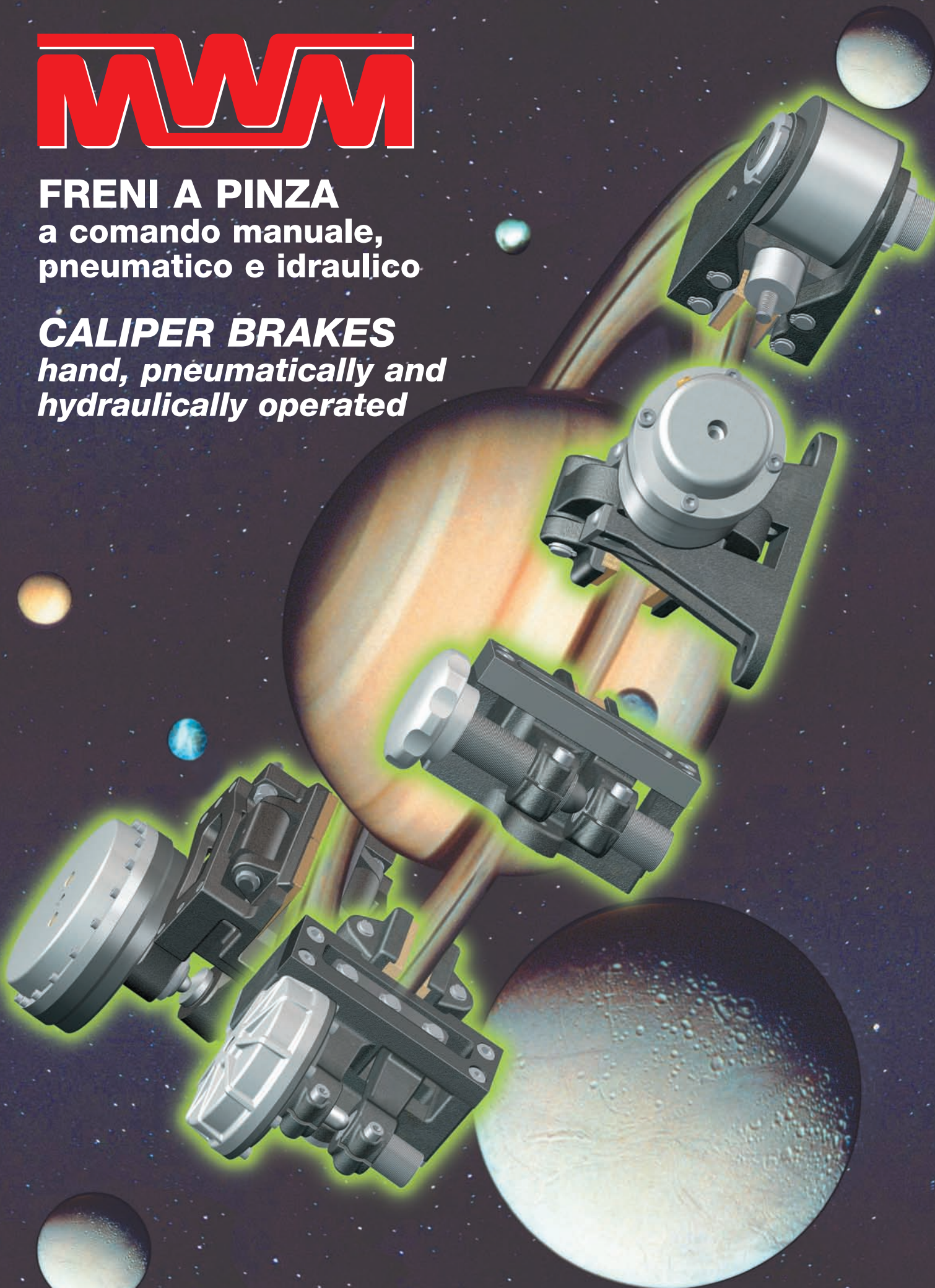




FRENI A PINZA
a comando manuale,
pneumatico e idraulico

CALIPER BRAKES
*hand, pneumatically and
hydraulically operated*



La presente edizione sostituisce e annulla ogni precedente.
**Descrizioni, dati tecnici, caratteristiche e misure sono indicative e possono essere
soggette a modifiche senza preavviso.**

*This issue replaces and annuls the previous issue.
The given description, technical data, characteristics and dimensions are indicative
and could be modified without prior notice.*

Definiamo le condizioni ed i limiti di impiego per il corretto funzionamento dei Freni a pinza MWM in modo da garantire gli aspetti di sicurezza, in ottemperanza al DPR224/88, Direttiva 85/374/CEE.

We define applications and conditions of MWM products for a correct use of them, in order to warrant the security rules, according to EEC Directive 85/374 (Italian Directive DPR 224/88).

CARATTERISTICHE GENERALI

I Freni a pinza MWM sono progettati e realizzati per operare secondo le caratteristiche tecniche e le condizioni di lavoro definite nel seguente catalogo. Si raccomanda di non utilizzarli oltre le specifiche per le quali sono stati dimensionati.

GENERAL FEATURES

MWM Caliper brakes are designed to operate according to technical features and applications, described in this catalogue. It is very important not to exceed the technical specifics that they were planned for.

SCELTA DELL'APPLICAZIONE

In fase di progettazione è di fondamentale importanza una corretta scelta ed un appropriato dimensionamento del Freno a pinza. Ricordiamo di considerare un **Fattore di Sicurezza non inferiore a 2**, facendo molta attenzione alle applicazioni in cui è necessario l'utilizzo di un freno di stazionamento/sicurezza. Il nostro ufficio tecnico è a completa disposizione per aiutarvi nella scelta, nel dimensionamento e nel corretto utilizzo dei diversi prodotti a catalogo.

APPLICATION CHOICE

*A correct selection and use of MWM Caliper brakes is very important in planning. We suggest you to consider a correct safety factor for every kind of application. In case of Fail-safe brake this **safety factor should be not less than 2**. MWM engineering department is at your complete disposal to help you choose the right Caliper brakes for its correct application.*

IMPIEGO DEL PRODOTTO

Per un corretto e sicuro funzionamento dei Freni a pinza MWM è necessario il rispetto delle **Istruzioni di Montaggio e Manutenzione**. Si ricorda che i Freni a pinza Negativi contengono delle molle precaricate meccanicamente, quindi il montaggio e la manutenzione devono essere eseguite con estrema attenzione.

USE

*It is necessary to follow **Mounting and Maintenance instructions** for a safety and correct working of MWM Caliper brakes. We remind you that Spring Applied Caliper brakes have inside compressed springs, so pay attention during mounting and maintenance of these brakes.*

MONTAGGIO E MANUTENZIONE

Si invitano gli addetti a tali funzioni al rispetto delle Direttive 89/656/CEE e 89/686/CEE, relative all'uso di dispositivi ed equipaggiamenti idonei per una adeguata protezione da carichi e/o pesi, (ad esempio guanti, scarpe e occhiali di protezione), al fine di evitare pericolosi incidenti.

MOUNTING AND MAINTENANCE

Operators are advised to respect the ECC Directive 89/656 and 89/686, for the use of appropriate protective clothing and equipment, (for example: gloves, safety glasses and shoes..) against load, in order to avoid dangerous accidents.

PARTI IN MOVIMENTO

Le parti in movimento devono essere protette in ottemperanza alle normative: Direttiva 89/393/CEE, 91/386/CEE e 93/68/CEE o in ottemperanza alle norme vigenti nei paesi dove esse vengono utilizzate.

MATERIALI D'ATTRITO

I Freni a pinza MWM impiegano **materiali d'attrito esenti da amianto**. E' comunque importante non inalare la polvere prodotta dal materiale d'attrito stesso durante l'utilizzo del freno, e lavarsi accuratamente le mani dopo averlo maneggiato, prima ingerire cibi o bevande.

OLII, GRASSI E LUBRIFICANTI

Olii, Grassi e Lubrificanti sono impiegati in quantità molto limitate in questi componenti, per garantire il rispetto dell'ambiente. In caso di contatto si consiglia di lavarsi accuratamente le mani prima di ingerire cibi o bevande.

I Freni a Pinza Oleodinamici richiedono l'utilizzo di Olio a base Minerale SAE ISO 46.

IMMAGAZZINAMENTO E STOCCAGGIO

Si invitano gli addetti a tali funzioni al rispetto delle Direttive 89/656/CEE e 89/686/CEE, relative all'uso di dispositivi ed equipaggiamenti idonei per una adeguata protezione da carichi e/o pesi, come scarpe di sicurezza, guanti, caschi. E' necessario fare attenzione all'immagazzinamento dei Freni a pinza, poichè si può avere un peso notevole concentrato in poco spazio. Nello stoccaggio dei Freni a pinza MWM in caso di incendio è necessaria molta attenzione, vista la presenza di guarnizioni in gomma al loro interno. Queste componenti possono generare gas tossici, quindi si consiglia agli addetti allo spegnimento di adottare le precauzioni del caso.

SMALTIMENTO

Per lo smaltimento ed il recupero degli olii usati si deve far riferimento alla Direttiva 75/439/CEE, o alle norme vigenti nei paesi dove questi prodotti vengono utilizzati. Si raccomanda il corretto smaltimento del materiale d'attrito, un volta usurato, secondo le direttive dei paesi dove i freni vengono usati, in europa vige la Direttiva 75/422/CEE.

MOVING PARTS

Moving parts must be protected according to EEC Directive 89/393 , 91/386, 93/44 and 93/68 or according to the equivalent rules effective in the countries where they are used.

FRICITION MATERIALS

*MWM Caliper brakes are supplied with **abestos free friction parts**. It is very important not to breath friction dust produced during the normal working of the brake. If in contact with friction material, please ensure your hands are clean before drinking or eating food.*

OILS, GREASES AND LUBRIFICANTS

*Oils, greases and lubricants are used in limited quantity, to respect enviroment. If in contact with these products please wash your hands before drinking or eating. **MWM Hydraulic Caliper brakes require the use of Mineral Oil SAE ISO 46.***

STORAGE AND STOCKING

Operators are advised to respect EEC Directive 89/656 e 89/686 for the use of the correct protective clouthng and equipment, (such as gloves, safety glasses, helmets, safety shoes), to be protected aganinst load, weight.. and to avoid dangerous accidents. Pay attention to storage and stocking of MWM Caliper brakes because of their high weight. MWM brakes are supplied with rubber seals that can generate toxic gas in case of fire. We suggest firemen to use correct equipment such as gas masks.

DISPOSING

Disposal and recycling of used oil must follow EEC Directive 75/439, or the current laws of the country where it is used. We suggest you to get the friction materila off, once it is worn out, according the laws of the country where it is used, in europe Directive75/442.

CARATTERISTICHE FRENI A PINZA E DISPOSITIVI A RICHIESTA

I Freni a pinza MWM offrono un'ampia gamma di soluzioni e dispositivi per le più svariate esigenze e per diversi tipi di applicazioni.

- **Comando a Distanza**, possibilità di comandare manualmente a distanza i Freni a pinza.

A RICHIESTA

- **Materiale d'Attrito** per applicazioni a **Slittamento Continuo**.

A RICHIESTA

- **Sistema Recupero Gioco**, dovuto all'usura delle guarnizioni d'attrito.

DI SERIE

- **Segnalatore di usura guarnizioni d'attrito**, per ottimizzare la gestione dei ricambi ed evitare pericolosi inconvenienti e lunghi fermi macchina.

A RICHIESTA

- **Vite di Blocco**, per una maggiore sicurezza in fase di montaggio dei Freni a pinza negativi.

A RICHIESTA

- **Pattino Freno Doppio**, garantisce una minore usura ed una maggiore dissipazione del calore.

A RICHIESTA su serie PPD -PPF

- **Indicatore Aperto-Chiuso**, per evitare partenze con il Freno chiuso o controllare se il Freno a pinza è aperto o chiuso.

A RICHIESTA

- **Bilanciamento**, permette il montaggio della Freno a pinza in qualsiasi posizione.

A RICHIESTA

CALIPER BRAKES FEATURES AND DEVICES ON REQUEST

MWM Caliper brakes offer a wide range of solutions and devices on request for different requirements and different appliances:

- **Remote Control**, gives the possibility of a manual remote control of Caliper brakes.

STANDARD

- **Friction gasket for Tensionig applications.**

OPTIONAL

- **Clearance compensation**, due to friction material wear.

STANDARD

- **Friction Material wear indicator**, To have a better spare parts management and to avoid troubles and interruptions.

OPTIONAL

- **Retaining Screw**, more safety during the mounting and maintenance operations.

OPTIONAL

- **Double Pad version**, guarantee an inferior friction material wear and more heta dissipation..

OPTIONAL, only on PPD-PPF series

- **On-Off Indicator**, to avoid to start the machine when the brake is not open.

OPTIONAL

- **Inclined Mountin Kit**, allows the mounting of caliper brake in every position.

OPTIONAL

DIMENSIONAMENTO FRENO A PINZA

La scelta corretta del Freno a pinza opportuno per le diverse applicazioni va fatta considerando:

- **Montaggio Corretto** del Freno a pinza
- Prestazioni e Caratteristiche tecniche del freno, in particolare il valore della **Coppia Dinamica Mi**
- Tipo di Applicazione/Frenatura prevista:
 - * **Frenatura di Emergenza**
 - * **Frenatura con Slittamento Continuo**
 - * **Frenatura Ciclica**

Di seguito sono riportati i calcoli, con i relativi simboli, utili al dimensionamento del freno a pinza nelle diverse applicazioni

Attenzione: La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino ad avere il completo assestamento del ferodo sulla superficie dove opera.

* FRENATURA DI EMERGENZA

- Mi : Coppia dinamica [Nm]
- P : Potenza dissipata in calore, a frenata [Kw]
- Jt : Inerzia totale [Kgm²]
- n : Velocità di rotazione [giri/min]
- t : Tempo di frenatura [s]

SELECTION OF CALIPER BRAKE

The correct Caliper brake selection, for the application required, depends on:

- **Correct Mounting** of caliper brake.
- Performance and technical features of the brake, specially **Dynamic Torque Mi**
- Different Braking mode:
 - * **Emergency stop**
 - * **Tensioning**
 - * **Cyclic stop**

Please find below symbols and calculation for the selection of the correct caliper brake in different applications.

Warning: Initial braking torque can be 30% to 50% less than nominal torque until the friction pad works correctly on braking surface.

* EMERGENCY STOP

- Mi : Dynamic torque [Nm]
- P : Heat production, each stop [Kw]
- Jt : Total inertia load [Kgm²]
- n : Rotating speed [giri/min]
- t : Braking time [s]

$$M_i = \frac{J_t \cdot n}{9.55 \cdot t}$$

$$P = \frac{J_t \cdot n^2}{182.4 \cdot 10^3 \cdot t}$$

*** SLITTAMENTO CONTINUO**

Mi : Coppia dinamica [Nm]
 Pc : Potenza dissipata in calore in continuo [Kw]
 T : Tensione sul materiale [N]
 n : Velocità di rotazione [giri/min]
 v : Velocità lineare [m/min]
 D : Diametro bobina [m]

*** TENSIONING**

Mi : Dynamic torque [Nm]
 Pc : Heat production continuous [Kw]
 T : Web tension [N]
 n : Rotating speed [giri/min]
 v : Web speed [m/min]
 D : Roll diameter [m]

$$Mi = \frac{T \cdot D}{2}$$

$$P = \frac{T \cdot v}{60 \cdot 10^3}$$

$$n = \frac{v}{\pi \cdot D}$$

*** FRENATURA CICLICA**

Mi : Coppia dinamica [Nm]
 P : Potenza dissipata in calore a frenata [Kw]
 Pc : Potenza dissipata in calore in continuo [Kw]
 Jt : Inerzia totale [Kgm²]
 n : Velocità di rotazione [giri/min]
 t : Tempo di frenatura [s]
 z : interventi al minuto [n°/min]

*** CYCLIC STOP**

Mi : Dynamic torque [Nm]
 P : Heat production continuous [Kw]
 Pc : Heat production continuous [Kw]
 Jt : Total inertia load [Kgm²]
 n : Rotating speed [giri/min]
 t : Braking time [s]
 z : Stops/minute [n°/min]

$$Mi = \frac{Jt \cdot n}{9.55 \cdot t}$$

$$P = \frac{Jt \cdot n^2}{182.4 \cdot 10^3 \cdot t}$$

$$Pc = \frac{P \cdot z \cdot t}{60}$$

FRENI A PINZA MWM NUOVA GAMMA

MWM Freni Frizioni S.r.l. è lieta di presentare la nuova ed ampliata gamma di freni a pinza, con soluzioni tecniche innovative e **brevettate** per ogni esigenza.

Decenni di esperienza nel settore, uniti ad un continuo interfacciamento con i più svariati utilizzatori e ad una attenta analisi delle loro necessità, ci ha permesso di sviluppare una serie di prodotti che rivoluziona il concetto di freno a pinza grazie all'introduzione di molteplici migliorie e soluzioni tecniche innovative.

La nuova gamma di **Freni a Pinza MWM** vanta ora sei differenti modalità di attuazione ognuna delle quali offre una vasta scelta in termini di coppia frenante, ingombro, modalità di montaggio e spessore del disco freno.

- Freni a Pinza Manuali

La frenata modulabile è attuata manualmente dall'operatore tramite la rotazione di un manovellismo o tramite un comando a distanza.

- Freni a Pinza Pneumatici Positivi

La frenata è attuata tramite l'adduzione modulabile di aria compressa.

- Freni a Pinza Pneumatici Negativi

La frenata è attuata da molle e l'apertura avviene tramite adduzione di aria compressa.

- Freni a Pinza DUO

La possibilità di combinare i vantaggi del freno pneumatico positivo di lavoro e quello negativo di sicurezza in un'unica soluzione senza dover impiegare due freni distinti contenendo i costi e ottimizzando gli spazi.

- Freni a Pinza Oleodinamici Positivi

La frenata è attuata tramite l'adduzione modulabile di olio.

- Freni a Pinza Oleodinamici Negativi

La frenata è attuata da molle e l'apertura avviene tramite adduzione di olio.

MWM CALIPER BRAKES NEW SERIES

MWM Freni Frizioni S.r.l. is pleased to introduce the new and expanded range of caliper brakes with **patented** innovative technical solutions for every requirement.

Decades of experience combined with a continuous interaction with many different users and a careful analysis of their demands, has allowed us to develop a range of products that revolutionizes the caliper brake concept with the introduction of many improvements and innovative technical solutions.

The extended range of **MWM Caliper Brakes** is now composed by six different ways of supply. They offer a wide choice regarding to brake torque, dimension, mode of assembly and disc brake thickness.

- Hand operated Caliper Brakes

The adjustable braking is manually implemented by the operator with the rotation of a handwheel mechanism or by a remote control.

- Caliper Brakes pneumatically applied spring released - Braking is implemented by the adduction of air.

- Caliper Brakes spring applied pneumatically released - Braking is implemented by springs and released by adduction of air.

- Duo Caliper Brakes - The advantages of both brake calipers pneumatically applied spring released and brake calipers spring applied pneumatically released in one single pneumatic thruster, saving space and cost.

- Caliper Brakes hydraulically applied spring released - Braking is implemented by the adduction of oil.

- Caliper Brakes spring applied hydraulically released - Braking is implemented by springs and released by the adduction of oil.

Oltre ad ampliare il ventaglio di soluzioni disponibili, la nuova gamma MWM introduce importanti innovazioni tecnologiche:

1 Nuovo Sistema di Auto-allineamento a Scorrimento Ortogonale

2 Nuovo Sistema Modulare

3 Nuovi Attuatori Brevettati

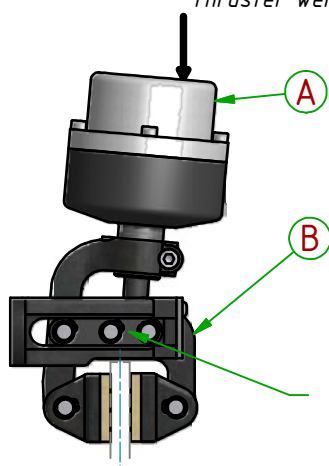
1 Sistema di Auto-allineamento a Scorrimento Ortogonale

Il rivoluzionario sistema di auto allineamento a scorrimento ortogonale brevettato MWM introduce numerose migliorie rispetto alle precedenti versioni. In questa soluzione, i due bracci leva sono incernierati a due pattini in acciaio che permettono alla pinza di muoversi ortogonalmente al disco. Tale libertà di movimento ortogonale permette alla pinza di autoallinearsi perfettamente al disco garantendo una frenata costante e ben equilibrata su entrambi le guarnizioni di attrito. In questa configurazione l'attuatore (A) è sostenuto dal braccio leva di comando (B) che potendo muoversi solo ortogonalmente non fa gravare il peso dell'attuatore sulle guarnizioni di attrito, scaricandolo sulla base di fissaggio. La libertà di movimento assiale unita alla configurazione dell'attuatore permette inoltre una più semplice installazione dell'apparecchio.

Serie PPD

(Brevetto N° MI2004A001339

Patent No. MI2004A001339) *Peso attuatore
Thruster weight*



The new MWM series introduces several technological offering a wide choice of solutions:

1 New Self-aligning System with Orthogonal Sliding

2 New Modular System

3 New Patented Actuators

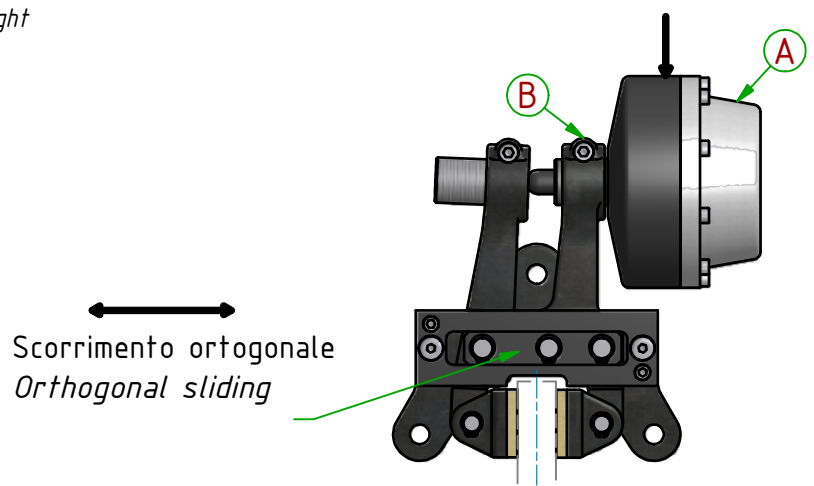
1 Self-aligning System with Orthogonal Sliding

The revolutionary self-aligning system with orthogonal sliding, patented by MWM, introduces several improvements. In this case, the two lever arms are hinged on two steel pads that allow the caliper to move perpendicularly to the disk. This orthogonal freedom of movement allows the caliper to self-aligning perfectly to the disk ensuring a constant and well balanced braking on both the friction pads. In this configuration, the thruster (A) is supported by the arm control lever (B) that can move only orthogonally. In this way the weight of the thruster doesn't burden on the friction pads, but on the fixing structure. Freedom of movement combined with the axial configuration of the actuator allow an easier brake installation.

Serie PPF - PPH - PPT

(Brevetto N° MI2006A001543

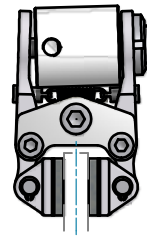
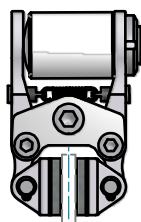
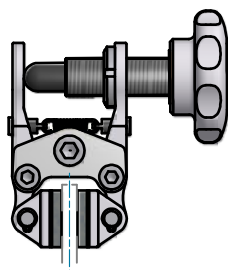
Patent No. MI2006A001543) *Peso attuatore
Thruster weight*



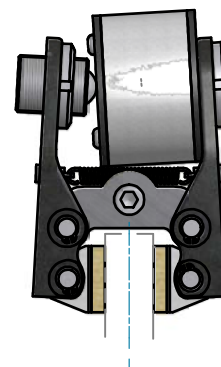
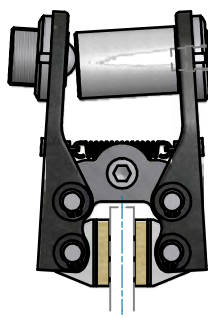
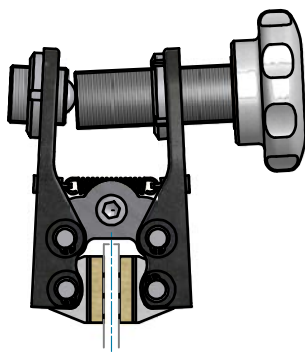
**2 Sistema Modulare
a Supporto Centrale
(Brevetto N° MI2003U000541)**

Il concetto di modularità è da sempre centrale nelle scelte progettuali di MWM.
 Il sistema modulare brevettato MWM per freni a pinza unisce prestazioni più performanti ed ingombri ridotti alla possibilità di poter riconfigurare con semplicità la pinza freno.
 E' sufficiente sostituire il corpo centrale per variare lo spessore del disco freno, o sostituire l'attuatore se variano le condizioni di impiego, senza dover sostituire l'intera pinza.
 Il nuovo sistema brevettato a doppia leva con supporto centrale permette infatti di ottenere oltre 25 configurazioni differenti utilizzando un'unica pinza. Abbiamo scelto di applicare la soluzione modulare a supporto centrale su due serie di pinze perfettamente intercambiabili :

- La **Serie PPA**, realizzata completamente in alluminio, piccola, leggera e compatta per applicazioni a bassa coppia



- La **Serie PPB**, più robusta, più potente, con guarnizioni di attrito maggiorate e sistema di regolazione per il recupero del consumo.



**2 Central Support
Modular System
(Patent No. MI2003U000541)**

*The concept of modularity has always been a central point in MWM design choices.
 The patented modular system MWM for caliper brake combines high performance and small size with the possibility to simply reconfigure the caliper brake.
 It is sufficient to replace the central body to vary the thickness of the brake disk, or replace the actuator if some changes take place in the employment conditions, without replacing the entire caliper brake.
 The new patented system with double lever and central support allows to obtain over than 25 different configurations using a single caliper body. We chose to apply this solution on two sets of caliper brakes perfectly interchangeable:*

- **PPA Series**, entirely made of aluminum is small, lightweight and compact for low torque applications.

- **PPB Series** is more rugged, more powerful, with increased friction pads and recovery system.

3 Nuovi Attuatori Compatti MWM (Brevetto N° MI2003U000542)

L'innovazione introdotta da MWM è rivolta in modo importante anche agli attuatori. La nuova serie compatta di attuatori MWM rappresenta la soluzione ottimale per soddisfare tutte le necessità di forza e compattezza. Il nuovo sistema brevettato di attuatori per pinze modulari permette di montare i pistoni pneumatici tra le due leve riducendo drasticamente gli ingombri.

In tutti gli attuatori della nuova gamma di Freni a pinza MWM la vecchia guarnizione a membrana è stata sostituita dalle più moderne e compatte guarnizioni in gomma per movimenti alternativi con profilo ad U.

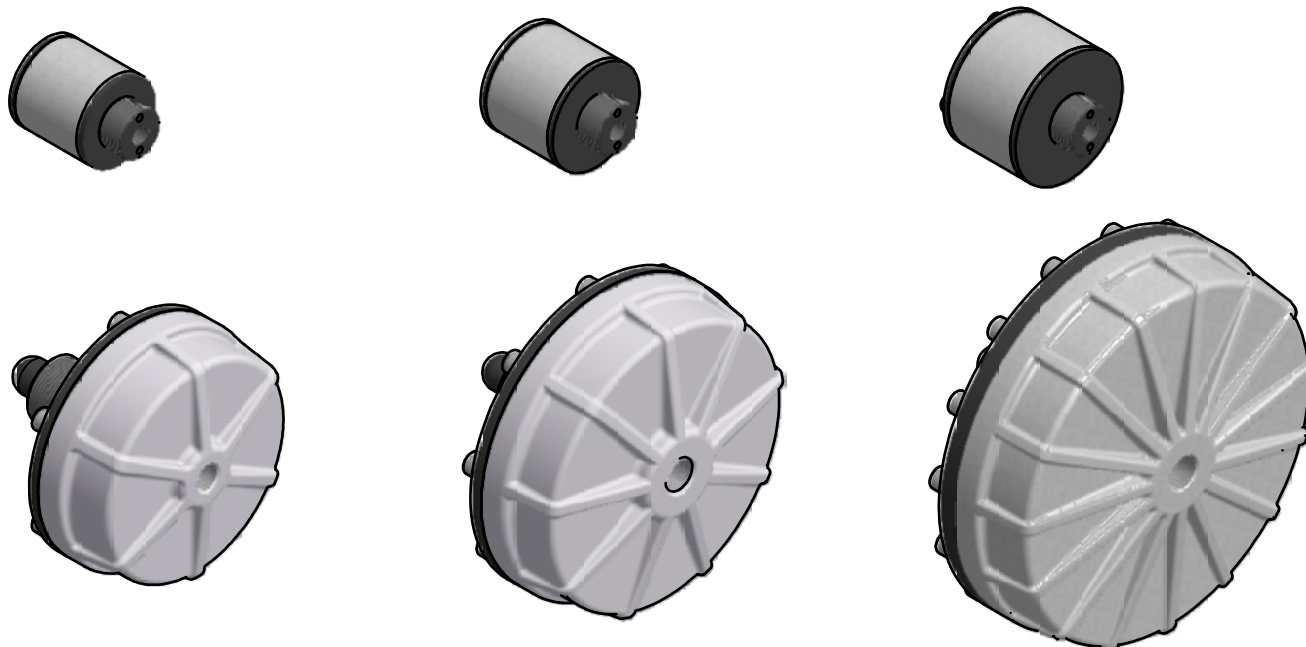
Questa scelta progettuale permette di ottenere, a parità di potenza, attuatori meno ingombranti, più robusti e più affidabili.

Inoltre questi componenti, non essendo prodotti speciali, ma prodotti consolidati e di largo impiego, risultano facilmente reperibili nel caso si dovesse sostituirli.

I vantaggi in termini di minor costo e di riduzione della rimessa in opera del freno sono evidenti.

I Nuovi Attuatori MWM assicurano:

- **Riduzione degli ingombri**
- **Maggior Affidabilità**
- **Minor Costo**
- **Reperibilità sul mercato di alcuni ricambi**



3 New Compact Thruster MWM (Patent No. MI2003U000542)

The innovation introduced by MWM also involves the thrusters.

The new compact range of MWM actuators is the optimal solution to fulfill all requirements of strength and compactness.

The new patented system allows to plug the pneumatic thruster between the two levers with an important size reduction.

In all thrusters of the new range of MWM caliper brakes the old seal diaphragm has been replaced by a more modern and compact rubber seal for reciprocating motions.

This design choice allows to obtain less bulky thruster, more rugged and more reliable, maintaining the same power.

Furthermore, these are not special components but popular products, employed on the market, easily available. This allows at the expert user that need a replacement component to easily find it, reducing costs and stop times.

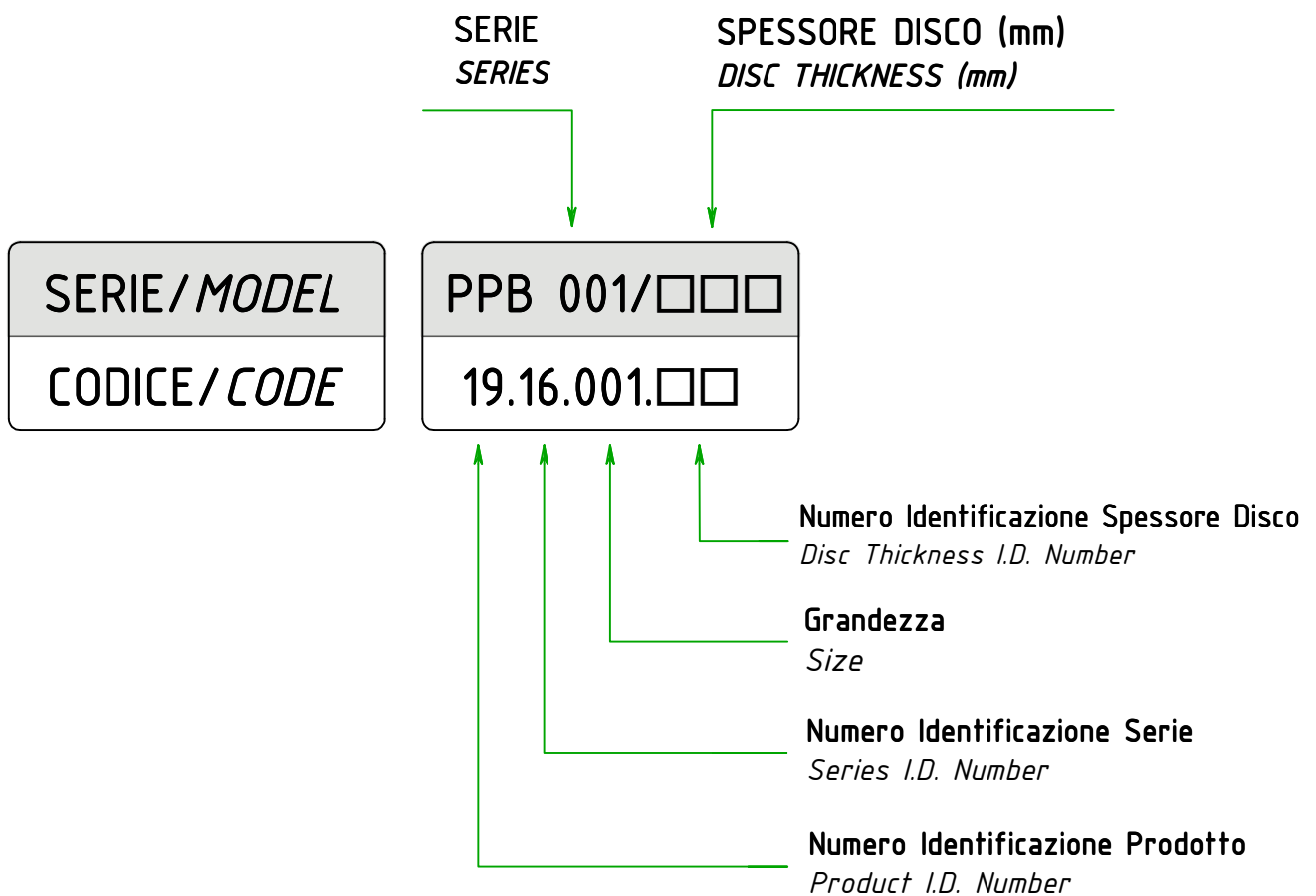
New Mwm Thruster assure:

- **Size Reduction**
- **Increased Reliability**
- **Lower Cost**
- **Spare Parts easily available on the market**

Composizione Codice Prodotti/Products Code Composition

ISTRUZIONI COMPOSIZIONE CODICE PRODOTTO

INSTRUCTIONS FOR PRODUCTS CODE NUMBER COMPOSITION



Esempio di Ordine

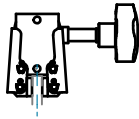
Scelta Freno a Pinza :
Serie **PPB** , Grandezza **001** , Disco **12,7**mm

PPB 001 / 12,7
Codice: 19.16.001.03

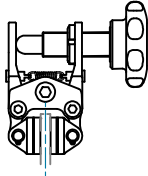
Example of Order

Caliper Brake
Serie **PPB** , Size **001** , Disc **12,7**mm

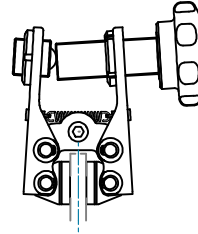
PPB 001 / 12,7
Code: 19.16.001.03



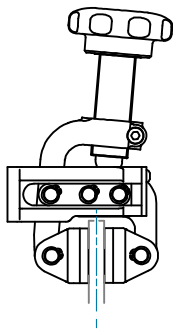
PMC C ...
Md=40÷190Nm
Pag. 12



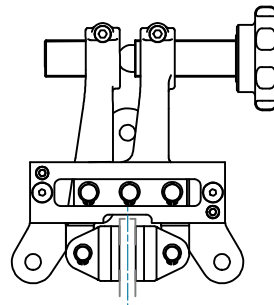
PMA ...
Md=35÷135Nm
Pag. 13



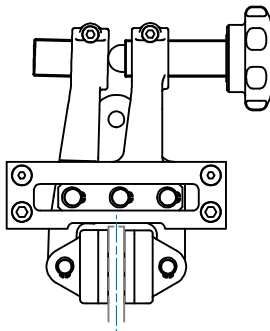
PMB ...
Md=152÷626N
Pag. 13



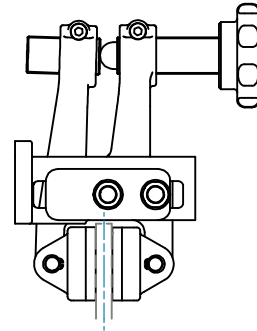
PMD ...
Md=70÷331Nm
Pag. 14



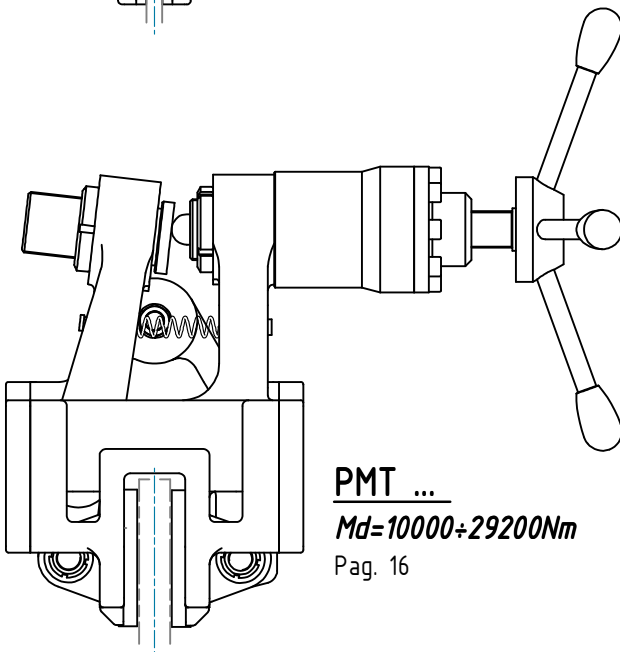
PMF ...
Md=178÷839Nm
Pag. 14



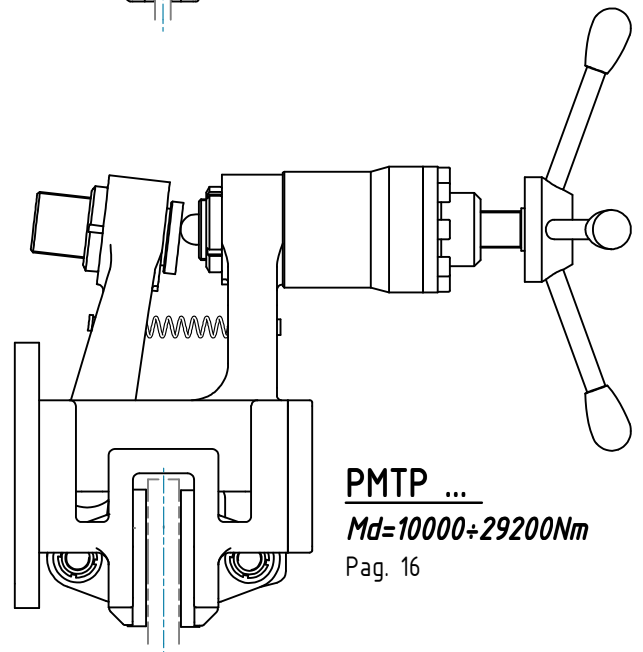
PMH ...
Md=321÷747Nm
Pag. 15



PMHP ...
Md=321÷747Nm
Pag. 15



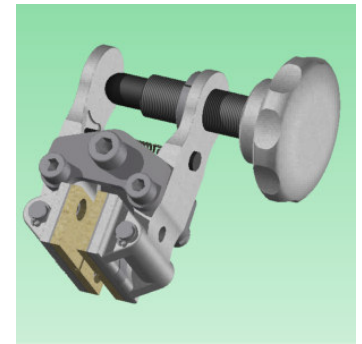
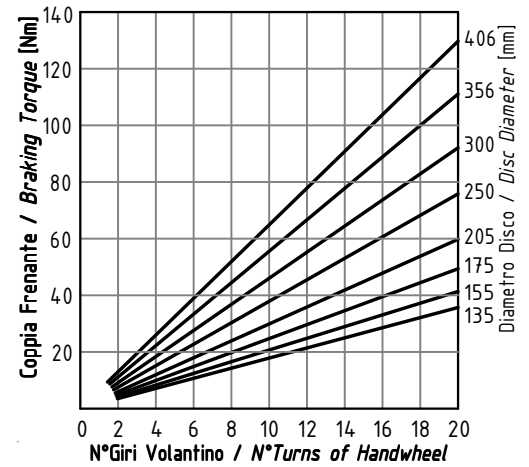
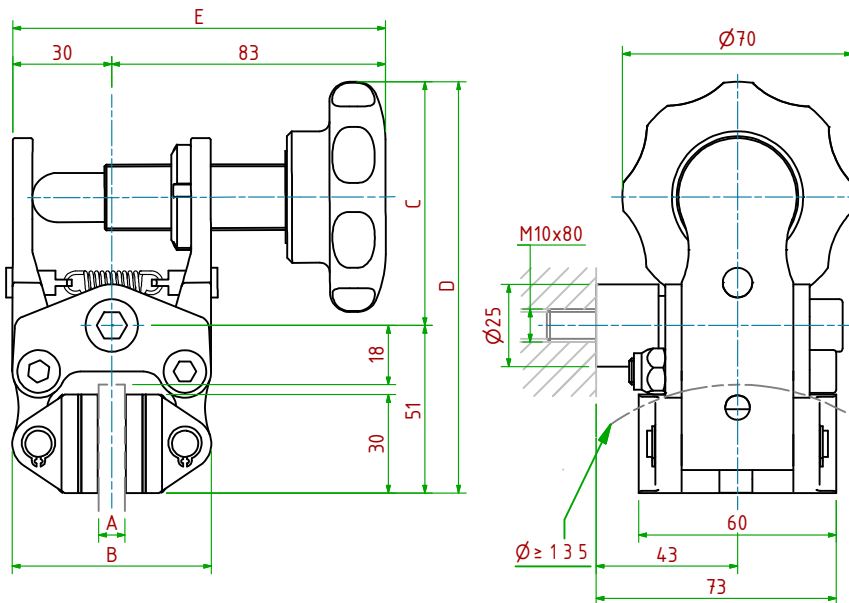
PMT ...
Md=10000÷29200Nm
Pag. 16



PMTP ...
Md=10000÷29200Nm
Pag. 16

PMAA00/□□□

Manuale / Hand Operated

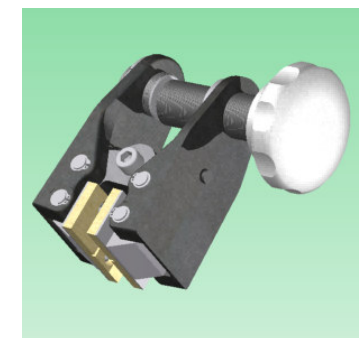
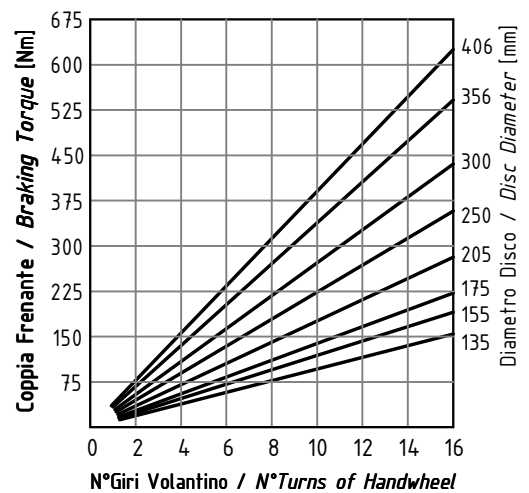
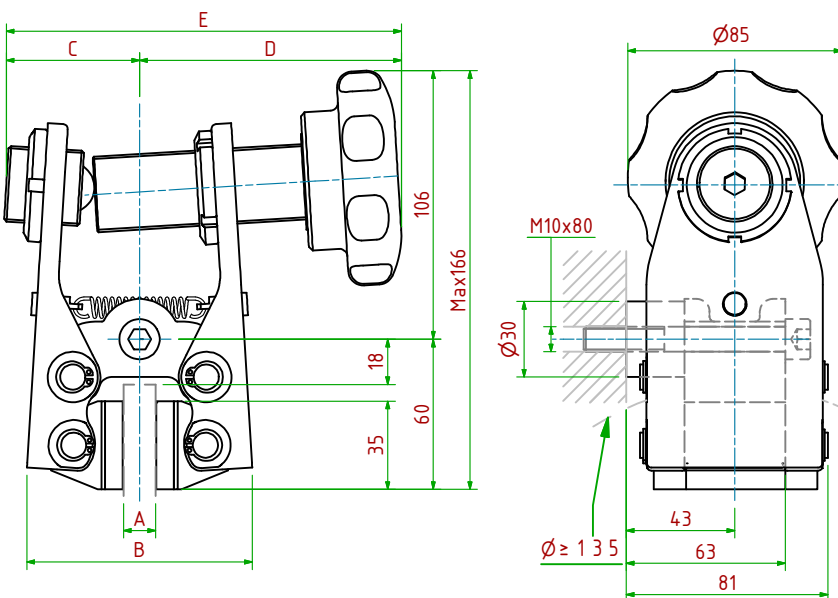


- Coppia Frenante/Braking Torque: $Md = [Ft \times (\Phi(m) / 2 - 0.018(m))]$
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads = 5mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMAA00/ 08	19.06.A00.02	8	61	74	125	113	Ft= 700N (20Giri)	1.1 kg
PMAA00/12.7	19.06.A00.03	12.7	65	76	127	113	Ft= 700N (20Giri)	1.2 kg

PMB000/ □□□

Manuale / Hand Operated

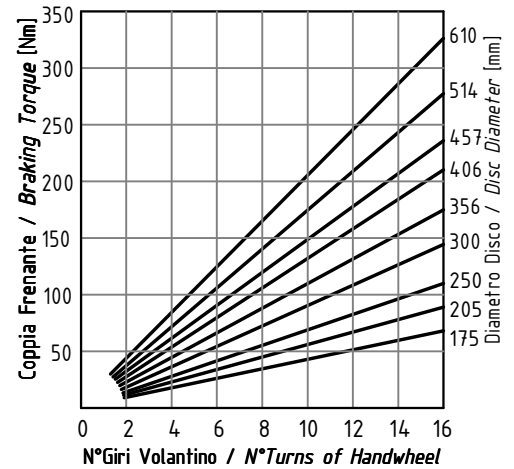
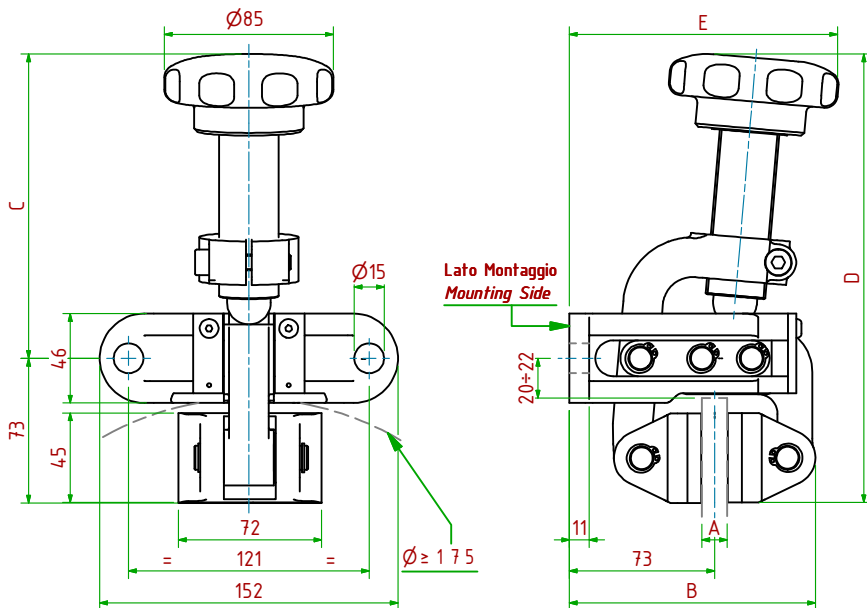


- Coppia Frenante/Braking Torque: $Md = [Ft \times (\Phi(m) / 2 - 0.024(m))]$
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads = 7mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMB000/ 08	19.06.000.02	8	85	54	103	157	Ft= 3500N (16Giri)	3.2kg
PMB000/12.7	19.06.000.03	12.7	89	53	104	157	Ft= 3500N (16Giri)	3.3kg
PMB000/25.4	19.06.000.04	25.4	102	54	111	165	Ft= 3500N (16Giri)	3.4kg

