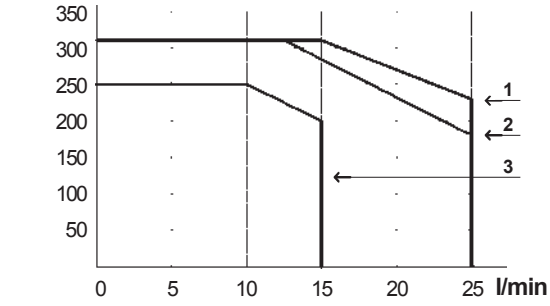
Tempi di commutazione
(rilevati con 15 l/min e 150 bar)
Shifting time
(taken with 15 l/min and 150 bar)

Eccitazione
Energised
50÷70ms

Diseccitazione
De-energised
40÷60ms

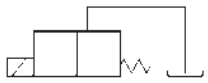
Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*
B2 - B11C - B12C - B13C B14C - C2 - C11A - C12A C13A - C14A - E2 - E11C E12C - E13C - E14C - M2A M2C - N2 - R2 - T11C - T12C	1
A11A - A12A - A11C - A12C D2 - D11C - D12C - D13C D14C - K2 - K11C - K12C	2
A2 - A11S - A12S - A13S A14S - G2 - H2 - N11C - N12C	3

Portate massime in funzione della pressione
Maximum flows depending on pressure

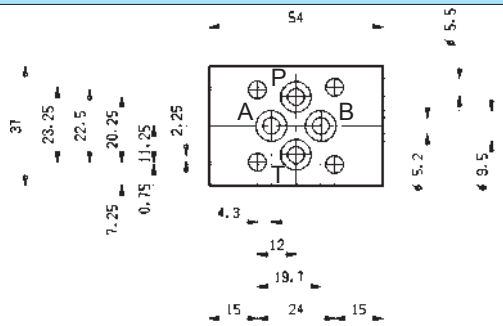


I valori indicati nel grafico non sono validi se l'elettrovalvola è utilizzata in applicazioni con collegamenti 2 o 3 vie.

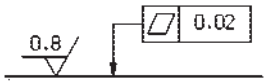
The values indicated in the graph are not valid if the solenoid valve is used in applications with 2 or 3 way connections.



GRANDEZZA • *SIZE* : NG4 ISO 4401-02 CETOP RP 121H- 4.2- 4 R02

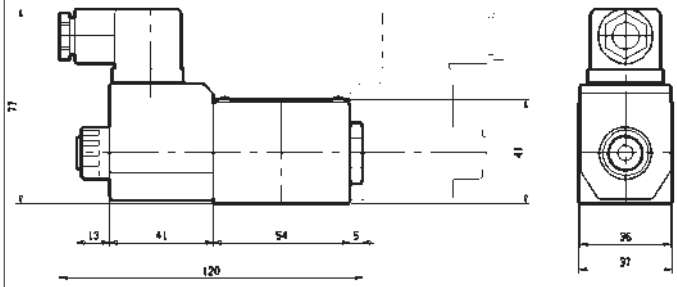


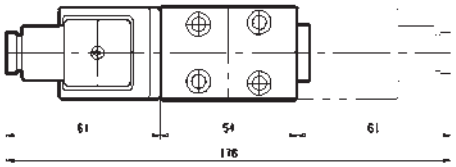
Qualità superficie di attacco
Mounting plane quality



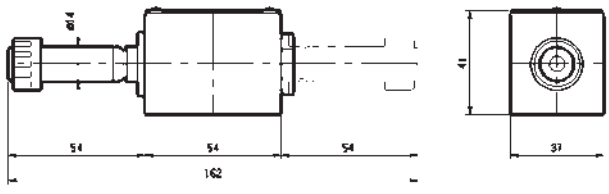
DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

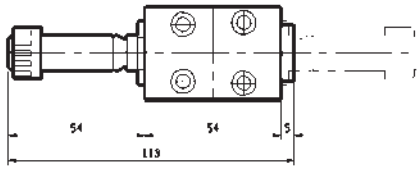
Elettrovalvola 4 vie 2/3 posizioni. (Fornitura su richiesta)
Solenoid valve 4 way 2/3 positions. (Supply on request)





Elettrovalvola 4 vie 2/3 posizioni. (Fornitura standard)
Solenoid valve 4 way 2/3 positions. (standard)



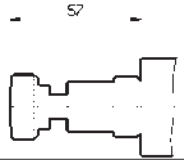


MOMENTI MASSIMI DI SERRAGGIO • *MAXIMUM BLOCKING TORQUE*

Pesi *Weights*	
Elettrovalvola con 1 solenoide: *With 1 solenoid :*	0,82 kg
Elettrovalvola con 2 solenoidi: *With 2 solenoids :*	1,08 kg

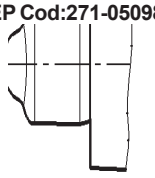
Comando manuale di emergenza a vite
Screwed manual override

EF Cod:LC04ZEF



Comando manuale di emergenza a pulsante
Push-button manual override

EP Cod:271-05098



Serraggio cannotto *Tube mounting*	**Serraggio ghiera blocco bobina** *Retainer nut blocking torque*	**Viti di fissaggio** *Fixing screws*
ch. 22mm: 20÷22Nm	**M13x1 Øe 20.5: 5÷6Nm**	**N°4 DIN 912-8.8 M5x35: 5÷6Nm**

SOLENOIDI • *SOLENOIDS*: GM 3059

Le elettrovalvole LC02Z montano i solenoidi GM 3059, costruiti per alimentazione in corrente continua.
Per il funzionamento in corrente alternata, con frequenze di 50 o 60Hz, è indispensabile utilizzare un connettore con raddrizzatore (RAC) (vedi pag. 01.20.06).
Frequenza di inserzione: 3Hz.
Sui solenoidi GM 3059 sono montate le bobine C36... nelle diverse versioni, per ulteriori informazioni tecniche vedere a pagina 1.20.05.

The valves LC02Z use the solenoids GM 3059 which function in direct current (DC).
To use in alternate current (AC) with frequencies of 50 and 60Hz is necessary using a connector with rectrifier (RAC) (see pag. 01.20.06).
Switching frequency: 3Hz
The solenoids GM 3059 use C36... coils in different verions; for more technical information go to page 1.20.05.

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	5	4	1	0	_	W	_	X	Y	Z

W	**CIRCUITO** *CIRCUIT*
– – – –	**VEDI PAGINA 1.05.02** *SEE PAGE 1.05.02*

Y	**CONNESSIONE** *CONNECTION*
00	**SENZA BOBINA, SENZA CONNETTORE** *WITHOUT COIL AND CONNECTOR*
01	**CON BOBINA, SENZA CONNETTORE** *WITH COIL, WITHOUT CONNECTOR*
02	**CON CONNETTORE DIN 43650** *WITH CONNECTOR DIN 43650*
03	**AMP JUNIOR** *AMP JUNIOR*
07	**DT04-2P DEUTSCH** *DT04-2P DEUTSCH*
31	**CAVO 350mm** *CABLE 350 mm*
34	**CAVO 350mm + DT04-2P DEUTSCH** *CABLE 350 mm + DT04-2P DEUTSCH*

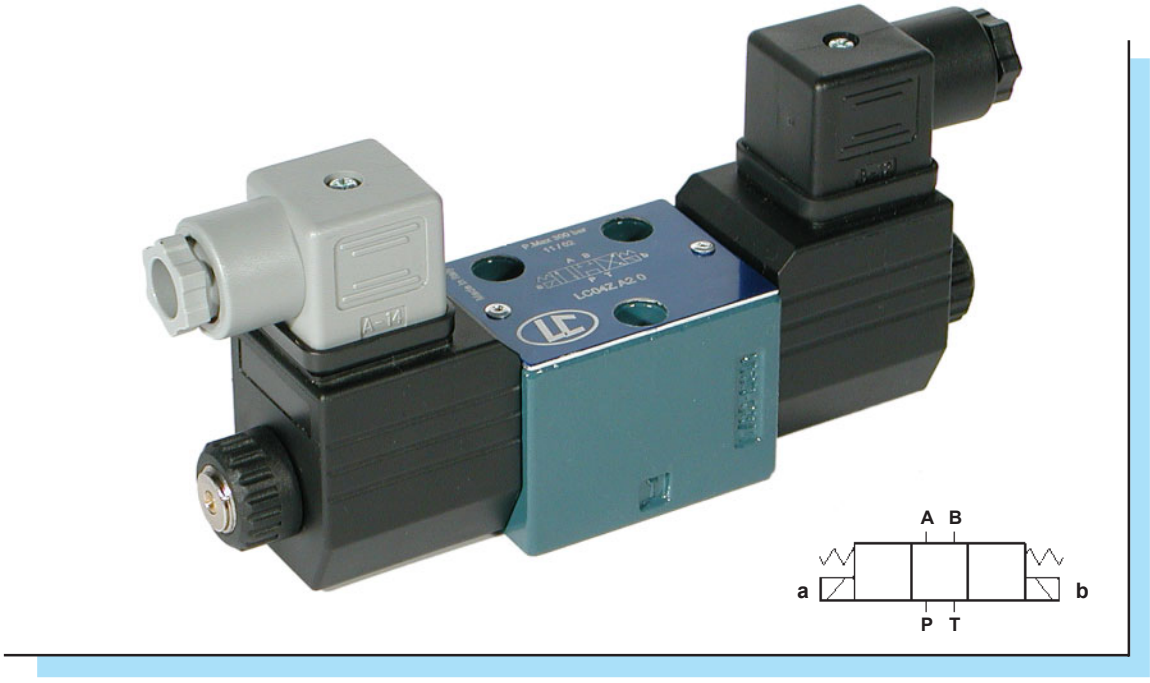
Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

X	**TENSIONE** *VOLTAGE*	**Connessioni disponibili** *Available connections*					
		00	**01**	**03**	**07**	**31**	**34**
00	**SENZA BOBINA** *WITHOUT COIL*						
OB	12V DC	X	X	X	X	X	X
AD	13V DC	X	X				
OC	24V DC	X	X	X	X	X	X
AC	27V DC	X	X				
OD	48V DC	X	X				
OE	110V DC	X	X				
OV	24 RAC (21.5 DC)	X	X				
OW	110 RAC (98 DC)	X	X				
OZ	230 RAC (207 DC)	X	X				

LC04 Z

Elettrovalvole dirette controllo direzione

Solenoid operated directional valves



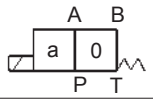
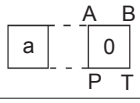
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H- 4.2- 4 P02 (CETOP 2)

Portata massima: 25 l/min
Pressione massima d'esercizio su A-B-P: 310 bar
Pressione massima in T: dinamica = 180 bar - statica = 210 bar

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H- 4.2- 4 P02 (CETOP 2)

Max flow: 25 l/min
Max operating pressure on A-B-P: 310 bar
Max pressure in T: dynamic=180 bar - static=210 bar

TIPI DI CIRCUITI • *SPOOL TYPES*

Nuovo codice *New code*	Vecchia sigla *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*
			
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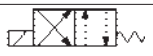
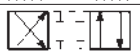
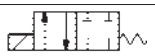
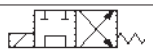
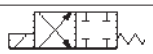
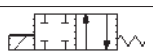
Y301	A11C		
A301	A11S		
A361	A14S		
B301	B11C		
B361	B14C		
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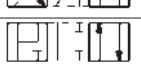
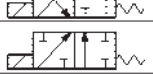
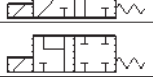
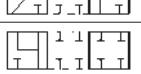
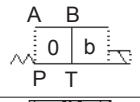
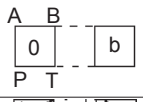
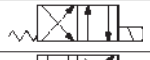
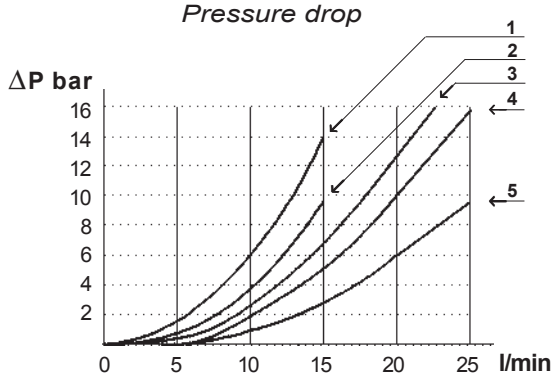
C361	C14A		
D301	D11C		
D361	D14C		
E301	E11C		
E361	E14C		
K301	K11C		
N301	N11C		
T301	T11C		
			
X401	A12A		
Y401	A12C		
A401	A12S		
A471	A13S		
B471	B12C		
B401	B13C		
C471	C12A		
C401	C13A		
D471	D12C		
D401	D13C		
E401	E12C		
E471	E13C		
K401	K12C		
N401	N12C		
T409	T12C		

Nuovo codice *New code*	Vecchia sigla *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*
A201	A2		
B201	B2		
C201	C2		
D201	D2		
E201	E2		
G201	G2		
G209	H2		
K201	K2		
K209	R2		
L201	M2A		
M201	M2C		
N201	N2		
L501	M2A/D		
M501	M2C/D		
N501	N2/D		

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*				
	P>T	P>A	P>B	A>T	B>T
A2 - A11S - A12S - A13S - A14S	2	1	1	2	2
B2 - B11C - B12C - B13C - B14C G2 - H2 - K2 - R2 - K11C - K12C		4	4	5	5
C2 - C11A - C12A - C13A - C14A	4	4	4	5	5
D2 - D11C - D12C - D13C - D14C		4	4	5	5
E2 - E11C - E12C - E13C - E14C T11C - T12C		4	4	5	5
A11A - A12A		4	4	5	5
A11C - A12C - M2C - M2A - N2		3	3	4	4
N11C - N12C		4	4		

Cadute di pressione
Pressure drop



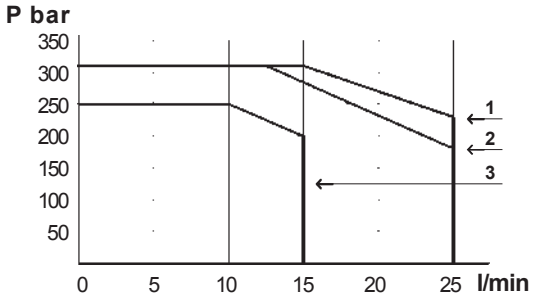
Tempi di commutazione
(rilevati con 15 l/min e 150 bar)
Shifting time
(taken with 15 l/min and 150 bar)

Eccitazione
Energised
50÷70ms

Diseccitazione
De-energised
40÷60ms

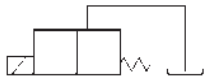
Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*
B2 - B11C - B12C - B13C B14C - C2 - C11A - C12A C13A - C14A - E2 - E11C E12C - E13C - E14C - M2A M2C - N2 - R2 - T11C - T12C	1
A11A - A12A - A11C - A12C D2 - D11C - D12C - D13C D14C - K2 - K11C - K12C	2
A2 - A11S - A12S - A13S A14S - G2 - H2 - N11C - N12C	3

Portate massime in funzione della pressione
Maximum flows depending on pressure

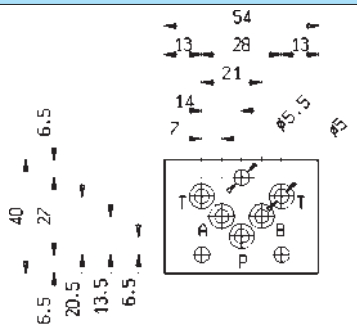


I valori indicati nel grafico non sono validi se l'elettrovalvola è utilizzata in applicazioni con collegamenti 2 o 3 vie.

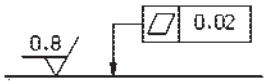
The values indicated in the graph are not valid if the solenoid valve is used in applications with 2 or 3 way connections.



GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)

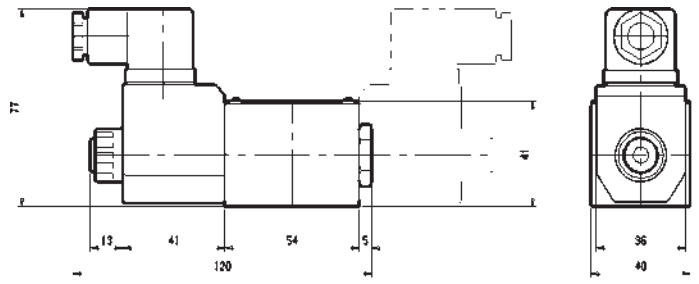


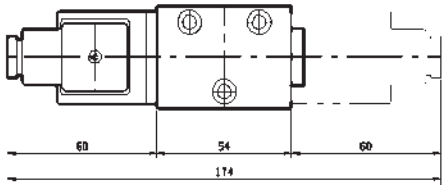
Qualità superficie di attacco
Mounting plane quality



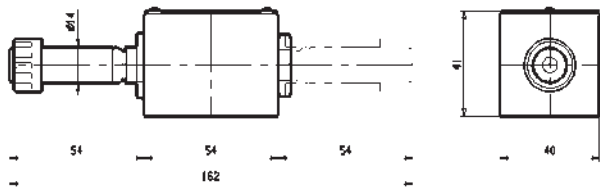
DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

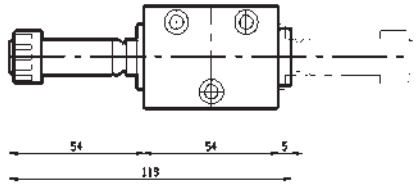
Elettrovalvola 4 vie 2/3 posizioni. (Fornitura su richiesta)
Solenoid valve 4 way 2/3 positions. (Supply on request)





Elettrovalvola 4 vie 2/3 posizioni. (Fornitura standard)
Solenoid valve 4 way 2/3 positions. (standard)



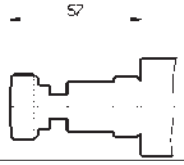


MOMENTI MASSIMI DI SERRAGGIO • *MAXIMUM BLOCKING TORQUE*

Pesi *Weights*	
Elettrovalvola con 1 solenoide: *With 1 solenoid :*	0,82 kg
Elettrovalvola con 2 solenoidi: *With 2 solenoids :*	1,08 kg

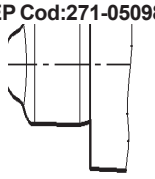
Comando manuale di emergenza a vite
Screwed manual override

EF Cod:LC04ZEF



Comando manuale di emergenza a pulsante
Push-button manual override

EP Cod:271-05098



Serraggio cannotto *Tube mounting*	**Serraggio ghiera blocco bobina** *Retainer nut blocking torque*	**Viti di fissaggio** *Fixing screws*
ch. 22mm: 20÷22Nm	**M13x1 Øe 20.5: 5÷6Nm**	**N°3 DIN 912-8.8 M5x25: 5÷6Nm**

SOLENOIDI • *SOLENOIDS*: GM 3059

Le elettrovalvole LC04 Z montano i solenoidi GM 3059, costruiti per alimentazione in corrente continua.
Per il funzionamento in corrente alternata, con frequenze di 50 o 60Hz, è indispensabile utilizzare un connettore con raddrizzatore (RAC) (vedi pag. 01.20.06).
Frequenza di inserzione: 3Hz.
Sui solenoidi GM 3059 sono montate le bobine C36... nelle diverse versioni, per ulteriori informazioni tecniche vedere a pagina 1.20.05.

The valves LC04 Z use the solenoids GM 3059 which function in direct current (DC).
To use in alternate current (AC) with frequencies of 50 and 60Hz is necessary using a connector with rectrifier (RAC) (see pag. 01.20.06).
Switching frequency: 3Hz
The solenoids GM 3059 use C36... coils in different verions; for more technical information go to page 1.20.05.

