HYDRAULIC SECTION

综合版1.0

欧洲制造 国产价格

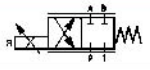
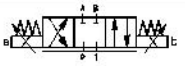
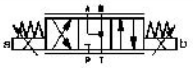
NEW SOLUTION 新的供应解决方案

HD3-PS

ISO 03 PROPORTIONAL HYDRAULIC VALVES type HD3-PS
DIRECTIONAL CONTROL - SOLENOID CONTROLLED

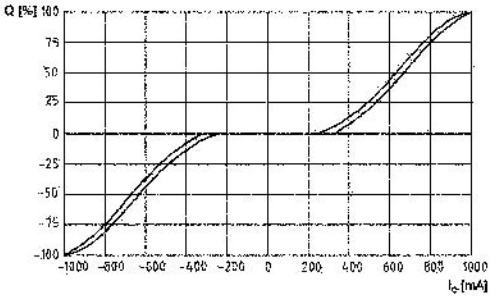
- 4-way directional valves, proportional electric control
- **ISO 03** interface
- Oil immersed solenoids for DC current
- Emergency pin for manual override
- Nominal flow rate: 32 l/min with Δ p=10bar
- Maximum pressure (port P-A-B): 320bar
- Maximum pressure (port T): 160bar
- Hysteresis $\leq$ 6%
- Suitable for mineral oil according to ISO 16/14/12 filtration class or better. Recommended viscosity range: 10 to 60cSt

ORDERING CODE	
HD3 – PS – 1PC – R4 / 10	
HD3	ISO 03 4-way directional control valve
PS	Proportional electric control
1PC	Spool type and drive arrangement **(see table)**
R4	24 DC proportional solenoid - R(20°C)=13,4 Ω – IMAX=1,0A - The solenoid must be energized by an electronic driver capable of full control of min and max current value. We recommend UED-M15 type (see table ED-M15)
10	Drawing

SPOOL TYPE	
1PML	
1PC	
3PC	

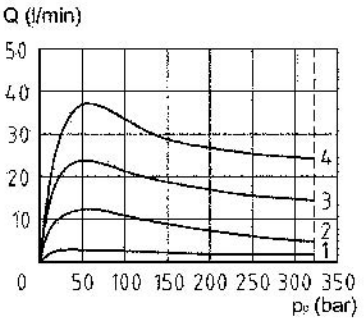
TYPICAL DIAGRAM

Flow characteristics in relation to exciting current for valves HD3-PS in standard configuration, with mineral oil at 35cSt and 50°C with Δ p=10bar



The coil current which initialise the flow through the proportional directional valve can differ with a tolerance range of ±6%

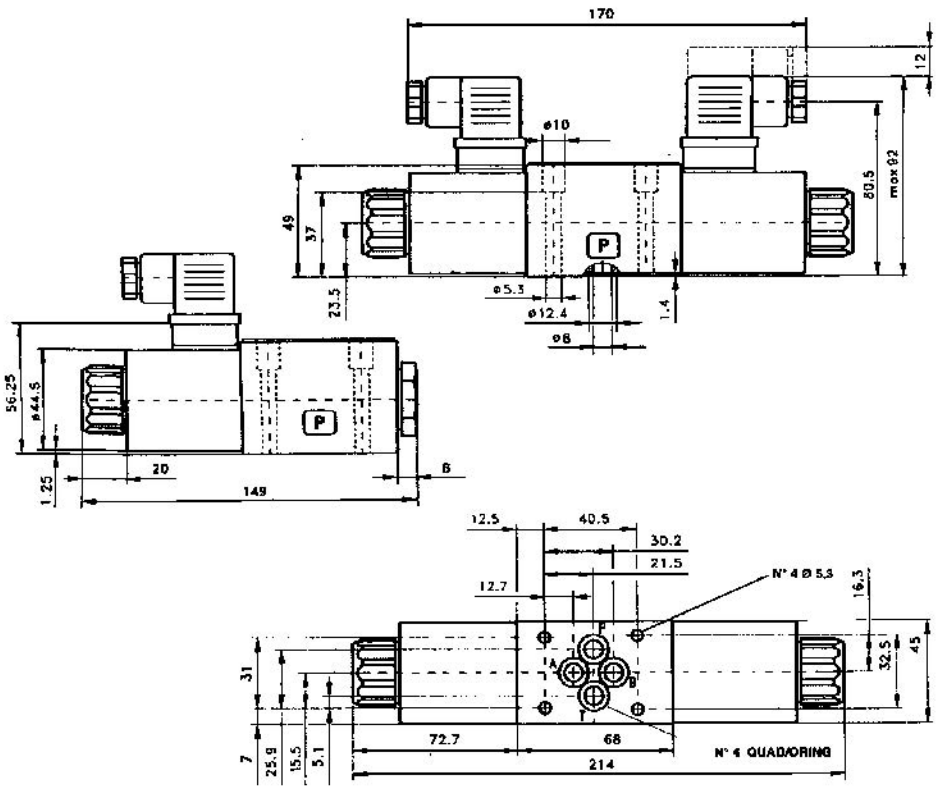
Typical p-Q curves of operating limits for HD3-PS valves at different solenoid current values, with mineral oil at 35cSt and 50°C



1) 40% solenoid current value 2) 60% solenoid current value
3) 80% solenoid current value 4) 100% solenoid current value

HD3-PS

OVERALL DIMENSIONS



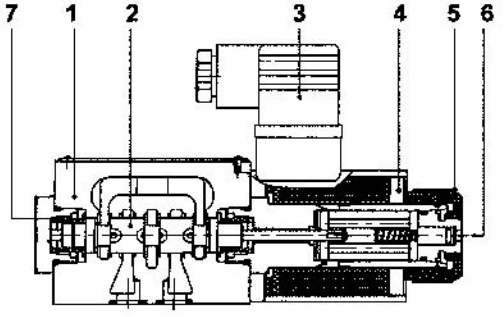
Fixing bolts: n.4 M5 x 45 (not included) – Tightening torque 8Nm

Valve mass: 1,60kg (with 1 coil) – 2,10kg (with 2 coils)

Subject to technical and dimensional changes without notice

TYPICAL SECTION

1	Body	5	Locking nut
2	Spool	6	Emergency pin
3	ISO 4400 plugs (not included)	7	Spring
4	Solenoid		

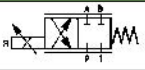
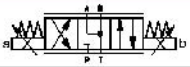
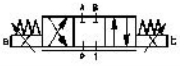
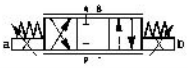


HD5-PS

ISO 05 PROPORTIONAL HYDRAULIC VALVES type HD5-PS
DIRECTIONAL CONTROL - SOLENOID CONTROLLED

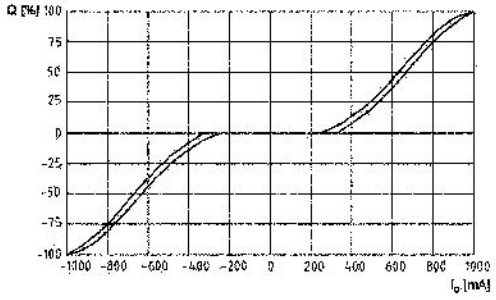
- 4-way directional valves, proportional electric control
- **ISO 05** interface
- Oil immersed solenoids for DC current
- Emergency pin for manual override
- Nominal flow rate: 60 l/min with Δ p=10bar
- Maximum pressure (port P-A-B): 320bar
- Maximum pressure (port T): 210bar
- Hysteresis $\leq$ 6%
- Suitable for mineral oil according to ISO 16/14/12 filtration class or better.
  Recommended viscosity range: 10 to 60cSt

ORDERING CODE	
HD5 – PS – 7PC – R4 / 10	
HD5	ISO 05 4-way directional control valve
PS	Proportional electric control
7PC	Spool type and drive arrangement
R4	24 VDC proportional solenoid - R(20°C)=13,9 Ω – IMAX=1,1A - The solenoid must be energized by an electronic driver capable of full control of min and max current value. We recommend UED-M15 type (see table ED-M15)
10	Drawing

SPOOL TYPE			
1PML		3PC	
1PC		7PC	

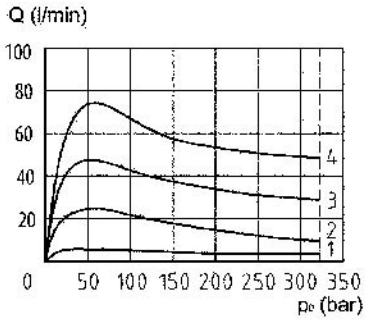
TYPICAL DIAGRAM

Flow characteristics in relation to exciting current for valves HD5-PS in standard configuration, with mineral oil at 35cSt and 50°C with Δ p=10bar



The coil current which initialise the flow through the proportional directional valve can differ with a tolerance range of ±6%

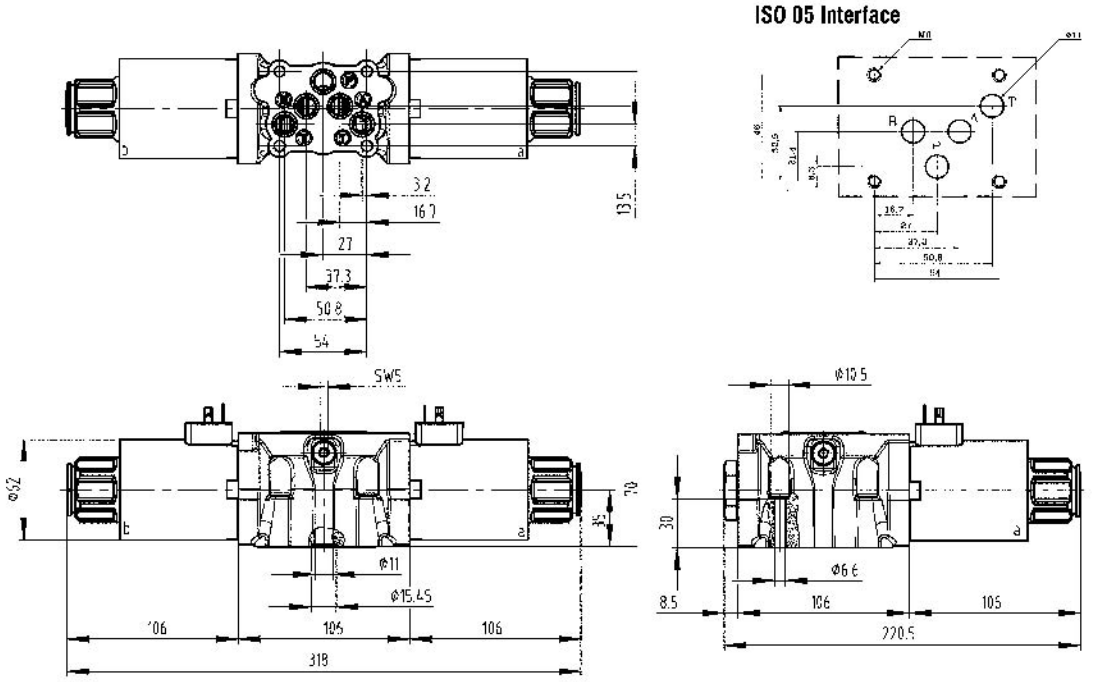
Typical p-Q curves of operating limits for HD5-PS valves at different solenoid current values, with mineral oil at 35cSt and 50°C



1) 40% solenoid current value 2) 60% solenoid current value
3) 80% solenoid current value 4) 100% solenoid current value

HD5-PS

OVERALL DIMENSIONS



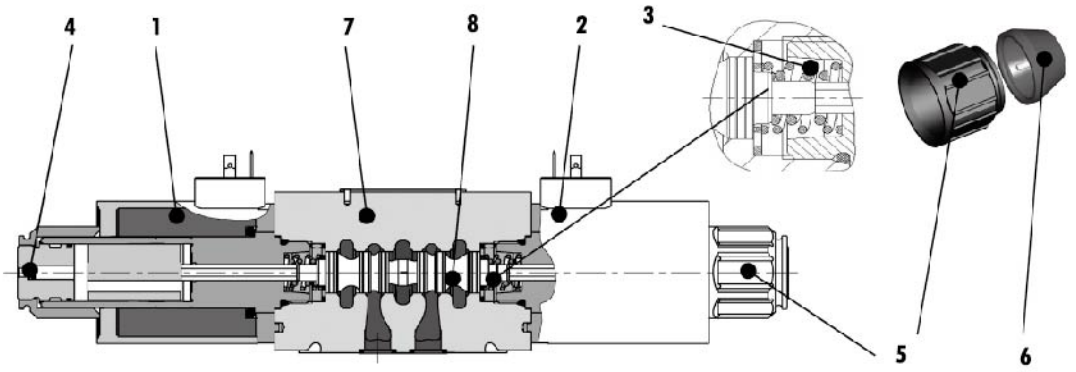
Fixing bolts: n.4 M6 x 40 (not included) – Tightening torque 14Nm

Valve mass: 3,90kg (with 1 coil) – 5,40kg (with 2 coils)

Subject to technical and dimensional changes without notice

TYPICAL SECTION

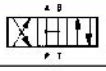
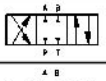
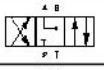
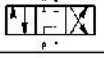
1-2	Solenoid	6	Emergency manual override (on request)
3	Double spring configuration	7	Body
4	Emergency pin	8	Spool
5	Coil retaining nut		



HD3-EX

ISO 03 HYDRAULIC VALVES type HD3-EX
EX-PROOF SOLENOID OPERATED – ATEX

- 4-way Ex-proof solenoid operated valves
- **ISO 03** interface, directional control
- Solenoids according to ATEX 94/9/CE
- **ATEX code/class: CE 0722 / Ex II 2 G EEx d II C T5**
- Certificate: CESI 03 ATEX 212 (on request)
- Maximum flow rate: 40 l/min
- Maximum pressure (all ports): 250bar
- 100% duty cycle
- Emergency pin for manual override
- Mineral oil according to ISO 18/16/14 filtration class or better.
  Recommended viscosity range: 10 to 60cSt

SPOOL TYPE **	
0	
1	
3	
4	

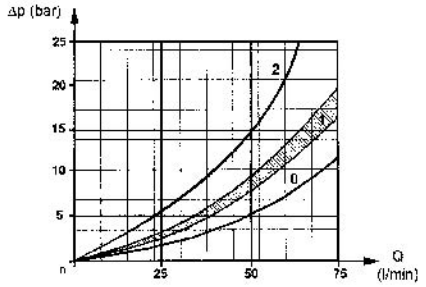
DRIVE ARRANGEMENT	
C	
N	
LL	
ML	

ORDERING CODE	
HD3 – EX – 1LL – * – 024C	
HD3	ISO 03 4-way directional control valve
EX	Electrically controlled, Ex-proof solenoids
1	Spool type **(see table)**
LL	Drive arrangement **(see table)**
*	b: only for versions LL, ML, LM solenoid "b"
COILS	Type GMA-6/HD – Nominal absorption: 11W
Current data	012C: 12V DC-0,92A 024C: 24V DC-0,46A 115A: 115V AC-0,10A 230A: 230V AC-0,05A
Protection	According to IEC144: class IP67 – External surfaces nickel coated (min. thickness 7 micron)

Connection: 3 x 1,5mm² x 1,5m wire cable (CEI 20-22), already connected to coil. Earth connection internal, with yellow-green wire in the cable, and external with a min. 4mm² cable fastened to earth screw.

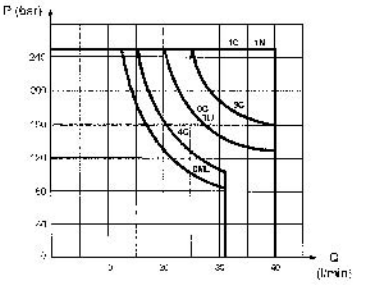
TYPICAL DIAGRAMS

Typical Δp-Q curves for valves HD3-EX in standard configuration, with mineral oil at 36cSt and 50°C for flow P→A,B A,B→T and P→T



0) Spool 0 P→A,B and A,B→T
1) All spools P→A,B and A,B→T. Spool 4 P→T.
2) Spool 4 P→A,B and A,B→T

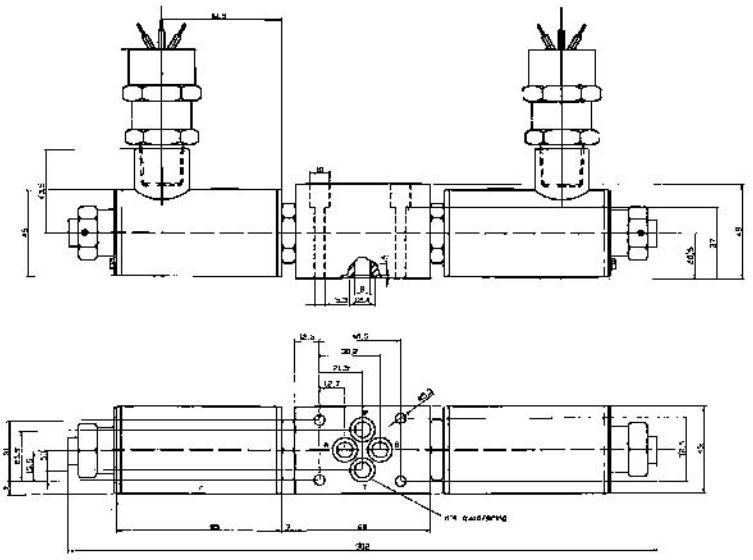
Typical p-Q curves of operating limits for maximum hydraulic power transferred by valves HD3-EX



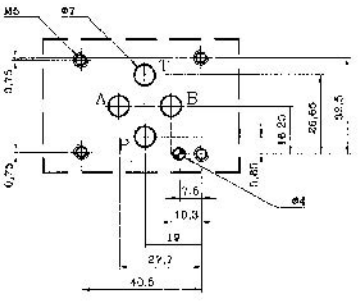
Input voltage 5% less than nominal rate

HD3-PX

OVERALL DIMENSIONS



ISO 03 Interface

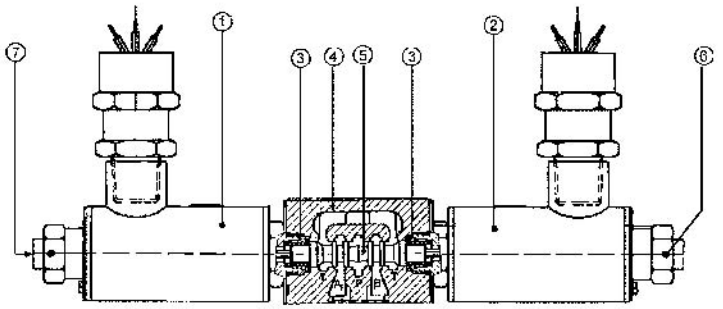


Fixing bolts: n.4 M5 x 45 (not included)
Tightening torque: 8Nm
Valve mass: 2,60kg (with 1 coil) – 3,70kg (with 2 coils)

Subject to technical and dimensional changes without notice

LINE ASSEMBLY BODY

1-2	Solenoids according to ATEX 94/9/CE	5	Spool
3	Springs	6	Ring nut
4	Body	7	Emergency pin

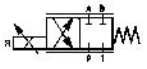
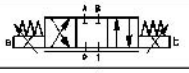
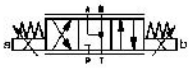


HD3-PX

ISO 03 PROPORTIONAL HYDRAULIC VALVES type HD3-PX
EX-PROOF SOLENOID OPERATED – ATEX

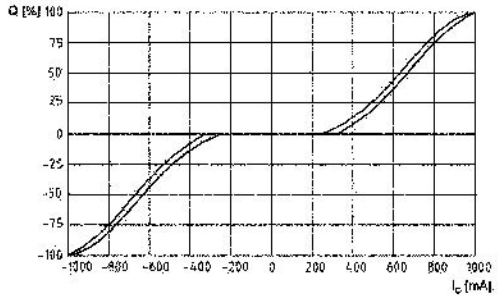
- 4-way Ex-proof solenoid valves, proportional electric control
- **ISO 03** interface, directional control
- Solenoids according to ATEX 94/9/CE
- **ATEX code/class: CE 0722 / Ex II 2 G EEx d II C T5**
- Certificate: CESI 03 ATEX 212 (on request)
- Nominal flow rate: 32 l/min with Δp=10bar
- Maximum pressure (all ports): 250bar
- Hysteresis ≤ 6%
- Emergency pin for manual override
- Mineral oil according to ISO 16/14/12 filtration class or better. Recommended viscosity range: 10 to 60cSt

ORDERING CODE	
HD3 – PX – 1PC – R4 / 10	
HD3	ISO 03 4-way directional control valve
PX	Proportional electric control, Ex-proof solenoids
1PC	Spool type and drive arrangement
R4	24 DC proportional solenoid - R(20°C)=13,4 Ω – IMAX=1,0A - The solenoid must be energized by an electronic driver capable of full control of min and max current value. We recommend UED-M15 type (see table ED-M15)
10	Drawing

SPOOL TYPE	
1PML	
1PC	
3PC	

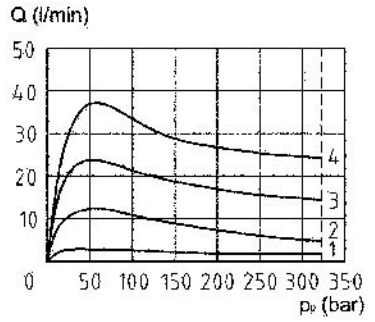
TYPICAL DIAGRAM

Flow characteristics in relation to exciting current for valves HD3-PX in standard configuration, with mineral oil at 35cSt and 50°C with Δp=10bar



The coil current which initialise the flow through the proportional directional valve can differ with a tolerance range of ±6%

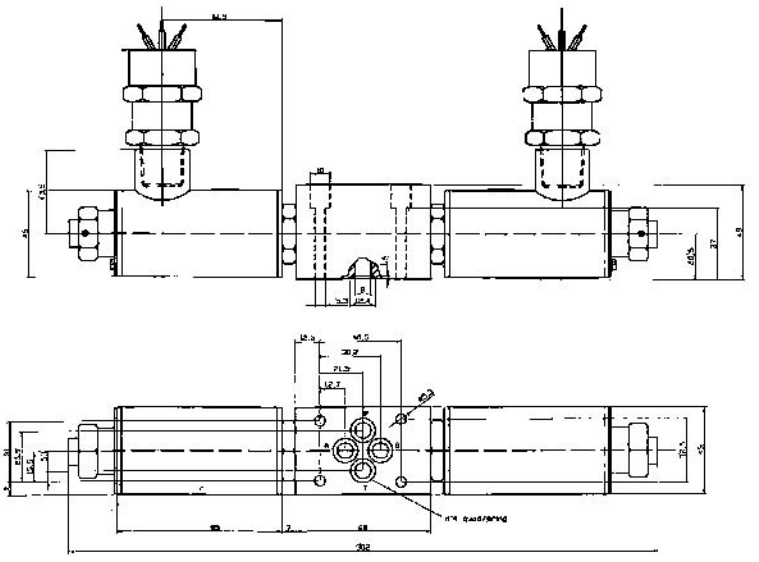
Typical p-Q curves of operating limits for HD3-PX valves at different solenoid current values, with mineral oil at 35cSt and 50°C



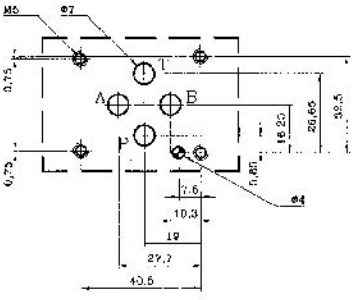
1) 40% solenoid current value 2) 60% solenoid current value
3) 80% solenoid current value 4) 100% solenoid current value

HD3-EX

OVERALL DIMENSIONS



ISO 03 Interface

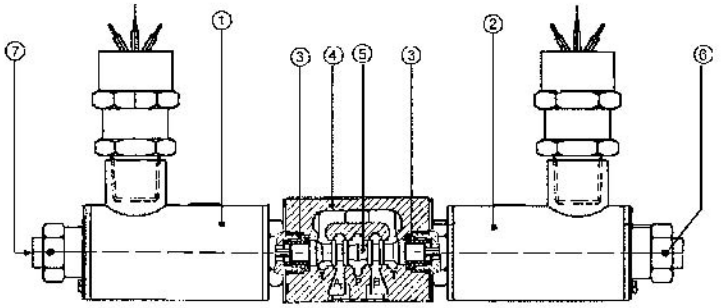


Fixing bolts: n.4 M5 x 45 (not included)
Tightening torque: 8Nm
Valve mass: 2,60kg (with 1 coil) – 3,70kg (with 2 coils)

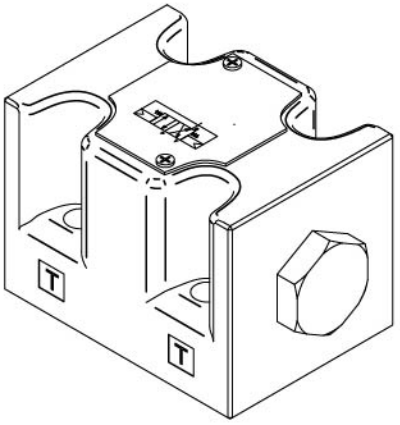
Subject to technical and dimensional changes without notice

TYPICAL SECTION

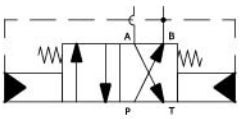
1-2	Solenoids according to ATEX 94/9/CE	5	Spool
3	Springs	6	Ring nut
4	Body	7	Emergency pin

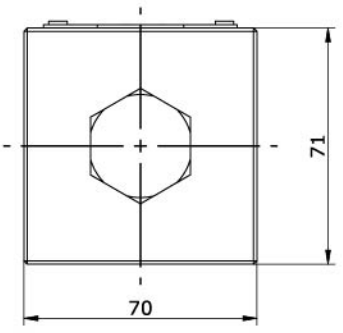


ES610-42



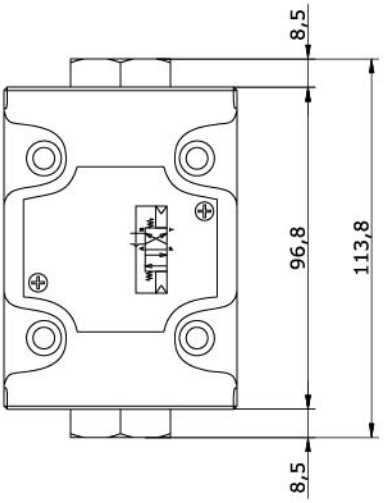
Hydraulic diagram



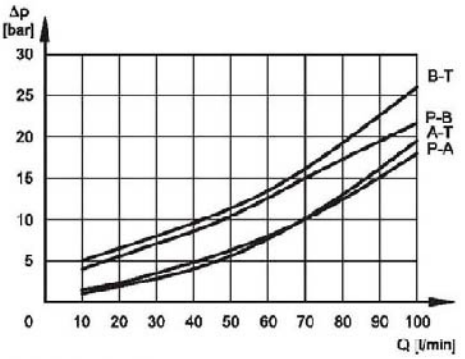


CHARATERISTICS

Maximum operating pressure on port P	bar	320
Maximum flow rate	l/min	100
Minimum allowed flow rate	l/min	10
Minimum allowed pressure	l/min	60
Pressure drop Δp-Q	see paragraph	
Ambient temperature range	°C	-20 / +50
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	according to ISO 4406:1999 class 20/18/15	
Recommended viscosity	cSt	25
Mass	kg	3



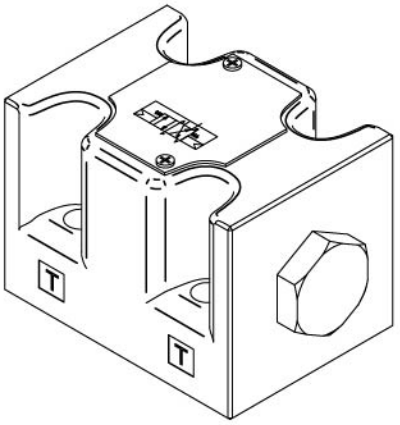
PERDITE DI CARICO
PRESSURE DROPS



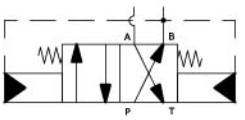
ES 610 - 42

SELF-REVERSING VALVE NG10

ES610-41

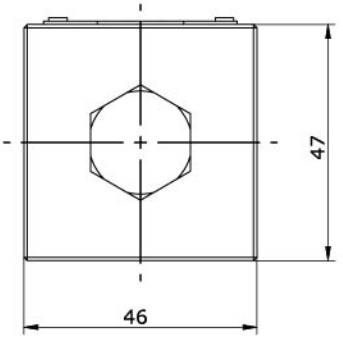


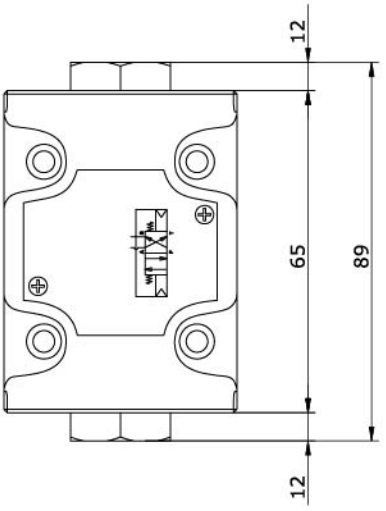
Hydraulic diagram



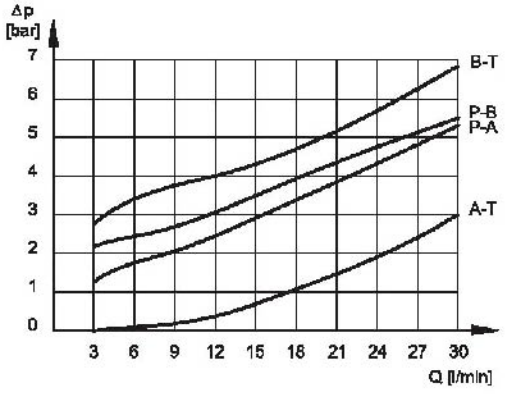
CHARATERISTICS

Pressione massima d'esercizio: attacco P	bar	350
Pressione minima consentita	bar	50
Portata massima	l/min	30
Portata minima consentita	l/min	3
Campo temperatura ambiente	°C	-20 / +50
Campo temperatura fluido	°C	-20 / +80
Campo viscosità fluido	cSt	10 ÷ 400
Viscosità raccomandata	cSt	25
Grado di contaminazione del fluido		ISO 4406:1999
Massa	kg	0,9



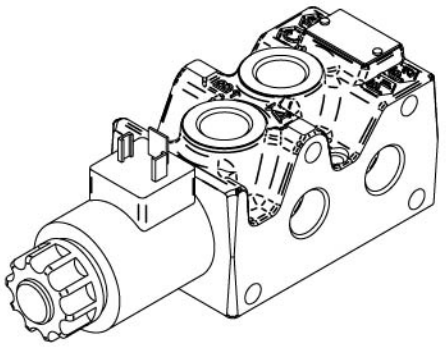


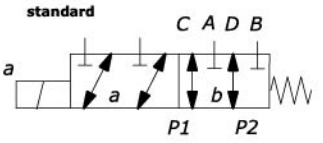
PERDITE DI CARICO
PRESSURE DROPS

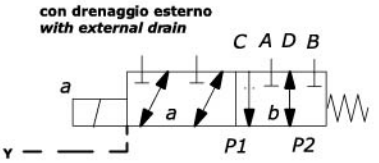


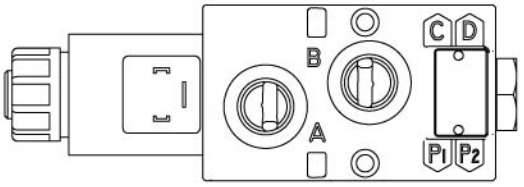
ES 610 - 41

EFD-06/10









- **EFD** è un deviatore di flusso a 6 vie componibile in grado di collegare contemporaneamente due uscite alternando la direzione del flusso con una valvola direzionale diretta.
  EFD *is a 6 ways flow diverter that allows the simultaneous connection of 2 utilities,alternating the direction of flow through a solenoid operate directional valve.*

- E' disponibile nelle taglie da 50 l/min e 90 l/min con una pressione massima di 320 bar.
  In entrambe è disponibile come opzione il drenaggio esterno, per aumentare la pressione massima di esercizio.
  It is available on sizes 50 l/m and 90 l/m.
  The maximum operating pressure is 320 bar.
  The external drain is available as an option on both versions.

- Fino 5 elementi la EFD è predisposta per il montaggio in serie.
  EFD is also suitable for series mounting.

EFD _ _ - 5A6 / _ - _ / _ _

Deviatore di flusso 6 vie / *6 ways flow diverter*

Dimensionale nominale / *Nominal size*
06 = 60 l/min
10 = 90 l/min

Attacchi / *Ports*
020 = 3/8" BSP (EFD06)
030 = 1/2" BSP (EFD10)
034 = 3/4" 16 UNF
(a richiesta per EFD10/ for EFD10)

Tipo di cursore / *Spool type*

Guarnizioni / ***Seals***
N = NBR per oli minerali (standard)
NBR for mineral oil (standard)
V = FPM per fluidi particolari
FPM for special fluids

Opzione / *Option*
Y = drenaggio esterno / External drain

Comando manuale: omettere per lo standard / *Manual override: omit for standard*
CM =comando manuale *manual override*

Tipo di bobina / *Coil type*
12DG = 12 V DIN43650
24DG = 24 V DIN43650

SIX WAYS ELECTRICAL FLOW DIVERTER

EFD-06/10

PRESTAZIONI / *PERFORMANCE*

		EFD06	EFD10
Pressione max d'esercizio / *Maximum operating pressure*	bar	250	
Pressione max d'esercizio con attacco Y / Maximum operating pressure with Y	bar	350	
Portata massima / *Maximum flow*	l/min	60	90
Campo temperatura ambiente / *Ambient temperature range*	°C	-20 / 50	
Campo temperatura fluido / *Fluid temperature range*	°C	-20 / 80	
Campo viscosità fluido / *Fluid viscosity range*	cSt	10 ÷ 400	
Grado di contaminazione del fluido / *Fluid contamination degree*		according to ISO 4406:1999 class 20/18/15	
Viscosità raccomandata / *Recommended viscosity*	cSt	25	
Massa / *Mass*	kg	3	4,2

TEMPI DI COMMUTAZIONE / *SWITCHING TIMES*

VALVOLA	TEMPI ms (+-10%) / *TIMES ms (+-10%)*	
	INSERZIONE / *ENERGIZING*	DISINSERZIONE / *DE-ENERGIZING*
EFD06	25 ÷ 75	20 ÷ 50
EFD10	50 ÷ 100	20 ÷ 40

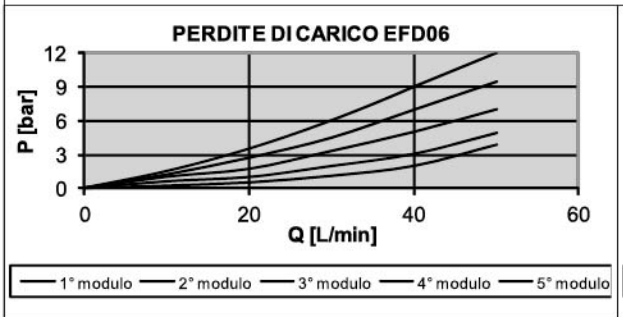
Olio minerali viscosità 36 cSt a 50°C
Mineral oil viscosity 36 cSt at 50°C

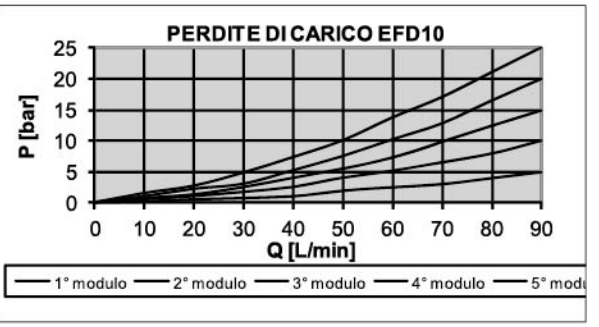
CARATTERISTICHE ELETTRICHE / ELECTRICAL CHARACTERISTICS

VARIAZIONE TENSIONE DI ALIMENTAZIONE / *SUPPLY VOLTAGE FLUCTUATION*	±10% Vnom
FREQUENZA DI INSERZIONE MASSIMA / *MAX SWITCH ON FREQUENCY*	10,000 ins/ora 10,000 ins/hr
DURATA D'INSERZIONE / *DUTY CYCLE*	100%
COMPATIBILITA' ELETTROMAGNETICA (EMC) / *ELECTROMAGNETIC COMPATIBILITY (EMC)*	2004/108/CE
BASSA TENSIONE / *LOW VOLTAGE*	2006/95 CE
CLASSE DI PROTEZIONE / *CLASS OF PROTECTION :* isolamento avvolgimento / *coil insulation* *impregnazione / impregnation*	 classe H classe F

Connettore	IP
DIN 43650	IP 65

PERDITE DI CARICO / *PRESSURE DROPS*



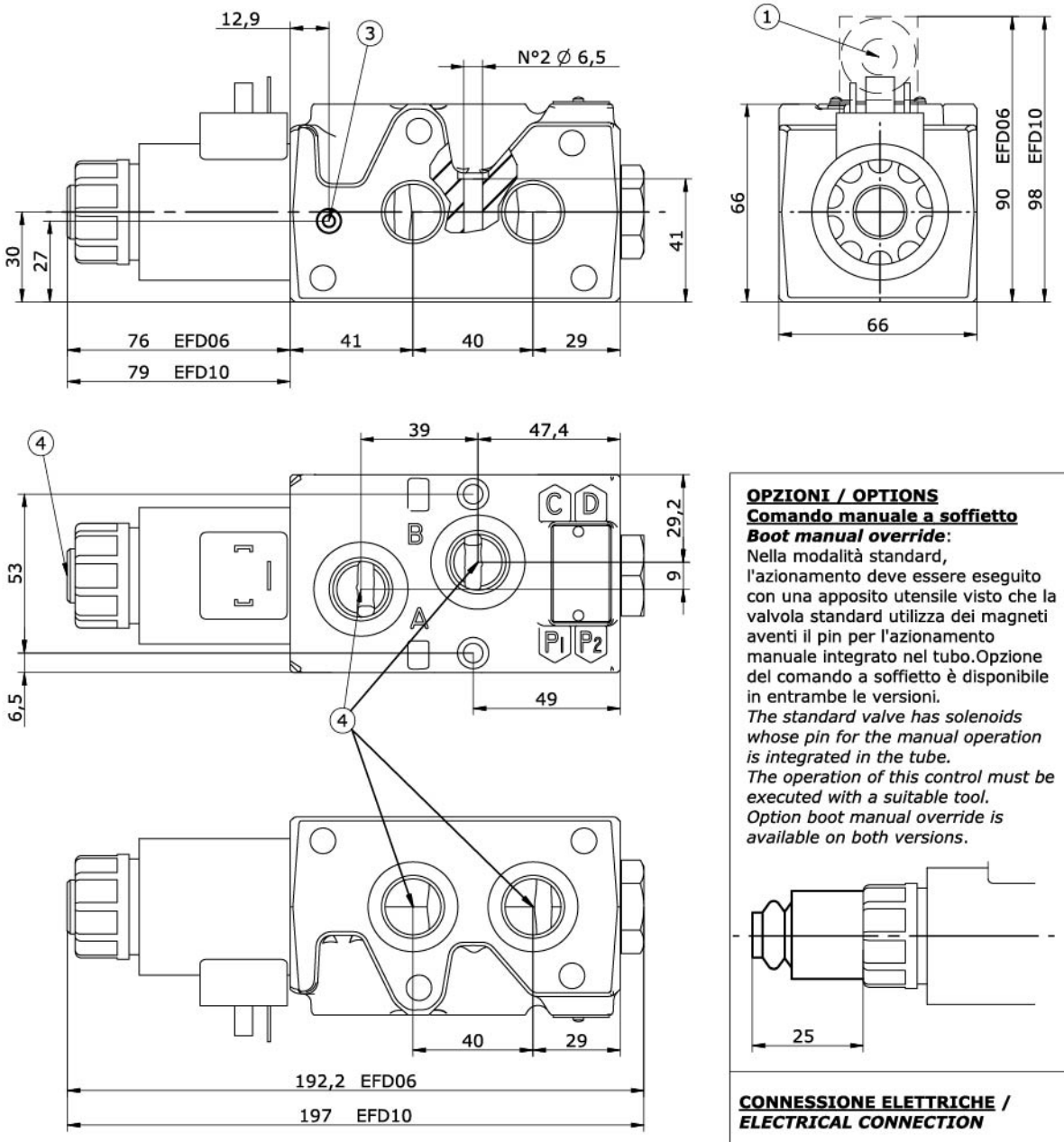


Olio minerali viscosità 36 cSt a 50°C / *Mineral oil viscosity 36 cSt at 50°C*

SIX WAYS ELECTRICAL FLOW DIVERTER

EFD-06/10

DIMENSIONI DI INGOMBRO EFD06 - EFD10 / *OVERALL DIMENSIONS EFD06 - EFD10*

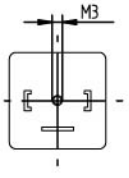


1	Connettore elettrico tipo DIN 43650 / DIN 43650 electrical connector
2	Comando manuale standard incorporato nel tubo dell'elettromagnete / Standard manual override included in the solenoid tube
3	Opzione: attacco drenaggio esterno Y / Option: external drain port Y 1/8" BSP
4	Attacchi / Ports : EFD06 = 3/8" BSP EFD10 = 1/2" BSP

OPZIONI / OPTIONS
Comando manuale a soffietto
Boot manual override:
Nella modalità standard, l'azionamento deve essere eseguito con una apposito utensile visto che la valvola standard utilizza dei magneti aventi il pin per l'azionamento manuale integrato nel tubo.Opzione del comando a soffietto è disponibile in entrambe le versioni.
The standard valve has solenoids whose pin for the manual operation is integrated in the tube.
The operation of this control must be executed with a suitable tool.
Option boot manual override is available on both versions.

CONNESSIONE ELETTRICHE / *ELECTRICAL CONNECTION*

DIN 43650



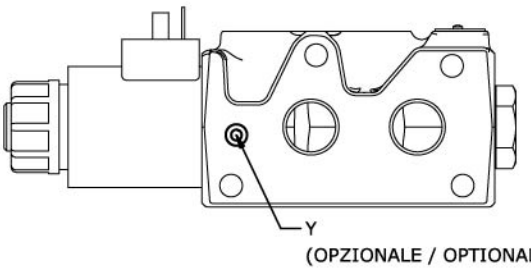
Le elettrovalvole vengono fornite prive di connettori.
The solenoid valves supplied without connectors.