PMD010/□□□

Manuale / Hand Operated

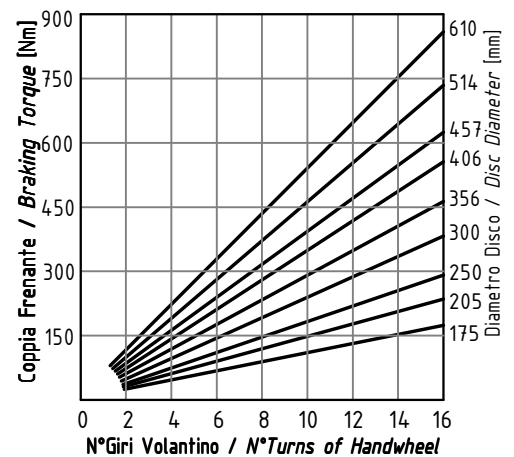
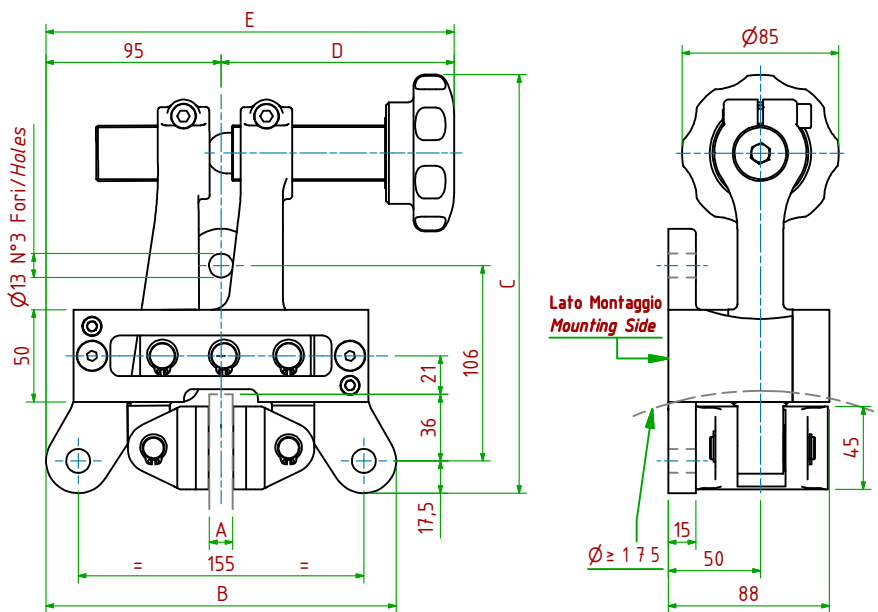


- Coppia Frenante/Braking Torque: $M_d = [F_t \times (\Phi(m)/2 - 0.029(m))]$
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads = 9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMD010/12.7	19.06.010.03	12.7	124	153	226	136	F _t = 1200N (16Giri)	4.4kg
PMD010/25.4	19.06.010.04	25.4	130	153	226	136	F _t = 1200N (16Giri)	4.6kg

PMF020/□□□

Manuale / Hand Operated

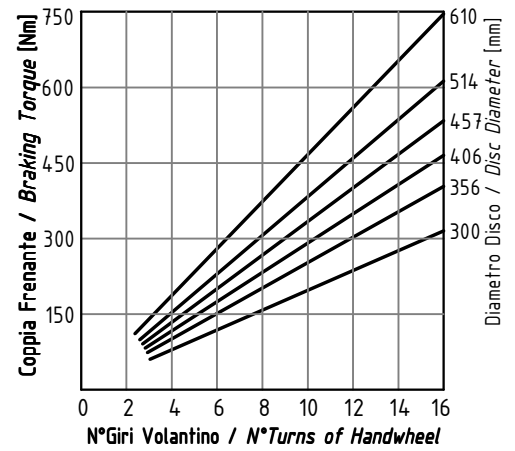
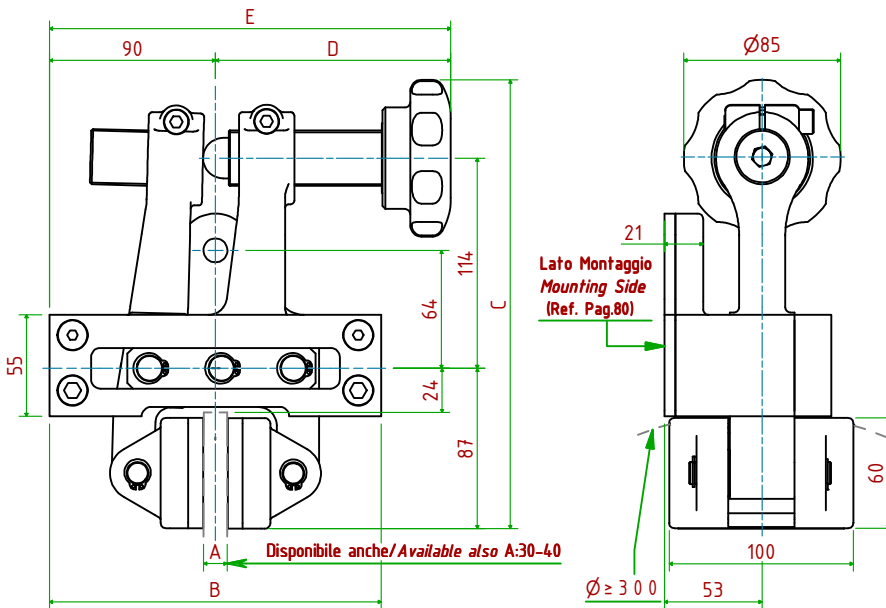


- Coppia Frenante/Braking Torque: $M_d = [F_t \times (\Phi(m)/2 - 0.029(m))]$
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads = 9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMF020/25.4	19.06.020.03	12.7	190	227	127	222	F _t = 3040N (16Giri)	8.2kg
PMF020/12.7	19.06.020.04	25.4	190	227	128	223	F _t = 3040N (16Giri)	8.4kg

PMH030/□□□

Manuale / Hand Operated



- Coppia Frenante/Braking Torque: $M_d = [F \cdot t \cdot (\Phi(m) / 2 - 0.033(m))]$

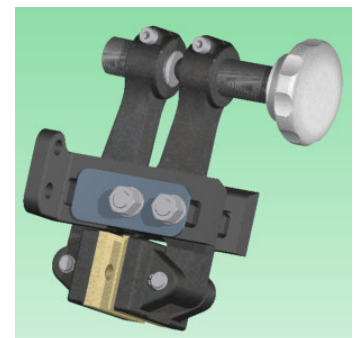
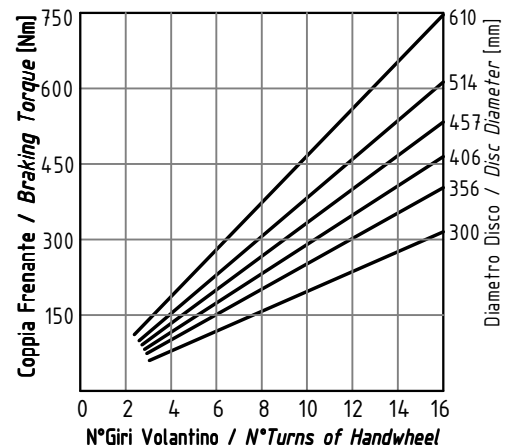
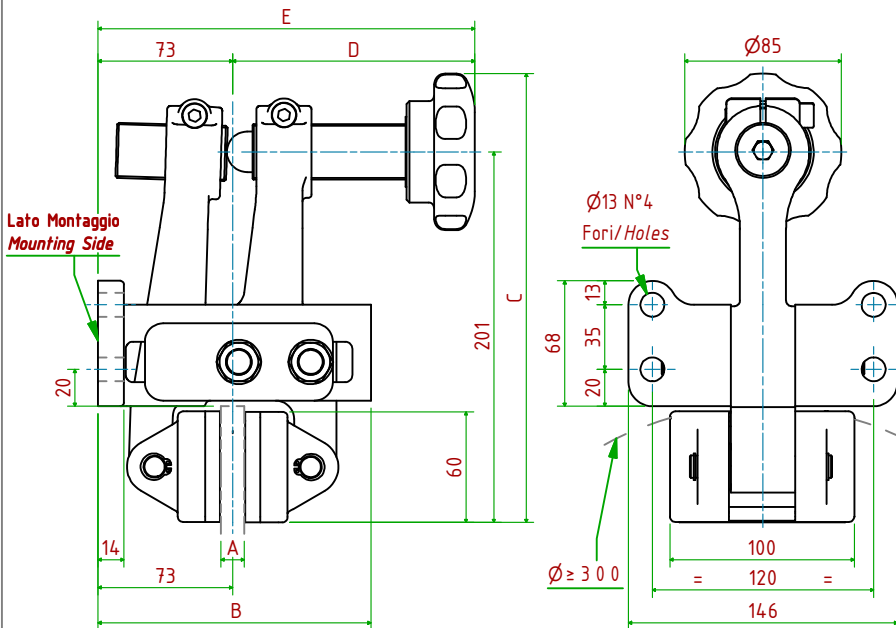
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%

- Usura massima totale Ferodi/Maximum total wear of pads = 9mm

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMH030/12.7	19.06.030.03	12.7	180	24.4	129	219	Ft= 2750N (16Giri)	10.4kg
PMH030/25.4	19.06.030.04	25.4	180	24.4	135	225	Ft= 2750N (16Giri)	10.6kg

PMHP300/□□□

Manuale / Hand Operated



- Coppia Frenante/Braking Torque: $M_d = [F \cdot t \cdot (\Phi(m) / 2 - 0.033(m))]$

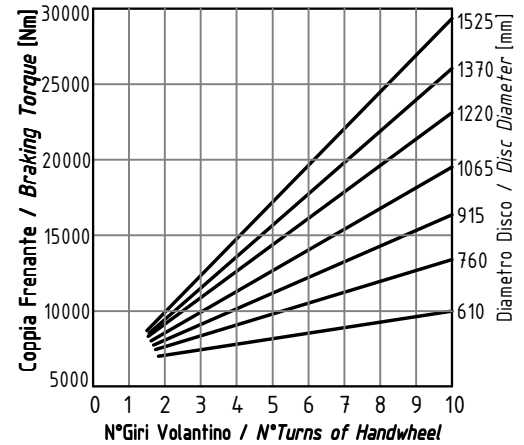
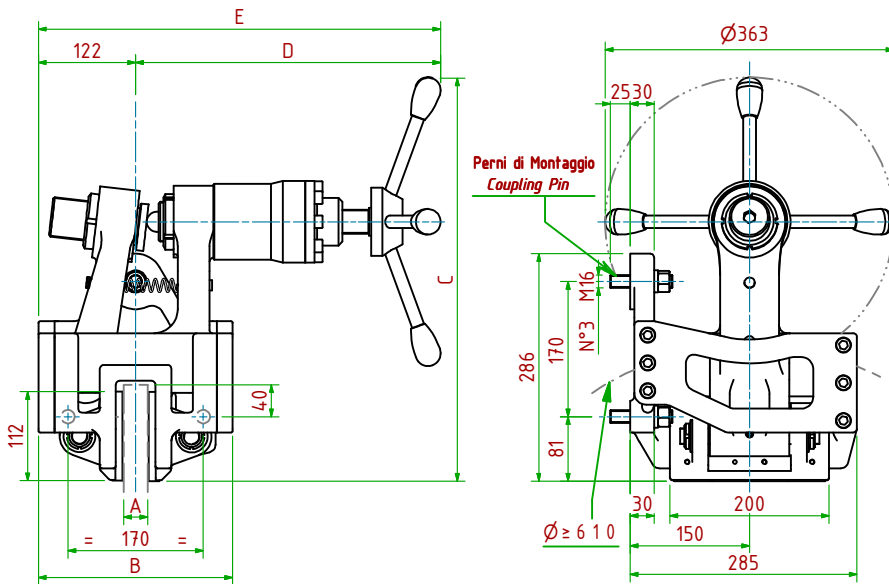
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%

- Usura massima totale Ferodi/Maximum total wear of pads = 9mm

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMHP300/12.7	19.06.300.03	12.7	148	24.4	131	204	Ft= 2750N (16Giri)	8.7 kg
PMHP300/25.4	19.06.300.04	25.4	148	24.4	138	211	Ft= 2750N (16Giri)	8.9 kg

PMT060/□□□

Manuale / Hand Operated



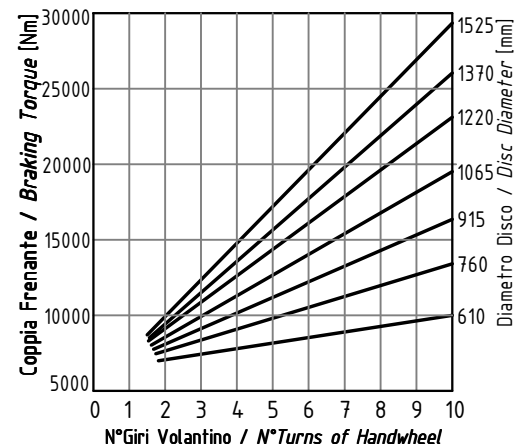
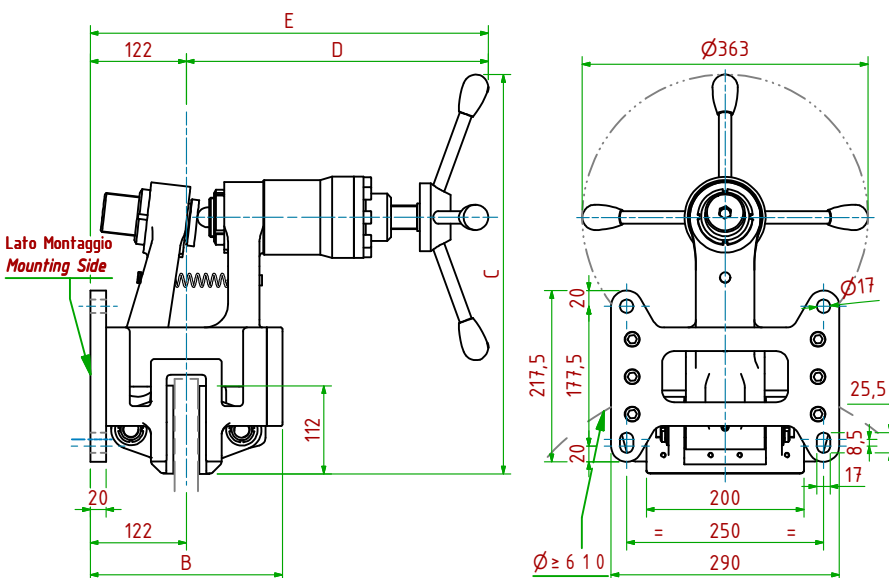
- Coppia Frenante/Braking Torque: $Md = [Ft \times (\Phi(m)/2 - 0.065(m))]$
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
 - Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMT060/25.4	19.06.060.04	25.4	244	507	384	506	Ft= 41800N (10Giri)	62.5kg
PMT060/ 30	19.06.060.05	30	244	507	384	506	Ft= 41800N (10Giri)	62.5kg
PMT060/ 40	19.06.060.06	40	244	507	389	511	Ft= 41800N (10Giri)	62.5kg



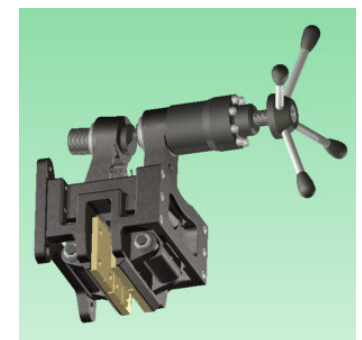
PMTP600/□□□

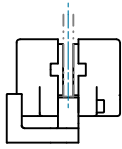
Manuale / Hand Operated



- Coppia Frenante/Braking Torque: $Md = [Ft \times (\Phi(m)/2 - 0.065(m))]$
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
 - Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PMTP600/25.4	19.06.600.04	25.4	244	507	384	506	Ft= 41800N (10Giri)	60.0kg
PMTP600/ 30	19.06.600.05	30	244	507	384	506	Ft= 41800N (10Giri)	60.0kg
PMTP600/ 40	19.06.600.06	40	244	507	389	511	Ft= 41800N (10Giri)	60.0kg

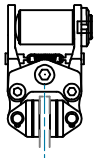




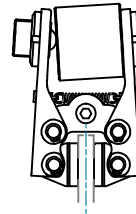
PPV ...
Md=33÷330Nm
Pag. 18



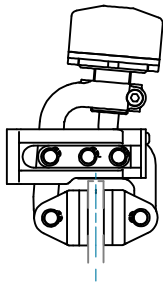
PPC C ...
Md=23÷165Nm
Pag. 19



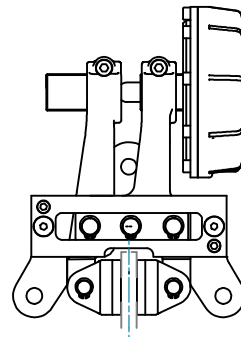
PPA A ...
Md=6÷112Nm
Pag. 20-21



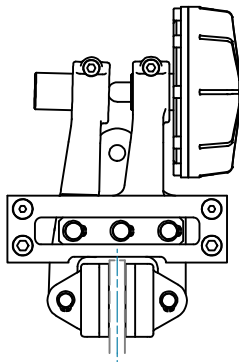
PPB ...
Md=28÷1045Nm
Pag. 22-23



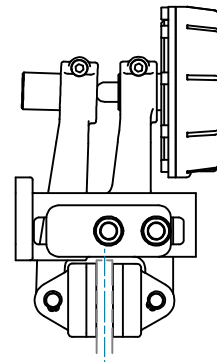
PPD ...
Md=45÷1600Nm
Pag. 24-25



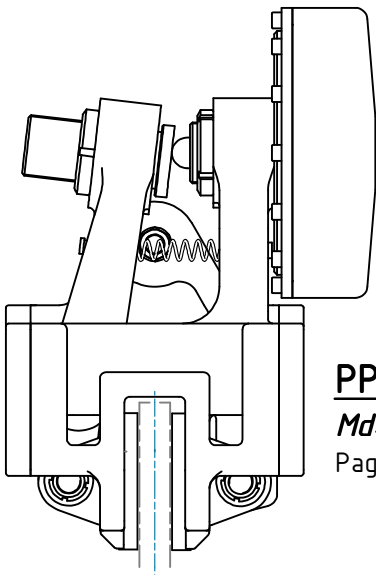
PPF ...
Md=112÷3850Nm
Pag. 26-27



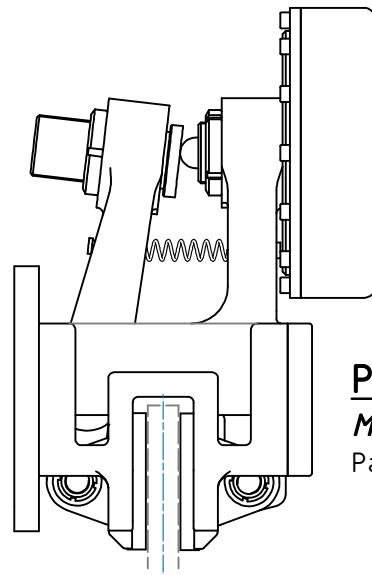
PPH ...
Md=207÷3500Nm
Pag. 28-29



PPHP ...
Md=207÷3500Nm
Pag. 30-31



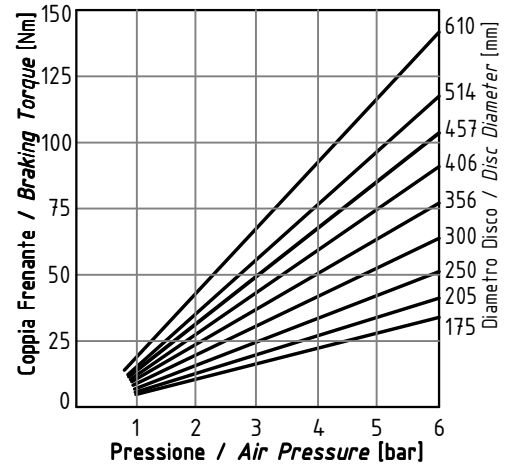
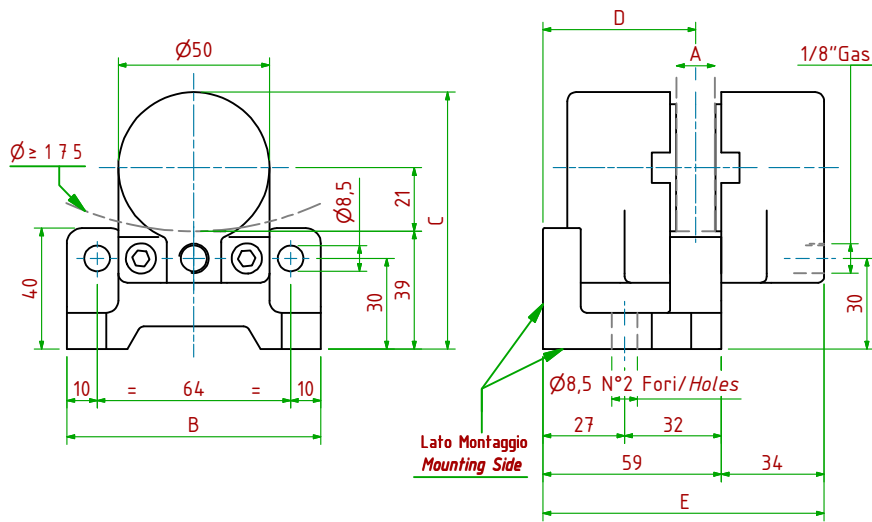
PPT ...
Md=5650÷36880Nm
Pag. 32-33



PPTP ...
Md=5650÷36880Nm
Pag. 34-35

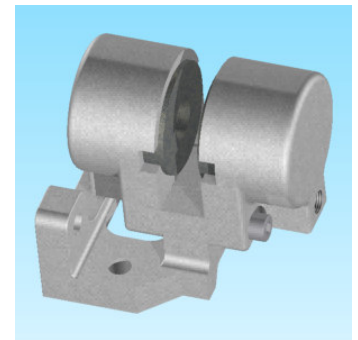
PPV045/□□□

Pneumatico / Pneumatically Applied



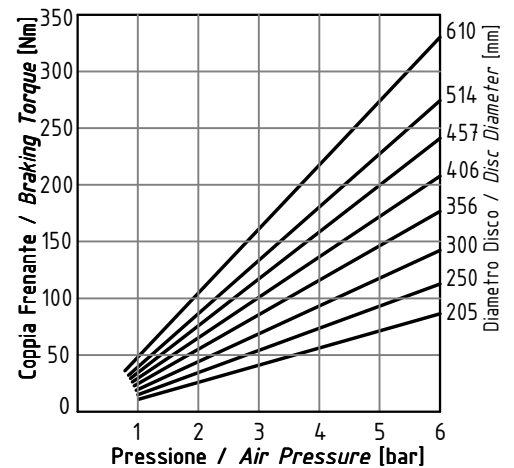
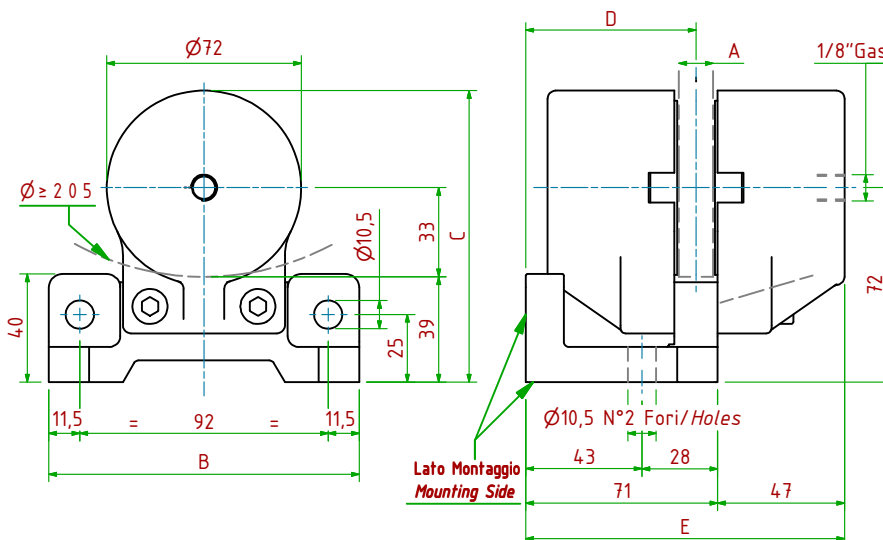
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **12cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.021(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =8mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D	E	Forza Frenante/Braking Force	Peso
PPV045/ 08	19.16.M045.02	8	84	85	50.5	93	Ft= 500N (6bar)	0.6kg
PPV045/12.7	19.16.M045.03	12.7	84	85	50.5	93	Ft= 500N (6bar)	0.6kg



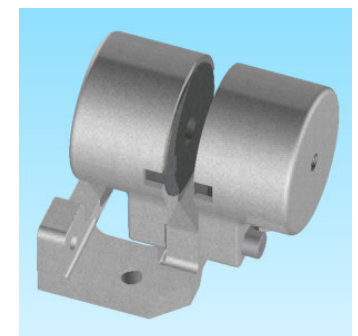
PPV065/□□□

Pneumatico / Pneumatically Applied



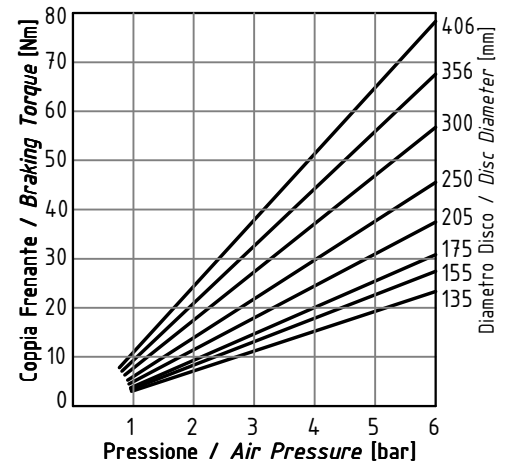
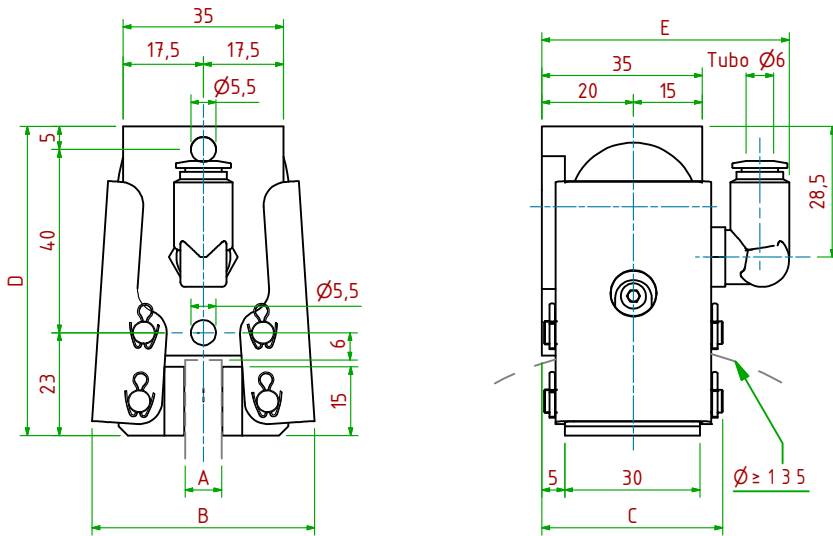
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **27cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =10mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D	E	Forza Frenante/Braking Force	Peso
PPV065/ 08	19.16.M065.02	8	115	108	63	118	Ft= 1220N (6bar)	1.3kg
PPV065/12.7	19.16.M065.03	12.7	115	108	63	118	Ft= 1220N (6bar)	1.3kg



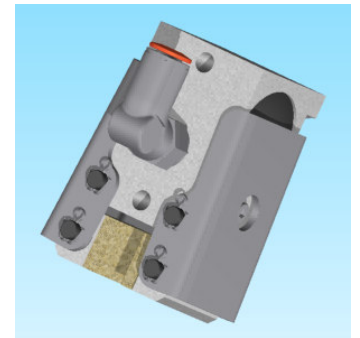
PPC C01/

Pneumatico / Pneumatically Applied



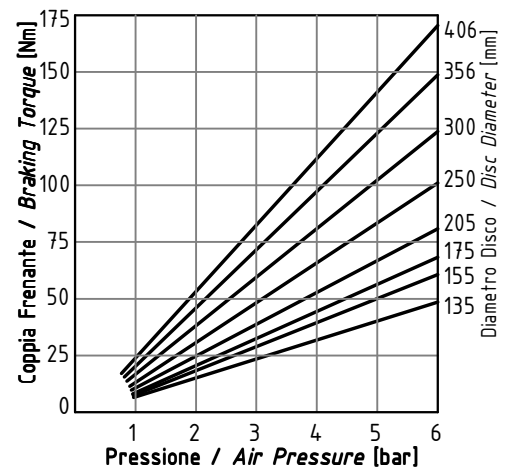
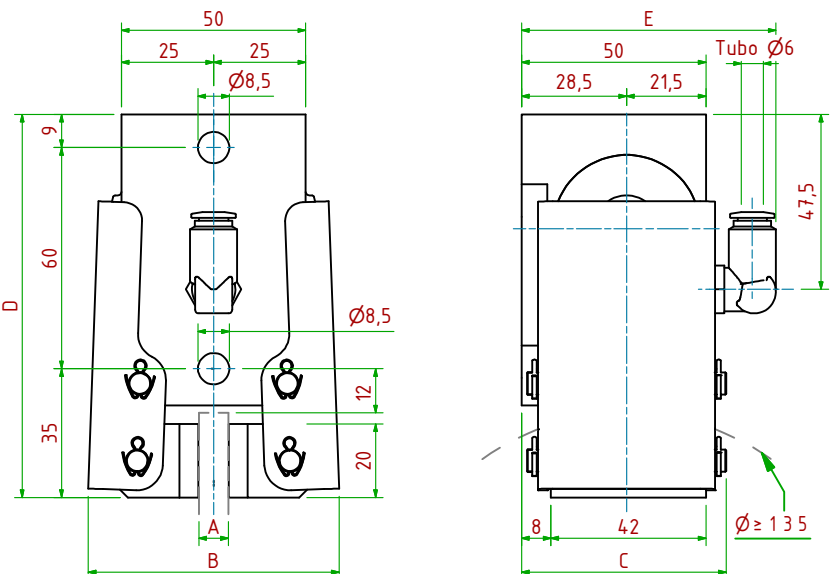
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **4 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft×(Φ(m)/2-0.009(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads:
PPC C01/08 =8mm PPC C01/12.7 =4mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPC C01/ 08	19.16.C01.02	8	50	40	68	57	Ft= 400N (6bar)	0.4kg
PPC C01/12.7	19.16.C01.03	12.7	50	40	68	57	Ft= 400N (6bar)	0.4kg



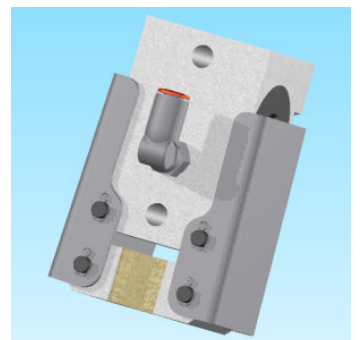
PPC C02/

Pneumatico / Pneumatically Applied



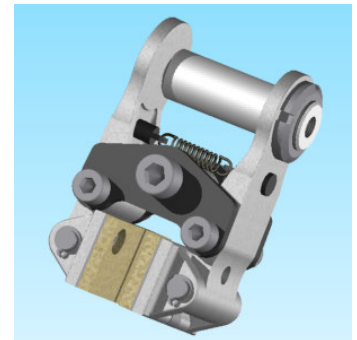
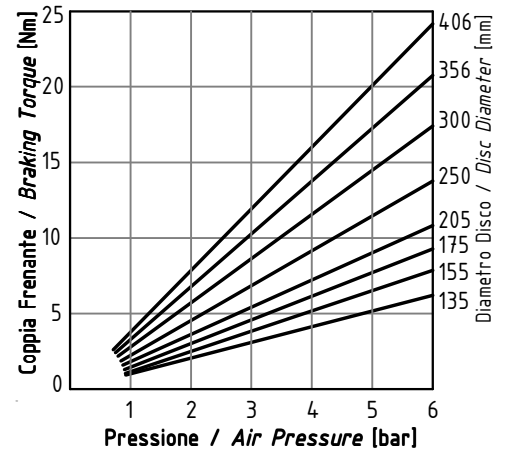
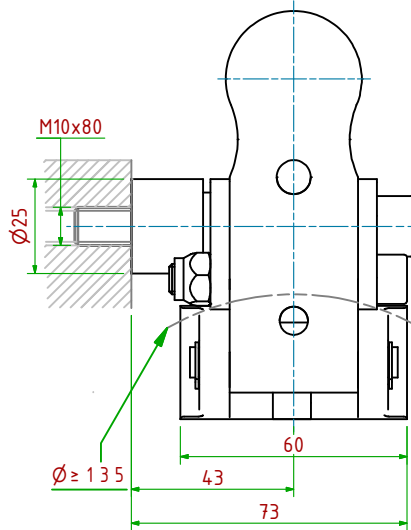
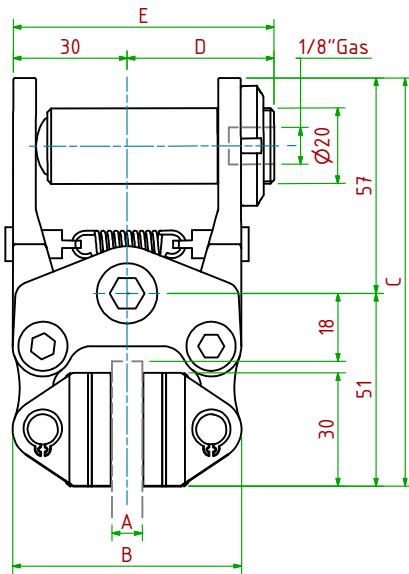
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **10cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft×(Φ(m)/2-0.013(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads:
PPC C02/08 =8mm PPC C02/12.7 =4mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPC C02/ 08	19.16.C02.02	8	68	56	104	72	Ft= 900N (6bar)	1.1 kg
PPC C02/12.7	19.16.C02.03	12.7	68	56	104	72	Ft= 900N (6bar)	1.1 kg



PPA A01/□□□

Pneumatico / Pneumatically Applied

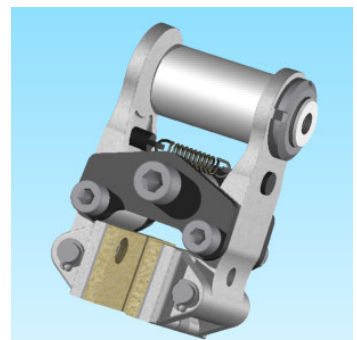
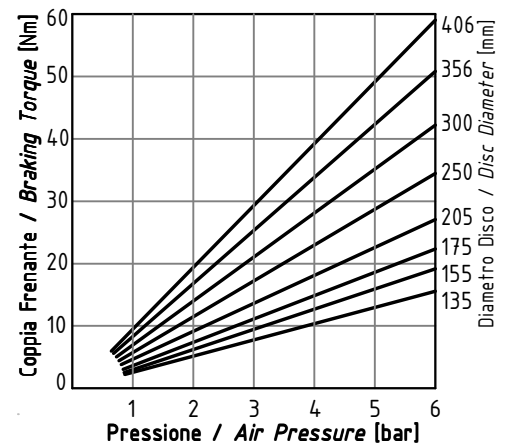
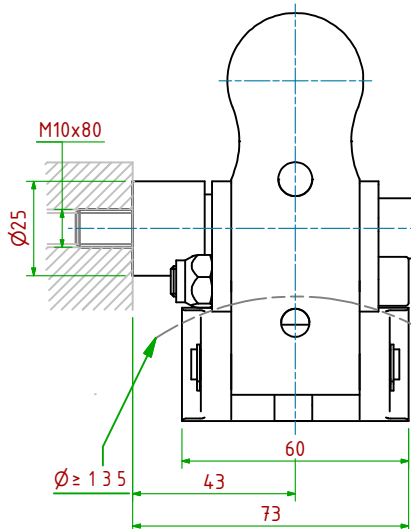
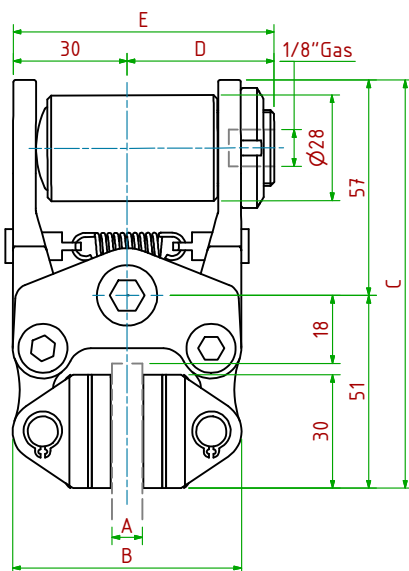


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **1 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.018(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =5mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPA A01/ 08	19.16.A01.02	8	61	108	39	69	Ft= 130N (6bar)	0.6kg
PPA A01/12.7	19.16.A01.03	12.7	65	108	39	69	Ft= 130N (6bar)	0.6kg

PPA A02/□□□

Pneumatico / Pneumatically Applied

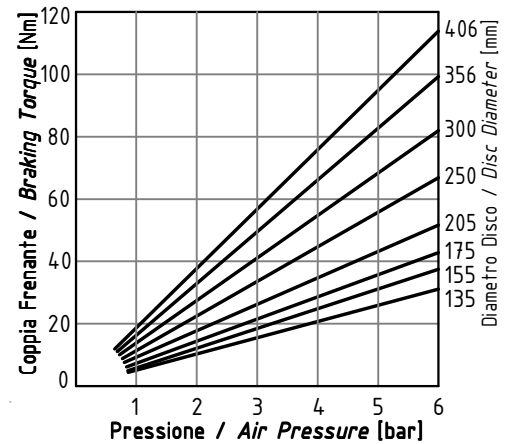
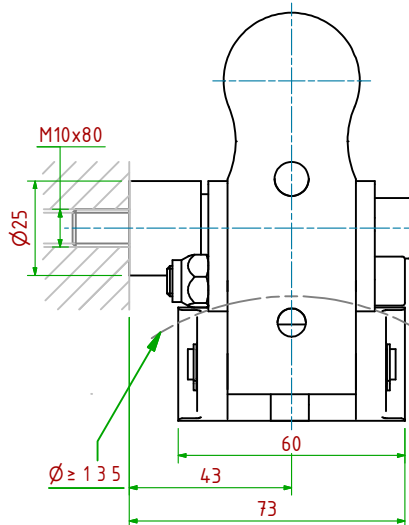
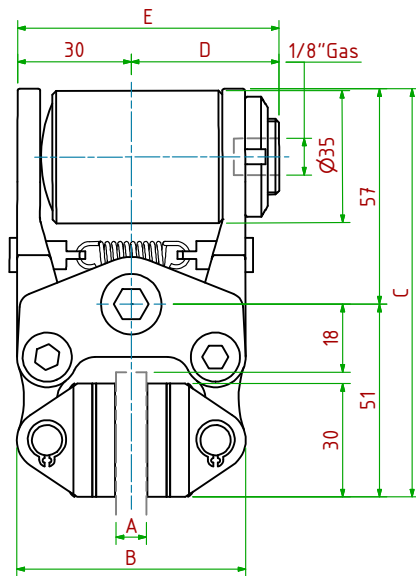


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **2 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.018(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =5mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPA A02/ 08	19.16.A02.02	8	61	108	39	69	Ft= 320N (6bar)	0.7kg
PPA A02/12.7	19.16.A02.03	12.7	65	108	39	69	Ft= 320N (6bar)	0.7kg

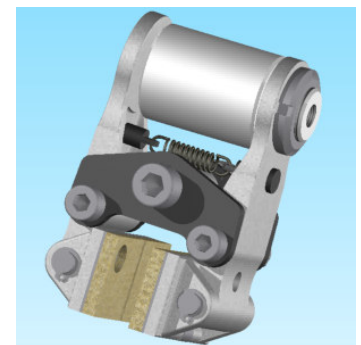
PPA A03/□□□

Pneumatico / Pneumatically Applied



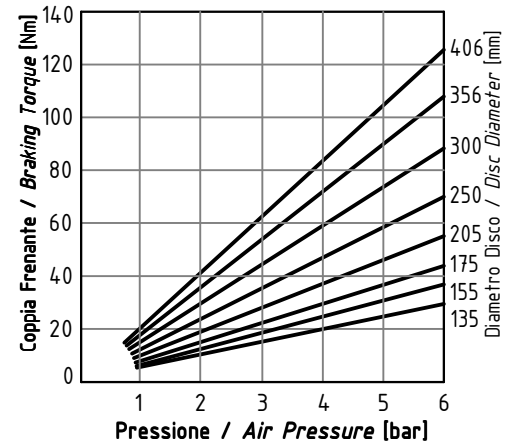
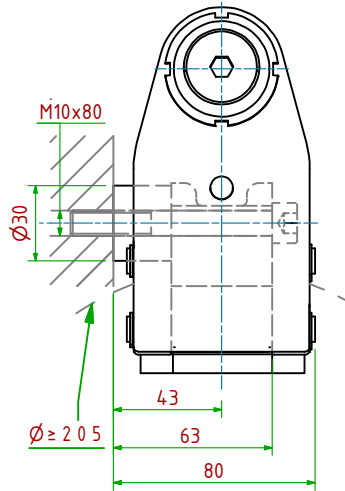
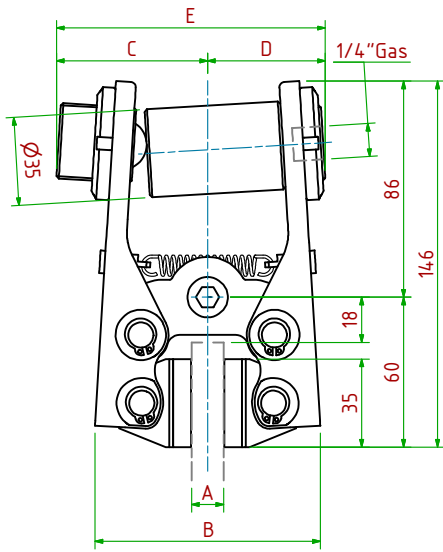
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **3 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft×(Φ(m)/2-0.018(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =5mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPA A03/ 08	19.16.A03.02	8	61	108	39	69	Ft= 620N (6bar)	0.8kg
PPA A03/12.7	19.16.A03.03	12.7	65	108	39	69	Ft= 620N (6bar)	0.8kg



PPB001/

Pneumatico / Pneumatically Applied



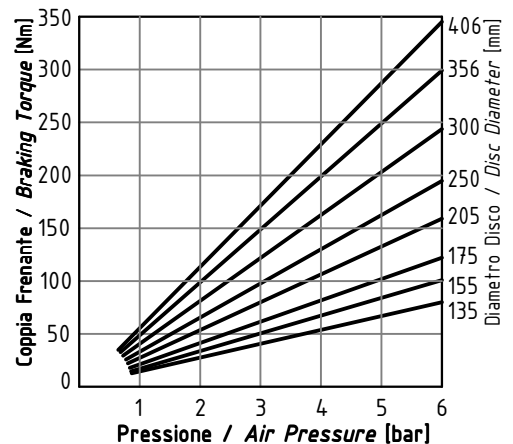
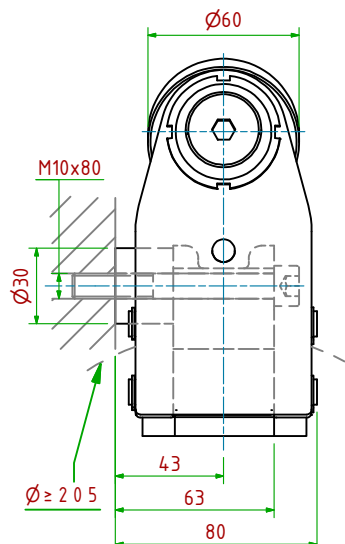
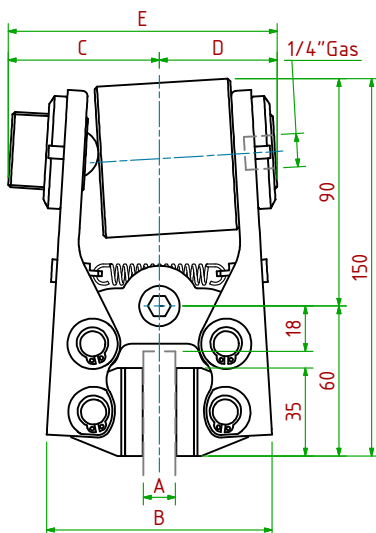
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **3cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.024(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =7mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB001/ 08	19.16.001.02	8	86	60	55	115	Ft= 700N (6bar)	2.4kg
PPB001/12.7	19.16.001.03	12.7	90	60	55	115	Ft= 700N (6bar)	2.5kg
PPB001/25.4	19.16.001.04	25.4	102	60	63	123	Ft= 700N (6bar)	2.6kg



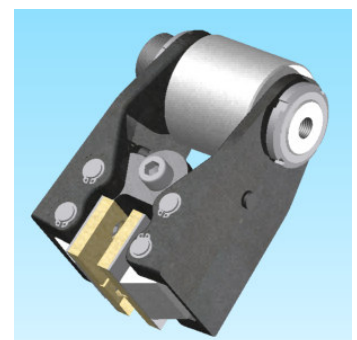
PPB002/

Pneumatico / Pneumatically Applied



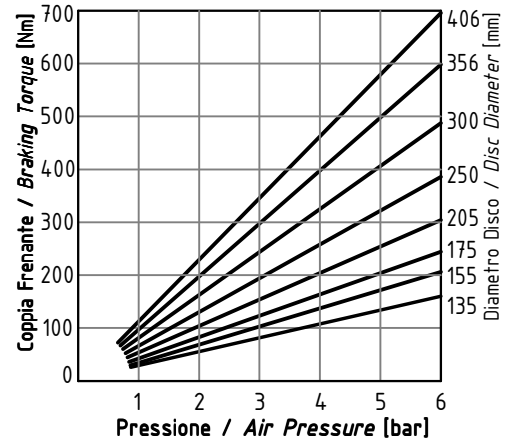
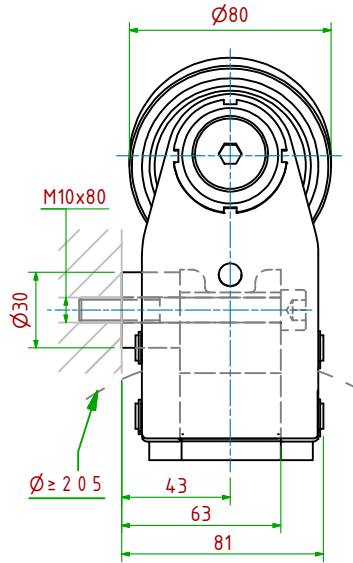
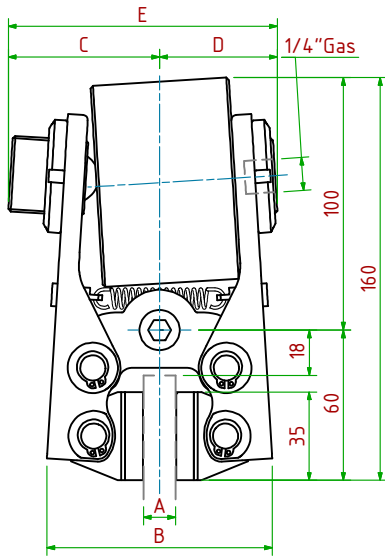
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **8cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.024(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =7mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB002/ 08	19.16.002.02	8	86	60	55	115	Ft= 1950N (6bar)	2.6kg
PPB002/12.7	19.16.002.03	12.7	90	60	55	115	Ft= 1950N (6bar)	2.7kg
PPB002/25.4	19.16.002.04	25.4	102	60	63	123	Ft= 1950N (6bar)	2.8kg



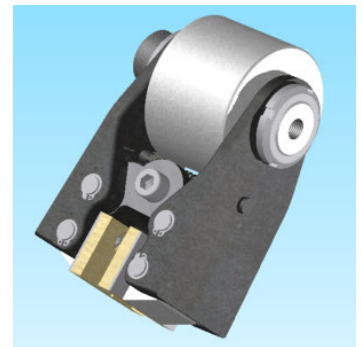
PPB003/

Pneumatico / Pneumatically Applied



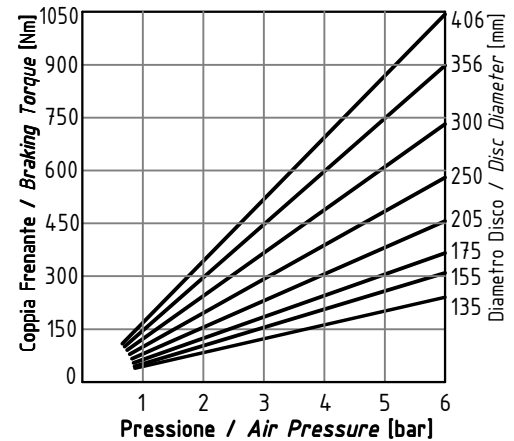
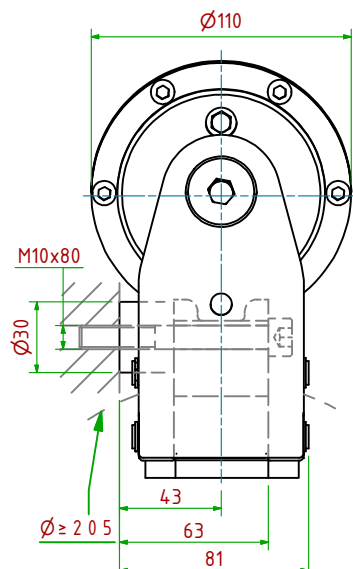
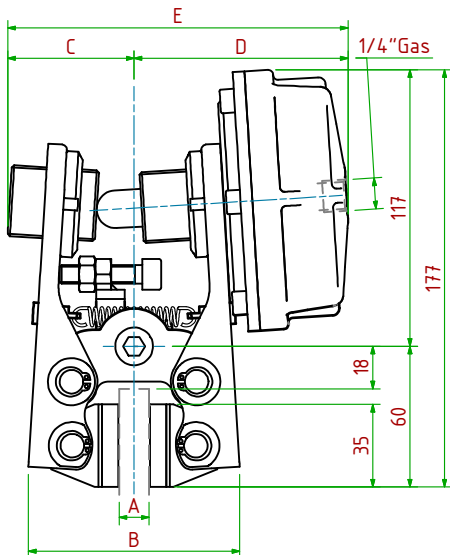
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **16 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.024(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =7mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB003/ 08	19.16.003.02	8	86	60	55	115	Ft= 3890N (6bar)	2.8kg
PPB003/12.7	19.16.003.03	12.7	90	60	55	115	Ft= 3890N (6bar)	2.9kg
PPB003/25.4	19.16.003.04	25.4	102	60	63	123	Ft= 3890N (6bar)	3.0kg