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	5	0	1	0	_	W	_	X	Y	Z

W	**CIRCUITO** *CIRCUIT*
– – – –	**VEDI PAGINA 1.10.02** *SEE PAGE 1.10.02*

Y	**CONNESSIONE** *CONNECTION*
00	**SENZA BOBINA, SENZA CONNETTORE** *WITHOUT COIL AND CONNECTOR*
01	**CON BOBINA, SENZA CONNETTORE** *WITH COIL, WITHOUT CONNECTOR*
02	**CON CONNETTORE DIN 43650** *WITH CONNECTOR DIN 43650*
03	**AMP JUNIOR** *AMP JUNIOR*
07	**DT04-2P DEUTSCH** *DT04-2P DEUTSCH*
31	**CAVO 350mm** *CABLE 350 mm*
34	**CAVO 350mm + DT04-2P DEUTSCH** *CABLE 350 mm + DT04-2P DEUTSCH*

X	**TENSIONE** *VOLTAGE*	**Connessioni disponibili** *Available connections*					
		00	**01**	**03**	**07**	**31**	**34**
00	**SENZA BOBINA** *WITHOUT COIL*						
OB	12V DC	X	X	X	X	X	X
AD	13V DC	X	X				
OC	24V DC	X	X	X	X	X	X
AC	27V DC	X	X				
OD	48V DC	X	X				
OE	110V DC	X	X				
OV	24 RAC (21.5 DC)	X	X				
OW	110 RAC (98 DC)	X	X				
OZ	230 RAC (207 DC)	X	X				

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04MC Z - LC04MCT Z

Elettrovalvole modulari dirette controllo direzione

Solenoid operated modular directional valves



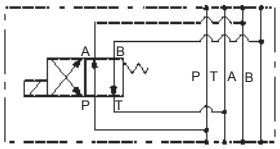
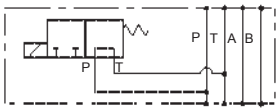
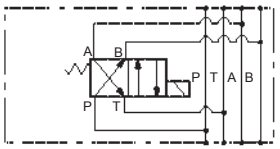
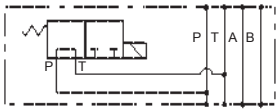
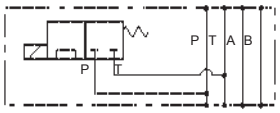
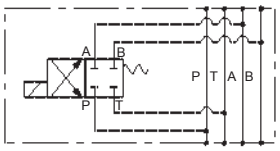
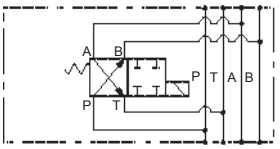
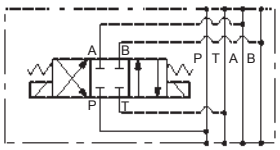
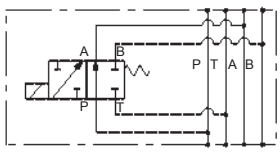
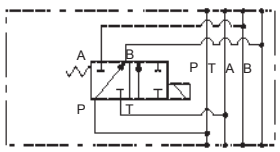
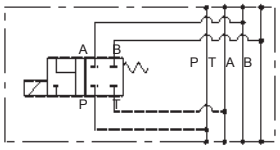
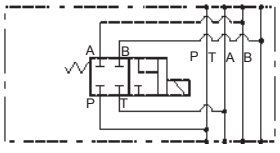
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

Portata massima: 25 l/min
Pressione massima d'esercizio su A-B-P: 310 bar
Pressione massima in T: dinamica=180 bar - statica=210 bar

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

Max flow: 25 l/min
Max operating pressure on A-B-P: 310 bar
Max pressure in T: dynamic=180 bar - static=210 bar

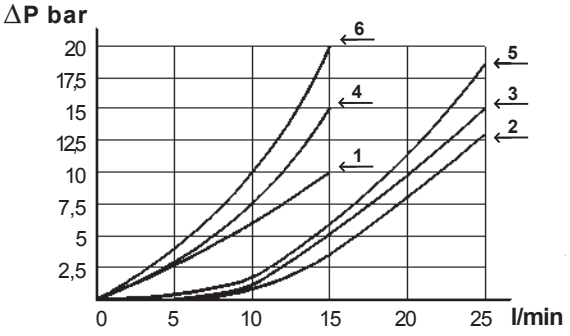
TIPI DI CIRCUITI • *SPOOL TYPES*

Modello *Model*	Nuovo codice *New code*	Vecchio codice *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*	Portata Max *Max flow* l/min		Pressione Max *Max pressure* bar	
					LC04MC Z	LC04MCT Z	LC04MC Z	LC04MCT Z
00	**Y301**	A11C			**25**		**310**	
10	**A301**	A11S				**15**		**250**
00	**Y401**	A12C			**25**		**310**	
10	**A401**	A12S				**15**		**250**
10	**A361**	A14S				**15**		**250**
00	**B301**	B11C			**25**		**310**	
00	**B471**	B12C			**25**		**310**	
00	**B201**	B2			**25**		**310**	
00	**N301**	N11C			**15**		**250**	
00	**N401**	N12C			**15**		**250**	
00	**T301**	T11C			**25**		**310**	
00	**T409**	T12C			**25**		**310**	

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*				
	P>T	P>A	P>B	A>T	B>T
A11S - A14S	1	6	6	4	4
B11C - B12C - B2		5	5	3	3
T11C - T12C		5	5	2	2
A11C - A12C		5	5	3	3
N11C - N12C		5	5		

Cadute di pressione
Pressure drop



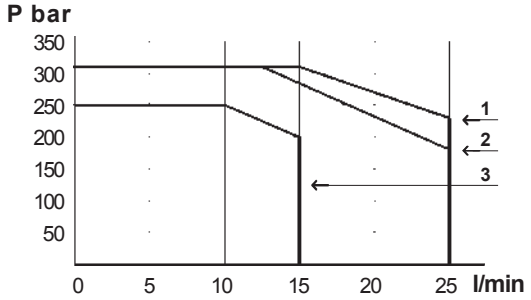
Tempi di commutazione
(rilevati con 15 l/min e 150 bar)
Shifting time
(taken with 15 l/min and 150 bar)

Eccitazione
Energised
50÷70ms

Diseccitazione
De-energised
40÷60ms

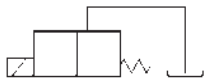
Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*
B11C - B12C - B2 - T11C - T12C	1
A11C - A12C	2
A11S - A14S- N11C - N12C	3

Portate massime in funzione della pressione
Maximum flows depending on pressure

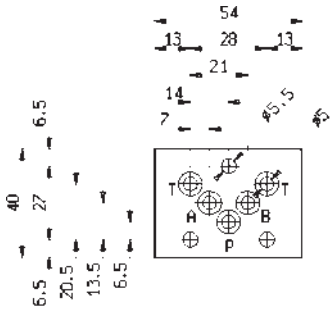


I valori indicati nel grafico non sono validi se l'elettrovalvola è utilizzata in applicazioni con collegamenti 2 o 3 vie.

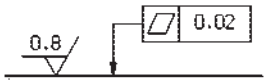
The values indicated in the graph are not valid if the solenoid valve is used in applications with 2 or 3 way connections.



GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)

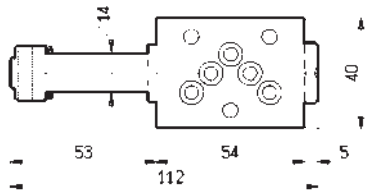


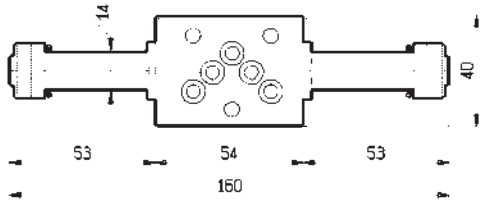
Qualità superficie di attacco
Mounting plane quality



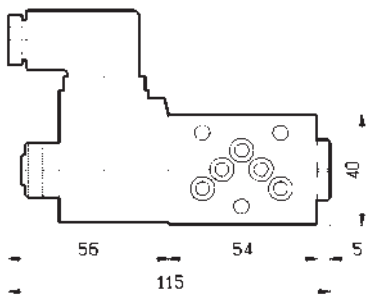
DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

Elettrovalvola 4 vie 2/3 posizioni. (Fornitura standard)
Solenoid valve 4 way 2/3 positions. (Standard)



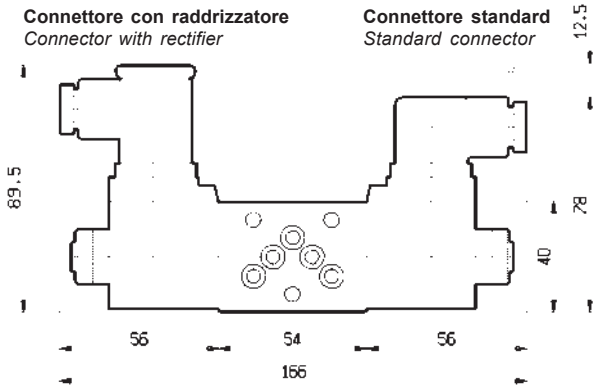


Elettrovalvola 4 vie 2/3 posizioni. (Fornitura su richiesta)
Solenoid valve 4 way 2/3 positions. (Supply on request)



Connettore con raddrizzatore
Connector with rectifier

Connettore standard
Standard connector

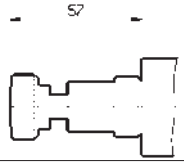


MOMENTI MASSIMI DI SERRAGGIO • *MAXIMUM BLOCKING TORQUE*

Pesi *Weights*	
Elettrovalvola con 1 solenoide: *With 1 solenoid :*	0,82 kg
Elettrovalvola con 2 solenoidi: *With 2 solenoids :*	1,08 kg

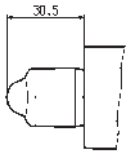
Comando manuale di emergenza a vite
Screwed manual override

EF Cod:LC04ZEF



Comando manuale di emergenza a pulsante
Push-button manual override

EP Cod:271-05098



Serraggio cannotto
Tube mounting

ch. 22mm: 20÷22Nm

Serraggio ghiera blocco bobina
Retainer nut blocking torque

M13x1 Øe 20.5: 5÷6Nm

SOLENOIDI • *SOLENOIDS*: GM 3059

Le elettrovalvole montano i solenoidi GM 3059, costruiti per alimentazione in corrente continua.
Per il funzionamento in corrente alternata, con frequenze di 50 o 60Hz, è indispensabile utilizzare un connettore con raddrizzatore (RAC) (vedi pag. 01.20.06).
Frequenza di inserzione: 3Hz.
Sui solenoidi GM 3059 sono montate le bobine C36... nelle diverse versioni, per ulteriori informazioni tecniche vedere a pagina 1.20.05.

The valves use the solenoids GM 3059 which function in direct current (DC).
To use in alternate current (AC) with frequencies of 50 and 60Hz is necessary using a connector with rectrifier (RAC) (see pag. 01.20.06).
Switching frequency: 3Hz
The solenoids GM 3059 use C36... coils in different verions; for more technical information go to page 1.20.05.

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	V	_	W	_	X	Y	Z

V	**MODELLO** *MODEL*
00	**LC04MC Z** *LC04MC Z*
10	**LC04MCT Z** *LC04MCT Z*

W	**CIRCUITO** *CIRCUIT*
- - - -	**VEDI PAGINA 1.20.02** *SEE PAGE 1.20.02*

Y	**CONNESSIONE** *CONNECTION*
00	**SENZA BOBINA, SENZA CONNETTORE** *WITHOUT COIL AND CONNECTOR*
01	**CON BOBINA, SENZA CONNETTORE** *WITH COIL, WITHOUT CONNECTOR*
02	**CON CONNETTORE DIN 43650** *WITH CONNECTOR DIN 43650*
03	**AMP JUNIOR** *AMP JUNIOR*
07	**DT04-2P DEUTSCH** *DT04-2P DEUTSCH*
31	**CAVO 350mm** *CABLE 350 mm*
34	**CAVO 350mm + DT04-2P DEUTSCH** *CABLE 350 mm + DT04-2P DEUTSCH*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

X	**TENSIONE** *VOLTAGE*	**Connessioni disponibili** *Available connections*					
		00	**01**	**03**	**07**	**31**	**34**
00	**SENZA BOBINA** *WITHOUT COIL*						
OB	12V DC	X	X	X	X	X	X
AD	13V DC	X	X				
OC	24V DC	X	X	X	X	X	X
AC	27V DC	X	X				
OD	48V DC	X	X				
OE	110V DC	X	X				
OV	24 RAC (21.5 DC)	X	X				
OW	110 RAC (98 DC)	X	X				
OZ	230 RAC (207 DC)	X	X				

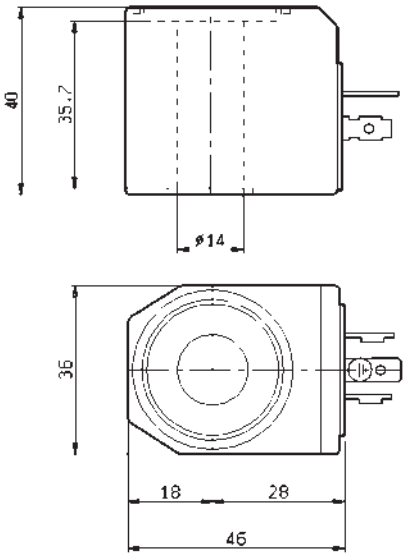
BOBINE • *COILS*

Peso : 0.210 kg - Classe di isolamento: H
Intermittenza di funzionamento: ED = 100% solo se la temperatura ambiente non supera i 40°C.
Tensione di alimentazione: non deve superare +5% / -10% del valore nominale.
Tensioni disponibili: vedi tabella. Su richiesta possono essere fornite versioni speciali.
Bassa tensione: conforme alle direttive 73/23/CEE e 89/336/CEE.
Le versioni con cavi+guaina e quelle con connettore Deutsch e AMP JUNIOR sono tutte dotate di diodo bidirezionale.
Grado di protezione secondo DIN 40050, valido solo nel caso in cui la bobina sia montata correttamente con O-Ring e ghiera di fermo:
- IP65 con connettore DIN 43650 e AMP JUNIOR, solo se montati con guarnizioni in gomma e vite di fissaggio opportunamente bloccata.
- IP69k per versioni con connettore Deutsch.

Weight: 0,210 kg - Insulation Class: H
Working Duty: ED 100% only if the room temperature does not exceed 40°C.
Inlet voltage: should not exceed +5% / -10% of the nominal value.
Available voltages: Look at table. On request different voltages can be supplied.
Low voltage: conforms to the 73/23/CEE and 89/336/CEE directives.
Versions with sheated cables and the ones with Deutsch and AMP JUNIOR connector are equipped with bi-directional diode.
Protection Class according to DIN 40050: only if the coil is assembled correctly with O'ring and retainer:
- IP65 with AMP JUNIOR and DIN 43650 connector, only if they are assembled with rubber sealings and the fixing screw is properly tightened.
- IP69k for versions with Deutsch connector.

DIN 43650 - ISO 4400

C36 01



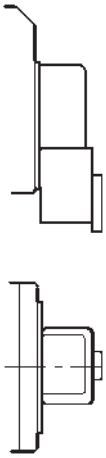
AMP JUNIOR

C36 03

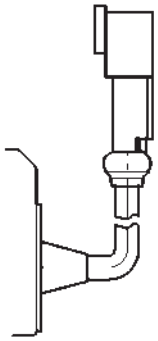


CONNETTORE DEUTSCH
DEUTSCH CONNECTOR
DT 04 - 2P

C36 07

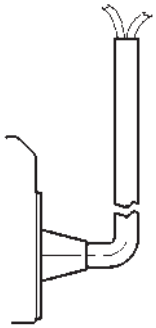


C36 34



CAVI IN GOMMA SILICONE
CABLES IN SILICON RUBBER

C36 31



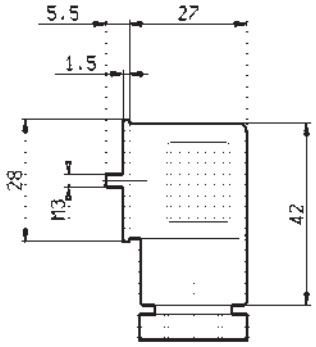
La lunghezza del cavo è di 350mm
Cable length is 350 mm

Codice *Designation code*	**Tipo** *Type*	**Connessione** *Connection*	**Tensione nominale** *Nominal voltage* **Volt**	**Marcatura** *Marking*	**Potenza** *Power* **watt**	**Corrente nominale** *Nominal current* **ampere**	**Resistenza** *Resistance* **Ω** ± 7%	T=20°C
271-0510	**C3601 12DC**	**DIN 43650 - ISO 4400**	**12 DC**	**12 VDC**	**26**	**2.15**	**5.5**	
271-0510002	**C3631 12DC**	**CABLES**	**12 DC**	**12 VDC**	**26**	**2.15**	**5.5**	
271-05102	**C3603 12DC**	**AMP JUNIOR**	**12 DC**	**12 VDC**	**26**	**2.15**	**5.5**	
271-0510004	**C3634 12DC**	**CABLE + DEUTSCH**	**12 DC**	**12 VDC**	**26**	**2.15**	**5.5**	
271-0510207	**C3607 12DC**	**DEUTSCH**	**12 DC**	**12 VDC**	**26**	**2.15**	**5.5**	
271-05104	**C3601 13DC**	**DIN 43650 - ISO 4400**	**13 DC**	**13 VDC**	**26**	**2.00**	**6.5**	
271-0511	**C3601 24DC**	**DIN 43650 - ISO 4400**	**24 DC**	**24 VDC**	**26**	**1.10**	**22**	
271-0511002	**C3631 24DC**	**CABLES**	**24 DC**	**24 VDC**	**26**	**1.10**	**22**	
271-05112	**C3603 24DC**	**AMP JUNIOR**	**24 DC**	**24 VDC**	**26**	**1.10**	**22**	
271-0511004	**C3634 34DC**	**CABLE + DEUTSCH**	**24 DC**	**24 VDC**	**26**	**1.10**	**22**	
271-0511207	**C3607 24DC**	**DEUTSCH**	**24 DC**	**24 VDC**	**26**	**1.10**	**22**	
271-051101	**C3601 27DC**	**DIN 43650 - ISO 4400**	**27 DC**	**27 VDC**	**26**	**1.00**	**28**	
271-0512	**C3601 48DC**	**DIN 43650 - ISO 4400**	**48 DC**	**V 48 DC**	**26**	**0.54**	**89**	
271-05110	**C3601 24-50/60Hz**	**DIN 43650 - ISO 4400**	**21.5 DC**	**V 21.5 DC**	**26**	**1.20**	**18**	
271-0513	**C3601 110-50/60Hz**	**DIN 43650 - ISO 4400**	**98 DC**	**V 98 DC**	**29**	**0.29**	**338**	
271-0515	**C3601 230-50/60Hz**	**DIN 43650 - ISO 4400**	**207 DC**	**V 207 DC**	**29**	**0.14**	**1430**	

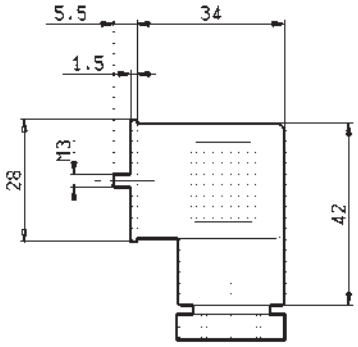
Questi connettori sono normalizzati DIN 43650 - ISO 4400. Sono disponibili in quattro versioni:
_ versione standard MPM 182-09
_ versione con raddrizzatore MPM 532-09 RAC
_ versione con LED luminoso (indica la presenza di tensione) MPM 182-LED-T-A1
_ versione con VDR (dispositivo che taglia le sovratensioni in ingresso) MPM 182-09-G-DO-2-1
Per un corretto funzionamento e per garantire il grado di protezione IP65 è indispensabile montare i connettori con guarnizioni in gomma e vite di fissaggio opportunamente bloccata.

These connectors are standardised DIN 43650 – ISO 4400. Four versions are available:
_ standard version MPM 182-09
_ version with rectifier MPM 532-09 RAC
_ version with LED (which indicates presence of voltage) MPM 182-LED-T-A1
_ version with VDR (device which cuts over-voltage in input) MPM 182-09-G-DO-2-1
For a correct functioning and to guarantee the level of protection IP 65, it is essential to assemble the connectors with rubber seals and have the mounting screw fully screwed in.