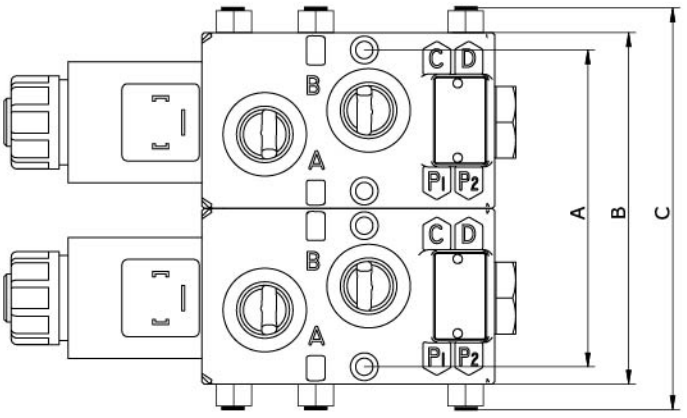
SIX WAYS ELECTRICAL FLOW DIVERTER

EFD-06/10

MONTAGGIO IN BATTERIA / *MOUNTING BATTERY*

EFD06 = ATTACCHI 3/8"BSP
PORTS 3/8" BSP
EFD10 = ATTACCHI 1/2" BSP
PORTS 1/2" BSP





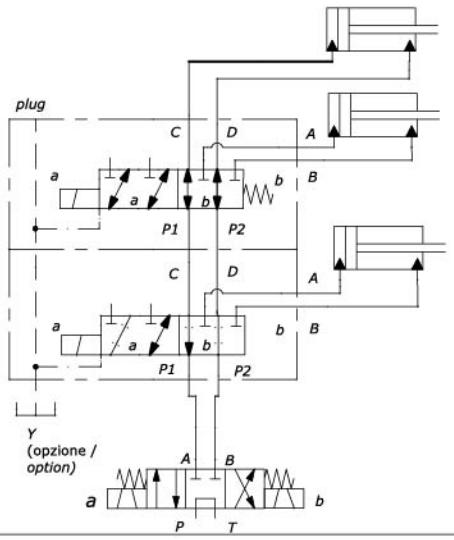
ORING PER ATTACCO DRENAGGIO
ORING FOR DRAIN PORT:

EFD06 = *OR 2037 90 shore*
EFD10 = *OR2050 90 shore*

n° moduli	2	3	4	5
n° vie	8	10	12	14
A	119	185	251	317
B	132	198	264	330
C	156	220	285	350
viti	n°4 M8x145	n°4 M8x200	n°4 M8x265	n°4 M8x330

Coppia di serraggio: 17 Nm
Tightening torque: 17 Nm

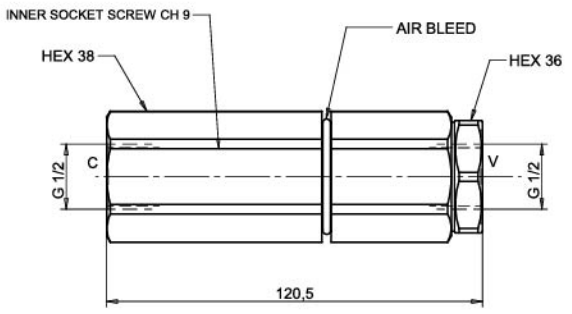
SCHEMA IDRAULICO / ***HYDRAULIC SCHEME***

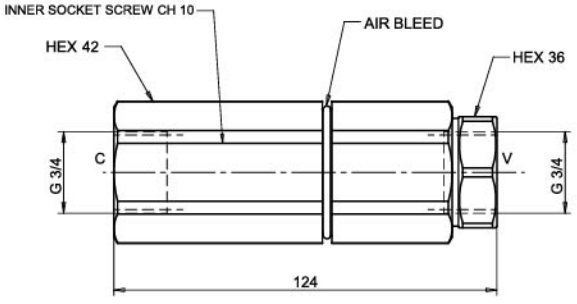


SIX WAYS ELECTRICAL FLOW DIVERTER

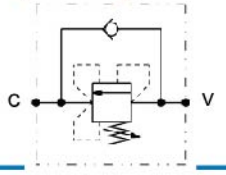
NS-VSL-C

Dimensions

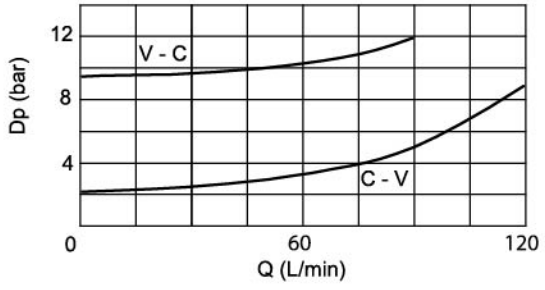




Hydraulic Symbol



Curves



Features

Size	03	04
Max Flow (lpm)	100	120
Max Pressure (bar)	350	350

Materials: Zinc plated steel body, hardened steel inner parts.

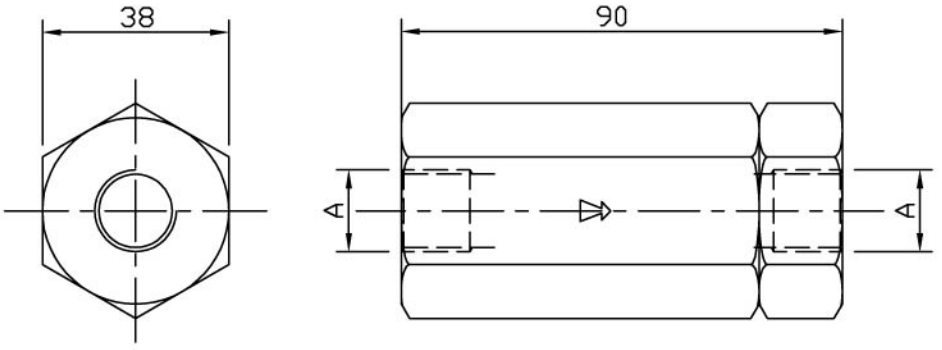
Ordering Code

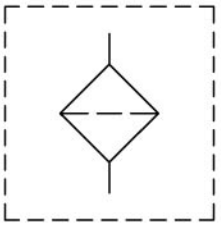
NS-VSL-C	--	--

Port Size BSP	
03	1/2
04	3/4

LP-Spring (bar)		
	03	04
10	50-140	50-140
20	-	80-250

管式过滤器

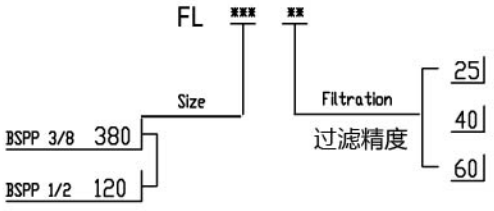




Codice Code	A	Pressione max. Max pressure bar	Portata max. Max flow l/min
FL 380	BSPP 3/8	350	80
FL 120	BSPP 1/2	350	80

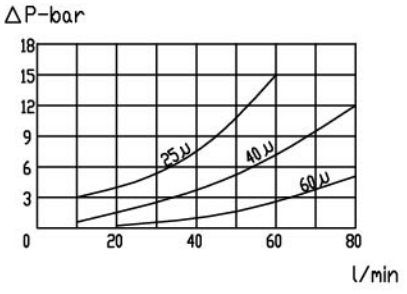
订货代号

ORDERING CODE



压力损失表

PRESSURE DROPS



不锈钢阀体请询

VUBA

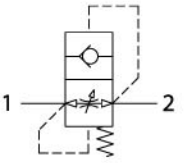
Chiave *Tool*

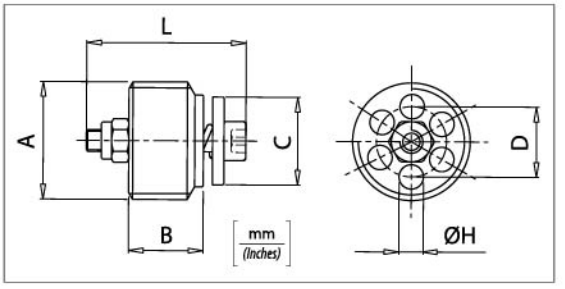
Dimensione / Dimensions

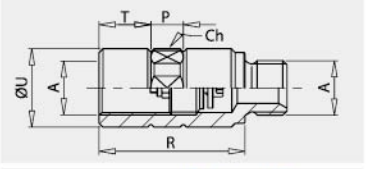
Codice *Code*	A	Peso / **Kg** *Weight / lb*
61700001	**VUBA 140**	**0,12** *(0.27)*
61700002	**VUBA 380**	**0,13** *(0.29)*
61700003	**VUBA 120**	**0,15** *(0.33)*
61700004	**VUBA 340**	**0,18** *(0.40)*

Dati tecnici *Technical data*

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14
Temperatura del fluido *Fluid temperature*	-20°C +80°C *-4°F + 176°F*
Temperatura ambiente *Ambient temperature*	-20°C +50°C *-4°F + 122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*	
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*

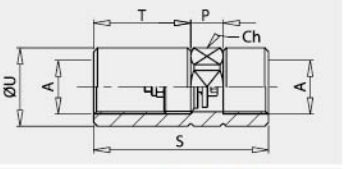






Colonnette / *Housing M/F*

Codice *Code*	A	R	P	T	U	Ch.	Peso / Kg *Weight / lb*
61100087	**BSPP** 1/4	**39** *(1.53)*	**10** *(0.39)*	**13** *(0.51)*	**20.5** *(0.80)*	**19** *(0.75)*	**0.07** *(0.16)*
61100088	**BSPP** 3/8	**45** *(1.77)*	**10** *(0.39)*	**16** *(0.63)*	**24.5** *(0.96)*	**22** *(0.87)*	**0.09** *(0.20)*
61100089	**BSPP** 1/2	**52** *(2.05)*	**10** *(0.39)*	**19** *(0.75)*	**29.5** *(1.16)*	**27** *(1.06)*	**0.15** *(0.33)*
61100090	**BSPP** 3/4	**61** *(2.40)*	**12** *(0.47)*	**23** *(0.90)*	**35.5** *(1.32)*	**32** *(1.26)*	**0.23** *(0.50)*
61100091	**BSPP** 1	**67** *(2.63)*	**15** *(0.59)*	**25.5** *(1)*	**44.5** *(1.75)*	**41** *(1.61)*	**0.3** *(0.65)*



Colonnette / *Housing F/F*

Codice *Code*	A	R	P	T	U	Ch.	Peso / Kg *Weight / lb*
61100092	**BSPP** 1/4	**39** *(1.53)*	**10** *(0.39)*	**13** *(0.51)*	**20.5** *(0.80)*	**19** *(0.75)*	**0.07** *(0.16)*
61100093	**BSPP** 3/8	**54** *(2.13)*	**10** *(0.39)*	**30** *(1.18)*	**24.5** *(0.96)*	**22** *(0.87)*	**0.09** *(0.20)*
61100094	**BSPP** 1/2	**73** *(2.87)*	**10** *(0.39)*	**46.5** *(1.83)*	**29.5** *(1.16)*	**27** *(1.06)*	**0.14** *(0.30)*
61100095	**BSPP** 3/4	**74** *(2.91)*	**12** *(0.47)*	**44** *(1.73)*	**35.5** *(1.32)*	**32** *(1.26)*	**0.22** *(0.48)*

Codice ordinazione / *Ordering code*

VUBA - X - Y - K

X Dimensione *Size*

140	**BSPP 1/4**
380	**BSPP 3/8**
120	**BSPP 1/2**
340	**BSPP 3/4**
100	**BSPP 1**
1215	**M12x1.5**
1415	**M14x1.5**
1615	**M16x1.5**
2215	**M22x1.5**

Y Regolazione *Setting*

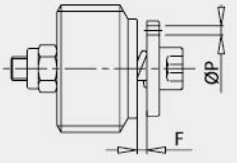
F_,_ Esempio: regolazione 0,7 mm *Example: setting 0.7mm* F 0,7

Omettere se non richiesto *Omit if not required*

K Foro sul piattello *Hole on flat poppet*

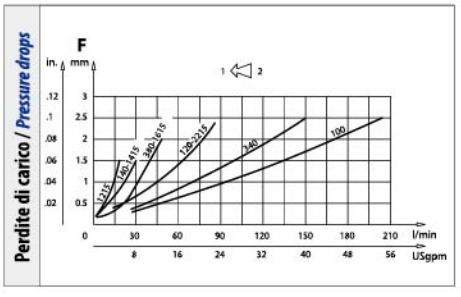
P_,_ Esempio: foro 1,5 mm *Example: hole 1,5 mm* P 1,5

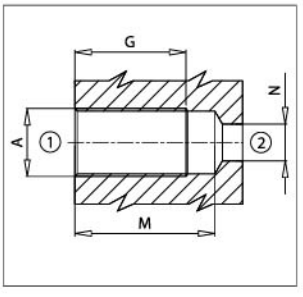
Omettere se non richiesto *Omit if not required*

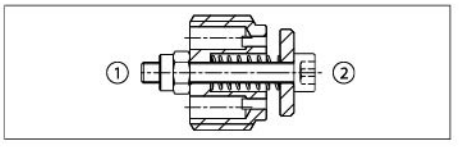


Regolazione F a richiesta
F setting on request

Foro su piattello a richiesta
Hole on flat poppet on request



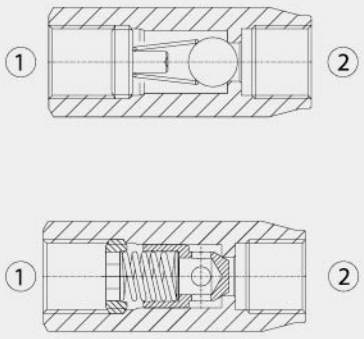




Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	G	H	L	M	N	Coppia di serraggio *Tightening torque* Nm / lbt ft	Peso approssimativo *Approx weight* Kg / lb
VUBA 140	**BSPP** 1/4	**25** *(6.5)*	**350** *(5000)*	**8,2** *(0.32)*	**10,4** *(0.41)*	**8** *(0.31)*	**25** *(0.98)*	**2,5** *(0.10)*	**19** *(0.75)*	**35** *(1.38)*	**7** *(0.28)*	**2** *(1.5)*	**0,007** *(0.016)*
VUBA 380	**BSPP** 3/8	**50** *(13)*		**11** *(0.43)*	**12,7** *(0.50)*	**10** *(0.39)*	**30** *(1.18)*	**3,25** *(0.13)*	**23** *(0.90)*	**41** *(1.61)*	**9,5** *(0.37)*	**3** *(2.5)*	**0,013** *(0.029)*
VUBA 120	**BSPP** 1/2	**80** *(21)*		**13** *(0.51)*	**15** *(0.59)*	**11,5** *(0.45)*	**33** *(1.30)*	**4** *(0.16)*	**29** *(1.14)*	**46** *(1.81)*	**12** *(0.47)*	**4** *(3)*	**0,024** *(0.053)*
VUBA 340	**BSPP** 3/4	**150** *(40)*		**18** *(0.71)*	**18** *(0.71)*	**14,5** *(0.57)*	**42** *(1.65)*	**5,2** *(0.20)*	**34** *(1.34)*	**55** *(2.17)*	**16** *(0.63)*	**10** *(7.5)*	**0,054** *(0.12)*
VUBA 100	**BSPP 1**	**180** *(47)*		**20** *(0.79)*	**26** *(1.02)*	**19** *(0.75)*	**48** *(1.89)*	**7** *(0.28)*	**40** *(1.57)*	**63** *(2.48)*	**22** *(0.87)*	**12** *(9)*	**0,1** *(0.22)*
VUBA 1215	**M12x1.5**	**15** *(4)*		**8,4** *(0.33)*	**10** *(0.39)*	**7,5** *(0.29)*	**25** *(0.98)*	**1,6** *(0.06)*	**19** *(0.75)*	**35** *(1.38)*	**7** *(0.28)*	**2** *(1.5)*	**0,007** *(0.016)*
VUBA 1415	**M14x1.5**	**25** *(6.5)*		**11** *(0.43)*	**11,5** *(0.45)*	**9** *(0.35)*		**2,5** *(0.10)*	**23** *(0.90)*				**3** *(2.5)*	**0,012** *(0.027)*
VUBA 1615	**M16x1.5**	**50** *(13)*			**12,7** *(0.50)*	**10** *(0.39)*	**30** *(1.18)*	**3,25** *(0.13)*		**41** *(1.62)*	**9,5** *(0.37)*	**3** *(2.5)*	**0,012** *(0.027)*
VUBA 2215	**M22x1.5**	**80** *(21)*		**13** *(0.51)*	**15** *(0.59)*	**11,5** *(0.45)*	**33** *(1.30)*	**4** *(0.16)*	**29** *(1.14)*	**46** *(1.18)*	**12** *(0.47)*	**4** *(3)*	**0,029** *(0.064)*

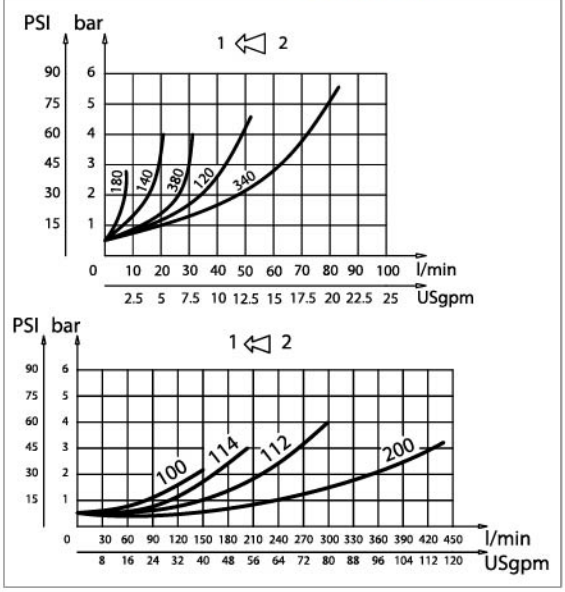
VUR-BSP

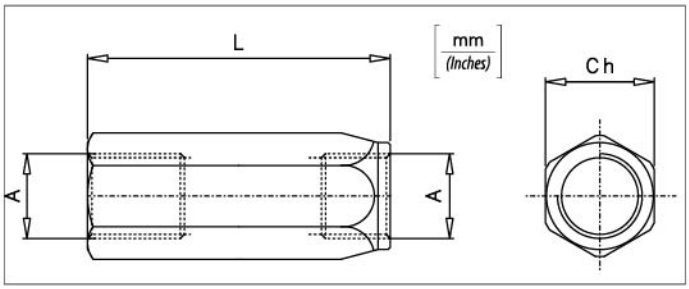


Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14
Temperatura del fluido *Fluid temperature*	-20°C +80°C *-4°F +176°F*
Temperatura ambiente *Ambient temperature*	-20°C +50°C *-4°F +122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*	
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*

Perdite di carico *Pressure drops*





Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	L	Ch	Peso approssimativo / Kg *Approx weight / lb*
VUR 180	**BSPP 1/8**	**5** *(1.3)*		**47** *(1.85)*	**14** *(0.55)*	**0,05** *(0.11)*
VUR 140	**BSPP 1/4**	**15** *(4)*		**55** *(2.16)*	**19** *(0.75)*	**0,10** *(0.22)*
VUR 380	**BSPP 3/8**	**30** *(8)*	**400** *(5800)*	**65** *(2.56)*	**24** *(0.94)*	**0,18** *(0.40)*
VUR 120	**BSPP 1/2**	**50** *(13)*		**75** *(2.95)*	**27** *(1.06)*	**0,23** *(0.50)*
VUR 340	**BSPP 3/4**	**90** *(23)*		**86,5** *(3.41)*	**35** *(1.38)*	**0,45** *(1)*
VUR 100	**BSPP 1**	**150** *(40)*		**110** *(4.33)*	**41** *(1.61)*	**0,73** *(1.6)*
VUR 114	**BSPP 1-1/4**	**200** *(50)*	**350** *(5000)*	**123** *(4.84)*	**55** *(2.16)*	**1,5** *(3.3)*
VUR 112	**BSPP 1-1/2**	**300** *(80)*		**138** *(5.43)*	**60** *(2.36)*	**2** *(4.4)*
VUR 200	**BSPP 2**	**430** *(110)*	**250** *(3600)*	**160** *(6.30)*	**70** *(2.76)*	**2,7** *(6)*

Codice ordinazione / *Ordering code*

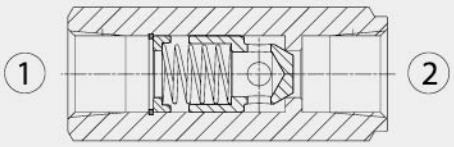
VUR - X - Y - K

X	Dimensione / *Size*
180	BSPP 1/8
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1
114	BSPP 1-1/4
112	BSPP 1-1/2
200	BSPP 2

Y	Tenuta / *Sealing*
SF	**Tenuta a sfera solo per VUR 180/140/380/120** *Ball sealing only for VUR 180/140/380/120*
SP	**Tenuta a cono** *Poppet sealing*

K	Molla / *Spring*
1	**1 bar Standard** *(14,5 PSI)*
3	**3 bar** *(43,5 PSI)*
4,5	**4,5 bar** *(65 PSI)*
6	**6 bar** *(87 PSI)*

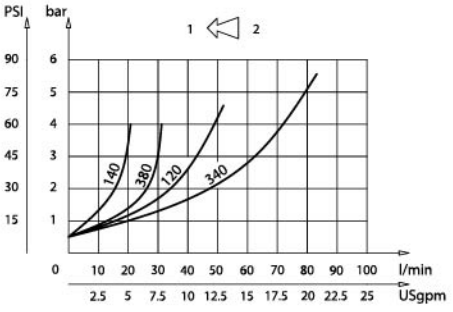
VUR-NPTF

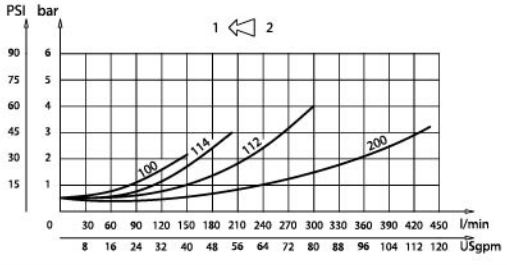


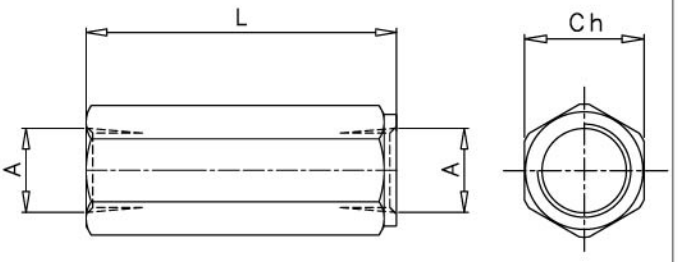
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*		
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*	

Perdite di carico *Pressure drops*







mm
(Inches)

Codice ordinazione / *Ordering code*

VUR - X - NPT - Y - K

X	Dimensione / *Size*
140	1/4 NPTF
380	3/8 NPTF
120	1/2 NPTF
340	3/4 NPTF
100	1 NPTF
114	1 - 1/4 NPTF
112	1 - 1/2 NPTF
200	2 NPTF

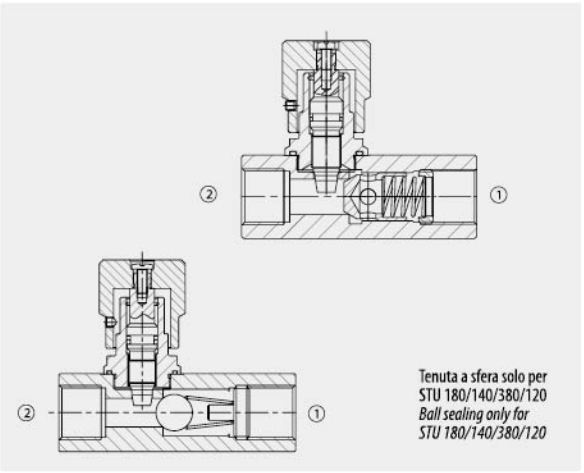
Y	Tenuta / *Sealing*
SP	**Tenuta a cono** *Poppet sealing*

K	Molla / *Spring*
0,5	**0,5 bar Standard** *(7 PSI)*
1	**1 bar Standard** *(14,5 PSI)*
3	**3 bar** *(43,5 PSI)*
4,5	**4,5 bar** *(65 PSI)*
6	**6 bar** *(87 PSI)*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	L	Ch	Peso approssimativo / Kg *Approx weight / lb*
VUR 140 NPT	**1/4 NPTF**	**15** *(4)*	**400** *(5800)*	**58** *(2.28)*	**19** *(0.75)*	**0,10***(0.22)*
VUR 380 NPT	**3/8 NPTF**	**30** *(8)*		**69** *(2.72)*	**24** *(0.94)*	**0,18***(0.40)*
VUR 120 NPT	**1/2 NPTF**	**50** *(13)*		**75** *(2.95)*	**27** *(1.06)*	**0,23** *(0.50)*
VUR 340 NPT	**3/4 NPTF**	**90** *(23)*		**88,5** *(3.48)*	**35** *(1.38)*	**0,45** *(1)*
VUR 100 NPT	**1 NPTF**	**150** *(40)*	**350** *(5000)*	**110** *(4.33)*	**41** *(1.61)*	**0,75** *(1.7)*
VUR 114 NPT	**1-1/4 NPTF**	**200** *(50)*		**120** *(4.72)*	**55** *(2.16)*	**1,5** *(3.3)*
VUR 112 NPT	**1-1/2 NPTF**	**300** *(80)*		**138** *(5.43)*	**60** *(2.36)*	**2,6** *(5,7)*
VUR 200 NPT	**2 NPTF**	**430** *(110)*			**75** *(2.97)*	**3** *(6.60)*

STU-BSP



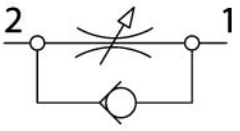
Tenuta a sfera solo per
STU 180/140/380/120
Ball sealing only for
STU 180/140/380/120

Dati tecnici
Technical data

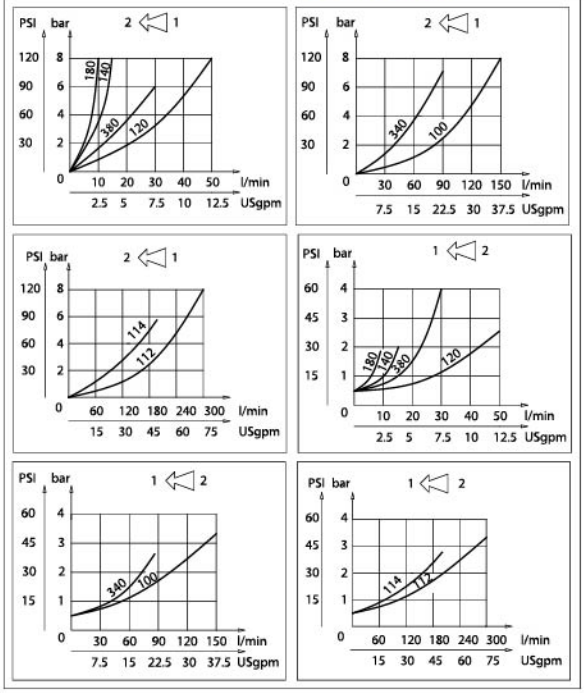
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

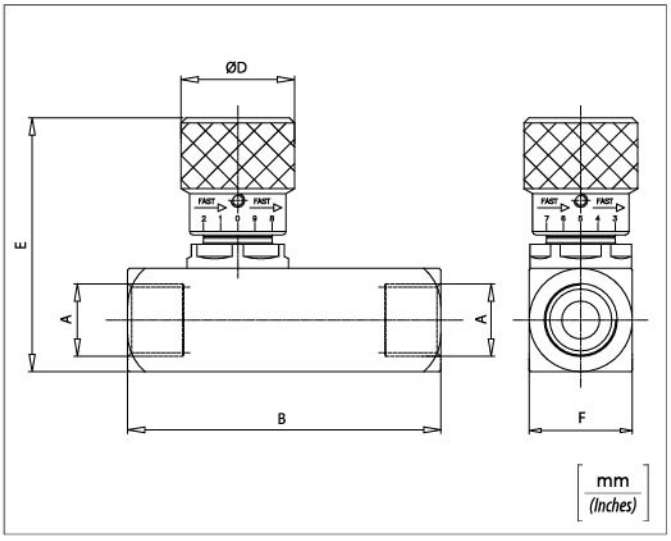
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)



Perdite di carico *Pressure drops*





Caratteristiche tecniche / *Technical performances*

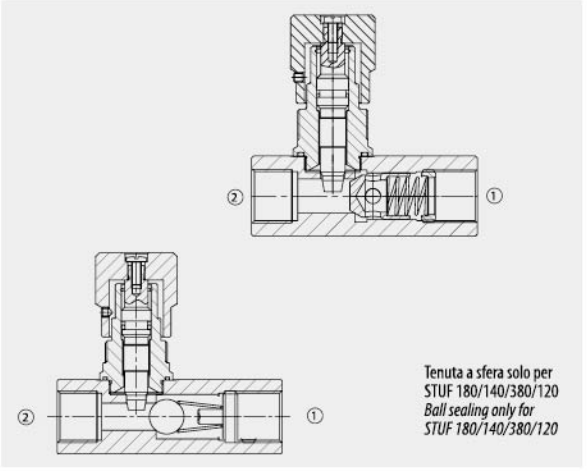
Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	B	D	E	F	Peso approssimativo / Kg *Approx weight / lb*
STU 180	**BSPP 1/8**	**10** *(2.5)*	**400** *(5800)*	**58** *(2.28)*	**20** *(0.79)*	**53** *(2.08)*	**20** *(0.79)*	**0,3** *(0.7)*
STU 140	**BSPP 1/4**	**15** *(4)*		**66** *(2.60)*	**30** *(1.18)*	**71,5** *(2.81)*	**25** *(0.98)*	**0,34** *(0.75)*
STU 380	**BSPP 3/8**	**30** *(8)*		**77** *(3.03)*				**0,36** *(0.80)*
STU 120	**BSPP 1/2**	**50** *(13)*		**91** *(3.58)*	**33** *(1.30)*	**72** *(2.83)*	**30** *(1.18)*	**0,60** *(1.3)*
STU 340	**BSPP 3/4**	**80** *(20)*		**112,5** *(4.43)*	**42** *(1.65)*	**94** *(3.70)*	**40** *(1.57)*	**1,33** *(3)*
STU 100	**BSPP 1**	**150** *(40)*		**141** *(5.55)*		**99** *(3.90)*	**45** *(1.77)*	**1,9** *(4.2)*
STU 114	**BSPP 1-1/4**	**200** *(50)*	**350** *(5000)*	**155** *(6.10)*	**53** *(2.08)*	**121,5** *(4.78)*	**55** *(2.16)*	**3,1** *(6.8)*
STU 112	**BSPP 1-1/2**	**300** *(80)*		**168** *(6.61)*		**131,5** *(5.17)*	**65** *(2.55)*	**4,5** *(10)*

Codice ordinazione / *Ordering code*

STU - X

X	Dimensione / *Size*
180	BSPP 1/8
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1
114	BSPP 1-1/4
112	BSPP 1-1/2

STUF-BSP

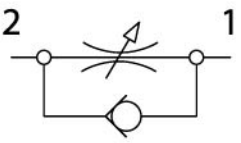


Tenuta a sfera solo per STUF 180/140/380/120
Ball sealing only for STUF 180/140/380/120

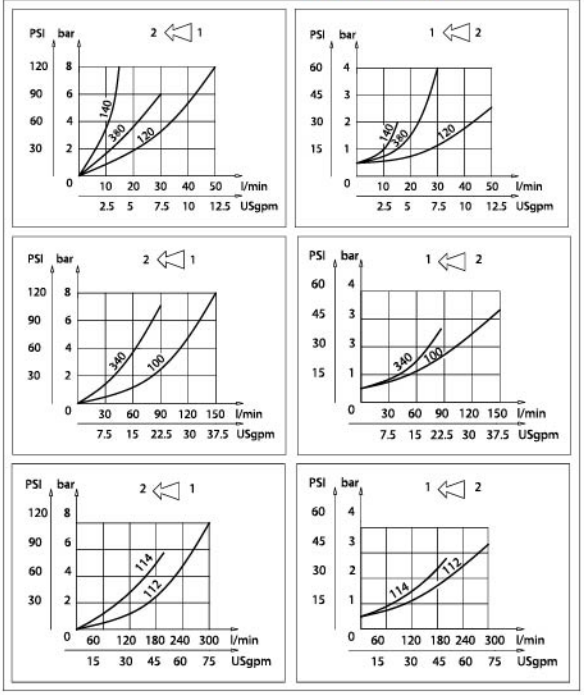
Dati tecnici
Technical data

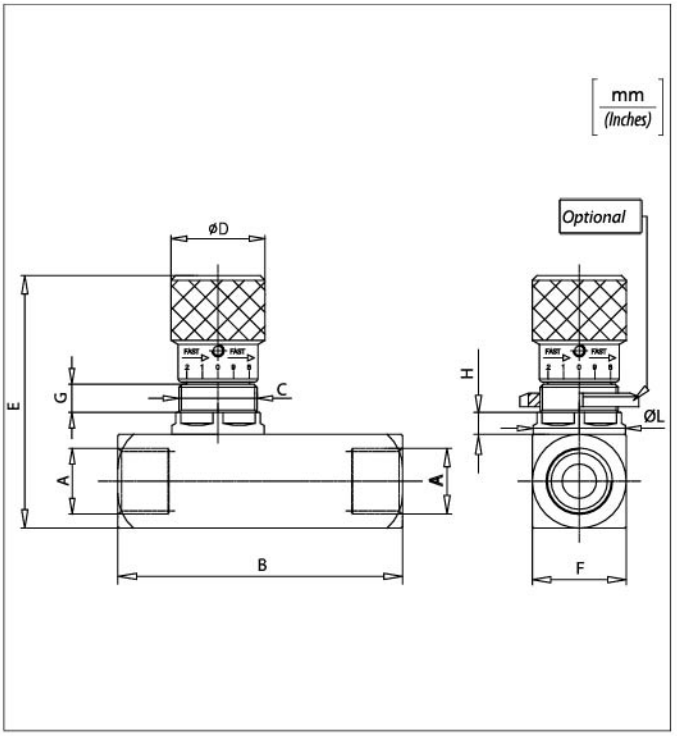
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola
It is necessary a filter use to protect the valve (advised filtration 15 micron)



Perdite di carico *Pressure drops*





Caratteristiche tecniche / *Technical performances*

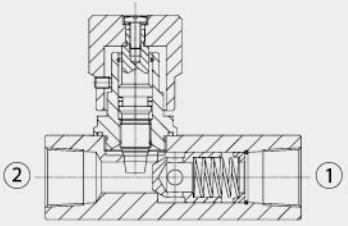
Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Optional *Code*	Peso approssimativo *Approx weight* Kg / lb
STUF180	**BSPP** 1/8	**10** *(2.5)*	**400** *(5800)*	**58** *(2.28)*	**M15x1**	**20** *(0.79)*	**60,5** *(2.38)*	**20** *(0.79)*	**8** *(0.31)*	**5,5** *(0.21)*	**19,5** *(0.76)*	**84100031**	**0,31** *(0.7)*
STUF140	**BSPP** 1/4	**15** *(4)*		**66** *(2.60)*	**M20x1**	**30** *(1.18)*	**75** *(2.95)*	**25** *(0.98)*	**7,5** *(0.29)*	**6** *(0.23)*	**24,5** *(0.96)*	**84100022**	**0,38** *(0.84)*
STUF380	**BSPP** 3/8	**30** *(8)*		**77** *(3.03)*									**0,40** *(0.88)*
STUF120	**BSPP** 1/2	**50** *(13)*		**91** *(3.58)*	**M25x1,5**	**33** *(1.30)*	**81** *(3.19)*	**30** *(1.18)*	**9** *(0.35)*	**7** *(0.27)*	**29,5** *(1.16)*	**84100023**	**0,63** *(1.40)*
STUF340	**BSPP** 3/4	**80** *(21)*		**112,5** *(4.43)*	**M35x1,5**	**42** *(1.65)*	**110** *(4.33)*	**40** *(1.57)*	**15,5** *(0.61)*	**8** *(0.31)*	**39,5** *(1.55)*	**84100024**	**1,45** *(3.2)*
STUF100	**BSPP 1**	**150** *(40)*		**141** *(5.55)*			**115** *(4.53)*	**45** *(1.77)*					**2** *(4.4)*
STUF114	**BSPP 1-1/4**	**200** *(50)*	**350** *(5000)*	**155** *(6.10)*	**M45x1,5**	**53** *(2.08)*	**137** *(5.39)*	**55** *(2.16)*	**13,5** *(0.53)*	**10** *(0.39)*	**50** *(1.96)*	**84100030**	**3,3** *(7.25)*
STUF112	**BSPP 1-1/2**	**300** *(80)*		**168** *(6.61)*			**147** *(5.78)*	**65** *(2.55)*					**4,7** *(10.3)*

Codice ordinazione
Ordering code

STUF - X

X	Dimensione *Size*
180	BSPP 1/8
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1
114	BSPP 1-1/4
112	BSPP 1-1/2

STU-NPTF

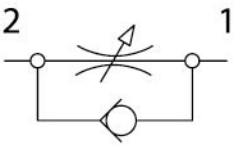


Dati tecnici
Technical data

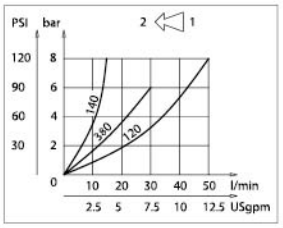
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

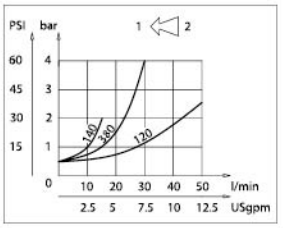
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

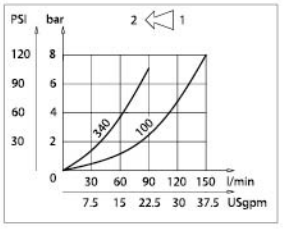
It is necessary a filter use to protect the valve (advised filtration 15 micron)

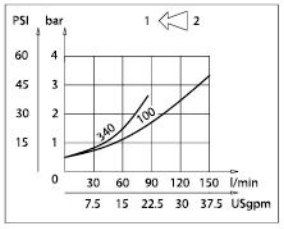


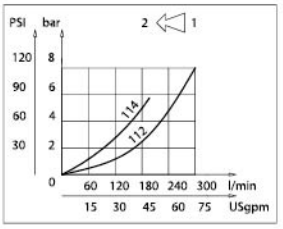
Perdite di carico *Pressure drops*

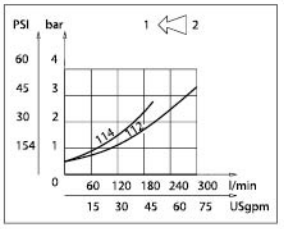


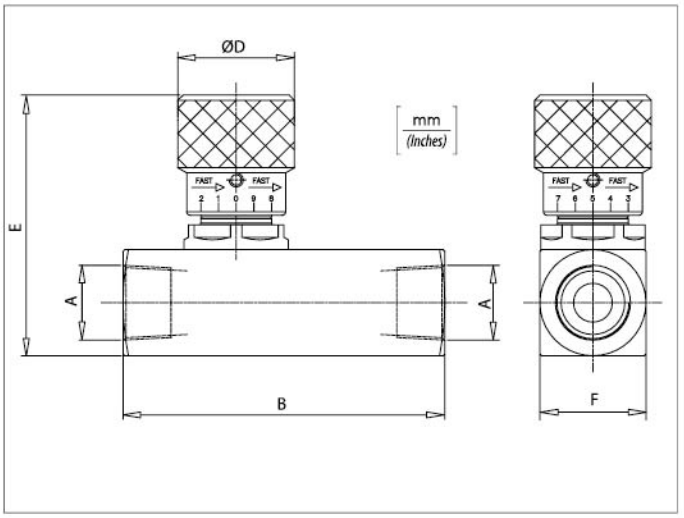












Caratteristiche tecniche / *Technical performances*

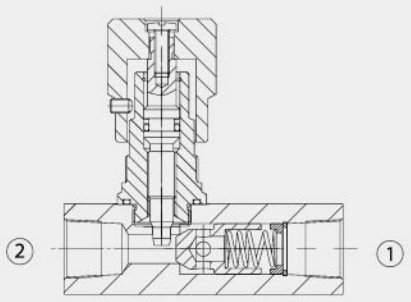
Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	B	D	E	F	Peso approssimativo / Kg *Approx weight / lb*
STU180NPT	**NPTF 1/8**	**10** *(2.5)*	**400** *(5800)*	**58** *(2.28)*	**20** *(0.79)*	**53** *(2.08)*	**20** *(0.79)*	**0,3** *(0.7)*
STU140NPT	**NPTF 1/4**	**15** *(4)*		**66** *(2.60)*	**30** *(1.18)*	**68** *(2.68)*	**25** *(0.98)*	**0,37** *(0.75)*
STU380NPT	**NPTF 3/8**	**30** *(8)*		**77** *(3.03)*				**0,40** *(0.9)*
STU120NPT	**NPTF 1/2**	**50** *(13)*		**91** *(3.58)*	**33** *(1.30)*	**72** *(2.83)*	**30** *(1.18)*	**0,60** *(1.32)*
STU340NPT	**NPTF 3/4**	**80** *(21)*		**112,5** *(4.43)*	**42** *(1.65)*	**94** *(3.70)*	**40** *(1.57)*	**1,40** *(3.09)*
STU100NPT	**NPTF 1**	**150** *(40)*		**141** *(5.55)*		**99** *(3.90)*	**45** *(1.77)*	**1,9** *(4.2)*
STU114NPT	**NPTF 1-1/4**	**200** *(50)*	**350** *(5000)*	**155** *(6.10)*	**53** *(2.08)*	**121,5** *(4.78)*	**55** *(2.16)*	**3,06** *(6.73)*
STU112NPT	**NPTF 1-1/2**	**300** *(80)*		**168** *(6.61)*		**131,5** *(5.17)*	**65** *(2.55)*	**4,5** *(10)*

Codice ordinazione / *Ordering code*

STU - X - NPT

X	Dimensione / *Size*
180	NPTF 1/8
140	NPTF 1/4
380	NPTF 3/8
120	NPTF 1/2
340	NPTF 3/4
100	NPTF 1
114	NPTF 1-1/4
112	NPTF 1-1/2

STUF-NPTF

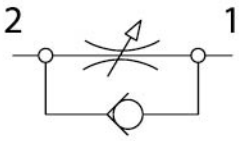


Dati tecnici
Technical data

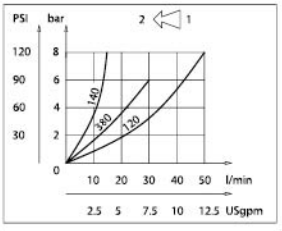
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C -4°F	+80°C + 176°F
Temperatura ambiente *Ambient temperature*	-20°C -4°F	+50°C + 122°F