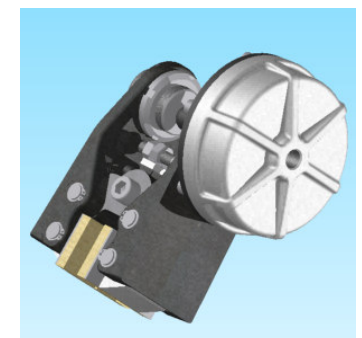
PPB004/

Pneumatico / Pneumatically Applied



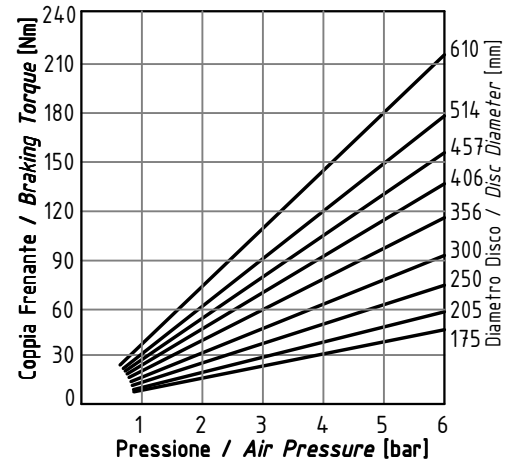
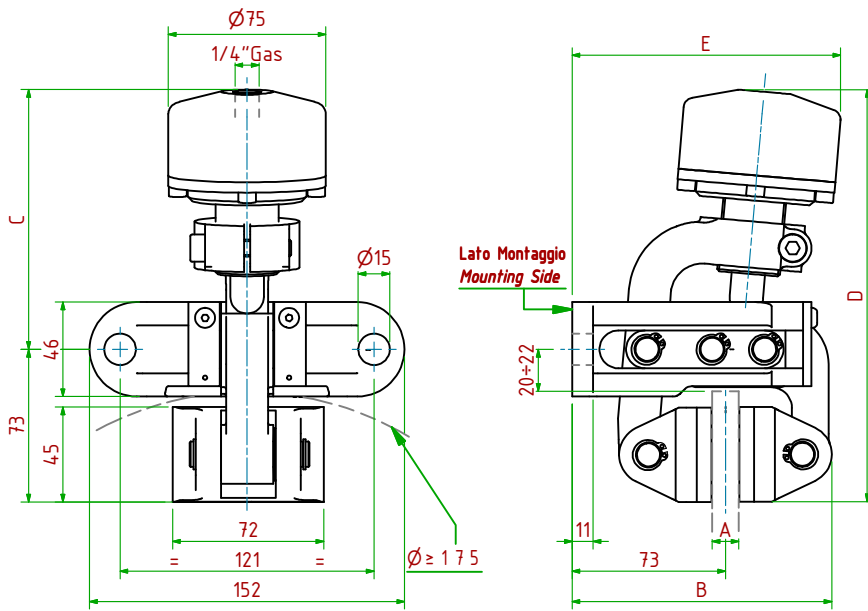
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **63cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.024(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =7mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB004/ 08	19.16.004.02	8	86	54	99	153	Ft= 5900N (6bar)	4.1kg
PPB004/12.7	19.16.004.03	12.7	90	54	100	154	Ft= 5900N (6bar)	4.2kg
PPB004/25.4	19.16.004.04	25.4	102	70	107	177	Ft= 5900N (6bar)	4.3kg



PPD011/□□□

Pneumatico / Pneumatically Applied

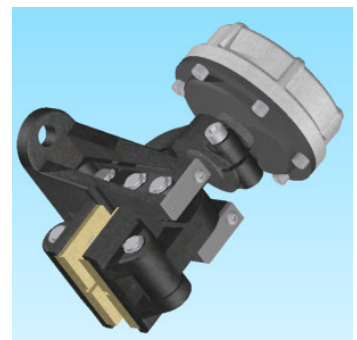
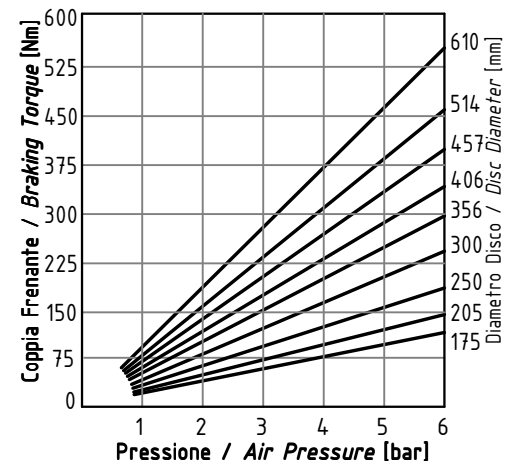
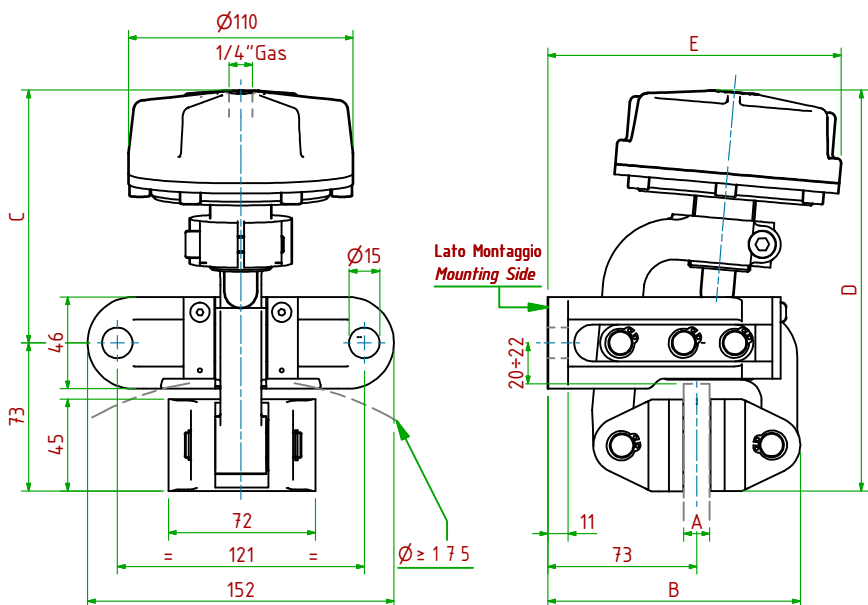


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **27 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.029(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD011/12.7	19.16.011.03	12.7	124	127	200	129	Ft= 780N (6bar)	4.5 kg
PPD011/25.4	19.16.011.04	25.4	130	127	200	129	Ft= 780N (6bar)	4.7 kg

PPD012/□□□

Pneumatico / Pneumatically Applied

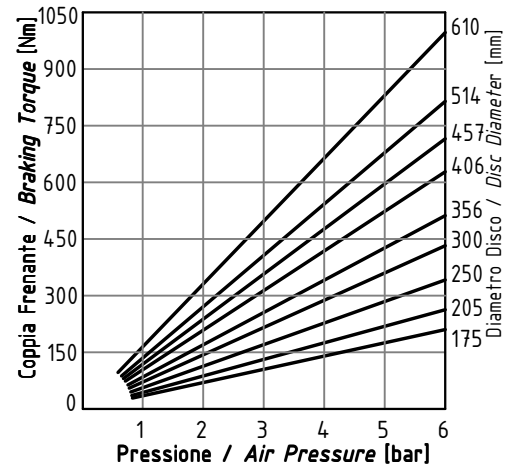
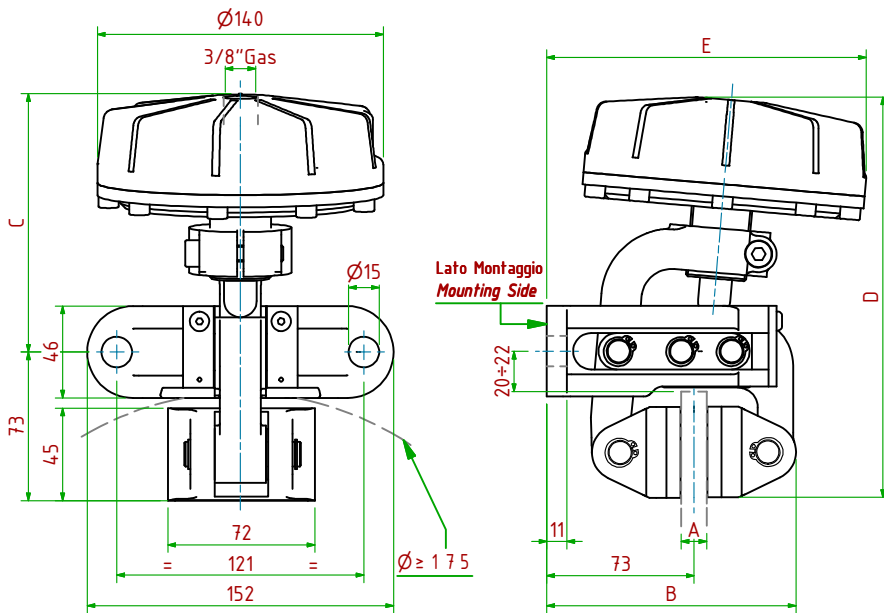


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **63 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.029(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD012/12.7	19.16.012.03	12.7	124	127	200	146	Ft= 2000N (6bar)	5.3 kg
PPD012/25.4	19.16.012.04	25.4	130	127	200	146	Ft= 2000N (6bar)	5.5 kg

PPD013/

Pneumatico / Pneumatically Applied



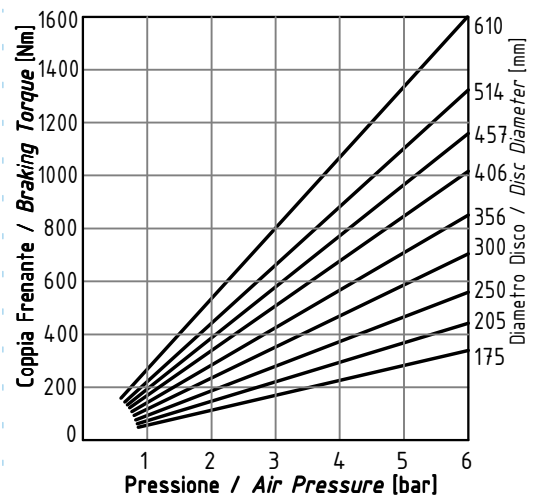
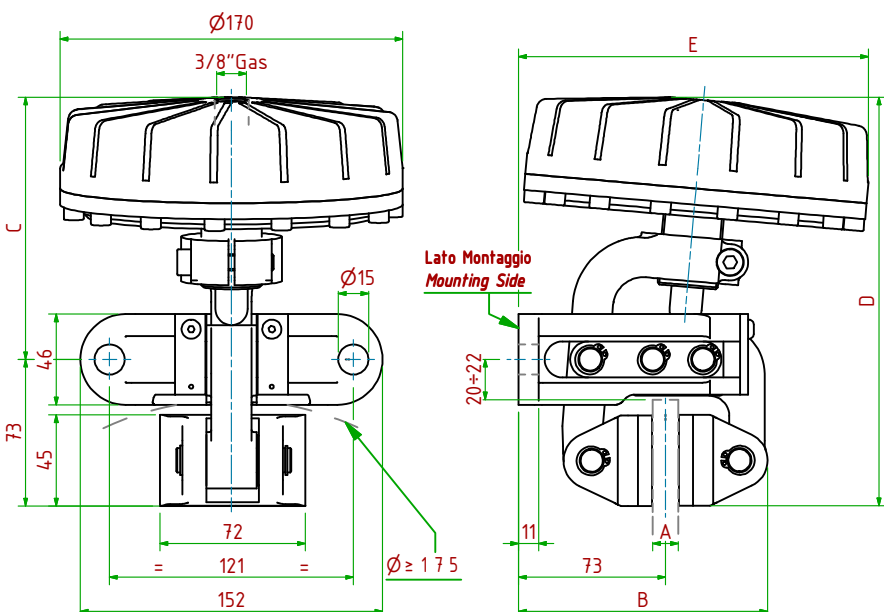
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **110cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD013/12.7	19.16.013.03	12.7	124	129	202	161	Ft= 3600N (6bar)	6.5 kg
PPD013/25.4	19.16.013.04	25.4	130	129	202	161	Ft= 3600N (6bar)	6.7 kg



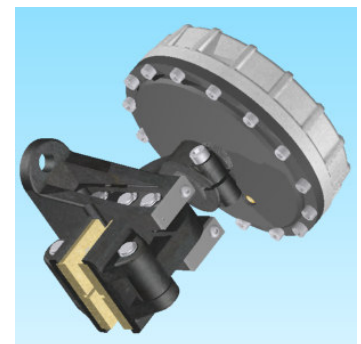
PPD014/

Pneumatico / Pneumatically Applied



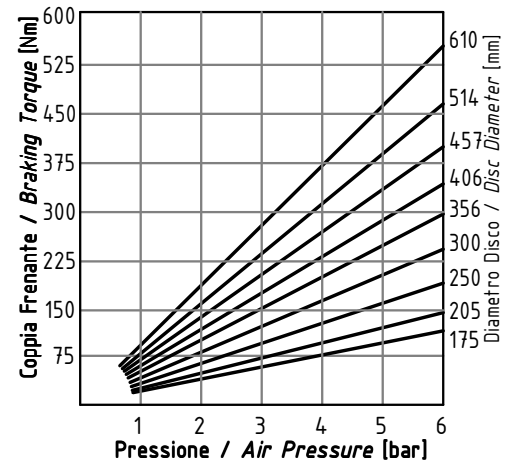
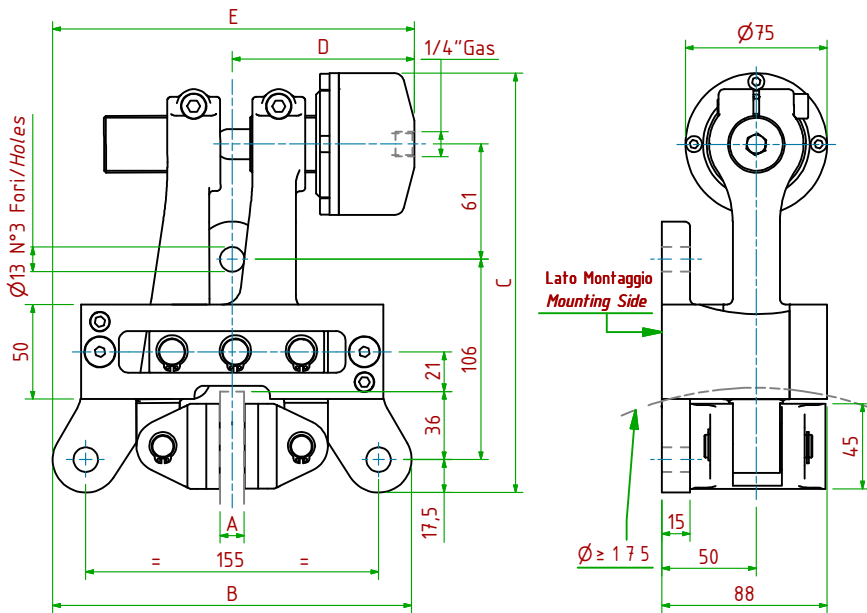
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **175cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD014/12.7	19.16.014.03	12.7	124	133	206	176	Ft= 5800N (6bar)	8.2 kg
PPD014/25.4	19.16.014.04	25.4	130	133	206	176	Ft= 5800N (6bar)	8.4 kg



PPF021/

Pneumatico / Pneumatically Applied

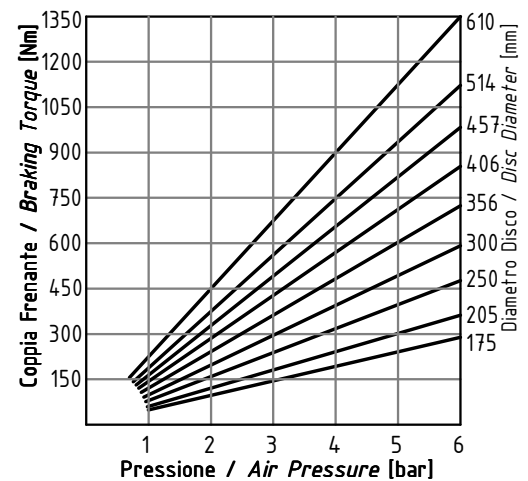
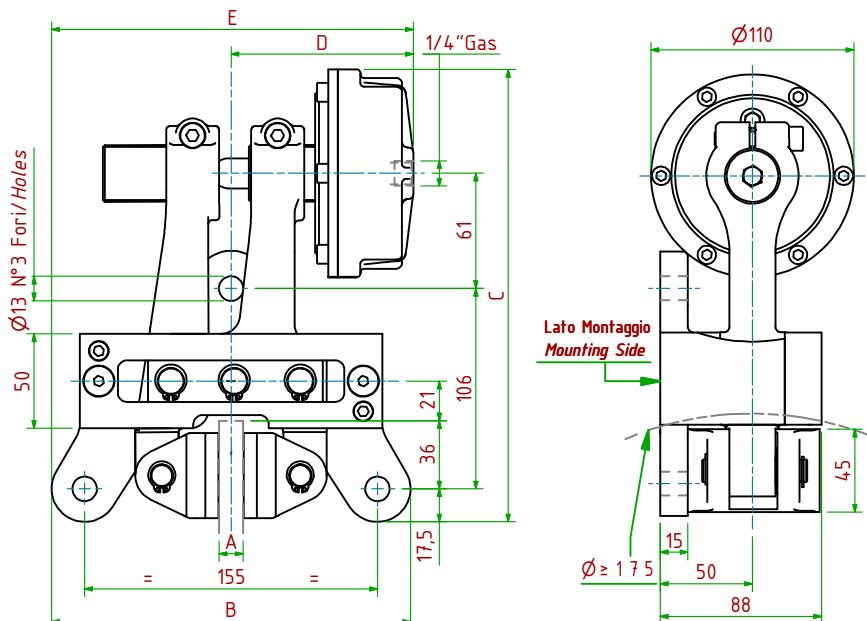


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **27 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF021/12.7	19.16.021.03	12.7	190	222	97	192	Ft= 2000N (6bar)	8.2 kg
PPF021/25.4	19.16.021.04	25.4	190	222	99	194	Ft= 2000N (6bar)	8.4 kg

PPF022/

Pneumatico / Pneumatically Applied

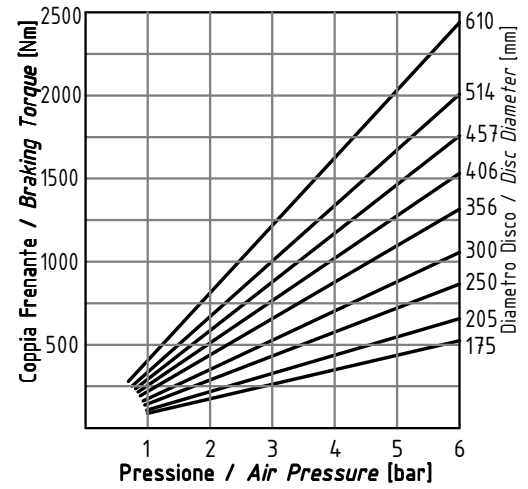
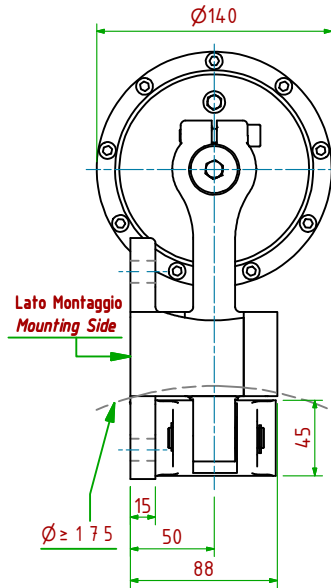
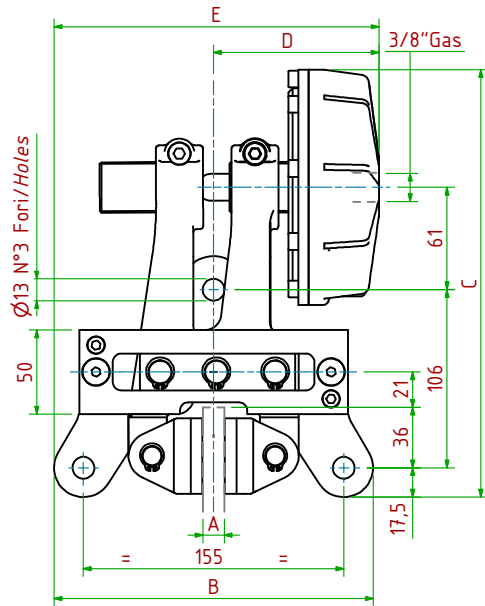


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **63 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF022/12.7	19.16.022.03	12.7	190	240	97	192	Ft= 4900N (6bar)	8.9 kg
PPF022/25.4	19.16.022.04	25.4	190	240	99	194	Ft= 4900N (6bar)	9.0 kg

PPF023/

Pneumatico / Pneumatically Applied

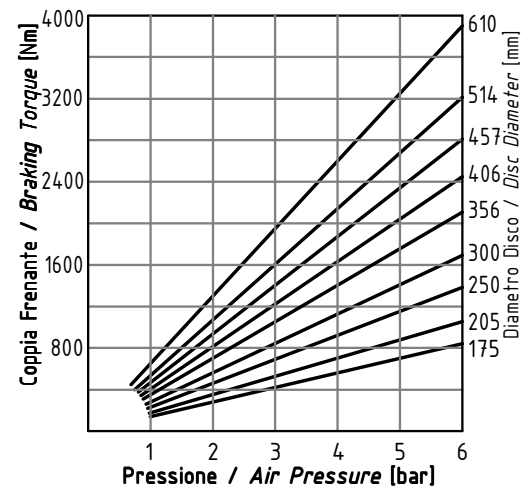
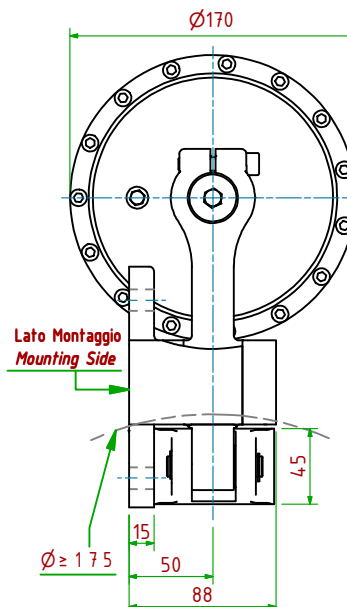
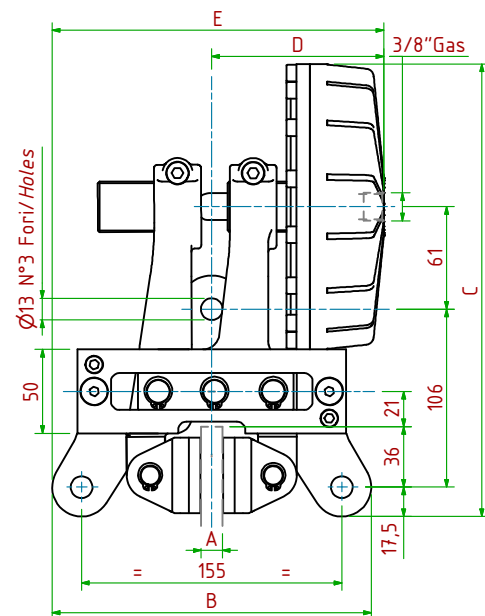


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **110cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF023/12.7	19.16.023.03	12.7	190	255	99	194	Ft= 8800N (6bar)	10.0kg
PPF023/25.4	19.16.023.04	25.4	190	255	101	196	Ft= 8800N (6bar)	10.2kg

PPF024/

Pneumatico / Pneumatically Applied

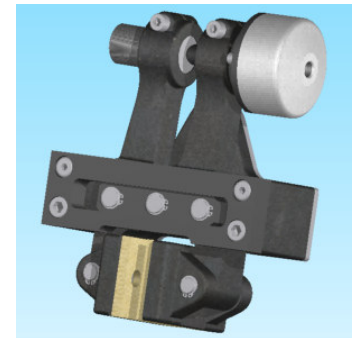
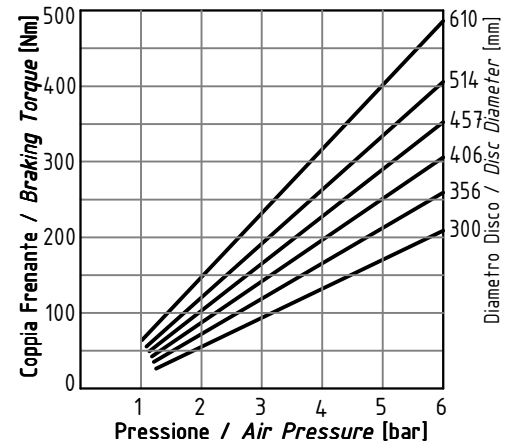
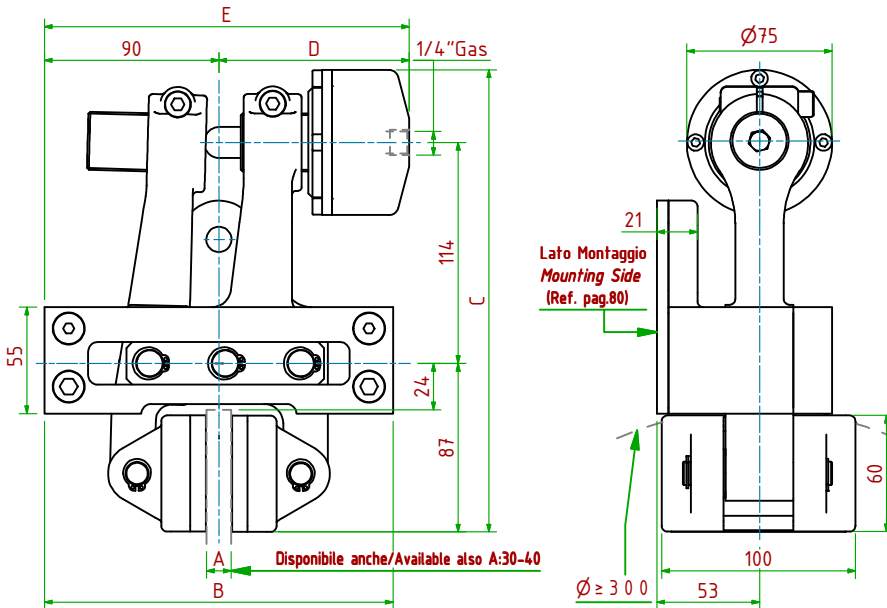


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **175cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF024/12.7	19.16.024.03	12.7	190	270	102	197	Ft= 14150N (6bar)	11.7kg
PPF024/25.4	19.16.024.04	25.4	190	270	105	200	Ft= 14150N (6bar)	11.9kg

PPH031/

Pneumatico / Pneumatically Applied

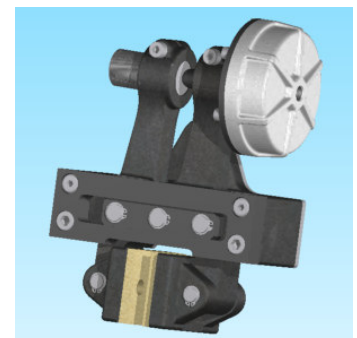
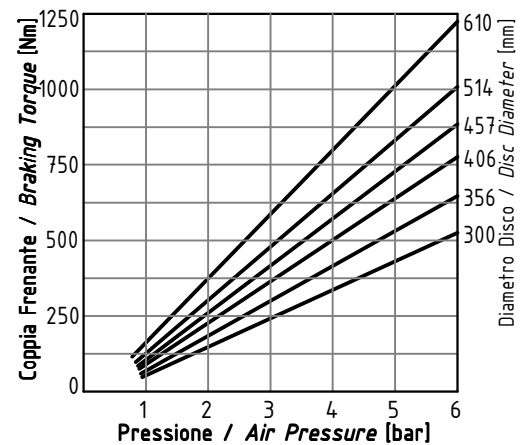
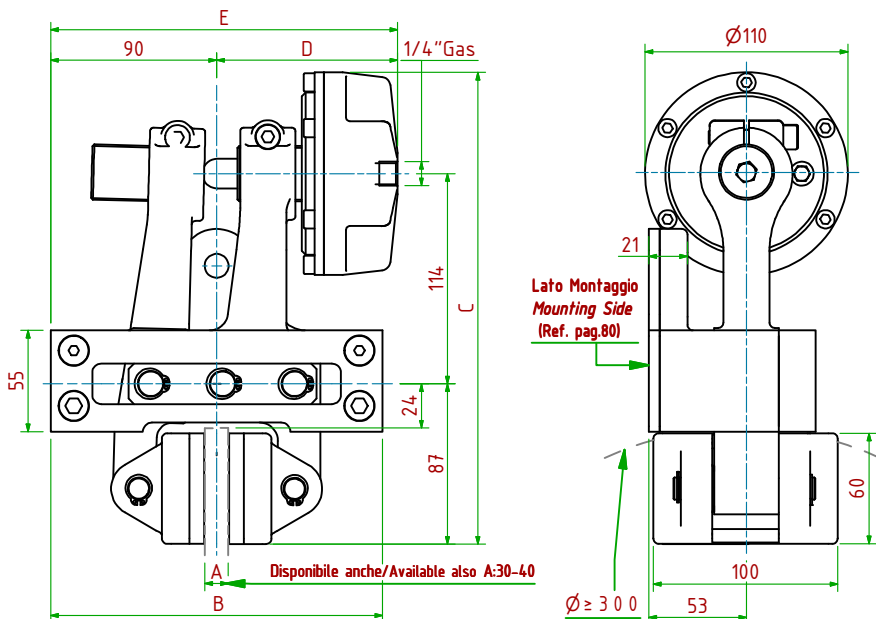


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **27 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.033(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH031/12.7	19.16.031.03	12.7	180	239	98	188	Ft= 1800N (6bar)	10.5kg
PPH031/25.4	19.16.031.04	25.4	180	239	101	191	Ft= 1800N (6bar)	10.7kg

PPH032/

Pneumatico / Pneumatically Applied

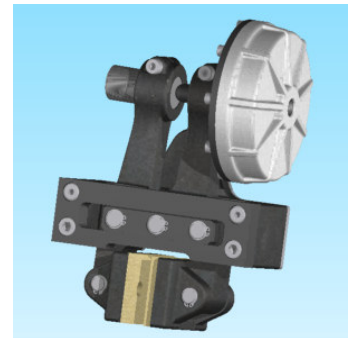
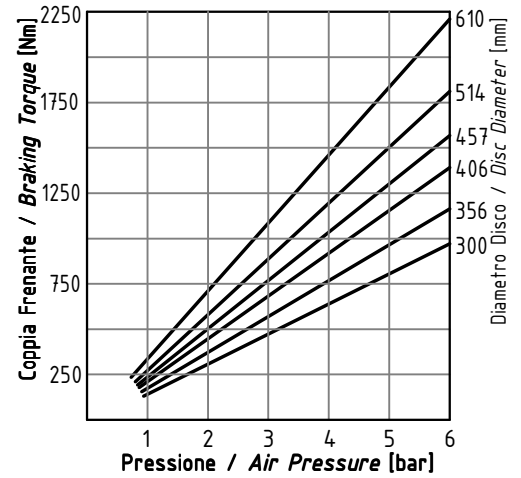
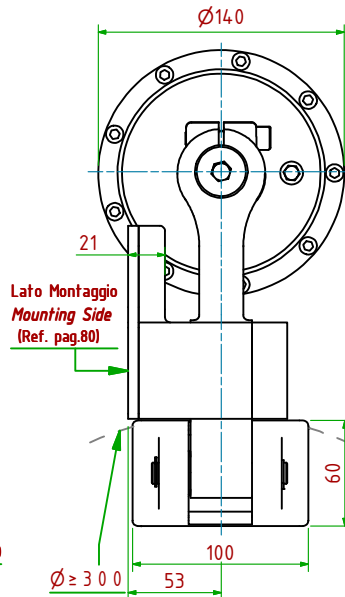
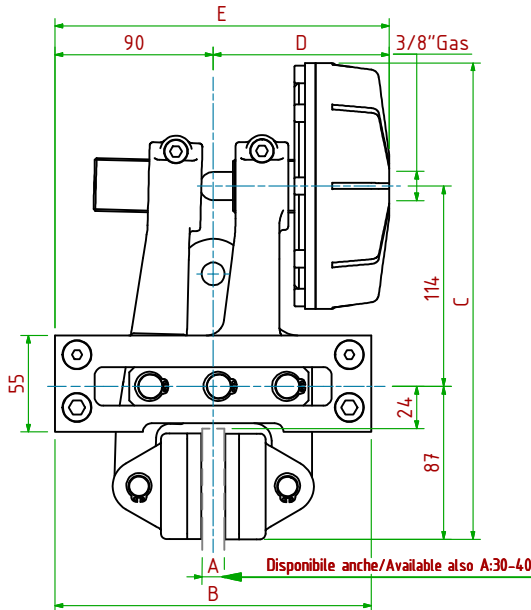


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **63 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.033(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH032/12.7	19.16.032.03	12.7	180	256	98	188	Ft= 4500N (6bar)	11.2 kg
PPH032/25.4	19.16.032.04	25.4	180	256	103	193	Ft= 4500N (6bar)	11.4 kg

PPH033/

Pneumatico / Pneumatically Applied

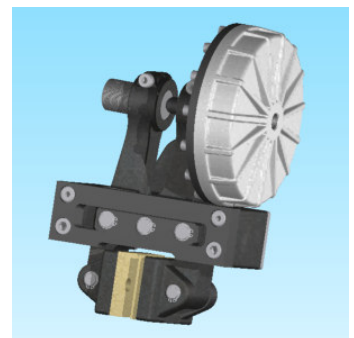
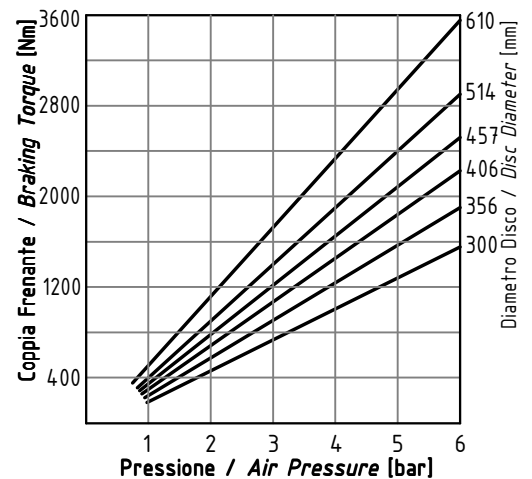
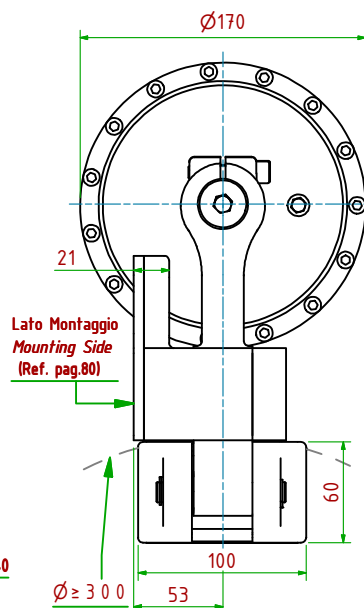
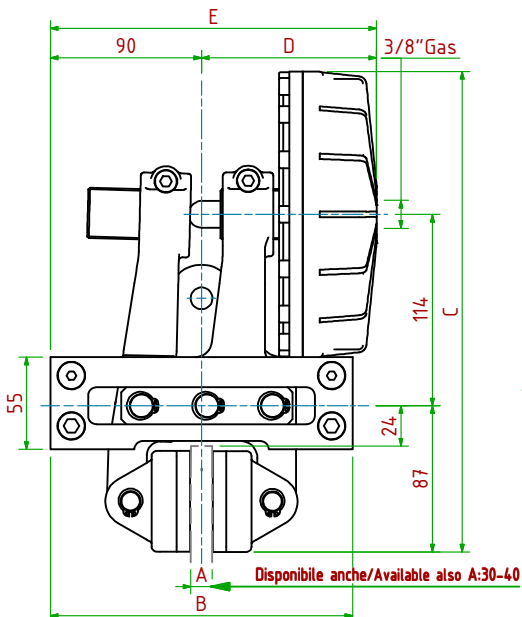


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **110cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH033/12.7	19.16.033.03	12.7	180	271	100	190	Ft= 8100N (6bar)	12.2kg
PPH033/25.4	19.16.033.04	25.4	180	271	105	195	Ft= 8100N (6bar)	12.4kg

PPH034/

Pneumatico / Pneumatically Applied

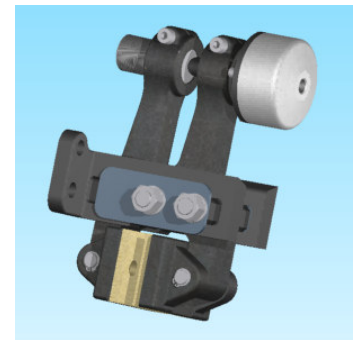
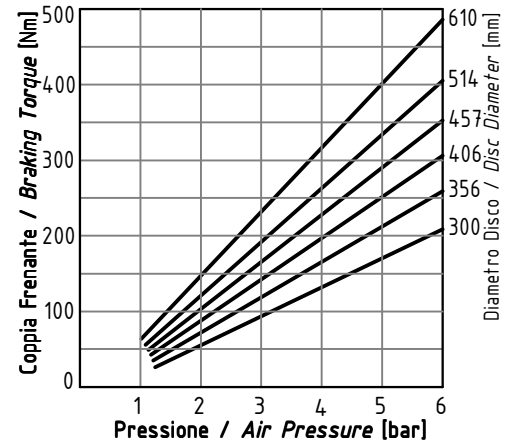
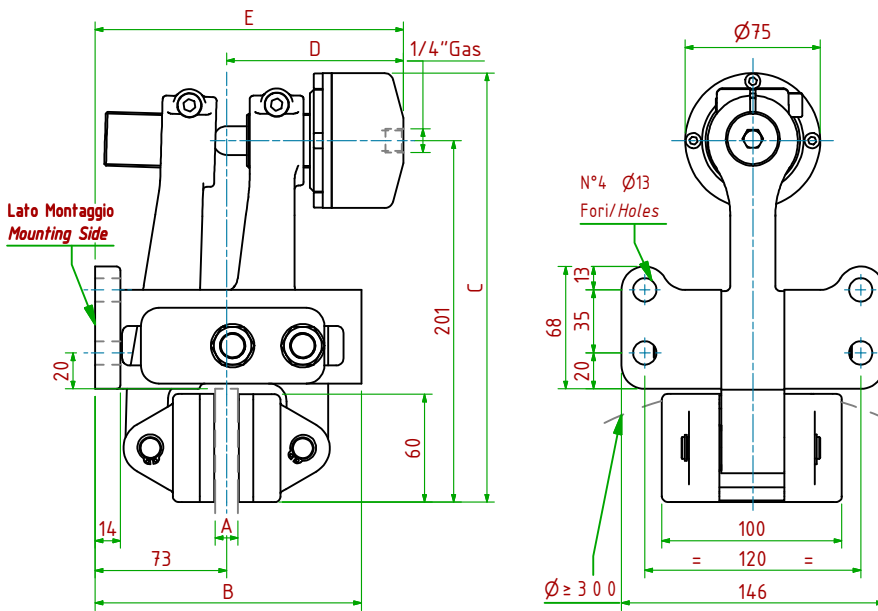


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **175cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH034/12.7	19.16.034.03	12.7	180	286	104	194	Ft= 13000N (6bar)	13.9kg
PPH034/25.4	19.16.034.04	25.4	180	286	109	199	Ft= 13000N (6bar)	14.1kg

PPHP310/

Pneumatico / Pneumatically Applied

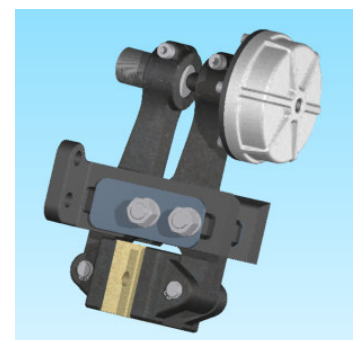
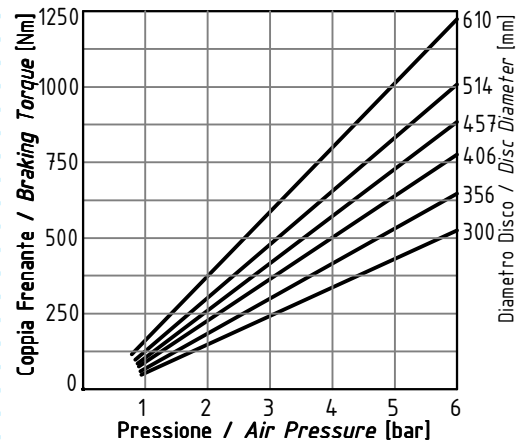
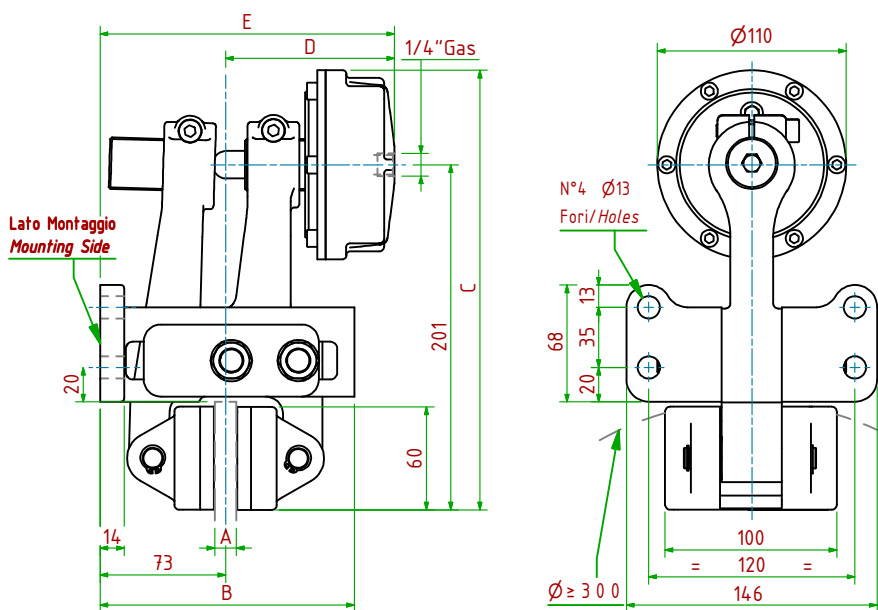


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **27 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP310/12.7	19.16.310.03	12.7	148	239	98	171	Ft= 1800N (6bar)	8.7 kg
PPHP310/25.4	19.16.310.04	25.4	148	239	105	178	Ft= 1800N (6bar)	8.9 kg

PPHP320/

Pneumatico / Pneumatically Applied

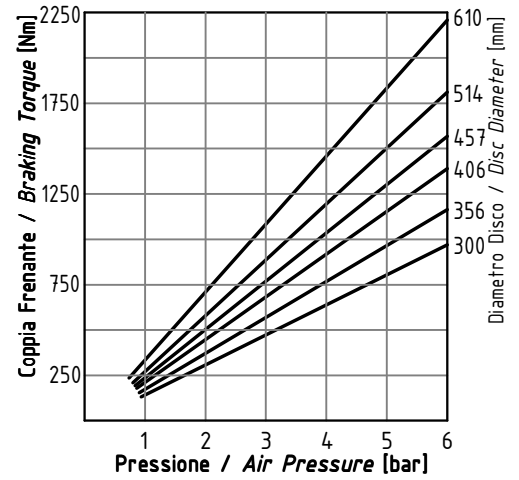
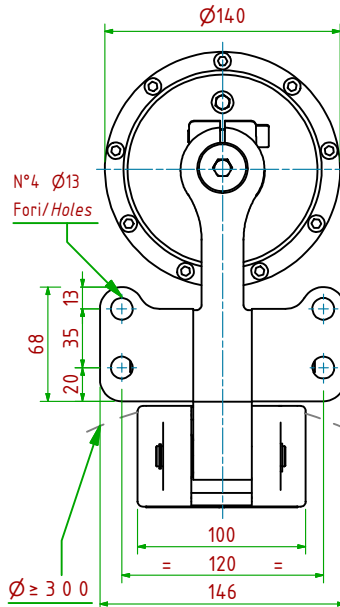
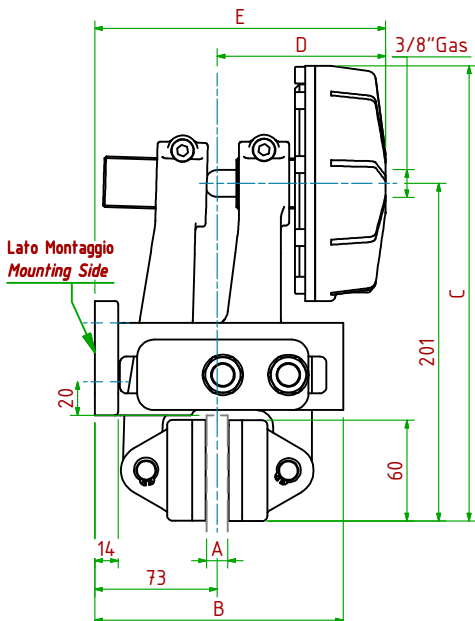


- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **63 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP320/12.7	19.16.320.03	12.7	148	256	98	171	Ft= 4500N (6bar)	9.4 kg
PPHP320/25.4	19.16.320.04	25.4	148	256	105	178	Ft= 4500N (6bar)	9.6 kg

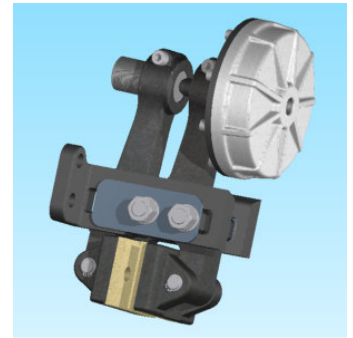
PPHP330/

Pneumatico / Pneumatically Applied



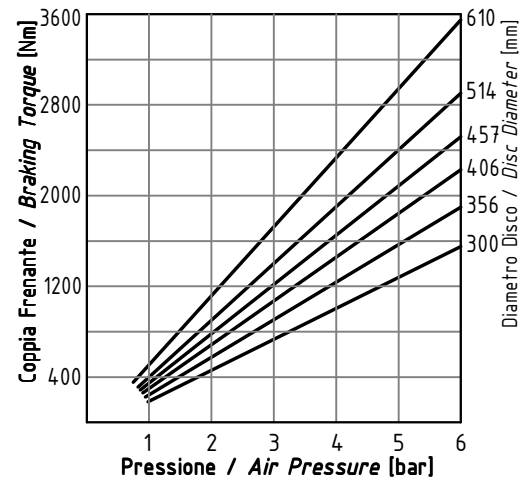
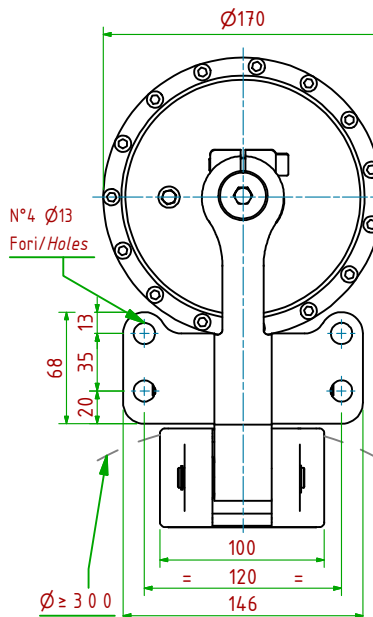
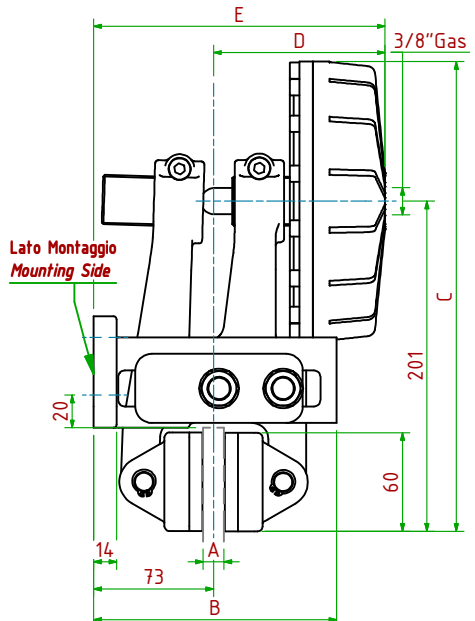
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **110cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP330/12.7	19.16.330.03	12.7	148	271	100	173	Ft= 8100N (6bar)	10.4kg
PPHP330/25.4	19.16.330.04	25.4	148	271	107	180	Ft= 8100N (6bar)	10.6kg