MPM 182-09
MPM 182-LED-T-A1
MPM 182-09-G-DO-2-1



MPM 532-09 RAC



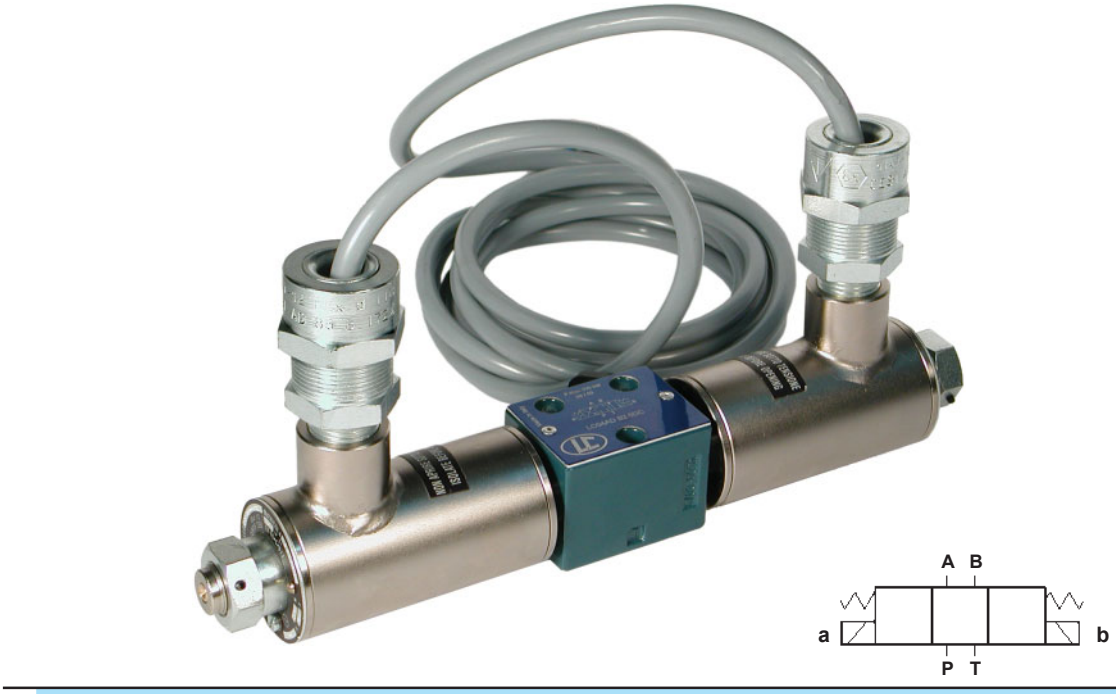
Codice *Designation code*	**Tipo di connettore** *Type of connector*
29-0001	**MPM 182-09 GRIGIO (*grey*)**
29-0002	**MPM 182-09 NERO (*black*)**
29-0003/A	**MPM 532-09 RAC GRIGIO (*grey*)**
29-0003	**MPM 532-09 RAC NERO (*black*)**
29-0004	**MPM 182-LED-T-A1 12DC/AC**
29-0005	**MPM 182-LED-T-A1 24DC/AC**
29-0006	**MPM 182-LED-T-A1 48DC/AC**
29-0007	**MPM 182-LED-T-A1 110DC/AC**
29-0008	**MPM 182-LED-T-A1 230DC/AC**
29-00010	**MPM 182-09-G-DO-2-1 12DC con VDR**
29-00011	**MPM 182-09-G-DO-2-1 24DC con VDR**

Nº poli	**2 + terra**
Portata nominale sui contatti	**10 A**
Portata max sui contatti	**16 A**
Resistenza sui contatti	**4 mΩ**
Sezione max conduttori	**1.5 mm²**
Filettatura serracavo	**Pg 9 Din 40430**
Grado di protezione	**IP65 DIN 40050**
Isolamento elettrico	**VDE 0110**
Coppia di serraggio	**3 ÷ 4 Nm**
Number of poles	*2 + earth*
Rated current capacity	*10 A*
Max current capacity	*16 A*
Contact resistance	*4 mΩ*
Max wire section area	*1.5 mm²*
Cable gland thread	*Pg 9 Din 40430*
Protection class	*IP65 DIN 40050*
Electrical insulation	*VDE 0110*
Tightening torque	*3 ÷ 4 Nm*

LC04 AD

Elettrovalvole dirette controllo direzione antideflagranti

Solenoid operated directional valves with explosion proof coils



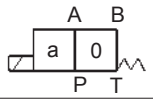
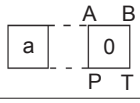
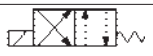
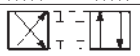
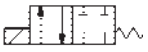
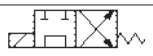
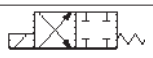
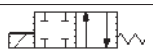
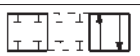
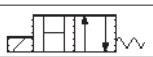
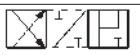
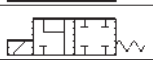
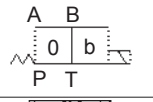
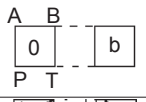
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2-4 - P02 (CETOP 2)
Certificato: CESI 03 ATEX 212 (CESI n° 0722 direttiva 94/9/CE)
Protezione: EX II 2 GEExd II CT5

Portata massima: 25 l/min
Pressione massima d'esercizio su A-B-P: 310 bar
Pressione massima in T: dinamica = 180 bar - statica = 210 bar
Temperatura ambiente: -20°C +40°C

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2-4-P02 (CETOP 2)
Certificate: CESI 03 ATEX 212 (CESI n° 0722 directive 94/9/CE)
Protective system: EX II 2 GEExd II CT5

Max flow: 25 l/min
Max operating pressure on A-B-P: 310 bar
Max pressure in T: dynamic=180 bar - static=210 bar
Operating temperature: -20°C +40°C

TIPI DI CIRCUITI • *SPOOL TYPES*

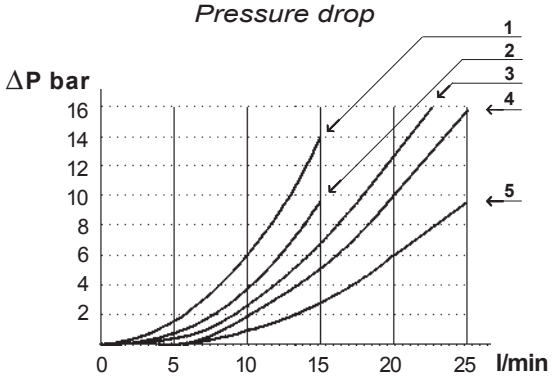
Nuovo codice *New code*	Vecchia sigla *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*
			
X301	A11A		
Y301	A11C		
A301	A11S		
A361	A14S		
B301	B11C		
B361	B14C		
C301	C11A		
C361	C14A		
D301	D11C		
D361	D14C		
E301	E11C		
E361	E14C		
K301	K11C		
N301	N11C		
T301	T11C		
			
X401	A12A		
Y401	A12C		
A401	A12S		
A471	A13S		
B471	B12C		
B401	B13C		
C471	C12A		
C401	C13A		
D471	D12C		
D401	D13C		
E401	E12C		
E471	E13C		
K401	K12C		
N401	N12C		
T409	T12C		

Nuovo codice *New code*	Vecchia sigla *Old code*	Simbolo *Circuit*	Direzione del flusso durante il passaggio al centro *Oil direction during shift*
A201	A2		
B201	B2		
C201	C2		
D201	D2		
E201	E2		
G201	G2		
G209	H2		
K201	K2		
K209	R2		
L201	M2A		
M201	M2C		
N201	N2		
L501	M2A/D		
M501	M2C/D		
N501	N2/D		

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*				
	P>T	P>A	P>B	A>T	B>T
A2 - A11S - A12S - A13S - A14S	2	1	1	2	2
B2 - B11C - B12C - B13C - B14C G2 - H2 - K2 - R2 - K11C - K12C		4	4	5	5
C2 - C11A - C12A - C13A - C14A	4	4	4	5	5
D2 - D11C - D12C - D13C - D14C		4	4	5	5
E2 - E11C - E12C - E13C - E14C T11C - T12C		4	4	5	5
A11A - A12A		4	4	5	5
A11C - A12C - M2C - M2A - N2		3	3	4	4
N11C - N12C		4	4		

Cadute di pressione
Pressure drop



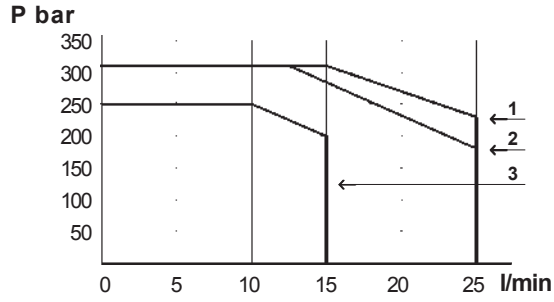
Tempi di commutazione
(rilevati con 15 l/min e 150 bar)
Shifting time
(taken with 15 l/min and 150 bar)

Eccitazione
Energised
50÷70ms

Diseccitazione
De-energised
40÷60ms

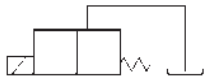
Tipo di circuito *Spool type*	Nr. di riferimento *Reference number*
B2 - B11C - B12C - B13C B14C - C2 - C11A - C12A C13A - C14A - E2 - E11C E12C - E13C - E14C - M2A M2C - N2 - R2 - T11C - T12C	1
A11A - A12A - A11C - A12C D2 - D11C - D12C - D13C D14C - K2 - K11C - K12C	2
A2 - A11S - A12S - A13S A14S - G2 - H2 - N11C - N12C	3

Portate massime in funzione della pressione
Maximum flows depending on pressure

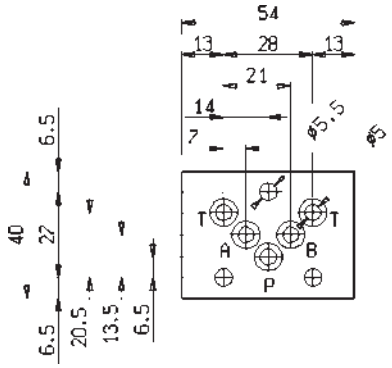


I valori indicati nel grafico non sono validi se l'elettrovalvola è utilizzata in applicazioni con collegamenti 2 o 3 vie.

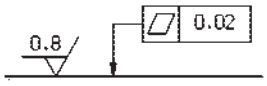
The values indicated in the graph are not valid if the solenoid valve is used in applications with 2 or 3 way connections.



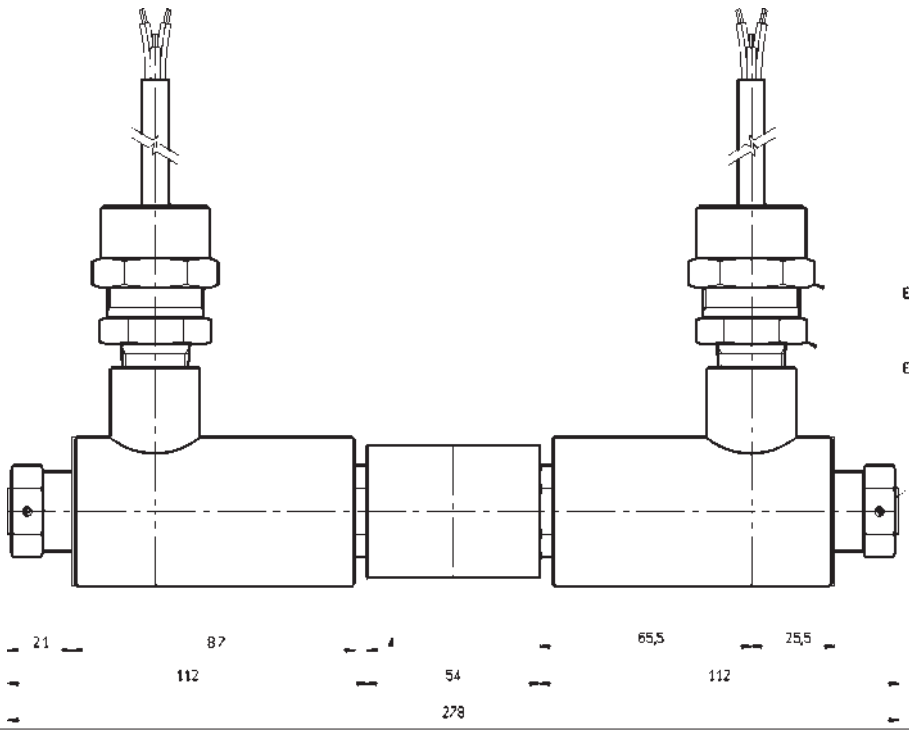
GRANDEZZA • *SIZE* : NG4 CETOP RP 121 H- 4.2- 4P02 (CETOP 2)

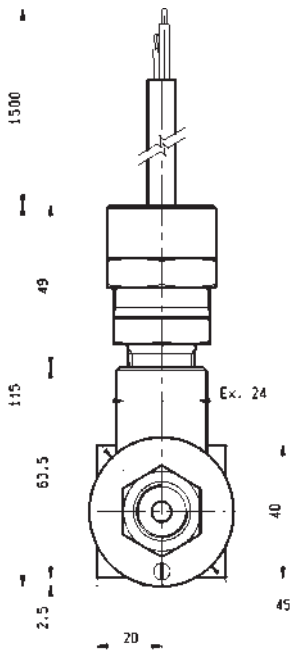


Qualità superficie di attacco
Mounting plane quality



DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*





MOMENTI MASSIMI DI SERRAGGIO • *MAXIMUM BLOCKING TORQUE*

Serraggio cannotto *Tube mounting* ch. 27mm: 20÷22Nm	Serraggio ghiera blocco bobina *Retainer nut blocking torque* ch. 24mm: 6÷7Nm	Viti di fissaggio *Fixing screw* N°3 DIN 912-8.8 M5x25: 5÷6Nm

Pesi *Weights*	
Elettrovalvola con 1 solenoide: *With 1 solenoid :*	2,10 kg
Elettrovalvola con 2 solenoidi: *With 2 solenoids :*	2,90 kg

Montaggio ghiera blocco bobina.
La bobina viene bloccata al cannotto avvitando la ghiera ch24 con la coppia di serraggio indicata in tabella, questa deve essere poi fermata con il grano filettato. La conformità della costruzione alla norma non è garantita se la bobina viene usata in condizioni diverse.

Mounting of the coil retainer nuts.
The coil is blocked to the tube by screwing the retainer nut ch24 with the necessary blocking torque indicated in the table. The retainer nut then needs to be blocked by the threaded screw. Construction conformity of the coil is not guaranteed if the coil is used in different conditions.

SOLENOIDI • *SOLENOIDS*: GM 6040

Le elettrovalvole LC04 AD montano i solenoidi GM 6040, costruiti per alimentazione in corrente continua.
Per le versioni in corrente alternata le bobine sono dotate di un raddrizzatore a ponte inserito all'interno e possono essere alimentate con frequenze di 50 o 60Hz.
Le bobine son fornite con un cavo tripolare con sezione filo di 1,5mm² protetto da una guaina esterna in gomma silicone; la lunghezza standard è di 1500mm.
Intermittenza di funzionamento: ED100% se la temperatura ambiente non supera i 40°C.
Grado di protezione: IP67 secondo DIN 40050.
Tensione di alimentazione: non deve superare +5% / -10% del valore nominale.

The valves LC04 AD use the solenoids GM 6040 which are meant to be fed with DC current.
For AC versions the coils in their interior a rectifier bridge and can be used with 50 and 60Hz frequencies.
The coils are supplied with a 3-pole cable with wire section of 1,5mm² protected by an external sheath in silicon rubber, with a standard length of 1500mm.
Functionality intermittence: ED100% if the ambient temperature does not exceed 40°C.
Protection Class: IP 67 according to DIN 40050.
Feeding voltage: must not exceed +5% / -10% of the nominal value.

TENSIONI DISPONIBILI • *AVAILABLE VOLTAGES*

Versioni in corrente continua *DC version*					Versioni in corrente alternata *AC version*				
Tipo *Type*	Tensione nominale *Nominal voltage* Volt	Potenza *Power* Watt	Corrente nominale *Nominal current* Ampere	Resistenza *Resistance* Ohm ±7% T=20°C	Tipo *Type*	Tensione nominale *Nominal voltage* Volt	Potenza *Power* Watt	Corrente nominale *Nominal current* Ampere	Resistenza *Resistance* Ohm ±7% T=20°C
OB	12 Volt DC	12,7	1,06	11,35	**OV**	24 Volt 50/60Hz	12	0,56	37,8
OC	24 Volt DC	12,7	0,57	45,30	**OW**	110 Volt 50/60Hz	11	0,12	794
OE	110 Volt DC	12,7	0,27	970	**OZ**	230 Volt 50/60Hz	11	0,05	3780

CODICE DI ORDINAZIONE • *ORDERING CODE*

L 5 0 2 0 _ W _ X Y Z

W	**CIRCUITO** *CIRCUIT*
– – – –	**VEDI PAGINA 1.25.02** *SEE PAGE 1.25.02*

X	**TENSIONE** *VOLTAGE*
OB	12V DC
OC	24V DC
OE	110V DC
OV	24 RAC (21.5 DC)
OW	110 RAC (98 DC)
OZ	230 RAC (207 DC)

Y	**CONNESSIONE** *CONNECTION*
20	**CAVO 1500mm (senza terminale)** *CABLE 1500mm (without connector)*

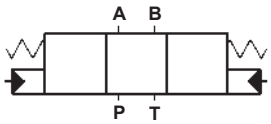
Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04 OP

Valvole controllo direzione
a comando oleodinamico o pneumatico

Oil / air operated directional valves





CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

Portata massima: 25 l/min
Pressione massima d'esercizio su A-B-P: 310 bar
Pressione massima in T: 210 bar
Pressione minima di pilotaggio: 4 bar
Pressione massima di pilotaggio: 200 bar

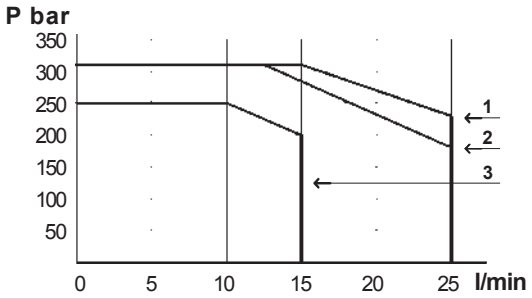
TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

Max flow: 25 l/min
Max operating pressure on A-B-P: 310 bar
Max pressure in T: 210 bar
Min pilot pressure: 4 bar
Max. pilot pressure: 200 bar

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

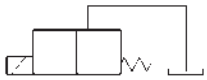
Tipo di circuito *Spool type*	**Nr. di riferimento** *Reference number*
B2 - B11C - B12C - B13C B14C - C2 - C11A - C12A C13A - C14A - E2 - E11C E12C - E13C - E14C - M2A M2C - N2 - R2 - T11C - T12C	**1**
A11A - A12A - A11C - A12C D2 - D11C - D12C - D13C D14C - K2 - K11C - K12C	**2**
A2 - A11S - A12S - A13S A14S - G2 - H2 - N11C - N12C	**3**

Portate massime in funzione della pressione
Maximum flows depending on pressure



I valori indicati nel grafico non sono validi se l'elettrovalvola è utilizzata in applicazioni con collegamenti 2 o 3 vie.

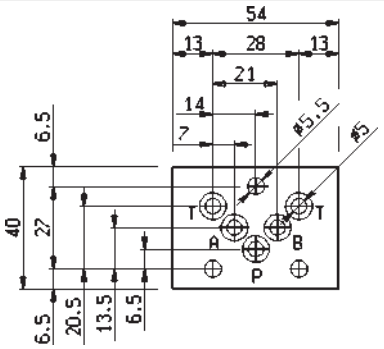
The values indicated in the graph are not valid if the solenoid valve is used in applications with 2 or 3 way connections.



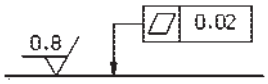
Sono disponibili tutti i circuiti a 2 e 3 posizioni come nelle elettrovalvole LC04Z a comando diretto, con le stesse cadute di pressione.
Nelle applicazioni con lo scarico (T) della valvola in pressione, considerare un rapporto di pilotaggio 6,5:1.
Esempio: valvola con pressione in T di 100 bar, pressione minima di pilotaggio 100:6,5 = 15,4 bar.

All 2 and 3 position spools are available as for the LC04Z direct acting solenoid valves with the same pressure drops. In the applications with pressure on the valve discharge line (T) is in pressure, allow for pilot ratio 6,5:1.
Example: valve with a 100 bar pressure in T will need a minimum pilot pressure of 100:6,5 = 15,4 bar.