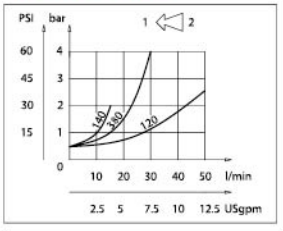
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

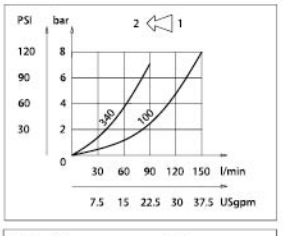
It is necessary a filter use to protect the valve (advised filtration 15 micron)

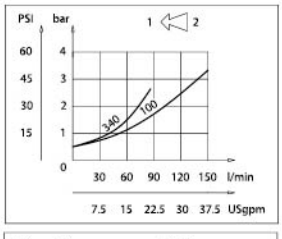


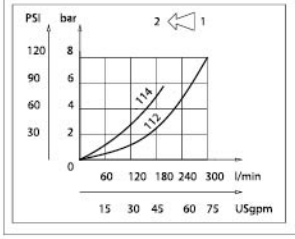
Perdite di carico *Pressure drops*

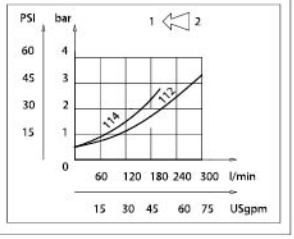


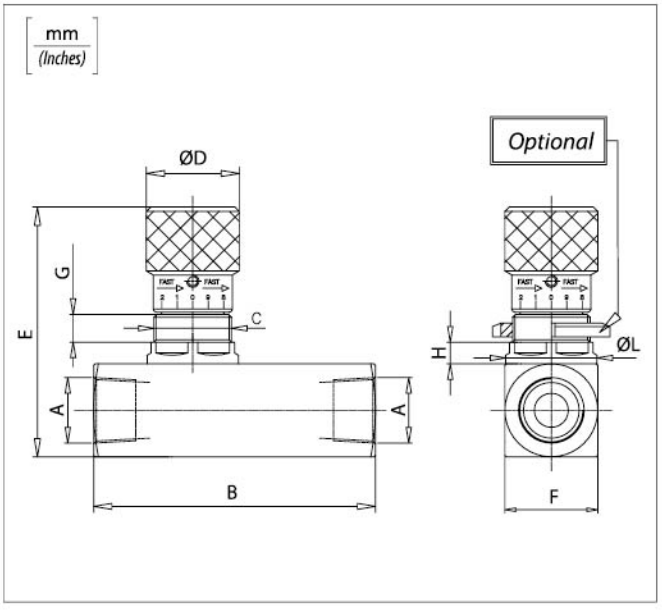












Caratteristiche tecniche / *Technical performances*

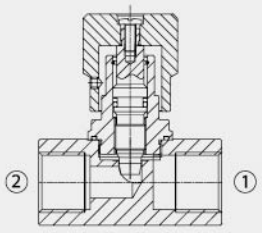
Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Optional *Code*	Peso approssimativo *Approx weight* Kg / lb
STUF180NPT	**NPTF** 1/8	**10** *(2.5)*	**400** *(5800)*	**58** *(2.28)*	**M15x1**	**20** *(0.79)*	**60,5** *(2.38)*	**20** *(0.79)*	**8** *(0.31)*	**5,5** *(0.21)*	**19,5** *(0.76)*	**84100031**	**0,31** *(0.7)*
STUF140NPT	**NPTF** 1/4	**15** *(4)*		**66** *(2.60)*	**M20x1**	**30** *(1.18)*	**75** *(2.95)*	**25** *(0.98)*	**7,5** *(0.29)*	**6** *(0.23)*	**24,5** *(0.96)*	**84100022**	**0,40** *(0.88)*
STUF380NPT	**NPTF** 3/8	**30** *(8)*		**77** *(3.03)*									**0,42** *(0.92)*
STUF120NPT	**NPTF** 1/2	**50** *(13)*		**91** *(3.58)*	**M25x1,5**	**33** *(1.30)*	**81** *(3.19)*	**30** *(1.18)*	**9** *(0.35)*	**7** *(0.27)*	**29,5** *(1.16)*	**84100023**	**0,63** *(1.40)*
STUF340NPT	**NPTF** 3/4	**80** *(21)*		**112,5** *(4.43)*	**M35x1,5**	**42** *(1.65)*	**110** *(4.33)*	**40** *(1.57)*	**15,5** *(0.61)*	**8** *(0.31)*	**39,5** *(1.55)*	**84100024**	**1,5** *(3.3)*
STUF100NPT	**NPTF 1**	**150** *(40)*		**141** *(5.55)*			**115** *(4.53)*	**45** *(1.77)*					**2** *(4.4)*
STUF114NPT	**NPTF 1-1/4**	**200** *(50)*	**350** *(5000)*	**155** *(6.10)*	**M45x1,5**	**53** *(2.08)*	**137** *(5.39)*	**55** *(2.16)*	**13,5** *(0.53)*	**10** *(0.39)*	**50** *(1.96)*	**84100030**	**3,2** *(7)*
STUF112NPT	**NPTF 1-1/2**	**300** *(80)*		**168** *(6.61)*			**147** *(5.78)*	**65** *(2.55)*					**4,7** *(10.3)*

Codice ordinazione
Ordering code

STUF - X NPT

X	Dim / Size
180	NPTF 1/8
140	NPTF 1/4
380	NPTF 3/8
120	NPTF 1/2
340	NPTF 3/4
100	NPTF 1
114	NPTF 1-1/4
112	NPTF 1-1/2

STB-BSP

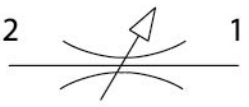


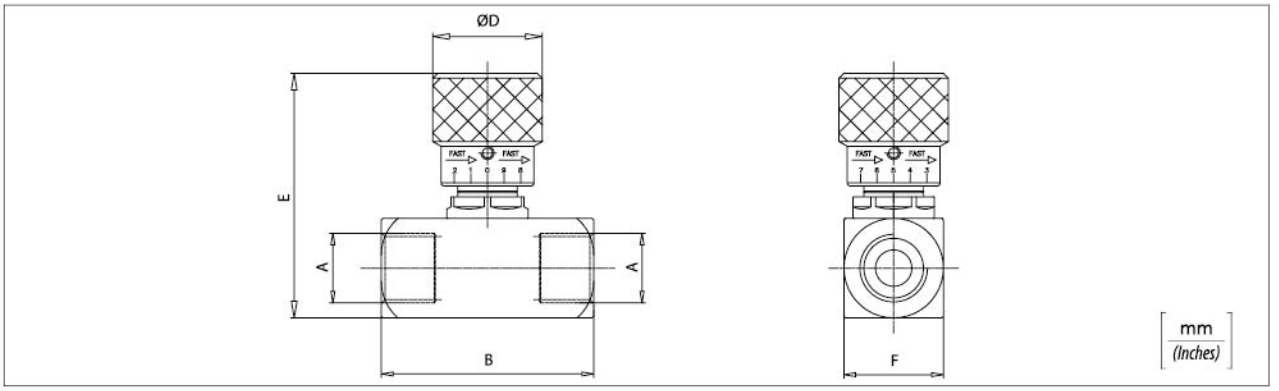
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

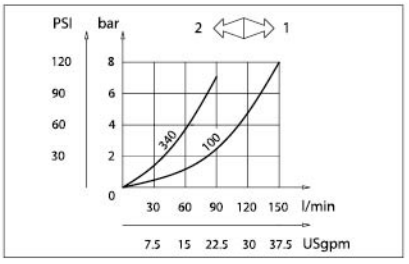
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

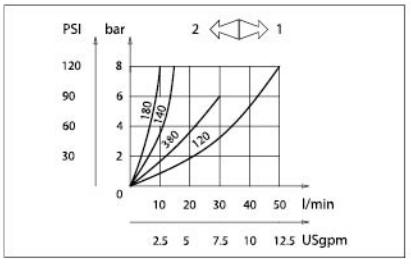
It is necessary a filter use to protect the valve (advised filtration 15 micron)

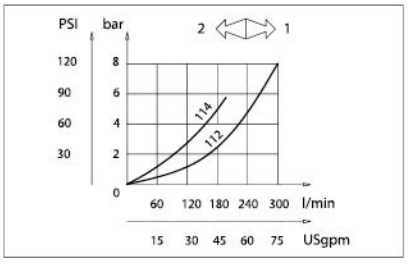




Perdite di carico *Pressure drops*







Caratteristiche tecniche / *Technical performances*

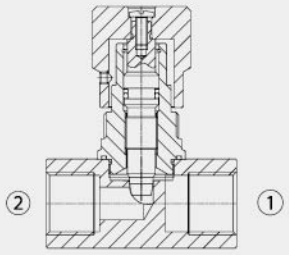
Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	B	D	E	F	Peso approssimativo / Kg *Approx weight / lb*
STB180	**BSPP 1/8**	**10** *(2.5)*	**400** *(5800)*	**44** *(1.73)*	**20** *(0.79)*	**53** *(2.08)*	**20** *(0.79)*	**0,16** *(0.35)*
STB140	**BSPP 1/4**	**15** *(4)*		**54** *(2.13)*	**30** *(1.18)*	**71,5** *(2.81)*	**25** *(0.98)*	**0,29** *(0.70)*
STB380	**BSPP 3/8**	**30** *(8)*						**0,26** *(0.57)*
STB120	**BSPP 1/2**	**50** *(13)*		**64** *(2.52)*	**33** *(1.30)*	**72** *(2.83)*	**30** *(1.18)*	**0,45** *(1)*
STB340	**BSPP 3/4**	**80** *(20)*		**81** *(3.19)*	**42** *(1.65)*	**94** *(3.70)*	**40** *(1.57)*	**1,02** *(2.25)*
STB100	**BSPP 1**	**150** *(40)*		**102** *(4.01)*		**99** *(3.90)*	**45** *(1.77)*	**1,38** *(3.04)*
STB114	**BSPP 1-1/4**	**200** *(50)*	**350** *(5000)*		**53** *(2.08)*	**121,5** *(4.78)*	**55** *(2.16)*	**2,2** *(4.8)*
STB112	**BSPP 1-1/2**	**300** *(80)*				**131,5** *(5.17)*	**65** *(2.55)*	**3** *(6.6)*

Codice ordinazione / *Ordering code*

STB - X

X	Dimensione / *Size*
180	BSPP 1/8
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1
114	BSPP 1-1/4
112	BSPP 1-1/2

STBF-BSP

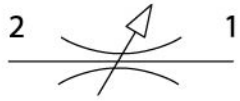


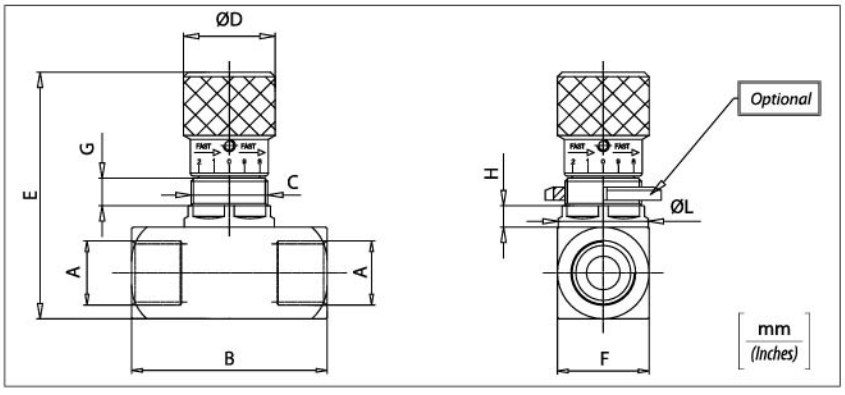
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)



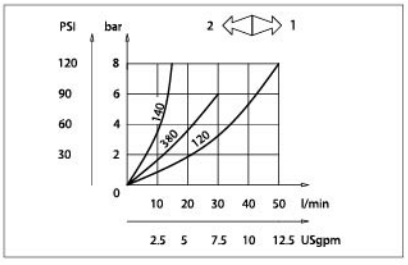


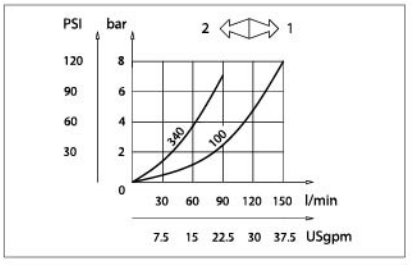
Codice ordinazione / *Ordering code*

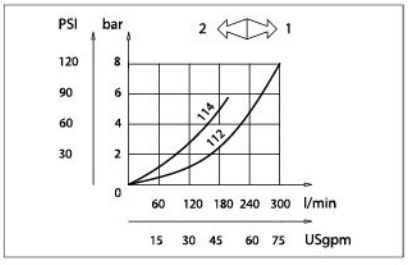
STBF - X

X	Dimensione / *Size*
180	BSPP 1/8
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1
114	BSPP 1-1/4
112	BSPP 1-1/2

Perdite di carico *Pressure drops*



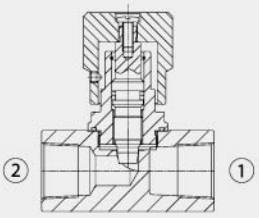




Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure bar/PSI*	B	C	D	E	F	G	H	L	Optional *Code*	Peso approssimativo *Approx weight* Kg / lb
STBF180	**BSPP 1/8**	**10** *(2.5)*	**400** *(5800)*	**44** *(1.73)*	**M15x1**	**20** *(0.79)*	**60,5** *(2.38)*	**20** *(0.79)*	**8** *(0.31)*	**5,5** *(0.21)*	**19,5** *(0.76)*	**84100031**	**0,16** *(0.36)*
STBF140	**BSPP 1/4**	**15** *(4)*		**54** *(2.13)*	**M20x1**	**30** *(1.18)*	**75** *(2.95)*	**25** *(0.98)*	**7,5** *(0.29)*	**6** *(0.23)*	**24,5** *(0.96)*	**84100022**	**0,31** *(0.68)*
STBF380	**BSPP 3/8**	**30** *(8)*											**0,28** *(0.62)*
STBF120	**BSPP 1/2**	**50** *(13)*		**64** *(2.52)*	**M25x1,5**	**33** *(1.30)*	**81** *(3.19)*	**30** *(1.18)*	**9** *(0.35)*	**7** *(0.27)*	**29,5** *(1.16)*	**84100023**	**0,48** *(1.06)*
STBF340	**BSPP 3/4**	**80** *(21)*		**81** *(3.19)*	**M35x1,5**	**42** *(1.65)*	**110** *(4.33)*	**40** *(1.57)*	**15,5** *(0.61)*	**8** *(0.31)*	**39,5** *(1.55)*	**84100024**	**1,13** *(2.50)*
STBF100	**BSPP 1**	**150** *(40)*		**102** *(4.01)*			**115** *(4.53)*	**45** *(1.77)*					**1,50** *(3.3)*
STBF114	**BSPP 1-1/4**	**200** *(50)*	**350** *(5000)*		**M45x1,5**	**53** *(2.08)*	**137** *(5.39)*	**55** *(2.16)*	**13,5** *(0.53)*	**10** *(0.39)*	**50** *(1.96)*	**84100030**	**2,37** *(5.21)*
STBF112	**BSPP 1-1/2**	**300** *(80)*					**147** *(5.78)*	**65** *(2.55)*					**3,17** *(7)*

STB-NPTF

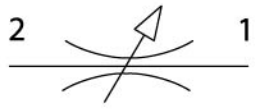


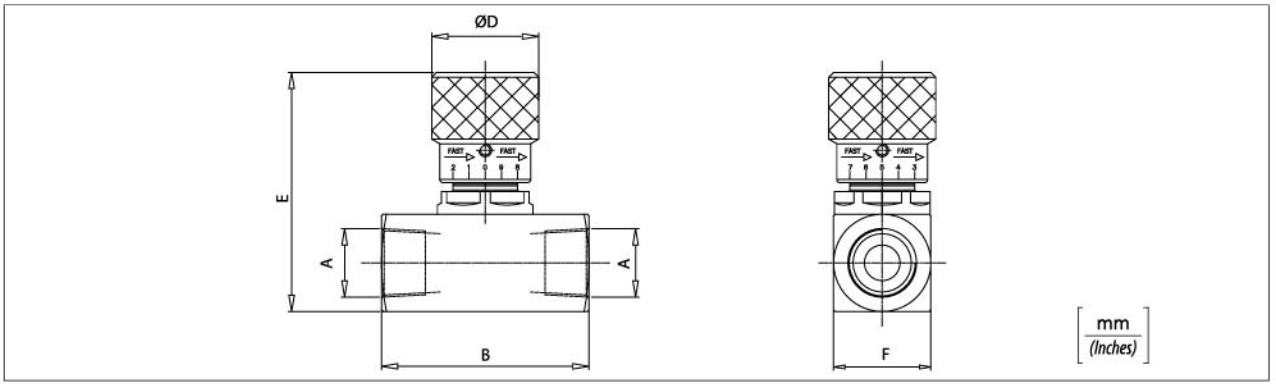
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

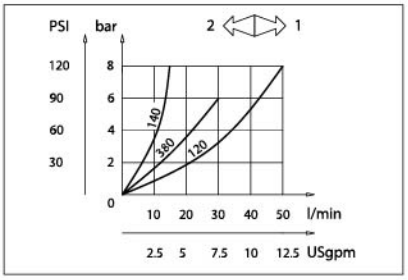
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

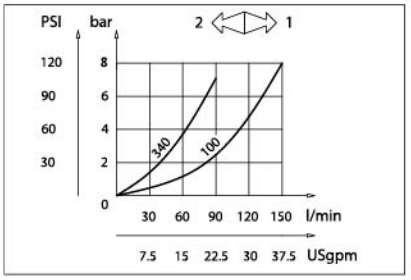
It is necessary a filter use to protect the valve (advised filtration 15 micron)

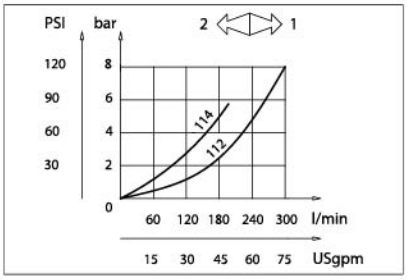




Perdite di carico *Pressure drops*







Caratteristiche tecniche / *Technical performances*

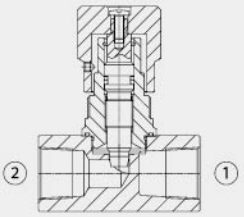
Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	B	D	E	F	Peso approssimativo / Kg *Approx weight / lb*
STB180NPT	**NPTF 1/8**	**10** *(2.5)*	**400** *(5800)*	**44** *(1.73)*	**20** *(0.79)*	**53** *(2.08)*	**20** *(0.79)*	**0,16** *(0.35)*
STB140NPT	**NPTF 1/4**	**15** *(4)*		**54** *(2.13)*	**30** *(1.18)*	**68** *(2.68)*	**25** *(0.98)*	**0,32** *(0.71)*
STB380NPT	**NPTF 3/8**	**30** *(8)*						**0,30** *(0.66)*
STB120NPT	**NPTF 1/2**	**50** *(13)*		**64** *(2.52)*	**33** *(1.30)*	**72** *(2.84)*	**30** *(1.18)*	**0,47** *(1.03)*
STB340NPT	**NPTF 3/4**	**80** *(21)*		**81** *(3.19)*	**42** *(1.65)*	**94** *(3.70)*	**40** *(1.57)*	**1,05** *(2.31)*
STB100NPT	**NPTF 1**	**150** *(40)*		**102** *(4.02)*		**99** *(3.90)*	**45** *(1.77)*	**1,34** *(2.95)*
STB114NPT	**NPTF 1-1/4**	**200** *(50)*	**350** *(5000)*		**53** *(2.08)*	**121,5** *(4.78)*	**55** *(2.16)*	**2,27** *(5.21)*
STB112NPT	**NPTF 1-1/2**	**300** *(80)*				**131,5** *(5.17)*	**65** *(2.55)*	**3** *(6.6)*

Codice ordinazione / *Ordering code*

STB - X - NPT

X	Dimensione / *Size*
180	NPTF 1/8
140	NPTF 1/4
380	NPTF 3/8
120	NPTF 1/2
340	NPTF 3/4
100	NPTF 1
114	NPTF 1-1/4
112	NPTF 1-1/2

STBF-NPTF

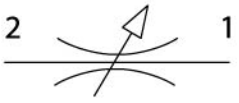


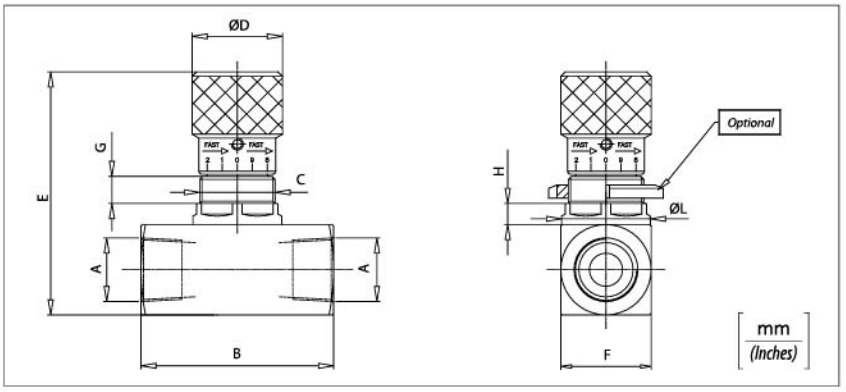
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)



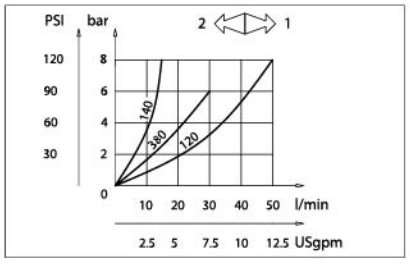


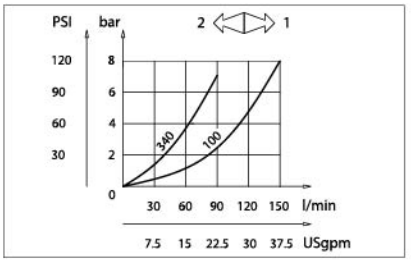
Codice ordinazione / *Ordering code*

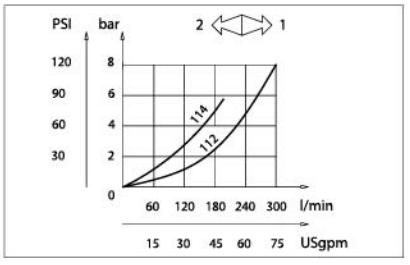
STBF - X - NPT

X	Dimensione / *Size*
180	NPTF 1/8
140	NPTF 1/4
380	NPTF 3/8
120	NPTF 1/2
340	NPTF 3/4
100	NPTF 1
114	NPTF 1-1/4
112	NPTF 1-1/2

Perdite di carico *Pressure drops*



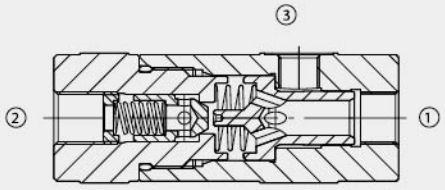




Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Optional *Code*	Peso approssimativo *Approx weight* Kg / lb
STBF180NPT	**NPTF 1/8**	**10** *(2.5)*	**400** *(5800)*	**44** *(1.73)*	**M15x1**	**20** *(0.79)*	**60,5** *(2.38)*	**20** *(0.79)*	**8** *(0.31)*	**5,5** *(0.21)*	**19,5** *(0.76)*	**84100031**	**0,16** *(0.36)*
STBF140NPT	**NPTF 1/4**	**15** *(4)*		**54** *(2.13)*	**M20x1**	**30** *(1.18)*	**75** *(2.95)*	**25** *(0.98)*	**7,5** *(0.29)*	**6** *(0.23)*	**24,5** *(0.96)*	**84100022**	**0,34** *(0.75)*
STBF380NPT	**NPTF 3/8**	**30** *(8)*											**0,32** *(0.71)*
STBF120NPT	**NPTF 1/2**	**50** *(13)*		**64** *(2.52)*	**M25x1,5**	**33** *(1.30)*	**81** *(3.19)*	**30** *(1.18)*	**9** *(0.35)*	**7** *(0.27)*	**29,5** *(1.16)*	**84100023**	**0,50** *(1.1)*
STBF340NPT	**NPTF 3/4**	**80** *(21)*		**81** *(3.19)*	**M35x1,5**	**42** *(1.65)*	**110** *(4.33)*	**40** *(1.57)*	**15,5** *(0.61)*	**8** *(0.31)*	**39,5** *(1.55)*	**84100024**	**1,15** *(2.53)*
STBF100NPT	**NPTF 1**	**150** *(40)*		**102** *(4.02)*			**115** *(4.53)*	**45** *(1.77)*					**3,05** *(6.7)*
STBF114NPT	**NPTF 1-1/4**	**200** *(50)*	**350** *(5000)*		**M45x1,5**	**53** *(2.08)*	**137** *(5.39)*	**55** *(2.16)*	**13,5** *(0.53)*	**10** *(0.39)*	**50** *(1.96)*	**84100030**	**2,54** *(5.6)*
STBF112NPT	**NPTF 1-1/2**	**300** *(80)*					**147** *(5.78)*	**65** *(2.55)*					**3,17** *(7)*

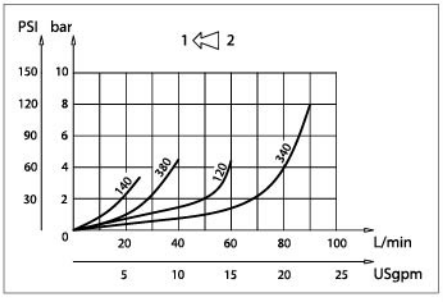
VRPE

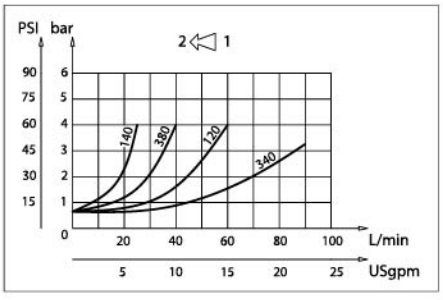


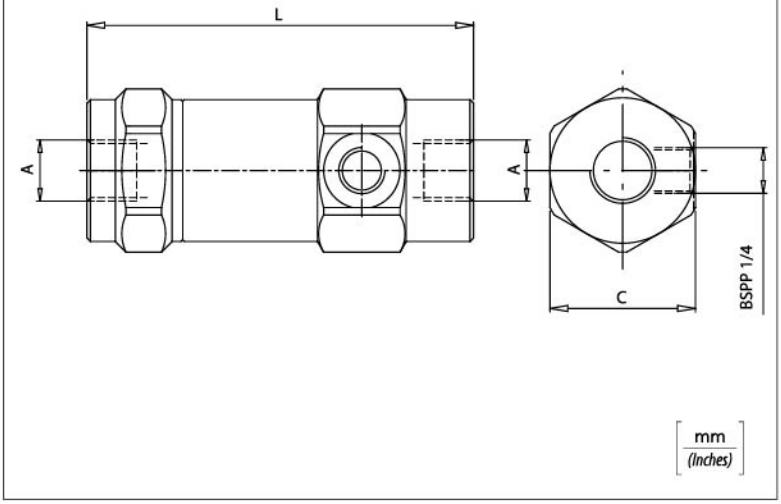
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14
Temperatura del fluido *Fluid temperature*	-20°C +80°C -4°F + 176°F
Temperatura ambiente *Ambient temperature*	-20°C +50°C -4°F + 122°F
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*	
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*

Perdite di carico *Pressure drops*







Caratteristiche tecniche
Technical performances

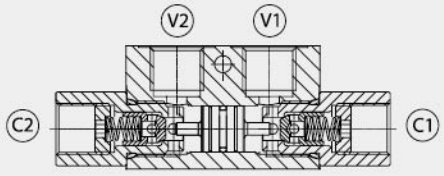
Codice *Code*	A	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	L	C	Peso approssimativo / Kg *Approx weight / lb*	Rapporto di pilotaggio *Pilot ratio*
VRPE140	**BSPP 1/4**	**25** *(6.5)*	**350** *(5000)*	**100** *(3.94)*	**40** *(1.57)*	**0,71** *(1.56)*	**1:5.3**
VRPE380	**BSPP 3/8**	**40** *(10.5)*		**105** *(4.13)*	**45** *(1.77)*	**1** *(2.2)*	**1:4.4**
VRPE120	**BSPP 1/2**	**60** *(16)*		**125** *(4.92)*		**1,1** *(2.4)*	**1:4.2**
VRPE340	**BSPP 3/4**	**100** *(26)*	**300** *(4350)*	**130** *(5.12)*	**55** *(2.16)*	**2,1** *(4.62)*	**1:4**
VRPE100	**BSPP 1**	**150** *(40)*		**166** *(6.54)*	**65** *(2.56)*	**3,6** *(7.92)*	**1:4.1**

Codice ordinazione / *Ordering code*

VRPE - X

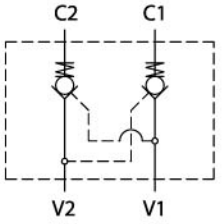
X	Dimensione / *Size*
140	**BSPP 1/4**
380	**BSPP 3/8**
120	**BSPP 1/2**
340	**BSPP 3/4**
100	**BSPP 1**

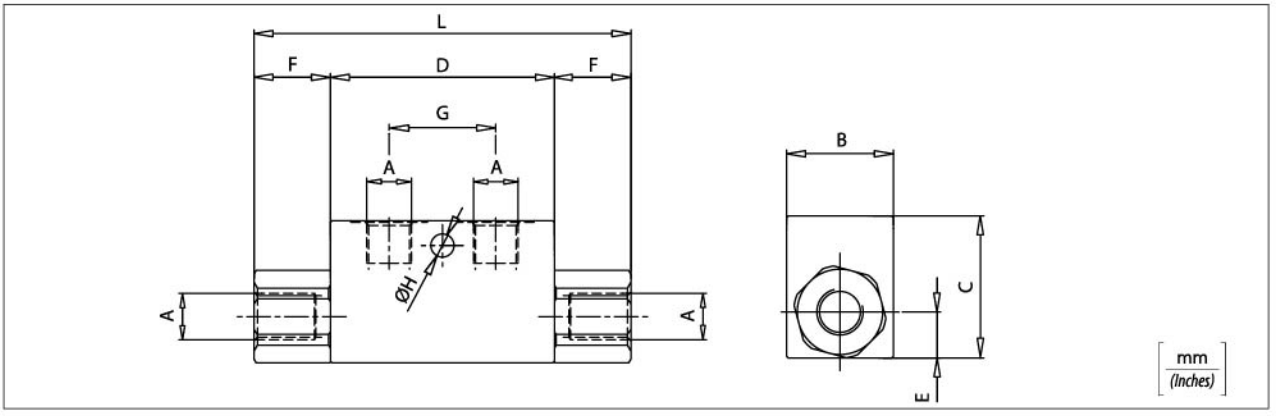
VRDE



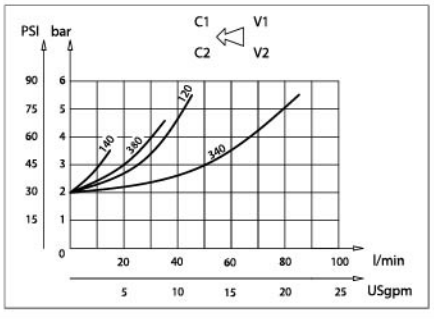
Dati tecnici
Technical data

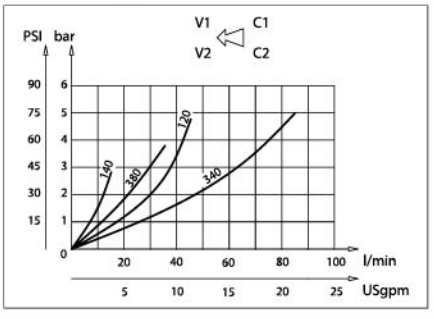
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*		
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*	





Perdite di carico *Pressure drops*





Codice ordinazione / *Ordering code*

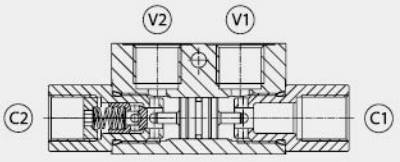
VRDE - X

X	Dimensione / *Size*
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4

Caratteristiche tecniche / *Technical performances*

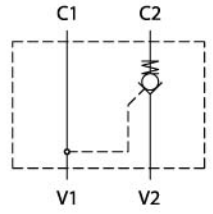
Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Peso approssimativo *Approx weight* Kg / lb	Rapporto di pilotaggio *Pilot ratio*
VRDE140	**BSPP 1/4**	**15** *(4)*	**320** *(4500)*	**30** *(1.18)*	**40** *(1.57)*	**63** *(2.48)*	**13** *(0.51)*	**21,5** *(0.85)*	**30** *(1.18)*	**6,5** *(0.26)*	**106** *(4.17)*	**0,63** *(1.4)*	**1:4**
VRDE380	**BSPP 3/8**	**35** *(9.3)*										**0,60** *(1.32)*	
VRDE120	**BSPP 1/2**	**45** *(12)*	**300** *(4350)*	**35** *(1.38)*	**50** *(1.97)*	**82** *(3.23)*	**16,5** *(0.65)*	**31,5** *(1.24)*	**36** *(1.42)*		**145** *(5.71)*	**1,10** *(2.42)*	
VRDE340	**BSPP 3/4**	**70** *(18.5)*		**40** *(1.57)*	**60** *(2.36)*	**100** *(3.94)*	**22,5** *(0.88)*	**46** *(1.81)*	**50** *(1.97)*	**8,5** *(0.34)*	**192** *(7.56)*	**2,10** *(4.62)*	**1:2.9**

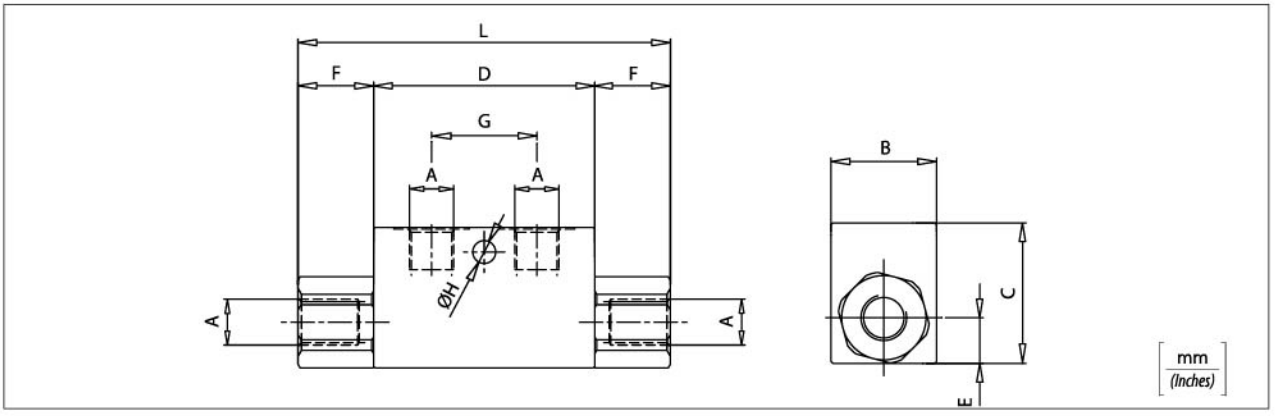
VRSE



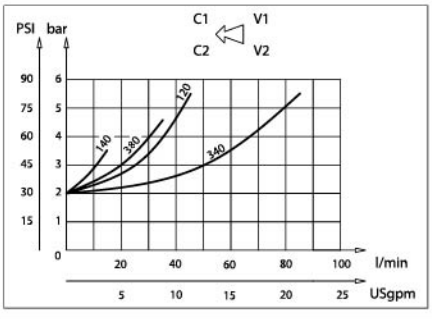
Dati tecnici
Technical data

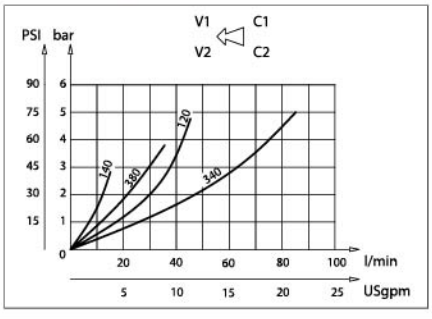
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14
Temperatura del fluido *Fluid temperature*	-20°C +80°C *-4°F + 176°F*
Temperatura ambiente *Ambient temperature*	-20°C +50°C *-4°F + 122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*	
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*





Perdite di carico *Pressure drops*





Codice ordinazione / *Ordering code*

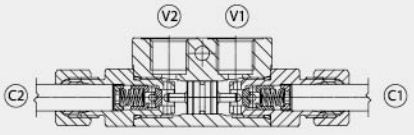
VRSE - X

X	Dimensione / *Size*
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4

Caratteristiche tecniche / *Technical performances*

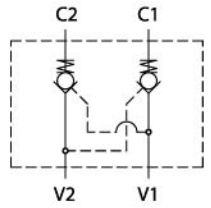
Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Peso approssimativo *Approx weight* Kg / lb	Rapporto di pilotaggio *Pilot ratio*
VRSE140	**BSPP 1/4**	**15** *(4)*	**320** *(4500)*	**30** *(1.18)*	**40** *(1.57)*	**63** *(2.48)*	**13** *(0.51)*	**21,5** *(0.85)*	**30** *(1.18)*	**6,5** *(0.26)*	**106** *(4.17)*	**0,61** *(1.34)*	**1:4**
VRSE380	**BSPP 3/8**	**35** *(9.3)*										**0,58** *(1.27)*	
VRSE120	**BSPP 1/2**	**45** *(12)*	**300** *(4350)*	**35** *(1.38)*	**50** *(1.97)*	**82** *(3.23)*	**16,5** *(0.65)*	**31,5** *(1.24)*	**36** *(1.42)*		**145** *(5.71)*	**1,05** *(2.31)*	
VRSE340	**BSPP 3/4**	**70** *(18.5)*		**40** *(1.57)*	**60** *(2.36)*	**100** *(3.94)*	**22,5** *(0.88)*	**46** *(1.81)*	**50** *(1.97)*	**8,5** *(0.34)*	**192** *(7.56)*	**1** *(2.2)*	**1:2.9**

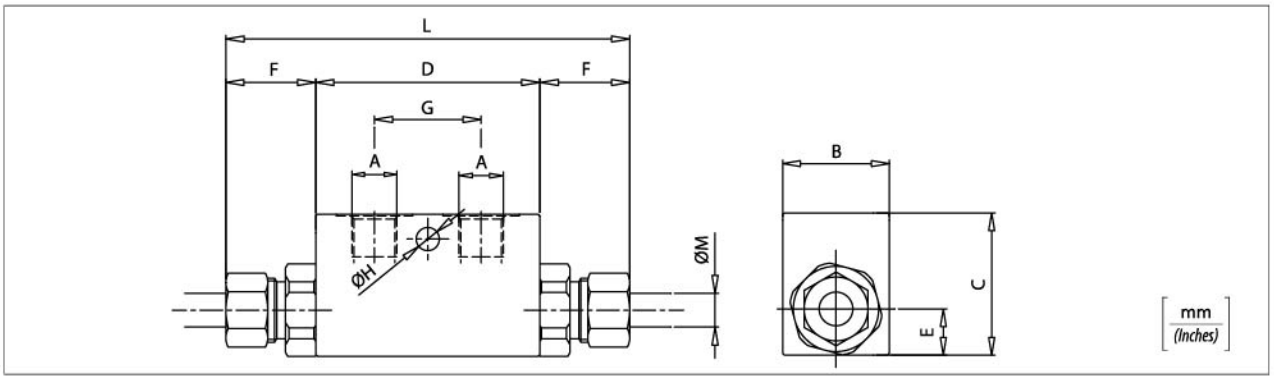
VRDD



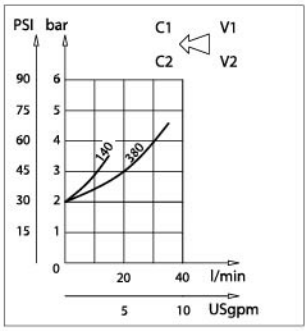
Dati tecnici
Technical data

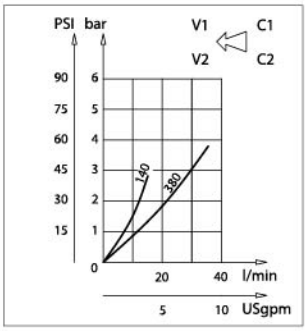
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*		
Trafilamento *Leakage*	0 - 0,25 cm^3/min *(0-0,015 in^3)*	





Perdite di carico *Pressure drops*





Codice ordinazione / *Ordering code*

VRDD - X - Y

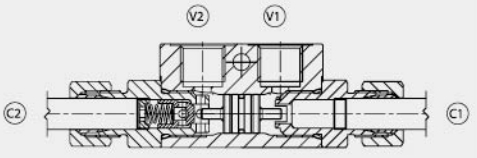
X	Dimensione / *Size*
140	BSPP 1/4
140	BSPP 1/4
380	BSPP 3/8

Y	Dimensione / *Size*
T8	**Per tubo Ø 8** *For Ø 8 pipe*
T12	**Per tubo Ø 12** *For Ø 12 pipe*
T12	**Per tubo Ø 12** *For Ø 12 pipe*

Caratteristiche tecniche / *Technical performances*

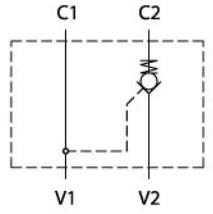
Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* *bar/PSI*	B	C	D	E	F	G	H	L	M	Peso approssimativo *Approx weight* Kg / lb	Rapporto di pilotaggio *Pilot ratio*
VRDD140T8	**BSPP 1/4**	**10** *(2.5)*	**320** *(4500)*	**30** *(1.18)*	**40** *(1.57)*	**63** *(2.48)*	**13** *(0.51)*	**25** *(0.98)*	**30** *(1.18)*	**6,5** *(0.26)*	**113** *(4.45)*	**8** *(0.32)*	**0,60** *(1.3)*	**1:9**
VRDD140		**15** *(4)*						**32** *(1.26)*			**127** *(5)*	**12** *(0.47)*	**0,64** *(1.4)*	**1:4**
VRDD380	**BSPP 3/8**	**35** *(9)*											**0,630** *(1.38)*	