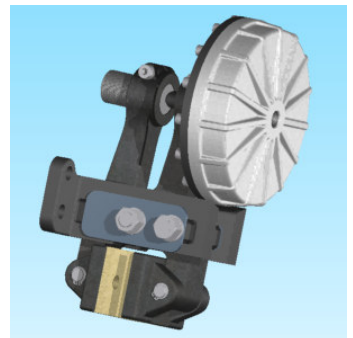
PPHP340/

Pneumatico / Pneumatically Applied



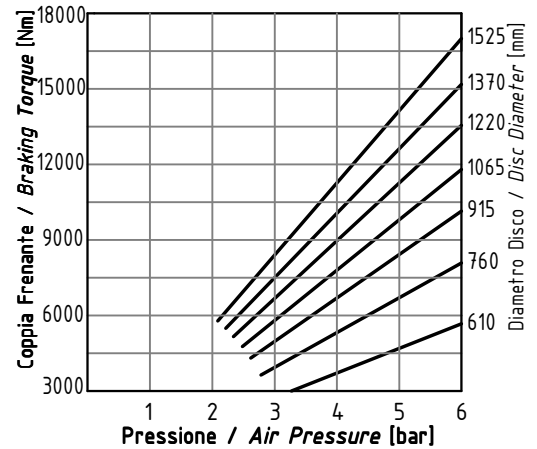
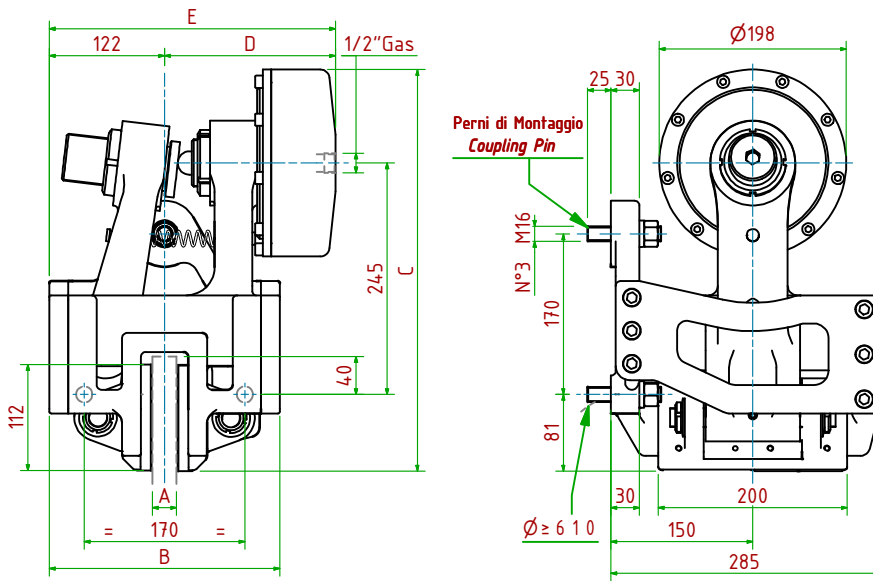
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **175cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP340/12.7	19.16.340.03	12.7	148	286	104	177	Ft= 13000N (6bar)	12.0kg
PPHP340/25.4	19.16.340.04	25.4	148	286	111	184	Ft= 13000N (6bar)	12.2kg



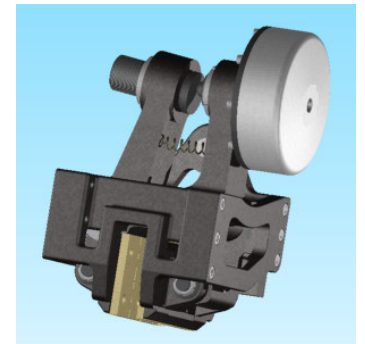
PPT064/

Pneumatico / Pneumatically Applied



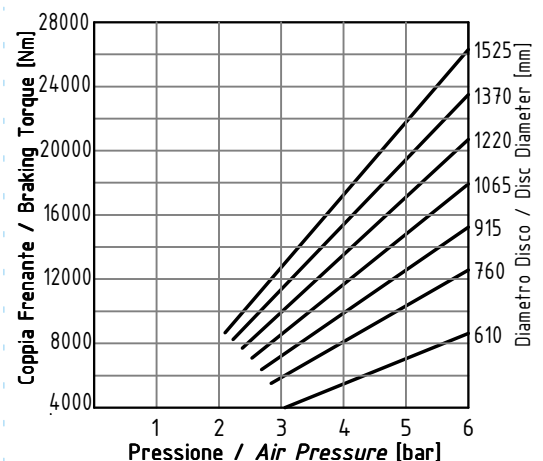
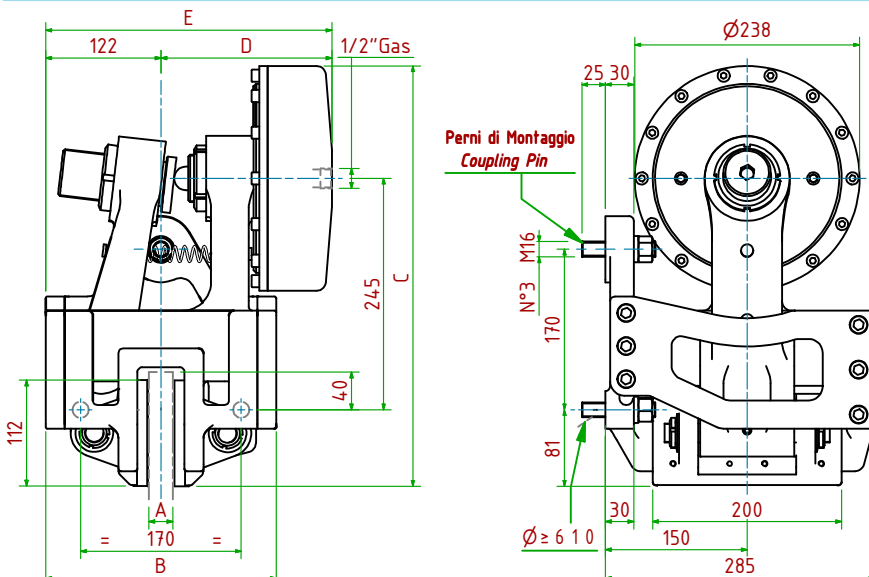
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **0.46dm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPT064/25.4	19.16.064.04	25.4	244	425	181	303	Ft= 23500N (6bar)	61.8 kg
PPT064/ 30	19.16.064.05	30	244	425	181	303	Ft= 23500N (6bar)	61.8 kg
PPT064/ 40	19.16.064.06	40	244	425	186	308	Ft= 23500N (6bar)	61.8 kg



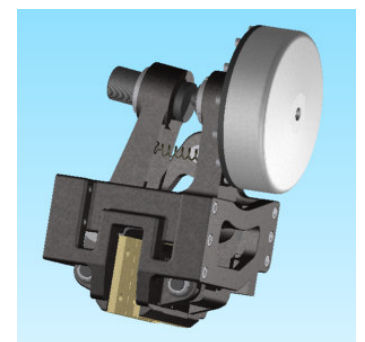
PPT066/

Pneumatico / Pneumatically Applied



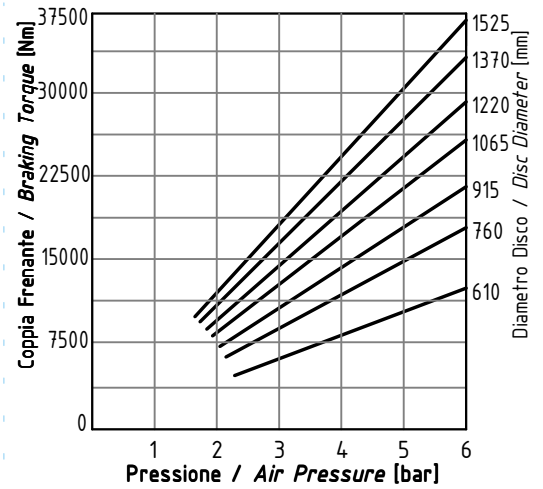
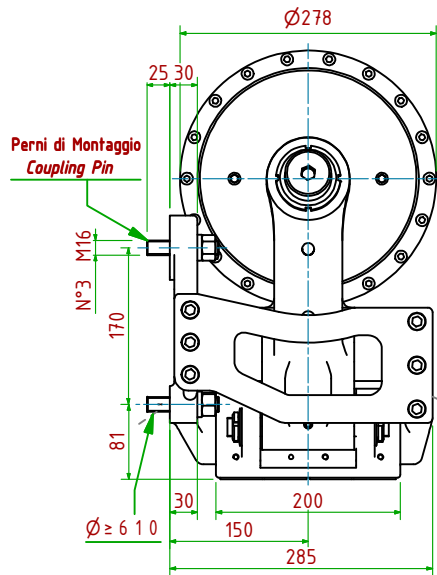
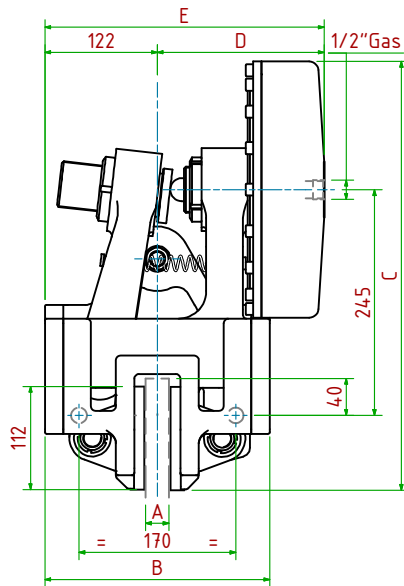
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **0.69dm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPT066/25.4	19.16.066.04	25.4	244	445	181	303	Ft= 36600N (6bar)	65.2kg
PPT066/ 30	19.16.066.05	30	244	445	181	303	Ft= 36600N (6bar)	65.2kg
PPT066/ 40	19.16.066.06	40	244	445	186	308	Ft= 36600N (6bar)	65.2kg



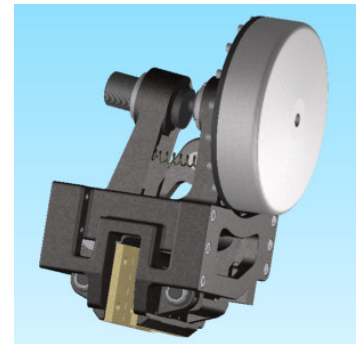
PPT068/

Pneumatico / Pneumatically Applied



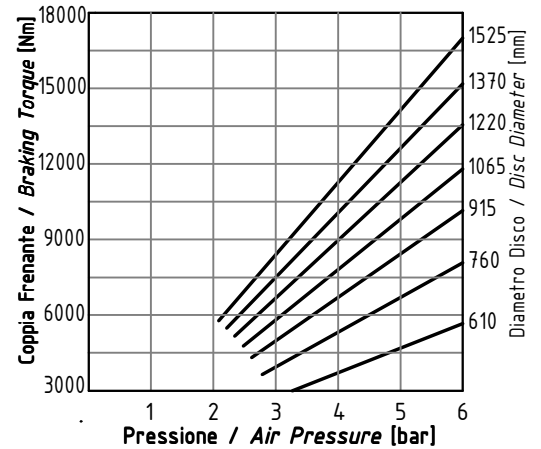
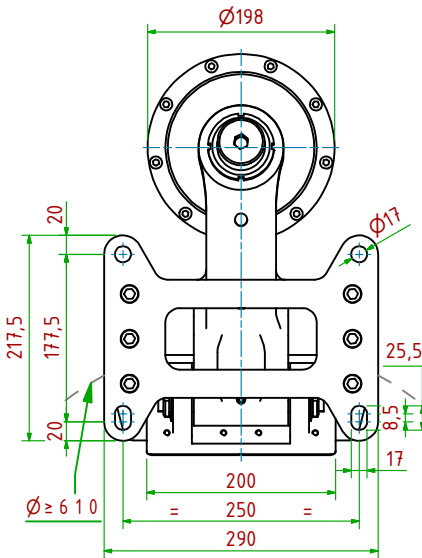
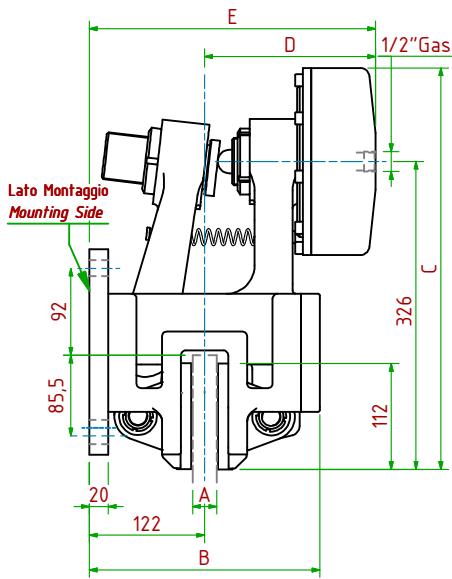
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **0.98dm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPT068/25.4	19.16.068.04	25.4	24.4	465	181	303	Ft= 50500N (6bar)	69.2kg
PPT068/ 30	19.16.068.05	30	24.4	465	181	303	Ft= 50500N (6bar)	69.2kg
PPT068/ 40	19.16.068.06	40	24.4	465	186	308	Ft= 50500N (6bar)	69.2kg



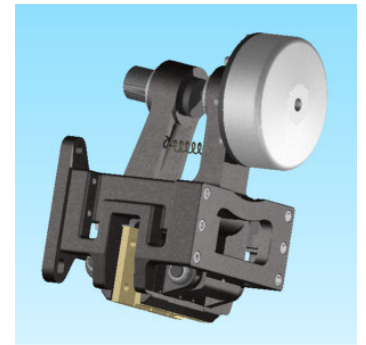
PPTP640/□□□

Pneumatico / Pneumatically Applied



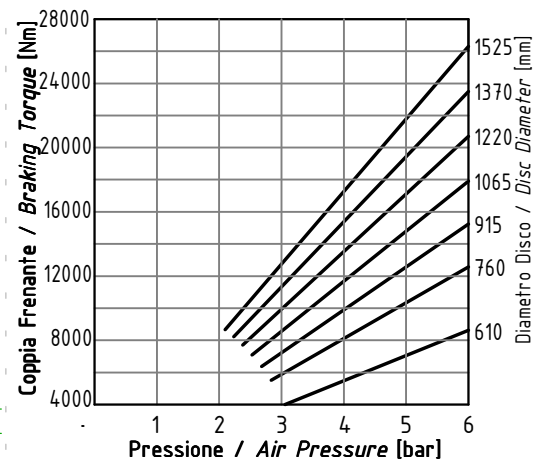
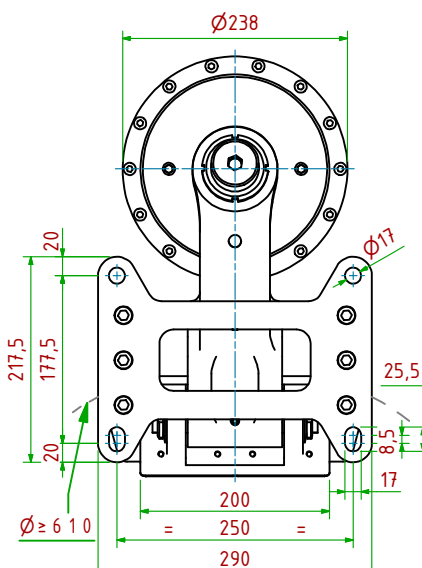
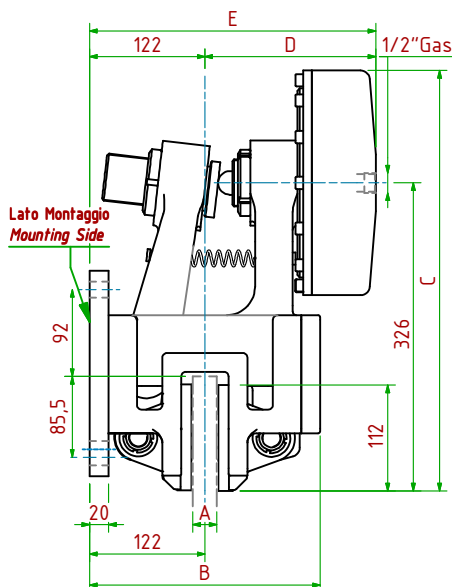
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **0.46dm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPTP640/25.4	19.16.640.04	25.4	24.4	425	181	303	Ft= 23500N (6bar)	59.8kg
PPTP640/ 30	19.16.640.05	30	24.4	425	181	303	Ft= 23500N (6bar)	59.8kg
PPTP640/ 40	19.16.640.06	40	24.4	425	186	308	Ft= 23500N (6bar)	59.8kg



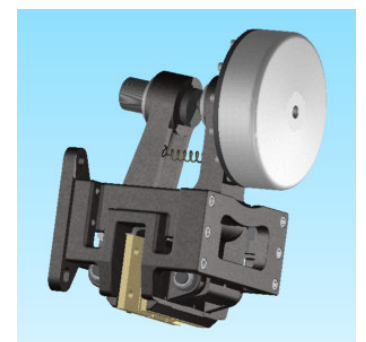
PPTP660/□□□

Pneumatico / Pneumatically Applied



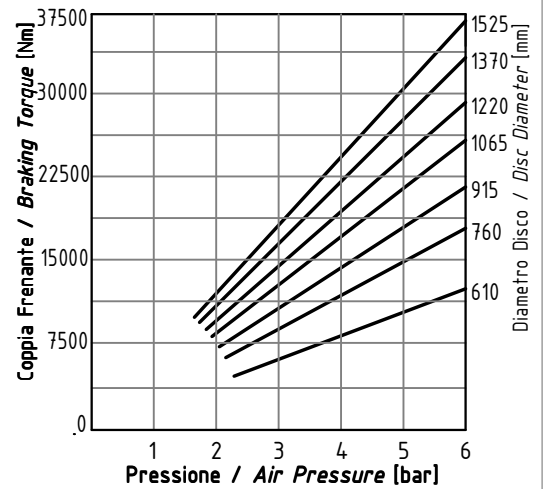
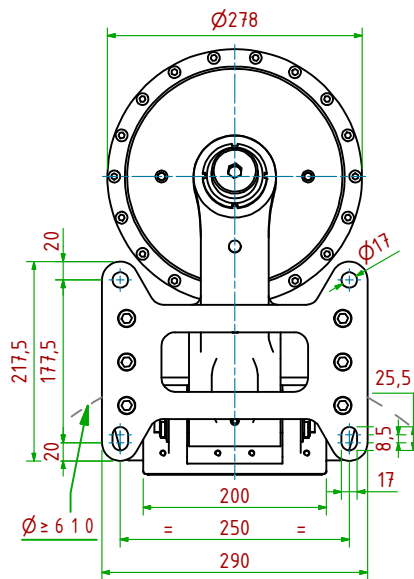
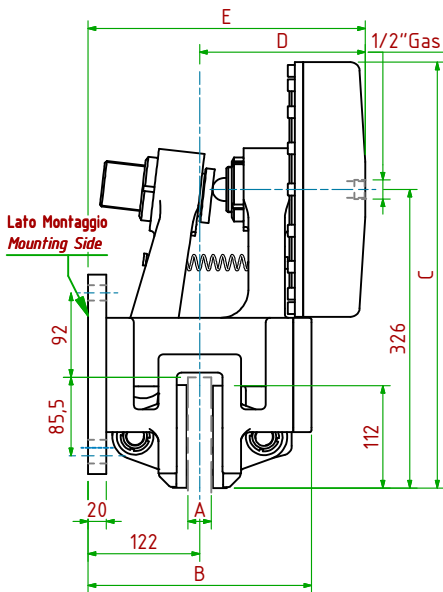
- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **0.69dm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPTP660/25.4	19.16.660.04	25.4	24.4	445	181	303	Ft= 35500N (6bar)	63.1kg
PPTP660/ 30	19.16.660.05	30	24.4	445	181	303	Ft= 35500N (6bar)	63.1kg
PPTP660/ 40	19.16.660.06	40	24.4	445	186	308	Ft= 35500N (6bar)	63.1kg



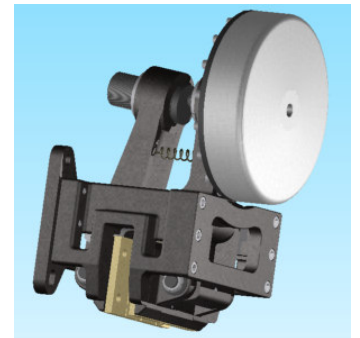
PPTP680/□□□

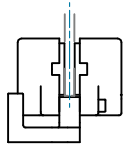
Pneumatico / Pneumatically Applied



- Pressione di Lavoro/Operating Pressure: **Pl= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **0.98dm³**
- Coppia Frenante/Braking Torque: **Md= [Ft×(Φ(m)/2-0.065(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPTP680/25.4	19.16.680.04	25.4	244	465	181	303	Ft= 50500N (6bar)	67.2kg
PPTP680/ 30	19.16.680.05	30	244	465	181	303	Ft= 50500N (6bar)	67.2kg
PPTP680/ 40	19.16.680.06	40	244	465	186	308	Ft= 50500N (6bar)	67.2kg

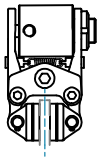




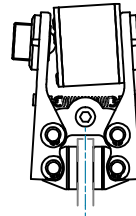
PPV-N ...
Md=60÷236Nm
Pag. 38



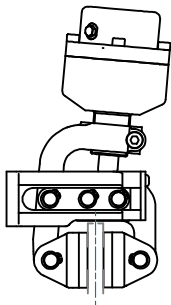
PPC-N ...
Md=10÷82Nm
Pag. 39



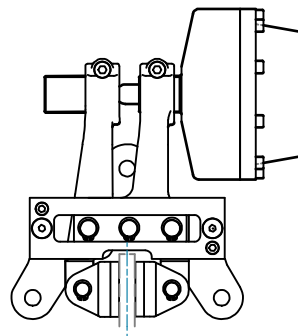
PPA-N ...
Md=29÷108Nm
Pag. 40



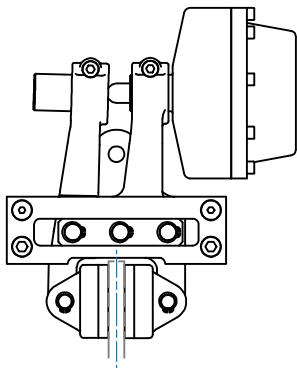
PPB-N ...
Md=30÷841Nm
Pag. 41-42



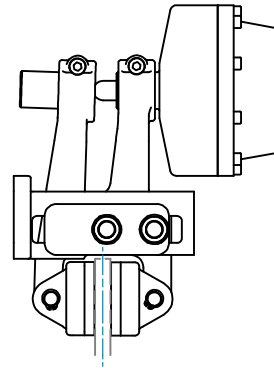
PPD-N ...
Md=41÷1521m
Pag. 43-44



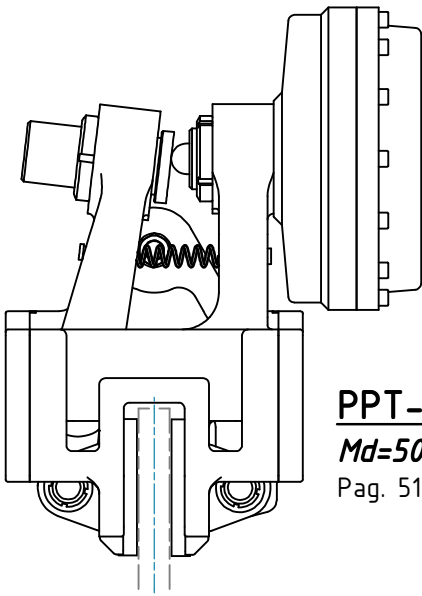
PPF-N ...
Md=105÷3635Nm
Pag. 45-46



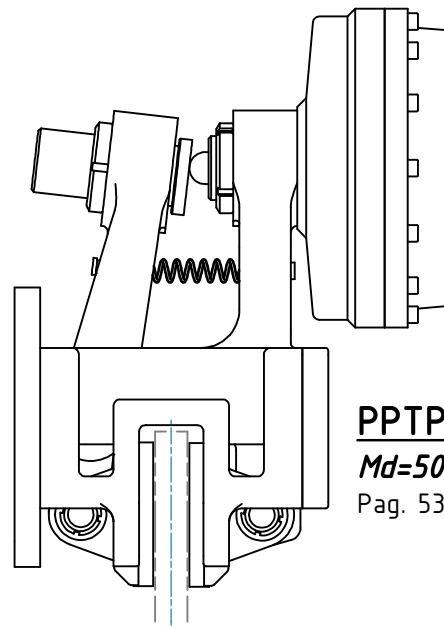
PPH-N ...
Md=193÷3290Nm
Pag. 47-48



PPHP-N ...
Md=193÷3290Nm
Pag. 49-50



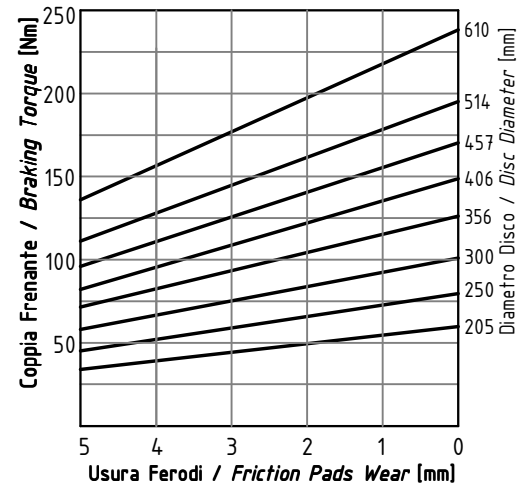
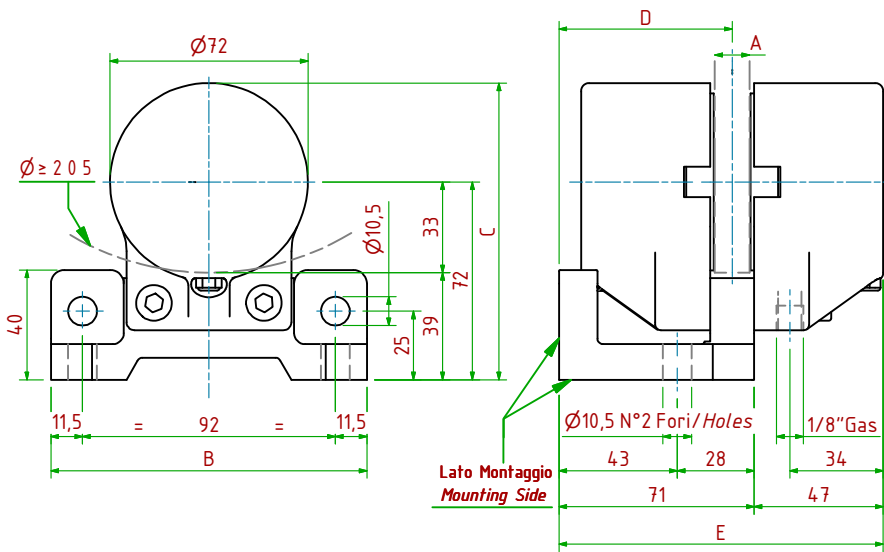
PPT-N ...
Md=5088÷31735Nm
Pag. 51-52



PPTP-N ...
Md=5088÷31735Nm
Pag. 53-54

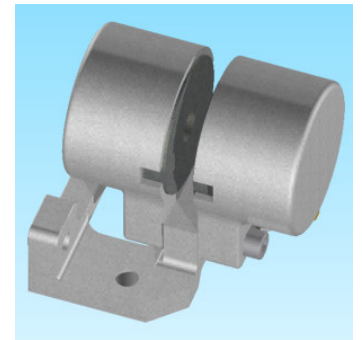
PPV-N065/□□□

Pneumatico Negativo/Pneumatically Released



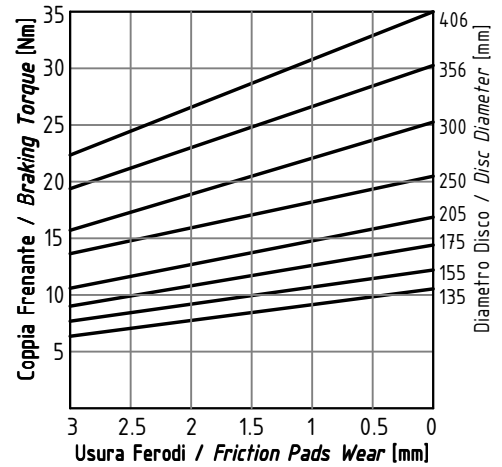
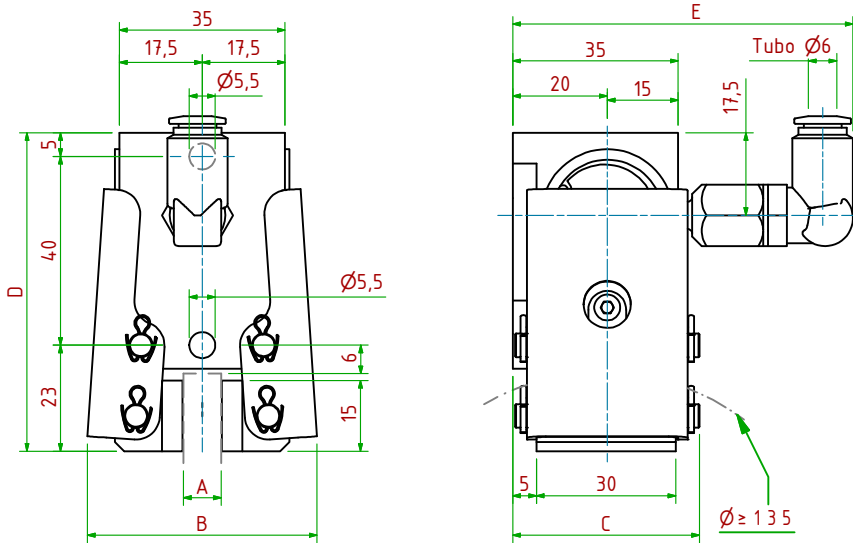
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **33 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.033(m)]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =10mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D	E	Forza Frenante/Braking Force	Peso
PPV-N065/ 08	19.36.M065.02	8	115	108	63	118	Ft= 870N (0bar)	1.3 kg
PPV-N065/12.7	19.36.M065.03	12.7	115	108	63	118	Ft= 870N (0bar)	1.3 kg



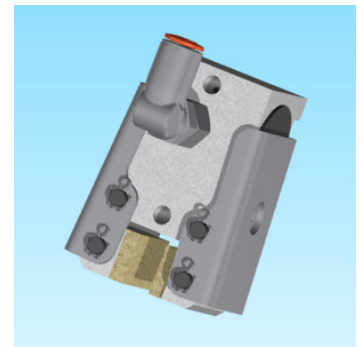
PPC-N C01/ □ □ □

Pneumatico Negativo/Pneumatically Released



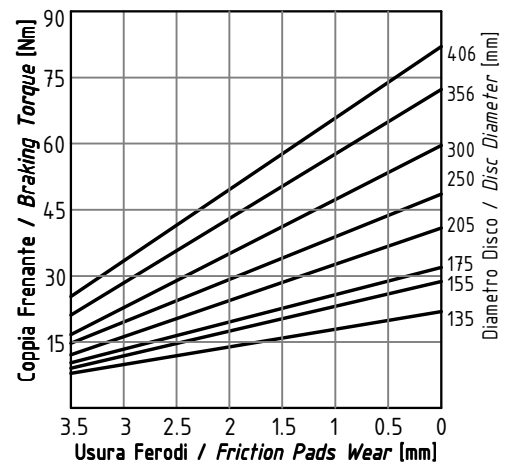
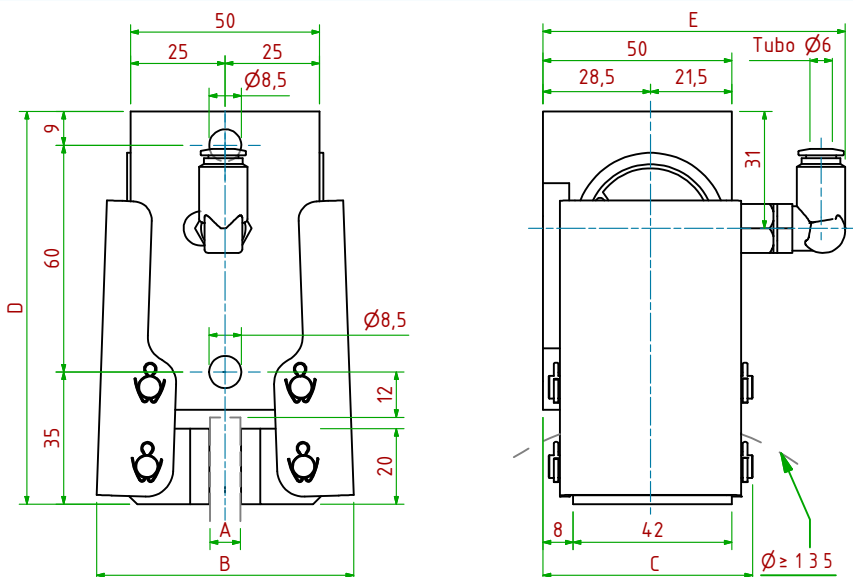
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **3 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.009(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads:
PPC-N C01/08 =8mm PPC-N C01/12.7 =4mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPC-N C01/ 08	19.36.C01.02	8	50	40	68	75	Ft= 180N (0bar)	0.4kg
PPC-N C01/12.7	19.36.C01.03	12.7	50	40	68	75	Ft= 180N (0bar)	0.4kg



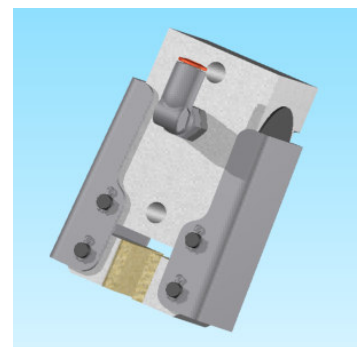
PPC-N C02/ □ □ □

Pneumatico Negativo/Pneumatically Released



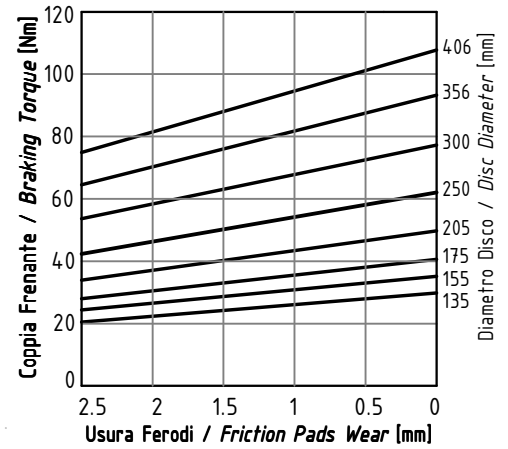
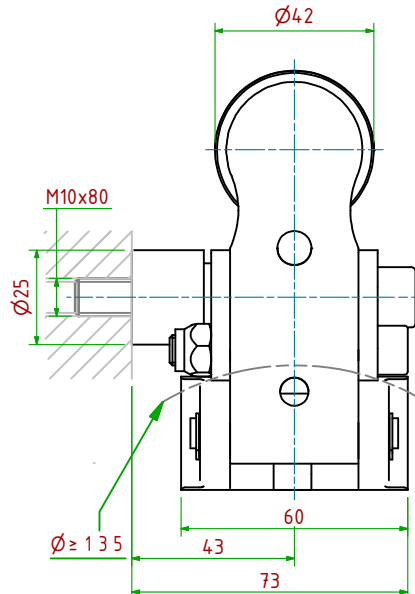
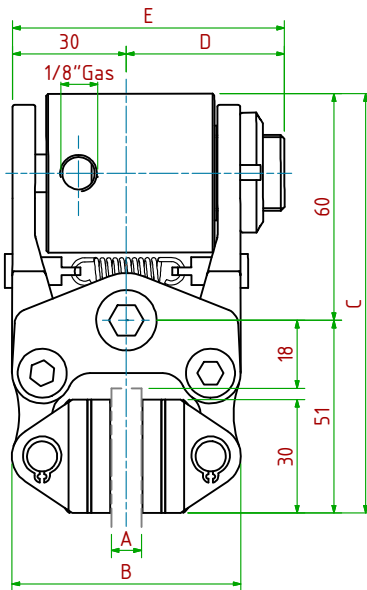
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **8 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.013(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads:
PPC-N C02/08 =8mm PPC-N C02/12.7 =5mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPC-N C02/ 08	19.36.C02.02	8	68	56	104	83	Ft= 430N (0bar)	1.1 kg
PPC-N C02/12.7	19.36.C02.03	12.7	68	56	104	83	Ft= 430N (0bar)	1.1 kg



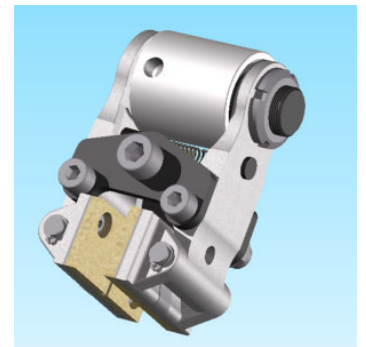
PPA-N A03/ □ □ □

Pneumatico Negativo/Pneumatically Released



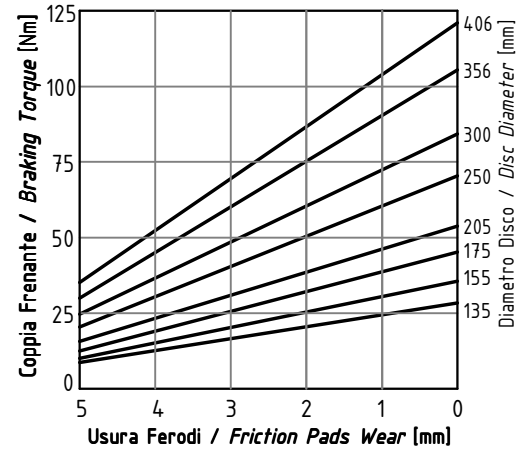
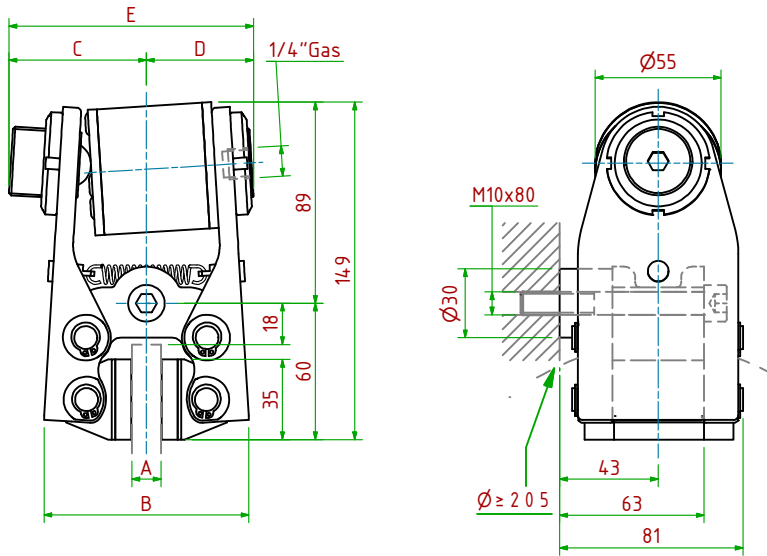
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **6 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.018(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =5mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Ft: Forza Frenante	Peso
PPA-NA03/ 08	19.36.A03.02	8	61	111	42	72	Ft= 580N (0bar)	1.1 kg
PPA-NA03/12.7	19.36.A03.03	12.7	65	111	42	72	Ft= 580N (0bar)	1.2 kg



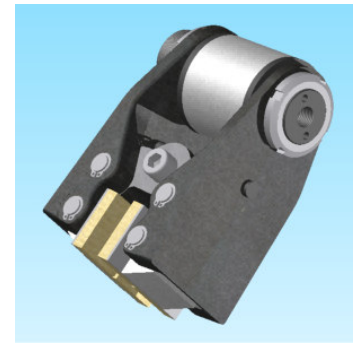
PPB-N001/□□□

Pneumatico Negativo/Pneumatically Released



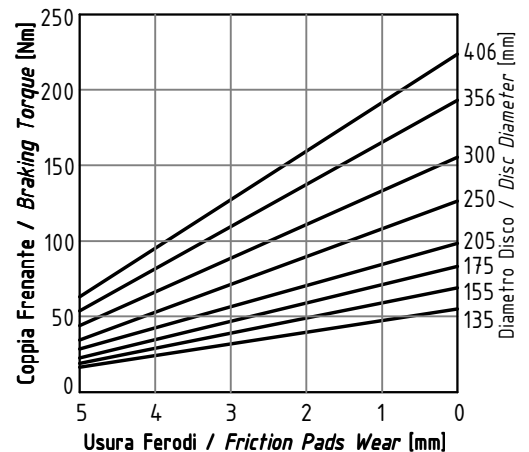
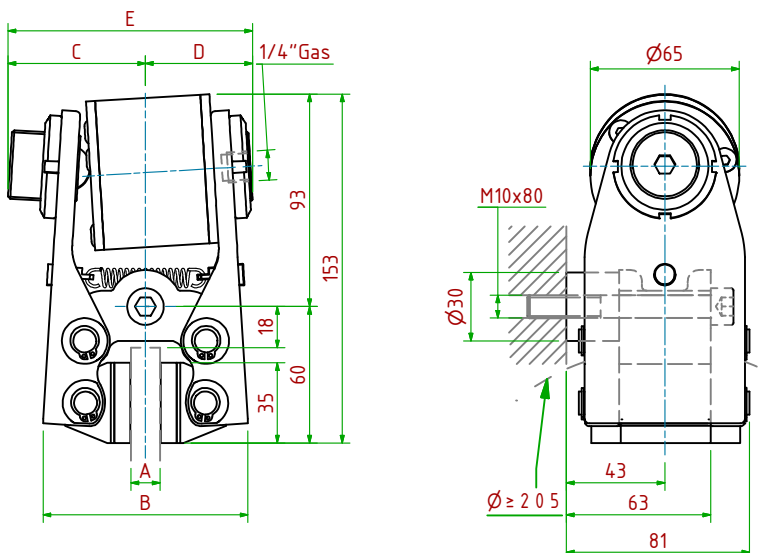
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **11cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m))/2-0.024(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =7mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB-N001/ 08	19.36.001.02	8	86	60	55	115	Ft= 680N (0bar)	2.9kg
PPB-N001/12.7	19.36.001.03	12.7	90	60	56	116	Ft= 680N (0bar)	3.0kg
PPB-N001/25.4	19.36.001.04	25.4	102	60	63	123	Ft= 680N (0bar)	3.1kg



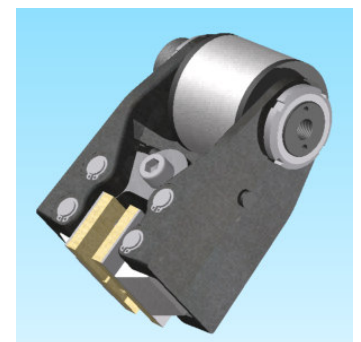
PPB-N002/□□□

Pneumatico Negativo/Pneumatically Released



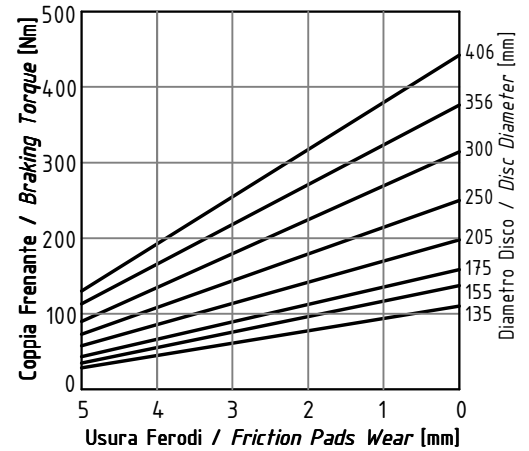
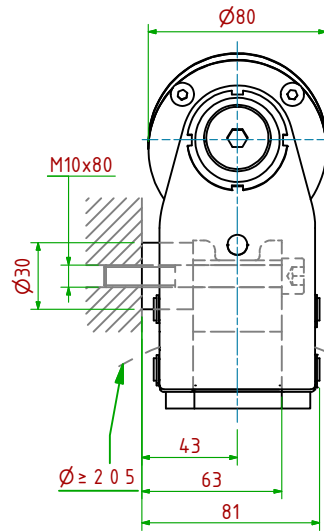
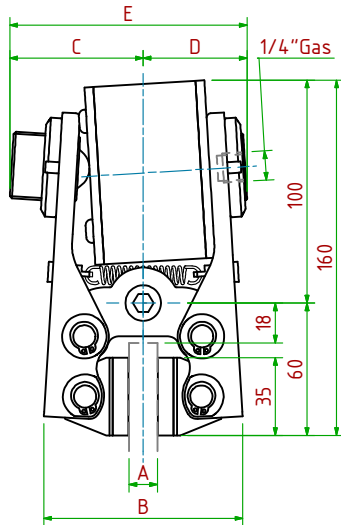
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **19cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m))/2-0.024(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =7mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB-N002/ 08	19.36.002.02	8	86	60	55	115	Ft= 1250N (0bar)	3.1kg
PPB-N002/12.7	19.36.002.03	12.7	90	60	56	116	Ft= 1250N (0bar)	3.2kg
PPB-N002/25.4	19.36.002.04	25.4	102	60	63	123	Ft= 1250N (0bar)	3.3kg



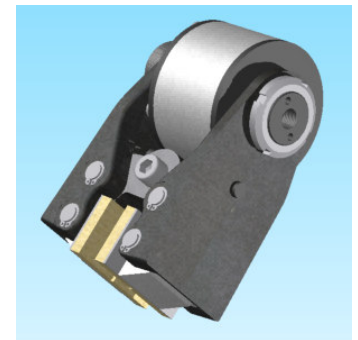
PPB-N003/□□□

Pneumatico Negativo/Pneumatically Released



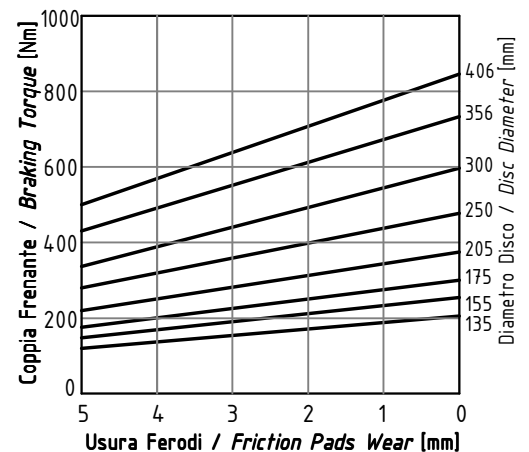
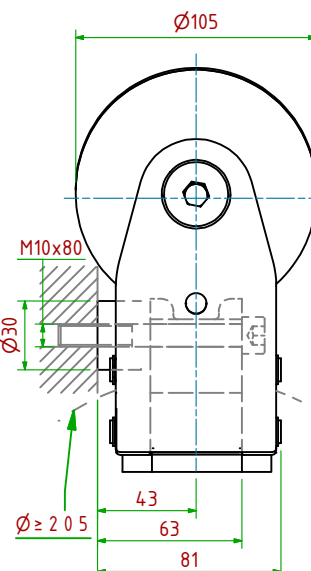
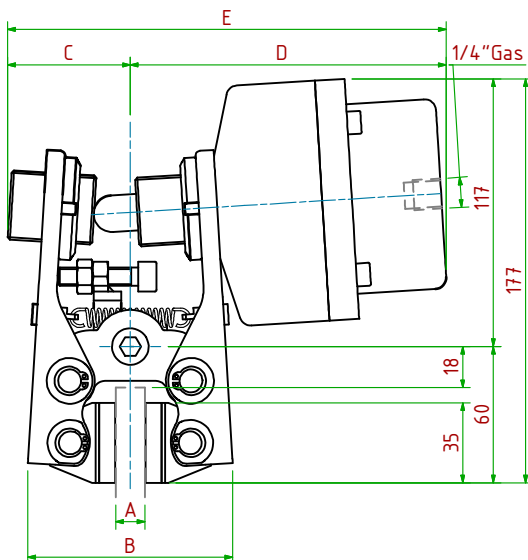
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **35 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft×(Φ(m)/2-0.024(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =7mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB-N003/ 08	19.36.003.02	8	86	60	55	115	Ft= 2500N (0bar)	3.4kg
PPB-N003/12.7	19.36.003.03	12.7	90	60	56	116	Ft= 2500N (0bar)	3.5kg
PPB-N003/25.4	19.36.003.04	25.4	102	60	63	123	Ft= 2500N (0bar)	3.6kg