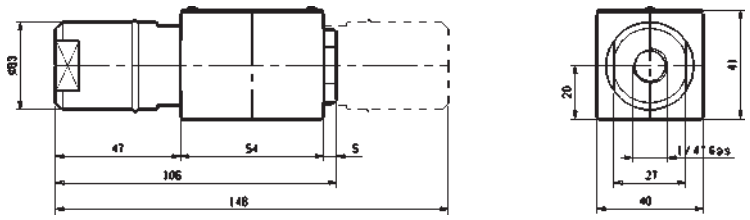
GRANDEZZA • *SIZE* : NG4 CETOP RP 121 H - 4.2 - 4 P02 (CETOP 2)



Qualità superficie di attacco
Mounting plane quality



DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*



MOMENTI MASSIMI DI SERRAGGIO • *MAXIMUM BLOCKING TORQUE*

Pesi *Weights*	
Con 1 comando: *With 1 control:*	0,80 kg
Con 2 comandi: *With 2 controls:*	1,10 kg

Viti di fissaggio
Fixing screws

N°3 DIN 912-8.8 M5x25: 5÷6Nm

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	5	0	P1	_	W	_	_	_	0	0	0	0	_	Z

W	**CIRCUITO** *CIRCUIT*
_ _ _ _	**VEDI PAGINA 1.10.02** *SEE PAGE 1.10.02*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04 LV

Valvole controllo direzione con comando a leva

Lever operated directional valves



CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Portata massima: 25 l/min
Pressione massima d'esercizio su A-B-P: 310 bar
Pressione massima in T: 100 bar

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Max flow: 25 l/min
Max operating pressure on A-B-P: 310 bar
Max pressure in T: 100 bar

W — TIPI DI CIRCUITI • *SPOOL TYPES*

Vecchio *Old*	Nuovo *New*	Vecchio *Old*	Nuovo *New*	Vecchio *Old*	Nuovo *New*	Vecchio *Old*	Nuovo *New*	Vecchio *Old*	Nuovo *New*
A11A	**X301**	B11C	**B301**	C13A	**C401**	D2	**D201**	N12C	**N401**
A11C	**Y301**	B12C	**B471**	C14A	**C361**	E11C	**E301**		
A11S	**A301**	B13C	**B401**	C2	**C201**	E12C	**E401**		
A12S	**A401**	B14C	**B361**	D11C	**D301**	E13C	**E471**		
A13S	**A471**	B2	**B201**	D12C	**D471**	E14C	**E361**		
A14S	**A361**	C11A	**C301**	D13C	**D401**	E2	**E201**		
A2	**A201**	C12A	**C471**	D14C	**D361**	N11C	**N301**		

X — DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

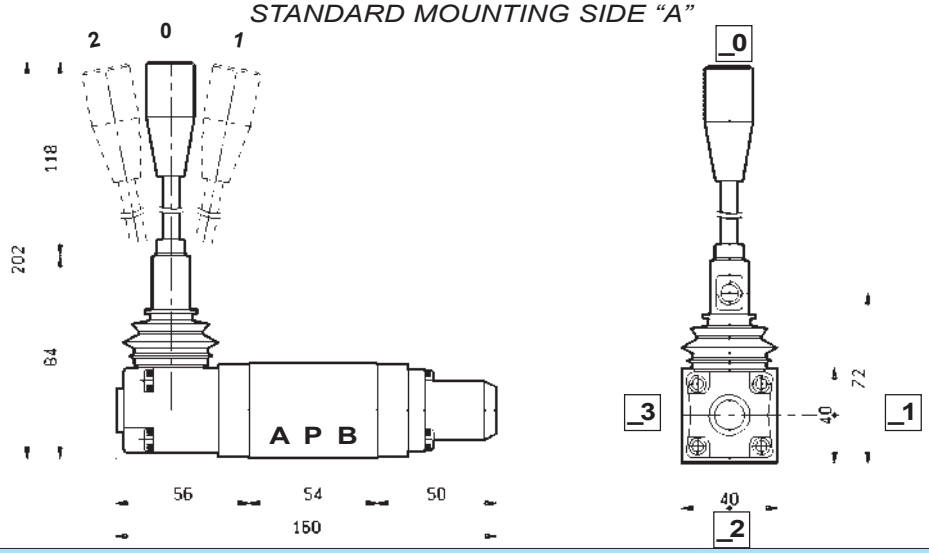
Viti di fissaggio
Fixing screws
N°3 DIN 912-8.8 M5 x 25
Momento massimo di serraggio:
Maximum blocking torque:
5÷6Nm

Peso *Weight*	1,10 kg

Versione con comando microinterruttore a richiesta

By request version with microswitch control

MONTAGGIO STANDARD LATO "A"
STANDARD MOUNTING SIDE "A"



Y — TIPO DI CONTROLLO DEL CURSORE • *TYPE OF SPOOL CONTROL*

Schema *Diagram*	Codice *Code*
1 0 2	**M1**
1 2	**M2**
1 0	**M3**
0 2	**M4**

Schema *Diagram*	Codice *Code*
1 0 2	**F1**
1 2	**F2**
1 0	**F3**
0 2	**F4**

CODICE DI ORDINAZIONE • *ORDERING CODE*

L 5 0 L 0 _ W _ X Y Z

W	TIPI DI CIRCUITI *SPOOL TYPES*
_ _ _ _	**VEDI SOPRA** *SEE ABOVE*

X	MONTAGGIO LEVA *LEVER MOUNTING*				
A_	**MONTAGGIO LEVA LATO "A"** *LEVER MOUNTING SIDE "A"*	_0	_1	_2	_3
B_	**MONTAGGIO LEVA LATO "B"** *LEVER MOUNTING SIDE "B"*	_0	_1	_2	_3

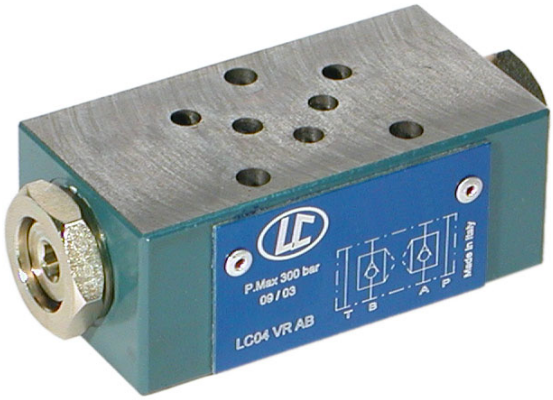
Y	TIPO DI CONTROLLO DEL CURSORE *TYPE OF SPOOL CONTROL*
_ _	**VEDI SOPRA** *SEE ABOVE*

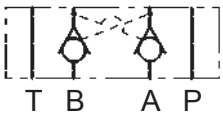
Z	VERSIONE *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04M VR

Valvole modulari di ritegno semplici e pilotate

Modular direct and pilot operated check valves





CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

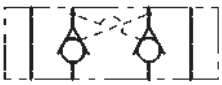
Portata massima: 20 l/min
Pressione massima d'esercizio: 310 bar
Rapporto di pilotaggio: 2,8:1

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Max flow: 20 l/min
Max operating pressure: 310 bar
Pilot ratio: 2,8:1

TIPI DI VALVOLE • *VALVES TYPES*

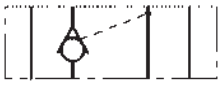
AB



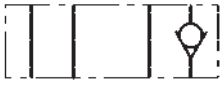
0A



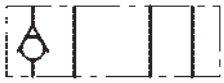
0B



0P

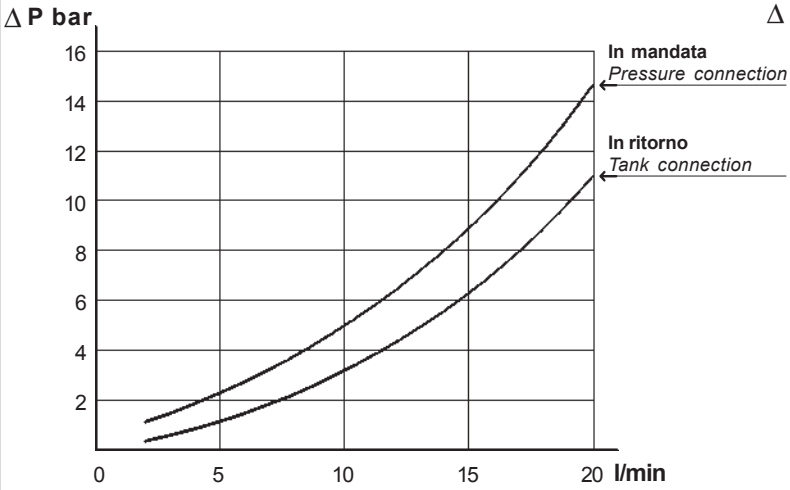


0T

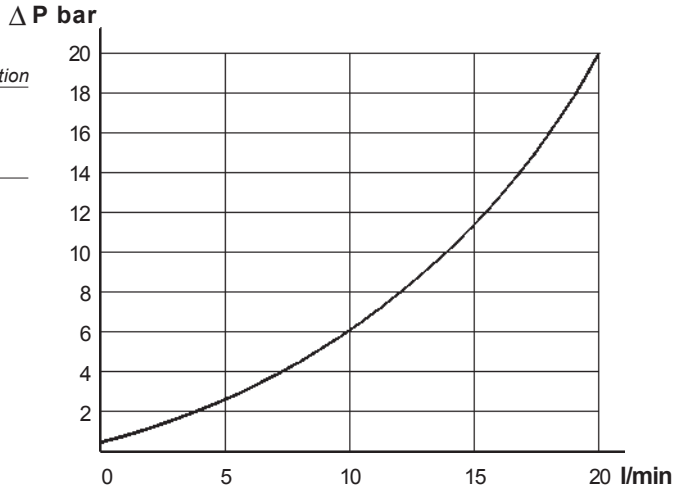


CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

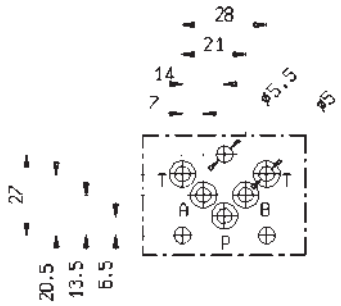
VR/AB



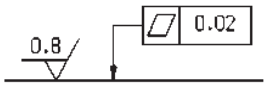
VR/P VR/T



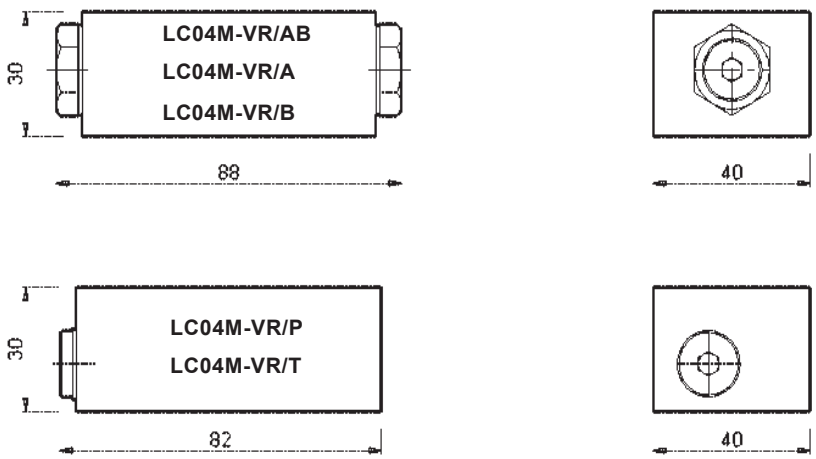
GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)



Qualità superficie di attacco
Mounting plane quality

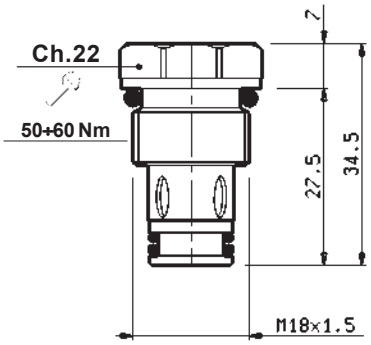


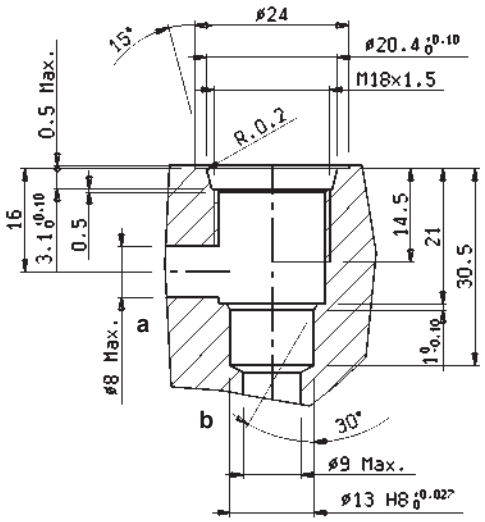
DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

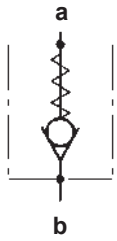


Peso *Weight*	
LC04M-VR/AB	0,65 kg
LC04M-VR/A	0,65 kg
LC04M-VR/B	0,65 kg
LC04M-VR/P	0,59 kg
LC04M-VR/T	0,59 kg

VALVOLA UNIDIREZIONALE A CARTUCCIA • *UNI-DIRECTIONAL CARTRIDGE VALVE*



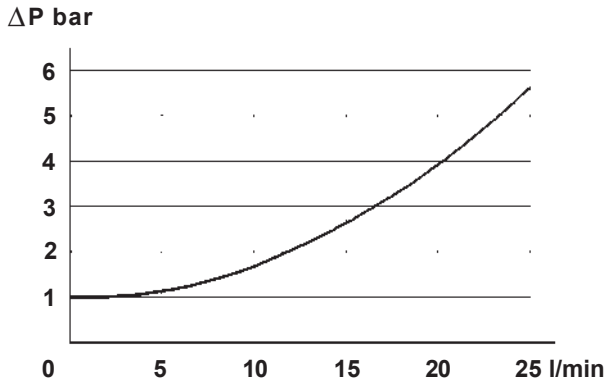




Tipo *Type*	Diam. nominale di passaggio *Ø Size* mm	Portata Max. *Max. flow* l/min	Pressione Max. *Max. pressure* bar	Pressione di apertura *Cracking pressure* bar	Cavità *Cavity* n°	Peso *Weight* kg
VU4	6	25	310	1	14	0,050

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

Diagramma caduta di pressione della cartuccia
Cartridge pressure drop diagram



CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	4	0	0	0	W	_	_	0	1	0	0	Z	_	_

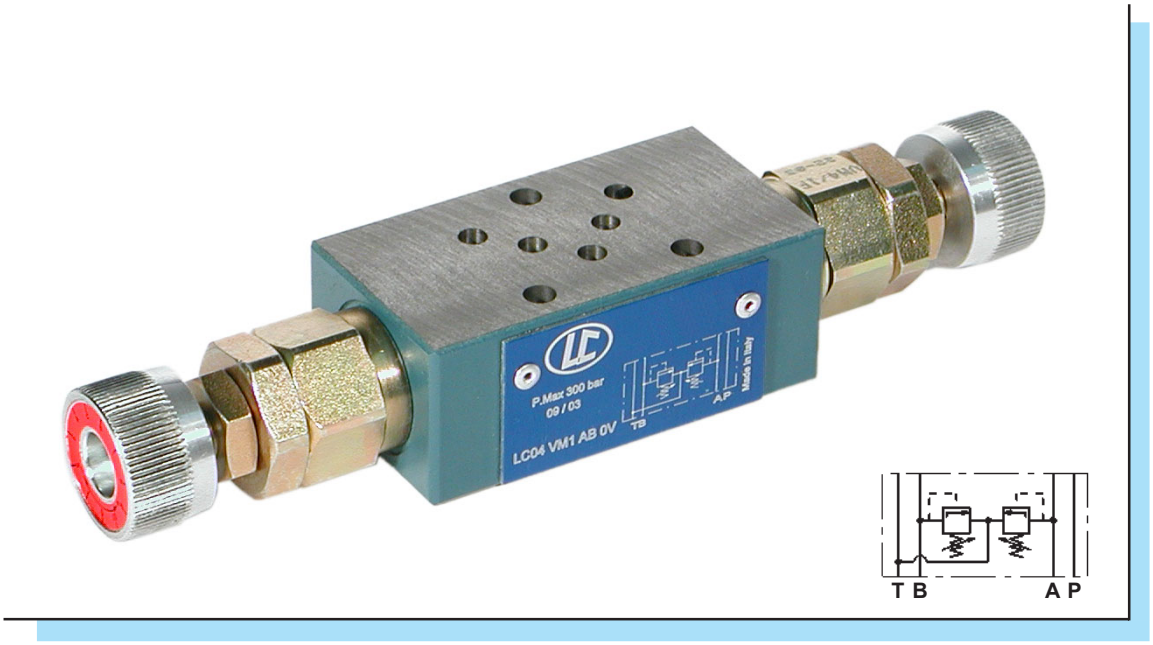
W	TIPI DI VALVOLE *VALVES TYPE*
AB	LC04M-VR/AB
0A	LC04M-VR/A
0B	LC04M-VR/B
0P	LC04M-VR/P
0T	LC04M-VR/T

Z	VERSIONE *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04M VM

Valvole modulari limitatrici di pressione

Modular pressure relief valves



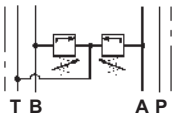
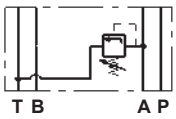
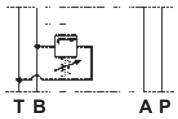
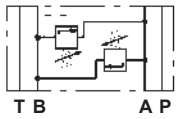
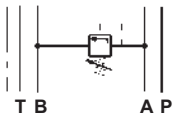
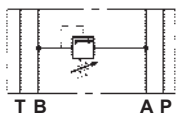
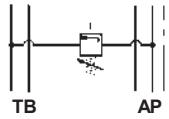
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H- 4.2- 4 P02 (CETOP 2)

Portata massima: 20 l/min
Pressione massima d'esercizio: 310 bar

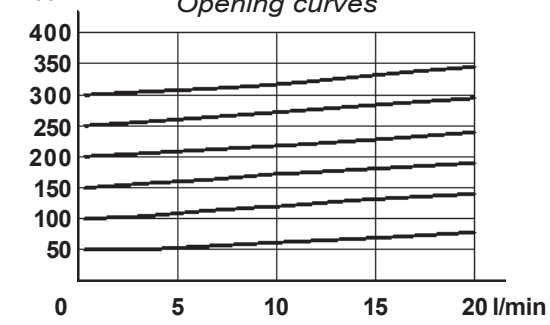
TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Max flow: 20 l/min
Max operating pressure: 310 bar

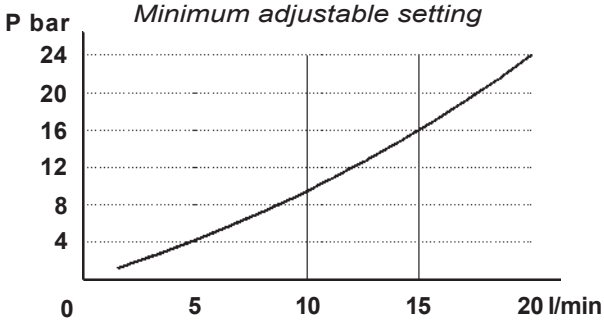
TIPI DI VALVOLE • *VALVES TYPES*

01AB	010A	010B	02AB	020A	020B	010P
						
T B A P	T B A P	T B A P	T B A P	T B A P	T B A P	TB AP

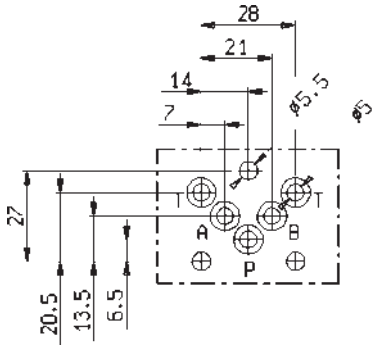
Curve di apertura
Opening curves



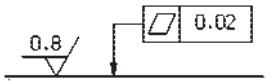
Valore minimo di taratura
Minimum adjustable setting



GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)