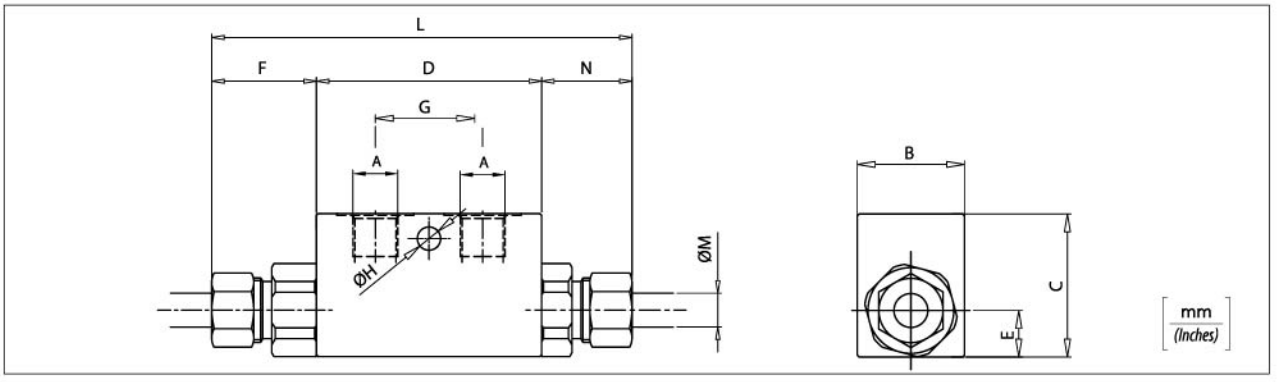
VRSD



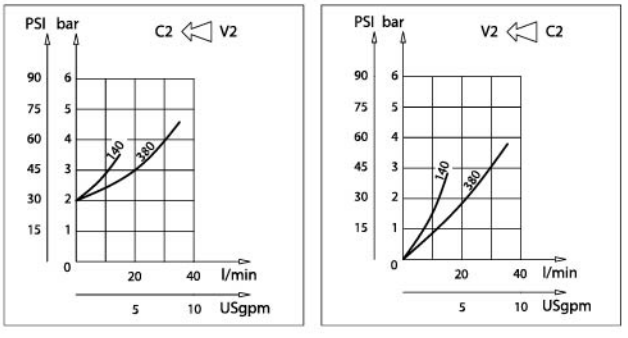
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*
È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola *It is necessary a filter use to protect the valve (advised filtration 15 micron)*		
Trafilamento *Leakage*	0 - 0,25 cm^3/min	





Perdite di carico *Pressure drops*



Codice ordinazione / *Ordering code*

VRSD - X - Y

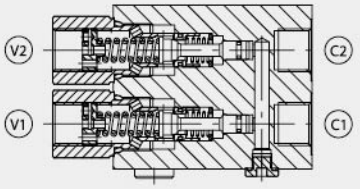
X	Dimensione / *Size*
140	BSPP 1/4
140	BSPP 1/4
380	BSPP 3/8

Y	Dimensione / *Size*
T8	**Per tubo Ø 8** *For Ø 8 pipe*
T12	**Per tubo Ø 12** *For Ø 12 pipe*
T12	**Per tubo Ø 12** *For Ø 12 pipe*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata max *Max Flow* l/min-USgpm	Pressione Max *Max pressure* *bar/PSI*	B	C	D	E	F	G	H	L	M	N	Peso approssimativo *Approx weight* Kg / lb	Rapporto di pilotaggio *Pilot ratio*
VRSD140T8	**BSPP 1/4**	**10** *(2.5)*	**320** *(4500)*	**30** *(1.18)*	**40** *(1.57)*	**63** *(2.48)*	**13** *(0.51)*	**25** *(0.98)*	**30** *(1.18)*	**6,5** *(0.26)*	**113** *(4.45)*	**8** *(0.32)*	**25** *(0.98)*	**0,59** *(1.3)*	**1:9**
VRSD140		**15** *(4)*						**32** *(1.26)*			**127** *(5)*	**12** *(0.47)*	**28** *(1.10)*	**0,63** *(1.37)*	**1:4**
VRSD380	**BSPP 3/8**	**35** *(9)*												**0,62** *(1.36)*	

VBCE

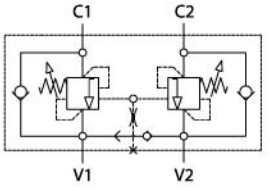


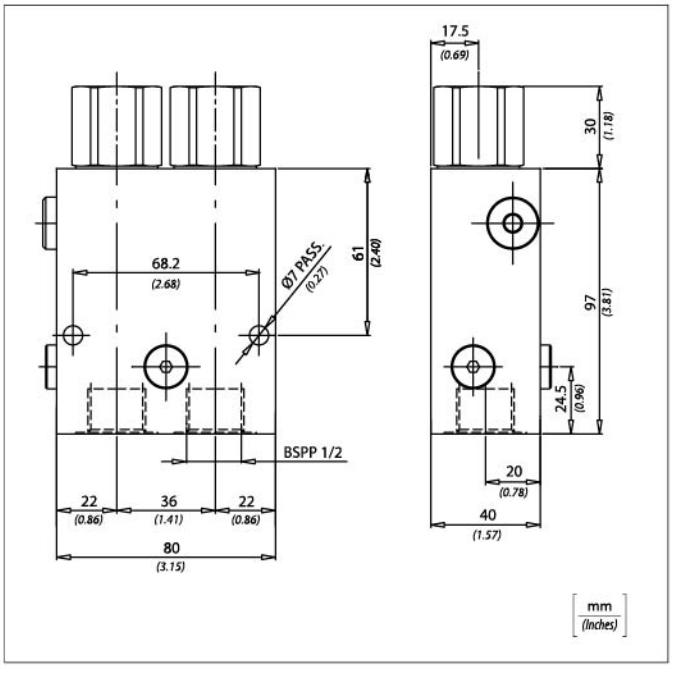
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)





Codice ordinazione / *Ordering code*

VBCE - X - Y - K - I

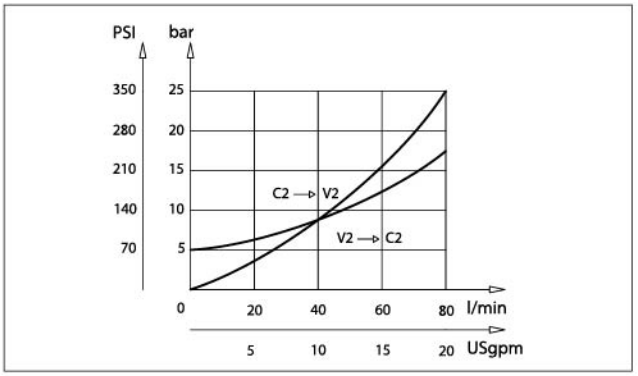
X	Dimensione / *Size*
120	**BSPP1/2**

Y	Molla *Spring*	Incremento pressione al giro *Press. increase*	Taratura standard *Std. setting (Q=5 l/min)*
1	**30/210 bar** *(400/3000 PSI)*	**70 bar/al giro** *(1000 PSI/turn)*	**200 bar** *(2900 PSI)*
2	**60/350 bar** *(850/3500 PSI)*	**120 bar/al giro** *(1700 PSI/turn)*	**350 bar** *(5000 PSI)*

K	Materiale / *Material*
S	**Corpo in acciaio** *(Steel body)*

I	Rapporto di pilotaggio / *Pilot ratio*
/	**1:4.25 Standard**
8	**1:8**

Perdite di carico *Pressure drops*



Caratteristiche tecniche
Technical performances

Codice *Code*	Portata max *Max Flow* l/min - USgpm	Pressione Max *Max pressure* bar / *PSI*	Peso approssimativo / Kg *Approx weight / lb*
VBCE120	**60** *(15)*	**350** *(5000)*	**2,3** *(5)*

PM20

La pompa viene fornita con leva di azionamento L=600 mm

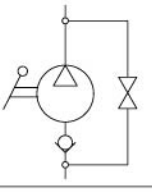
The pump is supplied with acting lever 23 in long

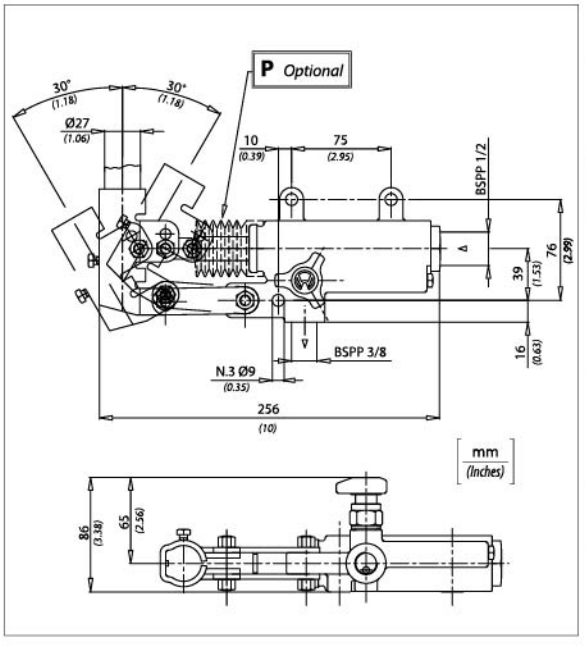
Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)



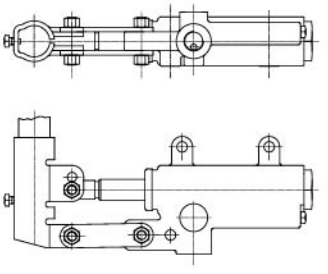


Codice ordinazione / *Ordering code*

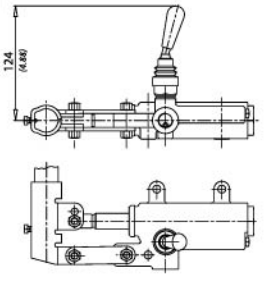
PM20 - X

X	Optional
P	**Soffietto** / *With rubber protection*
WRV	**Senza rubinetto di scarico con valvola di massima** *Without unloading valve with relief valve*
W	**Senza rubinetto di scarico** *Without unloading valve*
J	**Con joistick** / *With joistick*
L	**Con leva di scarico** *With unloading lever*
RRV	**Con rubinetto di scarico e valvola di massima** *With drain valve and relief valve*

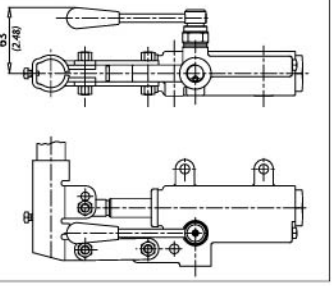
W



J



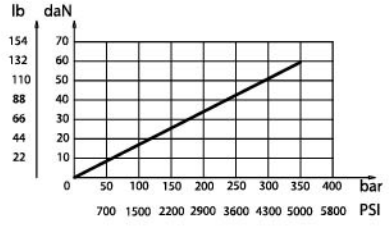
L



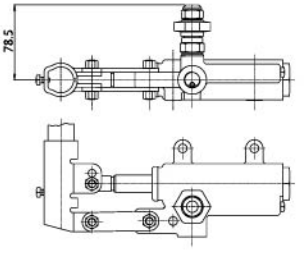
Caratteristiche tecniche / *Technical performances*

Codice *Code*	Pressione Max *Max pressure* bar/*PSI*	Peso approssimativo *Approx weight* Kg / *lb*	Cilindrata *Displacement* cm^3 / *in3*
PM20	**350** *(5000)*	**3,4** *(7.5)*	**20** *(1.22)*

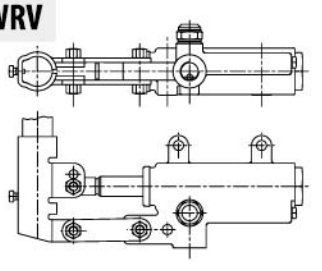
Sforzo esercitato all'estremità della leva
Effort operating on the end of the lever



RRV



WRV



Valvola di massima *(Relief valve)* **Molla 40/350 bar** *Spring 580/5075 PSI* **Taratura Standard 100 bar** *(Standard Setting) 1500 psi*

PM50

La pompa viene fornita con leva di azionamento L=600 mm

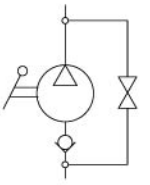
The pump is supplied with acting lever 23 in long

Dati tecnici / *Technical data*

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C -4°F	+80°C + 176°F
Temperatura ambiente *Ambient temperature*	-20°C -4°F	+50°C + 122°F

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

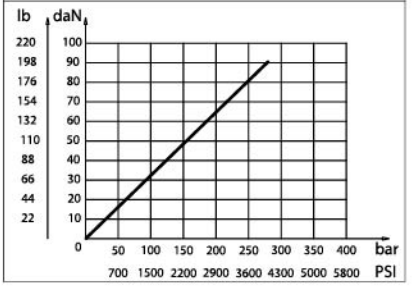
It is necessary a filter use to protect the valve (advised filtration 15 micron)

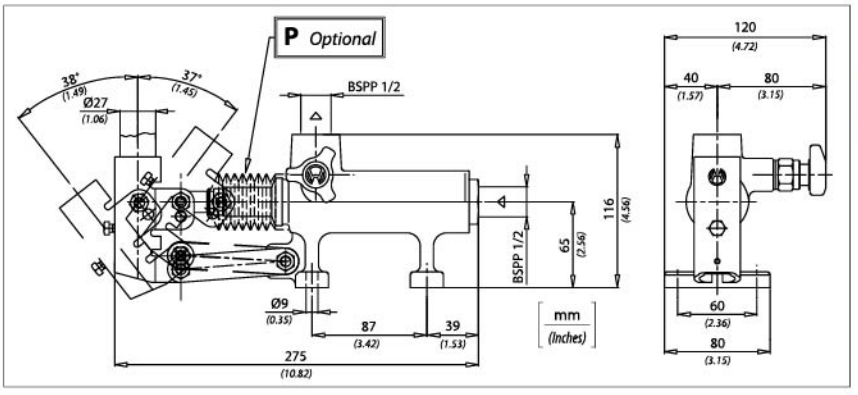


Caratteristiche tecniche / *Technical performances*

Codice *Code*	Pressione Max *Max pressure* bar/*PSI*	Peso approssimativo *Approx weight* Kg / *lb*	Cilindrata *Displacement* cm^3 / *in3*
PM50	**280** *(4000)*	**3,6** *(7.9)*	**50** *(3.05)*

Sforzo esercitato all'estremità della leva / *Effort operating on the end of the lever*





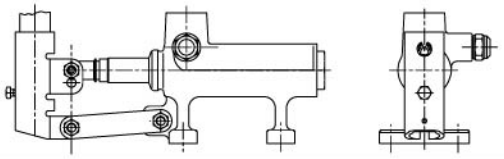
Codice ordinazione / *Ordering code*

PM50 - X

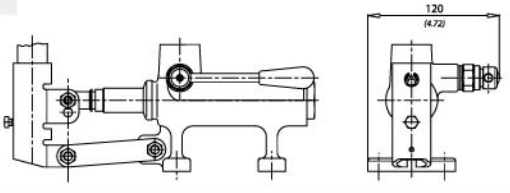
X	Optional
P	**Soffietto** / *With rubber protection*
WRV	**Senza rubinetto di scarico con valvola di massima** *Without unloading valve with relief valve*
W	**Senza rubinetto di scarico** / *Without unloading valve*
J	**Con joistick** / *With joistick*
L	**Con leva di scarico** / *With unloading lever*
RRV	**Con rubinetto di scarico e valvola di massima** / *With drain valve and relief valve*

WRV

Valvola di massima *(Relief valve)* **Molla 40/350 bar** *Spring 580/5075 PSI* **Taratura Standard 100 bar** *(Standard Setting) 1500 psi*



L



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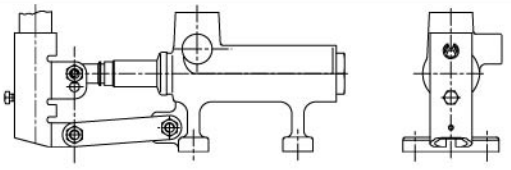
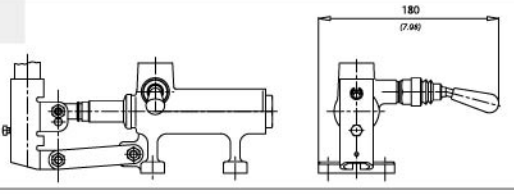
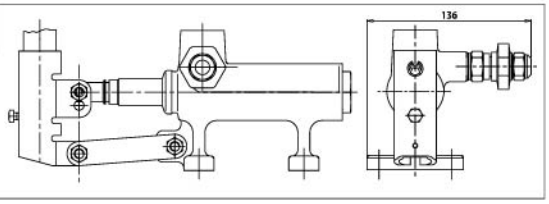


J



RRV



PM70

La pompa viene fornita con leva di azionamento L=600 mm

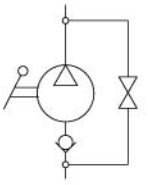
The pump is supplied with acting lever 23 in. long

Dati tecnici
Technical data

Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

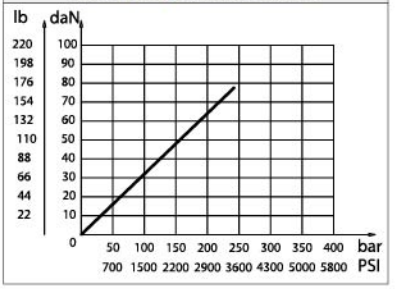
It is necessary a filter use to protect the valve (advised filtration 15 micron)

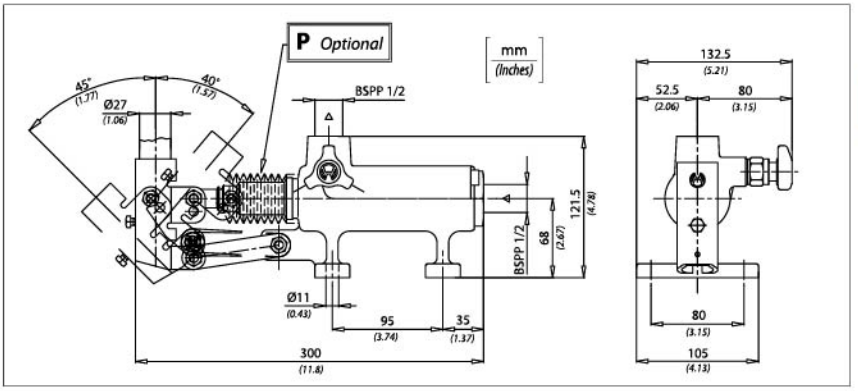


Caratteristiche tecniche / *Technical performances*

Codice *Code*	Pressione Max *Max pressure* bar/PSI	Peso approssimativo *Approx weight* Kg / lb	Cilindrata *Displacement* cm^3 / *in3*
PM70	**230** *(3300)*	**6** *(13.2)*	**70** *(4.27)*

Sforzo esercitato all'estremità della leva
Effort operating on the end of the lever





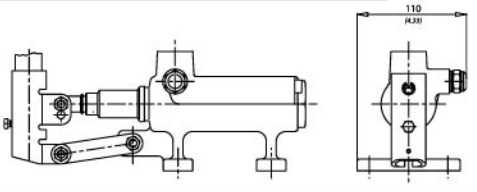
Codice ordinazione / *Ordering code*

PM70 - X

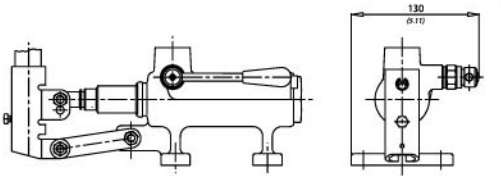
X	Optional
P	**Soffietto** / *With rubber protection*
WRV	**Senza rubinetto di scarico con valvola di massima** *Without unloading valve with relief valve*
W	**Senza rubinetto di scarico** / *Without unloading valve*
J	**Con joistick** / *With joistick*
L	**Con leva di scarico** / *With unloading lever*
RRV	**Con rubinetto di scarico e valvola di massima** / *With drain valve and relief valve*

Valvola di massima *(Relief valve)* **Molla 40/350 bar** *Spring 580/5075 PSI* **Taratura Standard 100 bar** *(Standard Setting) 1500 psi*

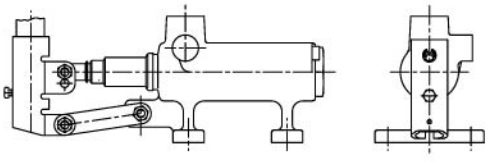
WRV



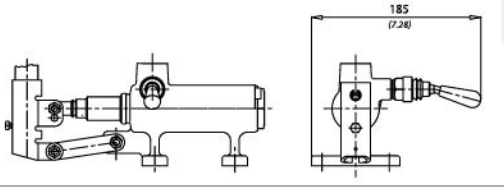
L



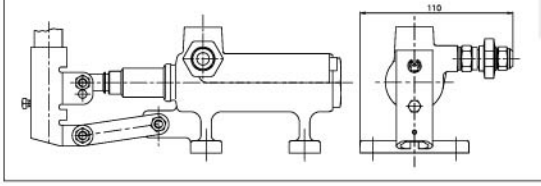
W



J



RRV



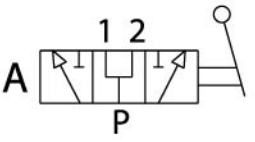
DDF3

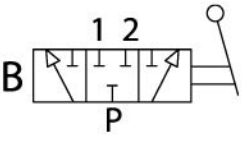
Dati tecnici
Technical data

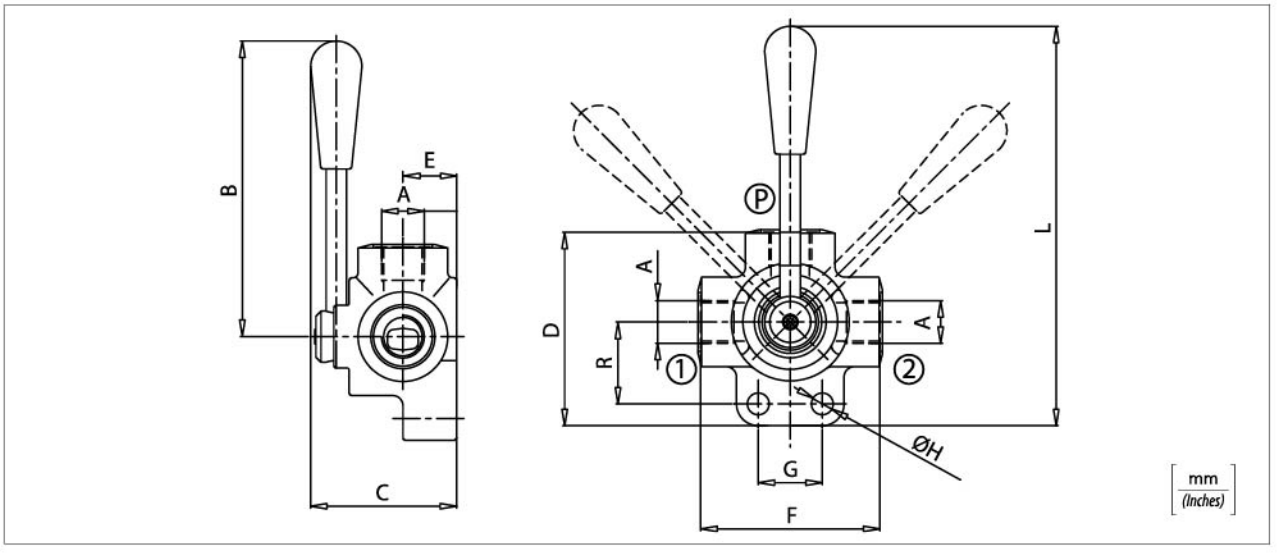
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

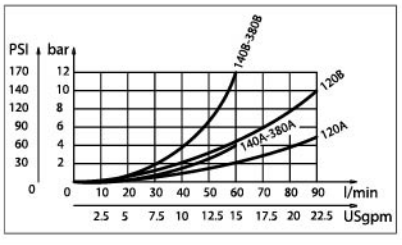
It is necessary a filter use to protect the valve (advised filtration 15 micron)

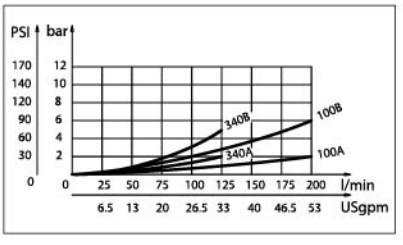






Perdite di carico / *Pressure drops*





Codice ordinazione / *Ordering code*

DDF3 - X - Y

X	Dimensione / *Size*
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1

Y	Schema / *Circuit*
A	**Centro aperto** *Open centre*
B	**Centro chiuso** *Closed centre*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata Max *Max flow* l/min - USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	R	Peso approssimativo *Approx weight* Kg/ lb
DDF3140	**BSPP 1/4**	**60** *(16)*	**350** *(5000)*	**115** *(4.53)*	**57** *(2.25)*	**75,5** *(2.97)*	**21** *(0.83)*	**70** *(2.76)*	**25** *(0.98)*	**8,5** *(0.33)*	**155,5** *(6.12)*	**32** *(1.26)*	**0,8** *(1.8)*
DDF3380	**BSPP 3/8**												
DDF3120	**BSPP 1/2**	**90** *(23)*			**63** *(2.48)*	**86** *(3.38)*	**24** *(0.95)*	**80** *(3.15)*	**32** *(0.13)*		**161** *(6.34)*	**36** *(1.42)*	**1,2** *(2.7)*
DDF3340	**BSPP 3/4**	**120** *(30)*			**67** *(2.64)*	**98,5** *(3.88)*	**26** *(1.02)*	**90** *(3.54)*		**10,5** *(0.41)*	**168,5** *(6.63)*	**42** *(1.65)*	**1,8** *(4)*
DDF3100	**BSPP 1**	**200** *(50)*	**300** *(4000)*		**77** *(3.03)*	**110** *(4.33)*	**31** *(1.22)*	**98** *(3.86)*			**176,5** *(6.95)*	**150** *(1.97)*	**2,7** *(6)*

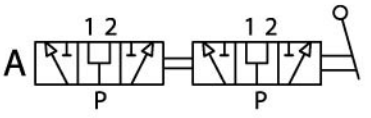
DDF6

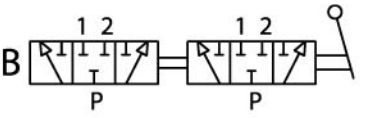
Dati tecnici / *Technical data*

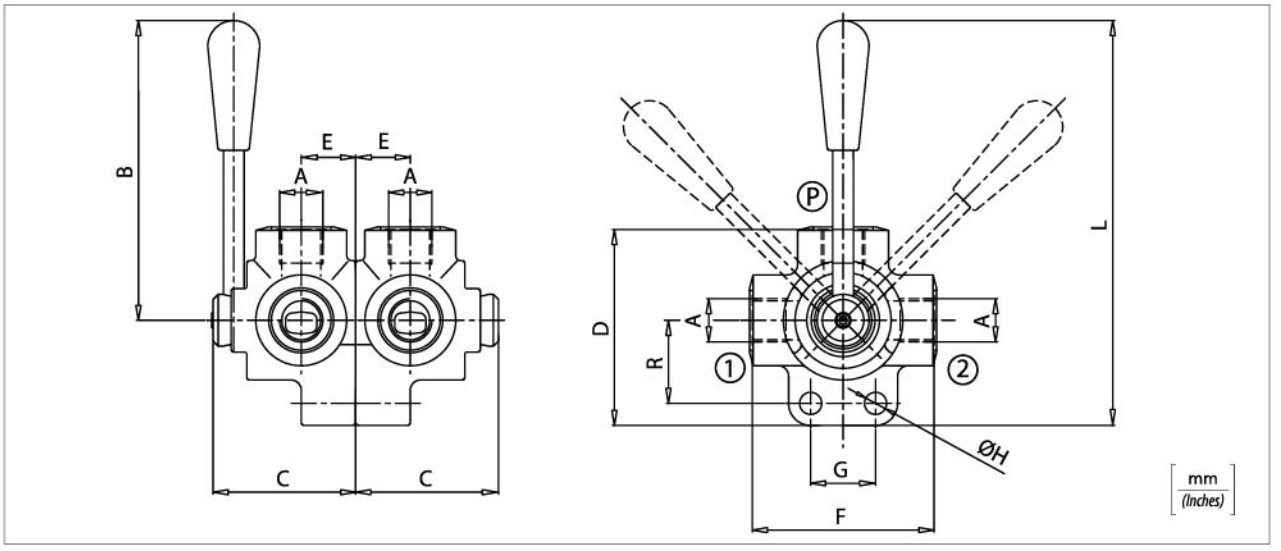
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

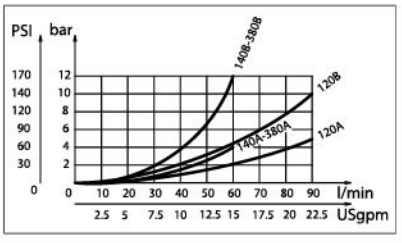
It is necessary a filter use to protect the valve (advised filtration 15 micron)

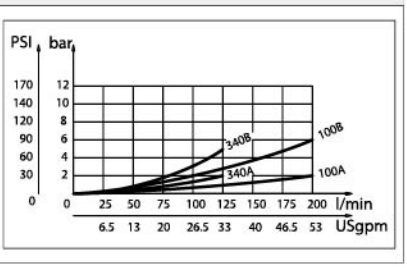






Perdite di carico / *Pressure drops*





Codice ordinazione / *Ordering code*

DDF6 - X - Y

X	Dimensione / *Size*
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1

Y	Schema / *Circuit*
A	**Centro aperto** *Open centre*
B	**Centro chiuso** *Closed centre*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata Max *Max flow* l/min - USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	R	Peso approssimativo *Approx weight* Kg/lb
DDF6140	**BSPP 1/4**	**60+60** *(16+16)*	**350** *(5000)*	**115** *(4.53)*	**57** *(2.25)*	**75,5** *(2.97)*	**21** *(0.83)*	**70** *(2.76)*	**25** *(0.98)*	**8,5** *(0.33)*	**155,5** *(6.12)*	**32** *(1.26)*	**1,5** *(3.3)*
DDF6380	**BSPP 3/8**												
DDF6120	**BSPP 1/2**	**90+90** *(23+23)*			**63** *(2.48)*	**86** *(3.38)*	**24** *(0.95)*	**80** *(3.15)*	**32** *(0.13)*		**161** *(6.34)*	**36** *(1.42)*	**2,3** *(5)*
DDF6340	**BSPP 3/4**	**120+120** *(30+30)*			**67** *(2.64)*	**98,5** *(3.88)*	**26** *(1.02)*	**90** *(3.54)*		**10,5** *(0.41)*	**168,5** *(6.63)*	**42** *(1.65)*	**3,5** *(8)*
DDF6100	**BSPP 1**	**200+200** *(50+50)*	**300** *(4000)*		**77** *(3.03)*	**110** *(4.33)*	**31** *(1.22)*	**98** *(3.86)*			**176,5** *(6.95)*	**150** *(1.97)*	**5,3** *(12)*

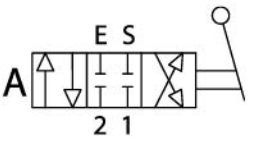
IDF4

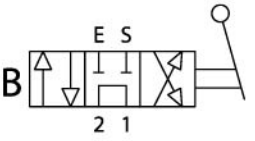
Dati tecnici
Technical data

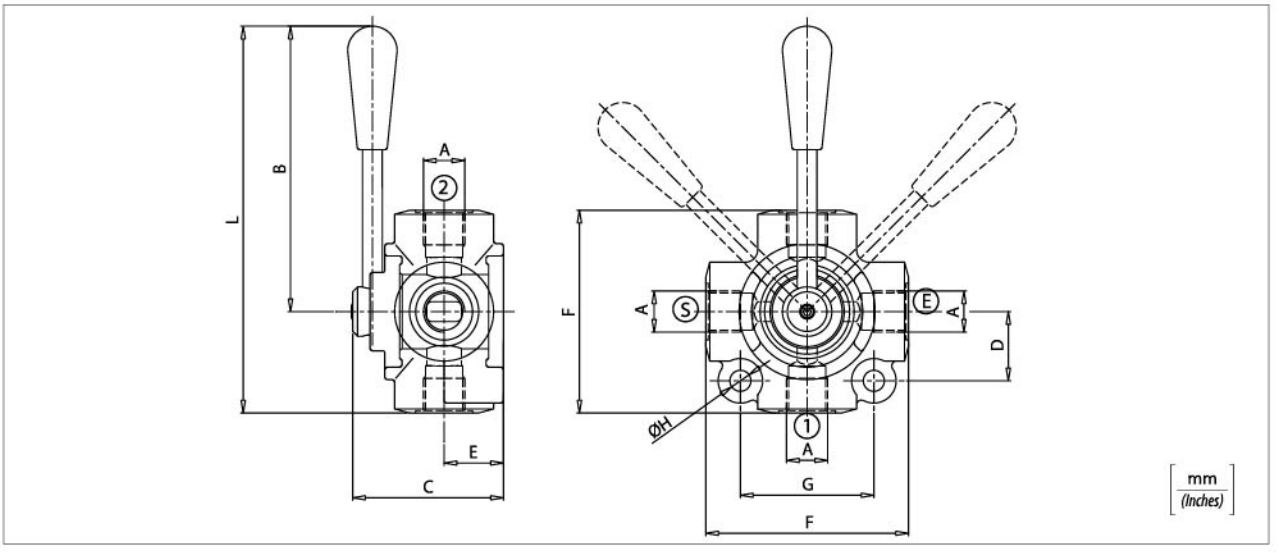
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

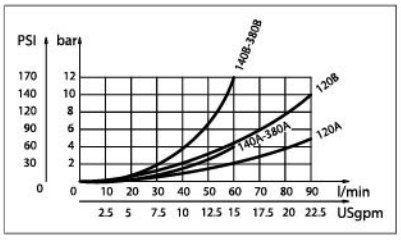
It is necessary a filter use to protect the valve (advised filtration 15 micron)

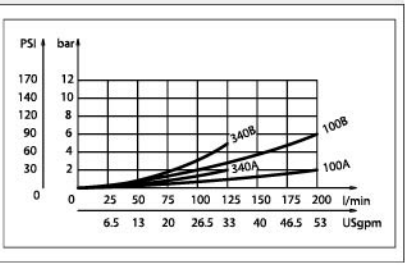






Perdite di carico / *Pressure drops*





Codice ordinazione / *Ordering code*

IDF4 - X - Y

X	Dimensione / *Size*
140	**BSPP 1/4**
380	**BSPP 3/8**
120	**BSPP 1/2**
340	**BSPP 3/4**
100	**BSPP 1**

Y	Schema / *Circuit*
A	**Centro chiuso** *Closed centre*
B	**Centro aperto** *Open centre*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata Max *Max flow* l/min - USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Peso approssimativo *Approx weight* Kg/ lb
IDF4140	**BSPP 1/4**	**60** *(16)*	**350** *(5000)*	**115** *(4.53)*	**63** *(2.48)*	**28** *(1.10)*	**24** *(0.95)*	**80** *(3.15)*	**54** *(2.12)*	**8,5** *(0.33)*	**155** *(6.10)*	**1,2** *(2.6)*
IDF4380	**BSPP 3/8**											
IDF4120	**BSPP 1/2**	**90** *(23)*										
IDF4340	**BSPP 3/4**	**120** *(30)*			**77** *(3.03)*	**38** *(1.50)*	**31** *(1.22)*	**94** *(3.70)*	**74** *(2.91)*	**10,5** *(0.41)*	**162** *(6.38)*	**2,2** *(4.8)*
IDF4100	**BSPP 1**	**200** *(50)*	**300** *(4000)*									**2** *(4.4)*

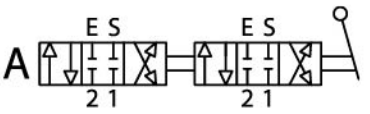
IDF8

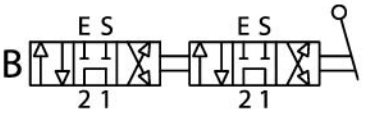
Dati tecnici / *Technical data*

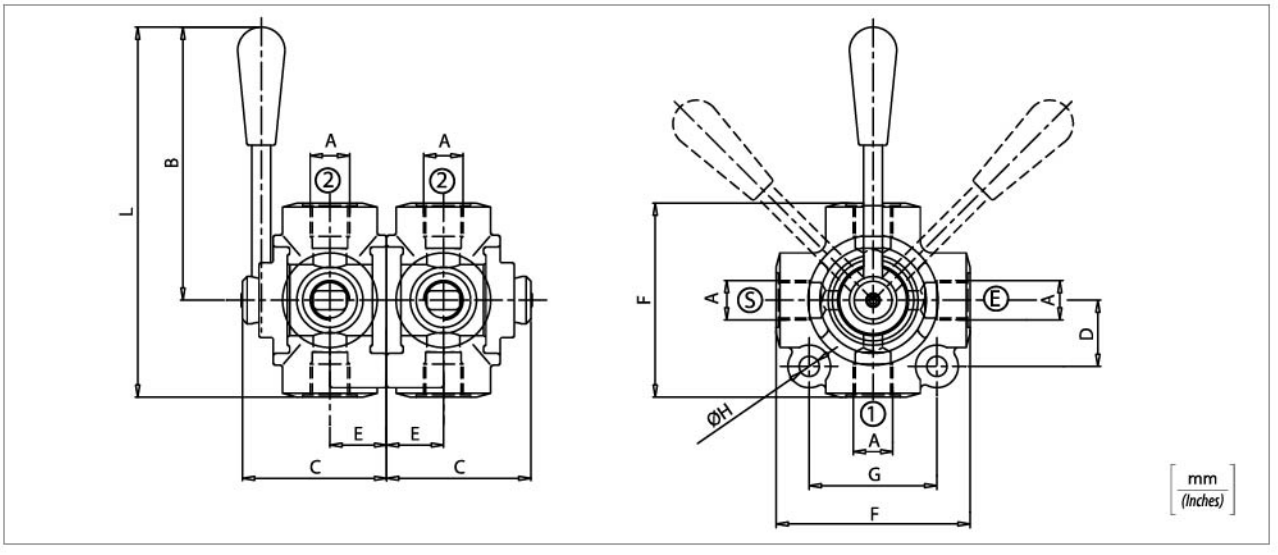
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

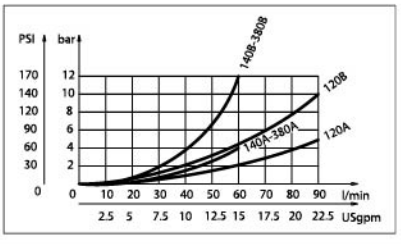
It is necessary a filter use to protect the valve (advised filtration 15 micron)

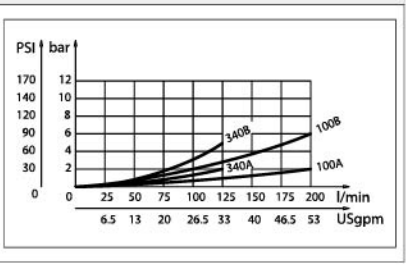






Perdite di carico / *Pressure drops*





Codice ordinazione / *Ordering code*

IDF8 - X - Y

X	Dimensione / *Size*
140	BSPP 1/4
380	BSPP 3/8
120	BSPP 1/2
340	BSPP 3/4
100	BSPP 1

Y	Schema / *Circuit*
A	**Centro chiuso** *Closed centre*
B	**Centro aperto** *Open centre*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata Max *Max flow* l/min - USgpm	Pressione Max *Max pressure* bar/PSI	B	C	D	E	F	G	H	L	Peso approssimativo *Approx weight* Kg/ lb
IDF8140	**BSPP 1/4**	**60** *(16)*	**350** *(5000)*	**115** *(4.53)*	**63** *(2.48)*	**28** *(1.10)*	**24** *(0.95)*	**80** *(3.15)*	**54** *(2.12)*	**8,5** *(0.33)*	**155** *(6.10)*	**2,3** *(5)*
IDF8380	**BSPP 3/8**											
IDF8120	**BSPP 1/2**	**90** *(23)*										**2,1** *(4.6)*
IDF8340	**BSPP 3/4**	**120** *(30)*			**77** *(3.03)*	**38** *(1.50)*	**31** *(1.22)*	**94** *(3.70)*	**74** *(2.91)*	**10,5** *(0.41)*	**162** *(6.38)*	**4,3** *(9.5)*
IDF8100	**BSPP 1**	**200** *(50)*	**300** *(4000)*									**4** *(8.8)*

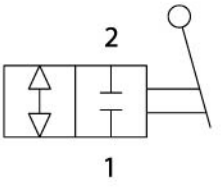
RAS2

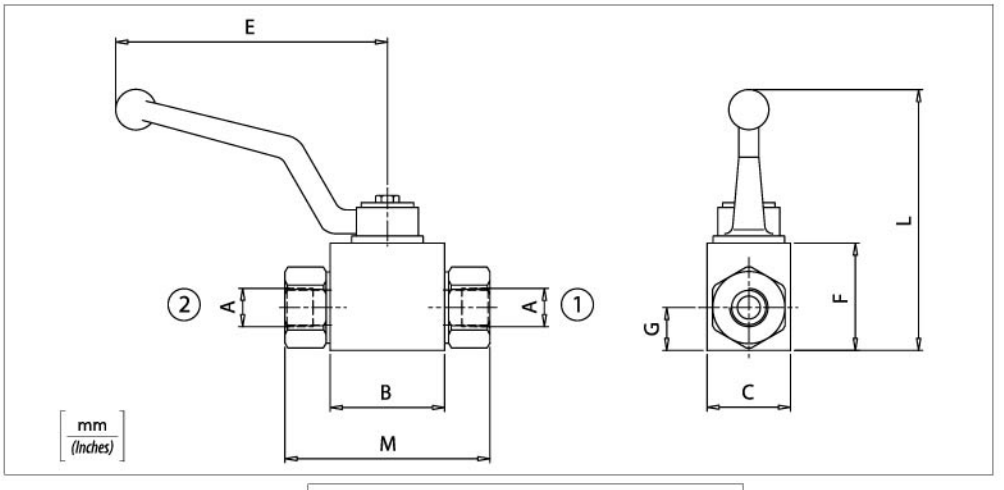
Dati tecnici
Technical data

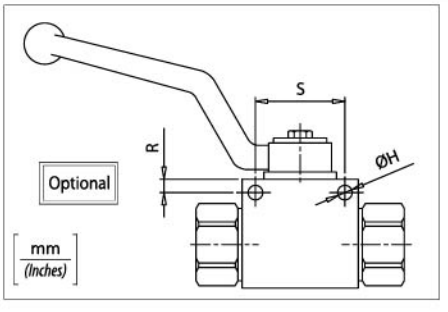
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+ 176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+ 122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)