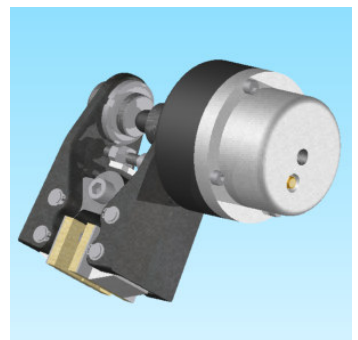
PPB-N004/□□□

Pneumatico Negativo/Pneumatically Released



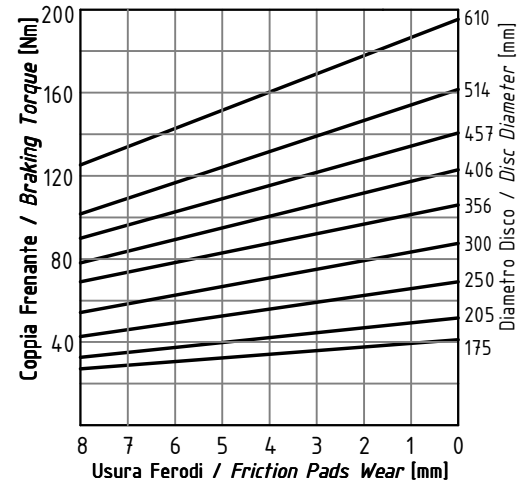
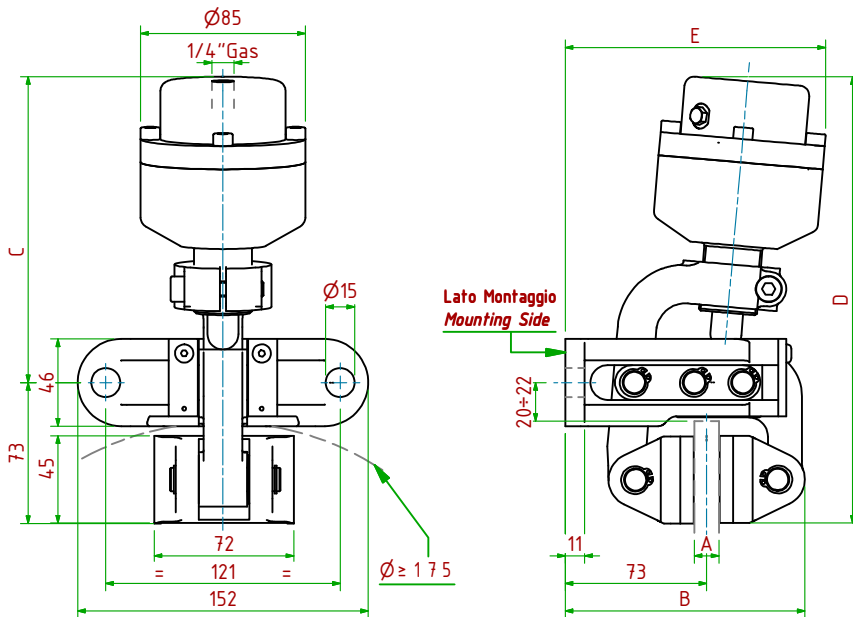
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **75 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft×(Φ(m)/2-0.024(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura massima totale Ferodi/Maximum total wear of pads =7mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPB-N004/ 08	19.36.004.02	8	86	54	138	192	Ft= 4700N (0bar)	5.2kg
PPB-N004/12.7	19.36.004.03	12.7	90	54	138	192	Ft= 4700N (0bar)	5.3kg
PPB-N004/25.4	19.36.004.04	25.4	102	60	147	201	Ft= 4700N (0bar)	5.4kg



PPD-N011/□□□

Pneumatico Negativo/Pneumatically Released

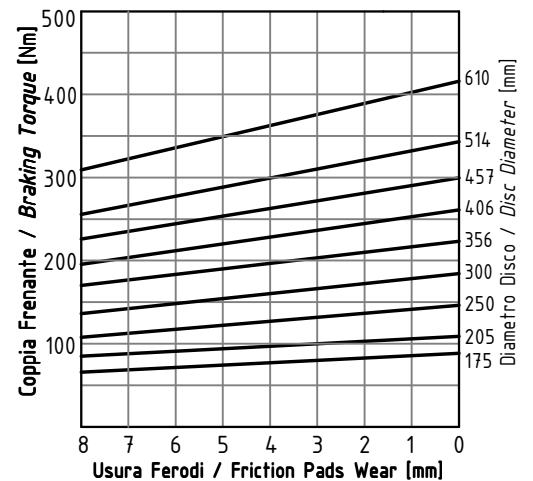
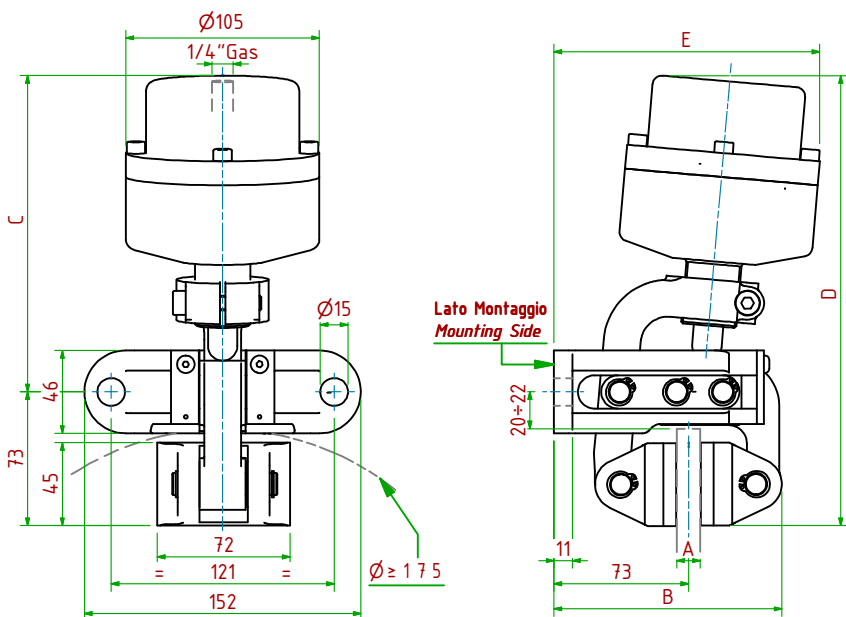


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD-N011/12.7	19.36.011.03	12.7	124	158	231	134	Ft= 710N (0bar)	5.3 kg
PPD-N011/25.4	19.36.011.04	25.4	130	158	231	136	Ft= 710N (0bar)	5.5 kg

PPD-N012/□□□

Pneumatico Negativo/Pneumatically Released

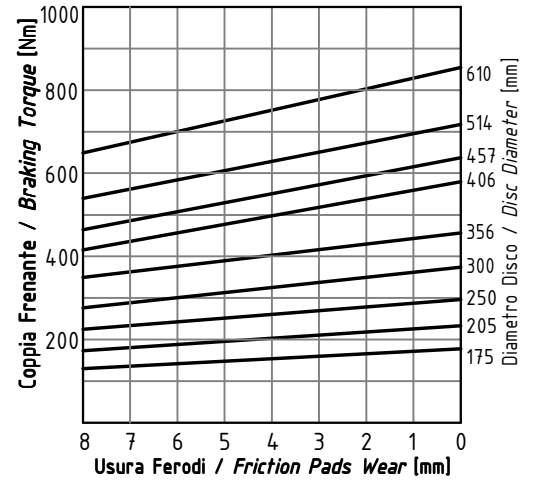
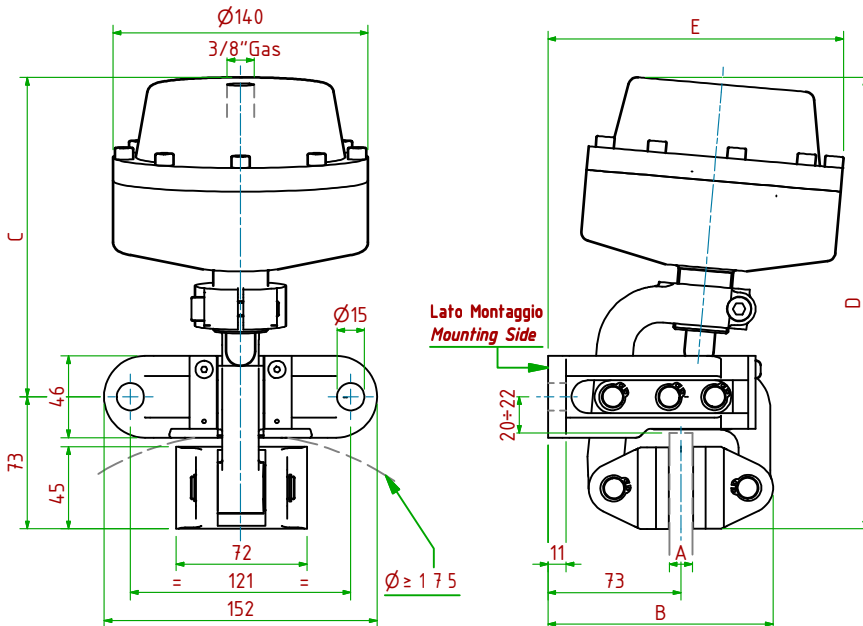


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **75cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD-N012/12.7	19.36.012.03	12.7	124	172	245	144	Ft= 1500N (0bar)	6.4 kg
PPD-N012/25.4	19.36.012.04	25.4	130	172	245	146	Ft= 1500N (0bar)	6.6 kg

PPD-N013/□□□

Pneumatico Negativo/Pneumatically Released



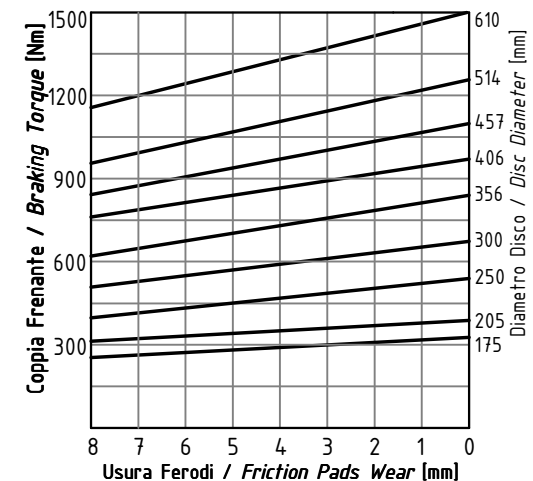
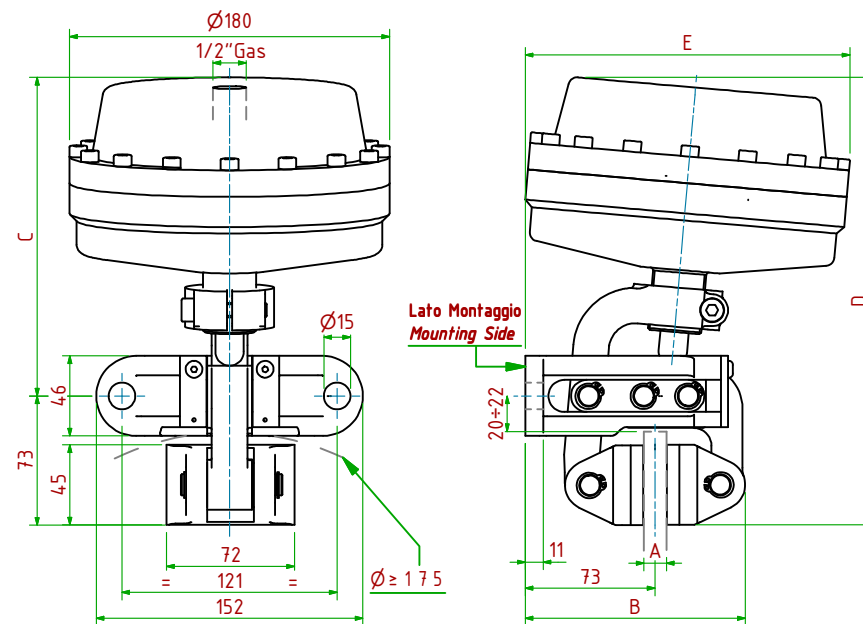
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **160cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD-N013/12.7	19.36.013.03	12.7	124	177	250	162	Ft= 3100N (0bar)	7.9 kg
PPD-N013/25.4	19.36.013.04	25.4	130	177	250	164	Ft= 3100N (0bar)	8.1 kg



PPD-N014/□□□

Pneumatico Negativo/Pneumatically Released



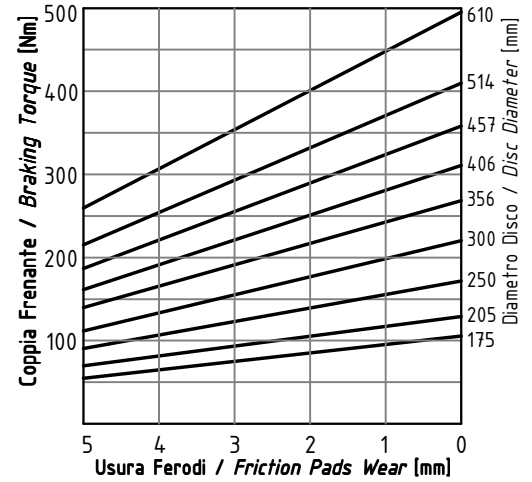
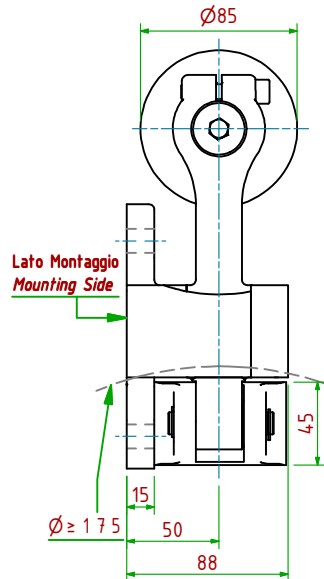
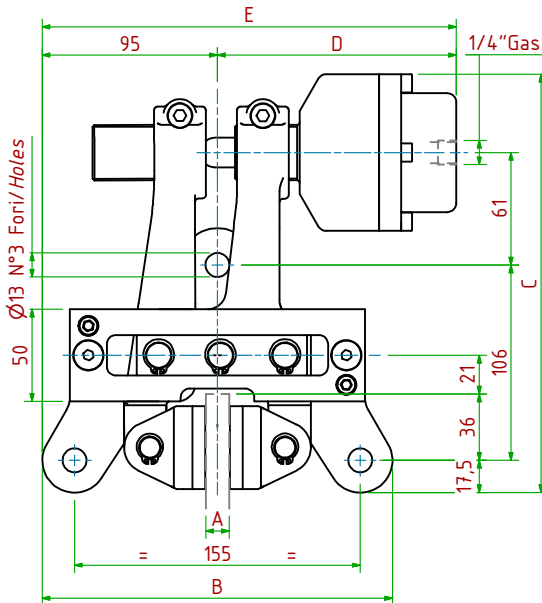
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **285cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPD-N014/12.7	19.36.014.03	12.7	124	182	255	183	Ft= 3100N (0bar)	10.3kg
PPD-N014/25.4	19.36.014.04	25.4	130	182	255	185	Ft= 3100N (0bar)	10.5kg



PPF-N021/□□□

Pneumatico Negativo/Pneumatically Released



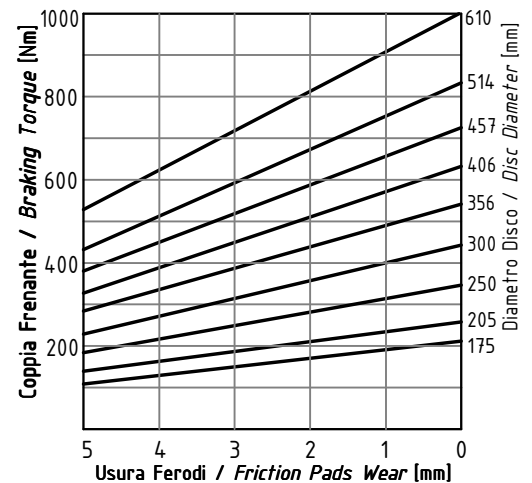
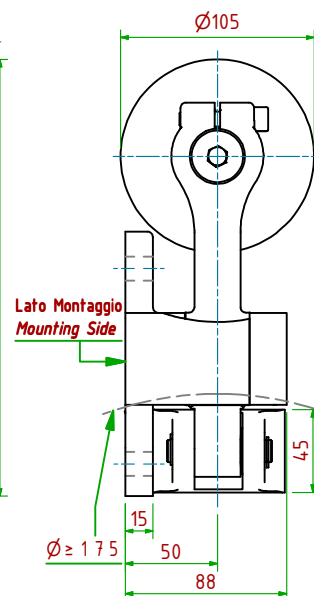
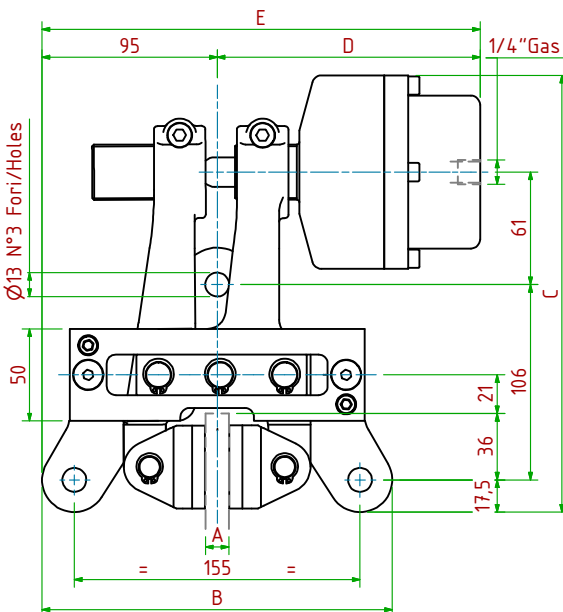
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF-N021/12.7	19.36.021.03	12.7	190	227	130	225	Ft= 1800N (0bar)	9.0 kg
PPF-N021/25.4	19.36.021.04	25.4	190	227	132	227	Ft= 1800N (0bar)	9.2 kg



PPF-N022/□□□

Pneumatico Negativo/Pneumatically Released



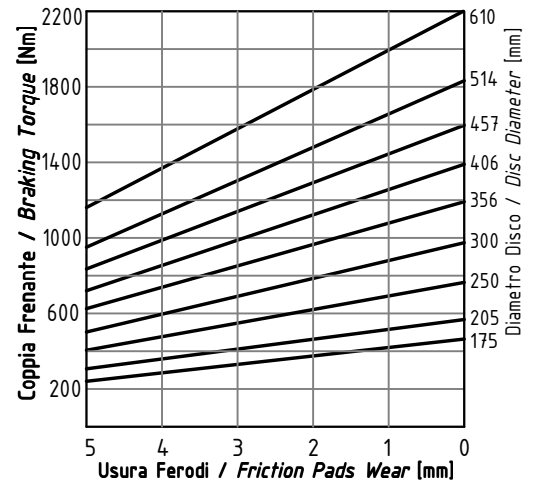
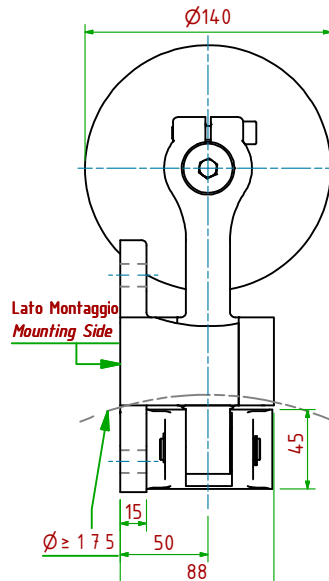
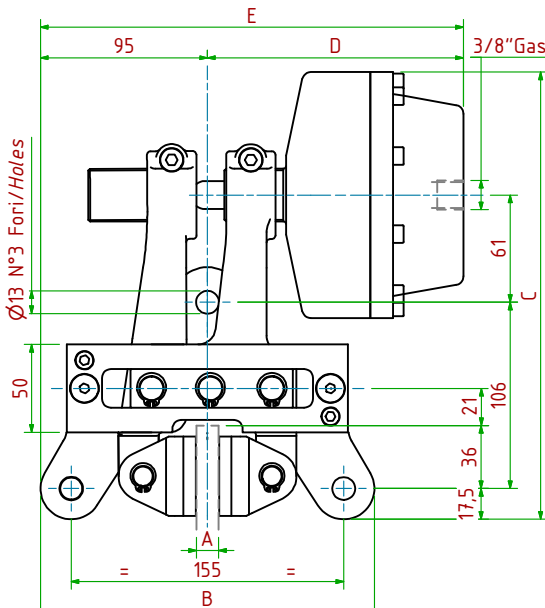
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **75cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF-N022/12.7	19.36.022.03	12.7	190	237	143	238	Ft= 3650N (0bar)	10.1 kg
PPF-N022/25.4	19.36.022.04	25.4	190	237	145	240	Ft= 3650N (0bar)	10.3 kg



PPF-N023/□□□

Pneumatico Negativo/Pneumatically Released



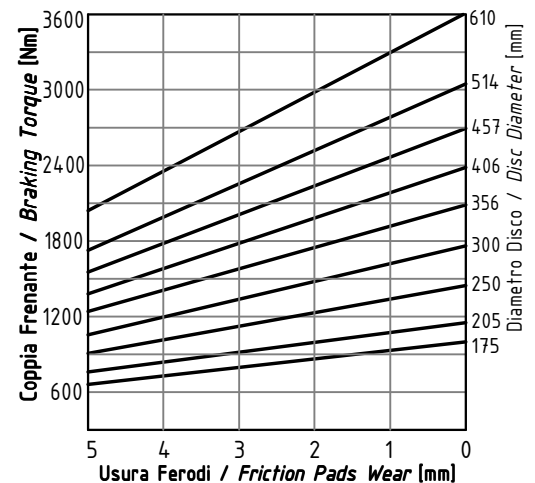
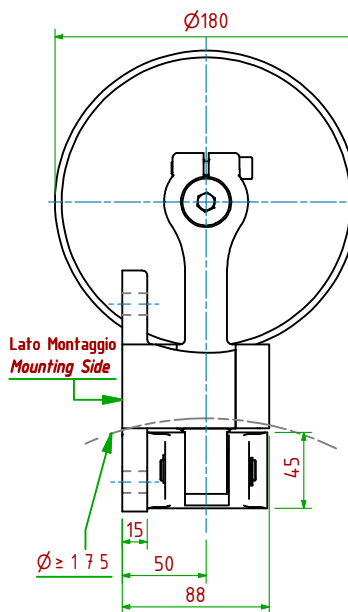
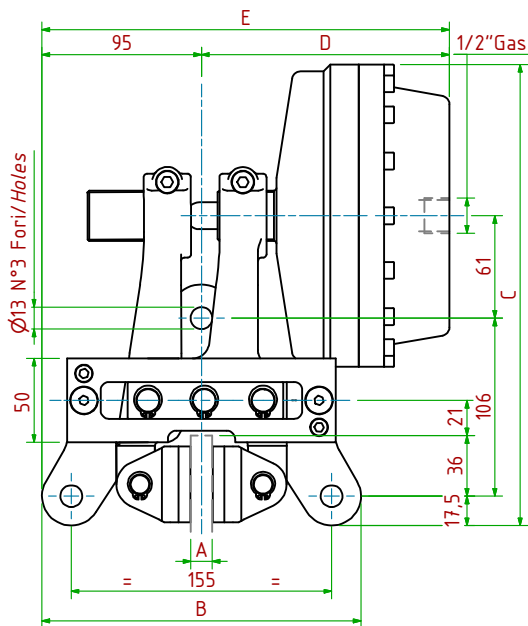
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **160cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF-N023/12.7	19.36.023.03	12.7	190	255	146	241	Ft= 7500N (0bar)	11.8 kg
PPF-N023/25.4	19.36.023.04	25.4	190	255	148	243	Ft= 7500N (0bar)	12.0kg



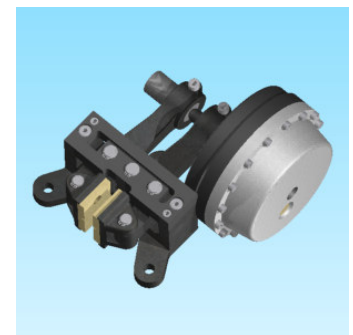
PPF-N024/□□□

Pneumatico Negativo/Pneumatically Released



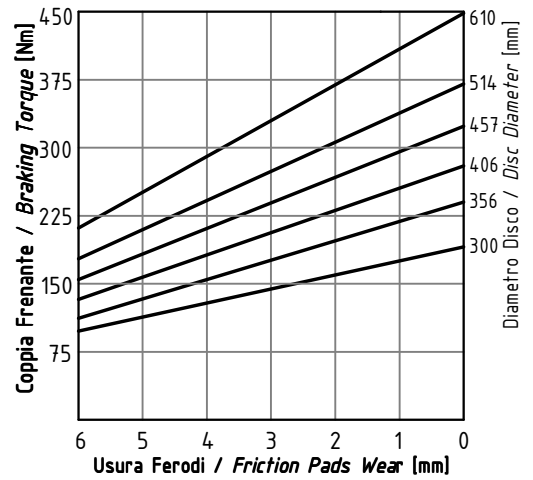
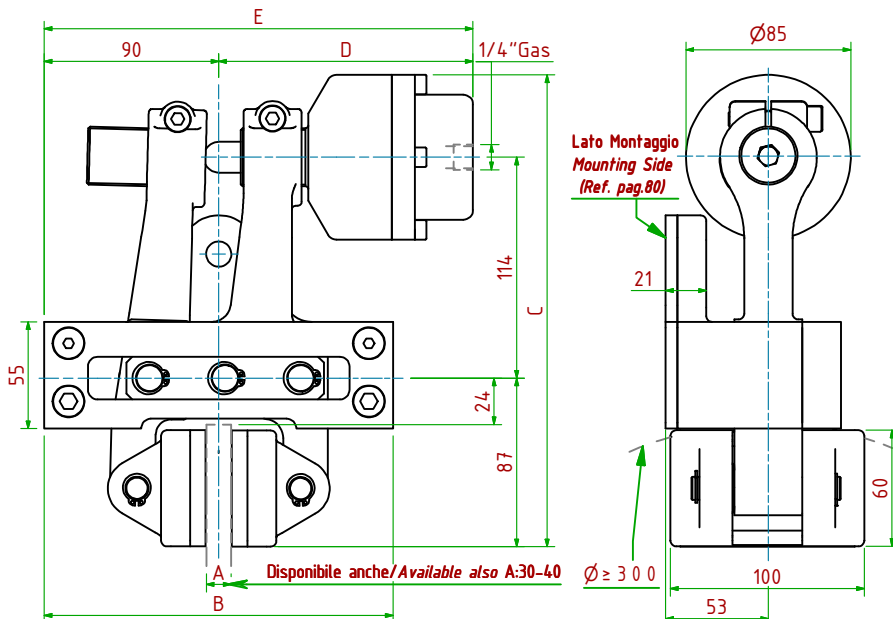
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **285cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPF-N024/12.7	19.36.024.03	12.7	190	275	148	243	Ft= 13170N (0bar)	14.1 kg
PPF-N024/25.4	19.36.024.04	25.4	190	275	150	245	Ft= 13170N (0bar)	14.3kg



PPH-N031/□□□

Pneumatico Negativo/Pneumatically Released

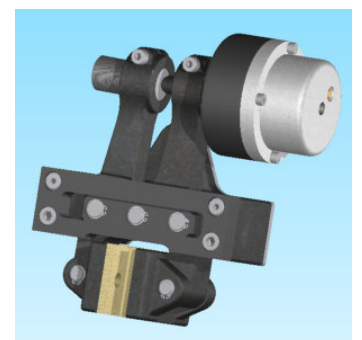
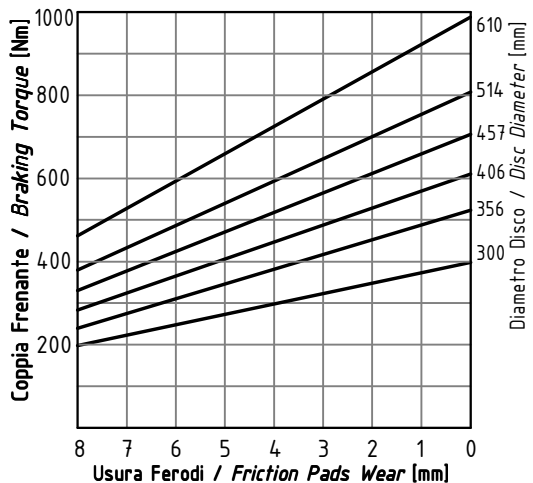
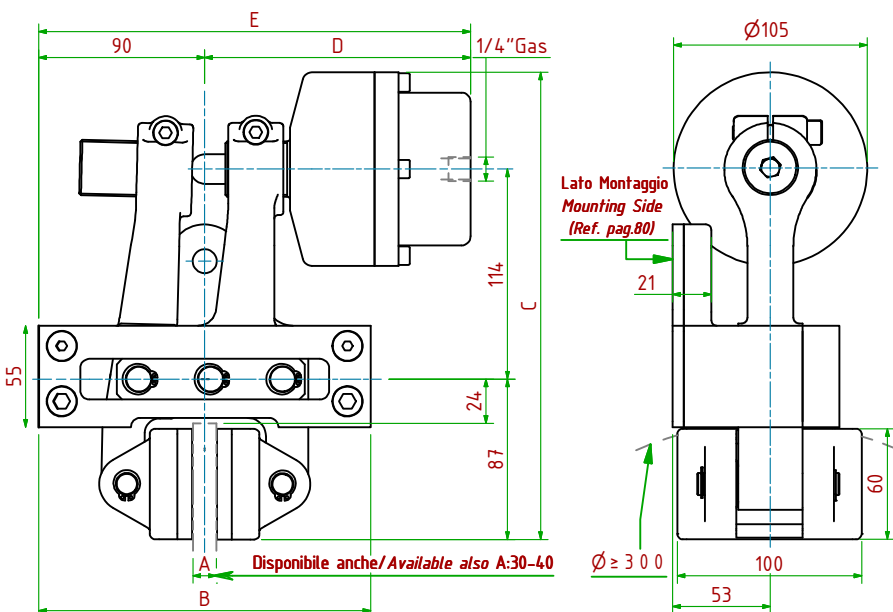


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH-N031/12.7	19.36.031.03	12.7	180	24.4	131	221	Ft= 1650N (0bar)	11.3 kg
PPH-N031/25.4	19.36.031.04	25.4	180	24.4	136	226	Ft= 1650N (0bar)	11.5 kg

PPH-N032/□□□

Pneumatico Negativo/Pneumatically Released

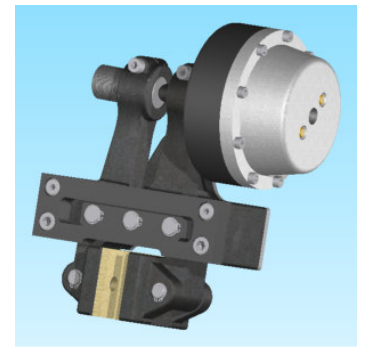
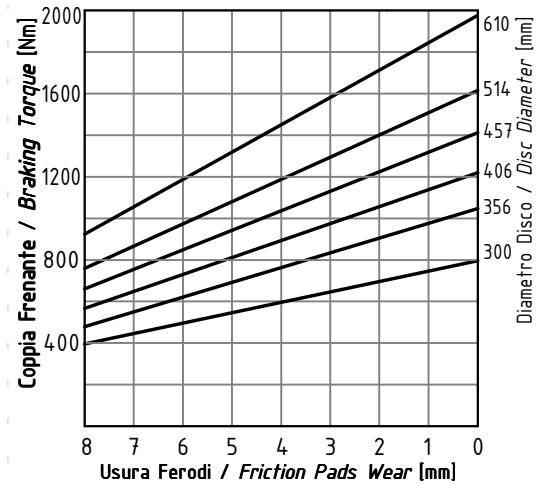
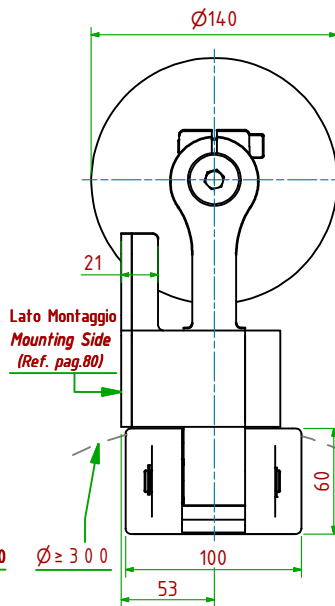
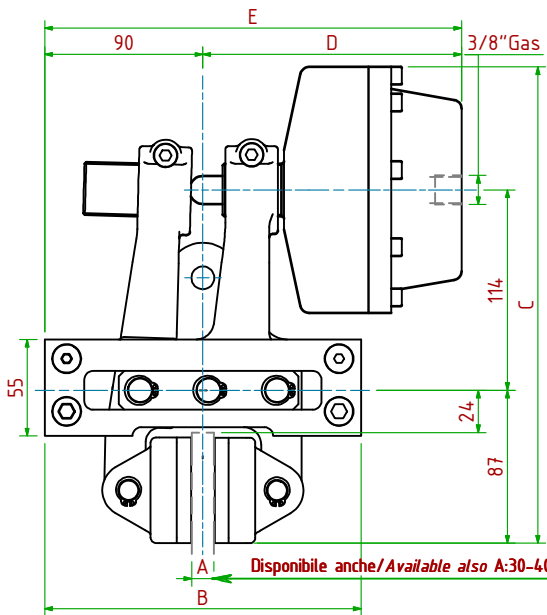


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **75cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH-N032/12.7	19.36.032.03	12.7	180	25.4	14.4	234	Ft= 3400N (0bar)	12.4kg
PPH-N032/25.4	19.36.032.04	25.4	180	25.4	14.9	239	Ft= 3400N (0bar)	12.6kg

PPH-N033/□□□

Pneumatico Negativo/Pneumatically Released

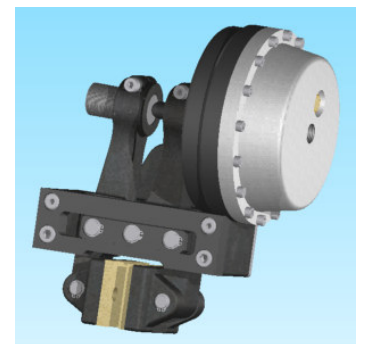
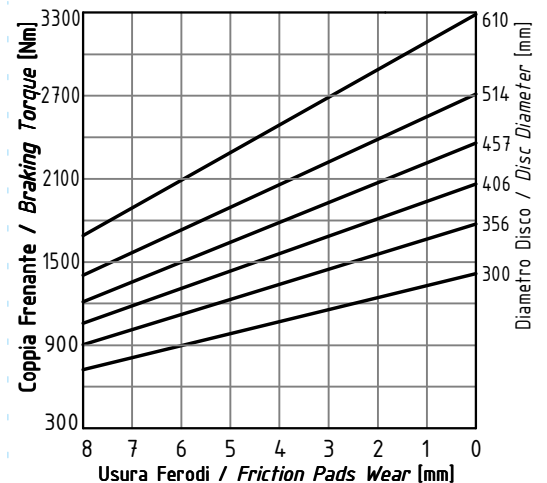
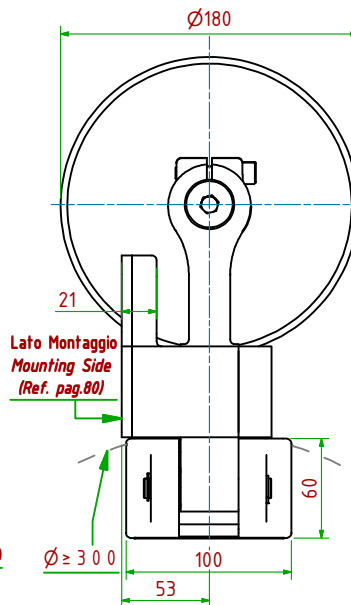
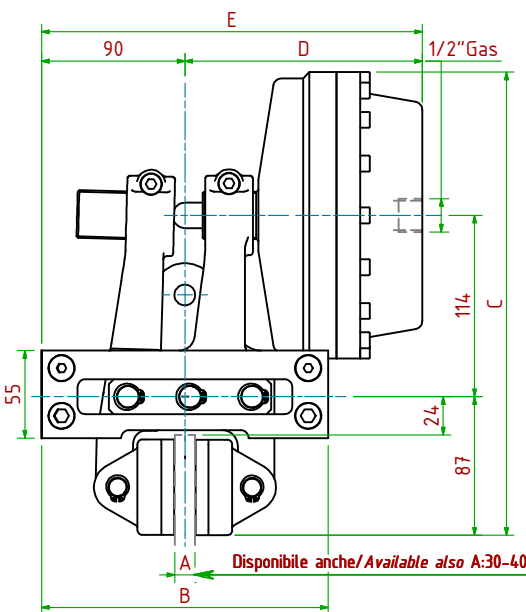


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **160cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH-N033/12.7	19.36.033.03	12.7	180	271	147	237	Ft= 6900N (0bar)	13.9kg
PPH-N033/25.4	19.36.033.04	25.4	180	271	150	240	Ft= 6900N (0bar)	14.1kg

PPH-N034/□□□

Pneumatico Negativo/Pneumatically Released

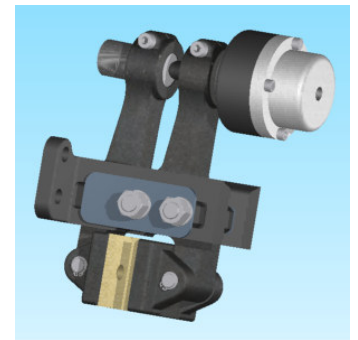
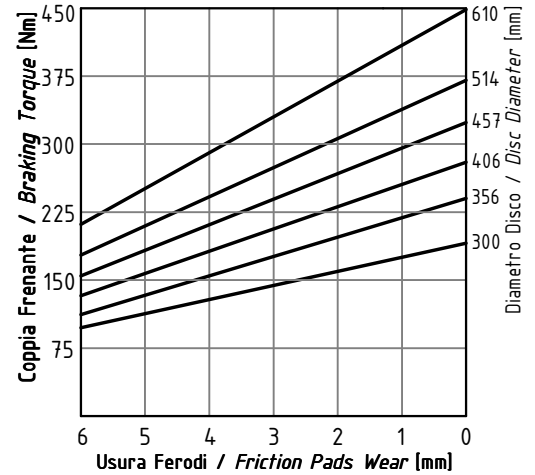
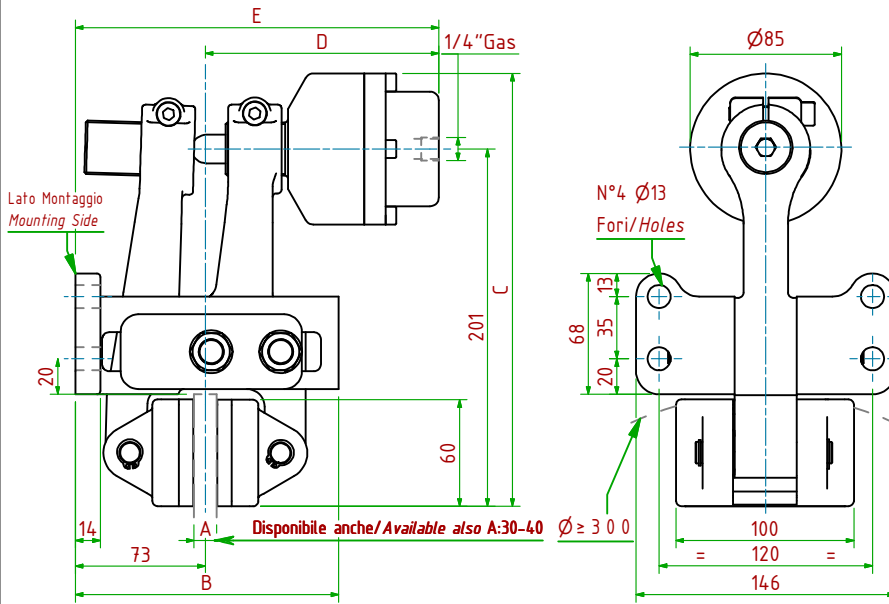


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **285cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPH-N034/12.7	19.36.034.03	12.7	180	291	149	239	Ft= 12100N (0bar)	16.4kg
PPH-N034/25.4	19.36.034.04	25.4	180	291	154	244	Ft= 12100N (0bar)	16.6kg

PPHP-N310/□□□

Pneumatico Negativo / Pneumatically Released

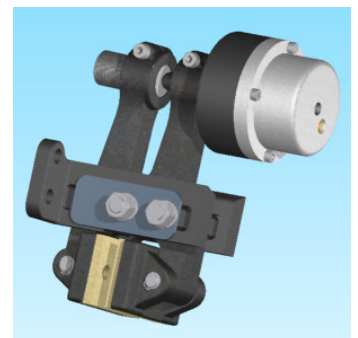
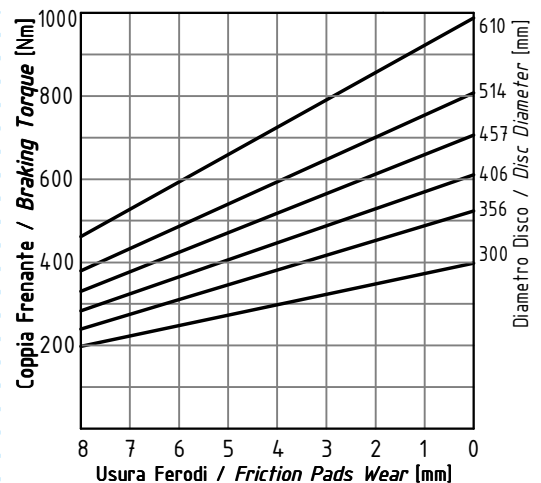
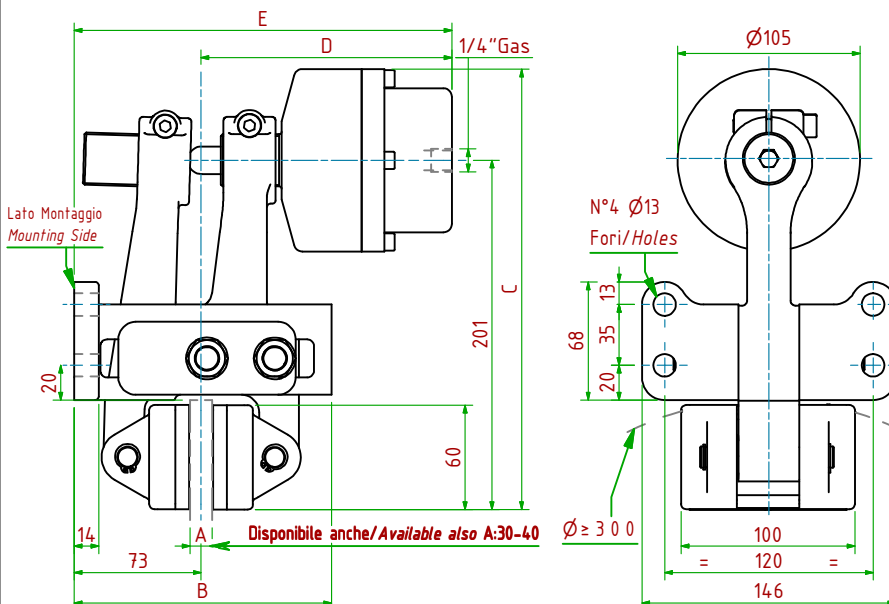


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.033(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP-N310/12.7	19.36.310.03	12.7	148	244	131	204	Ft= 1650N (0bar)	9.5 kg
PPHP-N310/25.4	19.36.310.04	25.4	148	244	137	210	Ft= 1650N (0bar)	9.7 kg

PPHP-N320/□□□

Pneumatico Negativo / Pneumatically Released

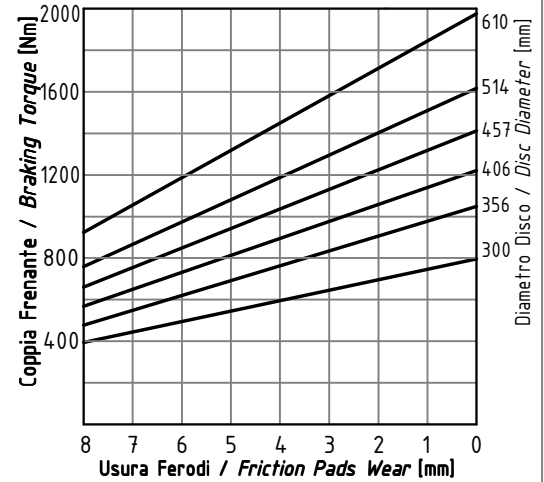
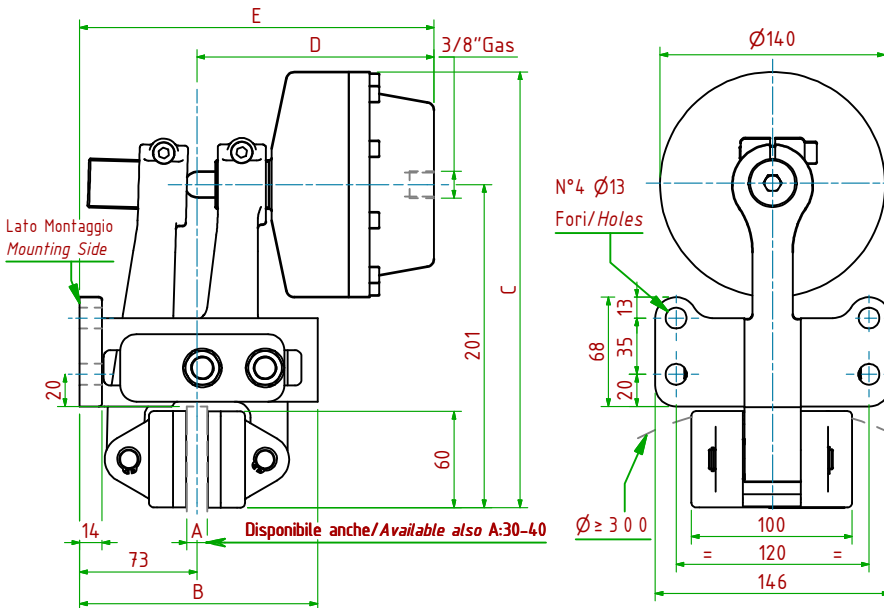


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **75cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.033(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP-N320/12.7	19.36.320.03	12.7	148	254	144	217	Ft= 3400N (0bar)	10.5kg
PPHP-N320/25.4	19.36.320.04	25.4	148	254	150	223	Ft= 3400N (0bar)	10.7kg

PPHP-N330/□□□

Pneumatico Negativo / Pneumatically Released

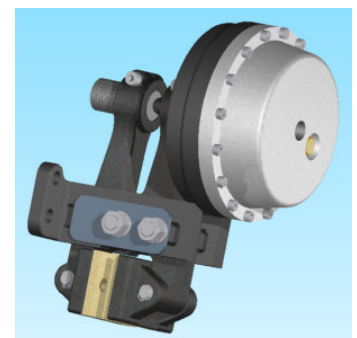
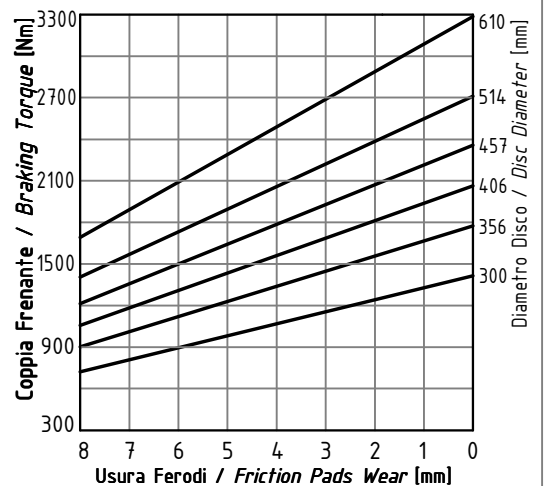
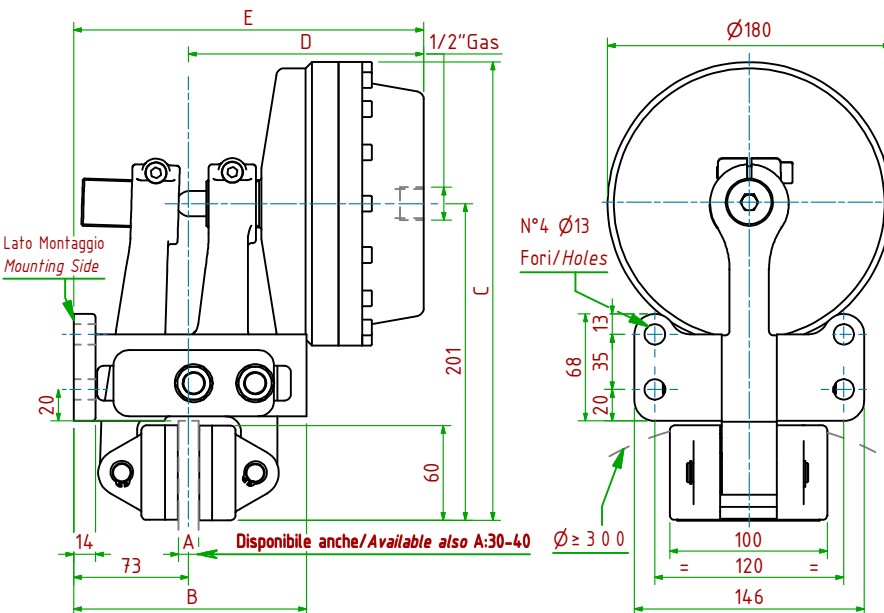


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **160cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP-N330/12.7	19.36.330.03	12.7	148	271	147	220	Ft= 6900N (0bar)	12.0kg
PPHP-N330/25.4	19.36.330.04	25.4	148	271	153	226	Ft= 6900N (0bar)	12.2kg