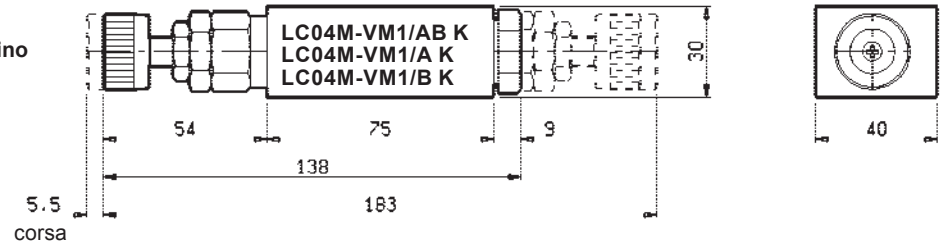


Qualità superficie di attacco
Mounting plane quality

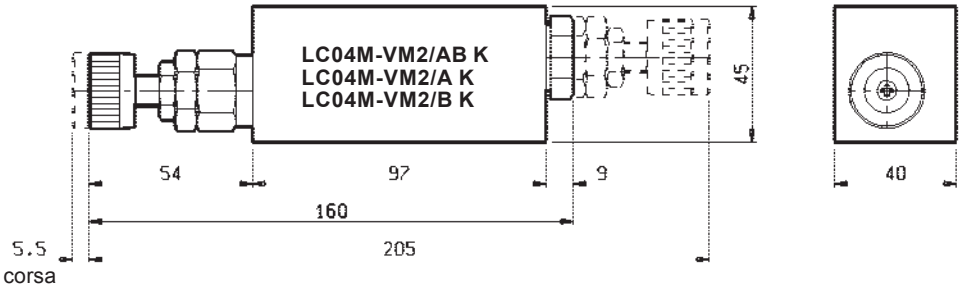


DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

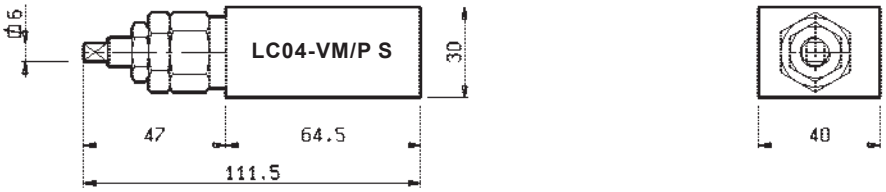
K = **Valvola con taratura volantino**
Knob adjustment



Peso *Weight*	
LC04M-VM1/AB	0.74 kg
LC04M-VM1/A	0.69 kg
LC04M-VM1/B	0.69 kg
LC04M-VM2/AB	1.40 kg
LC04M-VM2/A	1.35 kg
LC04M-VM2/B	1.35 kg
LC04M-VM/P	0.58 kg

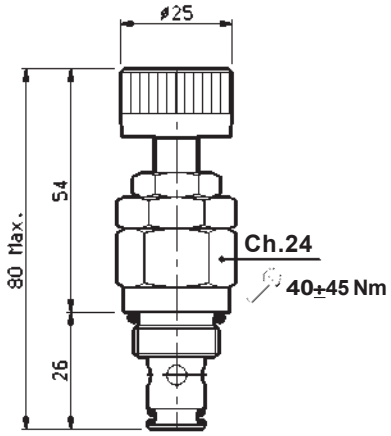


S = **Valvola con** taratura **a chiave**
Screw adjustment

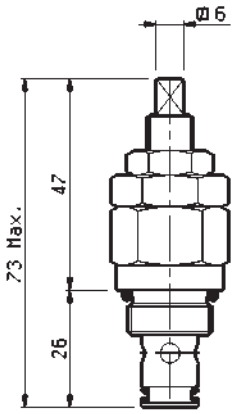


VALVOLA LIMITATRICE DI PRESSIONE A CARTUCCIA
RELIEF VALVE CARTRIDGE

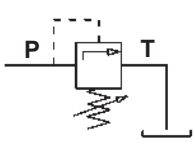
Tipo K
Type

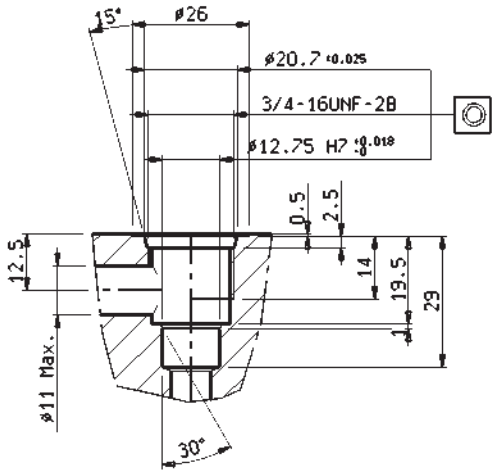


Tipo S
Type



VM 4





X		Portata Max. *Max. flow* l/min	Pressione Max. *Max. pressure* bar	Campo di taratura *Pressure range* bar	Cavità *Cavity* nr.	Peso *Weight* kg
Tipo (regolazione a volantino) *Type (knob adjustment)*	**Tipo (regolazione a vite)** *Type (screw adjustment)*					
KN	**SN**	20	310	0÷80	12	0,160
KB	**SB**			5÷160		
KV	**SV**			25÷310		

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	6	0	V	W	X	0	0	Z

V	**MODELLO** *MODEL*
01	**MODELLO 01 (scarico in T)** *MODEL 01 (T outlet)*
02	**MODELLO 02 (scarico incrociato)** *MODEL 02 (cross-over outlet)*

W	**TIPI DI VALVOLE** *VALVES TYPE*
AB	LC04M-VM_/AB
0A	LC04M-VM_/A
0B	LC04M-VM_/B
0P	LC04M-VM_/P

X	**CAMPO DI TARATURA** *PRESSURE RANGE*
– –	**VEDI SOPRA** *SEE ABOVE*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04M VF

Valvole modulari di controllo portata

Modular flow regulator valves



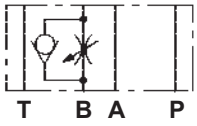
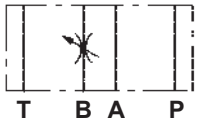
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H- 4.2- 4 P02 (CETOP 2)

Portata massima: 20 l/min
Pressione massima d'esercizio: 310 bar

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Max flow: 20 l/min
Max operating pressure: 310 bar

TIPI DI VALVOLE • *VALVES TYPES*

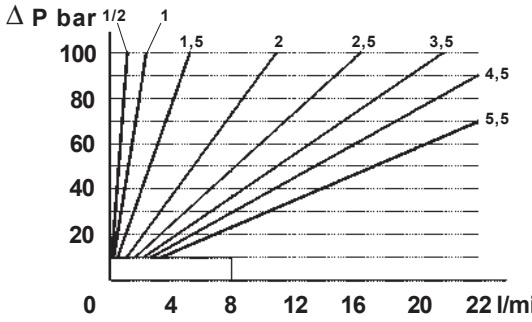
01AB	010A	010B	02AB	020A
				
020B	**0B0A**	**0B0B**	**0B0P**	**V = 01** Regolazione in ritorno *Meter-Out flow* **V = 02** Regolazione in mandata *Meter-In flow* **V = 0B** Bidirezionale *Bidirectional*
				

T B A P

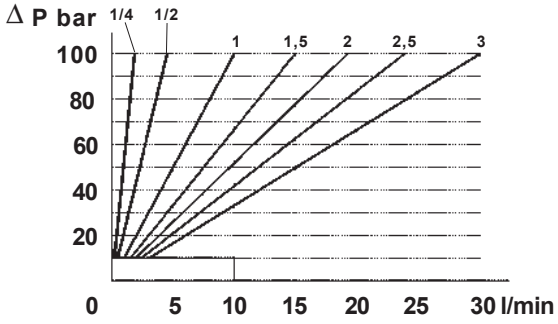
CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

Variazione di portata in funzione dei giri del volantino e della pressione
Pressure drop depending on knob revolutions from opening start

VF1 - VF2

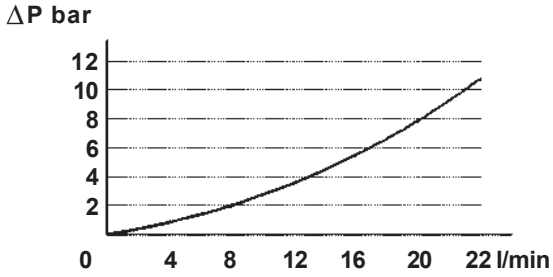


VFB

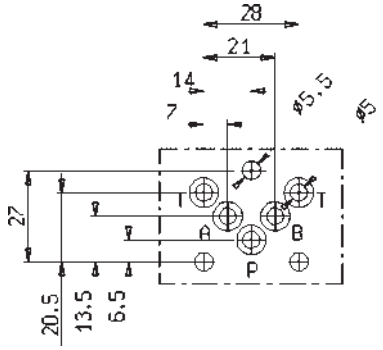


Caduta di pressione nel senso del flusso libero
Pressure drop in the free flow direction

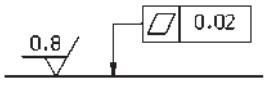
VF1 - VF2



GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)



Qualità superficie di attacco
Mounting plane quality

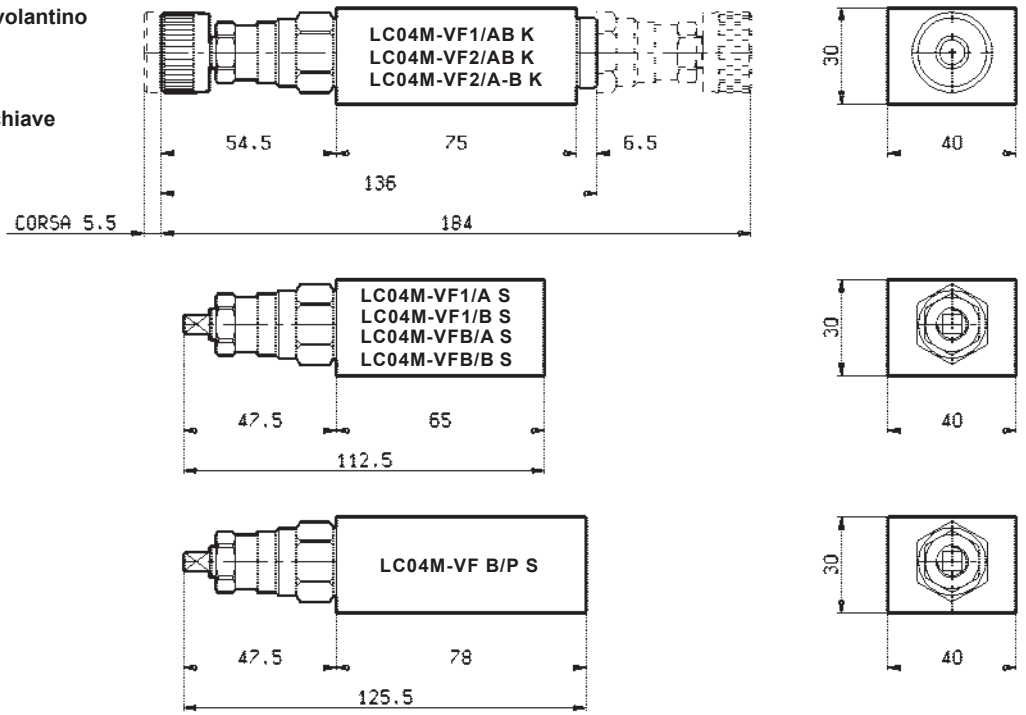


DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

K = **Valvola con regolazione a volantino**
Knob adjustment

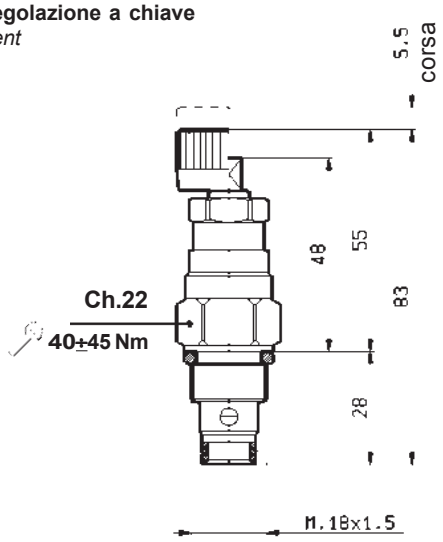
S = **Valvola con regolazione a chiave**
Screw adjustment

Peso *Weight*	
LC04M-VF1/AB	0.86 kg
LC04M-VF1/A	0.80 kg
LC04M-VF1/B	0.80 kg
LC04M-VF2/AB	0.86 kg
LC04M-VF2/A-B	0.80 kg
LC04M-VFB/A	0.80 kg
LC04M-VFB/B	0.80 kg
LC04M-VFB/P	0.70 kg



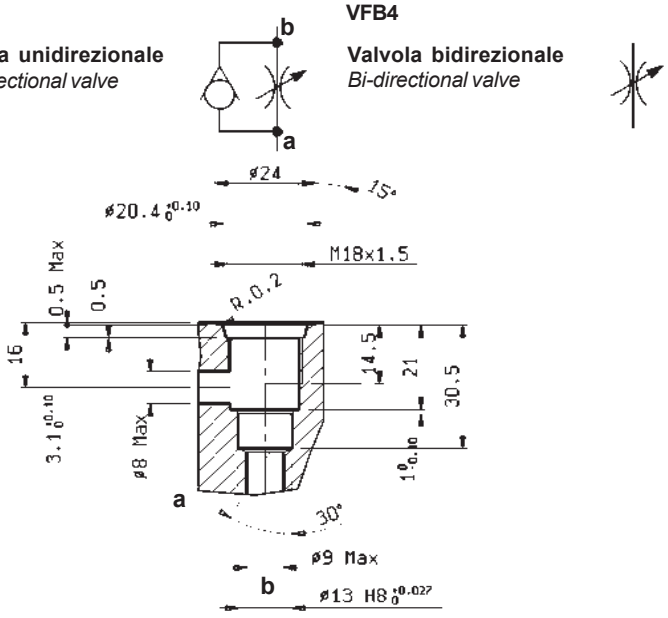
VALVOLA A CARTUCCIA • *CARTRIDGE VALVE*

S = **Valvola con regolazione a chiave**
Screw adjustment



VFU4
Valvola unidirezionale
Uni-directional valve

VFB4
Valvola bidirezionale
Bi-directional valve



K = **Valvola con regolazione a volantino**
Knob adjustment

Modello *Model*		**Regolazione a volantino** *Knob adjustment*	**Regolazione a vite** *Screw adjustment*	**Portata Max.** *Max. flow* **l/min**	**Numero di giri del volantino** *Knob revolutions number* **n°**	**Cavità** *Cavity* **n°**	**Peso** *Weight* **kg**
VFU4	**01**	**1K**	**1S**	20	5.5	14	0,130
VFU4	**02**	**1K**	**1S**	20			0,130
VFB4	**0B**	**2K**	**2S**	30			0,130

L	6	0	5	0	_V_	_W_	_X_	0	0	_Z_

V	**MODELLO** *MODEL*
01	**MODELLO 01** *MODEL 01*
02	**MODELLO 02** *MODEL 02*
0B	**MODELLO 0B** *MODEL 0B*

W	**TIPI DI VALVOLE** *VALVES TYPE*
AB	LC04M-VF_/AB
0A	LC04M-VF_/A
0B	LC04M-VF_/B
0P	LC04M-VF_/P

X	**REGOLAZIONE** *ADJUSTMENT*
– –	**VEDI PAG. 1.70.03** *SEE PAGE 1.70.03*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04M VFCU

Valvole modulari compensate di controllo portata

Modular pressure compensated flow regulator valves



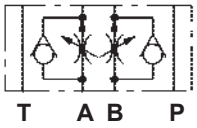
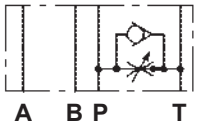
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

Portata massima: 15 l/min
Pressione massima d'esercizio: 310 bar

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

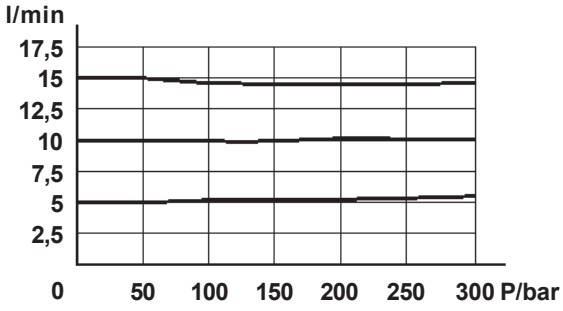
Max flow: 15 l/min
Max operating pressure: 310 bar

TIPI DI VALVOLE • *VALVES TYPES*

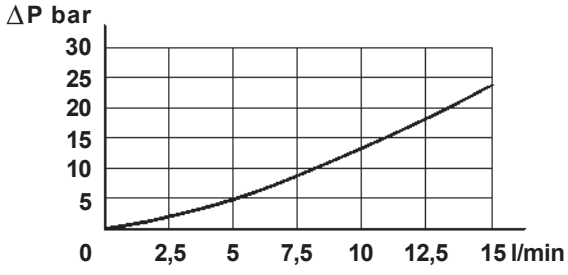
AB	0A	0B	0P	0T
				
T A B P	T A B P	T A B P	T A B P	A B P T

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

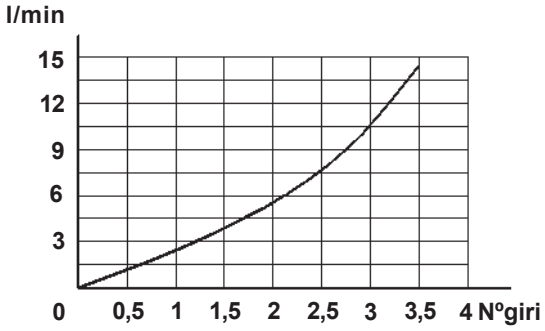
Variazione di portata in funzione della pressione
Flow change depending on pressure



Caduta di pressione nel senso del flusso libero
Pressure drop in the free flow direction

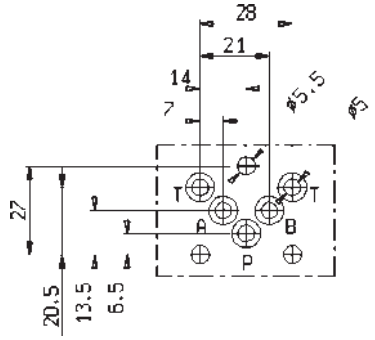


Regolazione portata in funzione dei giri del volantino
Flow adjustment depending on knob revolution

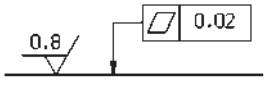


Regolazione a volantino *Knob adjustment*	Regolazione a vite *Screw adjustment*	Portata Max. *Max. flow* l/min	Numero di giri del volantino *Knob revolutions number* n°
1K	1S	15	3,5

GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)



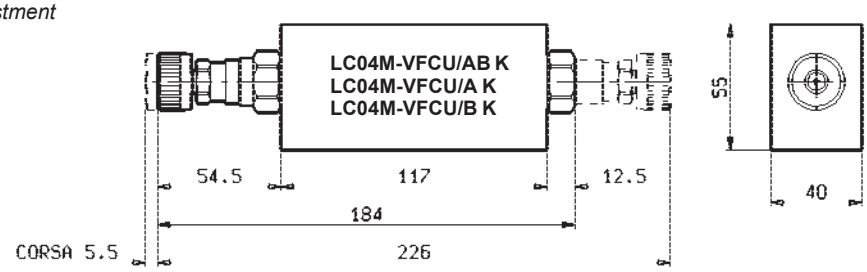
Qualità superficie di attacco
Mounting plane quality

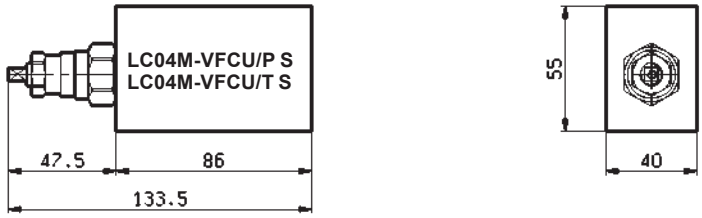


DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

K = **Valvola con regolazione a volantino**
Knob adjustment

Peso *Weight*	
LC04M-VFCU/AB	1.00 kg
LC04M-VFCU/A	0.80 kg
LC04M-VFCU/B	0.80 kg
LC04M-VFCU/P	0.60 kg
LC04M-VFCU/T	0.60 kg