Codice ordinazione
Ordering code

RAS2 - X - Y

X	Dimensione / *Size*
180	**BSPP 1/8**
140	**BSPP 1/4**
380	**BSPP 3/8**
120	**BSPP 1/2**
340	**BSPP 3/4**
100	**BSPP 1**
114	**BSPP 1-1/4**
112	**BSPP 1-1/2**

Y	Optional
P	**Fori di fissaggio** *Fixing ports*

Caratteristiche tecniche / *Technical performances*

Codice *Code*	A	Portata Max *Max flow* l/min - USgpm	Pressione Max *Max pressure* bar/PSI	B	C	E	F	G	H	L	M	R	S	Peso approssimativo *Approx weight* Kg/ lb
RAS2180	**BSPP 1/8**	**15** *(4)*	**500** *(7250)*	**42** *(1.65)*	**30** *(1.18)*	**110** *(4.33)*	**35** *(1.38)*	**14,5** *(0.57)*	**5,2** *(0.20)*	**91,5** *(3.60)*	**71** *(2.80)*	**4,5** *(0.18)*	**34** *(1.34)*	**0,5** *(1.1)*
RAS2140	**BSPP 1/4**	**25** *(6.5)*												
RAS2380	**BSPP 3/8**	**35** *(9)*		**44** *(1.73)*	**35** *(1.38)*		**40** *(1.57)*	**17,5**(0.69)		**96,5** *(3.80)*	**73** *(2.87)*	**5** *(0.20)*		**0,7**(1.5)
RAS2120	**BSPP 1/2**	**60** *(15)*		**48** *(1.89)*	**37** *(1.46)*		**43** *(1.69)*	**18** *(0.71)*		**99,5** *(3.91)*	**83** *(3.27)*		**36** *(1.42)*	**0,8** *(1.8)*
RAS2340	**BSPP 3/4**	**100** *(25)*	**400** *(5800)*	**62,5** *(2.46)*	**45** *(1.77)*	**180** *(7.08)*	**55** *(2.16)*	**23,5** *(0.93)*	**6,2** *(0.24)*	**106,5** *(4.19)*	**95** *(3.74)*	**6** *(0.24)*	**50** *(1.97)*	**1,5** *(3.3)*
RAS2100	**BSPP 1**	**150** *(40)*	**350** *(5000)*	**66,5** *(2.62)*	**55** *(2.16)*		**65** *(2.56)*	**29,5** *(1.16)*		**116,5** *(4.59)*	**112** *(4.41)*			**2,3** *(5)*
RAS2114	**BSPP 1-1/4**										**120** *(4.72)*			
RAS2112	**BSPP 1-1/2**										**124** *(4.88)*			**2,5** *(5.5)*

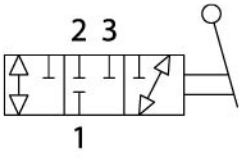
RAS3

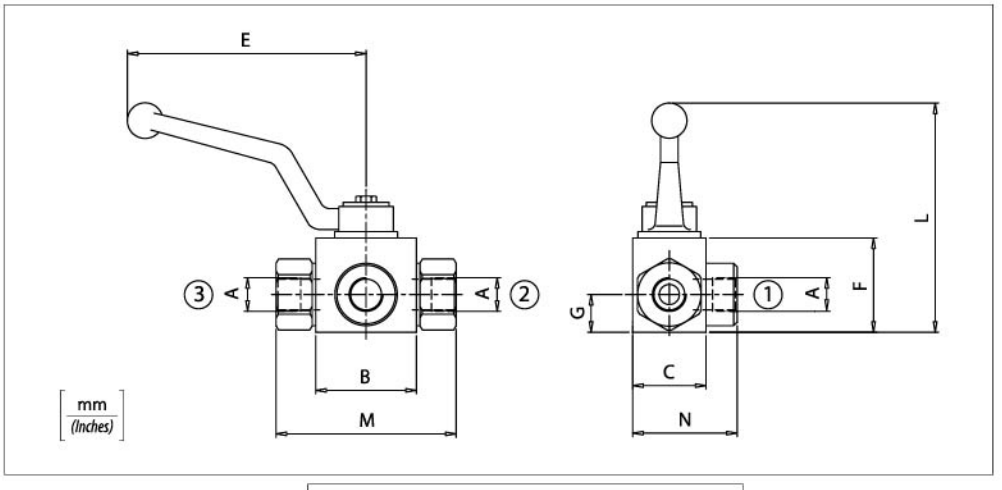
Dati tecnici
Technical data

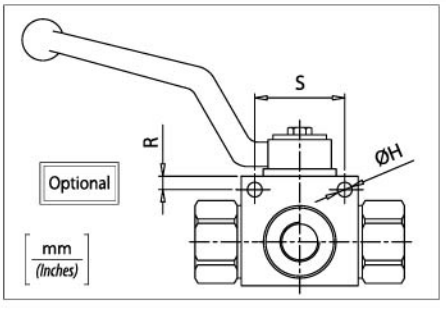
Olio idraulico *Mineral oil*	ISO 6743/4 *DIN 51524*	
Viscosità fluido *Fluid viscosity*	10-500 mm^2/s *45 to 2000 ssu (6 to 420 cSt)*	
Classe di contaminazione max con filtro *Max contamination index with filter*	ISO 4406:1999 Classe 19/17/14	
Temperatura del fluido *Fluid temperature*	-20°C *-4°F*	+80°C *+176°F*
Temperatura ambiente *Ambient temperature*	-20°C *-4°F*	+50°C *+122°F*

È indispensabile l'utilizzo di un filtro (filtrazione consigliata 15 micron) per proteggere la valvola

It is necessary a filter use to protect the valve (advised filtration 15 micron)







Codice ordinazione
Ordering code

RAS3 - X - Y

X	Dimensione / *Size*
180	**BSPP 1/8**
140	**BSPP 1/4**
380	**BSPP 3/8**
120	**BSPP 1/2**
340	**BSPP 3/4**
100	**BSPP 1**
114	**BSPP 1-1/4**
112	**BSPP 1-1/2**

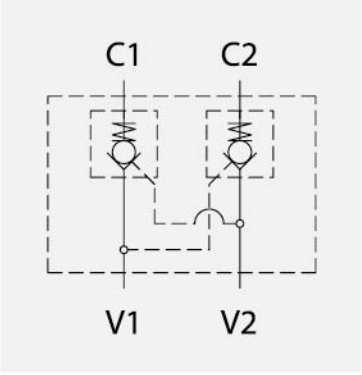
Y	Optional
P	**Fori di fissaggio** *Fixing ports*

Caratteristiche tecniche / *Technical performances*

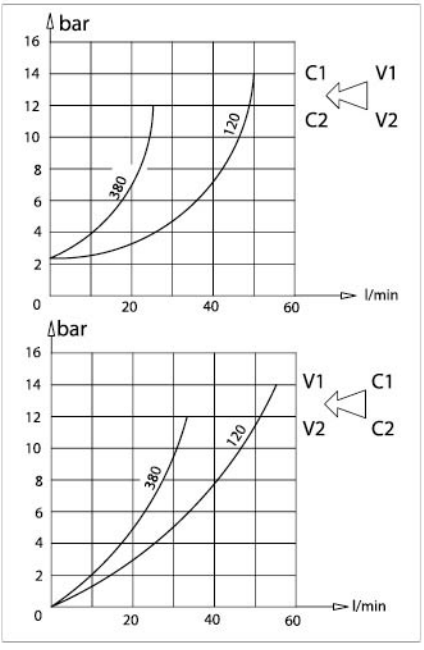
Codice *Code*	A	Portata Max *Max flow* l/min - USgpm	Pressione Max *Max pressure* bar/PSI	B	C	E	F	G	H	L	M	N	R	S	Peso approssimativo *Approx weight* Kg/ lb
RAS3180	**BSPP 1/8**	**15** *(4)*	**400** *(5800)*	**42** *(1.65)*	**30** *(1.18)*	**110** *(4.33)*	**35** *(1.38)*	**14,5** *(0.57)*	**5,2** *(0.20)*	**91,5** *(3.60)*	**71** *(2.80)*	**48,5** *(1.90)*	**4,5** *(0.18)*	**34** *(1.34)*	**0,6** *(1.3)*
RAS3140	**BSPP 1/4**	**25** *(6.5)*													
RAS3380	**BSPP 3/8**	**35** *(9)*		**44** *(1.73)*	**35** *(1.38)*		**40** *(1.57)*	**17,5**(0.69)		**96,5** *(3.80)*	**73** *(2.87)*	**54,5** *(2.14)*	**5** *(0.20)*	**36** *(1.42)*	**0,7**(1.5)
RAS3120	**BSPP 1/2**	**60** *(15)*	**350** *(5000)*	**48** *(1.89)*	**37** *(1.46)*		**43** *(1.69)*	**18** *(0.71)*		**99,5** *(3.91)*	**83** *(3.27)*	**58,5** *(2.30)*	**6** *(0.24)*	**50** *(1.97)*	**0,8** *(1.8)*
RAS3340	**BSPP 3/4**	**100** *(25)*		**62,5** *(2.46)*	**45** *(1.77)*	**180** *(7.08)*	**55** *(2.16)*	**23,5** *(0.93)*	**6,2** *(0.24)*	**106,5** *(4.19)*	**95** *(3.74)*	**75** *(2.95)*			**1,6** *(3.5)*
RAS3100	**BSPP 1**	**150** *(40)*		**66,5** *(2.62)*	**55** *(2.16)*		**65** *(2.56)*	**29,5** *(1.16)*		**116,5** *(4.59)*	**112** *(4.41)*	**87,5** *(3.15)*			**2,4** *(5.3)*
RAS3114	**BSPP 1-1/4**										**120** *(4.72)*				**2,6** *(5.7)*
RAS3112	**BSPP 1-1/2**										**124** *(4.88)*				**2,8** *(6)*

NSLVDF

DUBLE ACTING PILOT CHECK VALVES - FLANGED VERSION



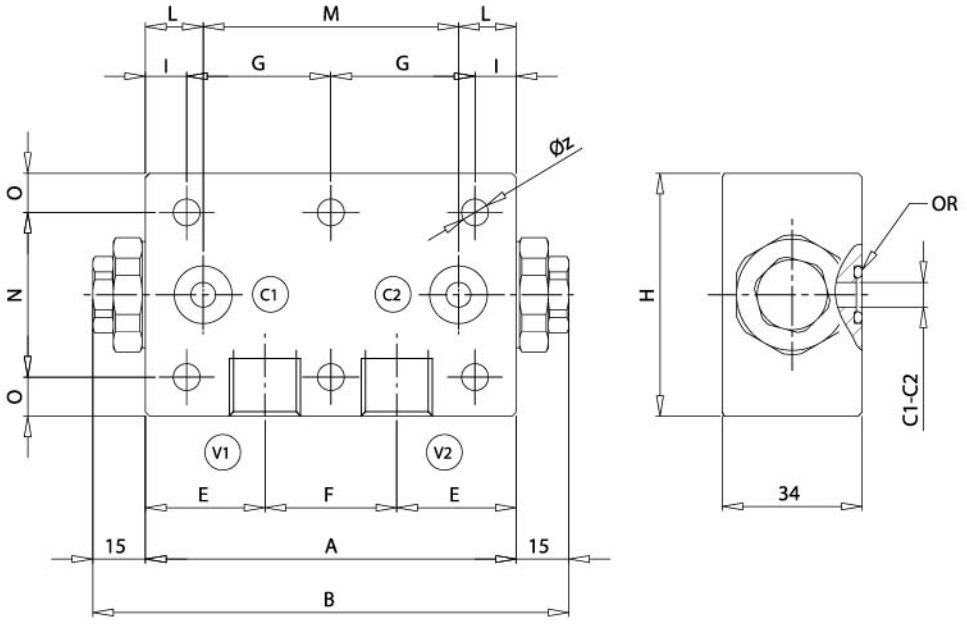
PRESSURE DROPS



TECHNICAL DATA

Mineral oil	ISO 6743/4 - DIN 51524
Fluid viscosity	10-500 mm^2/s 45 to 2000 ssu (6 to 420 cSt)
Max contamination index with filter	ISO 4406:1999 - 19/17/14
Fluid temperature	-20°C +80°C
Ambient temperature	-20°C +50°C
Max pressure	350 bar
Stell body	

It is necessary a filter use to protect the valve
(advised filtration 15 micron)

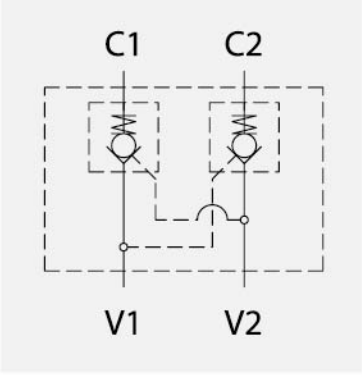


ORDERING CODE

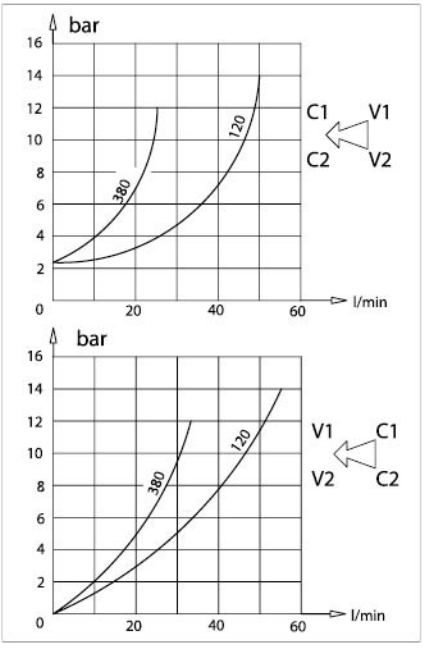
CODE	ORDER CODE	V1-V2	C1-C2	A	B	E	F	G	H	I	L	M	N	O	Z	OR	PILOT RATIO
NS-LVDF-02	13900174	G 3/8	6	96	113	32	32	35	60	13	17	62	40	10	6.5	9.19x2.62	1:7
NS-LVDF-03	13900175	G 1/2	10	110	140	38	34	40	70	15	22.5	65	40	15	8.5	15.08x2.62	1:3.4

NSLVDL

DUBLE ACTING PILOT CHECK VALVES



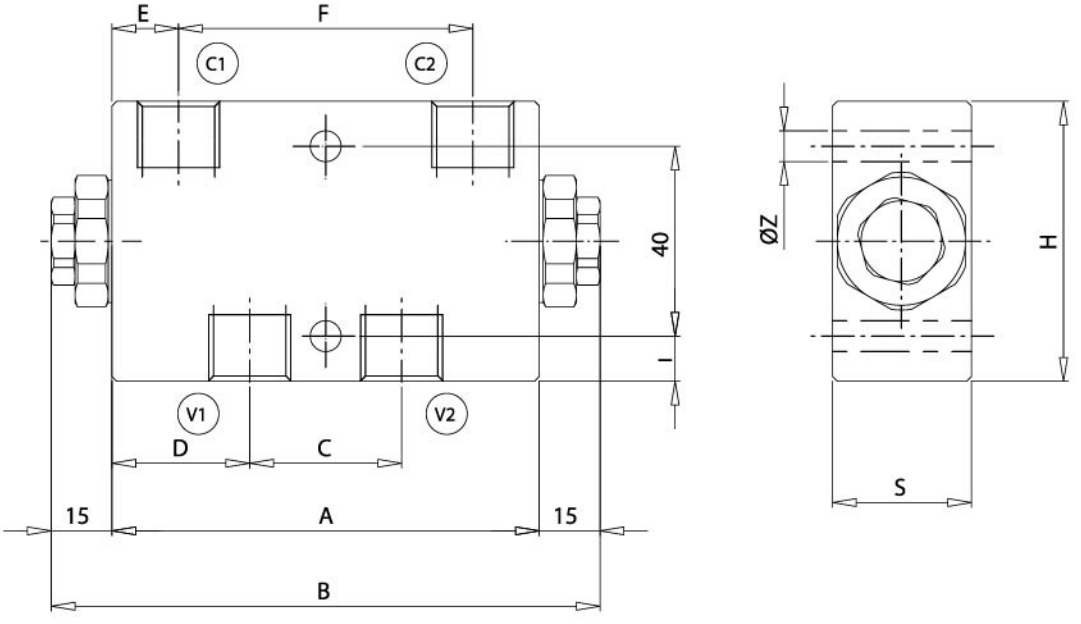
PRESSURE DROPS



TECHNICAL DATA

Mineral oil	ISO 6743/4 - DIN 51524
Fluid viscosity	10-500 mm^2/s 45 to 2000 ssu (6 to 420 cSt)
Max contamination index with filter	ISO 4406:1999 - 19/17/14
Fluid temperature	-20°C +80°C
Ambient temperature	-20°C +50°C
Max pressure	350 bar
Stell body	

It is necessary a filter use to protect the valve
(advised filtration 15 micron)

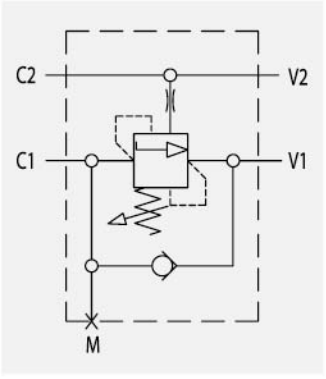


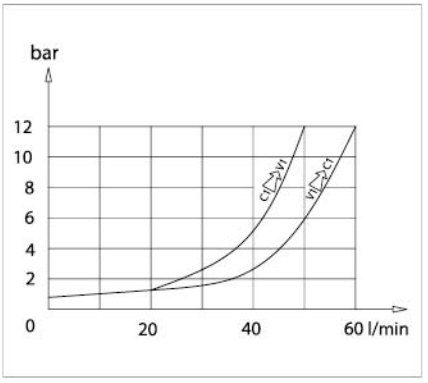
ORDERING CODE

CODE	ORDER CODE	V1-V2 C1-C2	A	B	C	D	E	F	H	I	S	Z	PILOT RATIO
NS-LVDL-15	23900174	G 3/8	90	120	32	29	14	62	59	9.5	29	6.5	1:4
NS-LVDL-03	23900175	G 1/2	110	140	34	38	20.5	69	69	14.5	34	8.5	1:3.4

A-VBSO-SE

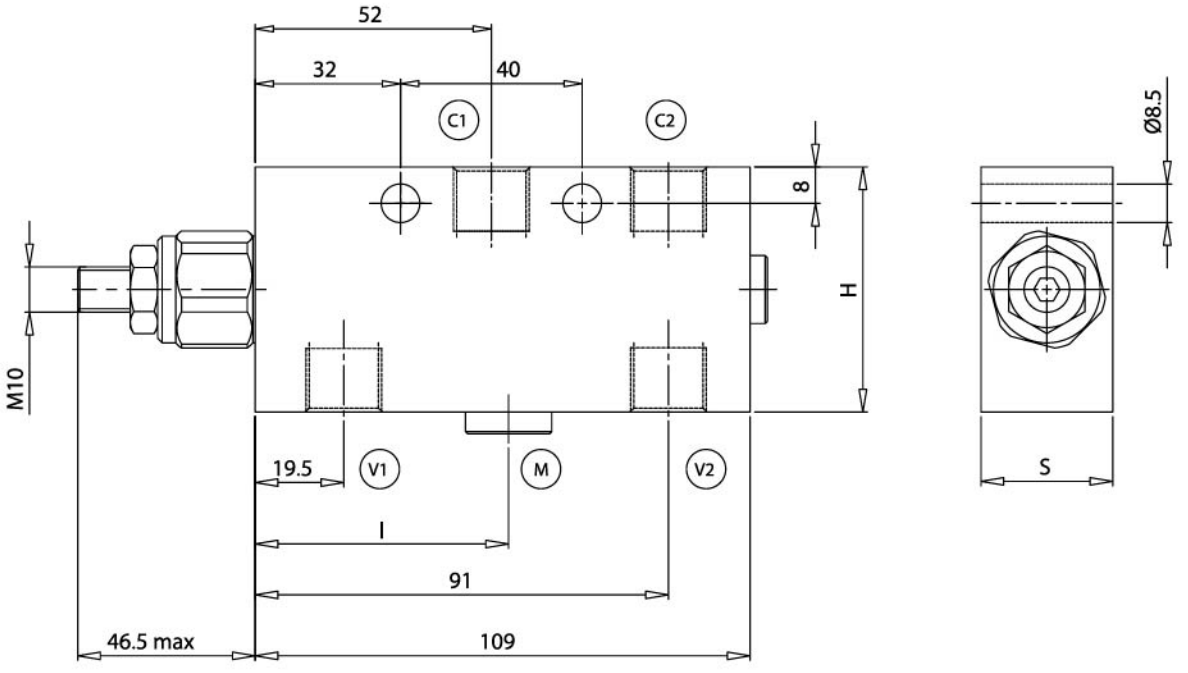
SINGLE COUNTERBALANCE VALVES FOR OPEN CENTER





TECHNICAL DATA	
Mineral oil	ISO 6743/4 - DIN 51524
Fluid viscosity	10-500 mm²/ s 45 to 2000 ssu (6 to 420 cSt)
Max contamination index with filter	ISO 4406:1999 - 19/17/14
Fluid temperature	-20°C +80°C
Ambient temperature	-20°C +50°C
Max pressure	350 bar
Pilot ratio	1:4,25
Stell body	

It is necessary a filter use to protect the valve
(advised filtration 15 micron)

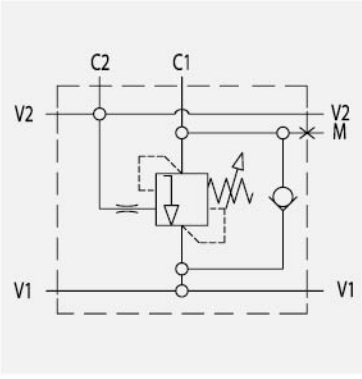


ORDERING CODE

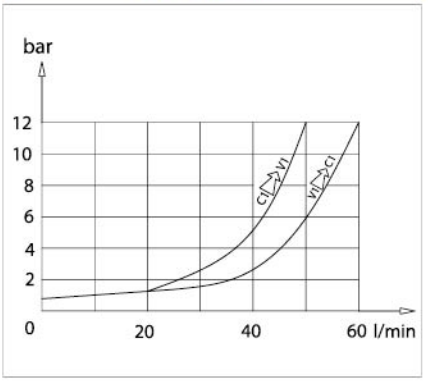
CODE	ORDER CODE	V1-C1 V2-C2	M	H	I	S
A-VBSO-SE-380	13900180	G 3/8	-	54	-	29
A-VBSO-SE-120	13900181	G 1/2	G 1/4	64	54	34

A-VBSO/FL-SE

SINGLE CONTERBALANCE VALVES FOR OPEN CENTER - FLANGED VERSION



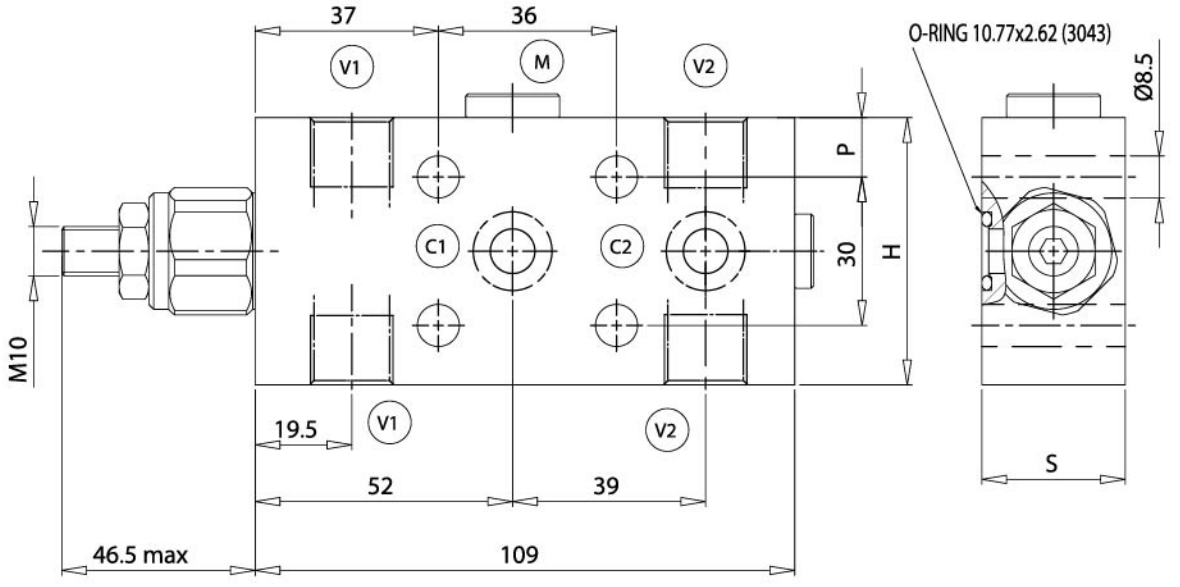
PRESSURE DROPS



TECHNICAL DATA

Mineral oil	ISO 6743/4 - DIN 51524
Fluid viscosity	10-500 mm²/ s 45 to 2000 ssu (6 to 420 cSt)
Max contamination index with filter	ISO 4406:1999 - 19/17/14
Fluid temperature	-20°C +80°C
Ambient temperature	-20°C +50°C
Max pressure	350 bar
Pilot ratio	1:4,25
Stell body	

It is necessary a filter use to protect the valve
(advised filtration 15 micron)

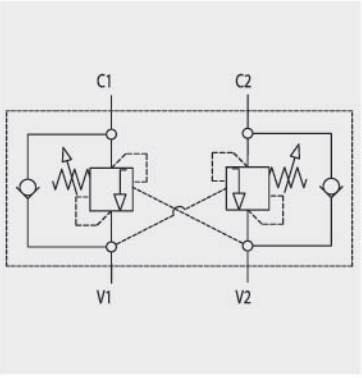


ORDERING CODE

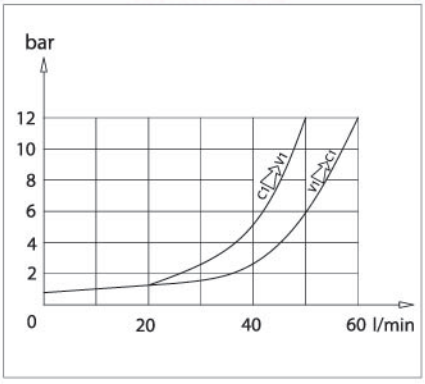
CODE	ORDER CODE	V1-V2	M	H	P	S
A-VBSO/FL-SE-380	13900182	G 3/8	G 1/4	54	12	29
A-VBSO/FL-SE-120	13900183	G 1/2	G 1/4	64	17	34

A-VBDO-SE

DUAL CONTERBALANCE VALVES FOR OPEN CENTER



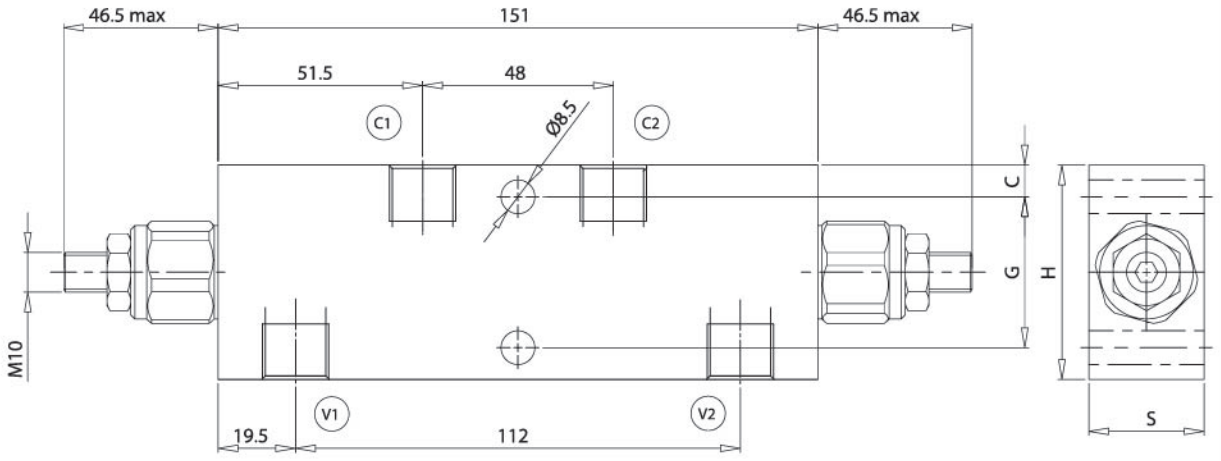
PRESSURE DROPS



TECHNICAL DATA

Mineral oil	ISO 6743/4 - DIN 51524
Fluid viscosity	10-500 mm²/ s 45 to 2000 ssu (6 to 420 cSt)
Max contamination index with filter	ISO 4406:1999 - 19/17/14
Fluid temperature	-20°C +80°C
Ambient temperature	-20°C +50°C
Max pressure	350 bar
Pilot ratio	1:4,25
Stell body	

It is necessary a filter use to protect the valve
(advised filtration 15 micron)

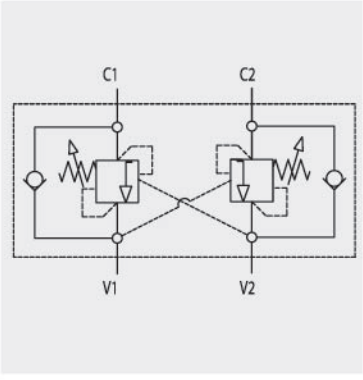


ORDERING CODE

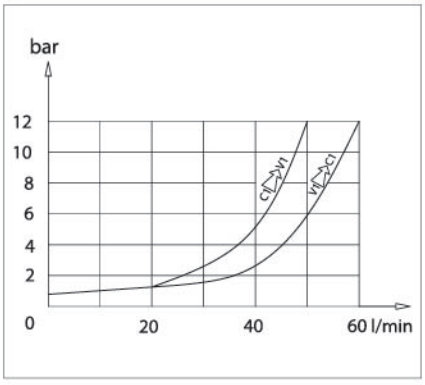
CODE	ORDER CODE	V1-V2 C1-C2	C	G	H	S
A-VBDO-SE-380	13900176	G 3/8	8	38	54	29
A-VBDO-SE-120	13900177	G 1/2	10,5	43	64	34

A-VBDO/FL-SE

DUAL CONTERBALANCE VALVES FOR OPEN CENTER - FLANGED VERSION



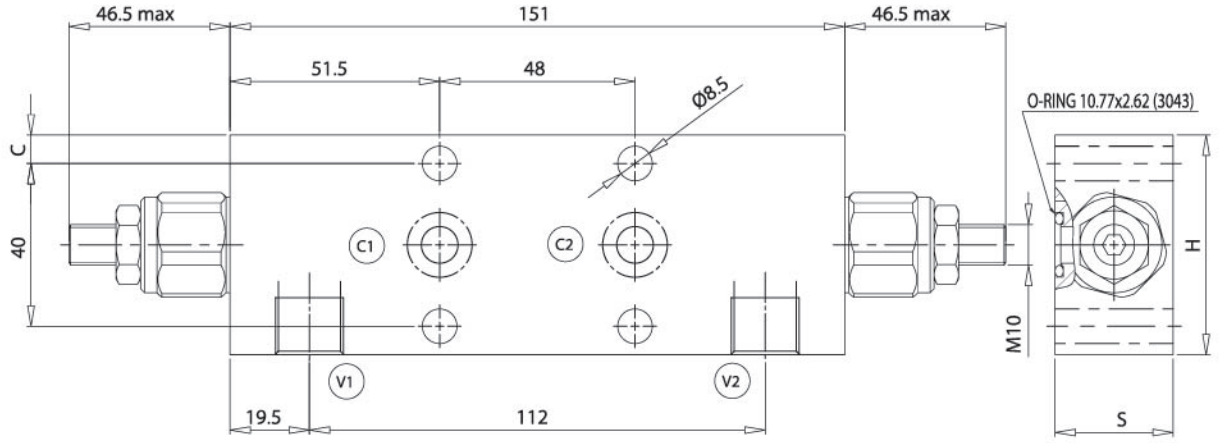
PRESSURE DROPS



TECHNICAL DATA

Mineral oil	ISO 6743/4 - DIN 51524
Fluid viscosity	10-500 mm²/ s 45 to 2000 ssu (6 to 420 cSt)
Max contamination index with filter	ISO 4406:1999 - 19/17/14
Fluid temperature	-20°C +80°C
Ambient temperature	-20°C +50°C
Max pressure	350 bar
Pilot ratio	1:4,25
Stell body	

It is necessary a filter use to protect the valve
(advised filtration 15 micron)

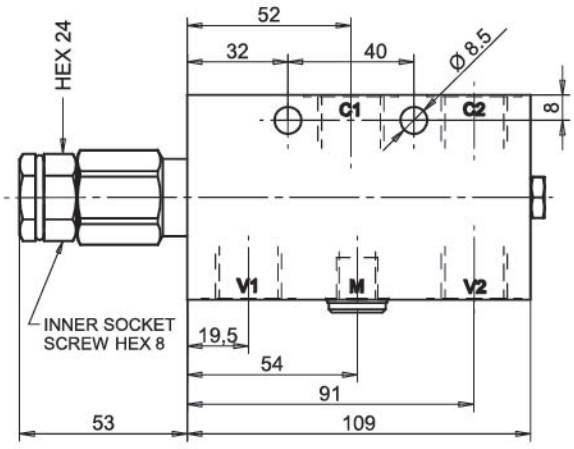


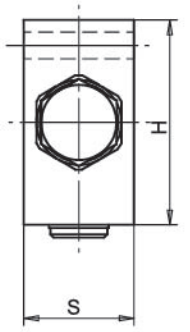
ORDERING CODE

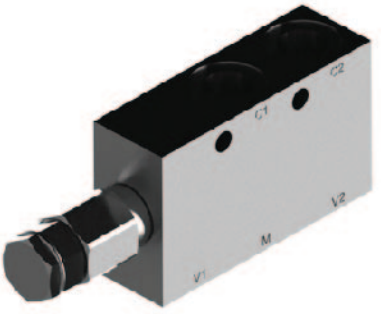
CODE	ORDER CODE	V1-V2	C	H	S
A-VBDO/FL-SE-380	13900178	G 3/8	7	54	29
A-VBDO/FL-SE-120	13900179	G 1/2	12	64	34

NSCBSLTRCC

Dimensions

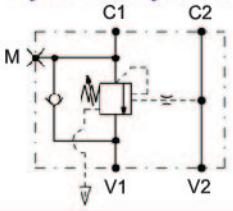




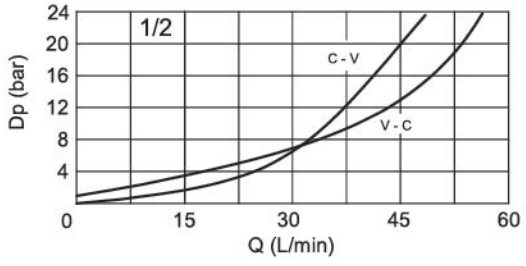


Size	V1 - V2 C1 - C2	M	H	S
01	G 1/4	-	55	30
02	G 3/8	-	55	30
03	G 1/2	G 1/4	65	35

Hydraulic Symbol



Curves



Features

Max Flow	60 lpm
Max Pressure	350 bar
Pilot Ratio	4,2:1
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel manifold, hardened steel inner parts.

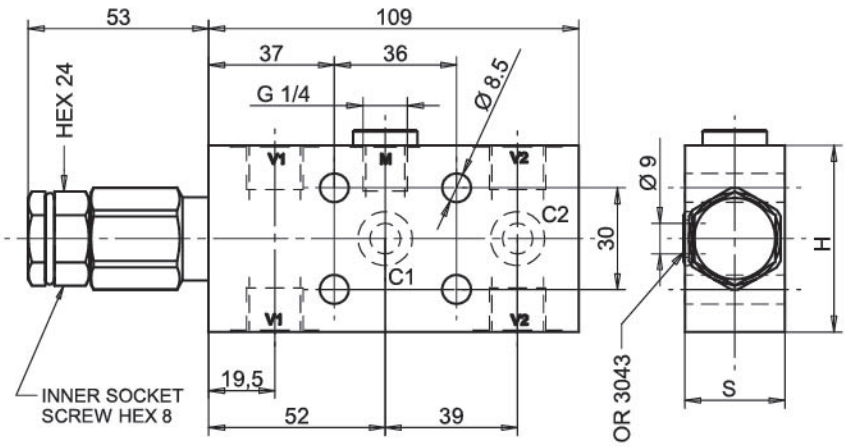
Ordering Code

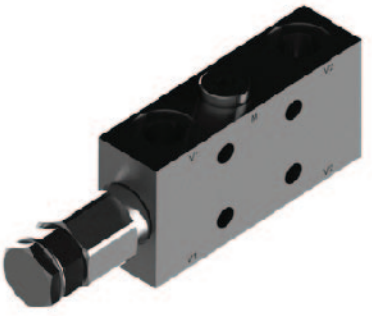
NSCBSLTRCC - -

	Port Size BSP
140	1/4
380	3/8
120	1/2

NSCBSL2FTRCC

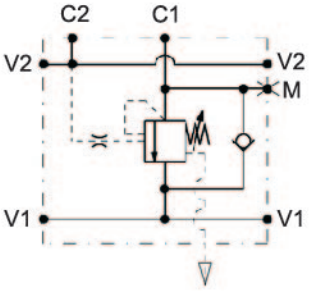
Dimensions



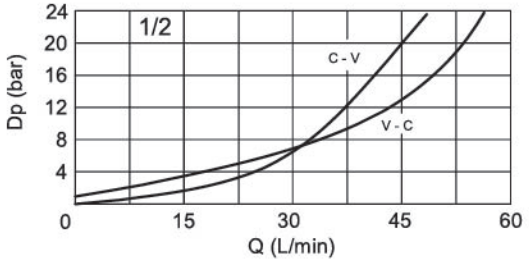


Size	V1 - V2 C2	H	S
01	G 1/4	55	29,5
02	G 3/8	55	29,5
03	G 1/2	65	34,5

Hydraulic Symbol



Curves



Features

Max Flow	60 lpm
Max Pressure	350 bar
Pilot Ratio	4,2:1
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel manifold, hardened steel inner parts.

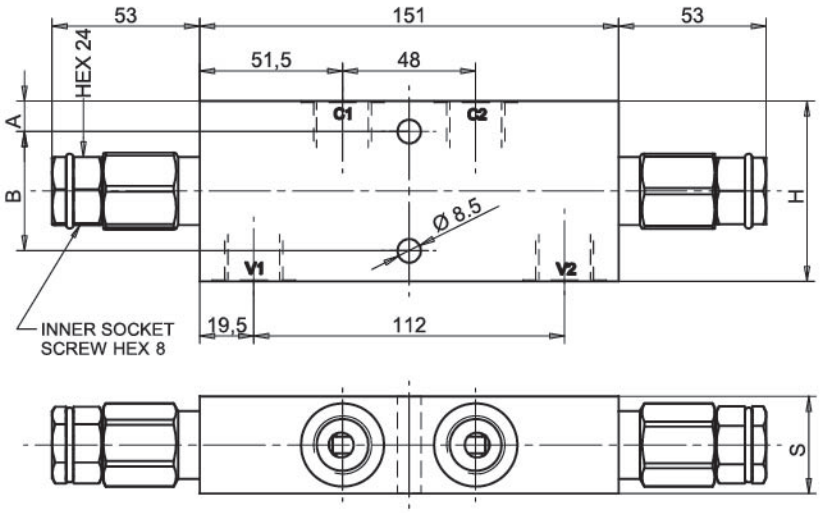
Ordering Code

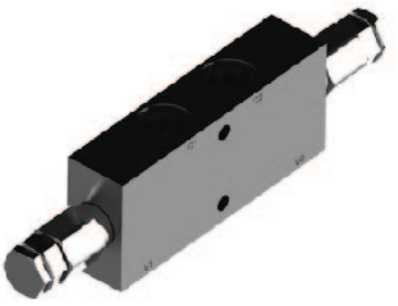
NSCBSL2FTRCC - -

	Port Size BSP
140	1/4
380	3/8
120	1/2

NSCBDLTRCC

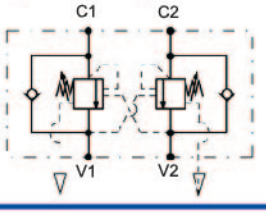
Dimensions



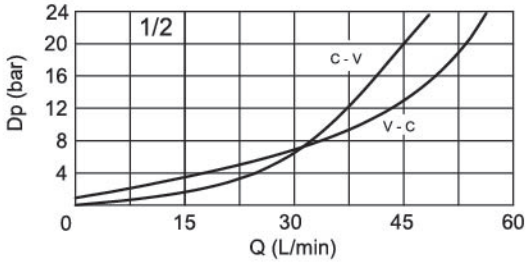


Size	V1 - V2	A	B	H	S
02	G 3/8	8,5	38	55	30
03	G 1/2	11	43	65	35

Hydraulic Symbol



Curves



Features

Max Flow	60 lpm
Max Pressure	350 bar
Pilot Ratio	4,2:1
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel manifold, hardened steel inner parts.

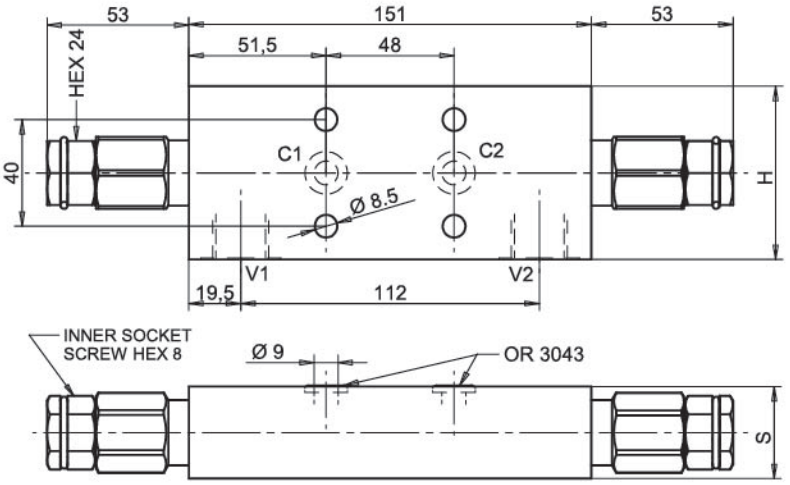
Ordering Code

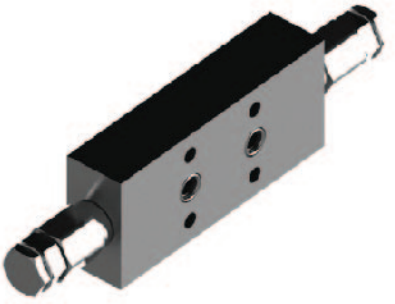
NSCBDLTRCC	- -

	Port Size BSP
380	3/8
120	1/2

NSCBDL2FTRCC

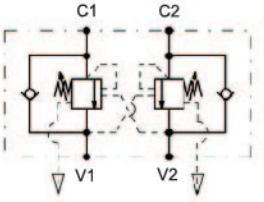
Dimensions



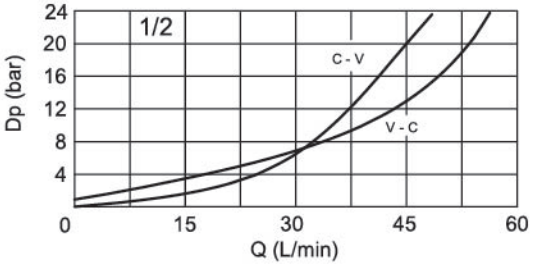


Size	V1 - V2	H	S
02	G 3/8	55	30
03	G 1/2	65	35

Hydraulic Symbol



Curves



Features

Max Flow	60 lpm
Max Pressure	350 bar
Pilot Ratio	4,2:1
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel manifold, hardened steel inner parts.