PPHP-N340/□□□

Pneumatico Negativo / Pneumatically Released

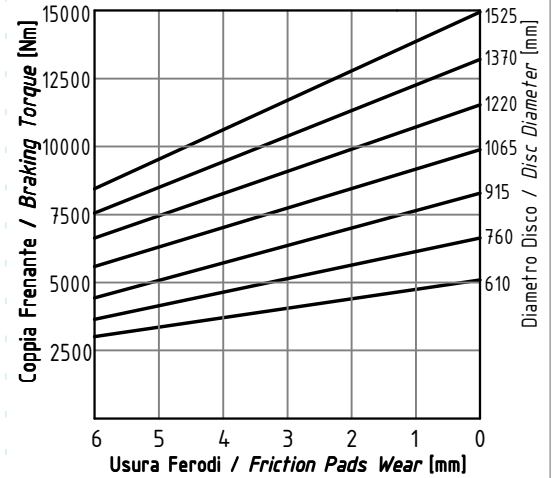
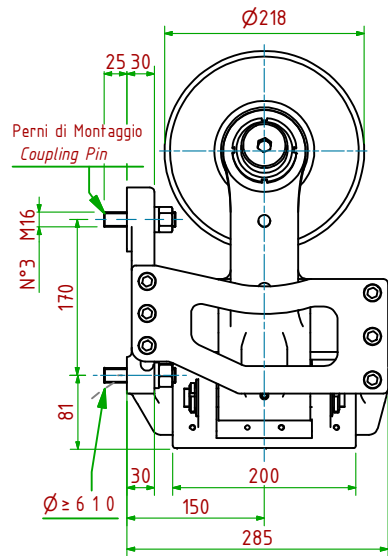
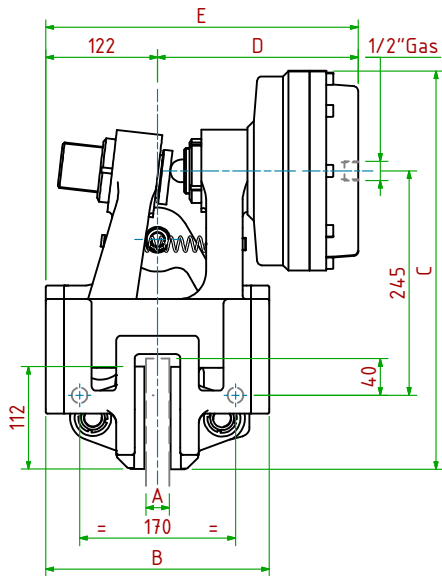


- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **285cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPHP-N340/12.7	19.36.340.03	12.7	148	291	149	222	Ft= 12100N (0bar)	14.5kg
PPHP-N340/25.4	19.36.340.04	25.4	148	291	155	228	Ft= 12100N (0bar)	14.7kg

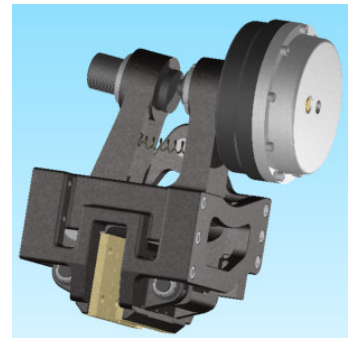
PPT-N064/□□□

Pneumatico Negativo/Pneumatically Released



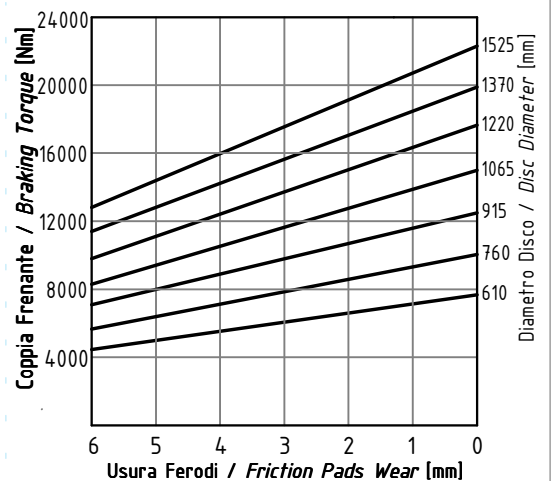
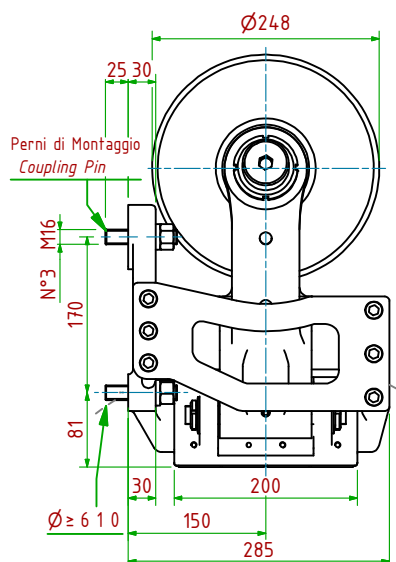
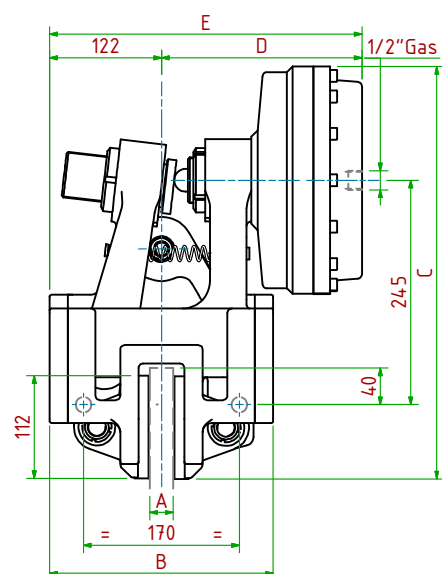
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **530cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPT-N064/25.4	19.36.064.04	25.4	244	435	219	341	Ft= 21200N (0bar)	69.8kg
PPT-N064/ 30	19.36.064.05	30	244	435	219	341	Ft= 21200N (0bar)	69.8kg
PPT-N064/ 40	19.36.064.06	40	244	435	224	346	Ft= 21200N (0bar)	69.8kg



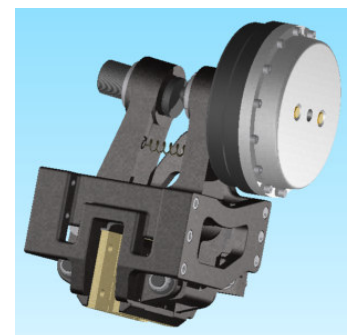
PPT-N066/□□□

Pneumatico Negativo/Pneumatically Released



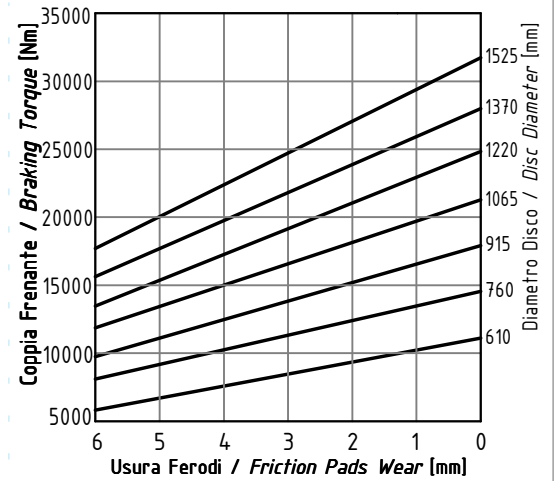
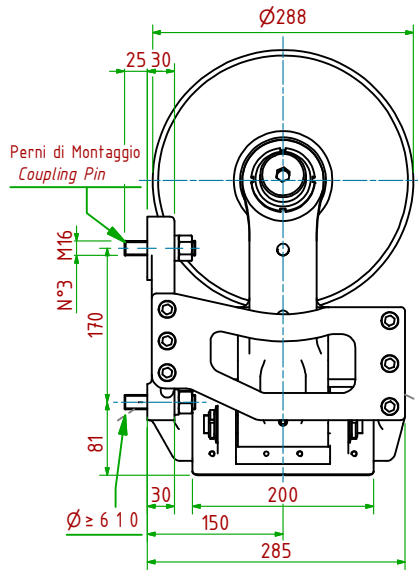
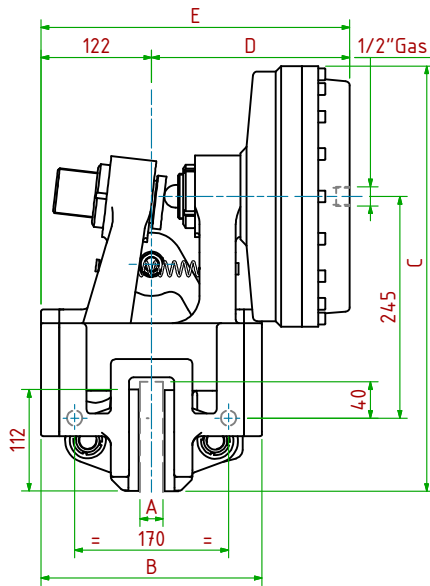
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **700cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPT-N066/25.4	19.36.066.04	25.4	244	450	219	341	Ft= 32000N (0bar)	74.2kg
PPT-N066/ 30	19.36.066.05	30	244	450	219	341	Ft= 32000N (0bar)	74.2kg
PPT-N066/ 40	19.36.066.06	40	244	450	224	346	Ft= 32000N (0bar)	74.2kg



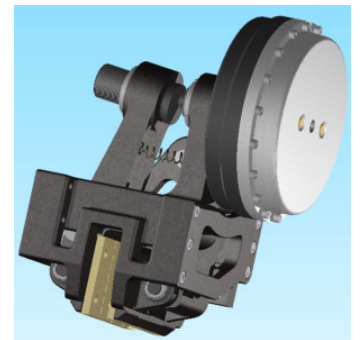
PPT-N068/□□□

Pneumatico Negativo/Pneumatically Released



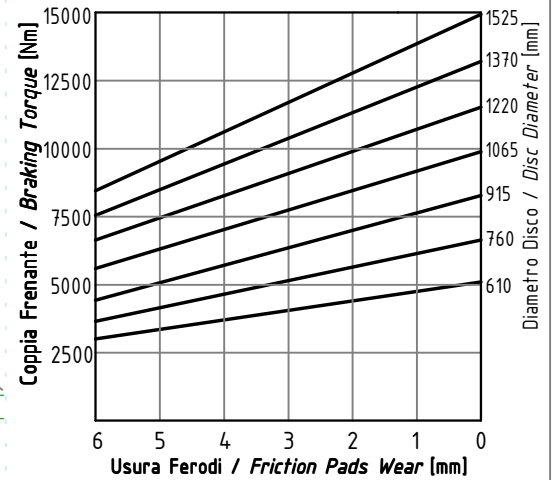
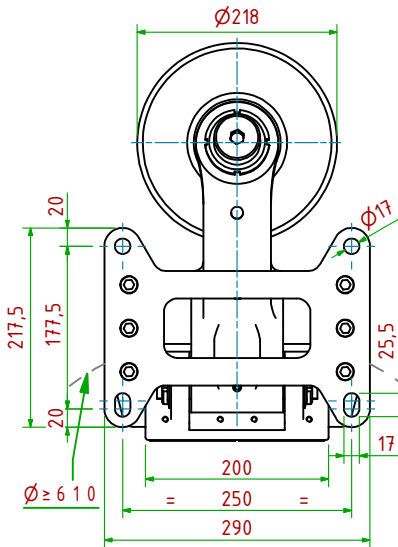
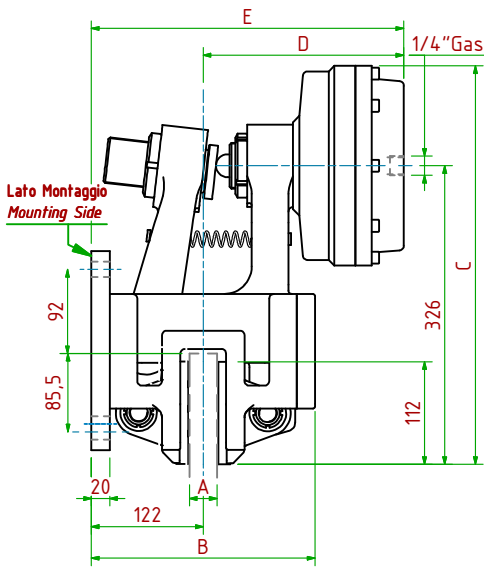
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **1000cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPT-N068/25.4	19.36.068.04	25.4	244	470	219	341	Ft= 45500N (0bar)	80.7kg
PPT-N068/ 30	19.36.068.05	30	244	470	219	341	Ft= 45500N (0bar)	80.7kg
PPT-N068/ 40	19.36.068.06	40	244	470	224	346	Ft= 45500N (0bar)	80.7kg



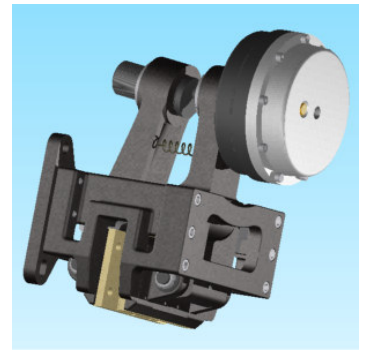
PPTP-N640/

Pneumatico Negativo / Pneumatically Released



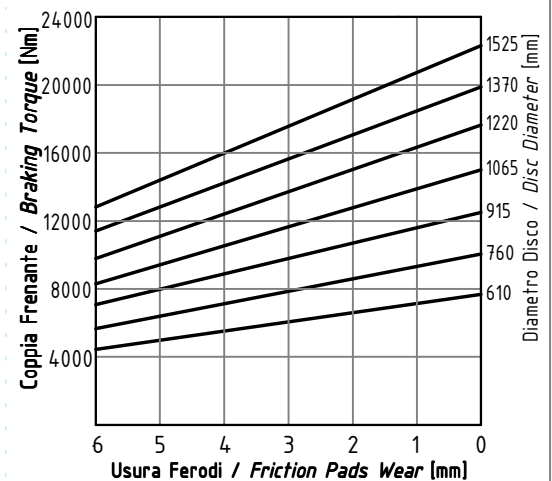
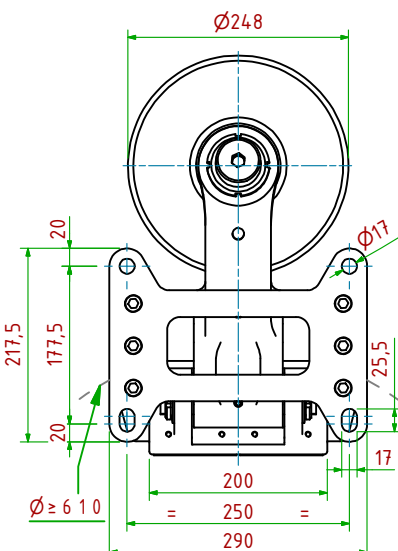
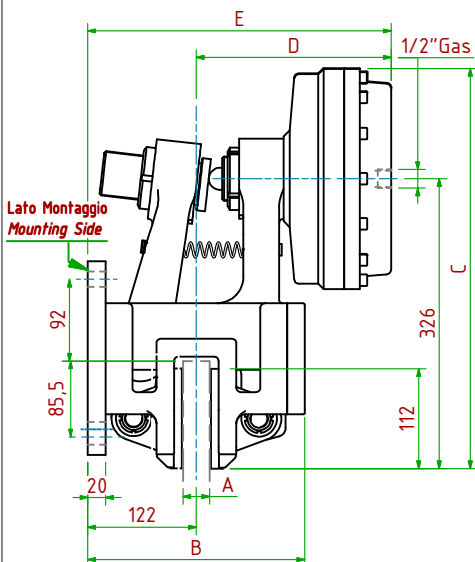
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **530cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPTP-N640/25.4	19.36.640.04	25.4	244	435	219	341	Ft= 21200N (0bar)	68.2kg
PPTP-N640/ 30	19.36.640.05	30	244	435	219	341	Ft= 21200N (0bar)	68.2kg
PPTP-N640/ 40	19.36.640.06	40	244	435	224	346	Ft= 21200N (0bar)	68.2kg



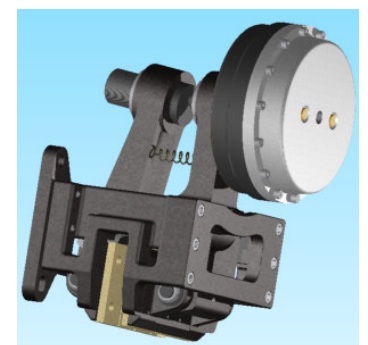
PPTP-N660/

Pneumatico Negativo / Pneumatically Released



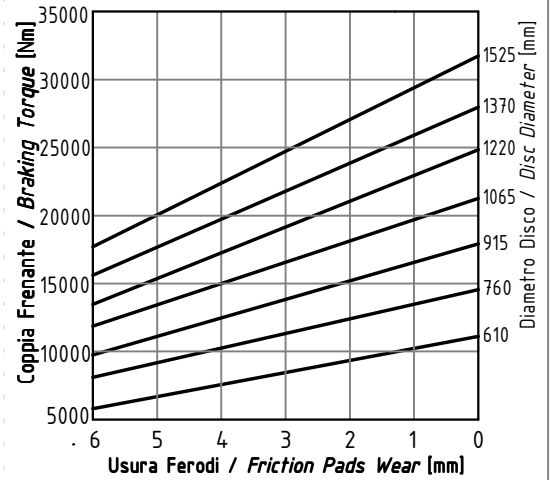
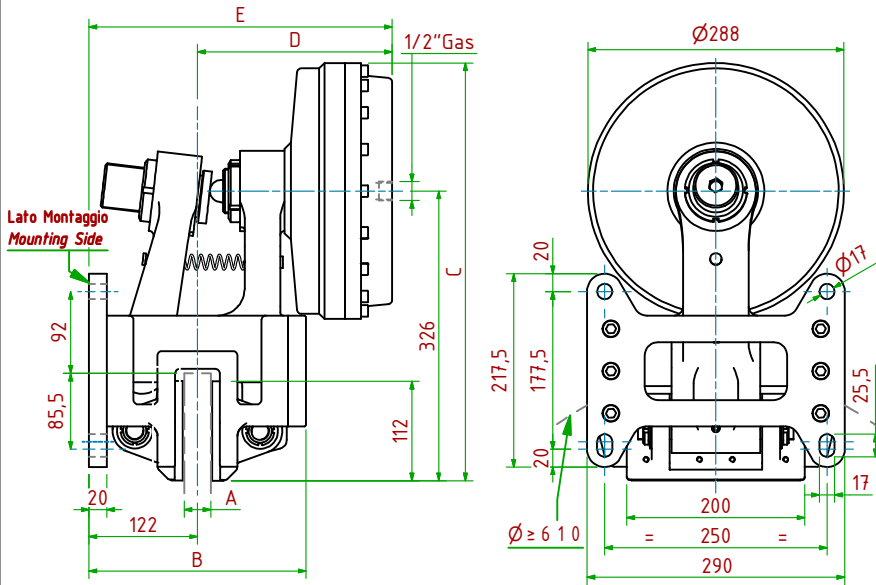
- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **700cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPTP-N660/25.4	19.36.660.04	25.4	244	450	219	341	Ft= 32000N (0bar)	72.7kg
PPTP-N660/ 30	19.36.660.05	30	244	450	219	341	Ft= 32000N (0bar)	72.7kg
PPTP-M660/ 40	19.36.660.06	40	244	450	224	346	Ft= 32000N (0bar)	72.7kg



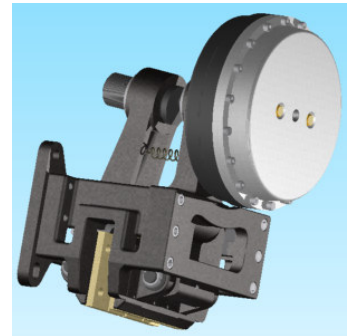
PPTP-N680/

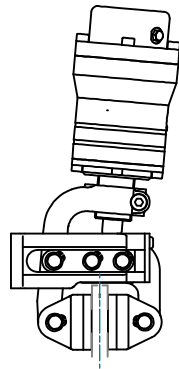
Pneumatico Negativo / Pneumatically Released



- Pressione di Apertura/Release Pressure: **Pa= 6bar** - Volume Max Cilindro/Max Cylinder Volume: **1000cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.065(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
PPTP-N680/25.4	19.36.680.04	25.4	244	470	219	341	Ft= 45500N (0bar)	79.1kg
PPTP-N680/ 30	19.36.680.05	30	244	470	219	341	Ft= 45500N (0bar)	79.1kg
PPTP-N680/ 40	19.36.680.06	40	244	470	224	346	Ft= 45500N (0bar)	79.1kg



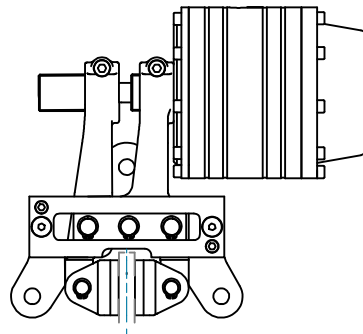


PPD-PN ...

Md Positivo = 45÷550Nm

Md Negativo = 38÷392Nm

Pag. 56-57

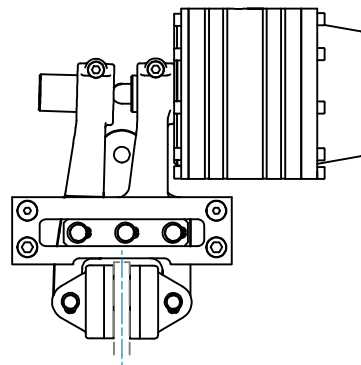


PPF-PN ...

Md Positivo = 285÷3895Nm

Md Negativo = 210÷3616Nm

Pag. 58-60

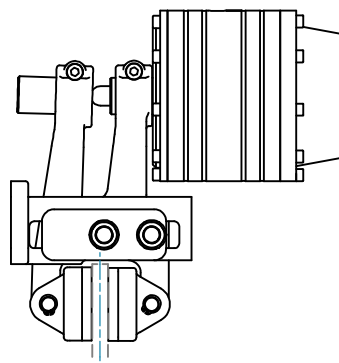


PPH-PN ...

Md Positivo = 468÷3564Nm

Md Negativo = 396÷3313Nm

Pag. 61-62



PPHP-PN ...

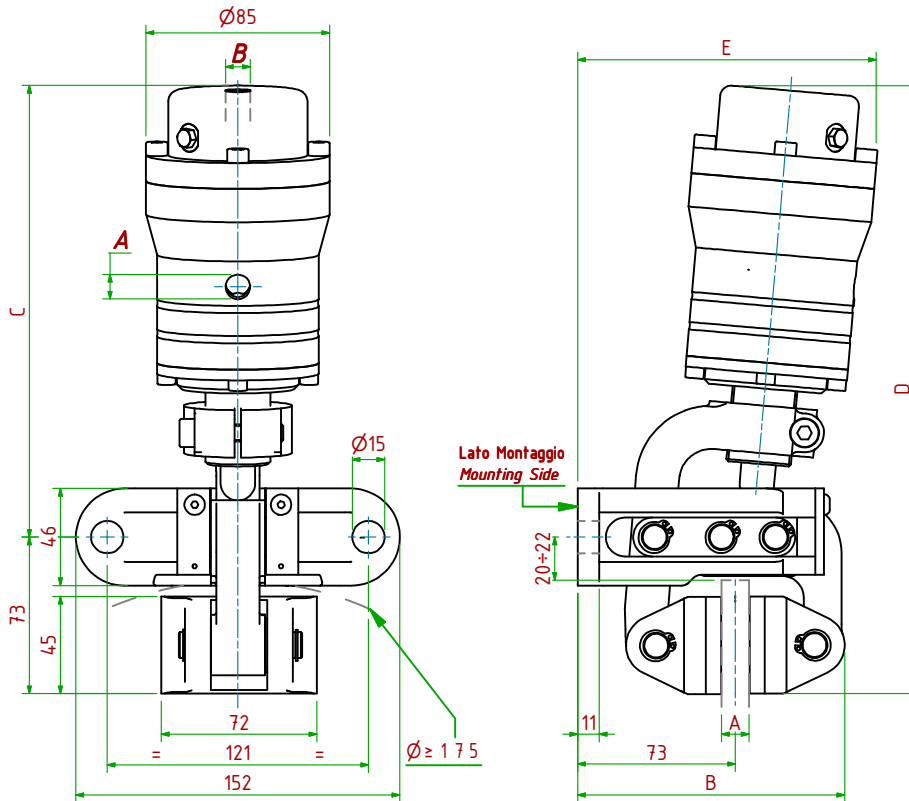
Md Positivo = 468÷3564Nm

Md Negativo = 396÷3313Nm

Pag. 63-64

PPD-PN011/□□□

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo / Pneumatically Applied

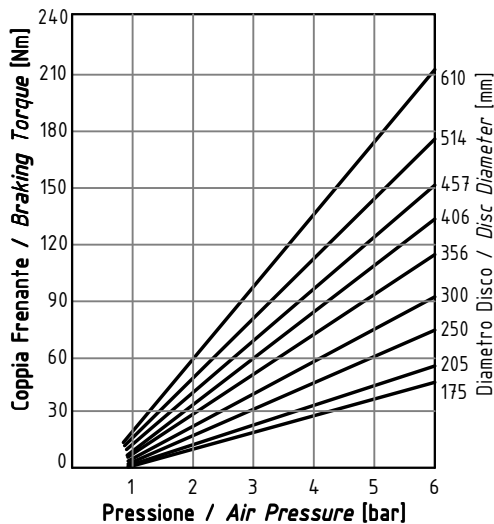
- Pressione di Lavoro / Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro / Pneumatic Cylinder Supply **A: 1/4 "Gas**
- Volume Max Cilindro / Max Cylinder Volume **27 cm³**
- Coppia Frenante / Braking Torque **Md= [Ftx(Φ(m)/2-0.029(m))]**

Funzionamento Negativo / Pneumatically Released

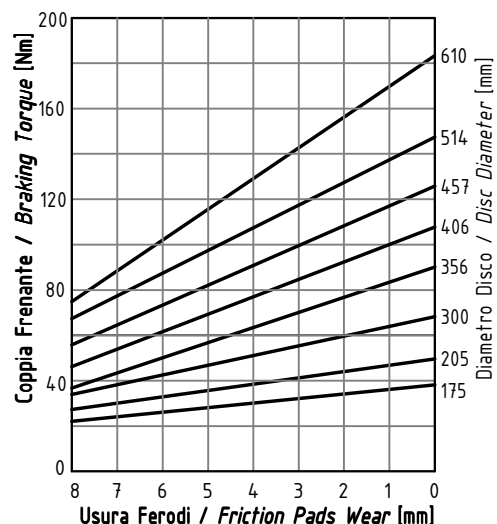
- Pressione di Apertura / Release Pressure **Pa= 6bar**
- Alimentazione Cilindro / Spring Applied Cylinder Supply **B: 1/4 "Gas**
- Volume Max Cilindro / Max Cylinder Volume **32 cm³**
- Usura Ferodi Massima Totale / Maximum total wear of pads = **9mm**

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante: Positivo-Negativo / Braking Force	Peso
PPD-PN011/12.7	19.56.011.03	12.7	124	217	290	140	F _{tpos} = 770N (6bar) F _{tneg} = 640N (0bar)	6.6 kg
PPD-PN011/25.4	19.56.011.04	25.4	130	217	290	140	F _{tpos} = 770N (6bar) F _{tneg} = 640N (0bar)	6.8 kg

**FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED**



**FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED**



Coppia Frenante Md

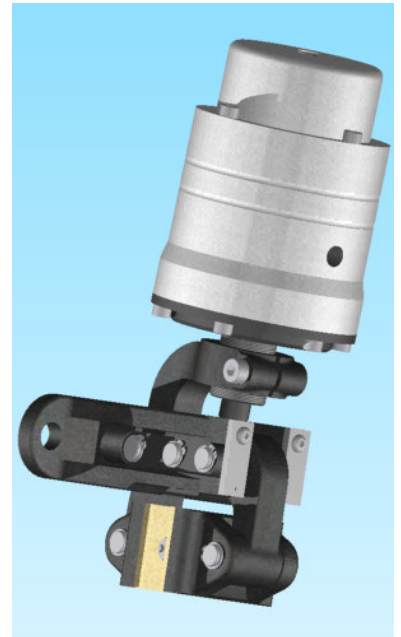
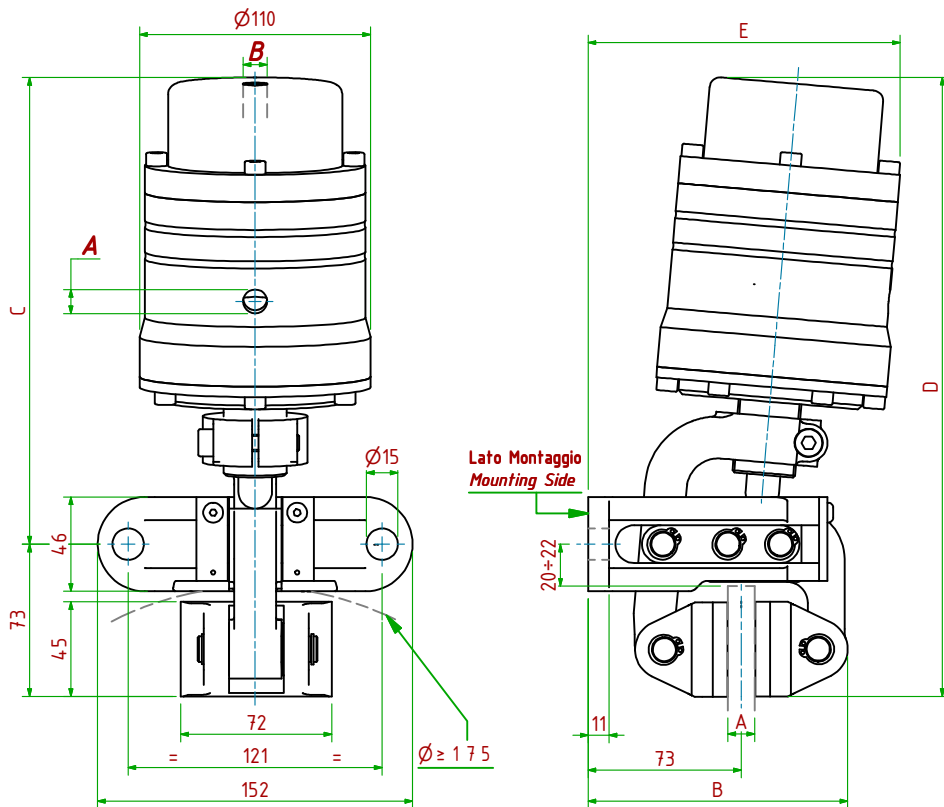
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPD-PN012/□□□

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo / Pneumatically Applied

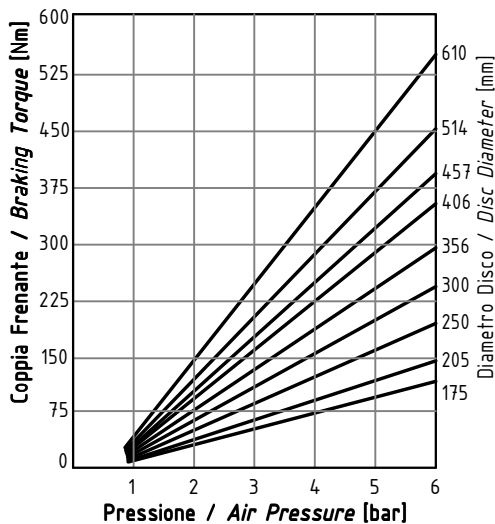
- Pressione di Lavoro / Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro / Pneumatic Cylinder Supply **A: 1/4" Gas**
- Volume Max Cilindro / Max Cylinder Volume **63 cm³**
- Coppia Frenante / Braking Torque **Md= [Ft x (Φ(m)/2 - 0.029(m))]**

Funzionamento Negativo / Pneumatically Released

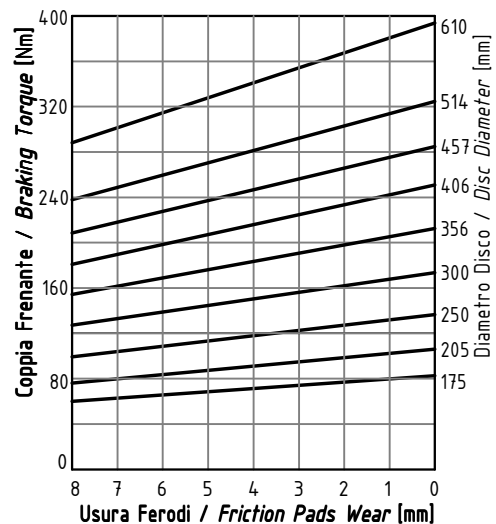
- Pressione di Apertura / Release Pressure **Pa= 6bar**
- Alimentazione Cilindro / Spring Applied Cylinder Supply **B: 1/4" Gas**
- Volume Max Cilindro / Max Cylinder Volume **75 cm³**
- Usura Ferodi Massima Totale / Maximum total wear of pads = **9mm**

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante: Positivo-Negativo / Braking Force		Peso
PPD-PN012/12.7	19.56.012.03	12.7	124	227	300	151	Ft _{pos} = 1990N (6bar)	Ft _{neg} = 1420N (0bar)	8.9 kg
PPD-PN012/25.4	19.56.012.04	25.4	130	227	300	151	Ft _{pos} = 1990N (6bar)	Ft _{neg} = 1420N (0bar)	9.1 kg

**FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED**



**FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED**



Coppia Frenante Md

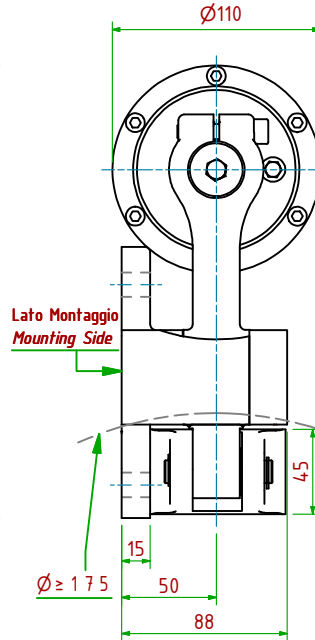
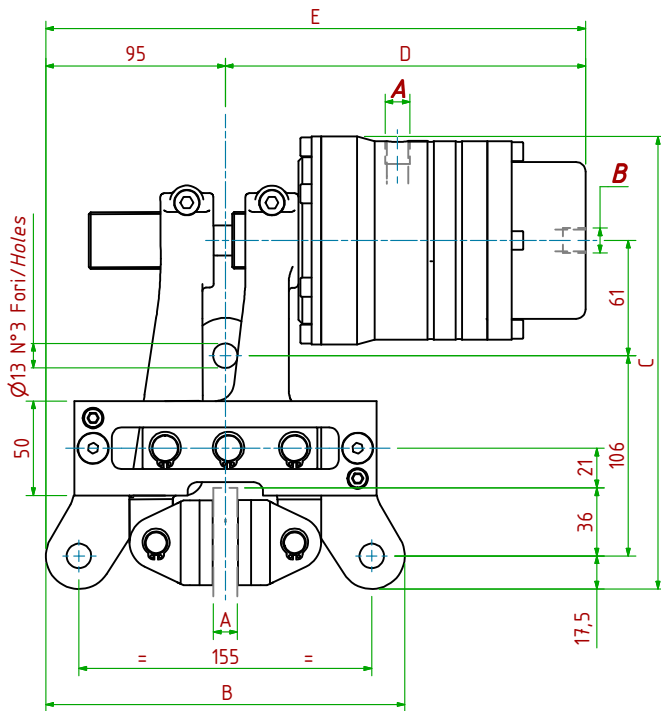
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPF-PN022/ □ □ □

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

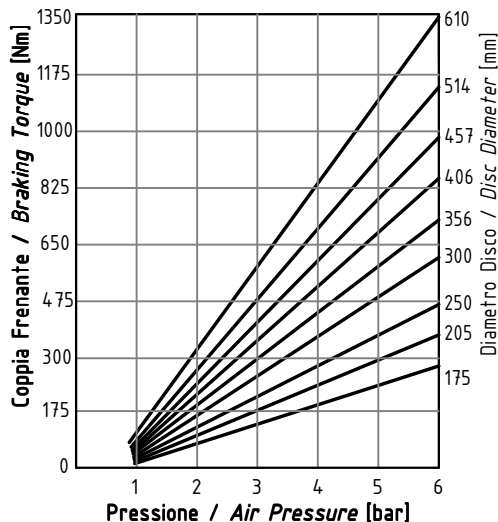
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A:1/4"Gas**
- Volume Max Cilindro/Max Cylinder Volume **63 cm³**
- Coppia Frenante/Braking Torque **Md= [Ftx($\Phi(m)/2-0.029(m)$)]**

Funzionamento Negativo/Pneumatically Released

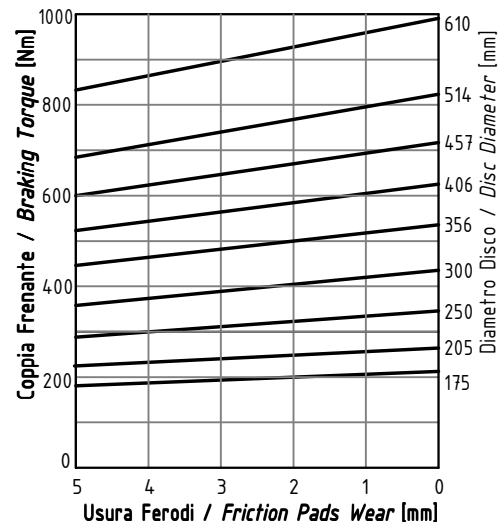
- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B:1/4"Gas**
- Volume Max Cilindro/Max Cylinder Volume **75 cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	DMax	EMax	Forza Frenante: Positivo-Negativo / Braking Force		Peso
PPF-PN022/12.7	19.56.022.03	12.7	190	240	191	286	Ft _{pos} = 4880N (6bar)	Ft _{neg} = 3590N (0bar)	12.7 kg
PPF-PN022/25.4	19.56.022.04	25.4	190	240	197	292	Ft _{pos} = 4880N (6bar)	Ft _{neg} = 3590N (0bar)	12.9 kg

**FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED**



**FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED**



Coppia Frenante Md

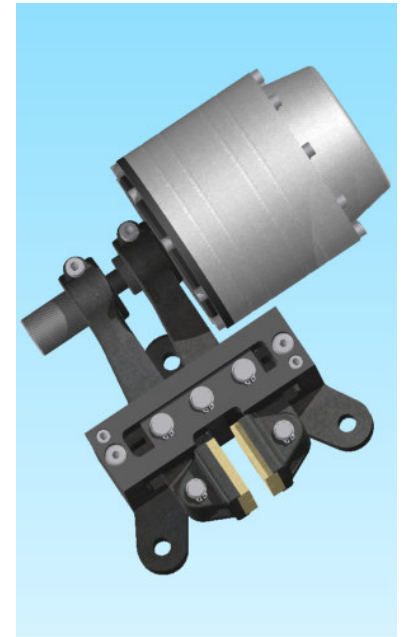
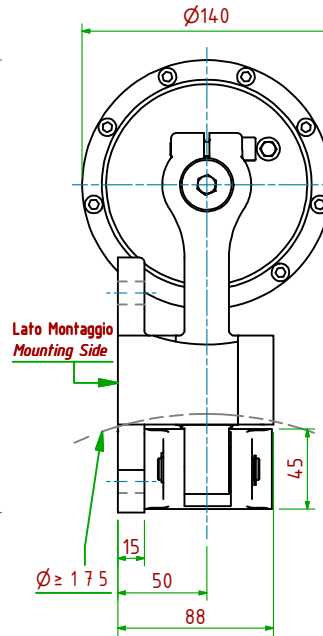
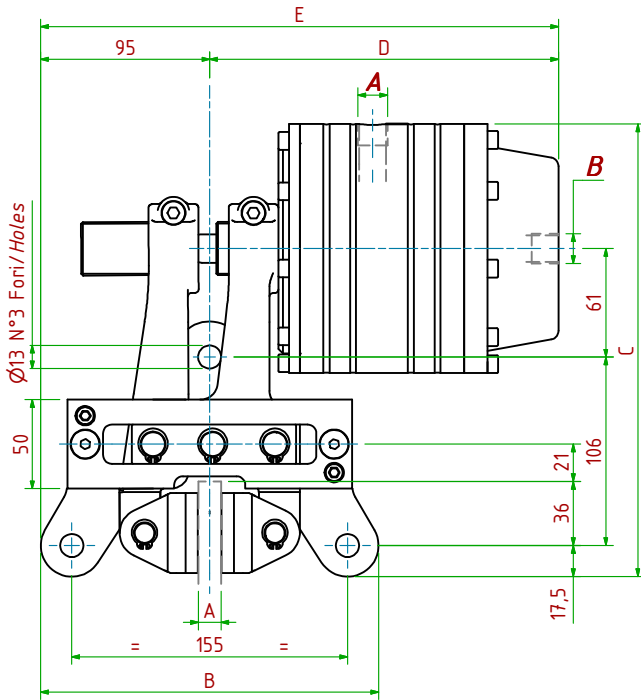
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPF-PN023/ □ □ □

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

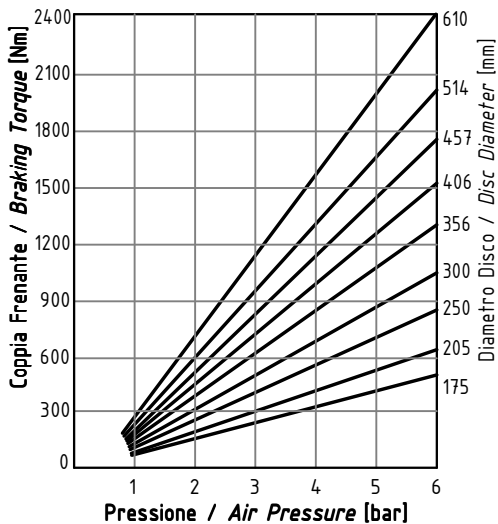
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A: 3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **110 cm³**
- Coppia Frenante/Braking Torque **Md= [Ftx(Φ(m)/2-0.029(m))]**

Funzionamento Negativo/Pneumatically Released

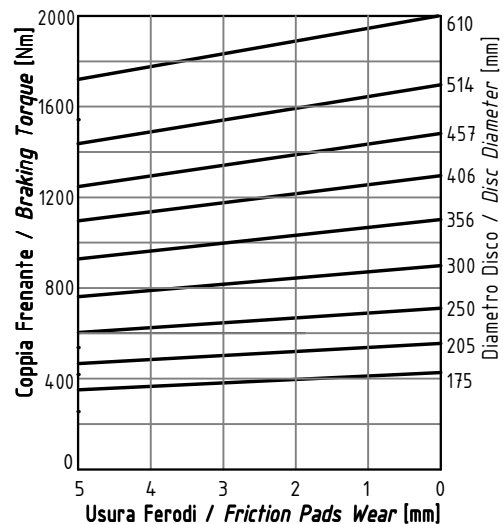
- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B: 3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **160 cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	DMax	EMax	Forza Frenante: Positivo-Negativo / Braking Force	Peso
PPF-PN023/12.7	19.56.023.03	12.7	190	255	196	291	Ft _{pos} = 8770N (6bar) Ft _{neg} = 7430N (0bar)	16.0 kg
PPF-PN023/25.4	19.56.023.04	25.4	190	255	203	298	Ft _{pos} = 8770N (6bar) Ft _{neg} = 7430N (0bar)	16.2 kg

**FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED**



**FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED**



Coppia Frenante Md

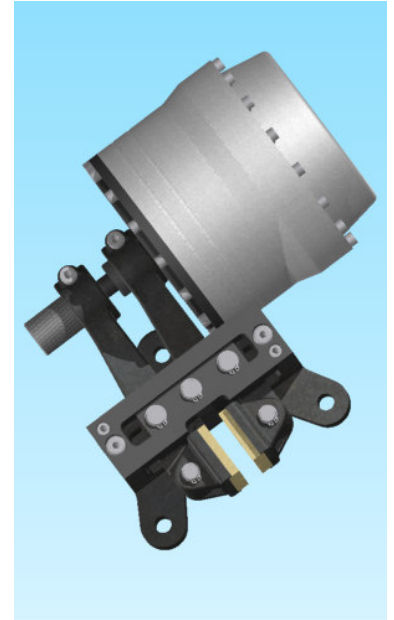
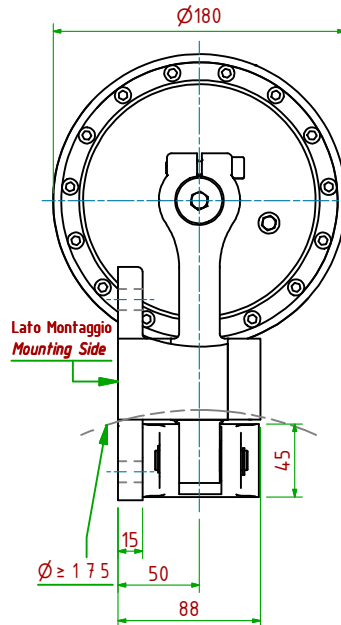
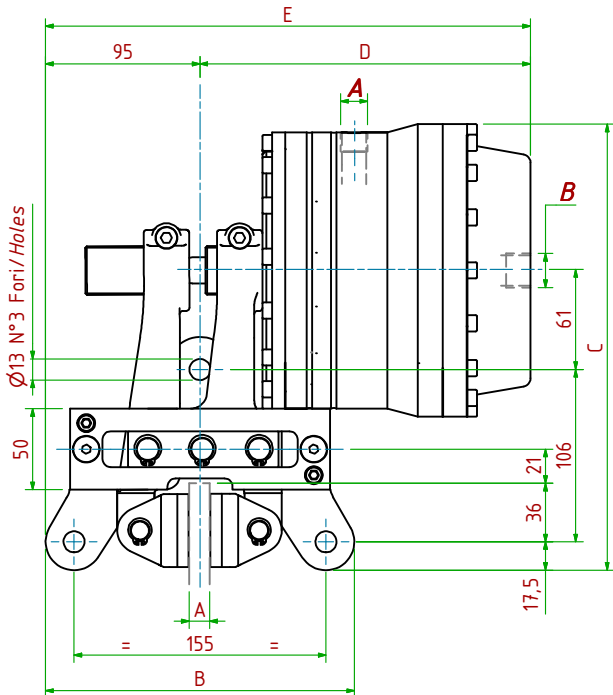
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPF-PN024/ □ □ □

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

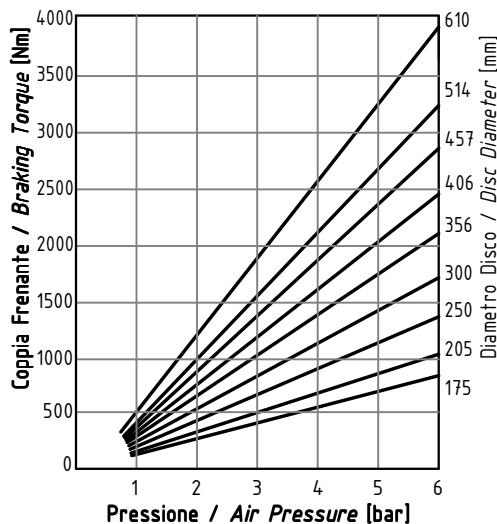
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A: 3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **175cm³**
- Coppia Frenante/Braking Torque **Md= [Ft x (Φ(m)/2 - 0.029(m))]**

Funzionamento Negativo/Pneumatically Released

- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B: 1/2"Gas**
- Volume Max Cilindro/Max Cylinder Volume **285cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads **=9mm**

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante: Positivo-Negativo / Braking Force		Peso
PPF-PN024/12.7	19.56.024.03	12.7	190	275	203	298	Ft _{pos} = 14100N(6bar)	Ft _{neg} = 13100N(0bar)	20.2 kg
PPF-PN024/25.4	19.56.024.04	25.4	190	275	210	305	Ft _{pos} = 14100N(6bar)	Ft _{neg} = 13100N(0bar)	20.4 kg

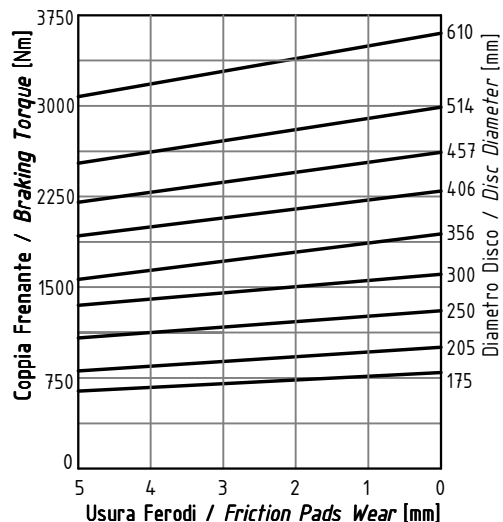
**FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED**



Coppia Frenante Md

La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

**FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED**

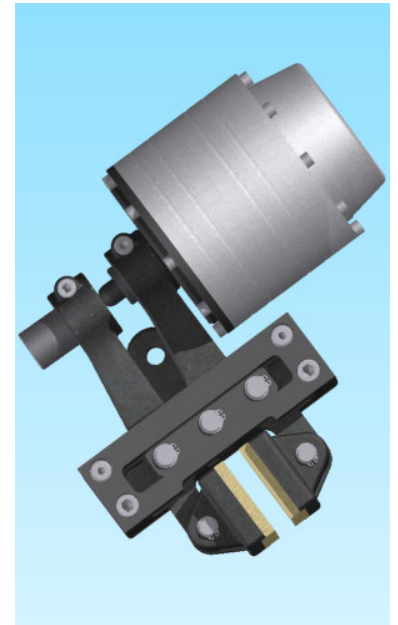
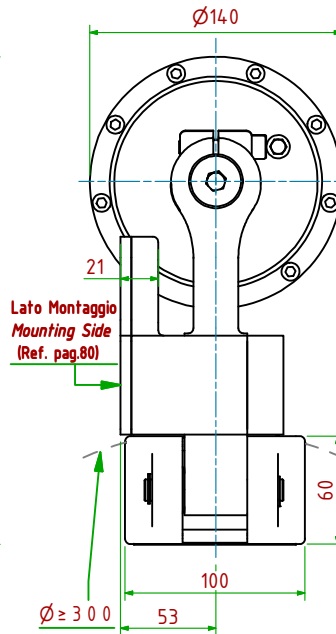
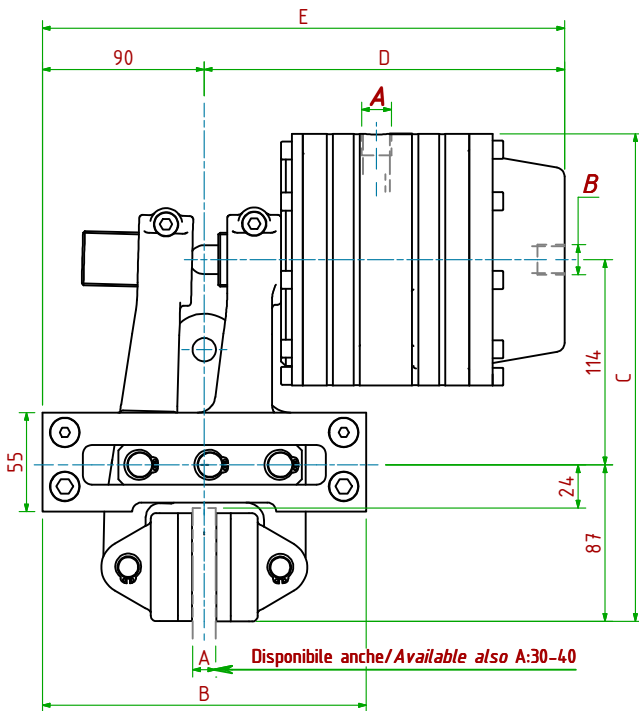


Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPH-PN033/□□□

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

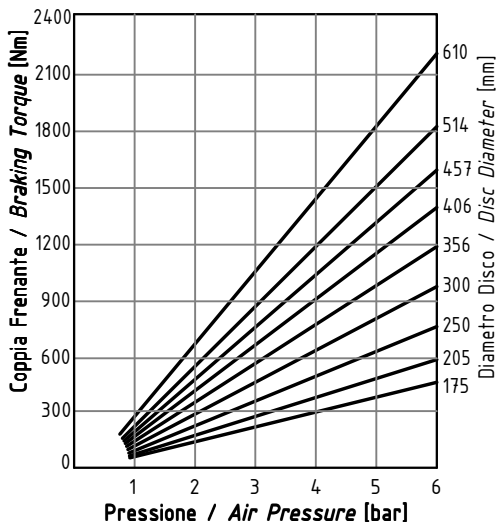
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A:3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **110 cm³**
- Coppia Frenante/Braking Torque **Md= [Ft×(Φ(m)/2-0.029(m))]**

Funzionamento Negativo/Pneumatically Released

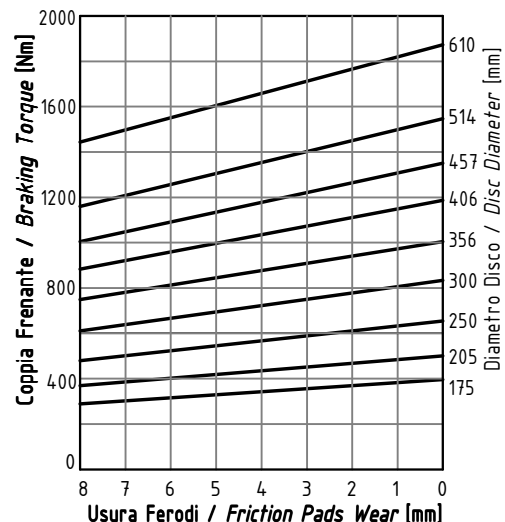
- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B:3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **160 cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads =**9mm**

MODELLO/MODEL	CODICE/ CODE	A	B	C	DMax	EMax	Forza Frenante: Positivo-Negativo / Braking Force		Peso
PPH-PN033/12.7	19.56.033.03	12.7	180	271	200	290	Ft _{pos} = 8020N (6bar)	Ft _{neg} = 6800N (0bar)	15.2 kg
PPH-PN033/25.4	19.56.033.04	25.4	180	271	207	297	Ft _{pos} = 8020N (6bar)	Ft _{neg} = 6800N (0bar)	15.4 kg

**FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED**



**FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED**



Coppia Frenante Md

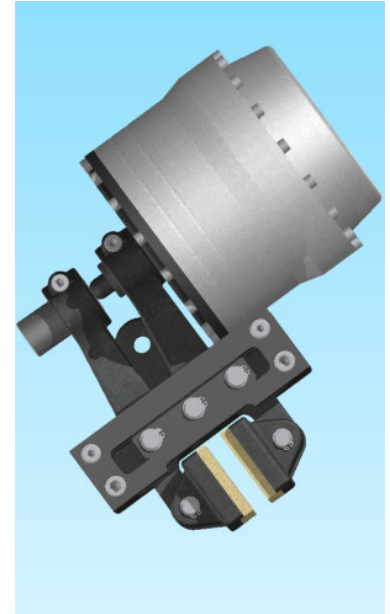
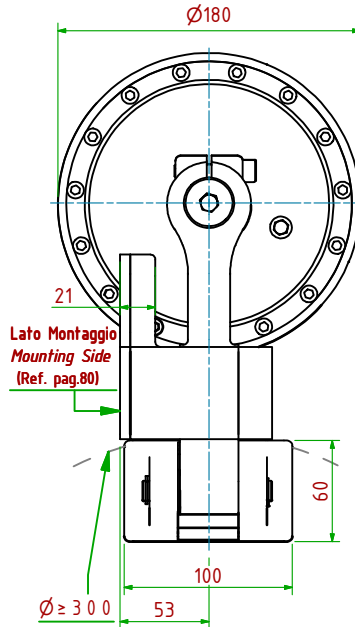
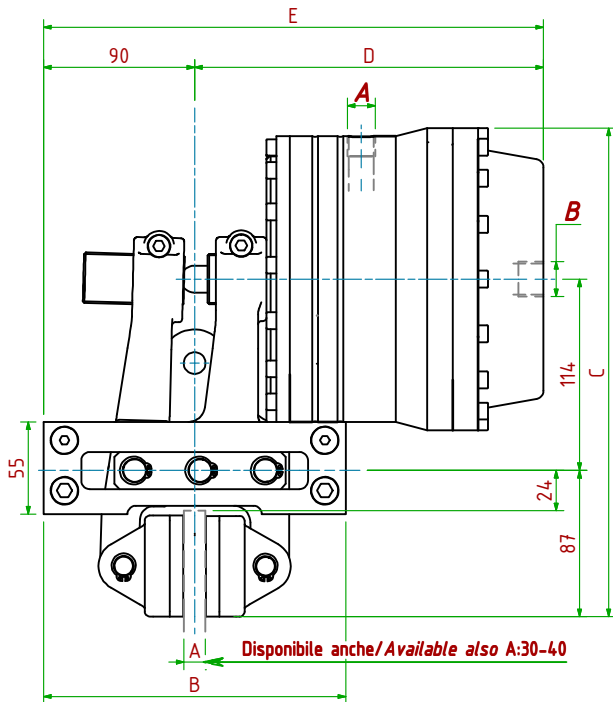
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPH-PN034/□□□

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

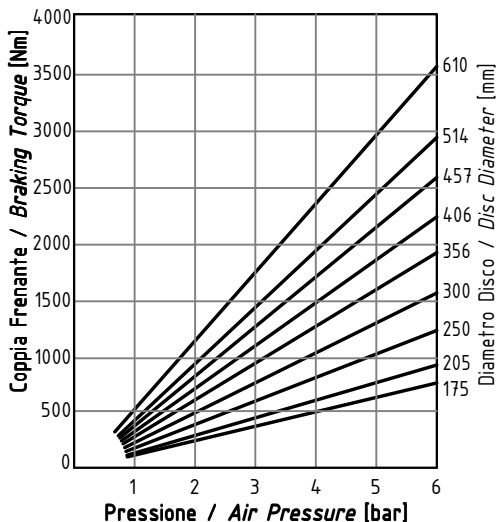
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A:3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **175cm³**
- Coppia Frenante/Braking Torque **Md= [Ftx(Φ(m)/2-0.029(m))]**

Funzionamento Negativo/Pneumatically Released

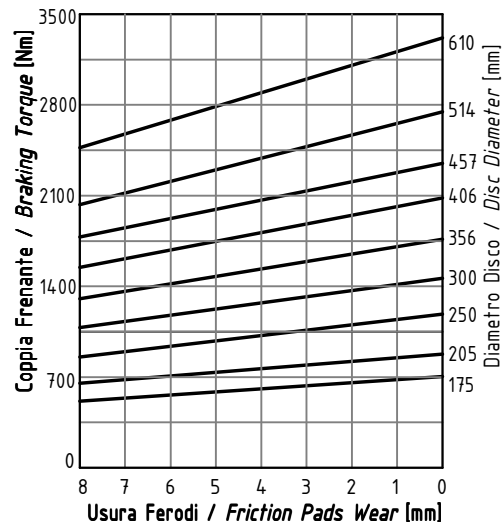
- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B:1/2"Gas**
- Volume Max Cilindro/Max Cylinder Volume **285cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	DMax	EMax	Forza Frenante: Positivo-Negativo / Braking Force		Peso
PPH-PN034/12.7	19.56.034.03	12.7	180	291	208	298	Ft _{pos} = 12910N (6bar)	Ft _{neg} = 12000N(0bar)	18.0 kg
PPH-PN034/25.4	19.56.034.04	25.4	180	291	214	304	Ft _{pos} = 12910N (6bar)	Ft _{neg} = 12000N(0bar)	18.2 kg

FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED



FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED



Coppia Frenante Md

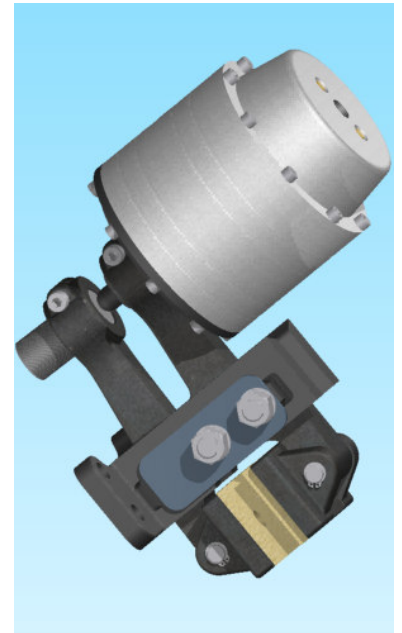
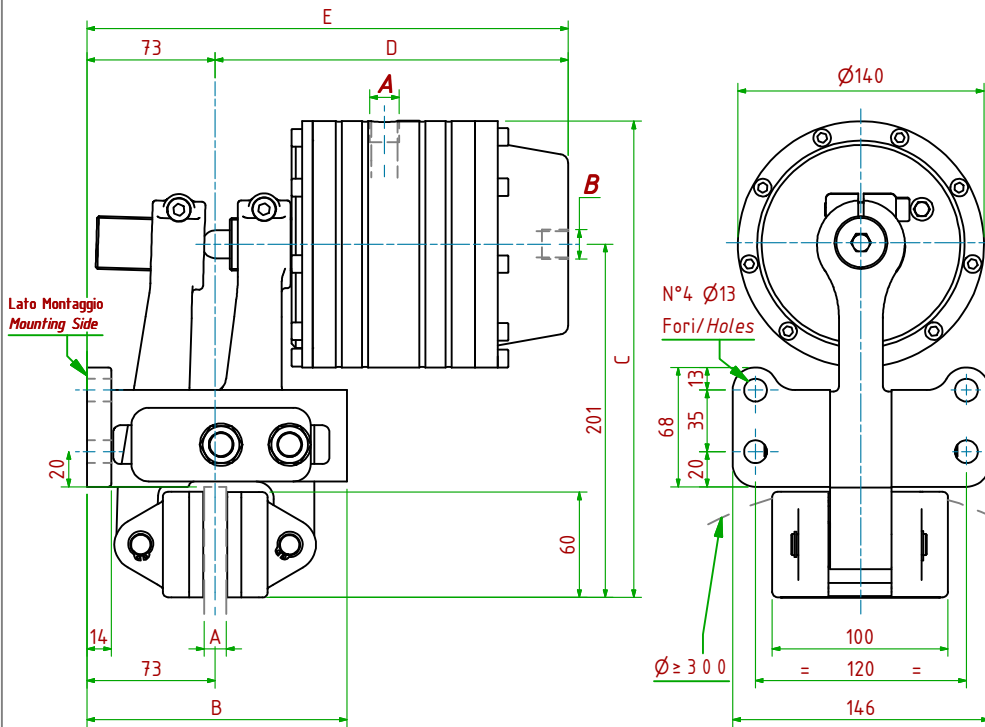
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPHP-PN330/□□□

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

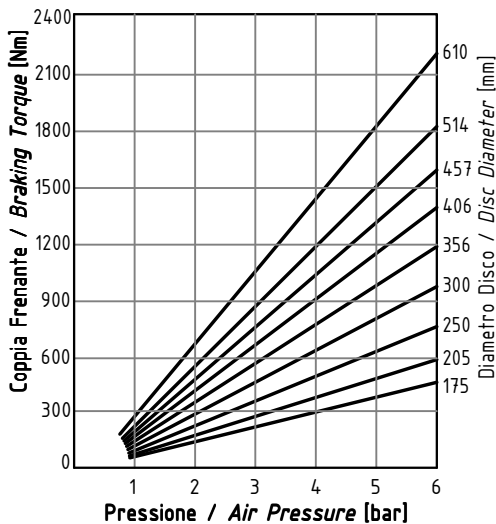
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A: 3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **110 cm³**
- Coppia Frenante/Braking Torque **Md= [Ft x (Φ(m)/2 - 0.029(m))]**

Funzionamento Negativo/Pneumatically Released

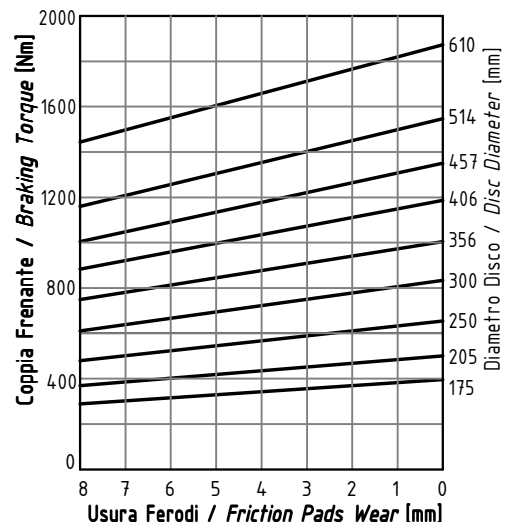
- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B: 3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **160 cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads = **9mm**

MODELLO/MODEL	CODICE/ CODE	A	B	C	DMax	EMax	Forza Frenante: Positivo-Negativo / Braking Force	Peso
PPHP-PN330/12.7	19.56.330.03	12.7	148	271	201	274	Ft _{pos} = 8020N (6bar) Ft _{neg} = 6800N (0bar)	14.0 kg
PPHP-PN330/25.4	19.56.330.04	25.4	148	271	207	280	Ft _{pos} = 8020N (6bar) Ft _{neg} = 6800N (0bar)	14.2 kg

FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED



FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED



Coppia Frenante Md

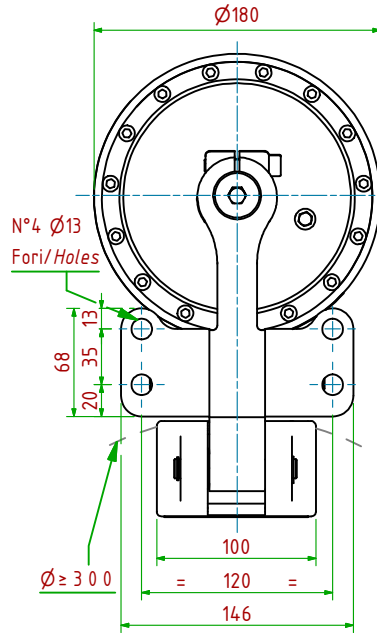
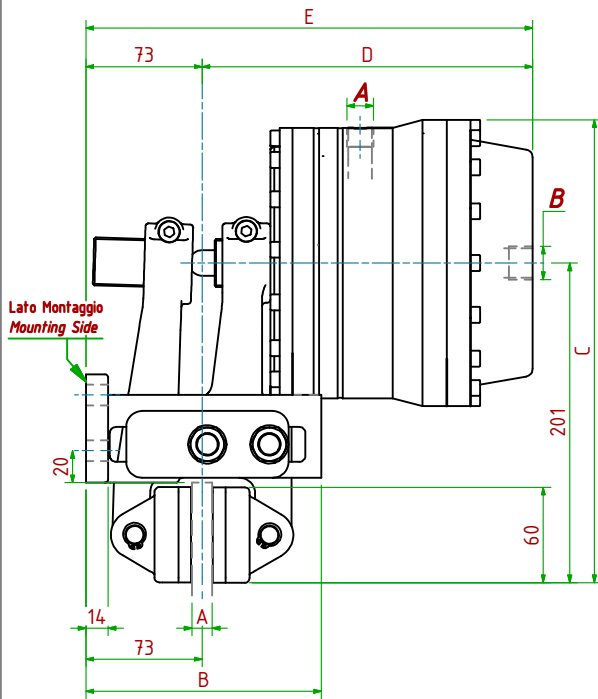
La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.

PPHP-PN340/□□□

Pneumatico DUO / Pneumatically DUO



Funzionamento Positivo/Pneumatically Applied

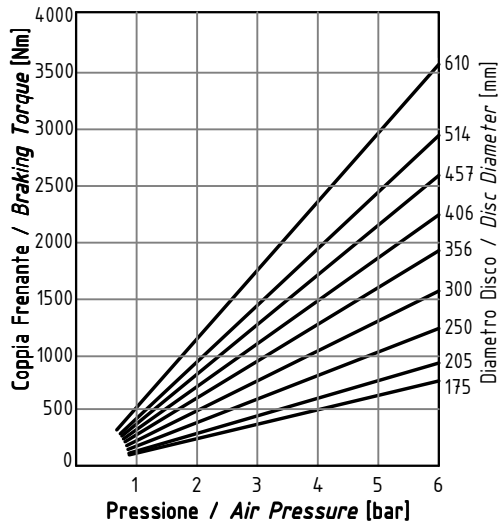
- Pressione di Lavoro/Operating Pressure **Pl= 6bar**
- Alimentazione Cilindro/Pneumatic Cylinder Supply **A: 3/8"Gas**
- Volume Max Cilindro/Max Cylinder Volume **175cm³**
- Coppia Frenante/Braking Torque **Md= [Ft x (Φ(m)/2 - 0.029(m))]**

Funzionamento Negativo/Pneumatically Released

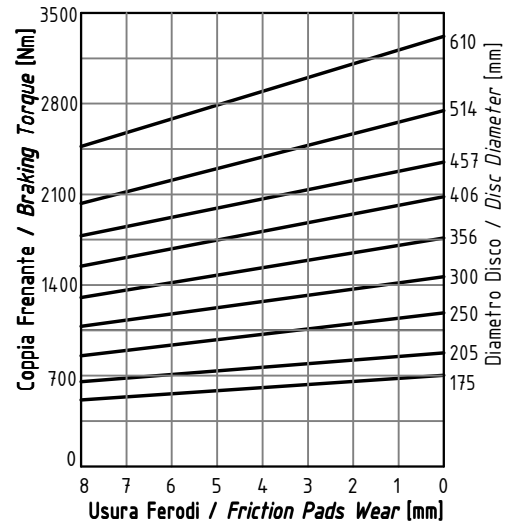
- Pressione di Apertura/Release Pressure **Pa= 6bar**
- Alimentazione Cilindro/Spring Applied Cylinder Supply **B: 1/2"Gas**
- Volume Max Cilindro/Max Cylinder Volume **285cm³**
- Usura Ferodi Massima Totale/Maximum total wear of pads = **9mm**

MODELLO/MODEL	CODICE/ CODE	A	B	C	DMax	E _{Max}	Forza Frenante: Positivo-Negativo / Braking Force		Peso
PPHP-PN340/12.7	19.56.340.03	12.7	148	291	208	281	Ft _{pos} = 12910N (6bar)	Ft _{neg} = 12000N(0bar)	16.0 kg
PPHP-PN340/25.4	19.56.340.04	25.4	148	291	214	287	Ft _{pos} = 12910N (6bar)	Ft _{neg} = 12000N(0bar)	16.2 kg

FRENO A PINZA USO POSITIVO
CALIPER BRAKE AIR APPLIED



FRENO A PINZA USO NEGATIVO
CALIPER BRAKE SPRING APPLIED

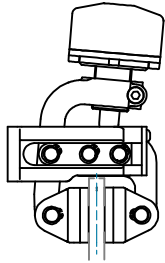


Coppia Frenante Md

La coppia frenante iniziale può essere dal 30% al 50% in meno rispetto al valore nominale, fino al completo assestamento del ferodo sulla superficie del disco.

Braking Torque Md

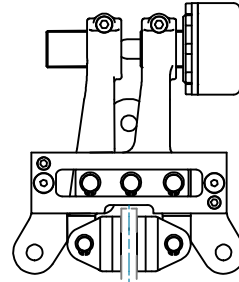
The initial braking torque can be from 30% up to 50% less than nominal torque, until the friction pad works correctly on the disc surface.



POD ...

$Md=405\div 2000Nm$

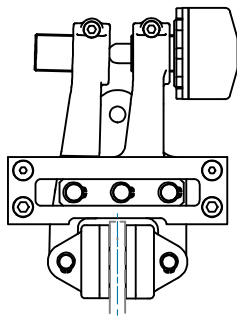
Pag. 66



POF ...

$Md=1050\div 4900Nm$

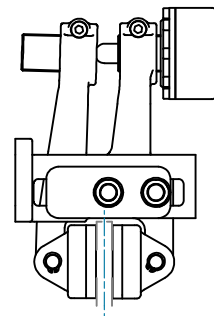
Pag. 66



POH ...

$Md=1900\div 4400Nm$

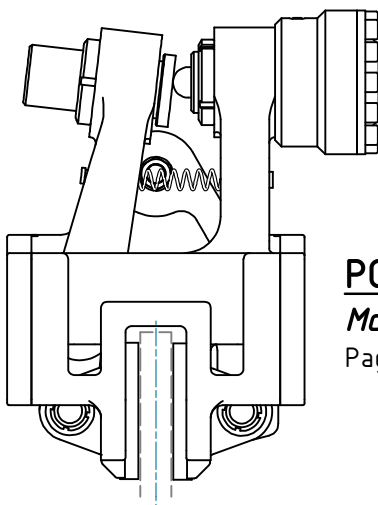
Pag. 67



POHP ...

$Md=1900\div 4400Nm$

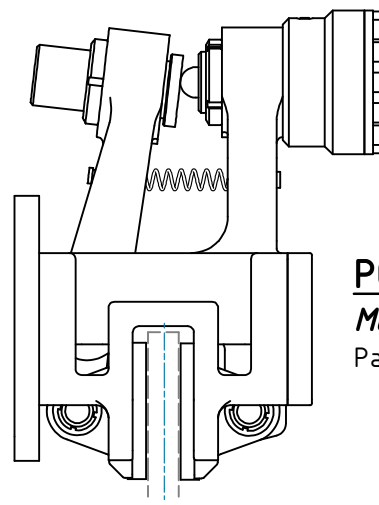
Pag. 67



POT ...

$Md=11500\div 35500Nm$

Pag. 68



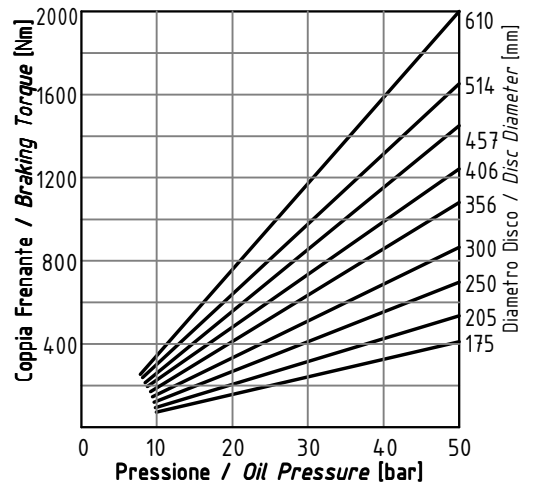
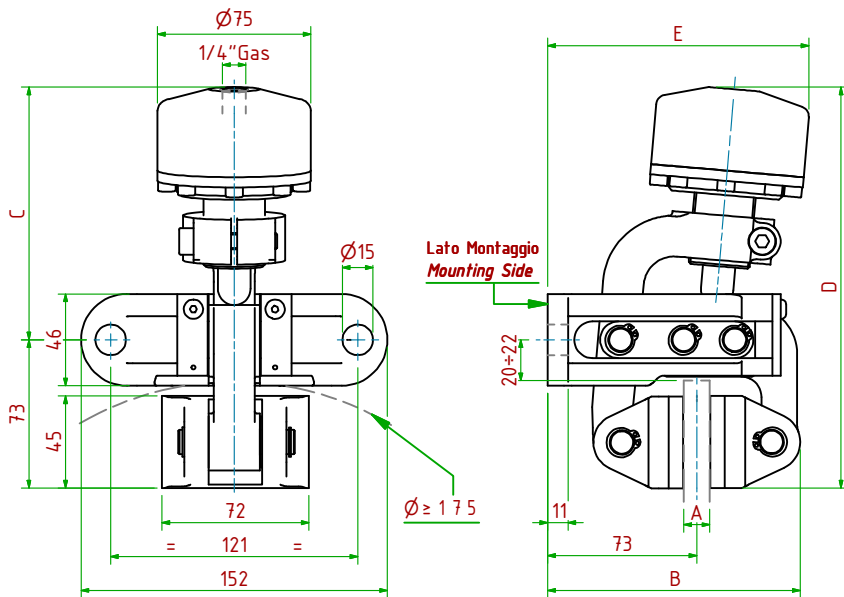
POTP ...

$Md=11500\div 35500Nm$

Pag. 68

POD011/

Oleodinamico / Hydraulically Applied



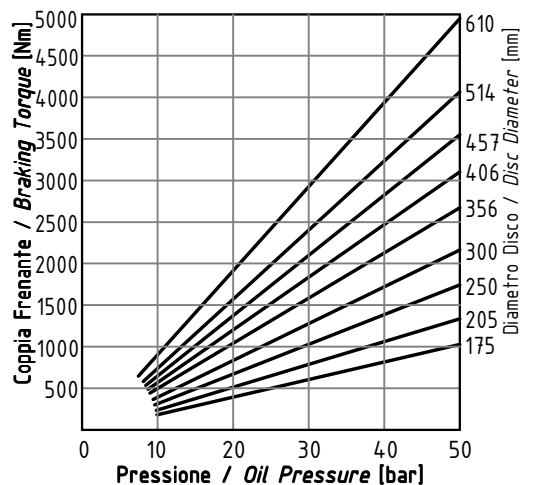
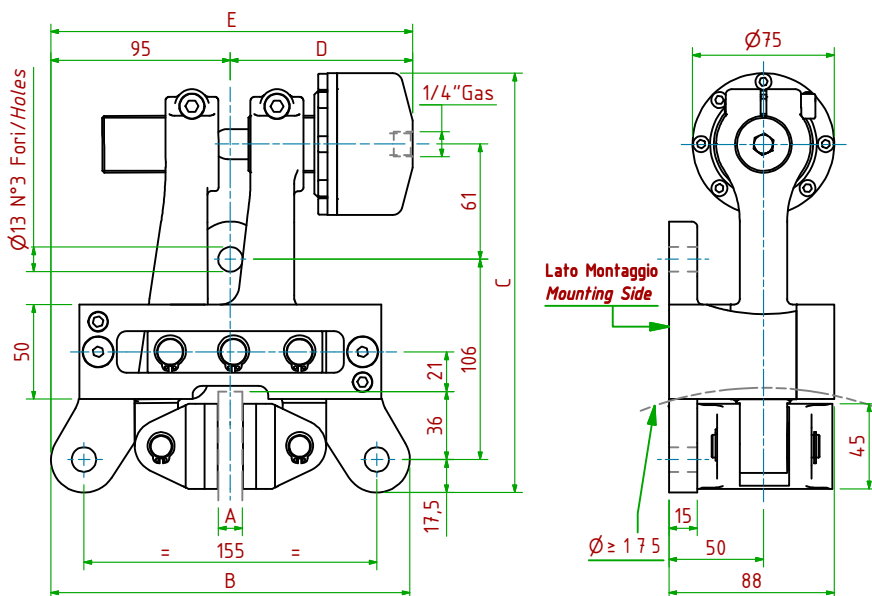
- Pressione di Lavoro/Operating Pressure: **Pl=50bar** - Volume Max Cilindro/Max Cylinder Volume: **27cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POD011/12.7	19.26.011.03	12.7	124	127	200	126	Ft= 7250N (50bar)	4.5 kg
POD011/25.4	19.26.011.04	25.4	130	127	200	128	Ft= 7250N (50bar)	4.7 kg



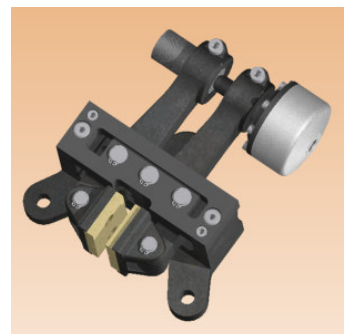
POF021/

Oleodinamico / Hydraulically Applied



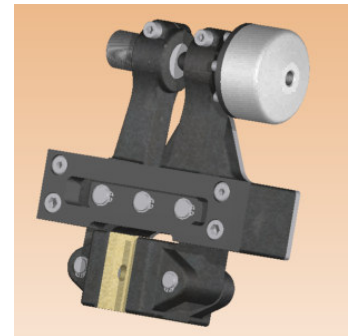
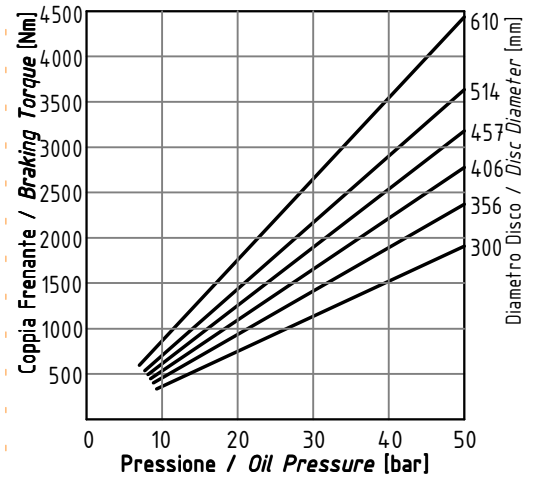
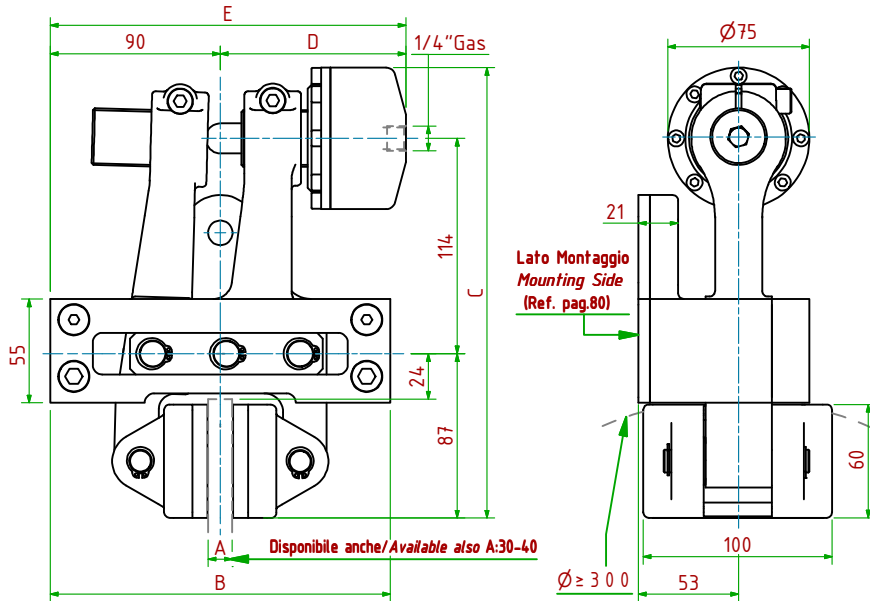
- Pressione di Lavoro/Operating Pressure: **Pl=50bar** - Volume Max Cilindro/Max Cylinder Volume: **27cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POF021/12.7	19.26.021.03	12.7	190	222	97	192	Ft= 17850N (50bar)	8.2 kg
POF021/25.4	19.26.021.04	25.4	190	222	99	194	Ft= 17850N (50bar)	8.4 kg



POH031/

Oleodinamico / Hydraulically Applied

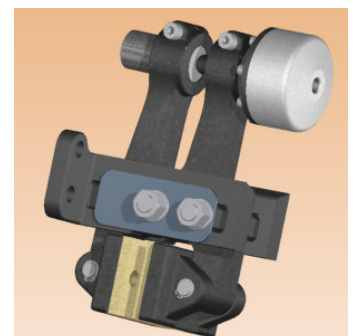
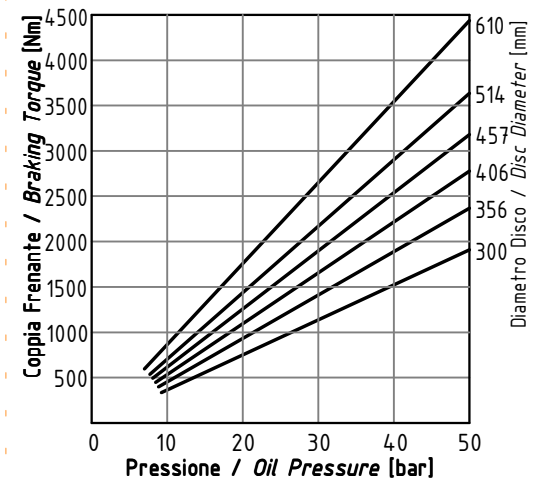
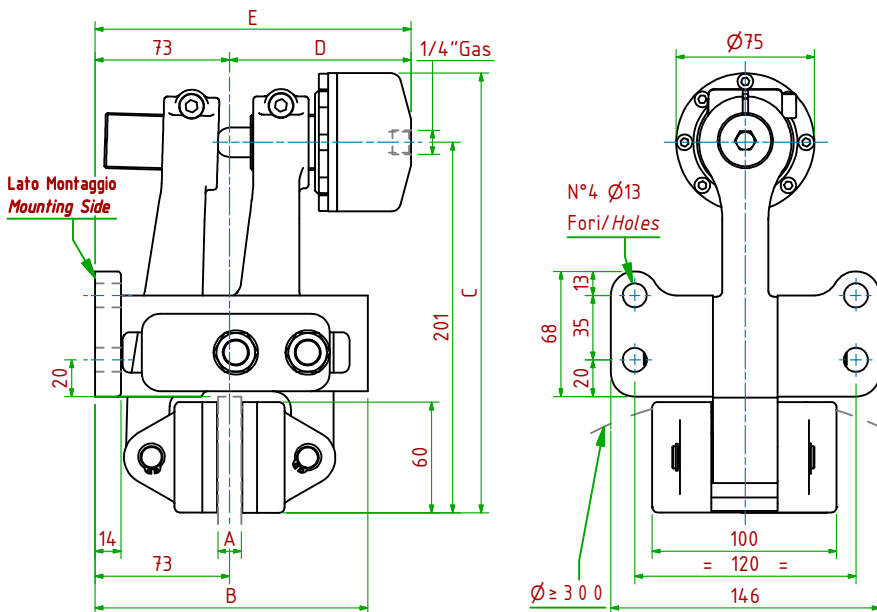


- Pressione di Lavoro/Operating Pressure: **Pl=50bar** - Volume Max Cilindro/Max Cylinder Volume: **27cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POH031/12.7	19.26.031.03	12.7	180	239	98	188	Ft= 16250N (50bar)	10.5kg
POH031/25.4	19.26.031.04	25.4	180	239	101	191	Ft= 16250N (50bar)	10.7kg

POHP310/

Oleodinamico / Hydraulically Applied

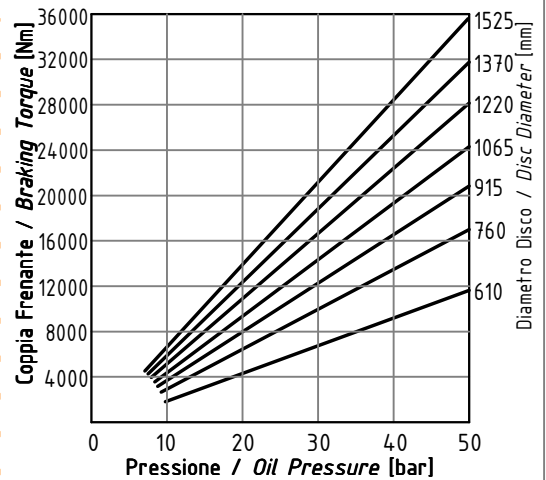
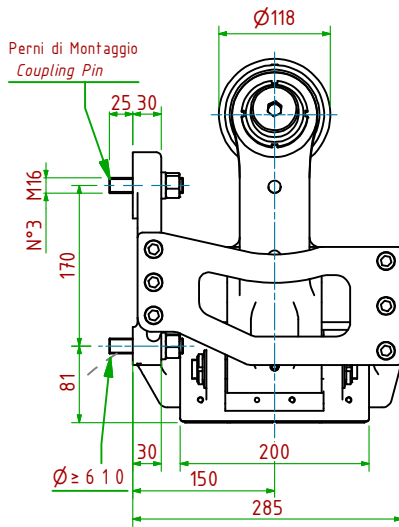
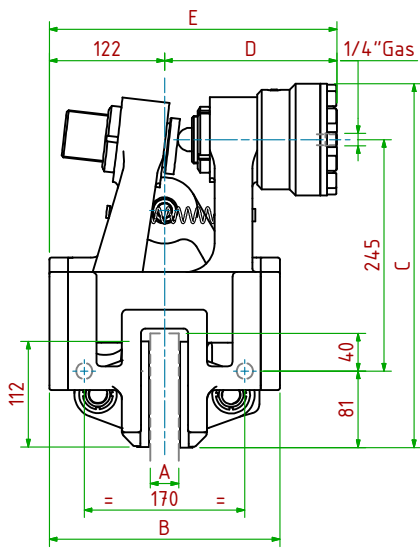


- Pressione di Lavoro/Operating Pressure: **Pl=50bar** - Volume Max Cilindro/Max Cylinder Volume: **27cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.033(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POHP310/12.7	19.26.310.03	12.7	148	239	98	171	Ft= 16250N (50bar)	8.7 kg
POHP310/25.4	19.26.310.04	25.4	148	239	105	178	Ft= 16250N (50bar)	8.9 kg

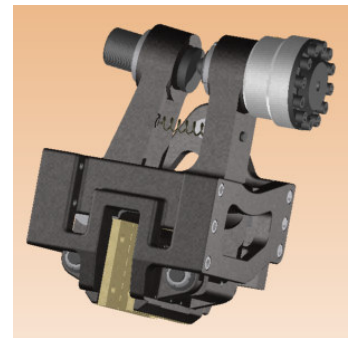
POT064/

Oleodinamico / Hydraulically Applied



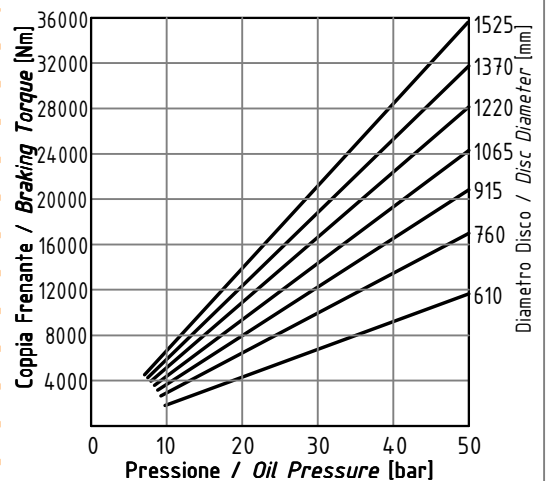
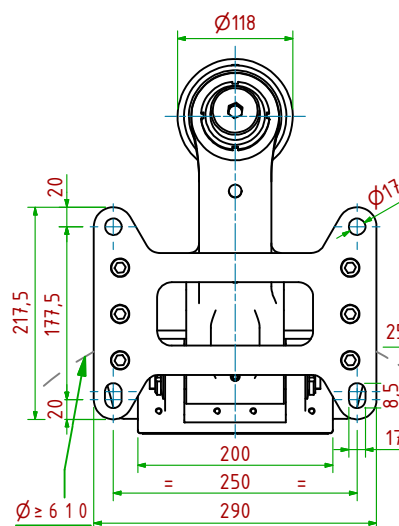
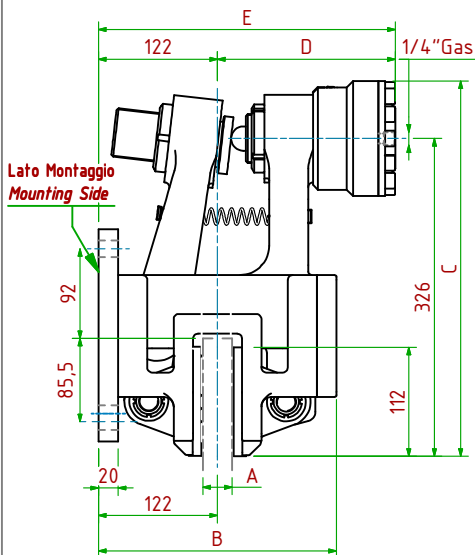
- Pressione di Lavoro/Operating Pressure: **Pl=50bar** - Volume Max Cilindro/Max Cylinder Volume: **110cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POT064/25.4	19.26.064.04	25.4	244	385	183	305	Ft= 48800N (50bar)	59.2kg
POT064/ 30	19.26.064.05	30	244	385	183	305	Ft= 48800N (50bar)	59.2kg
POT064/ 40	19.26.064.06	40	244	385	188	310	Ft= 48800N (50bar)	59.2kg



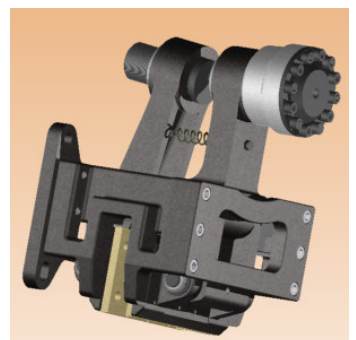
POTP640/

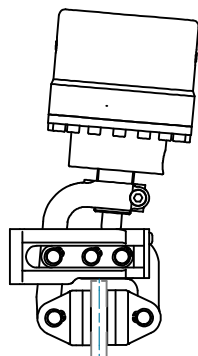
Oleodinamico / Hydraulically Applied



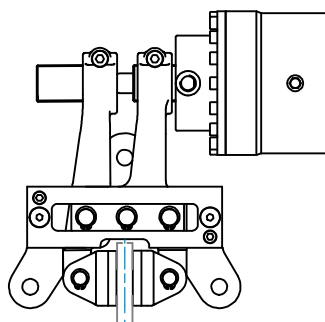
- Pressione di Lavoro/Operating Pressure: **Pl=50bar** - Volume Max Cilindro/Max Cylinder Volume: **110cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POTP640/25.4	19.26.640.04	25.4	244	385	183	305	Ft= 48800N (50bar)	57.0kg
POTP640/ 30	19.26.640.05	30	244	385	183	305	Ft= 48800N (50bar)	57.0kg
POTP640/ 40	19.26.640.06	40	244	385	188	310	Ft= 48800N (50bar)	57.0kg

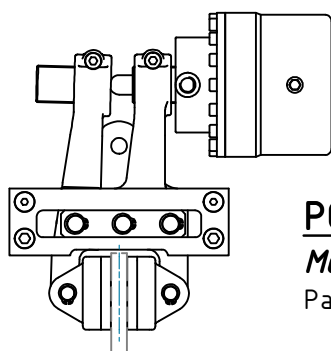




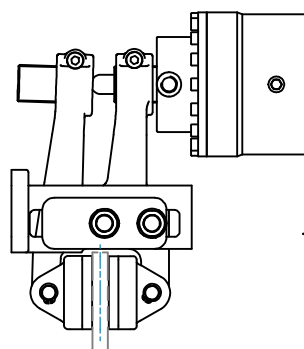
POD-N ...
Md=181÷856Nm
Pag. 70



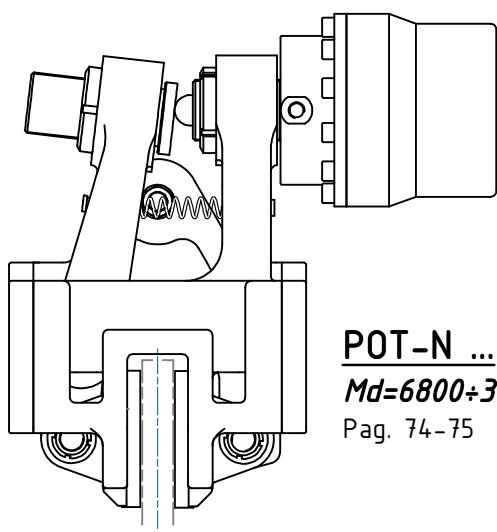
POF-N ...
Md=439÷3635Nm
Pag. 71



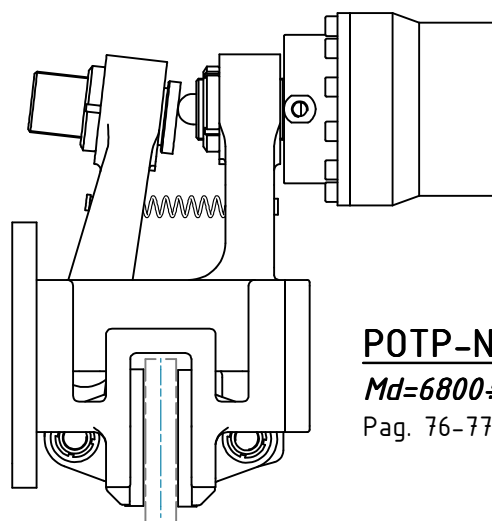
POH-N ...
Md=807÷3290Nm
Pag. 72



POHP-N ...
Md=807÷3290Nm
Pag. 73



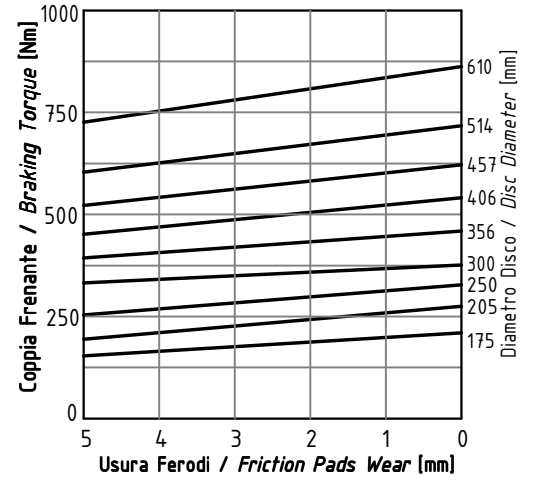
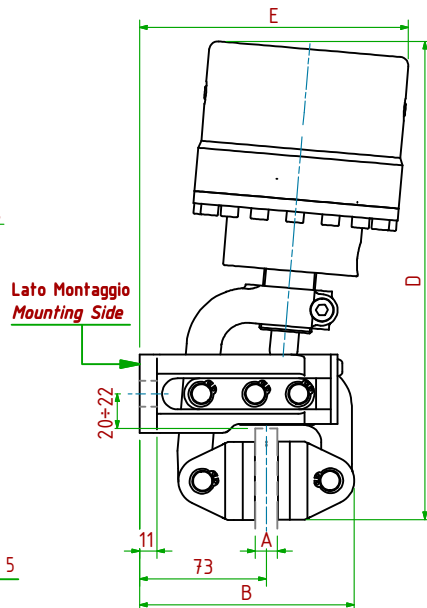
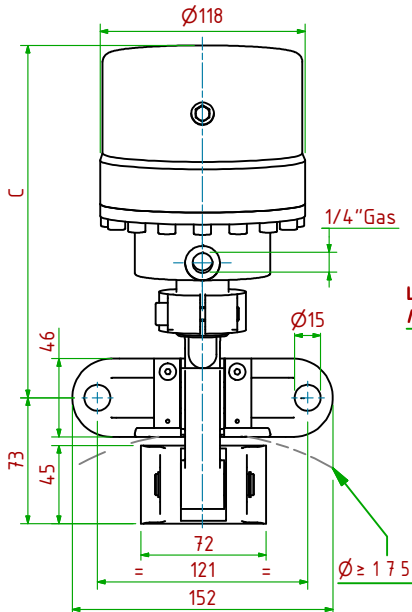
POT-N ...
Md=6800÷37200Nm
Pag. 74-75