S = **Valvola con regolazione a chiave**
Screw adjustment

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	4	5	0	0	W	X	0	0	Z

W	TIPI DI VALVOLE *VALVES TYPE*
AB	LC04M-VFCU/AB
0A	LC04M-VFCU/A
0B	LC04M-VFCU/B
0P	LC04M-VFCU/P
0T	LC04M-VFCU/T

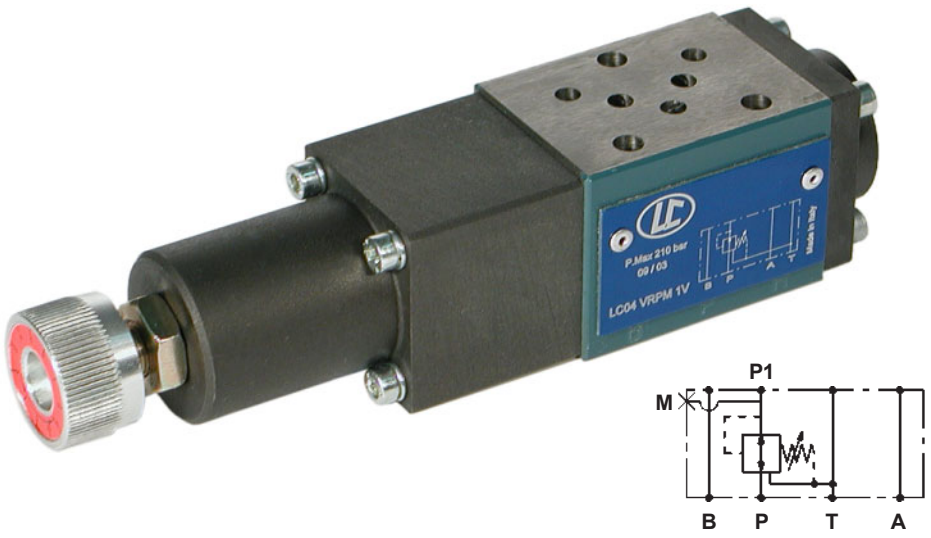
X	REGOLAZIONE *ADJUSTMENT*
– –	**VEDI PAG. 1.80.02** *SEE PAGE 1.80.02*

Z	VERSIONE *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04M VRPM

Valvole modulari riduttrici di pressione

Modular pressure reducing valves



CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H- 4.2- 4 P02 (CETOP 2)

Portata massima : 10 l/min
Pressione massima in entrata: 210 bar
Pressione controllata in uscita: 5÷210 bar
Valvole riduttrici di pressione agenti su P

TECHNICAL CHARACTERISTICS
Grandezza: NG4 CETOP RP 121 H- 4.2- 4 P02 (CETOP 2)

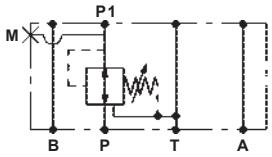
Max flow : 10 l/min
Inlet max pressure: 210 bar
Controlled pressure at outlet port: 5 to 210 bar
Pressure reducing valves acting on P

TIPI DI VALVOLE • *VALVES TYPES*

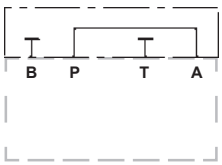
LC04M-VRPM /IP

Drenaggio interno in T

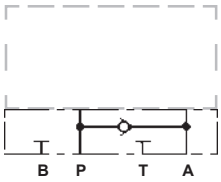
Internal drain to T



LC04PR1



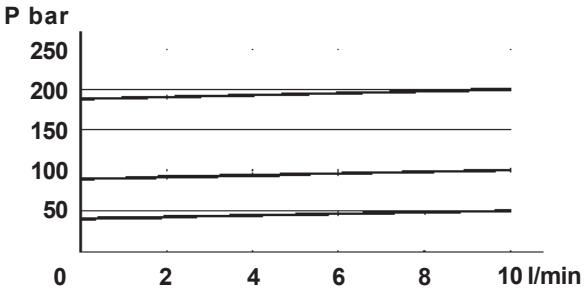
LC04PR2



CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

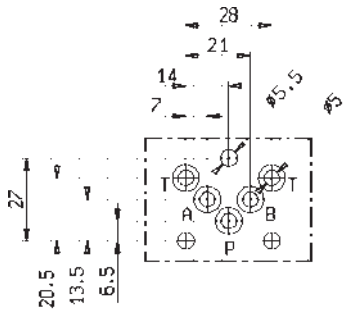
Pressione ridotta

Reduced pressure



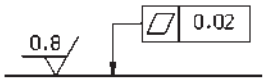
Tipo (regolazione a volantino) *Type (knob adjustment)*	Tipo (regolazione a vite) *Type (screw adjustment)*	Campo di taratura *Pressure range*	Peso *Weight*
1K	1S	5 ÷ 40 bar	1.0 kg
2K	2S	10 ÷ 100 bar	
3K	3S	20 ÷ 210 bar	

GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)



Qualità superficie di attacco

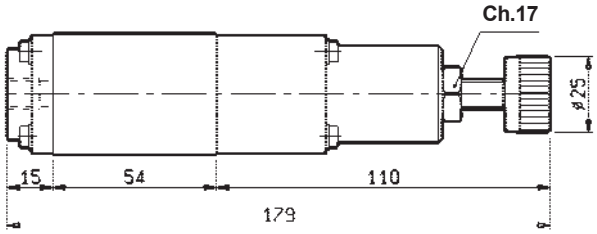
Mounting plane quality

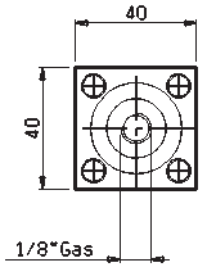


DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

K = Valvola con taratura a volantino

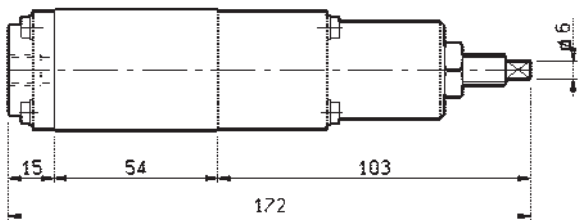
Knob adjustment





S = Valvola con taratura a chiave

Screw adjustment

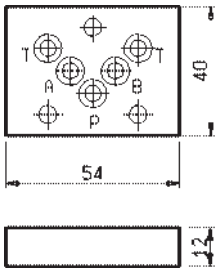


DIMENSIONI DI INGOMBRO PIASTRE • *PLATES OVER-ALL DIMENSIONS*

LC04PR1

Piastra di collegamento
Connection sub-plate

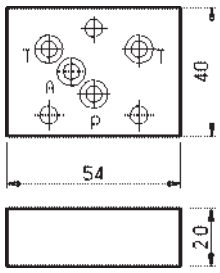
P → A



LC04PR2

Piastra con ritegno da
Sub-plate with check valve from

A → P



Codice *Code*	**Peso** *Weight*
LC04PR1	0.20 kg
LC04PR2	0.35 kg

CARATTERISTICHE DI FUNZIONAMENTO • *SPECIFICATIONS*

Le valvole LC04M-VRPM, sono da impiegare quando in un circuito si vuole ottenere una riduzione costante di pressione.
Eventuali aumenti di pressione sull'entrata "P" non hanno influenza sulla pressione ridotta "P1".
LC04M-VRPM pressione ridotta su utilizzo "P1".

The valves LC04M-VRPM must be used when in a circuit a constant reduced pressure is needed.
Possible pressure increase on the inlet "P" Line do not influence the reduced pressure "P1".
LC04M-VRPM reduced pressure on port "P1".

CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	6	3	0	1	I	P	X	0	0	Z
									_			_

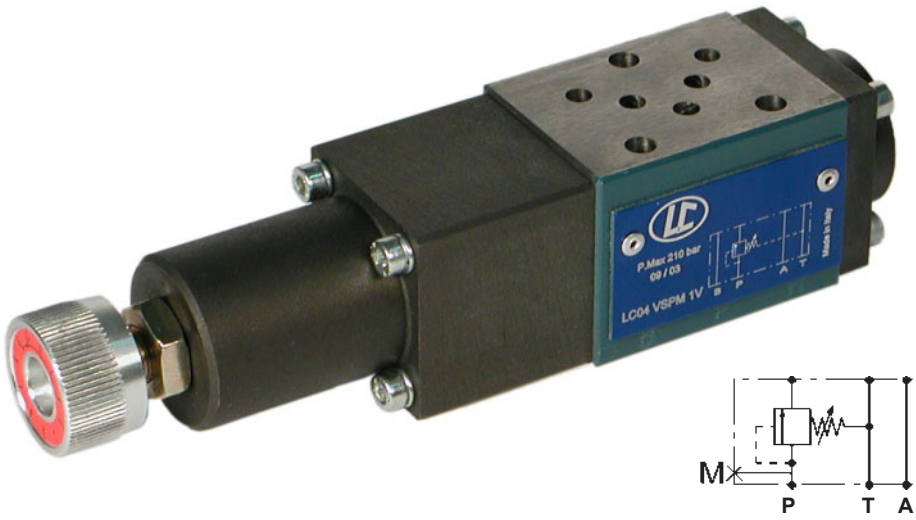
X	**REGOLAZIONE** *ADJUSTMENT*
– –	**VEDI PAGINA 1.90.02** *SEE PAGE 1.90.02*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04M VSPM

Valvole modulari di sequenza

Modular sequence valves



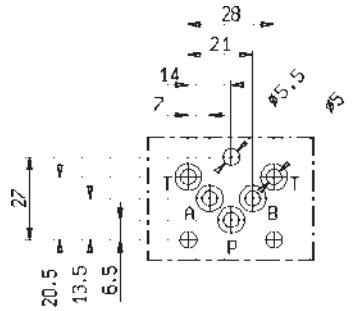
CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2-4 P02 (CETOP 2)

Portata massima: 10 l/min
Pressione massima in entrata: 210 bar
Pressione controllata in uscita: 5 ÷ 210 bar
Valvole di sequenza agenti su P

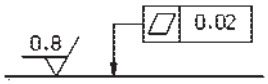
TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Max flow: 10 l/min
Inlet max pressure: 210 bar
Controlled pressure at outlet port: 5 to 210 bar
Sequence valves acting on P

GRANDEZZA • *SIZE* : NG4 CETOP RP 121H- 4.2- 4 P02 (CETOP 2)



Qualità superficie di attacco
Mounting plane quality

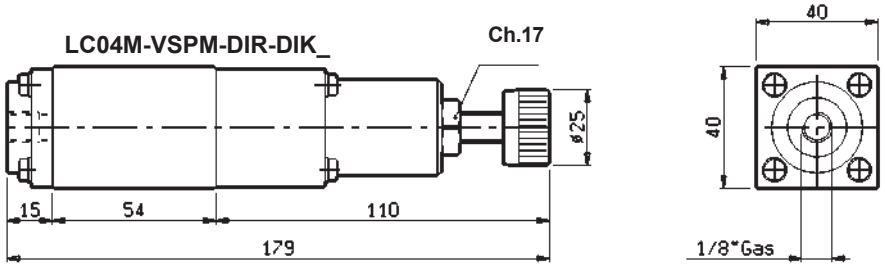


X CARATTERISTICHE TECNICHE • *TECHNICAL CHARACTERISTICS*

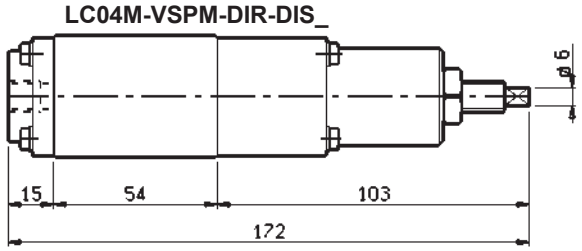
X		Campo di taratura *Pressure range*	Peso *Weight*
Regolazione a volantino *Knob adjustment*	**Regolazione a vite** *Screw adjustment*		
KN	**SN**	5 ÷ 40 bar	1.00 kg
KB	**SB**	10 ÷ 100 bar	
KV	**SV**	20 ÷ 210 bar	

DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

K = **Valvola con taratura a volantino**
Knob adjustment



S = **Valvola con taratura a chiave**
Screw adjustment



CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	3	0	0	1	D	I	X	_	0	0	Z	_

X	**REGOLAZIONE** *ADJUSTMENT*
_ _	**VEDI SOPRA** *SEE ABOVE*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

LC04 VFCU

Valvole compensate di controllo portata

Pressure compensated flow regulator valves





CARATTERISTICHE TECNICHE

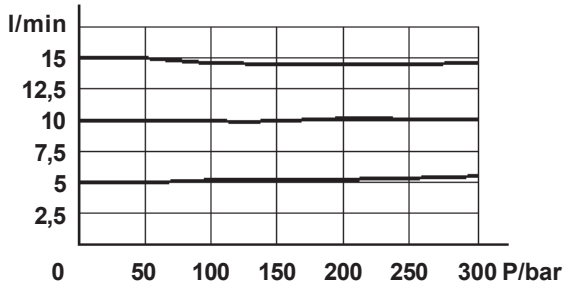
Portata massima: 15 l/min
Pressione massima d'esercizio: 310 bar

TECHNICAL CHARACTERISTICS

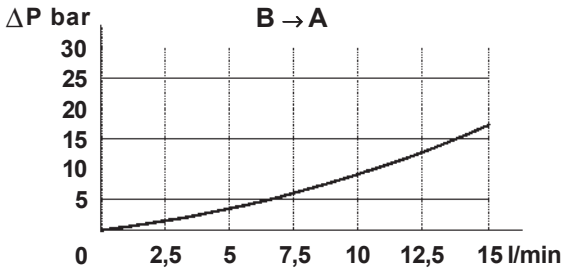
Max flow: 15 l/min
Max operating pressure: 310 bar

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

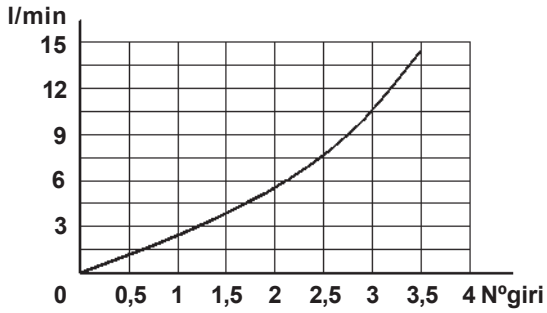
Variazione di portata in funzione della pressione
Flow change depending on the pressure



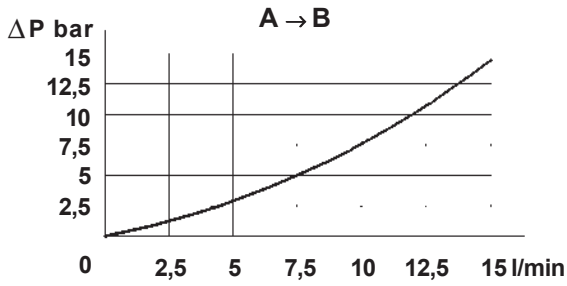
Caduta di pressione nel senso del flusso libero
Pressure drop in the free flow direction



Regolazione portata in funzione dei giri del volantino
Flow adjustement depending on knob revolutions



Caduta di pressione da A→B (con regolatore aperto)
Pressure drop from A to B (with opened regulator)

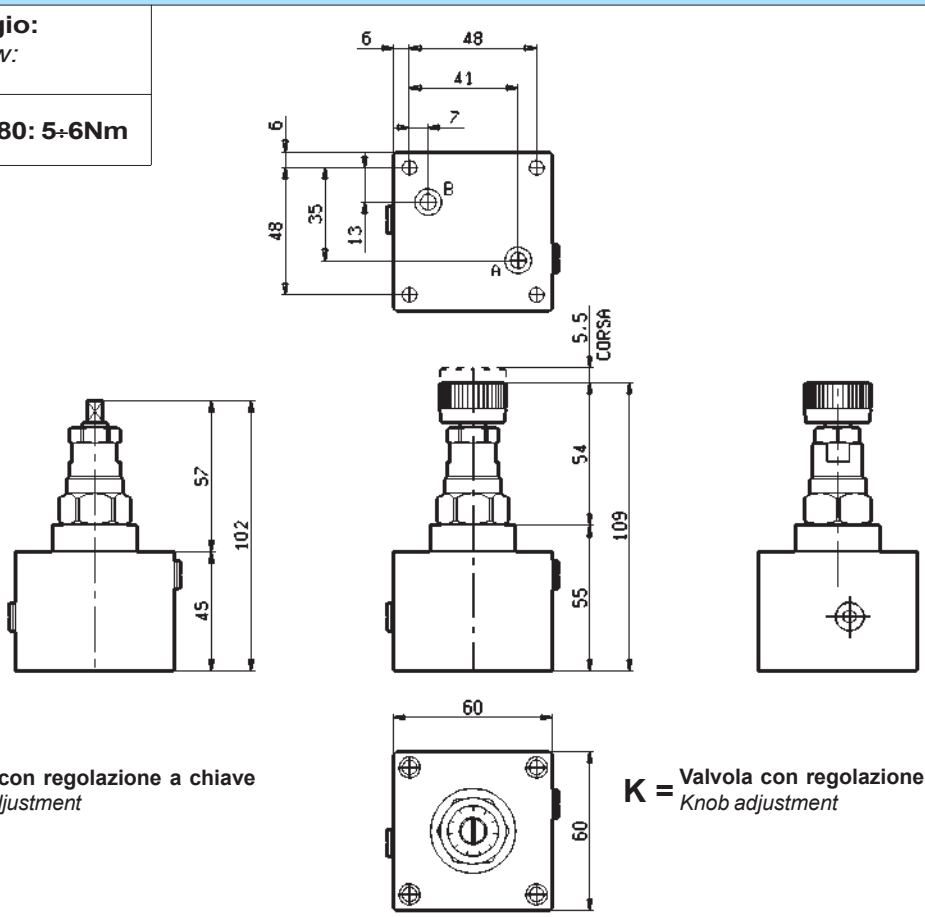


X		Portata Max. *Max. flow* l/min	Numero di giri del volantino *Knob revolutions number* n°
Regolazione a volantino *Knob adjustment*	Regolazione a vite *Screw adjustment*		
1K	1S	15	3,5

DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

Viti di fissaggio:
Fixing screw:

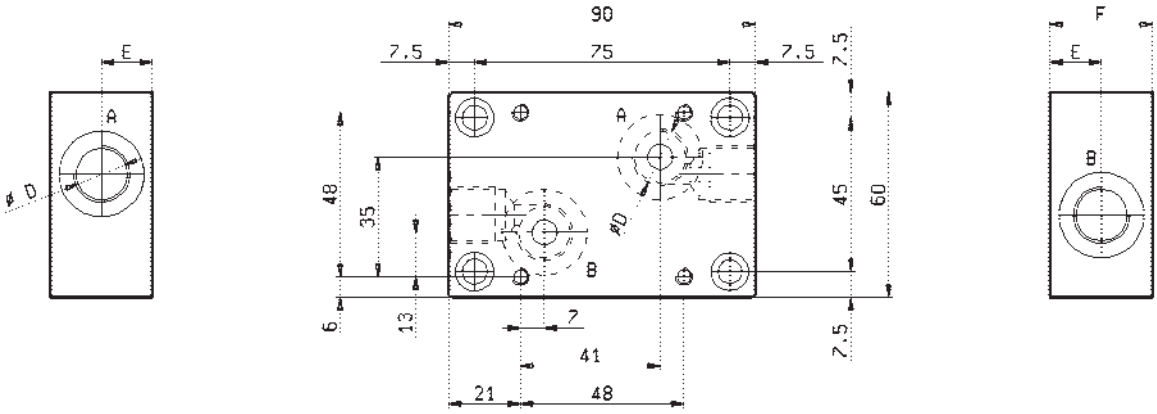
N°4 DIN 912-8.8 M5x80: 5÷6Nm



S = **Valvola con regolazione a chiave**
Screw adjustment

K = **Valvola con regolazione a volantino**
Knob adjustment

PIASTRA • *PLATE*



Codice *Code*	Ø D	E mm	F mm	Pesi *Weight*
PDM 016	1/4" gas	13	26	0,95
PDM 018	3/8" gas	15	30	1,05