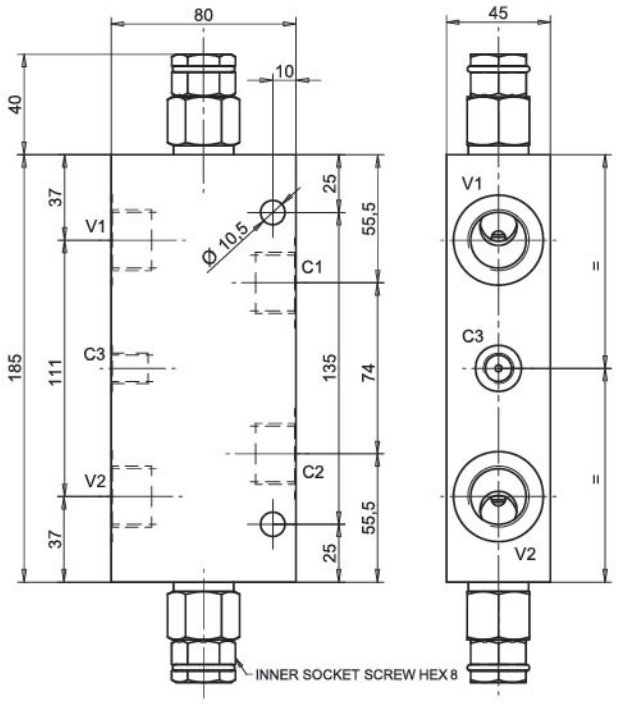
Ordering Code

NSCBDL2FTRCC	- -

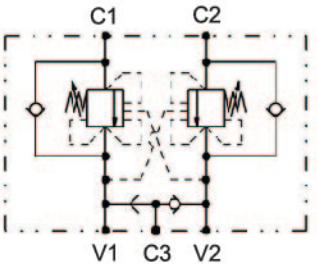
	Port Size BSP
380	3/8
120	1/2

NSCBDLSFNVCC

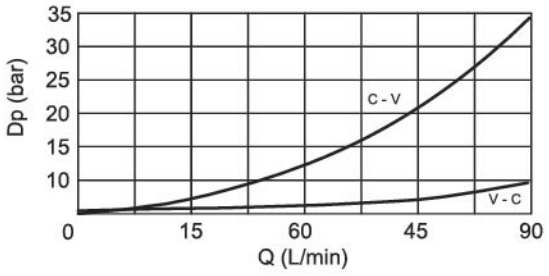
Dimensions



Hydraulic Symbol



Curves



Features

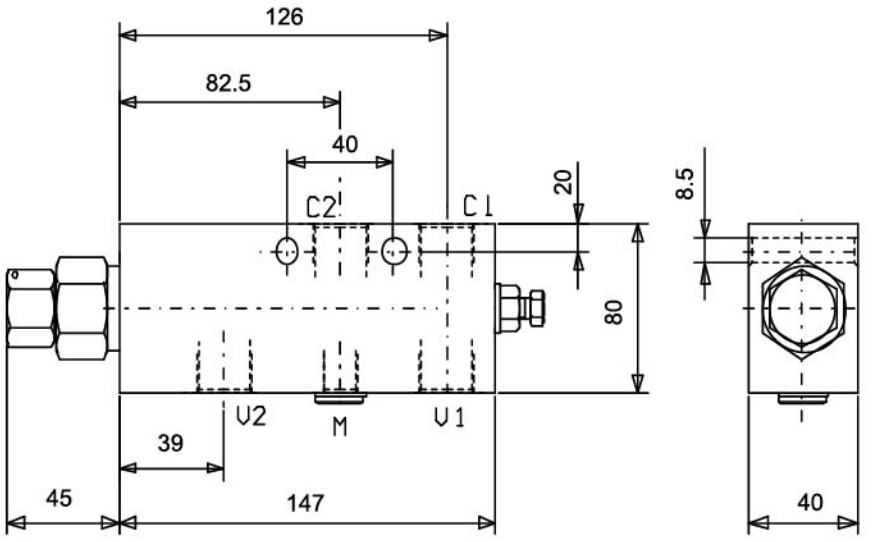
Max Flow	100 lpm
Max Pressure	350 bar
Pilot Ratio	4,2:1
Std. Pressure range	100 - 350 bar
Ports	V1-V2: G 3/4 C1-C2: G 3/4 C3: G 1/4

Ordering Code

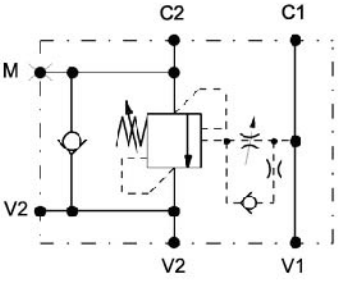
NSCBDLSFNVCC340

NSCB150TSS

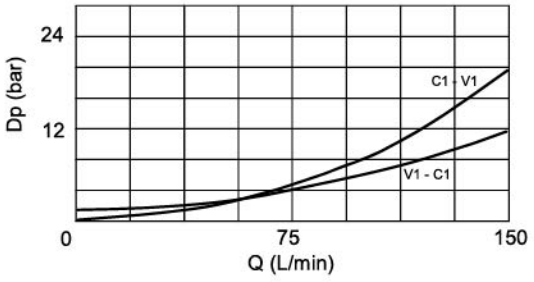
Dimensions



Hydraulic Symbol



Curves



Features

Max Flow	150 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 Standard
Ports	3/4 bsp

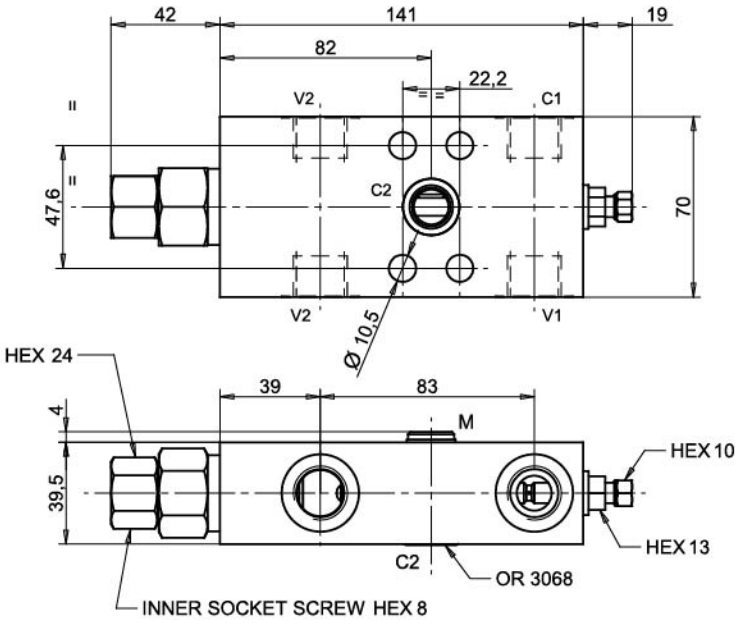
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

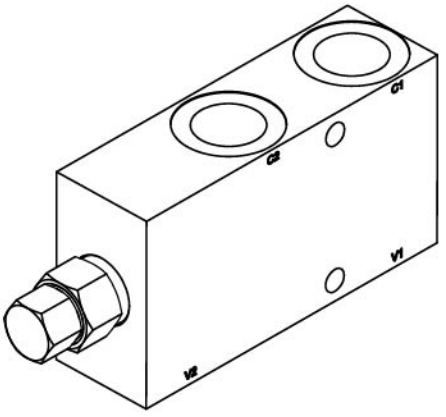
Ordering Code

NSCB150TSS340

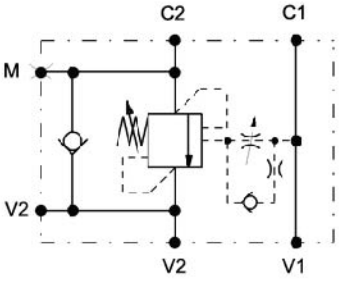
NSCB150SLS

Dimensions





Hydraulic Symbol



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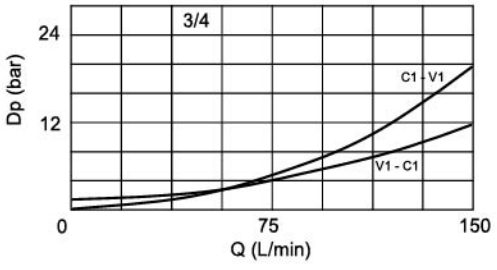


Features

Max Flow	150 lpm
Max Pressure	350 bar
Pilot Ratio	4:1
Std. Pressure range	100 - 350 bar
Ports	V1-V2-C1: G 1/2 C2: 3/4" SAE 3000 M: G 1/4

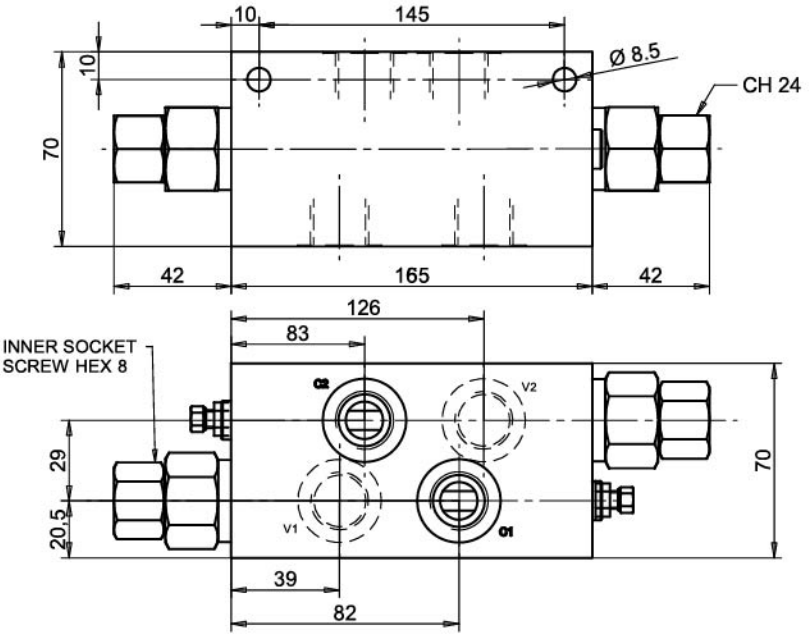
Materials: Zinc plated steel body

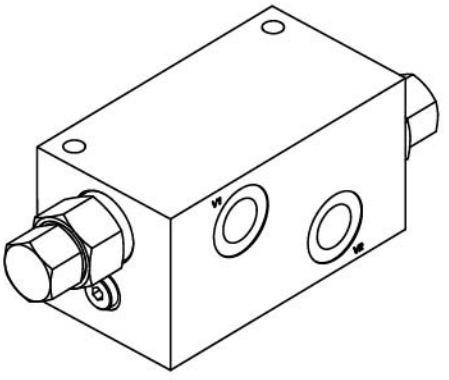
Ordering Code

NSCB150SLS120

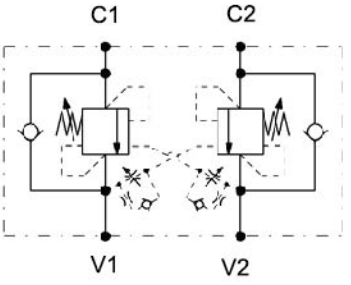
NSCB150TDL

Dimensions

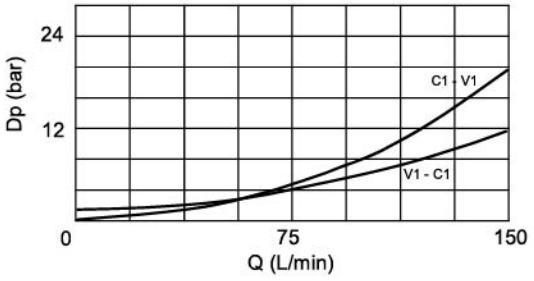




Hydraulic Symbol



Curves



Features

Max Flow	150 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 Standard
Ports	1/2 bsp

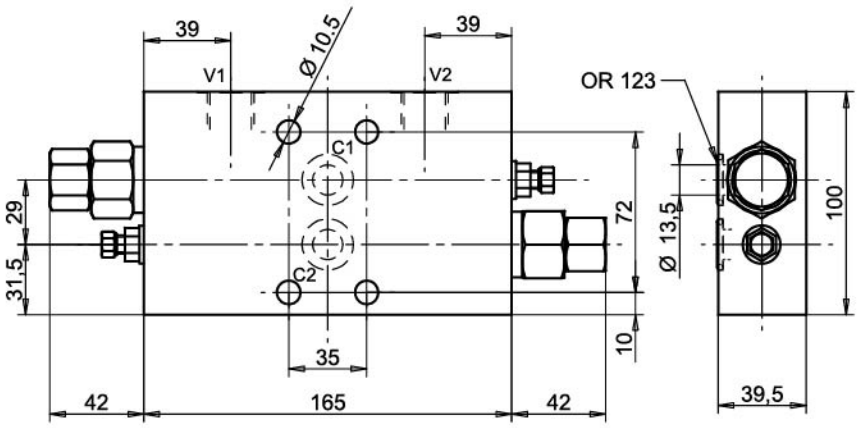
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

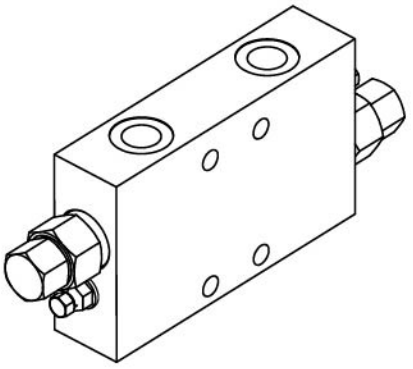
Ordering Code

NSCB150TDL120

NSCB150DLF

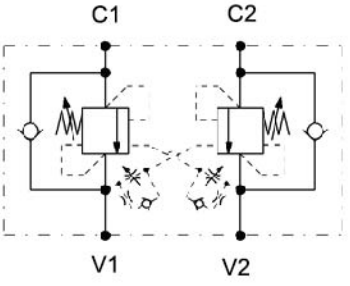
Dimensions



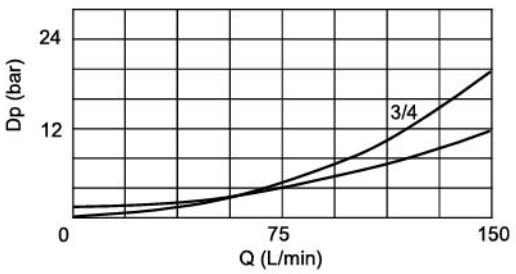


Size	V1 - V2 bsp	C1 - C2 Ø
120	1/2	13,5
340	3/4	13,5

Hydraulic Symbol



Curves



Features

Max Flow	150 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 - Standard
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

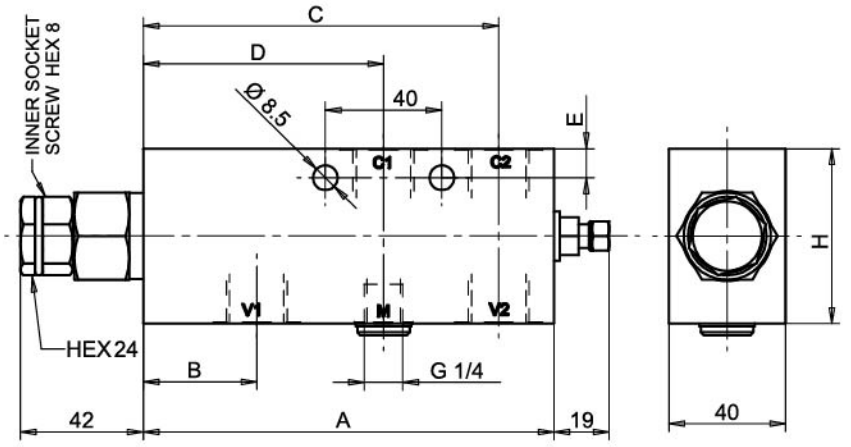
Ordering Code

NSCB150DLF - -

	Port Size BSP
120	1/2
340	3/4

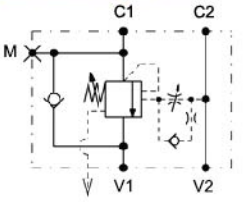
NSCBSLTECC

Dimensions



Size	V1 - V2	A	B	C	D	E	H
120	G 1/2	141	39	122,5	82,5	10	60
340	G 3/4	147	40	126	83	20	80

Hydraulic Symbol



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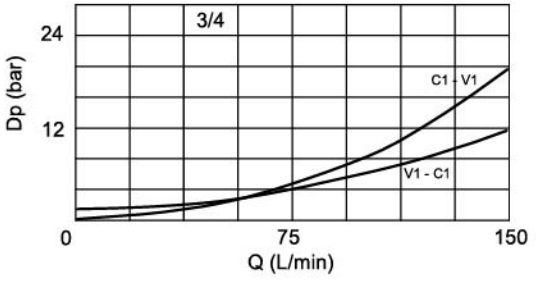


Features

Max Flow	150 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 Standard
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel manifold, hardened steel inner parts.

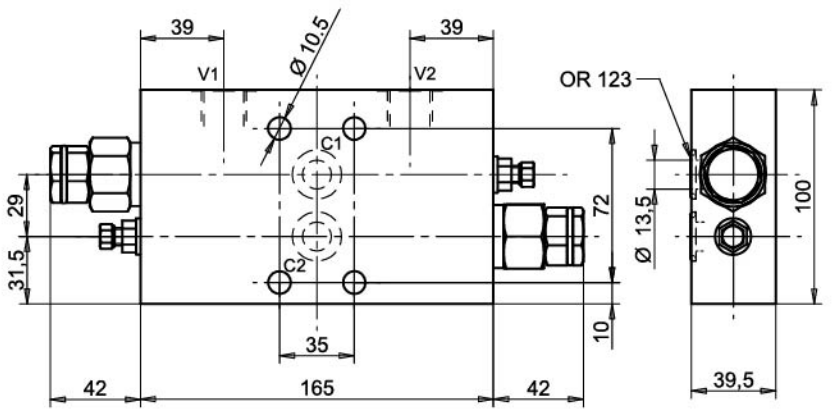
Ordering Code

NSCBSLTECC **- -**

	Port Size BSP
120	1/2
340	3/4

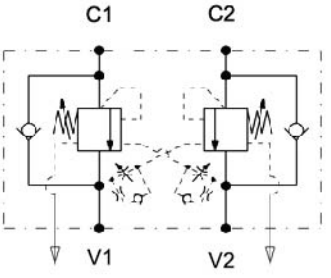
NSCBDLFTECC

Dimensions

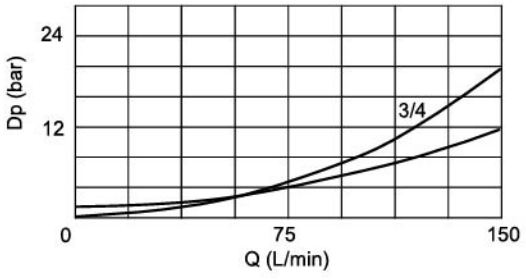


Size	V1 - V2 bsp	C1 - C2 Ø
120	1/2	13,5
340	3/4	13,5

Hydraulic Symbol



Curves



Features

Max Flow	150 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 - Standard
Std. Pressure range	100 - 350 bar

Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

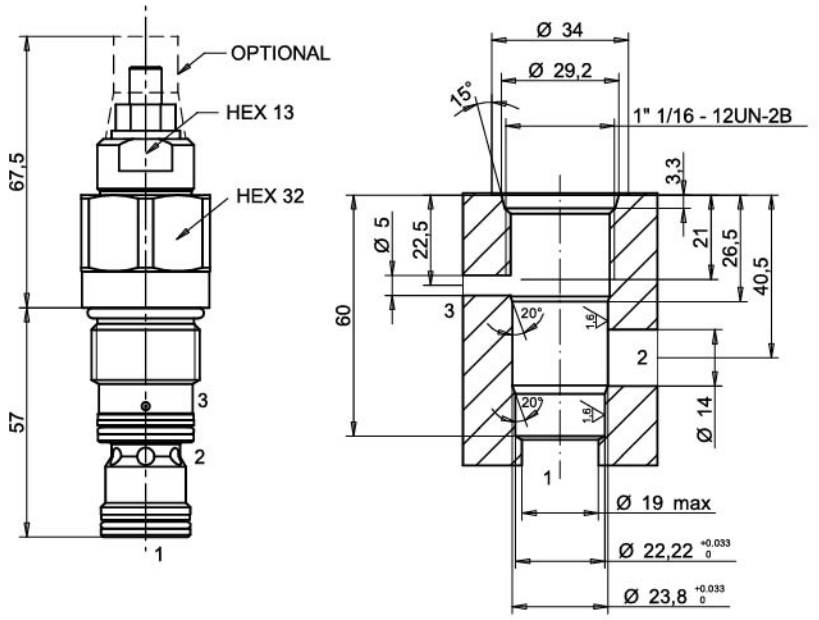
Ordering Code

NSCBDLFTECC - -

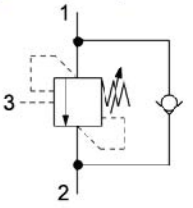
	Port Size BSP
120	1/2
340	3/4

NSCBCE120

Dimensions



Hydraulic Symbol



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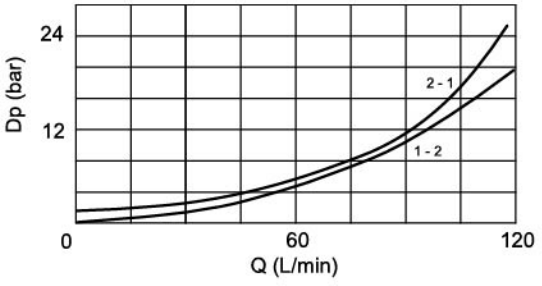


Features

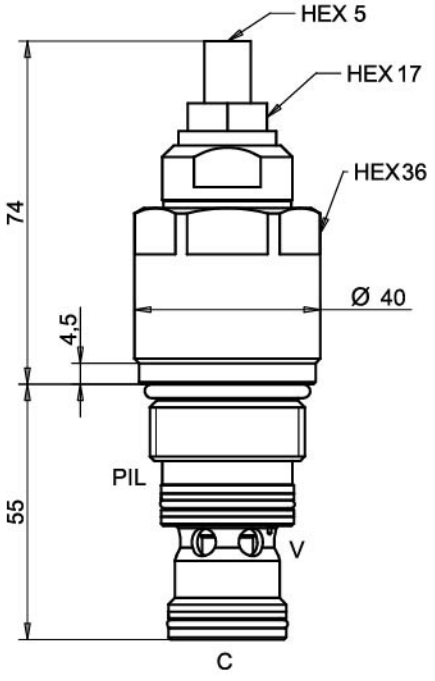
Max Flow	120 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 - Standard
Installation torque	75 - 85 Nm
Std. Pressure range	140 - 350 bar

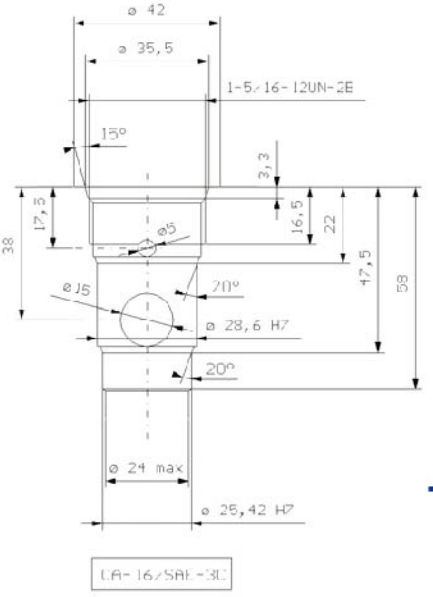
Ordering Code

NSCBCE120

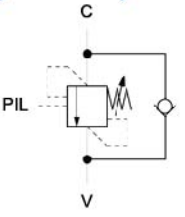
NSCBCE200

Dimensions





Hydraulic Symbol



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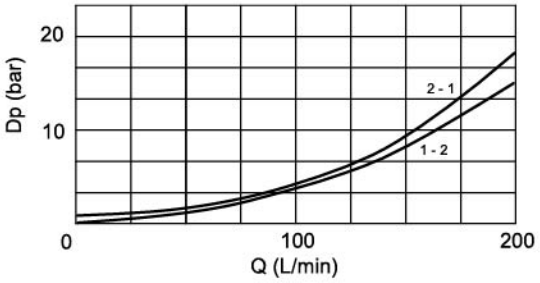


Features

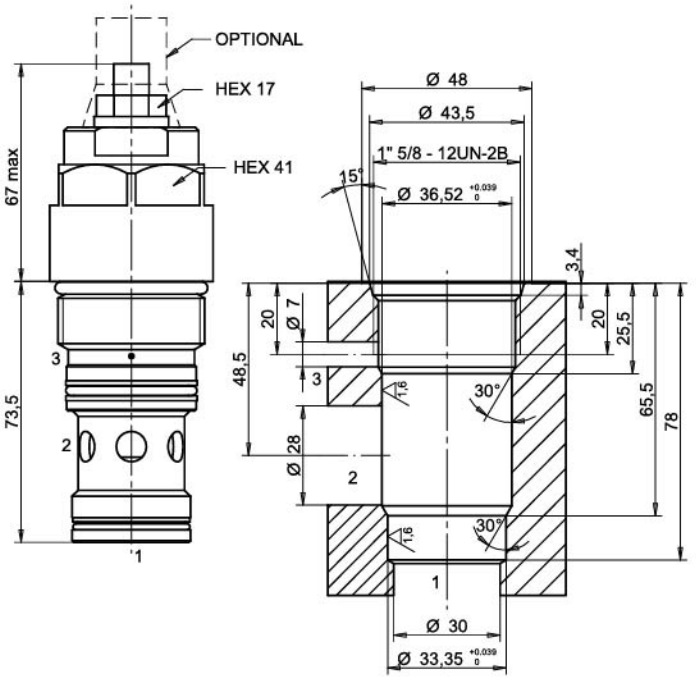
Max Flow	200 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 - Standard
Std. Pressure range	100 - 350 bar
Installation torque	105 - 120 Nm

Ordering Code

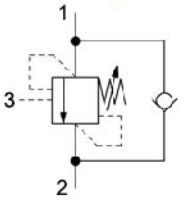
NSCBCE200

NSCBCE320

Dimensions



Hydraulic Symbol



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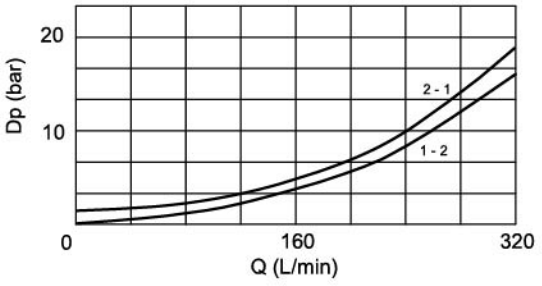


Features

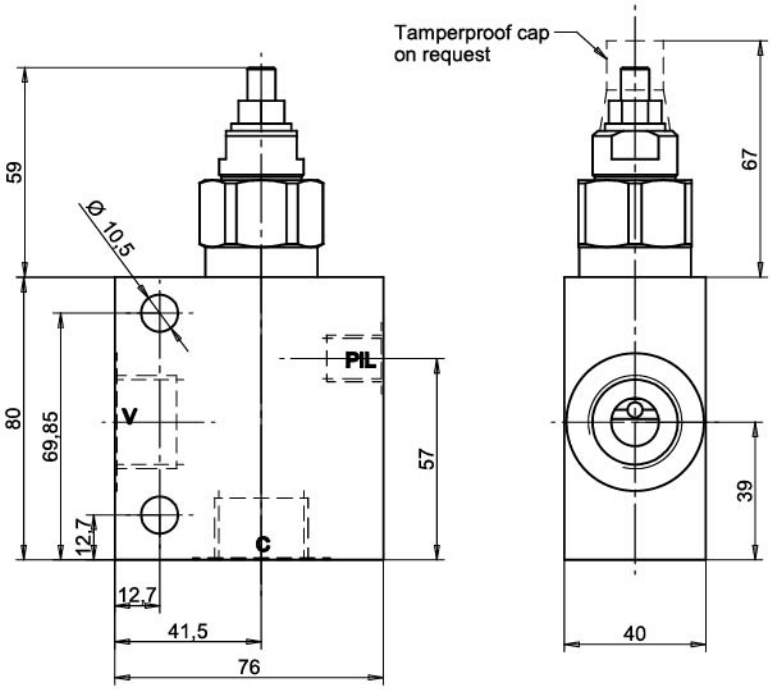
Max Flow	320 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 - Standard
Std. Pressure range	140 - 350 bar
Installation torque	126 - 148 Nm

Ordering Code

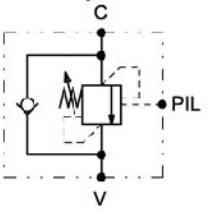
NSCBCE320

NSCBCE120SE

Dimensions



Hydraulic Symbol



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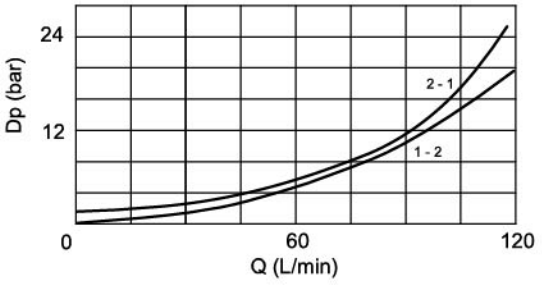


Features

Max Flow	120 lpm
Max Pressure	250 bar
Pilot Ratio	4:1 - Standard
Std. Pressure range	140 - 350 bar
Ports	V-C: G 3/4 PIL: G 1/4

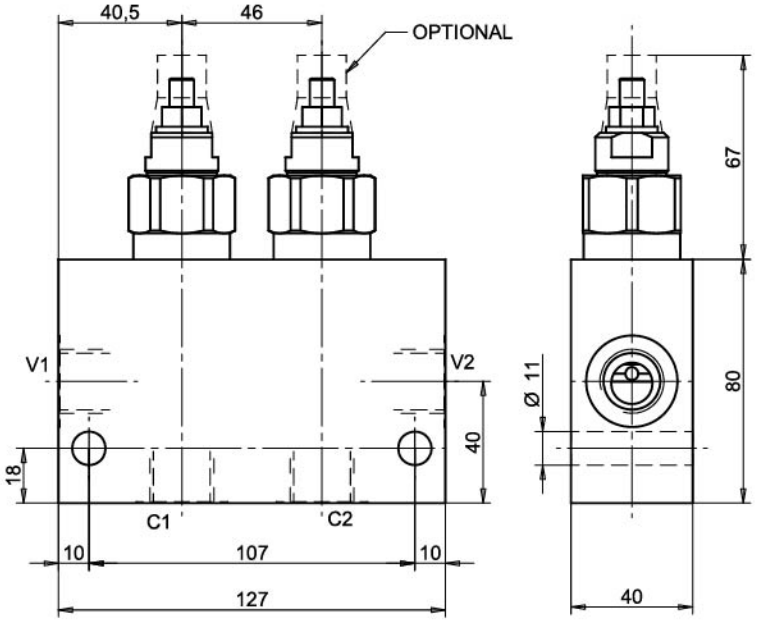
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

Ordering Code

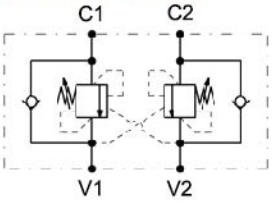
NSCBCE120SE340

NSCBCE120DE

Dimensions



Hydraulic Symbol



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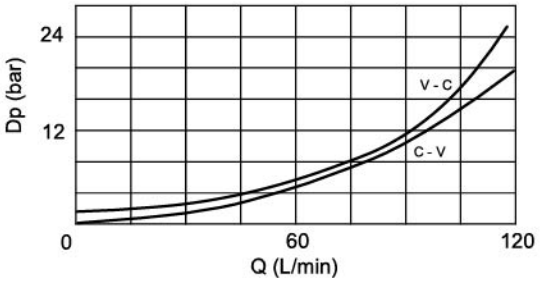


Features

Max Flow	120 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 - Standard
Ports	1/2 bsp

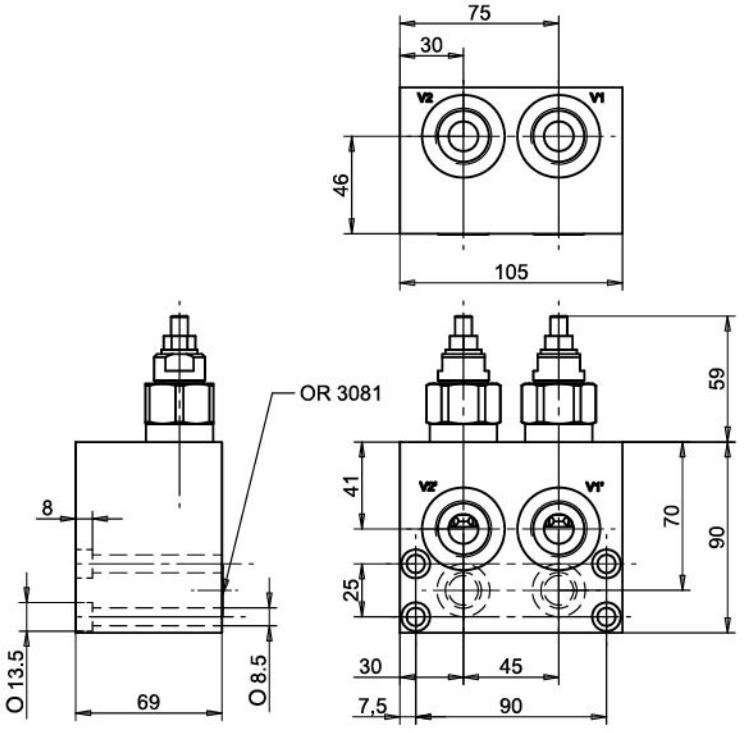
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

Ordering Code

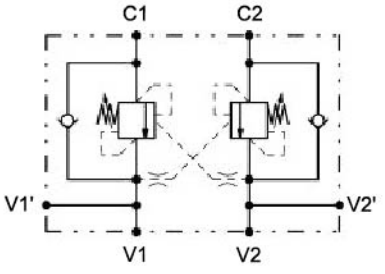
NSCBCE120DE120

NSCBCE120DEF

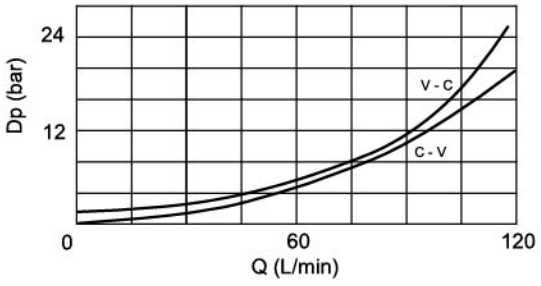
Dimensions



Hydraulic Symbol



Curves



Materials: Zinc plated steel manifold, hardened steel inner parts.

Features

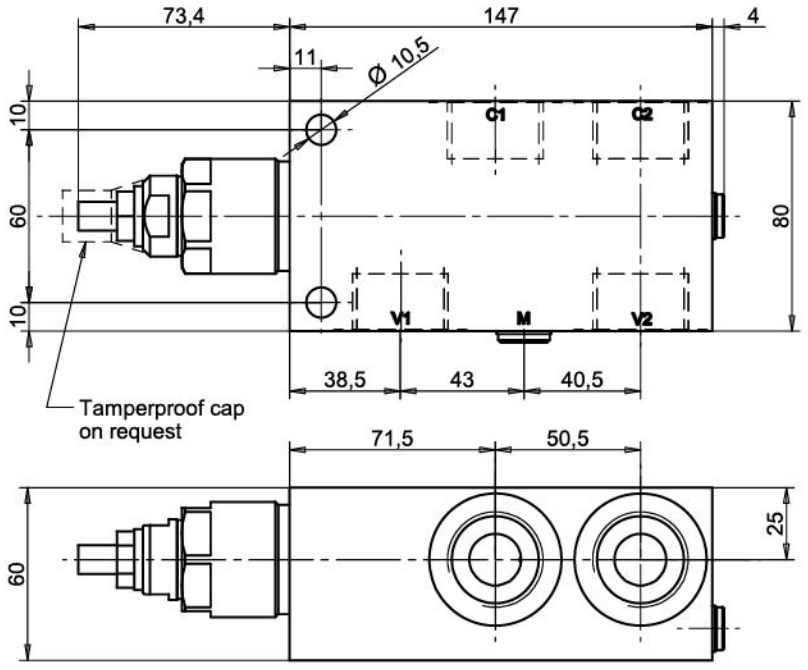
Max Flow	120 lpm
Max Pressure	350 bar
Pilot Ratio	4:1
Std. Pressure range	140 - 350 bar
Ports	V1-V2: G 3/4 V1'-V2': G 3/4 C1-C2: Ø 14

Ordering Code

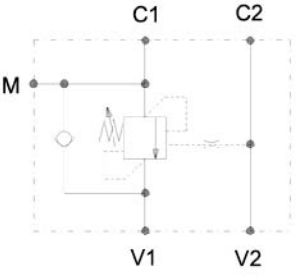
NSCBCE120DEF340

NSCBCE200SE

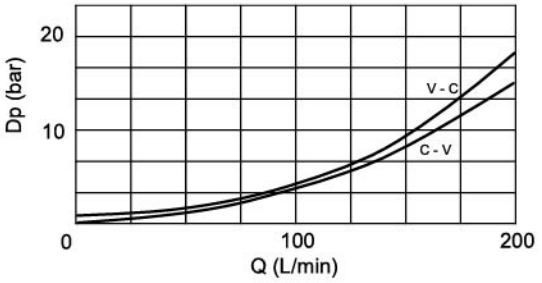
Dimensions



Hydraulic Symbol



Curves



Features

Max Flow	200 lpm
Max Pressure	250 bar
Pilot Ratio	4:1
Std. Pressure range	140 - 350 bar
Ports	V1-V2-C1-C2: 1 bsp M: 1/4 bsp

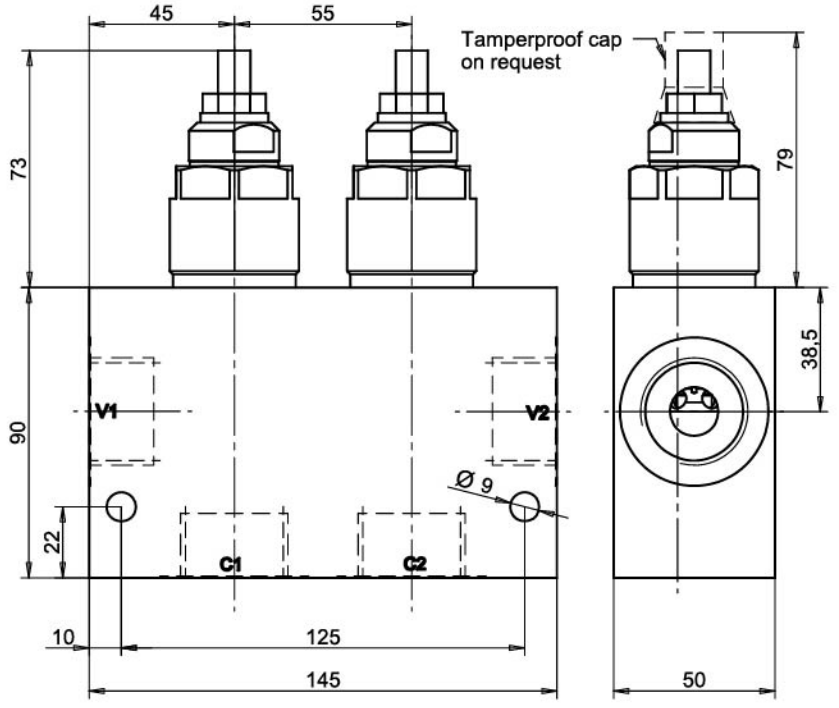
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

Ordering Code

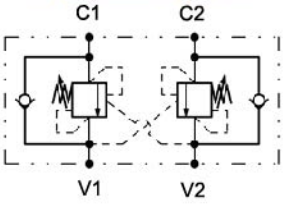
NSCBCE200SE1000

NSCBCE200DE

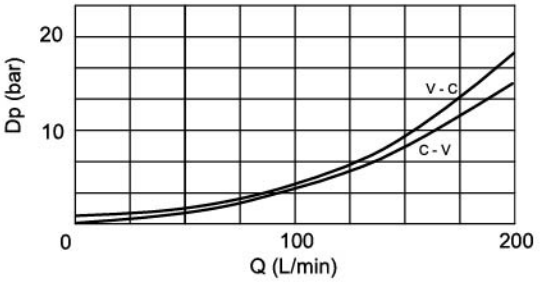
Dimensions



Hydraulic Symbol



Curves



Features

Max Flow	200 lpm
Max Pressure	250 bar
Pilot Ratio	4:1
Std. Pressure range	140 - 350 bar
Ports	V1-V2-C1-C2: 1 bsp