POTP-N ...
Md=6800÷37200Nm
Pag. 76-77

POD-N013/

Oleodinamico Negativo / Hydraulically Released



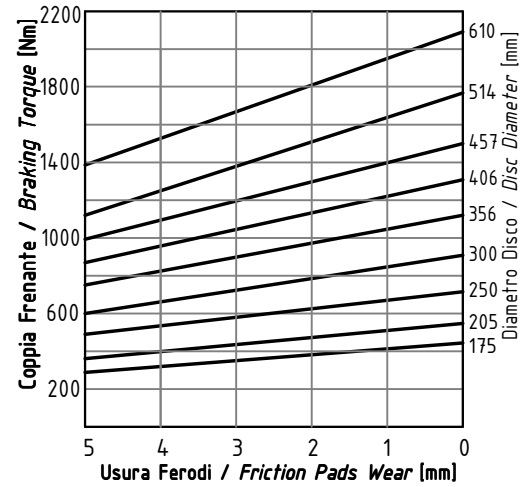
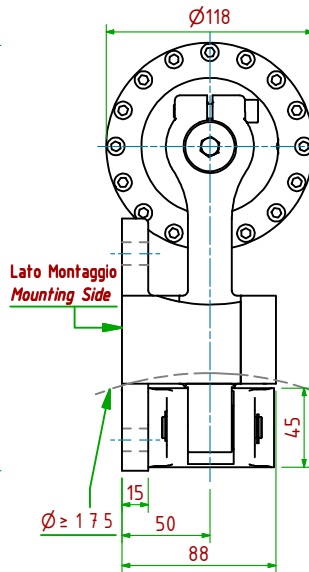
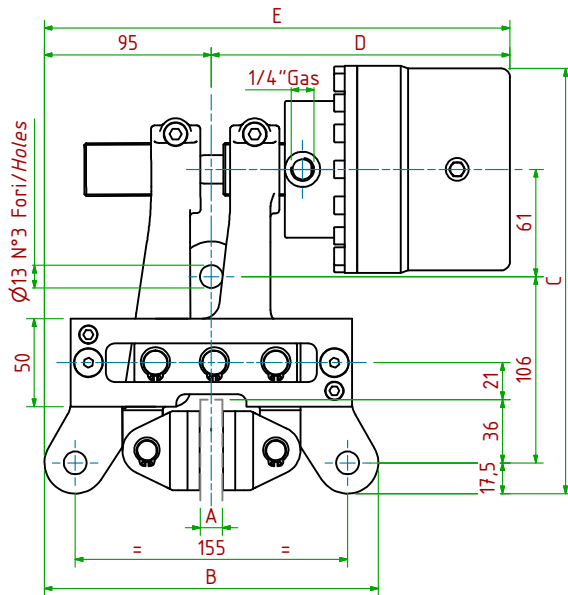
- Pressione di Apertura/Release Pressure: **Pa=30bar** - Volume Max Cilindro/Max Cylinder Volume: **32 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.029(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Max totale/Max total wear of pads=9mm

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POD-N013/12.7	19.46.013.03	12.7	124	212	285	142	Ft= 3100N (0bar)	6.2 kg
POD-N013/25.4	19.46.013.04	25.4	130	212	285	144	Ft= 3100N (0bar)	6.4 kg



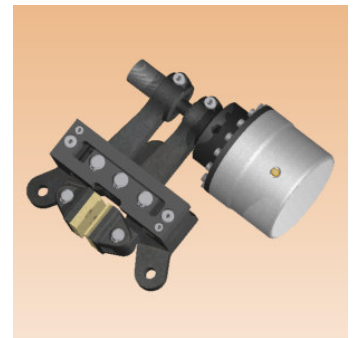
POF-N023/

Oleodinamico Negativo / Hydraulically Released



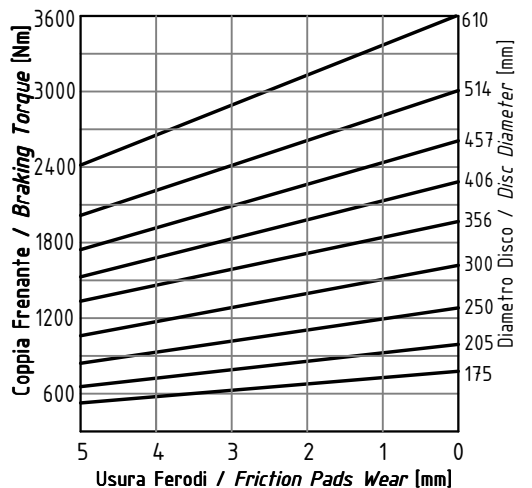
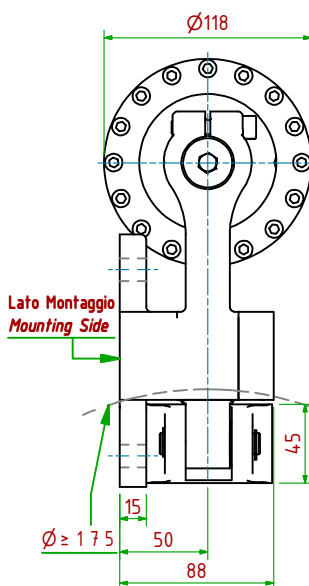
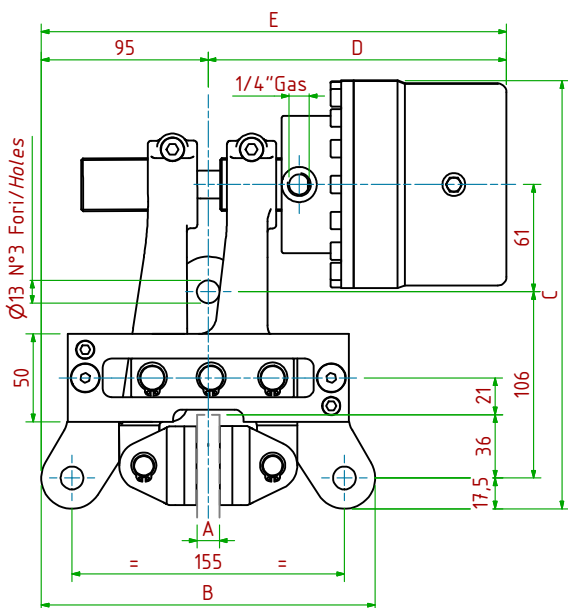
- Pressione di Apertura/Release Pressure: **Pa=30bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Max totale/Max total wear of pads=9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POF-N023/12.7	19.46.023.03	12.7	190	232	175	270	Ft= 7500N (0bar)	10.0kg
POF-N023/25.4	19.46.023.04	25.4	190	232	177	272	Ft= 7500N (0bar)	10.2kg



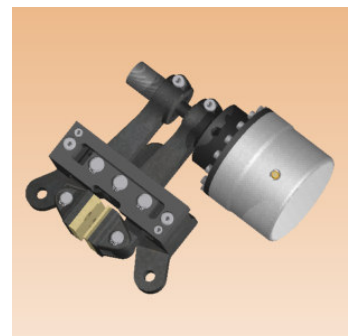
POF-N024/

Oleodinamico Negativo / Hydraulically Released



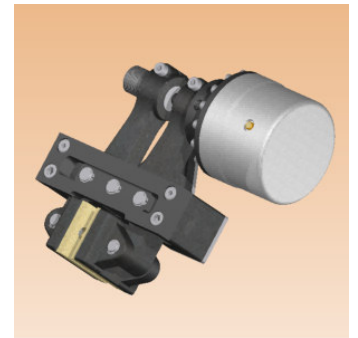
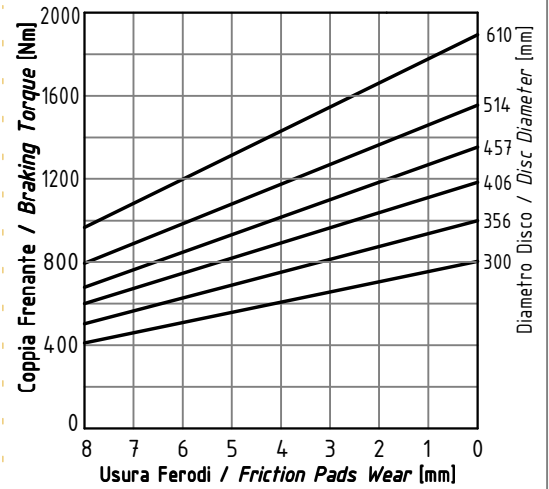
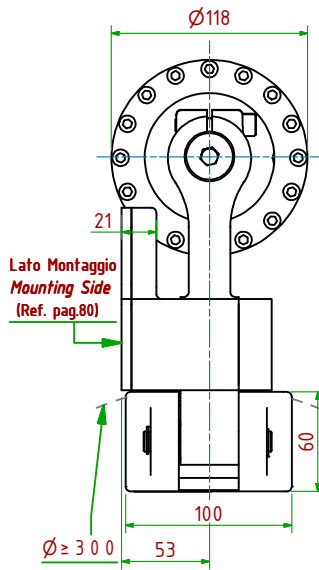
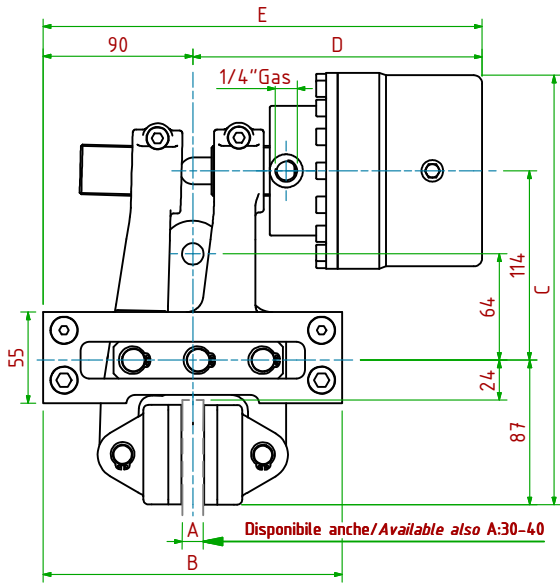
- Pressione di Apertura/Release Pressure: **Pa=50bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.029(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Max totale/Max total wear of pads=9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POF-N024/12.7	19.46.024.03	12.7	190	255	175	270	Ft= 13170 (0bar)	12.3kg
POF-N024/25.4	19.46.024.04	25.4	190	255	177	272	Ft= 13170 (0bar)	12.5kg



POH-N033/

Oleodinamico Negativo / Hydraulically Released

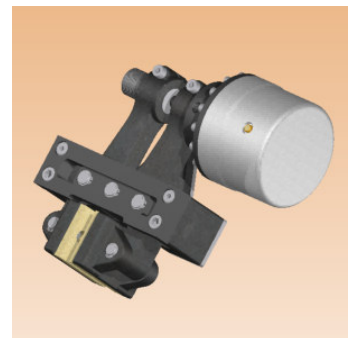
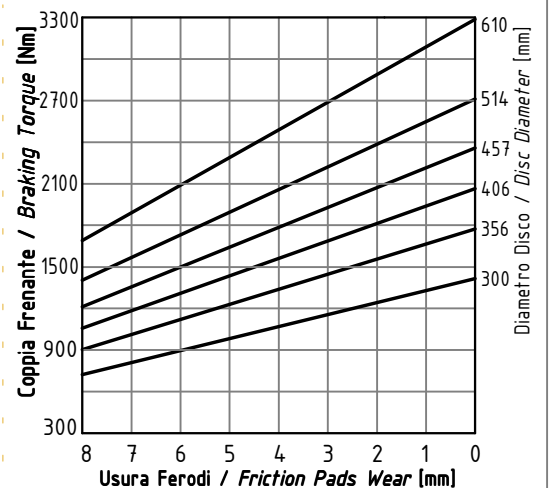
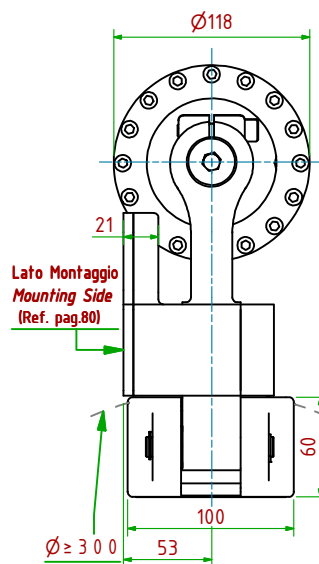
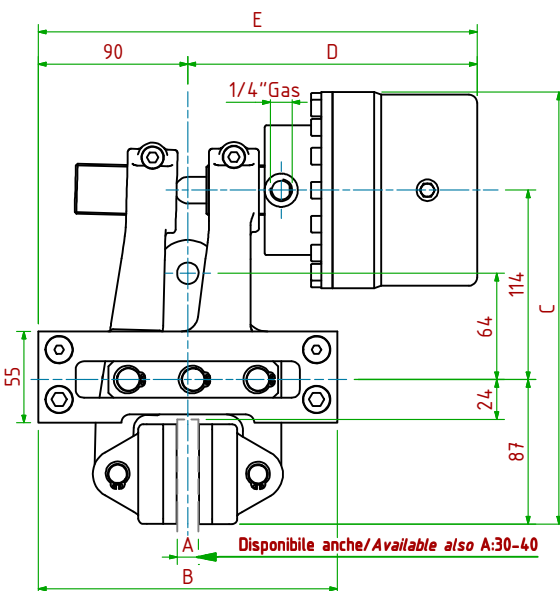


- Pressione di Apertura/Release Pressure: **Pa=30 bar** - Volume Max Cilindro/Max Cylinder Volume: **32 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POH-N033/12.7	19.46.033.03	12.7	180	248	178	268	Ft=6900N (0bar)	12.2kg
POH-N033/25.4	19.46.033.04	25.4	180	248	182	272	Ft=6900N (0bar)	12.4kg

POH-N034/

Oleodinamico Negativo / Hydraulically Released

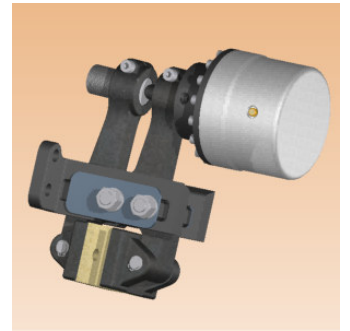
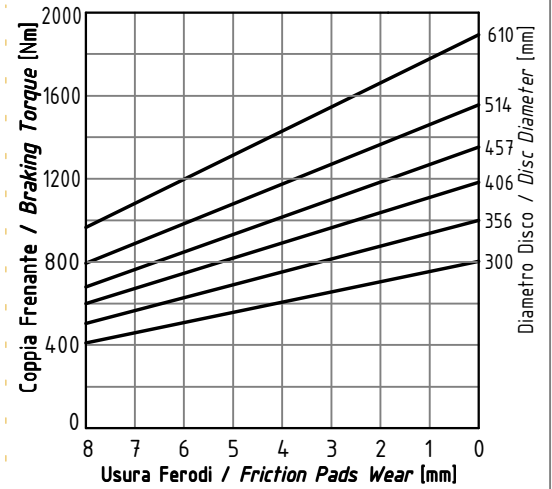
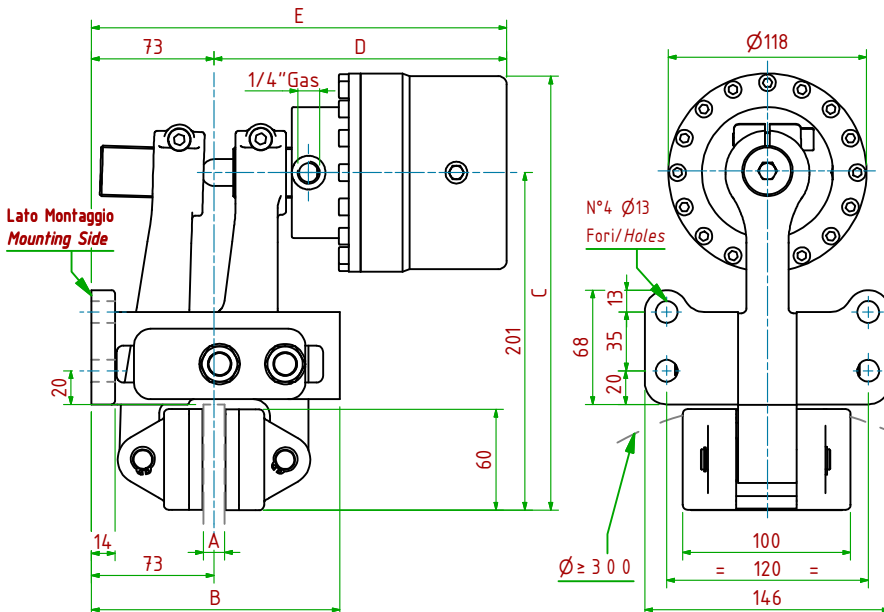


- Pressione di Apertura/Release Pressure: **Pa=50 bar** - Volume Max Cilindro/Max Cylinder Volume: **32 cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO / MODEL	CODICE / CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POH-N034/12.7	19.46.034.03	12.7	180	271	178	268	Ft=12100N (0bar)	14.5kg
POH-N034/25.4	19.46.034.04	25.4	180	271	182	272	Ft=12100N (0bar)	14.7kg

POHP-N330/

Oleodinamico Negativo / Hydraulically Released

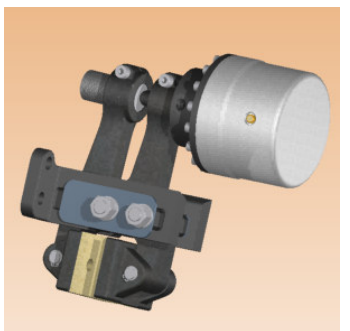
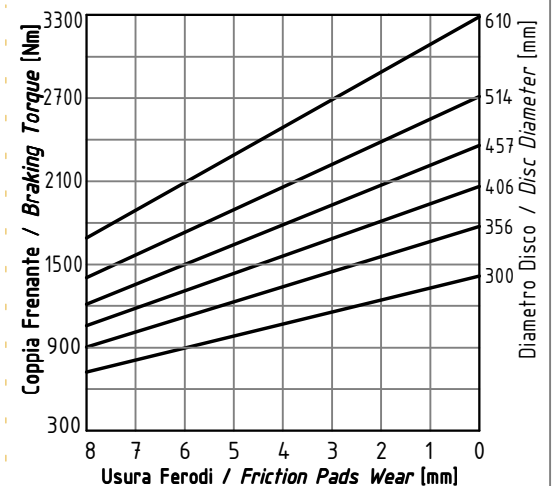
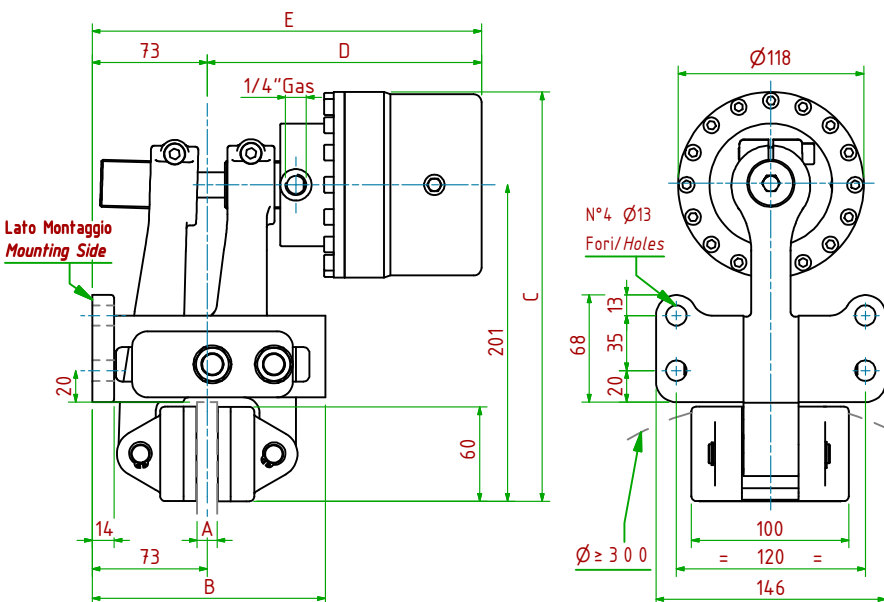


- Pressione di Apertura/Release Pressure: **Pa=30 bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POHP-N330/12.7	19.46.330.03	12.7	148	249	177	250	Ft=6900N (0bar)	10.4kg
POHP-N330/25.4	19.46.330.04	25.4	148	249	183	256	Ft=6900N (0bar)	10.6kg

POHP-N340/

Oleodinamico Negativo / Hydraulically Released

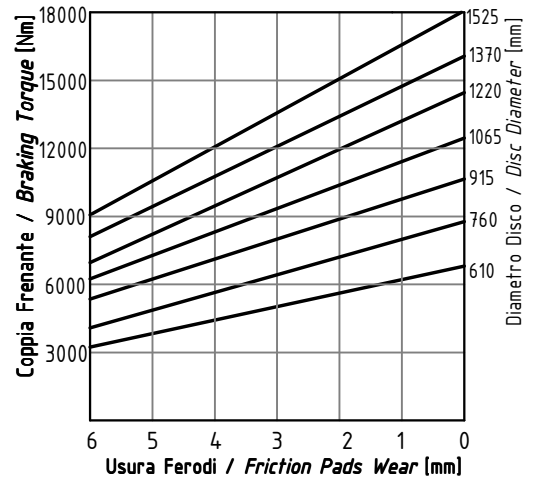
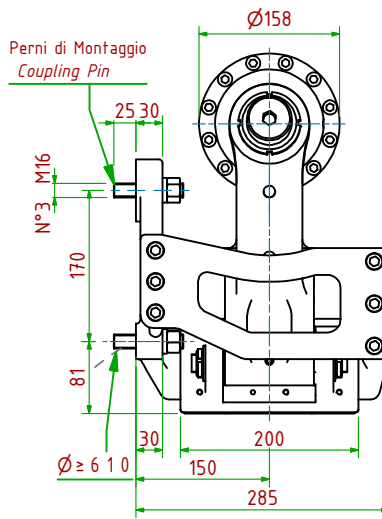
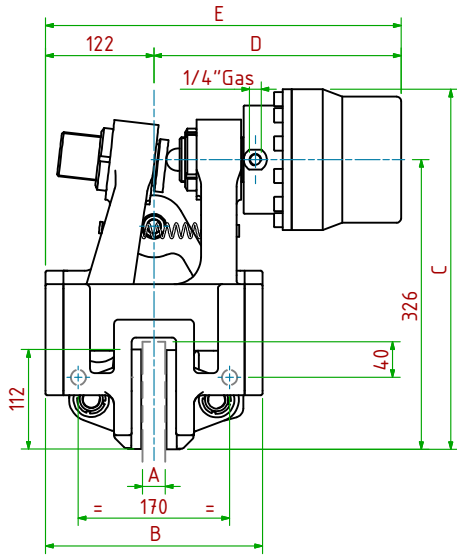


- Pressione di Apertura/Release Pressure: **Pa=50 bar** - Volume Max Cilindro/Max Cylinder Volume: **32cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.033(m))]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =9mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POHP-N340/12.7	19.46.340.03	12.7	148	271	177	250	Ft=12100N (0bar)	12.7kg
POHP-N340/25.4	19.46.340.04	25.4	148	271	183	256	Ft=12100N (0bar)	12.9kg

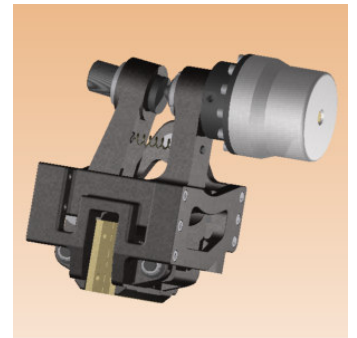
POT-N064/

Oleodinamico Negativo / Hydraulically Released



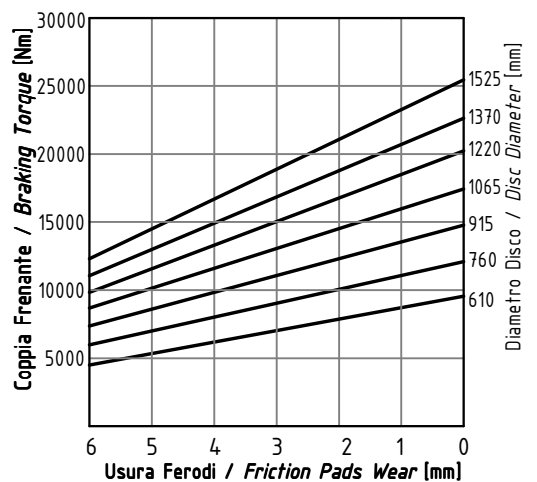
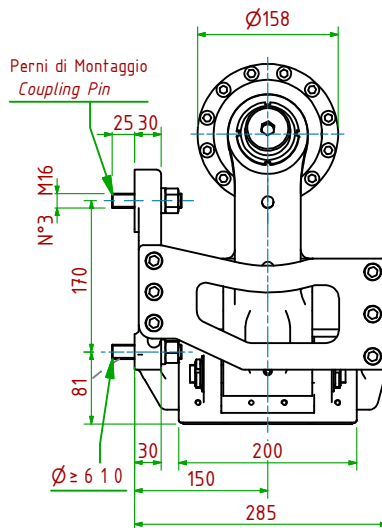
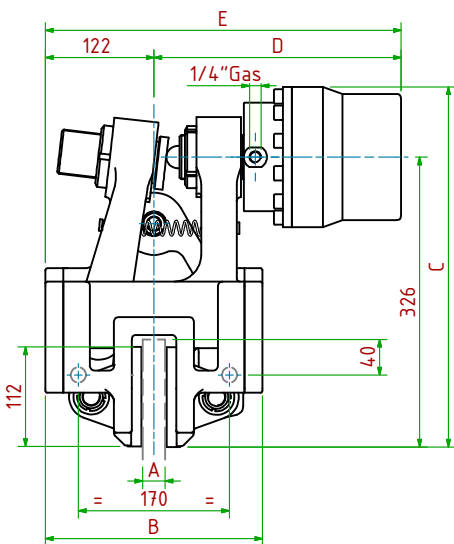
- Pressione di Apertura/Release Pressure: **Pa=26bar** - Volume Max Cilindro/Max Cylinder Volume: **130cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POT-N064/25.4	19.46.064.04	25.4	244	405	278	400	Ft= 25000N (0bar)	65.0kg
POT-N064/ 30	19.46.064.05	30	244	405	278	400	Ft= 25000N (0bar)	65.0kg
POT-N064/ 40	19.46.064.06	40	244	405	278	400	Ft= 25000N (0bar)	65.0kg



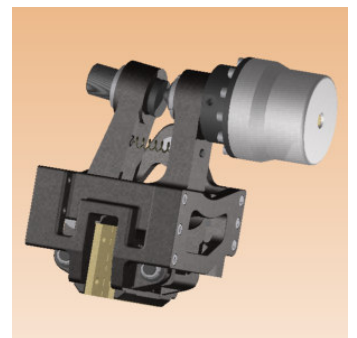
POT-N066/

Oleodinamico Negativo / Hydraulically Released



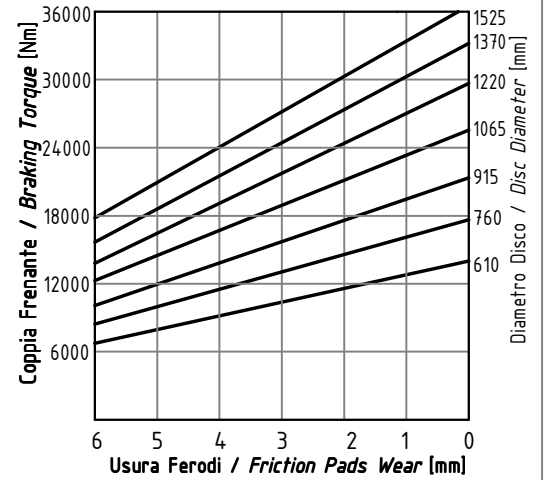
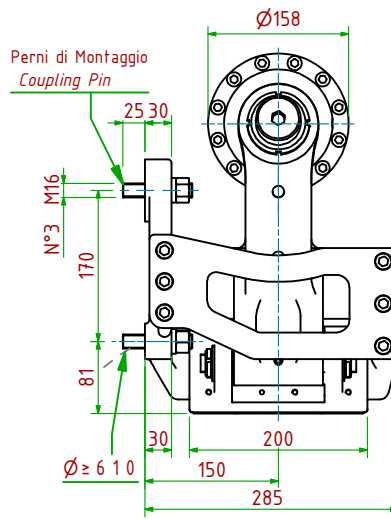
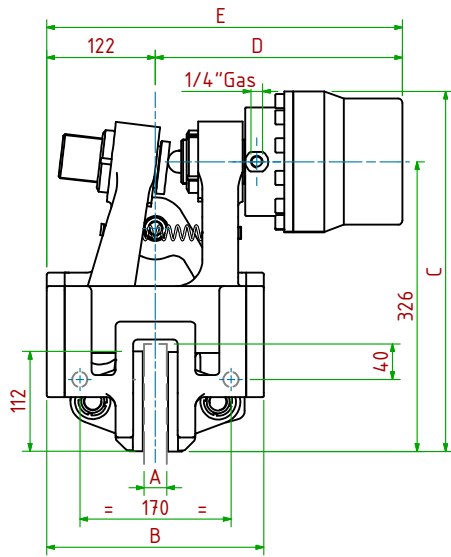
- Pressione di Apertura/Release Pressure: **Pa=35bar** - Volume Max Cilindro/Max Cylinder Volume: **130cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POT-N066/25.4	19.46.066.04	25.4	244	405	278	400	Ft= 35000N (0bar)	65.0kg
POT-N066/ 30	19.46.066.05	30	244	405	278	400	Ft= 35000N (0bar)	65.0kg
POT-N066/ 40	19.46.066.06	40	244	405	278	400	Ft= 35000N (0bar)	65.0kg



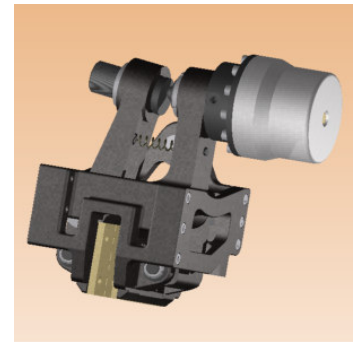
POT-N068/

Oleodinamico Negativo / Hydraulically Released



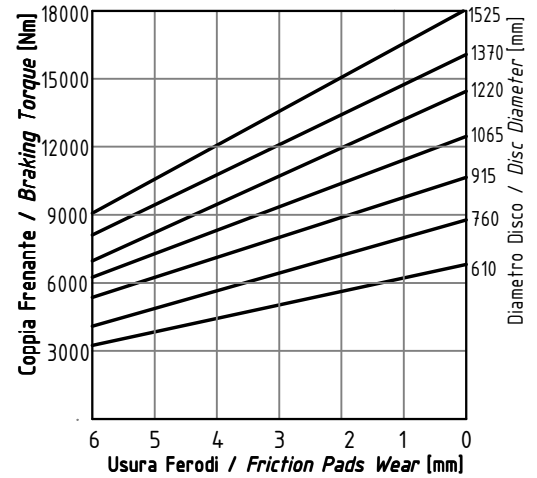
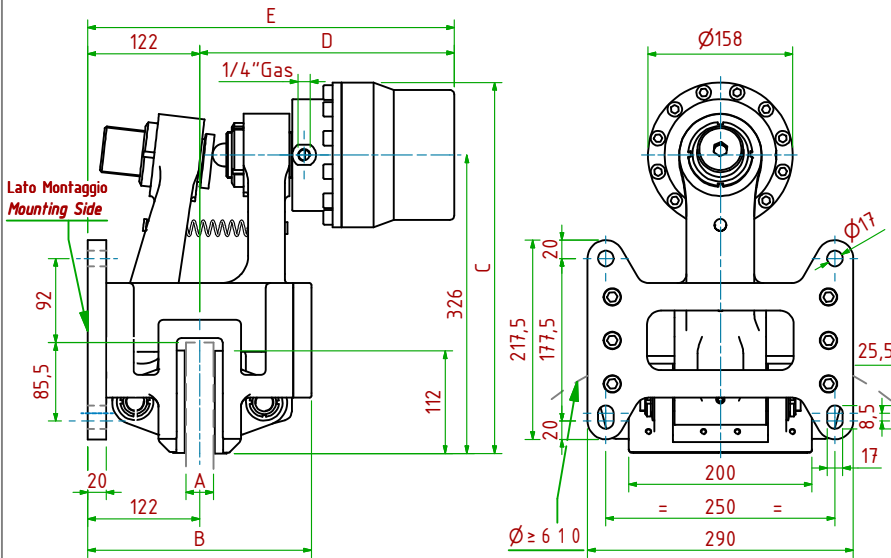
- Pressione di Apertura/Release Pressure: **Pa=50bar** - Volume Max Cilindro/Max Cylinder Volume: **130cm³**
- Coppia Frenante/Braking Torque: **Md= [Ft x (Φ(m)/2 - 0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/ MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POT-N068/25.4	19.46.068.04	25.4	244	405	278	400	Ft= 51000N (0bar)	65.0kg
POT-N068/ 30	19.46.068.05	30	244	405	278	400	Ft= 51000N (0bar)	65.0kg
POT-N068/ 40	19.46.068.06	40	244	405	278	400	Ft= 51000N (0bar)	65.0kg



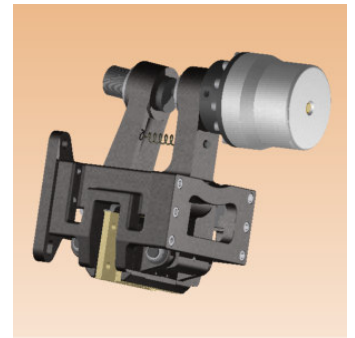
POTP-N640/

Oleodinamico Negativo/Hydraulically Released



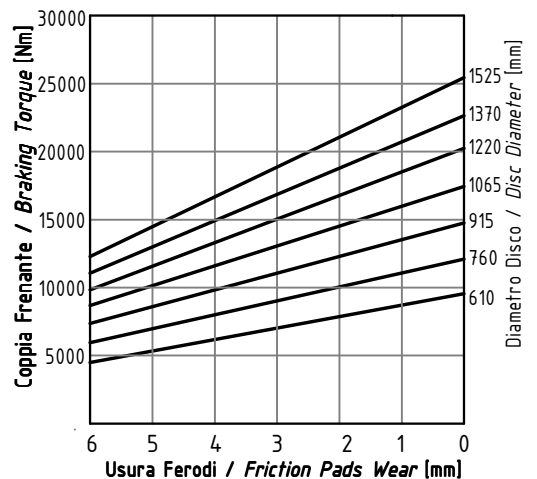
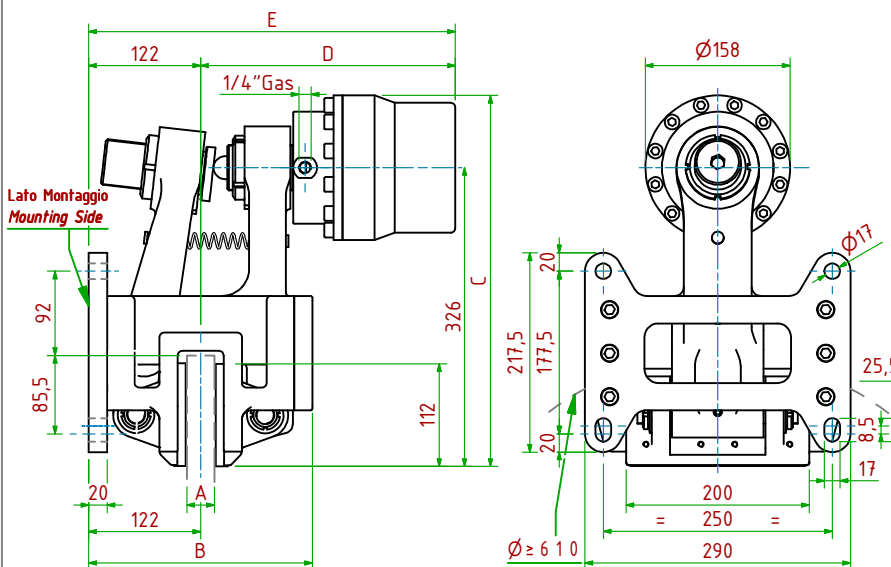
- Pressione di Apertura/Release Pressure: **Pa=26 bar** - Volume Max Cilindro/Max Cylinder Volume: **130cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POTP-N640/25.4	19.46.640.04	25.4	244	405	278	400	Ft= 40000N (0bar)	62.8kg
POTP-N640/ 30	19.46.640.05	30	244	405	278	400	Ft= 40000N (0bar)	62.8kg
POTP-N640/ 40	19.46.640.06	40	244	405	278	400	Ft= 40000N (0bar)	62.8kg



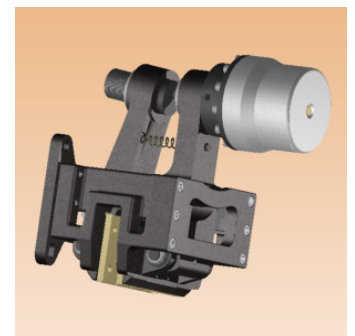
POTP-N660/

Oleodinamico Negativo/Hydraulically Released



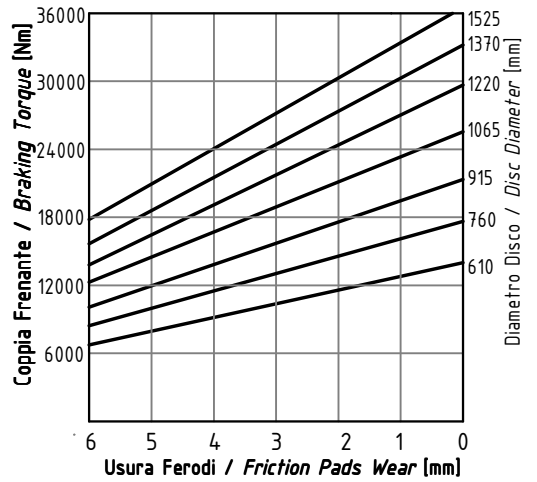
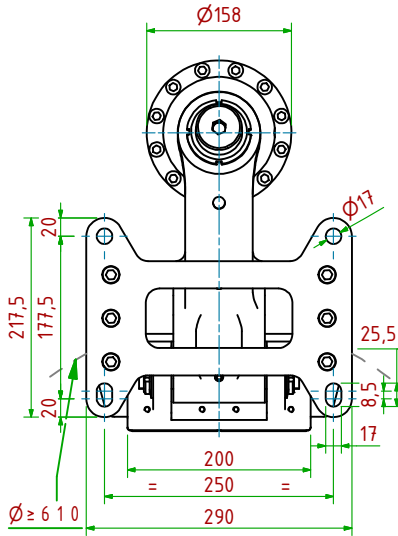
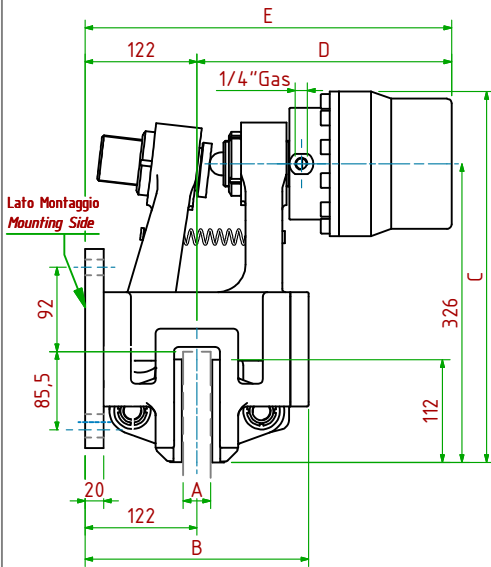
- Pressione di Apertura/Release Pressure: **Pa=35 bar** - Volume Max Cilindro/Max Cylinder Volume: **130cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m)/2-0.065(m))]**
Importante: La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POTP-N660/25.4	19.46.660.04	25.4	244	405	278	400	Ft= 40000N (0bar)	62.8kg
POTP-N660/ 30	19.46.660.05	30	244	405	278	400	Ft= 40000N (0bar)	62.8kg
POTP-N660/ 40	19.46.660.06	40	244	405	278	400	Ft= 40000N (0bar)	62.8kg



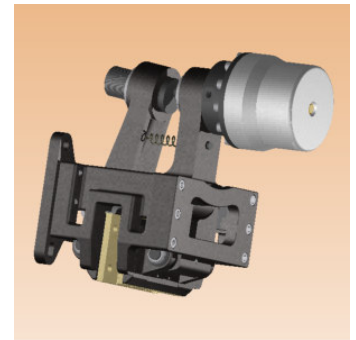
POTP-N680/

Oleodinamico Negativo/Hydraulically Released

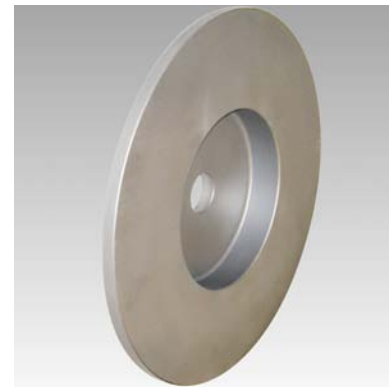
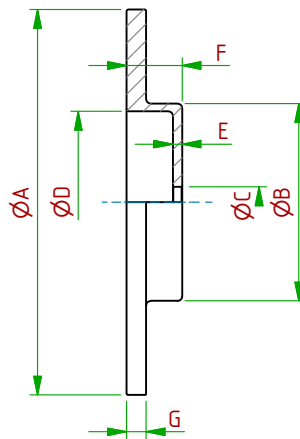
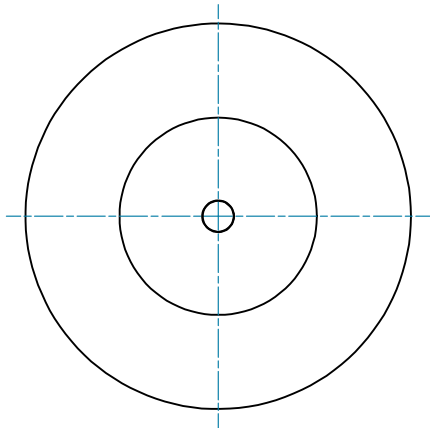


- Pressione di Apertura/Release Pressure: **Pa=50bar** - Volume Max Cilindro/Max Cylinder Volume: **130cm³**
- Coppia Frenante/Braking Torque: **Md= [Ftx(Φ(m))/2-0.065(m)]**
- Importante:** La Coppia Frenante Iniziale può essere più bassa del 30%-50% **Warning:** Initial Braking Torque can be lower of 30%-50%
- Usura Ferodi Massima Totale/Maximum total wear of pads =12mm

MODELLO/MODEL	CODICE/ CODE	A	B	C	D _{Max}	E _{Max}	Forza Frenante/Braking Force	Peso
POTP-N680/25.4	19.46.680.04	25.4	244	405	278	400	Ft= 40000N (0bar)	62.8kg
POTP-N680/ 30	19.46.680.05	30	244	405	278	400	Ft= 40000N (0bar)	62.8kg
POTP-N680/ 40	19.46.680.06	40	244	405	278	400	Ft= 40000N (0bar)	62.8kg



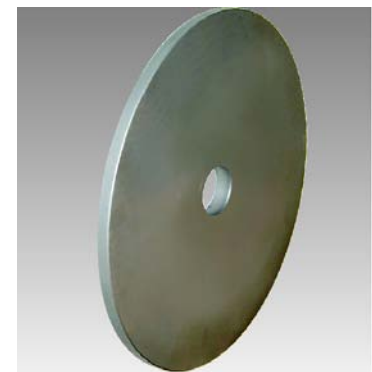
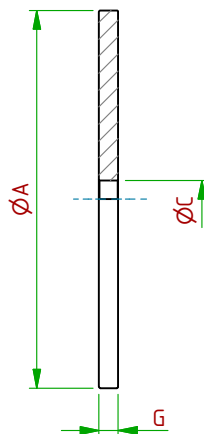
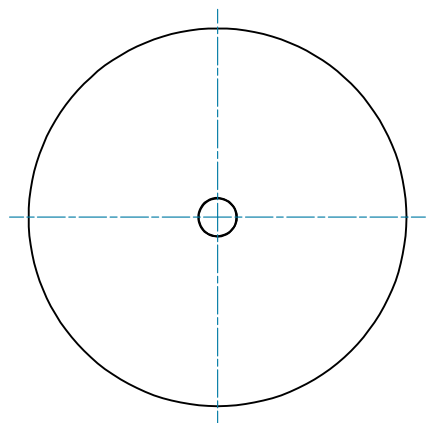
DF □ □ □

Disco Freno / Brake Disc


Materiale: Ghisa Sferoidale GS400-12
Material: Spheroidal Graphite Iron

MODELLO MODEL	CODICE CODE	A	B	C Grezzo/Rough	D	E	F	G	Inerzia Inertia	Peso Weight	Velocita' Max Lavoro Maximum Disc Speed
DF 250	4.150.250.01	250	128	20	118	6	36	12.7	0.04kgm ²	4.3kg	1400 R.P.M.
DF 300	4.150.300.01	300	180	30	165	13	41	12.7	0.09kgm ²	7.4kg	1100 R.P.M.
DF 301	4.150.301.01	300	150	30	135	13	41	12.7	0.08kgm ²	7.2kg	1200 R.P.M.
DF 356	4.150.356.01	356	210	40	180	16	54	12.7	0.21kgm ²	12.4kg	900 R.P.M.
DF 406	4.150.406.01	406	260	44	238	16	54	12.7	0.35kgm ²	15.4kg	800 R.P.M.
DF 457	4.150.457.01	457	311	44	280	16	54	12.7	0.60kgm ²	20.7kg	700 R.P.M.
DF 514	4.150.514.01	514	368	44	340	16	54	12.7	0.93kgm ²	25.8kg	600 R.P.M.
DF 610	4.150.610.01	610	464	44	430	16	54	12.7	1.90kgm ²	37.4kg	500 R.P.M.
DF 711	4.150.711.01	711	565	80	532	19	54	12.7	3.35kgm ²	54.7kg	400 R.P.M.

DFD □ □ □

Disco Freno Dritto / Flat Brake Disc


Materiale: Ghisa Sferoidale GS400-12
Material: Spheroidal Graphite Iron

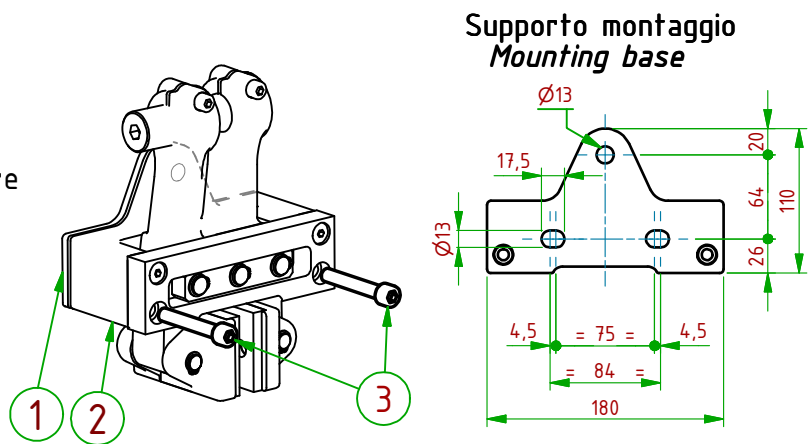
MODELLO MODEL	CODICE CODE	A	C Grezzo/Rough	G	Inerzia Inertia	Peso Weight	Velocita' Max Lavoro Maximum Disc Speed
DFD 135	4.152.135.01	135	20	12.7	0.003kgm ²	1.3kg	2600 R.P.M.
DFD 155	4.152.155.01	155	20	12.7	0.005kgm ²	1.7kg	2300 R.P.M.
DFD 175	4.152.175.01	175	25	12.7	0.009kgm ²	2.2kg	2000 R.P.M.
DFD 205	4.152.205.01	205	25	12.7	0.017kgm ²	3.0kg	1700 R.P.M.
DFD 250	4.152.250.01	250	25	12.7	0.035kgm ²	4.4kg	1400 R.P.M.
DFD 300	4.152.300.01	300	30	12.7	0.073kgm ²	6.4kg	1100 R.P.M.
DFD 356	4.152.356.01	356	35	12.7	0.145kgm ²	8.9kg	900 R.P.M.

MONTAGGIO / MOUNTING: PMH/PPH/PPH-N

1° Passo/Step

Svitare le due viti M12 (3) per separare il Supporto (1) dal Freno a pinza (2)

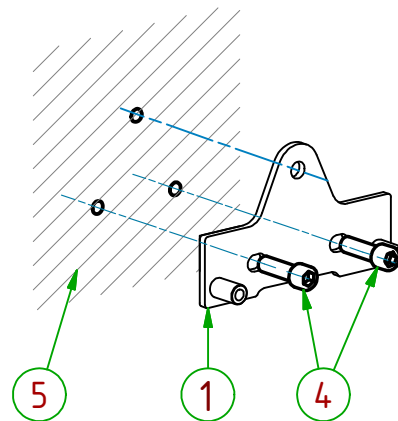
Release the two M12 screws (3) to separate the Mounting base (1) from the Caliper brake (2)



2° Passo/Step

Fissare il Supporto (1) alla Macchina (5) con due viti M12 (4) non fornite

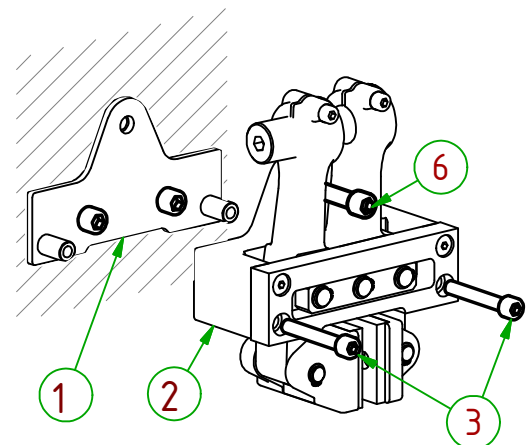
Fasten the Mounting base (1) to the Machine (5) with two M12 socket head cap screws (4) not supplied by MWM



3° Passo/Step

Montare il Freno a pinza (2) sul Supporto (1) mediante le due viti M12 (3) e completare il montaggio con la vite M12 (6)

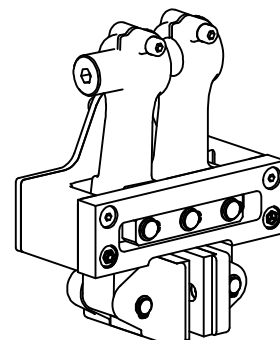
Mount the Caliper brake (2) using the two screws M12 (3) and complete the fitting with screw M12 (6)



4° Passo/Step

Il Freno a pinza montato correttamente si presenterà come nella figura accanto

The Caliper brake properly mounted will appear as in the picture



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a comando:

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actuated by:

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