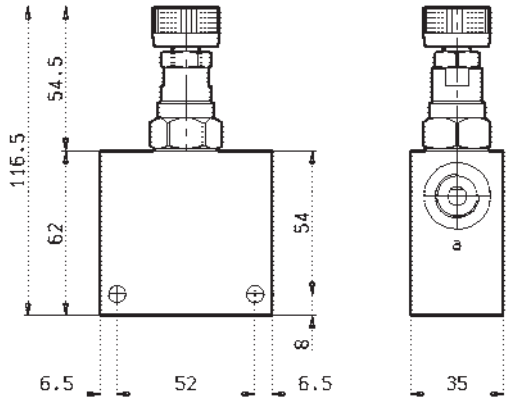
CODICE DI ORDINAZIONE • *ORDERING CODE*

L	5	0	4	5	0	0	0	0	X	0	0	Z

X	**REGOLAZIONE** *ADJUSTMENT*
– –	**VEDI PAGINA 1.110.02** *SEE PAGE 1.110.02*

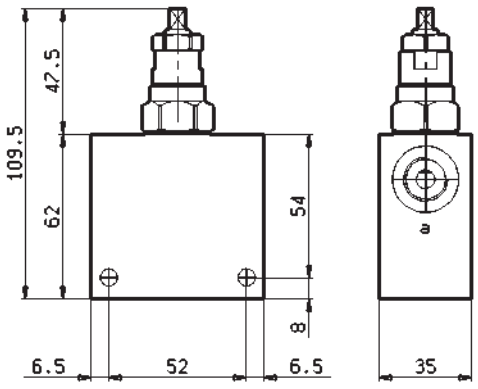
Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

K = **Valvola con regolazione a volantino**
Knob adjustment



Descrizione *Description*	**Codice** *Code*	**Attacchi** *Ports*	**Pesi** *Weights*
CFCU4/14 + VFCU4/K	**L97552100000010**	G 1/4”	0,50 kg
CFCU4/38 + VFCU4/K	**L97552100000012**	G 3/8”	0,48 kg

S = **Valvola con regolazione a vite**
Screw adjustment



Descrizione *Description*	**Codice** *Code*	**Attacchi** *Ports*	**Pesi** *Weights*
CFCU4/14 + VFCU4/S	**L97552100000009**	G 1/4”	0,50 kg
CFCU4/38 + VFCU4/S	**L97552100000011**	G 3/8”	0,48 kg

LC04M RL

Valvole modulari compensate rapido - lento

Modular compensated valves quick - slow



CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

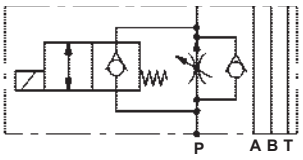
Portata massima: 20 l/min
Portata massima regolata: 15 l/min
Pressione massima d'esercizio su A-B-P: 250 bar

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

Max flow: 20 l/min
Max regulated flow: 15 l/min
Max operating pressure on A-B-P: 250 bar

TIPI DI CIRCUITI • *SPOOL TYPES*

P



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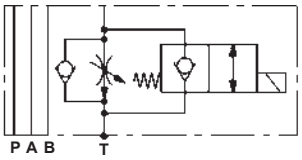
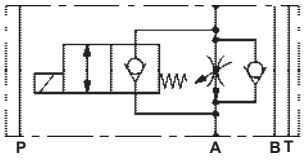
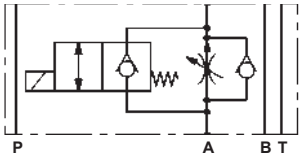


R



Regolazione in ritorno
Meter-Out

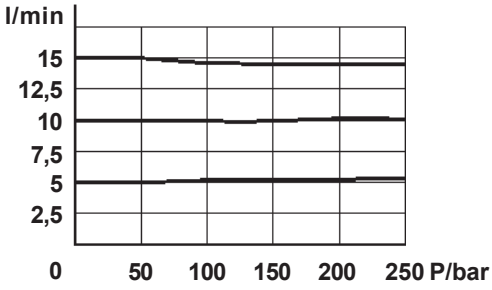
M



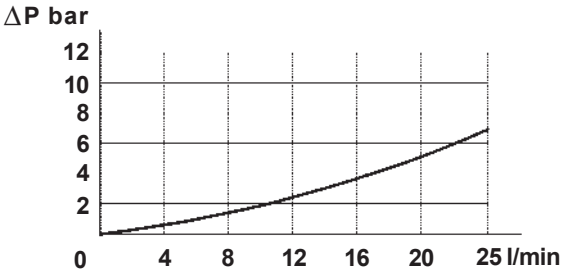
Regolazione in mandata
Meter-In

CARATTERISTICHE TECNICHE • *TECHNICAL FEATURES*

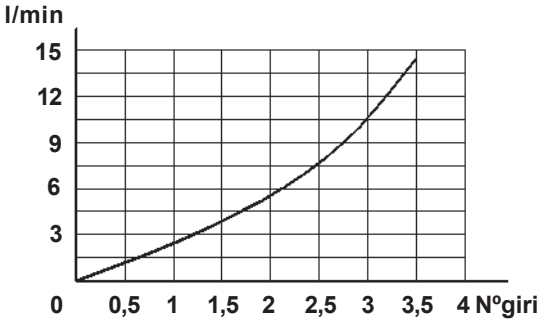
Variazione di portata in funzione della pressione
Flow change depending on pressure



Caduta di pressione nel senso del flusso libero
Pressure drop in the free flow direction



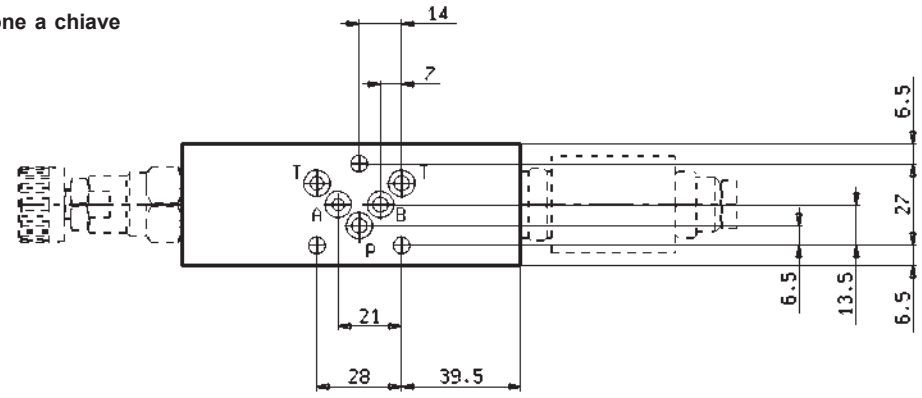
Regolazione portata in funzione dei giri del volantino
Flow adjustment depending on knob revolutions



Regolazione a volantino *Knob adjustment*	Regolazione a vite *Screw adjustment*	Portata Max. *Max. flow* l/min	Numero di giri del volantino *Knob revolutions number* n°
1K	1S	15	3,5

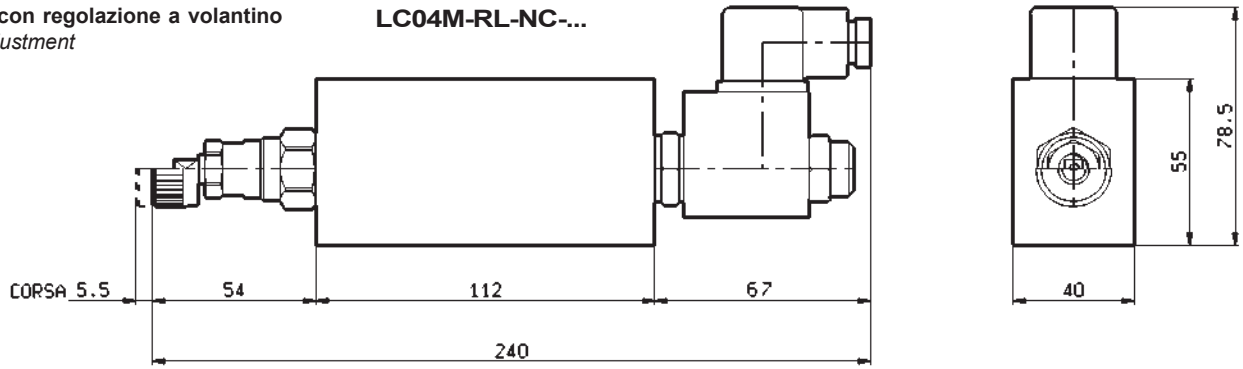
DIMENSIONI DI INGOMBRO • *OVER-ALL DIMENSIONS*

S = **Valvola con regolazione a chiave**
Screw adjustment



K = **Valvola con regolazione a volantino**
Knob adjustment

LC04M-RL-NC-...



CODICE DI ORDINAZIONE • *ORDERING CODE*

L	6	0	R	0	2	V	W	X	Y	Z
						_	_	_	_	_

V	**TIPI** *TYPES*
_ _	**VEDI PAGINA 1.120.02** *SEE PAGE 1.120.02*

X	**TENSIONE** *VOLTAGE*
OB	12V CC
OC	24V CC
_ _	**ALTRE TENSIONI A RICHIESTA** *OTHER VOLTAGE ON REQUEST*

Y	**CONNESSIONE** *CONNECTION*
00	**SENZA BOBINA, SENZA CONNETTORE** *WITHOUT COIL AND CONNECTOR*
01	**CON BOBINA, SENZA CONNETTORE** *WITH COIL, WITHOUT CONNECTOR*
02	**CON CONNETTORE DIN 43650** *WITH CONNECTOR DIN 43650*
_ _	**ALTRE CONNESSIONI A RICHIESTA** *OTHER CONNECTIONS ON REQUEST*

W	**REGOLAZIONE** *ADJUSTMENT*
_ _	**VEDI PAGINA 1.120.02** *SEE PAGE 1.120.02*

Z	**VERSIONE** *VERSION*
00	**STANDARD** *STANDARD*
0V	**GUARNIZIONI IN VITON** *SEALS IN VITON*

PA 02

Piastre per elettrovalvole LC 04

Plates for solenoid valves LC 04



CARATTERISTICHE TECNICHE
Grandezza: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

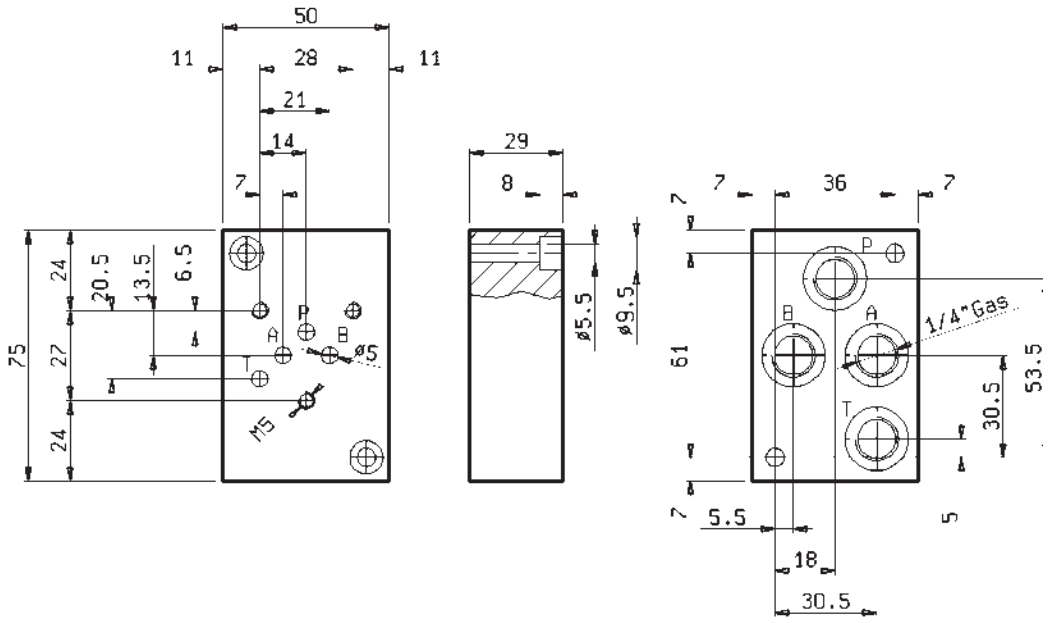
Disponibili con o senza valvola limitatrice di pressione
Versione standard in lega di alluminio 2011 UNI 9002 / 5
Pressione max di lavoro: 310 bar
Circuiti in parallelo. Circuiti in serie a richiesta

TECHNICAL CHARACTERISTICS
Size: NG4 CETOP RP 121 H-4.2- 4 P02 (CETOP 2)

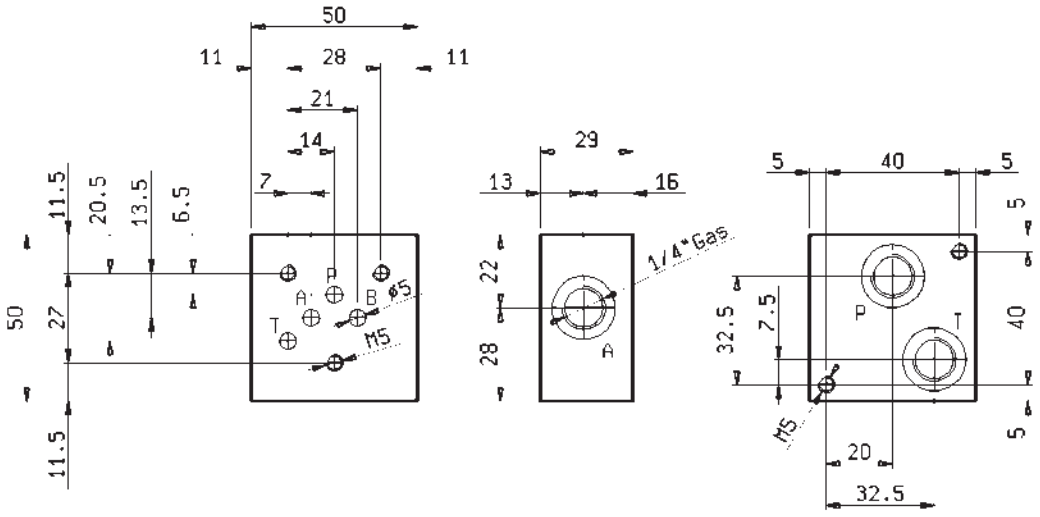
Available with or without pressure relief valve
Standard version made in aluminum 2011 UNI 9002 / 5
Max working pressure: 310 bar
Parallel circuits. Series circuits by request.

PIASTRE SINGOLE • *SINGLE PLATES*

Codice · *Code*	**Descrizione** · *Description*	**Attacchi** · *Ports*	**Peso** · *Weight*
PA0202009	**Attacchi A-B-P-T inferiori** *Rear A-B-P-T ports*	1/4" Gas	0,23 kg

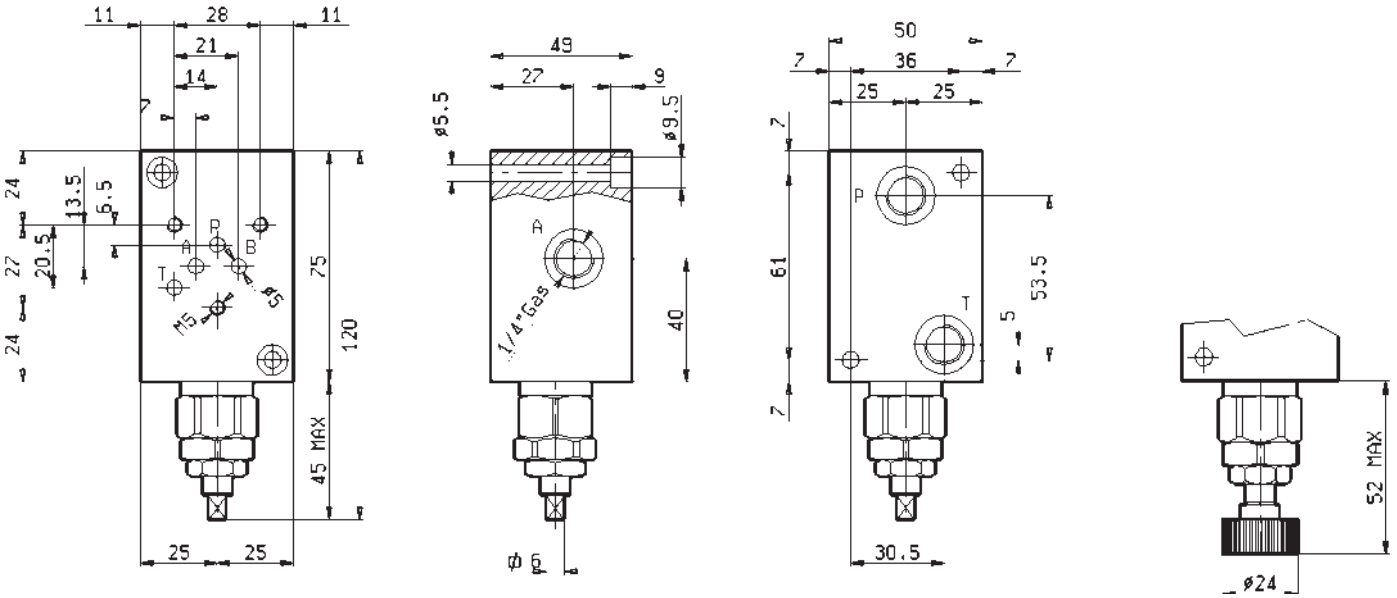


Codice · *Code*	**Descrizione** · *Description*	**Attacchi** · *Ports*	**Peso** · *Weight*
PA0202209	**Attacchi AB laterali opposti, PT inferiori** *AB opposite side ports, PT rear*	1/4" Gas	0,15 kg



PIASTRE SINGOLE • *SINGLE PLATES*

Codice · *Code*	**Descrizione** · *Description*	**Attacchi** · *Ports*	**Peso** · *Weight*
PA0202409/VV	**Attacchi A-B laterali opposti, P-T inferiori, con valvola limitatrice di pressione VM7 incorporata** *Side work A-B opposite ports, rear work P-T ports, with built-in pressure relief valve VM7*	1/4" Gas	0,36 kg