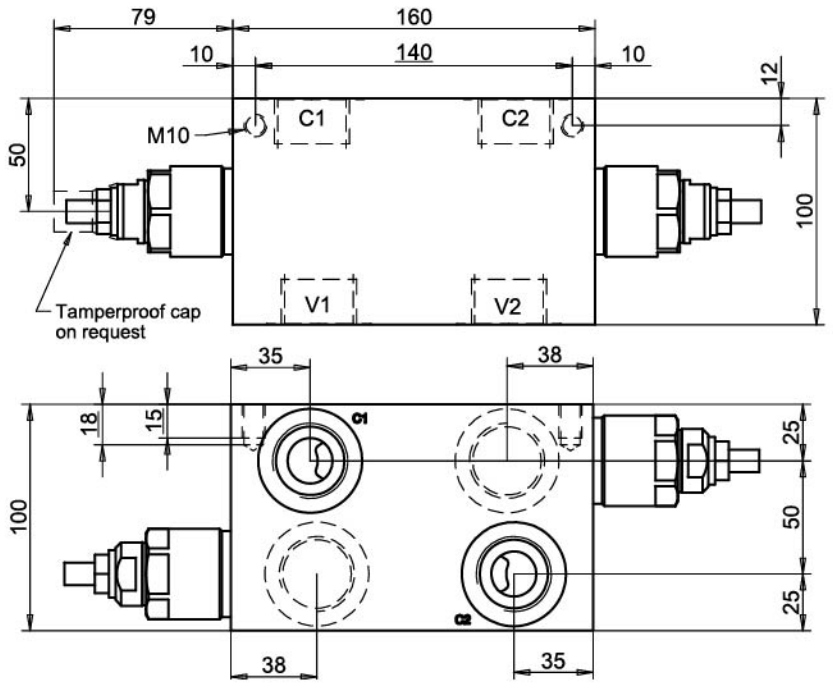
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

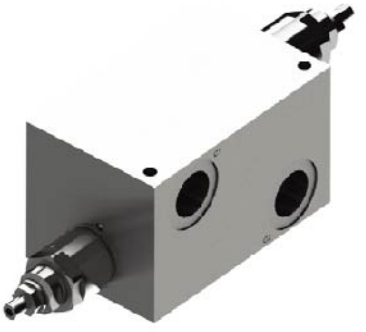
Ordering Code

NSCBCE200DE1000

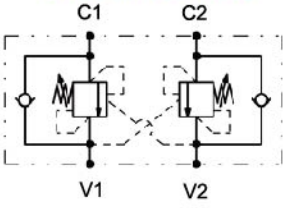
NSCBCE200DE

Dimensions

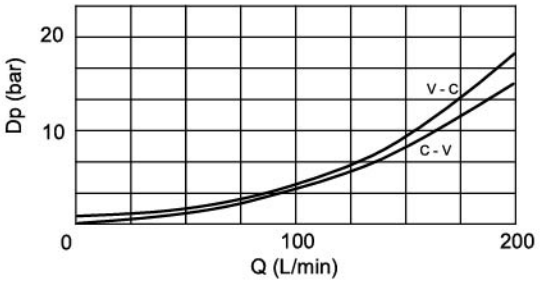




Hydraulic Symbol



Curves



Features

Max Flow	200 lpm
Max Pressure	350 bar
Pilot Ratio	4:1
Std. Pressure range	140 - 350 bar
Ports	V1-V2-C1-C2: 1 bsp

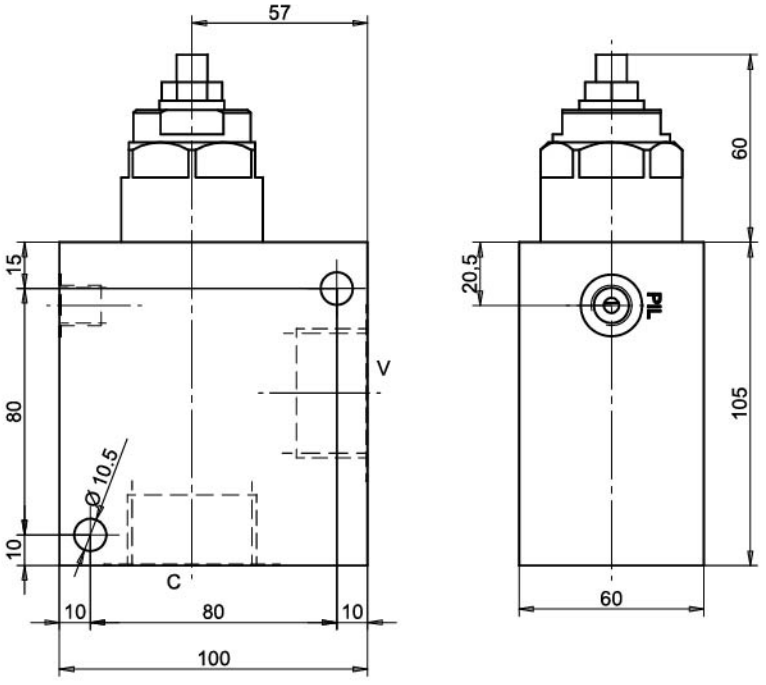
Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

Ordering Code

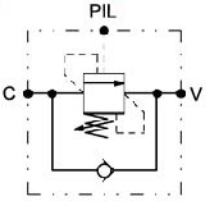
NSCBCE200DEL1000

NSCBCE320SE

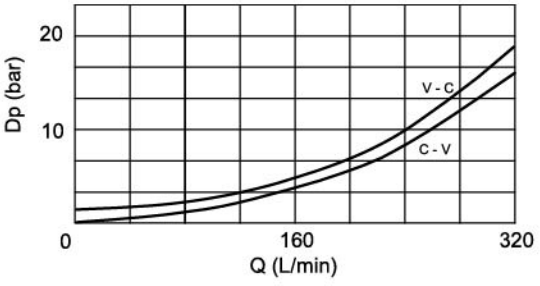
Dimensions



Hydraulic Symbol



Curves



Features

Max Flow	320 lpm
Max Pressure	350 bar
Pilot Ratio	4:1 Standard
Ports	1" 1/4 bsp
Std. Pressure range	140 - 350 bar

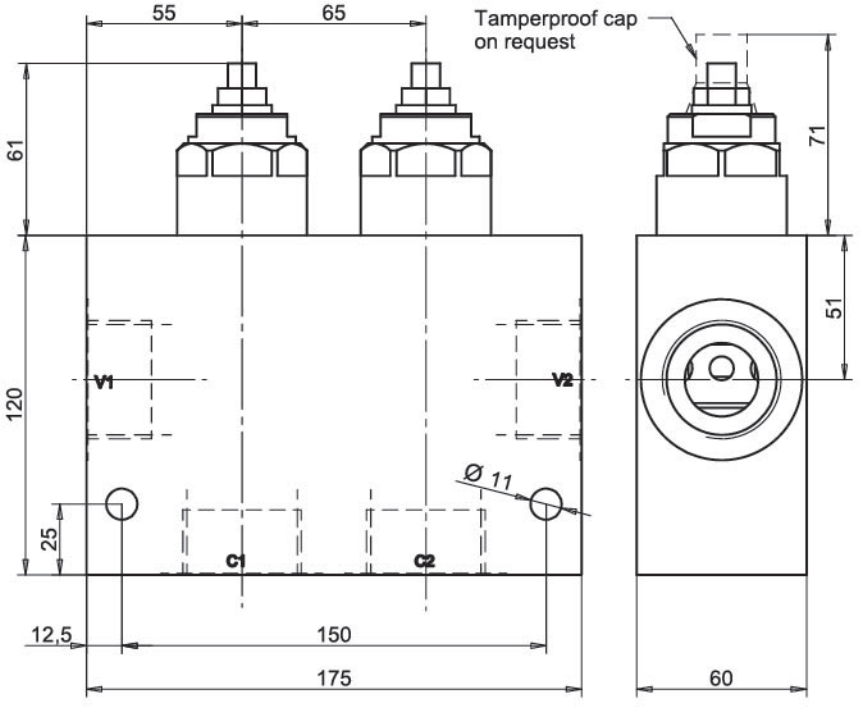
Materials: Zinc plated steel manifold, hardened steel inner parts.

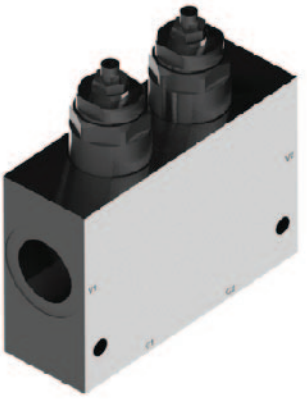
Ordering Code

NSCBE320SE1140

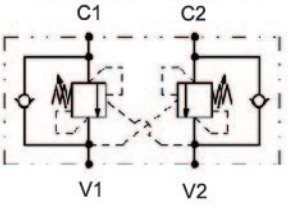
NSCBCE320DE

Dimensions

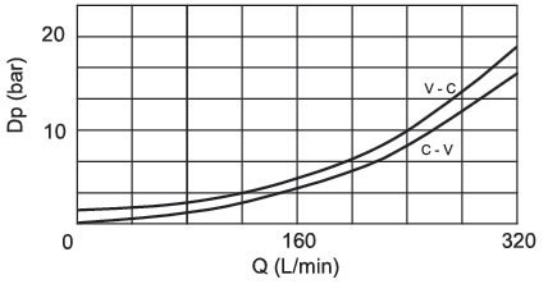




Hydraulic Symbol



Curves



Features

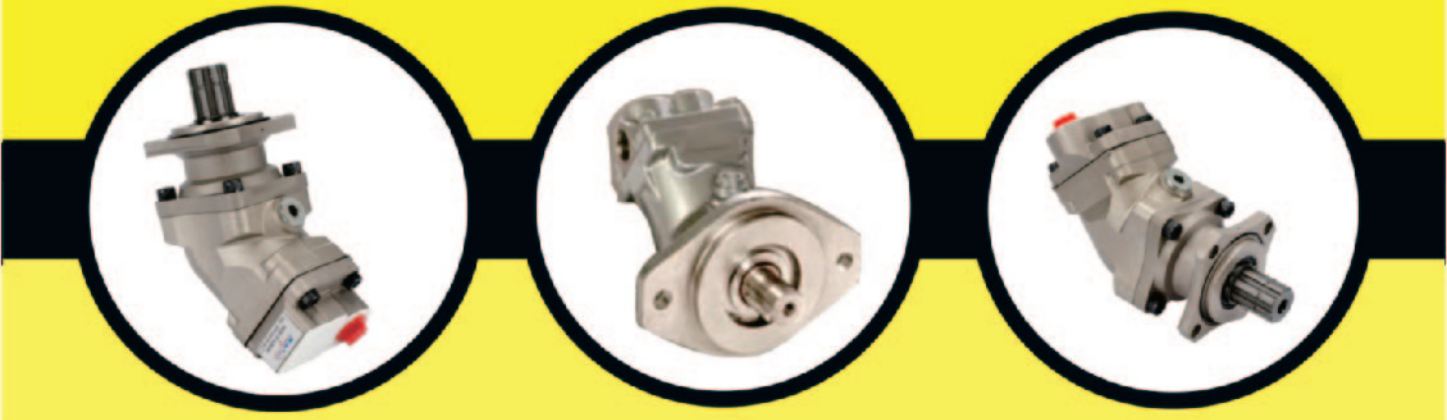
Max Flow	320 lpm
Max Pressure	250 bar
Pilot Ratio	4:1
Std. Pressure range	140 - 350 bar
Ports	V1-V2-C1-C2: 1" 1/4 bsp

Materials: Zinc plated steel cartridge, hardened steel inner parts. Aluminium manifold.

Ordering Code

NSCBCE320DE1140

HYDRAULIC MOTORS PUMPS



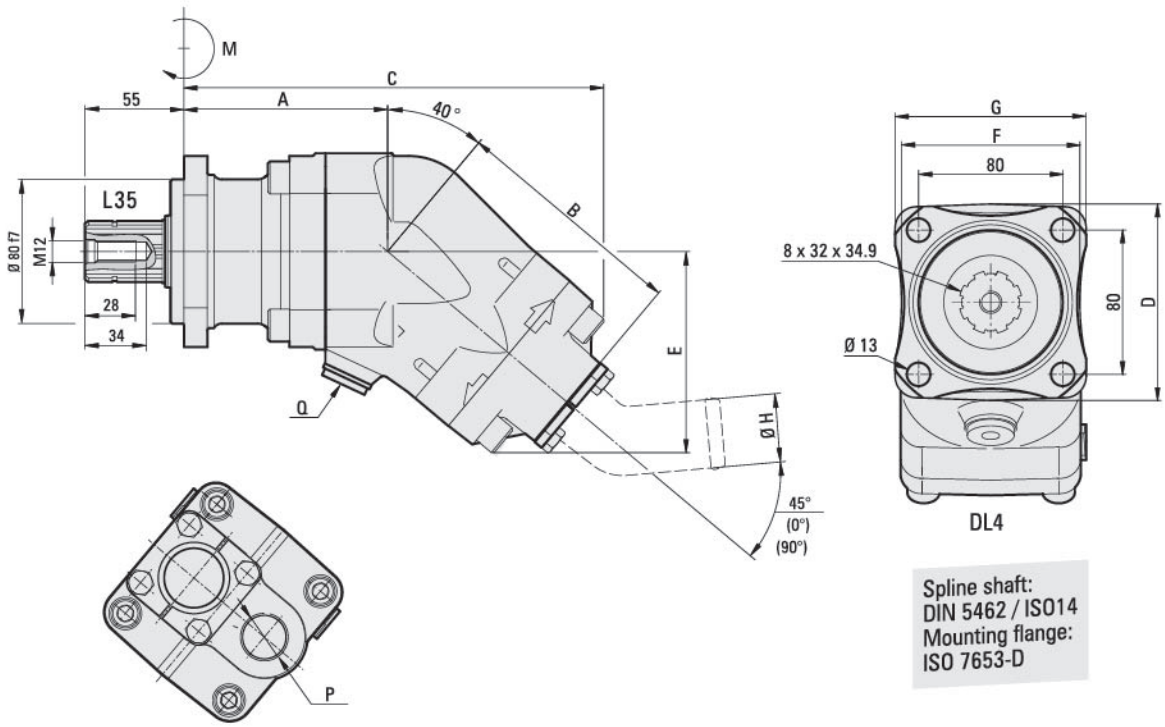
HPTP 012-108 DIN

HPTP 012-108 DIN is a fixed displacement bent-axis pumps for mobile hydraulic applications.

HPTP 012-0108 DIN pumps displacement range 12-108 cm/rev. Maximum operating pressure is 400 bar. This pump meets the market's high demands due to it's high flow performance, pressure efficiency and simplest of installation.

Further advantages:

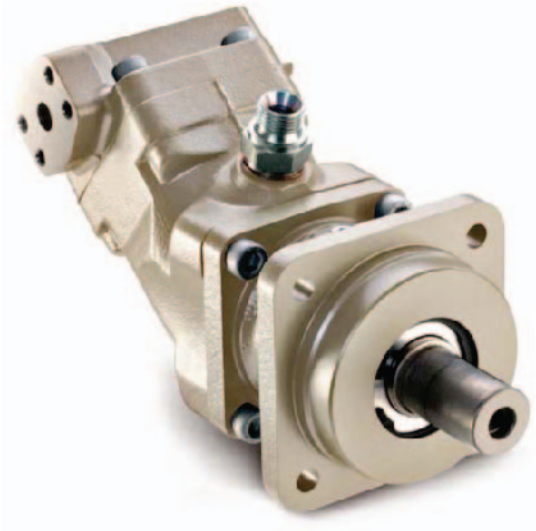
- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- Long usage life due to its high demands on material selection such as seals, bearings, ect.
- To avoid leakage from the pump and PTO, there are O-rings on all contact surfaces and double shaft seals for high pressure.
- All pumps are test under extreme testing environment before delivery to custom.
- Easy to change the rotation of pump flow.



Spline shaft:
DIN 5462 / ISO14
Mounting flange:
ISO 7653-D

HPTP 012-108 DIN			012	017	025	034	040	047	056	064	084	108
Theoretical oil flow l/min							l/min					
at pump speed	rpm	500	6.3	8.5	12.7	17.1	20.6	23.5	28.0	31.8	41.5	54.0
		1000	12.6	17.0	25.4	34.2	41.2	47.1	56.0	63.6	83.6	108.0
		1500	18.9	25.5	38.1	51.3	61.8	70.6	84.0	95.4	125.4	162.0
Displacement	cm^3/rev		12.6	17.0	25.4	34.2	41.2	47.1	56.0	63.6	83.6	108.0
Max pump speed												
continuous	rpm		2300	2300	2300	2300	1900	1900	1900	1900	1500	1500
limited			3000	3000	3000	3000	2500	2500	2500	2500	2000	2000
Max working pressure	bar		400	400	400	400	400	400	400	400	400	400
Weight	kg		8.3	8.3	8.5	8.5	11.7	11.7	11.7	11.7	17.0	17.0
Dimensions	mm	A	97	97	97	97	113	113	113	113	123	123
		B	112	112	112	112	130	130	130	130	147	147
		C	202	202	202	202	228	228	228	228	259	259
		D	99	99	99	99	109	109	109	109	126	126
		E	97	97	97	97	109	109	109	109	126	126
		F	89	89	89	89	99	99	99	99	115	115
		G	97	97	97	97	106	106	106	106	123	123
		H	38	38	38	38	38	38	38	38	50	50
			50	50	50	50	50	50	50	50	64	64
	ISO G	P	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1	1
	ISO G	Q	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Tare-weight torque (M)	Nm		6.9	6.9	7.4	7.4	13	13	13	13	21	21
Direction of rotation	Left (L) or Right (R)											

HPTP 012-130 ISO type pump

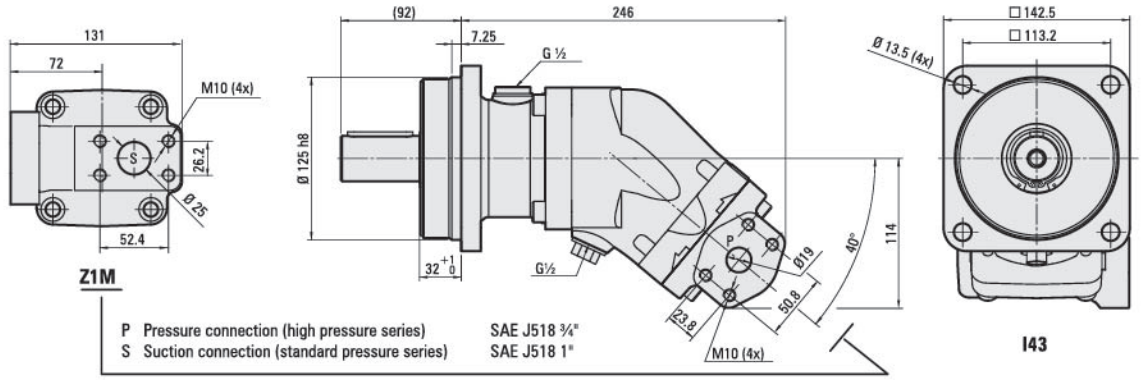


HPTP 012-108 ISO is a fixed displacement bent-axis pumps for stationery &mobile hydraulic applications.

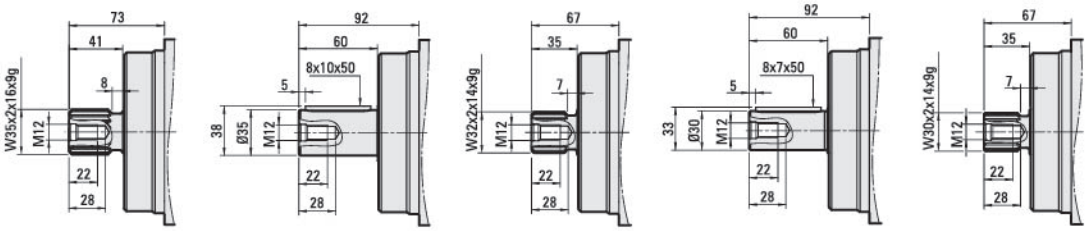
HPTP 012-0130 ISO standard range of displacement from 12-130 cm/rev. Maximum operating pressure up to 400 bar. The pump well design and dimensioned, double tapered roller bearings permit high shaft loads and performance characteristics. This pump is drained xternally. We supply five different shaft types.

Further advantages:

- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- Long usage life due to its high demands on material selection such as seals, bearings, ect



Right-hand design **R** Left-hand design **L** has pressure outlets on the opposite side.



HPTP 012-0130 ISO TYPE PUMP				012	017	025	034	040	047	056	064	084	090	108	130
Nominal oil flow									l/min						
at pump speed		rpm	500	6.3	8.5	12.7	17.1	20.6	23.5	28.0	31.8	41.5	45.5	54.0	65.0
			1000	12.6	17.0	25.4	34.2	41.2	47.1	56.0	63.6	83.6	90.7	108.0	130.0
			1500	18.9	25.5	38.1	51.3	61.8	70.6	84.0	95.4	125.4	136.1	162.0	195.0
Displacement		cm^3/rev		12.6	17.0	25.4	34.2	41.2	47.1	56.0	63.6	83.6	90.7	108.0	130.0
Max operating pressure															
continuous		bar		350	350	350	350	350	350	350	350	350	350	350	350
intermittent				400	400	400	400	400	400	400	400	400	400	400	400
Max pump speed	$n_{max(1)}$	rpm		3300	3200	2550	2250	2200	2200	2100	2050	1700	1700	1700	1600
	$n_{max\ limit\ (2)}$	rpm		6000	5700	4700	4550	4300	4300	3750	3700	3350	3000	3000	2900
Max power		kW		25	35	40	50	55	65	75	85	90	95	120	120
Weight		kg		7.5	7.5	8.5	8.5	15.5	15.5	15.5	15.5	27.0	27.0	29.5	29.5
Mass moment of inertia	(x 10 $^{-3}$)	$kg\ m^2$		0.9	0.9	1.1	1.1	2.6	2.6	2.6	2.6	7.4	7.4	7.4	7.4
Direction of rotation Left	(L) and Right (R)														

Intermittent operation is equated to a max of 6 seconds per minute.

(1) The values shown are valid for an absolute pressure of 1 bar at the suction inlet.

(2) By increase of the input pressure the rotational speeds can be increased to the max. admissible speed $n_{max\ limit}$.

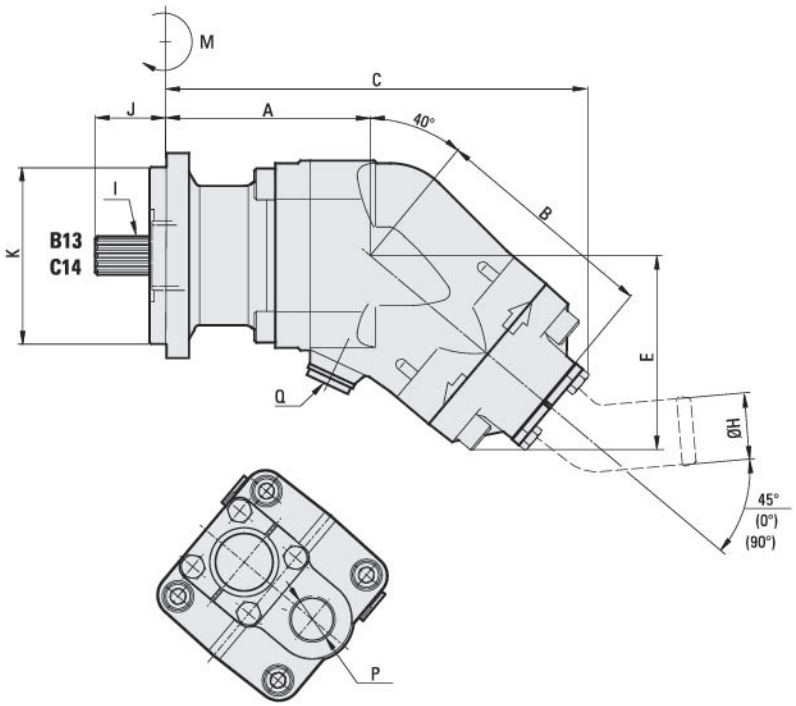
HPTP 012-108 SAE type pump

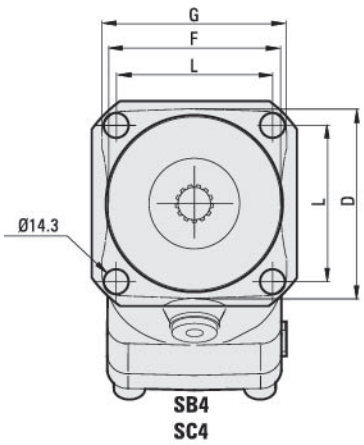
HPTP 012-108 SAE is a fixed displacement bent-axis pumps for mobile hydraulic applications.

HPTP 012-108 SAE are equipped with shafts and flanges according to the SAE-B and SAE-C standard. Pumps displacement range 012-0108 cm. This modern pump meets the market's high demands due to its high flow performance, pressure efficiency and simplest of installation.

Further advantages:

- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- Long usage life due to its high demands on material selection such as seals, bearings, ect.
- To avoid leakage from the pump and PTO, there are O-rings on all contact surfaces and double shaft seals for high pressure.





HPTP 012-108 SAE PUMPS			012	017	025	034	040	047	056	064	040	047	056	064	084	108
Theoretical oil flow					l/min				l/min							
at pump speed	rpm	500	6.3	8.5	12.7	17.1	20.6	23.5	28.0	31.8	20.6	23.5	28.0	31.8	41.8	54.0
		1000	12.6	17.0	25.4	34.2	41.2	47.1	56.0	63.6	41.2	47.1	56.0	63.6	83.6	108.0
		1500	18.9	25.5	38.1	51.3	61.8	70.6	84.0	95.4	61.8	70.6	84.0	95.4	125.4	162.0
Displacement	cm^3/rev		12.6	17.0	25.4	34.2	41.2	47.1	56.0	63.6	41.2	47.1	56.0	63.6	83.6	108.0
Max pump speed																
continuous	rpm		2300	2300	2300	2300	1900	1900	1900	1900	1900	1900	1900	1900	1500	1500
limited			3000	3000	3000	3000	2500	2500	2500	2500	2500	2500	2500	2500	2000	2000
Max working pressure	bar															
continuous			350	350	350	350	350	350	350	350	350	350	350	350	350	350
intermittent			400	400	400	400	400	400	400	400	400	400	400	400	400	400
Weight	kg		8.7	8.6	8.9	8.8	12.3	12.3	12.3	12.2	14.3	14.3	14.3	14.1	19.0	19.0
Dimensions		A	101	101	101	101	117	117	117	117	119	119	119	119	128	128
		B	117	117	117	117	130	130	130	130	130	130	130	130	147	147
		C	209	209	209	209	235	235	235	235	237	237	237	237	262	262
		D	99	99	99	99	109	109	109	109	109	109	109	109	126	126
		E	97	97	97	97	112	112	112	112	112	112	112	112	126	126
		F	89	89	89	89	99	99	99	99	99	99	99	99	115	115
		G	97	97	97	97	106	106	106	106	106	106	106	106	123	123
		H	38	38	38	38	38	38	38	38	38	38	38	38	50	50
			50	50	50	50	50	50	50	50	50	50	50	50	64	64
SAE standard						SAE B							SAE C			
						13T-16/32DP							14T-12/24DP			
		J	41	41	41	41	41	41	41	41	56	56	56	56	56	56
		K	101.6	101.6	101.6	101.6	101.6	101.6	101.6	101.6	127.0	127.0	127.0	0127.0	127.0	127.0
		L	89.8	89.8	89.8	89.8	89.8	89.8	89.8	89.8	114.5	114.5	114.5	114.5	114.5	114.5
	ISO G	P	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1	1
	ISO G	Q	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Tare-weight torque (M)	Nm		6.9	6.9	7.4	7.4	13	13	13	13	13	13	13	13	21	21
Direction of rotation			Left (L) and Right (R)													

Intermittent operation is equated to a max of 6 seconds per minute.

HPTM 012-130 DIN

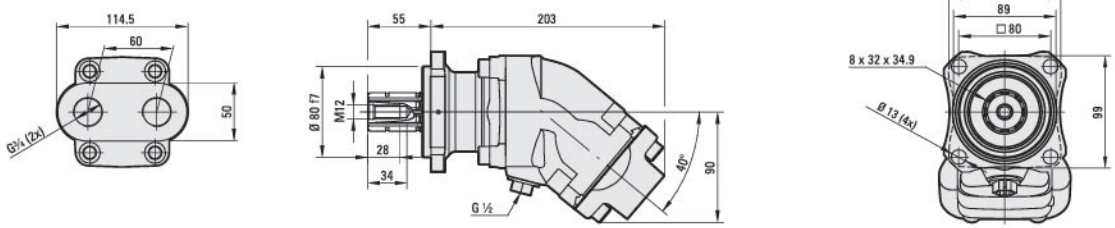
HPTM 012-130 DIN is bent-axis motors an ideal for mobile hydraulics. These motors are spherical pistons as a type of bent- axis.

HPTM 012-130 DIN the simplest of design it gives a compact motor with few moving parts, high starting torque and high operational reliability. Displacement range 12-130 cm/rev. max pressure 400 bar.Long usage life due to its high demands on material selection such as seals, bearings, hardening methods, ect.

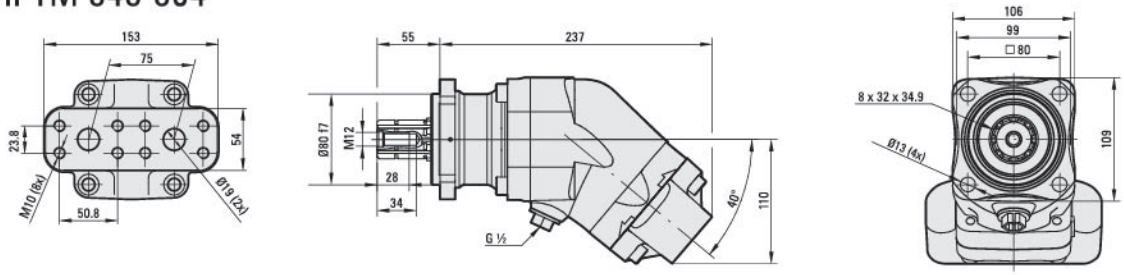
Further advantages:

- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- Short reaction time when resetting the flow.

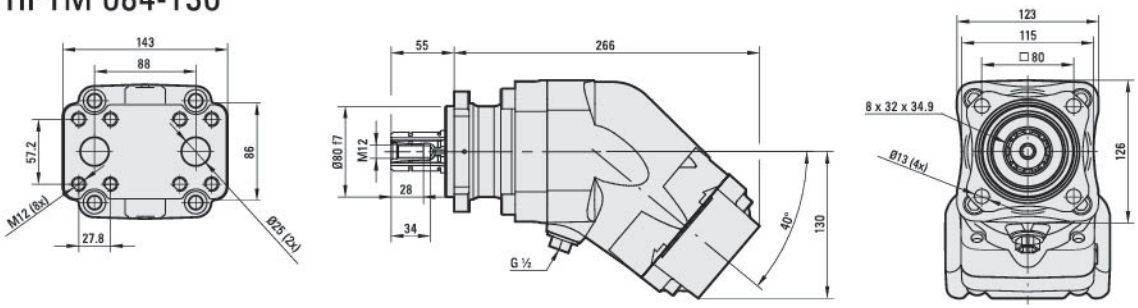
HPTM 012-034



HPTM 040-064



HPTM 084-130



HPTM 012-130 DIN		012	017	025	034	040	047	056	064	084	108	130
Displacement	cm³/rev	12.6	17.0	25.4	34.2	41.2	47.1	56.7	63.5	83.6	108.0	130.0
MOperating pressure												
max intermittent	bar	400	400	400	400	400	400	400	400	400	400	330
max continuous	bar	350	350	350	350	350	350	350	350	350	350	280
Revolutions												
max intermittent	rev/min	3000	3000	3000	3000	2500	2500	2500	2500	2000	2000	2000
max continuous	rev/min	2400	2400	2400	2400	2000	2000	2000	2000	1600	1600	1600
min continuous	rev/min	300	300	300	300	300	300	300	300	300	300	300
Power												
max intermittent	kW	18	24	36	49	57	65	78	88	93	120	124
max continuous	kW	14	19	29	39	46	52	62	70	74	96	99
Starting torque theoretical value	Nm/bar	0.2	0.27	0.4	0.54	0.66	0.75	0.89	1.0	1.33	1.72	2.07
Moment of inertia (x 10 $^{-3}$)	kg m²	0.9	0.9	1.1	1.1	2.6	2.6	2.6	2.6	7.4	7.4	7.4
Max intermittent housing pressure	bar	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Weight	kg	8.4	8.4	8.6	8.6	13.0	13.0	13.0	13.0	18.2	18.2	18.2

Information about technical data

- *RPM data concern is depending on maximum permitted peripheral velocity for the tapered roller bearings.*
- *For some applications, max intermittent power can be suitable. Contact for further information.*
- *In term of continuous power data is based on maximum output power, no need for external cooling of motor housing.*
- *Intermittent duty is defi ned as follows: max 6 seconds per minute, e.g. peak RPM when unloading or accelerating.*

HPTM 012-130 ISO

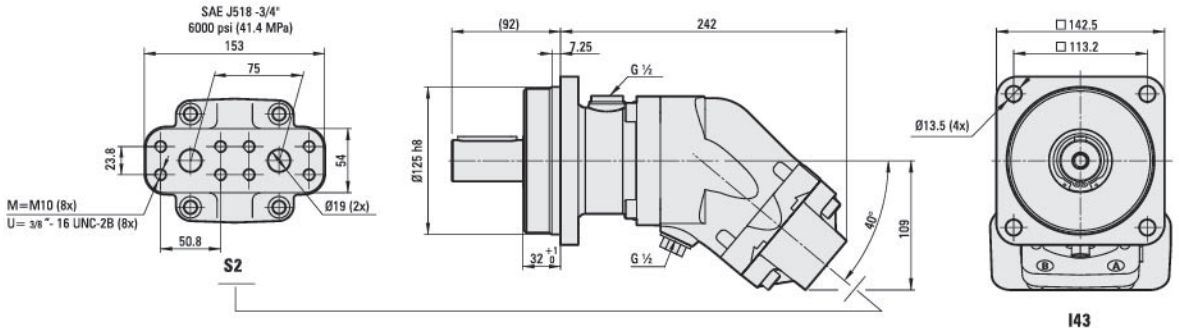
HPTM 012-130 ISO is bent-axis motors an ideal for mobile hydraulics. These motors are spherical pistons as a type of bent- axis.

HPTM 012-130 SAE is an bent-axis type with spherical pistons. The robust design gives a perfect compact motor with few moving parts, high starting torque and perfect reliability.

The displacement is from 12-130 cm/rev with a maximum 400 bar. It comes with double tapered roller bearings that allow high shaft loads and results perfect speed performance.This pump meets the market's high demands due to its high flow performance, pressure efficiency and simplest of installation.

Further advantages:

- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- We offer it in many different types of shafts and connections parts.
- Long life with high performance.
- An ideal solution for applications that require high angular accelerations.



Choice of staft seal

Motor HPTM	Code	Temp. °C	Max. housing pressure bar at rpm 1000	2000	3000	4000	5000	6000	7000	8000	9000
012-034	N	75	5.5	2.7	1.8	1.4	1.1	0.9	0.8	0.7	0.6
	H	75	24.6	12.3	8.2	6.1	4.9	4.1	3.5	3.1	2.7
	V	90	5.5	2.7	1.8	1.4	1.1	0.9	0.8	0.7	0.6
040-064	N	75	5.5	2.7	1.8	1.4	1.1	0.9	0.8		
	H	75	24.6	12.3	8.2	6.1	4.9	4.1	3.5		
	V	90	5.5	2.7	1.8	1.4	1.1	0.9	0.8		
084-130	N	75	3.8	1.9	1.3	1.0	0.8	0.6			
	H	75	17.2	8.6	5.7	4.3	3.4	2.9			
	V	90	3.8	1.9	1.3	1.0	0.8	0.6			

HPTM 012-130 ISO		012	017	025	034	040	047	056	064	084	090	108	130
Displacement	cm^3/rev.	12.6	17.0	25.4	34.2	41.2	47.1	56.7	63.5	83.6	90.7	108.0	130.0
MOperating pressure													
max. intermittent	bar	400	400	400	400	400	400	400	400	400	400	400	350
max. continuous	bar	350	350	350	350	350	350	350	350	350	350	350	300
Revolutions													
max. intermittent	rpm	8800	8800	7000	7000	6300	6300	6300	6300	5200	5200	5200	5200
max. continuous	rpm	8000	8000	6300	6300	5700	5700	5700	5700	4700	4700	4700	4700
min. continuous	rpm	300	300	300	300	300	300	300	300	300	300	300	300
Power													
max. intermittent	kW	54	74	86	115	125	145	175	195	215	230	275	285
max. continuous	kW	20	25	40	55	60	65	80	90	100	110	130	135
Start torque theoretical value	Nm/bar	0.2	0.27	0.4	0.54	0.66	0.75	0.89	1.0	1.33	1.44	1.71	2.05
Mass moment of inertia (x 10^{-3})	kg m^2	0.9	0.9	1.1	1.1	2.6	2.6	2.6	2.6	7.4	7.4	7.4	7.4
Weight	kg	8.5	8.5	9.5	9.5	16.5	16.5	16.5	16.5	28.0	28.0	30.5	30.5

Information about technical data

- *RPM data concern is depending on maximum permitted peripheral velocity for the tapered roller bearings.*
- *For some applications, max intermittent power can be suitable. Contact for further information.*
- *In term of continuous power data is based on maximum output power, no need for external cooling of motor housing.*
- *Intermittent duty is defi ned as follows: max 6 seconds per minute, e.g. peak RPM when unloading or accelerating.*

HPTM 012-130 SAE

HPTM 012-130 SAE is bent-axis motors, an ideal for mobile hydraulics. These motors are spherical pistons as a type of bent- axis.

HPTM 012-130 SAE is an bent-axis type with spherical pistons. The robust design gives a perfect compact motor with few moving parts, high starting torque and perfect reliability.
The displacement is from 12-130 cm/rev with a maximum 400 bar. It comes with double tapered roller bearings that allow high shaft loads and results perfect speed performance.This pump meets the market's high demands due to its high flow performance, pressure efficiency and simplest of installation.

Further advantages:

- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- We offer it in many different types of shafts and connections parts.
- Long life with high performance.
- An ideal solution for applications that require high angular accelerations.

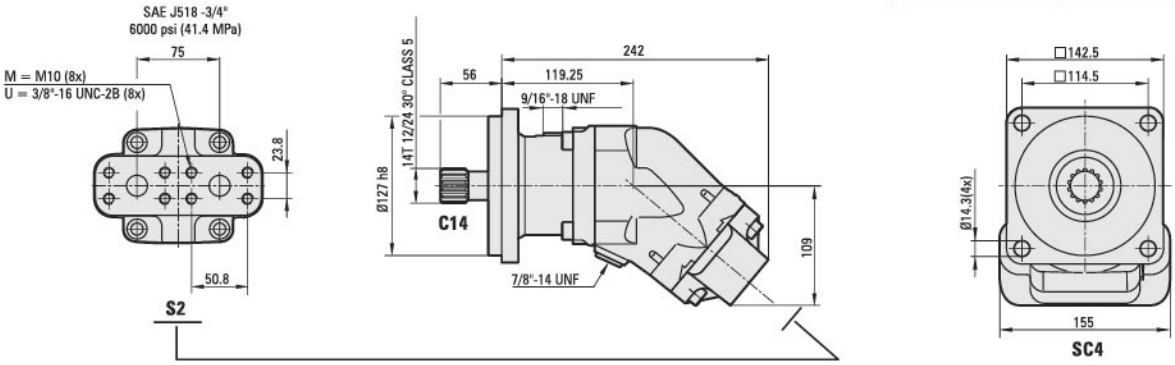
HPTM 012-034 SAE B2

For-bolt flange, HPT offers you SAE B2 012-034 in the HPTM brands.

The robust design gives a perfect compact motor with few moving parts, high starting torque and perfect reliability.

Further advantages:

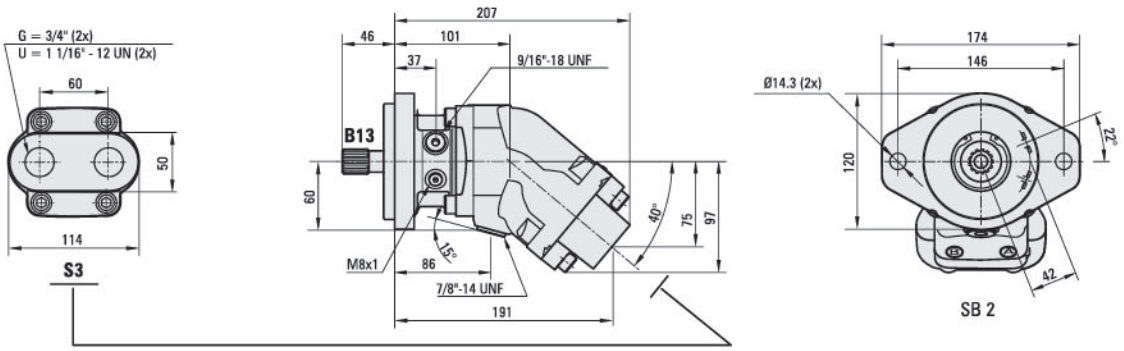
- Low noise levels at high maximum speed due to its quality production and design.
- The operation over the entire speed range is smooth.
- We offer it in many different types of shafts and connections parts.
- Long life with high performance.
- An ideal solution for applications that require high angular accelerations.