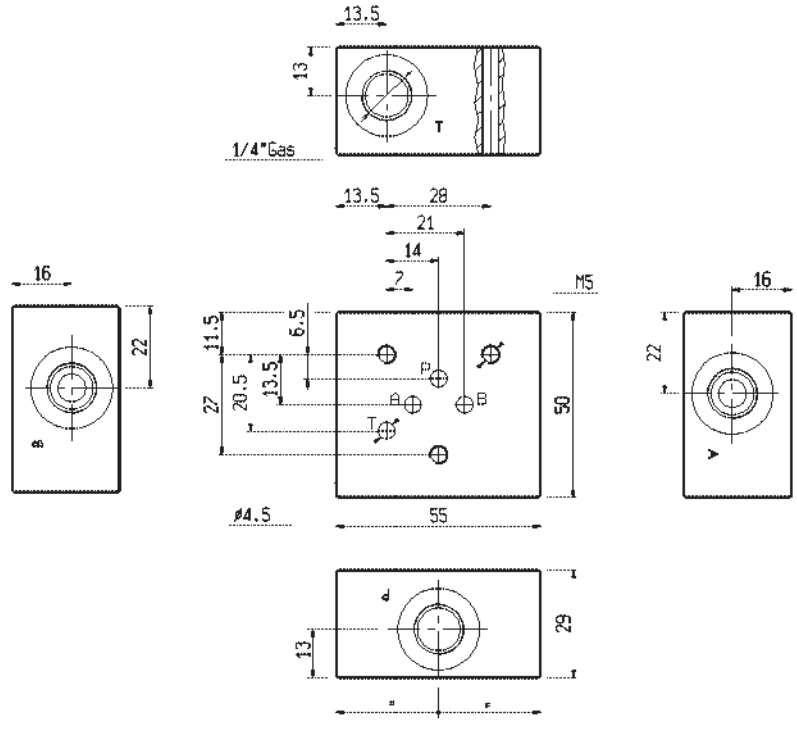


S = **Valvola con regolazione a chiave**
Screw adjustment

K = **Valvola con regolazione a volantino**
Knob adjustment

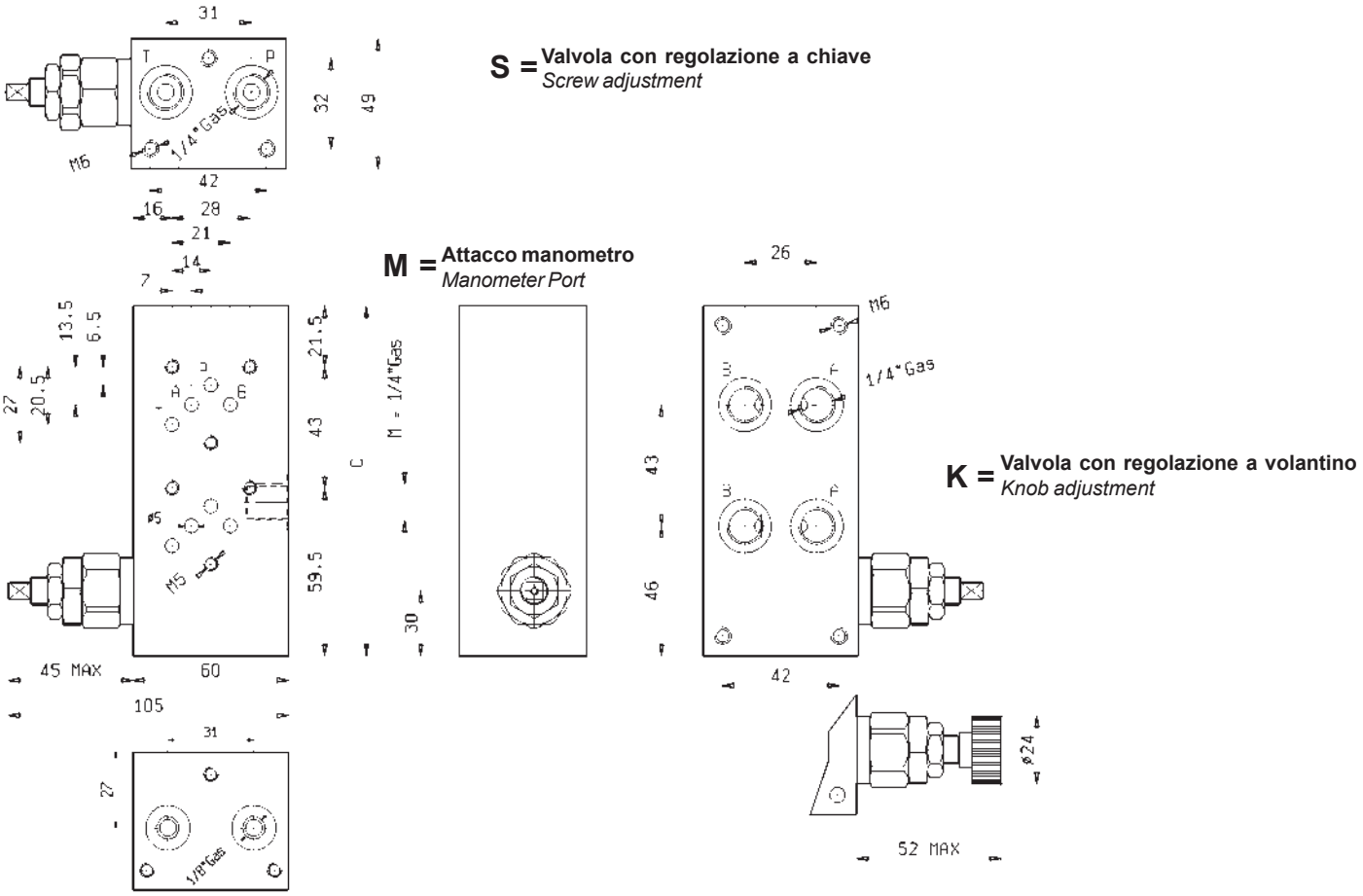
W = Codice valvola limitatrice di pressione (Vd pag 1.130.07)
W = Pressure relief valve code (See page 1.130.07)

Codice · *Code*	**Descrizione** · *Description*	**Attacchi** · *Ports*	**Peso** · *Weight*
PA0202609	**Attacchi ABPT sui quattro lati** *ABPT ports on four sides*	1/4" Gas	0,20 kg



PIASTRE MONOBLOCCO + PREDISPOSIZIONE ELEMENTI MODULARI
PLATES + MODULAR ELEMENTS ADJUSTMENT

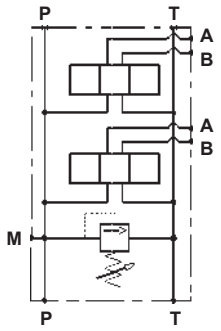
Codice · *Code*	**Descrizione** · *Description*	**Attacchi** · *Ports*
PA020810900X EP **PA0209109WVXEP**	**Attacchi PT inferiori, M laterale, AB posteriori, con valvola limitatrice di pressione VM7 incorporata** *Rear PT ports,side M port, rear AB ports, with built-in pressure relief valve VM7*	1/4" Gas



S = **Valvola con regolazione a chiave**
Screw adjustment

M = **Attacco manometro**
Manometer Port

K = **Valvola con regolazione a volantino**
Knob adjustment

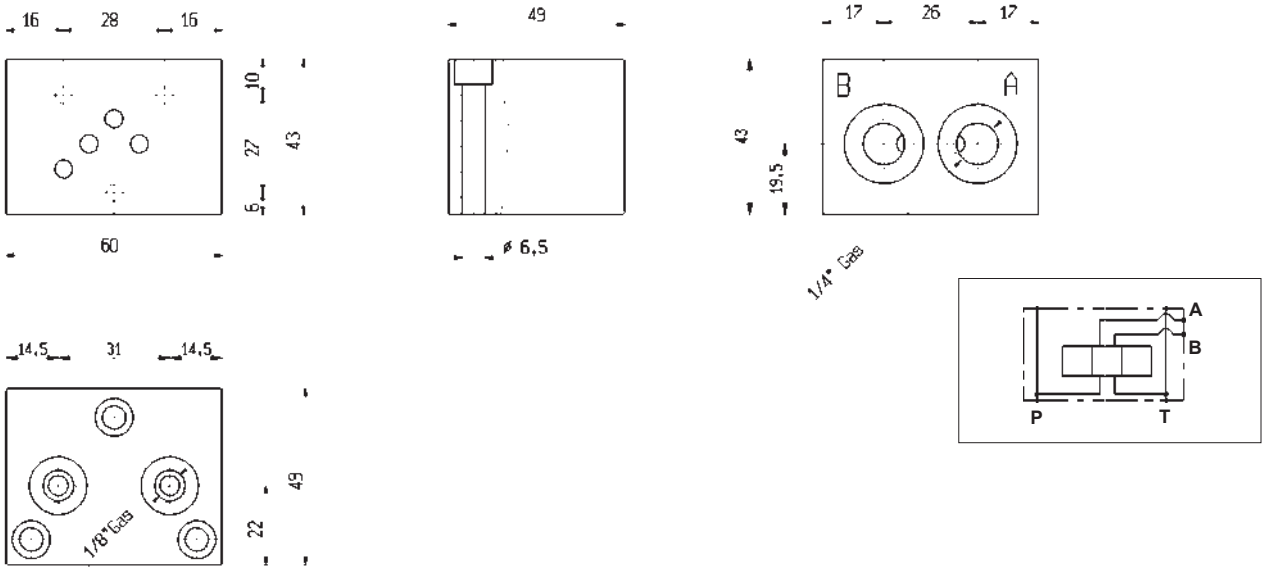
STANDARD **Collegamento in parallelo** *Parallel connection*		**X** **N. elettrovalvole** *n° of solenoid valve*	**C** **mm**	**Peso** *Weight* **kg**
	**Con valvola limitatrice di pressione VM4** *With pressure relief valve VM4* **W** (Vedi - *See* Pag.1.130.07)	1	81	0,48
		2	124	0,75
		3	167	1,02
		4	210	1,26
		5	253	1,50
		6	296	1,74
		7	339	1,98
		8	382	2,22
	Senza valvola limitatrice di pressione *Without pressure relief valve*	1	81	0,36
		2	124	0,63
		3	167	0,90
		4	210	1,14
		5	253	1,38
		6	296	1,62
		7	339	1,86
		8	382	2,10

ELEMENTI MODULARI SINGOLI • *MODULAR SINGLE ELEMENTS*

Codice · *Code*	**Descrizione** · *Description*	**Attacchi** · *Ports*	**Peso** · *Weight*
PA0203009	**Attacchi A-B posteriori** *Rear work A-b ports*	1/4" Gas	0,15 kg

Uno o più elementi modulari singoli si possono comporre con la piastra modulare PA02091 e PA02081 (Vedi pag 1.130.04)

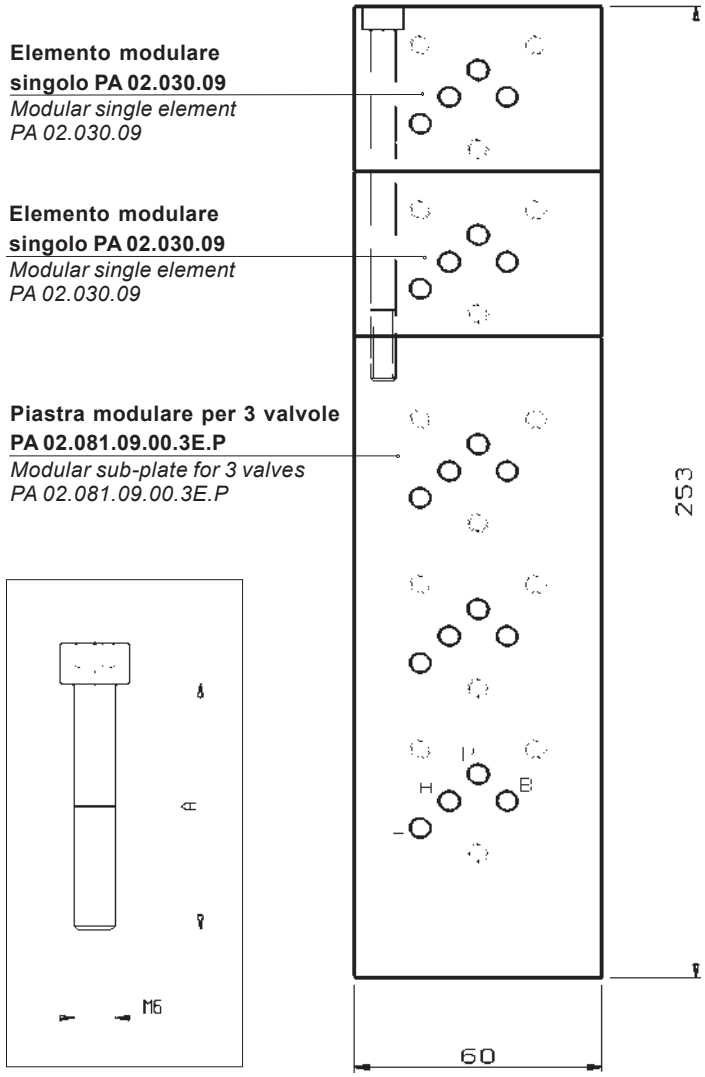
One or more single element can be assembled with PA02091 e PA02081 modular sub-plate (See page 1.130.04)



SOLUZIONI DI MONTAGGIO · *ASSEMBLING OPTIONS*

Viti di fissaggio
Fixing screws
N°3 DIN 912-8.8 M6 x A
Momento massimo di serraggio:
Maximum blocking torque:
7÷8Nm

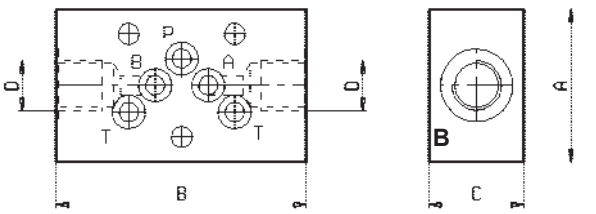
Esempio di montaggio
Assembling example



Nr. elementi modulari singoli da aggiungere *N° of modular single elements to be added*	**A** **mm**	**Codice vite** *Screw code*
1	50	42-0053
2	90	42-0054/A
3	135	42-0056/E
4	180	42-0057/A
5	220	-
6	265	-

PIASTRE DI COLLEGAMENTO • *CONNECTION SUB-PLATES*

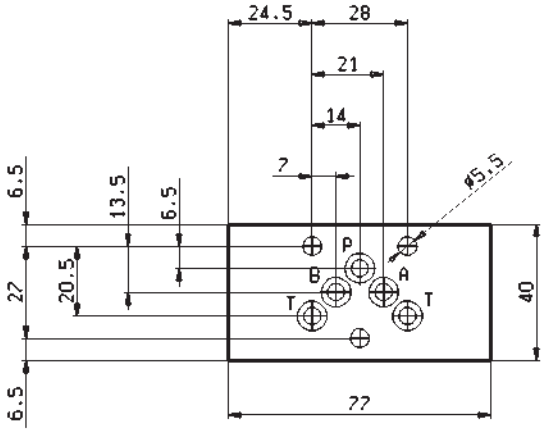
Codice · *Code*	**Descrizione** · *Description*
PA02 X 9	**Attacchi supplementari laterali (vedi tabella)** *Side aditionals ports (see table)*

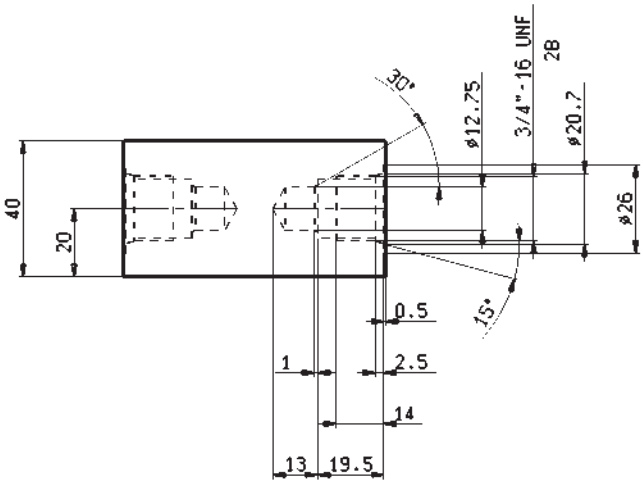


Collegamento supplementare *Additional connection*	**Attacchi** *Ports* **D**	**A** mm	**B** mm	**C** mm	**Peso** *Weight* **(Al 2011)**	**X**
A	1/4" Gas	40	66	25	0,25 kg	**0A**
B	1/4" Gas	40	66	25	0,25 kg	**0B**
A B	1/4" Gas	40	66	25	0,25 kg	**AB**
P T	1/4" Gas	40	66	25	0,25 kg	**PT**

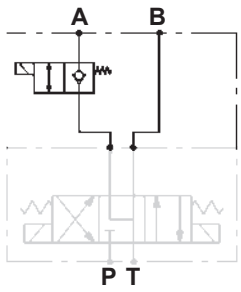
PIASTRE MODULARI PER VALVOLE VEI • *PACKING PLATES FOR VEI VALVES*

Codice · *Code*
PA02 _ Y _ 9

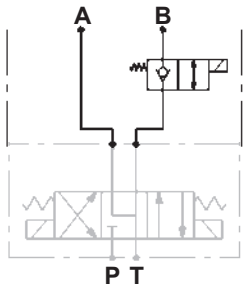




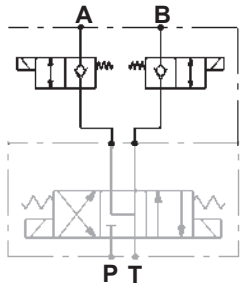
VEI/A



VEI/B



VEI/AB

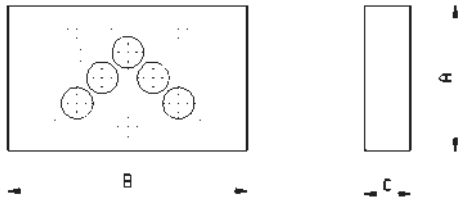


Attacco VEI *VEI port*	**Peso** *Weight*	**Y**
A	0,85 kg	**0A5**
B	0,85 kg	**0B5**
A + B	0,75 kg	**AB5**

Valvola/e VEI sono da ordinare separatamente (vedi pag. 1.120.03)
Every VEI valve must be ordered separately (see pag. 1.120.03)

PIASTRE DI CHIUSURA • *CLOSING PLATES*

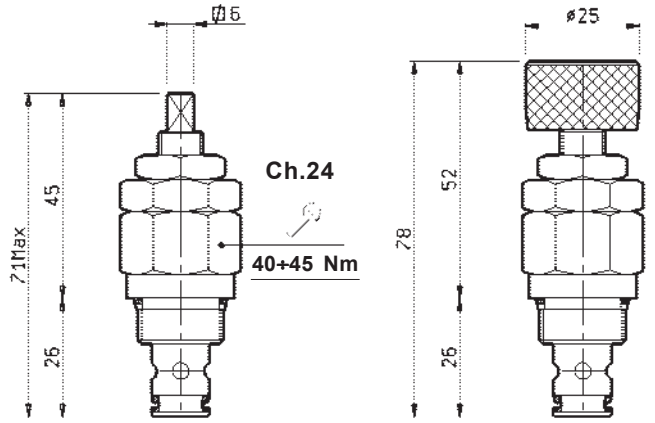
Codice · *Code*	A mm	B mm	C mm	Peso *Weight* (Al 2011)
PA02001	40	54	9,5	0,05 kg

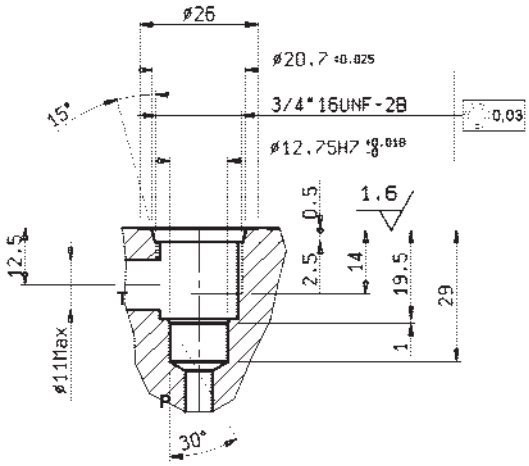


VALVOLA LIMITATRICE DI PRESSIONE A CARTUCCIA
CARTRIDGE TYPE PRESSURE RELIEF VALVE

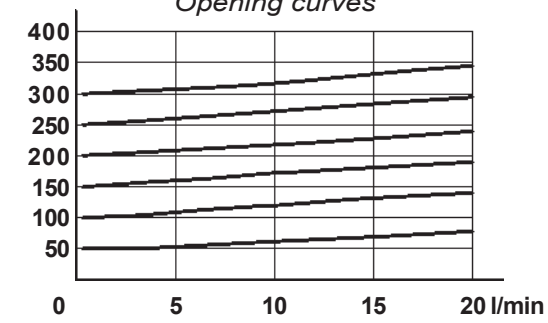
S = **Valvola con regolazione a chiave** *Screw adjustment*

K = **Valvola con regolazione a volantino** *Knob adjustment*

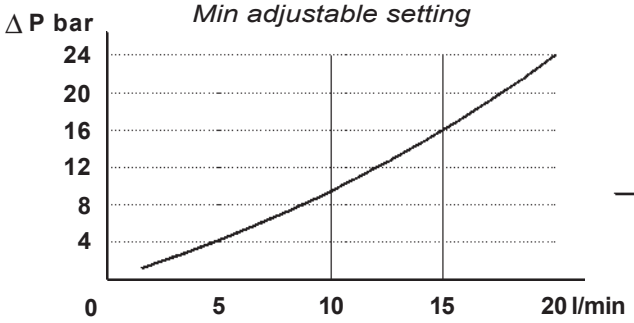


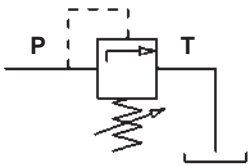


Curve di apertura
Opening curves



Valore min di taratura
Min adjustable setting





Tipo *Type*	Regolazione a volantino *Knob adjustment*	Regolazione a vite *Screw adjustment*	Portata Max. *Max. flow* l/min	Pressione Max. *Max. pressure* bar	Campo di taratura *Pressure range* bar	Cavità *Cavity* n°	Peso *Weight* kg
VM4	KN	SN	20	310	0÷80	12	0,16
	KB	SB			5÷160		
	KV	SV			25÷310		
	00		Senza valvola limitatrice - *Without pressure relief valve*				



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