HPTM 012-130 SAE		012 SAE B	017 SAE B	025 SAE B	025 SAE C	034 SAE B	034 SAE C	040 SAE C	047 SAE C	056 SAE C	064 SAE C	084 SAE C	084 SAE D	090 SAE C	090 SAE D	108 SAE C	108 SAE D	130 SAE D
Displacement	cm³/rev.	12.6	17.0	25.4	25.4	34.2	34.2	41.2	47.1	56.7	63.5	83.6	83.6	90.7	90.7	108.0	108.0	130.0
MOperating pressure (dependent on shaft)																		
max. intermittent	bar	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	350
max. continuous	bar	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	300
Revolutions																		
max. intermittent	rpm	8250	8250	6500	6500	6500	6500	5900	5900	5900	5900	4800	4600	4800	4600	4800	4600	4600
max. continuous	rpm	7500	7500	5900	5900	5900	5900	5300	5300	5300	5300	4400	4200	4400	4200	4400	4200	4200
min. continuous	rpm	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Power																		
max. intermittent	kW	50	70	80	80	110	110	120	135	165	180	200	190	215	205	255	245	255
max. continuous	kW	20	25	40	40	55	55	60	65	80	90	100	100	110	110	130	130	135
Start torque theoretical value	Nm/bar	0.2	0.27	0.40	0.40	0.54	0.40	0.66	0.75	0.89	1.0	1.33	1.33	1.44	1.44	1.71	1.71	2.05
Mass moment of inertia (x 10 $^{-3}$)	kg m²	0.9	0.9	1.1	1.1	1.1	1.1	2.6	2.6	2.6	2.6	6.3	7.4	6.3	7.4	6.3	7.4	7.4
Weight	kg	9.0	9.0	9.0	9.0	9.0	9.0	15.0	15.0	15.0	15.0	18.0	35.0	18.0	5.0	18.0	35.0	35.0

Information about technical data

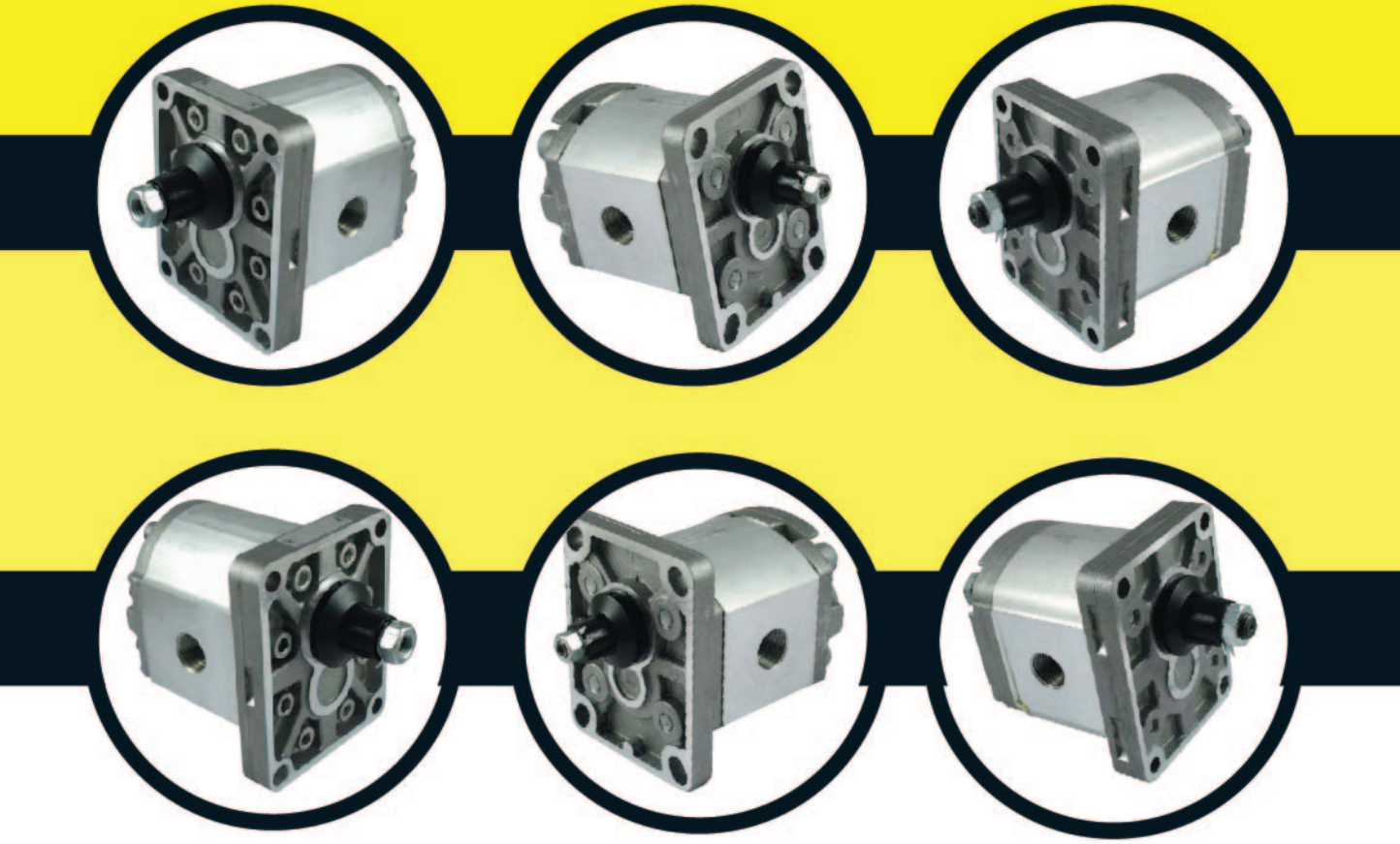
- *RPM data concern is depending on maximum permitted peripheral velocity for the tapered roller bearings.*
- *For some applications, max intermittent power can be suitable. Contact for further information.*
- *In term of continuous power data is based on maximum output power, no need for external cooling of motor housing.*
- *Intermittent duty is defi ned as follows: max 6 seconds per minute, e.g. peak RPM when unloading or accelerating.*



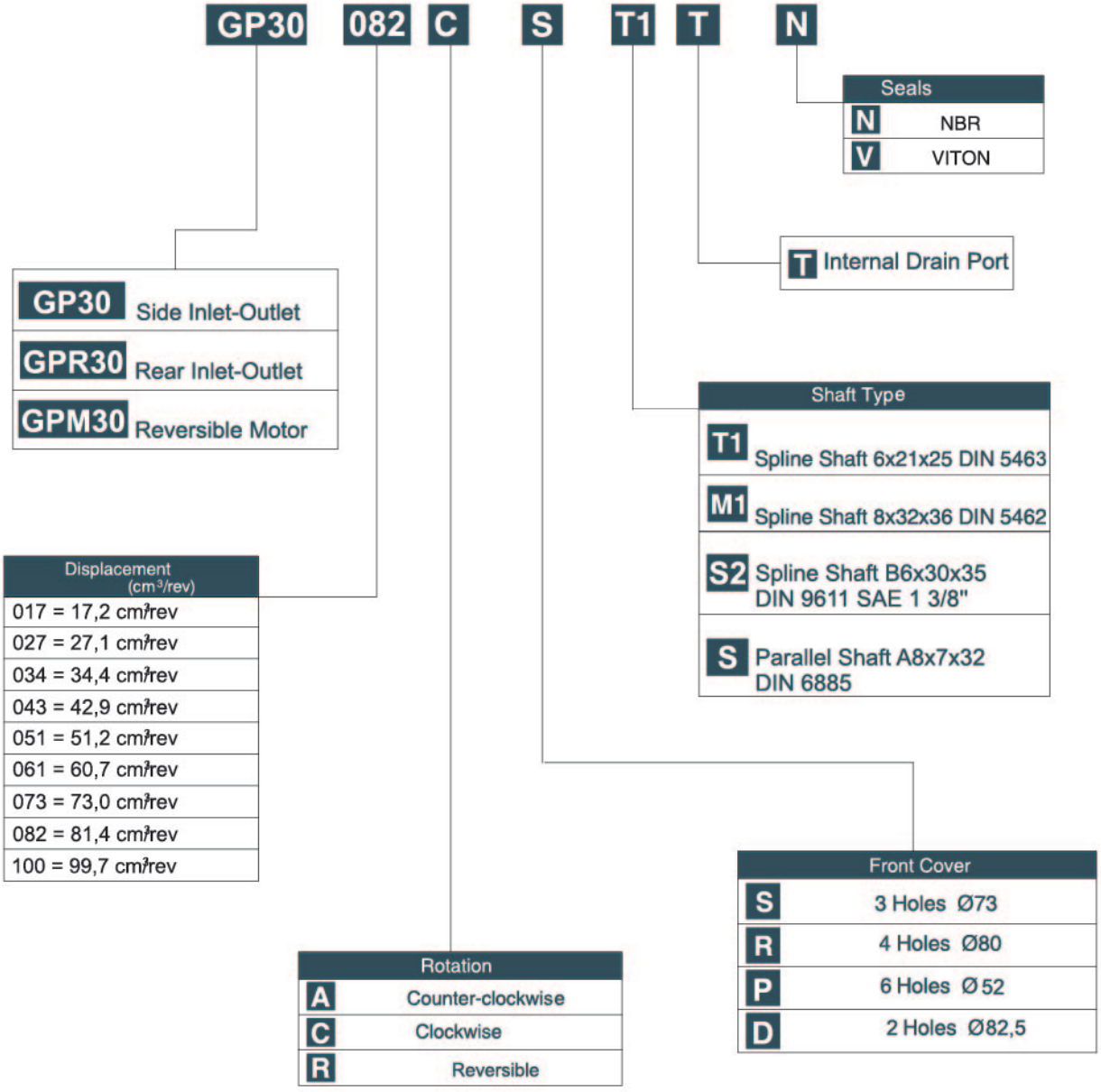
Choice of staft seal

Motor HPTM	Code	Temp. °C	Max. housing pressure bar at rpm 1000	2000	3000	4000	5000
012-034 B	N	75	5.5	2.7	1.8	1.4	1.1
	H	75	24.6	12.3	8.2	6.1	5.1
	V	90	5.5	2.7	1.8	1.4	1.1
040-108 C	N	75	5.5	2.7	1.8	1.4	1.1
	H	75	24.6	12.3	8.2	6.1	5.1
	V	90	5.5	2.7	1.8	1.4	1.1
084-130 D	N	75	3.5	1.7	1.2		
	H	75	15.6	7.8	5.2		
	V	90	3.5	1.7	1.2		

HYDRAULIC MOTORS PUMPS



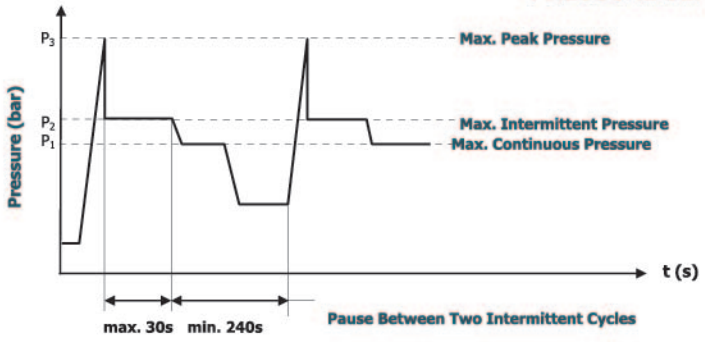
ORDERING CODE OF GP30 PUMPS



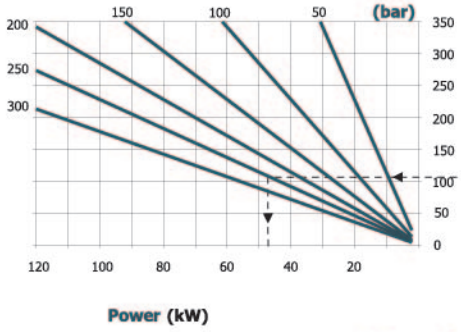
Pump Type	Displacement (cm³/rev)	Max. Pressure			Max. Speed	Min. Speed
		P1	P2	P3		
		bar			(rpm)	
GP30.017	17,2	300	320	340	2500	400
GP30.027	27,1	290	310	330		
GP30.034	34,4	280	300	320	2250	
GP30.043	42,9	270	290	310	2000	
GP30.051	51,2	240	260	280		
GP30.061	60,7	220	240	260	1750	
GP30.073	73,0	200	220	240	1500	
GP30.082	81,4	190	210	230		
GP30.100	99,7	180	200	220		

P1: Continuous pressure P2 : Intermittent pressure P3 : Peak pressure

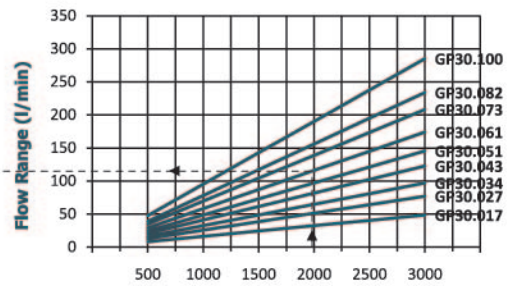
PRESSURE DEFINITION



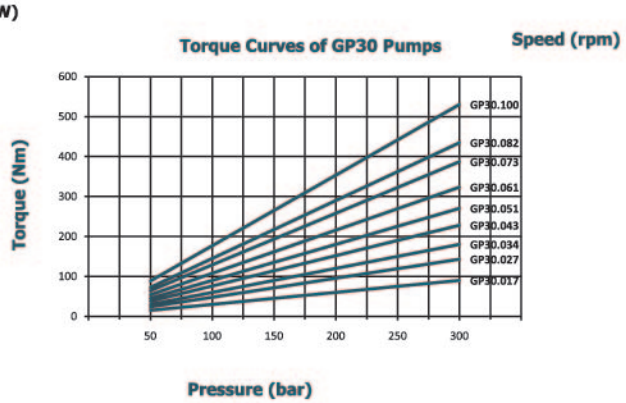
Power Curves of Gp30 Pumps



Flow Curves of GP30 Pumps



Torque Curves of GP30 Pumps



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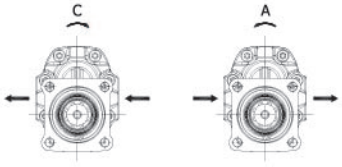
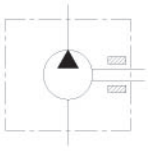
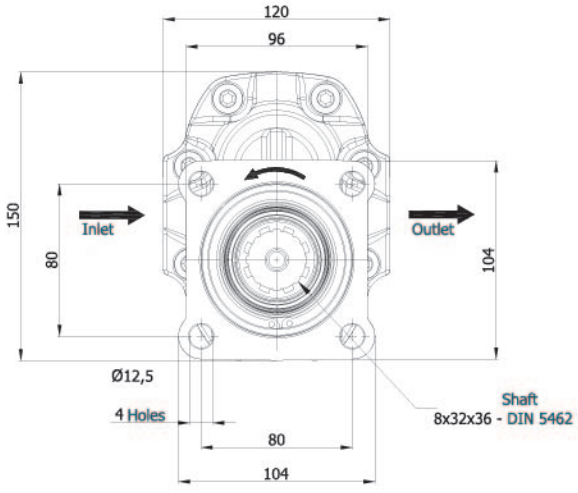
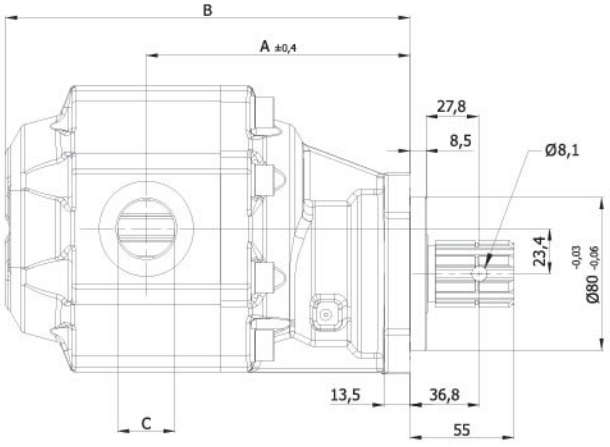


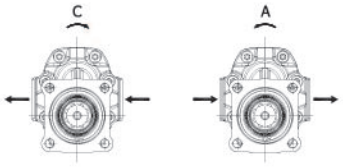


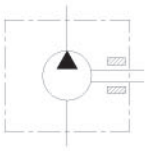


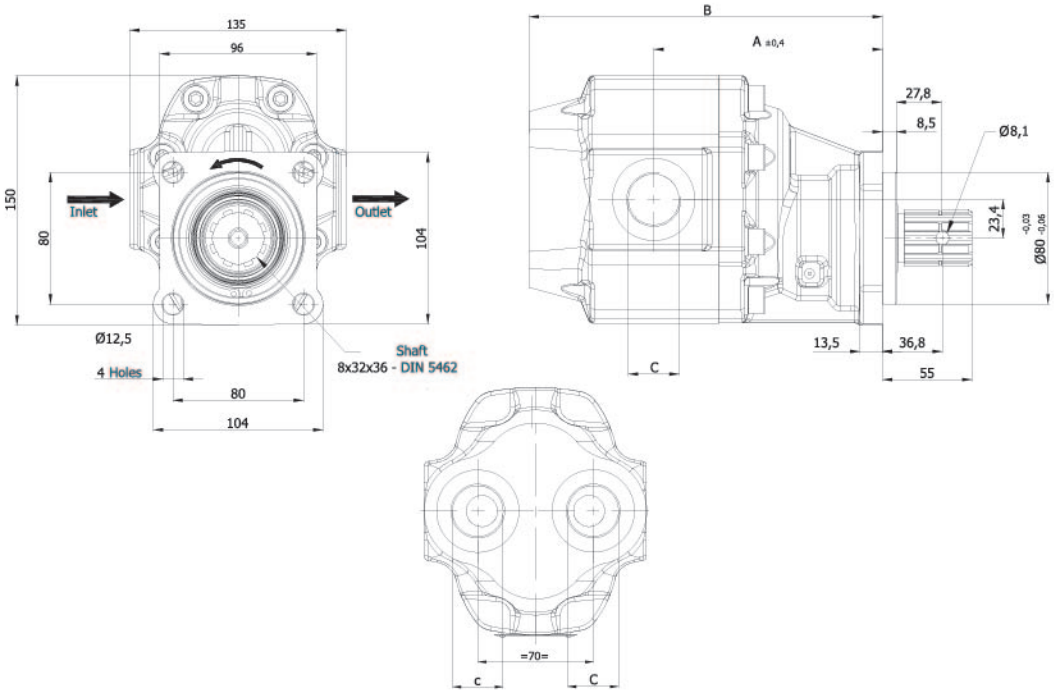


Pump Type	Displacement (cm³/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GP30.017.CRM1N	17,2	300	2500	119,0	172,6	G 1/2"	G 1/2"
GP30.017.ARM1N							
GP30.027.CRM1N	27,1	290		122,2	179,0	G 3/4"	G 3/4"
GP30.027.ARM1N							
GP30.034.CRM1N	34,4	280	2250	124,5	183,6		
GP30.034.ARM1N							
GP30.043.CRM1N	42,9	270	2000	127,4	189,4		
GP30.043.ARM1N							
GP30.051.CRM1N	51,2	240		129,5	193,5	G 1"	G 1"
GP30.051.ARM1N							
GP30.061.CRM1N	60,7	220	1750	133,2	201,0		
GP30.061.ARM1N							
GP30.073.CRM1N	73,0	200	1500	137,1	208,7		
GP30.073.ARM1N							
GP30.082.CRM1N	81,4	190		140,0	214,5	G 1-1/4"	G 1-1/4"
GP30.082.ARM1N							
GP30.100.CRM1N	99,7	180		145,8	226,1		
GP30.100.ARM1N							

ISO TYPE

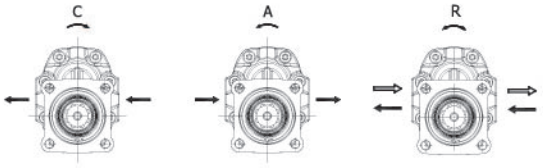


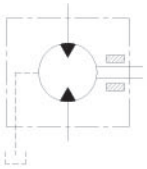


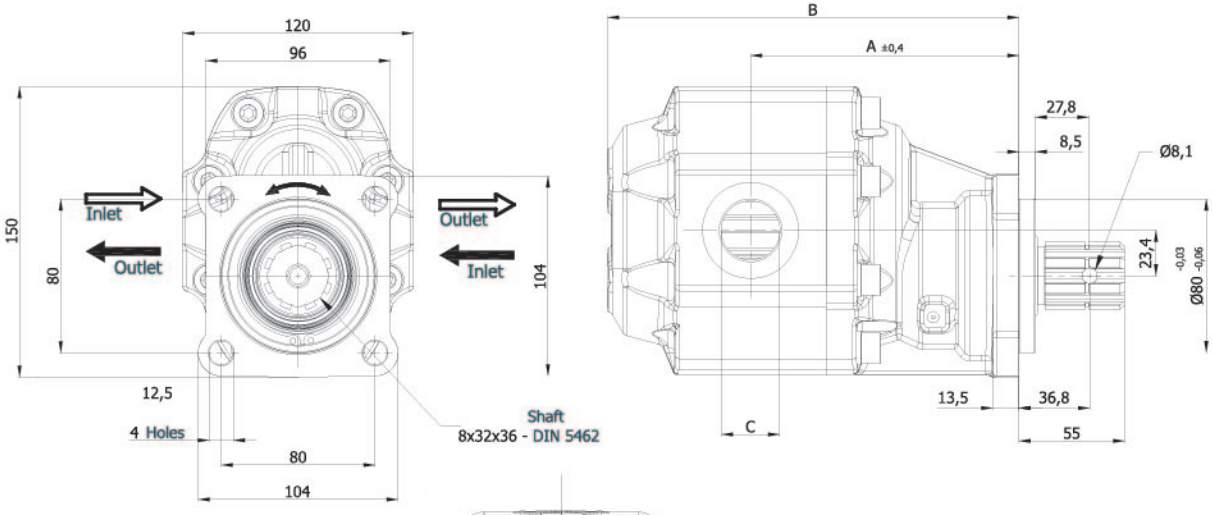


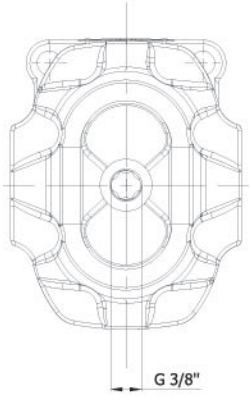
Pump Type	Displacement (cm³/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GPR30.017.CRM1N	17,2	300	2500	119,0	173,6	G 1/2"	G 1/2"
GPR30.017.ARM1N							
GPR30.027.CRM1N	27,1	290		122,2	180,0	G 3/4"	G 3/4"
GPR30.027.ARM1N							
GPR30.034.CRM1N	34,4	280	2250	124,5	184,6		
GPR30.034.ARM1N							
GPR30.043.CRM1N	42,9	270	2000	127,4	190,4		
GPR30.043.ARM1N							
GPR30.051.CRM1N	51,2	240		129,5	194,5	G 1"	G 1"
GPR30.051.ARM1N							
GPR30.061.CRM1N	60,7	220	1750	133,2	202,0		
GPR30.061.ARM1N							
GPR30.073.CRM1N	73,0	200	1500	137,1	209,7		
GPR30.073.ARM1N							
GPR30.082.CRM1N	81,4	190		140,1	215,5	G 1-1/4"	G 1-1/4"
GPR30.082.ARM1N							
GPR30.100.CRM1N	99,7	180		145,8	227,1		
GPR30.100.ARM1N							

ISO TYPE



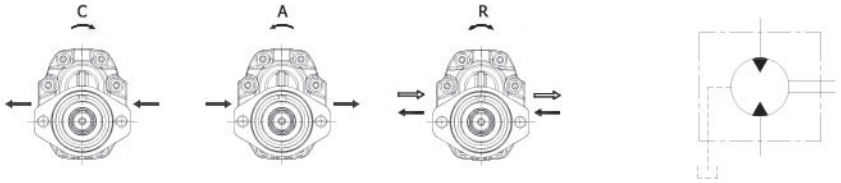


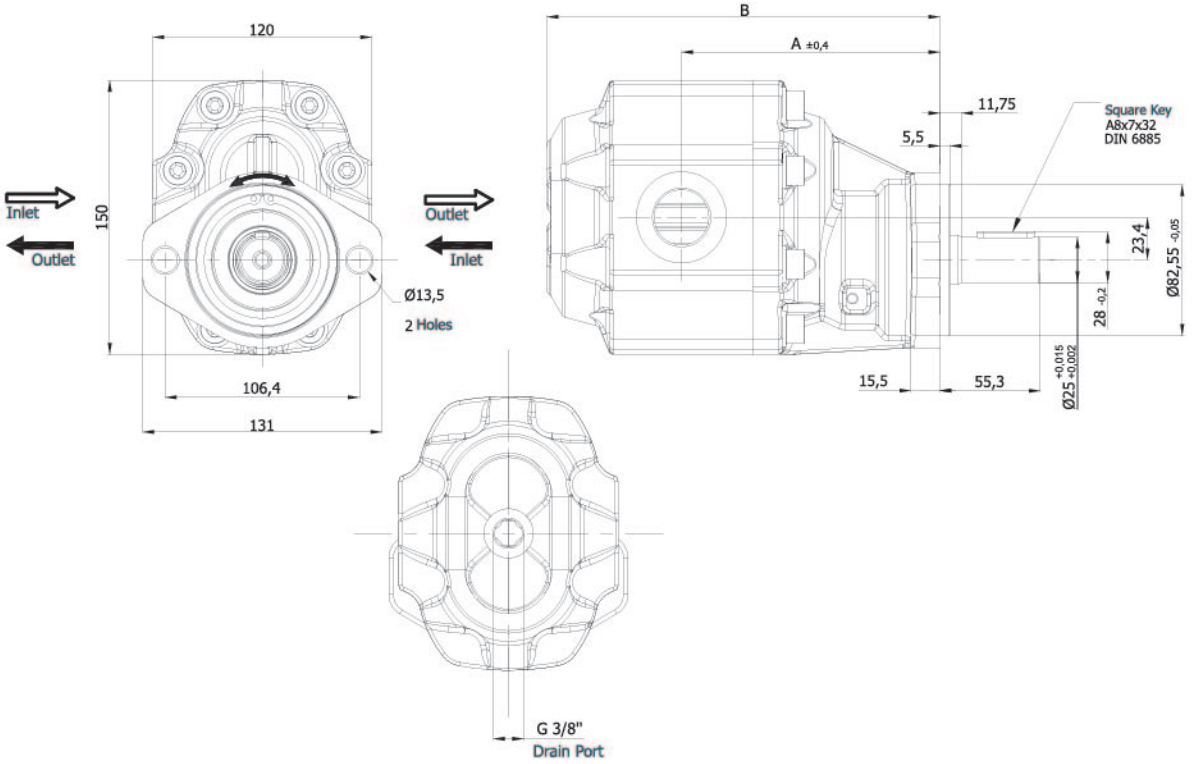




Motor Type	Displacement (cm³/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GPM30.017.RRM1N	17,2	300	2500	119,0	172,6	G 1/2"	G 1/2"
GPM30.027.RRM1N	27,1	290		122,2	179,0	G 3/4"	G 3/4"
GPM30.034.RRM1N	34,4	280	2250	124,5	183,6		
GPM30.043.RRM1N	42,9	270	2000	127,4	189,4		
GPM30.051.RRM1N	51,2	240		129,5	193,5	G 1"	G 1"
GPM30.061.RRM1N	60,7	220	1750	133,2	201,0		
GPM30.073.RRM1N	73,0	200	1500	137,1	208,7		
GPM30.082.RRM1N	81,4	190		140,0	214,5	G 1-1/4"	G 1-1/4"
GPM30.100.RRM1N	99,7	180		145,8	226,1		

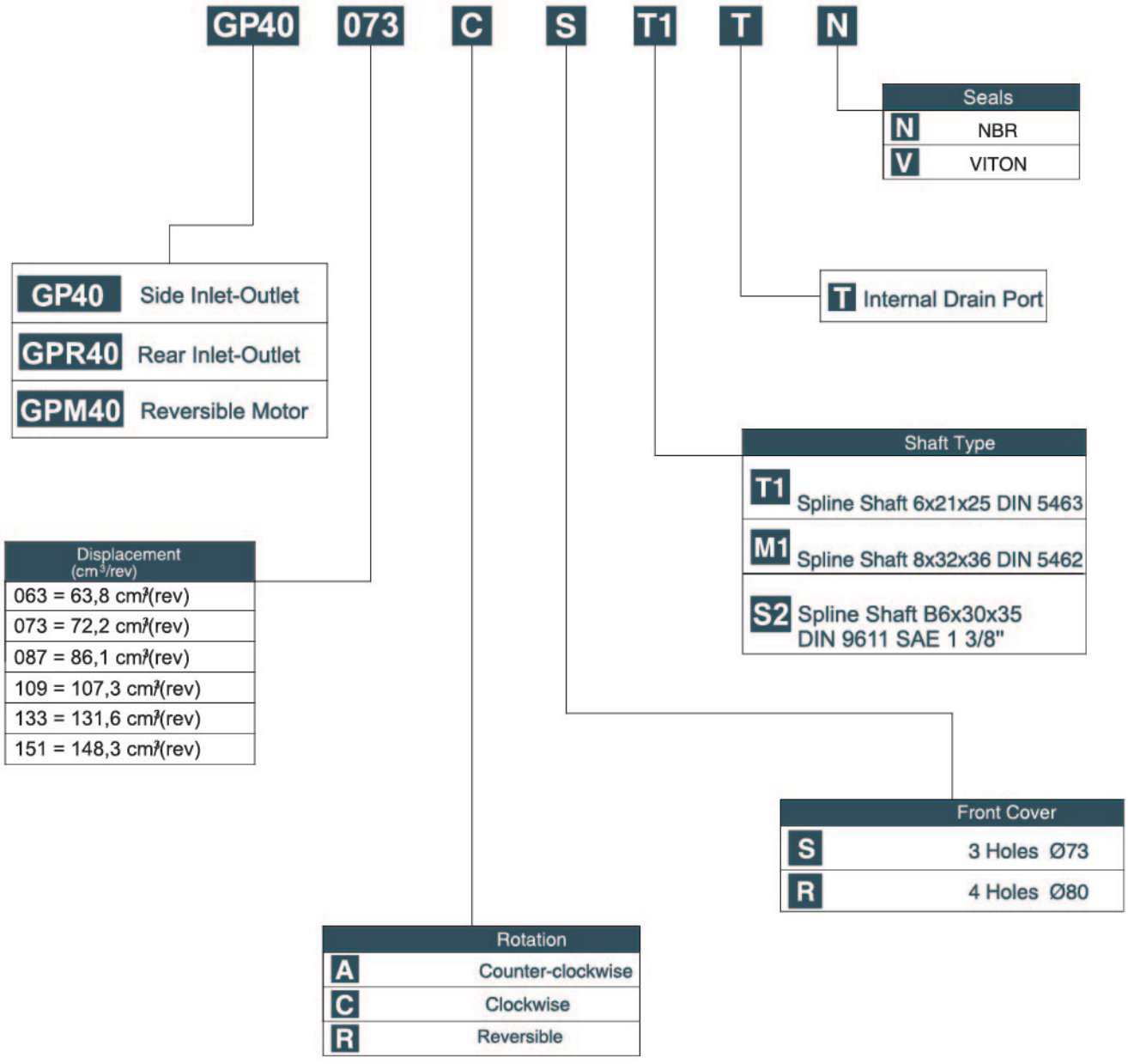
S TYPE





Motor Type	Displacement (cm³/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GPM30.017.RDSN	17,2	300	2500	121,0	174,6	G 1/2"	G 1/2"
GPM30.027.RDSN	27,1	290		104,0	181,0	G 3/4"	G 3/4"
GPM30.034.RDSN	34,4	280	2250	106,3	185,6		
GPM30.043.RDSN	42,9	270	2000	109,2	191,4		
GPM30.051.RDSN	51,2	240		111,3	195,5	G 1"	G 1"
GPM30.061.RDSN	60,7	220	1750	115,0	203,0		
GPM30.073.RDSN	73,0	200	1500	118,9	210,7		
GPM30.082.RDSN	81,4	190		121,8	216,5	G 1-1/4"	G 1-1/4"
GPM30.100.RDSN	99,7	180		127,6	228,1		

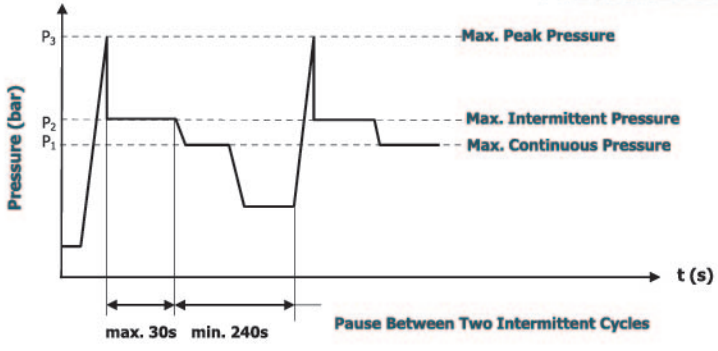
ORDERING CODE OF GP40 SERIES

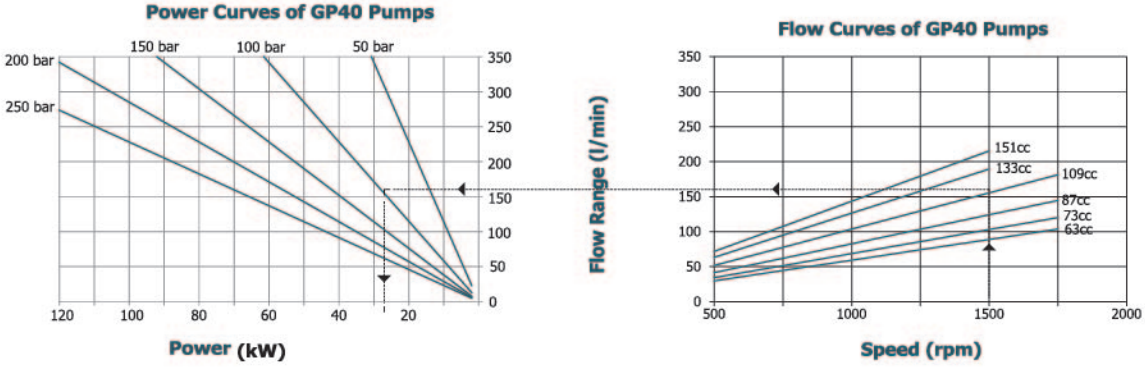


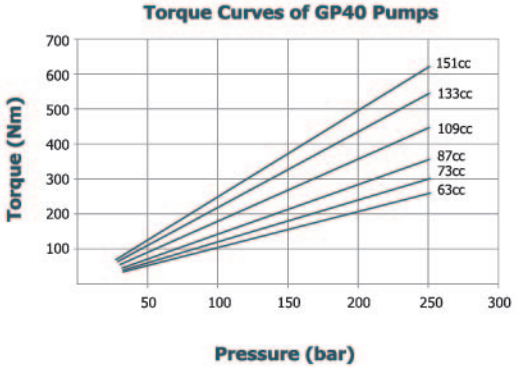
Pump Type	Displacement (cm³/rev)	Max. Pressure			Max. Speed	Min. Speed
		P1	P2	P3		
		bar			d/d (rpm)	
GP40.063	63,8	280	300	320	1750	400
GP40.073	72,2					
GP40.087	86,1	260	280	300		
GP40.109	107,3	240	260	280		
GP40.133	131,6	220	240	260	1500	
GP40.151	148,3	180	200	220		

P1: Continuous pressure P2 : Intermittent pressure P3 : Peak pressure

PRESSURE DEFINITION







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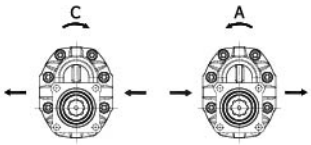
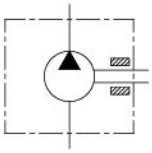
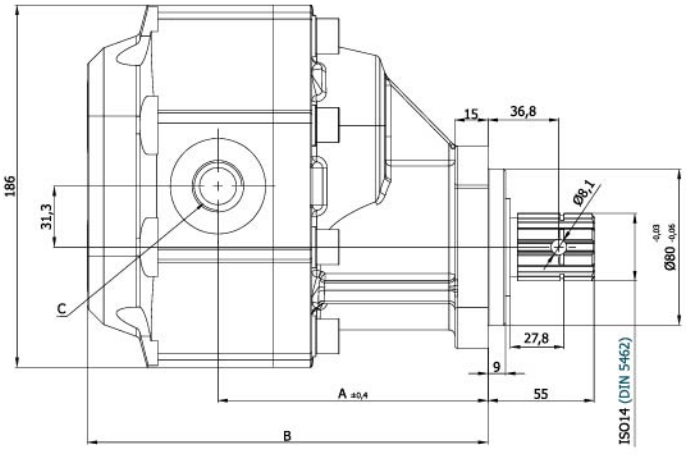
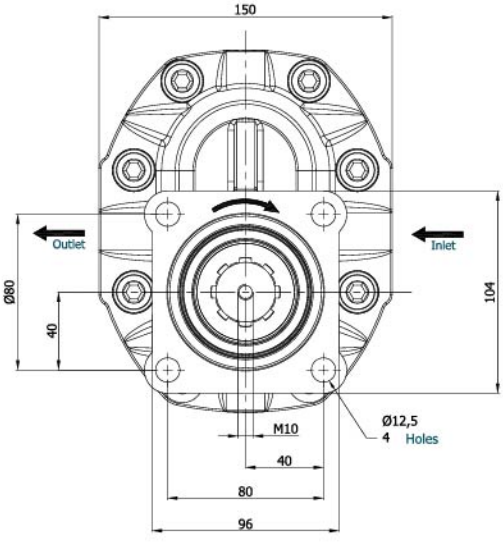


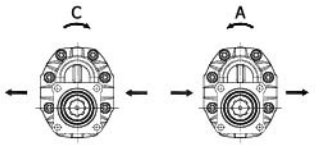


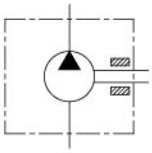


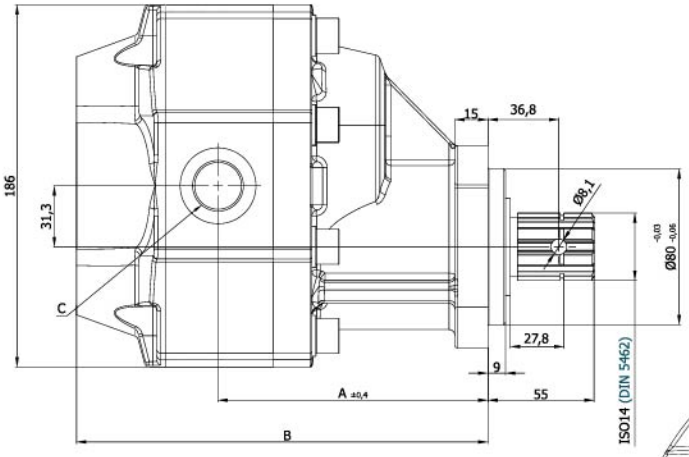


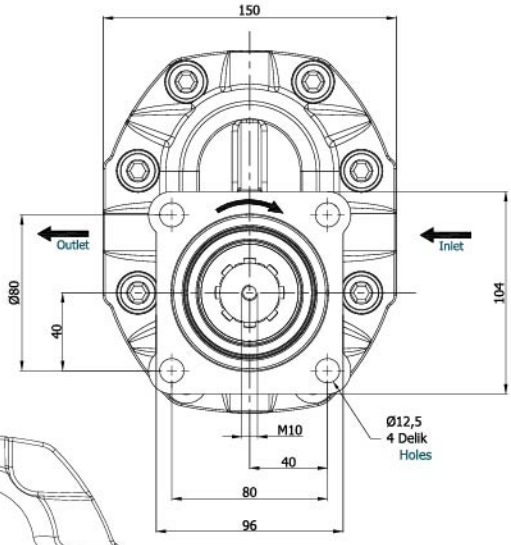
Pump Type	Displacement (cm³/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GP40.063.CRM1N	63,8	280	1750	136,3	203,0	G 1"	G 3/4"
GP40.063.ARM1N							
GP40.073.CRM1N	72,2			137,3	204,6		
GP40.073.ARM1N							
GP40.087.CRM1N	86,1	260		141,0	209,6	G 1-1/4"	G 1"
GP40.087.ARM1N							
GP40.109.CRM1N	107,3	240		145,0	217,3		
GP40.109.ARM1N							
GP40.133.CRM1N	131,6	220	1500	148,0	225,9	G 1-1/2"	
GP40.133.ARM1N							
GP40.151.CRM1N	148,3	180		153,3	232,3		
GP40.151.ARM1N							

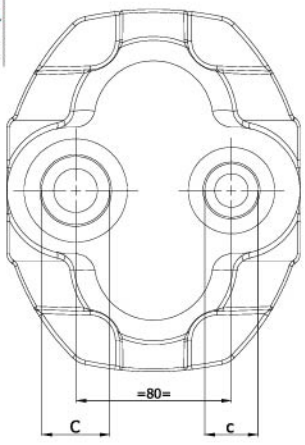
ISO TYPE





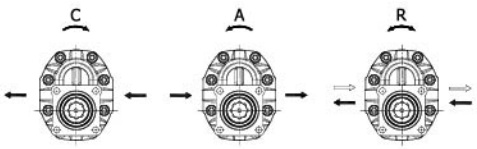


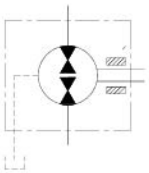


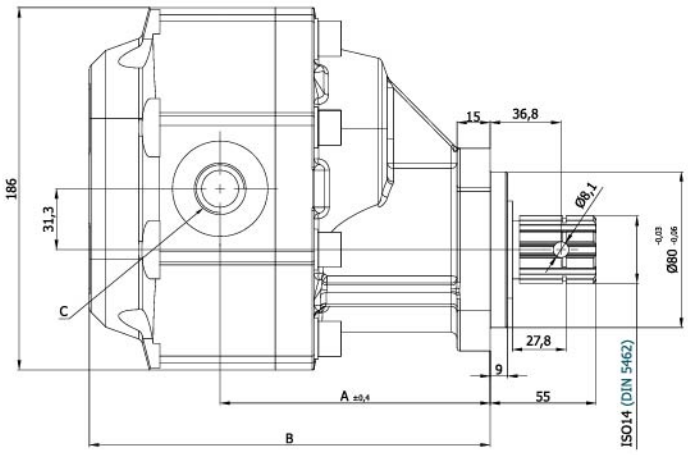


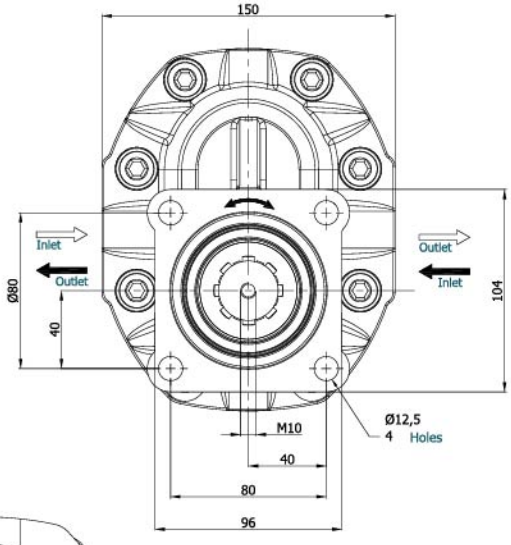
Pump Type	Displacement (cm³/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GPR40.063.CRM1N	63,8	280	1750	136,3	208,5	G 1"	G 3/4"
GPR40.063.ARM1N							
GPR40.073.CRM1N	72,2			137,3	210,0		
GPR40.073.ARM1N							
GPR40.087.CRM1N	86,1	260		141,0	214,0	G 1-1/4"	G 1"
GPR40.087.ARM1N							
GPR40.109.CRM1N	107,3	240		145,0	221,5		
GPR40.109.ARM1N							
GPR40.133.CRM1N	131,6	220	1500	148,0	230,5	G 1-1/2"	
GPR40.133.ARM1N							
GPR40.151.CRM1N	148,3	180		153,3	236,5		
GPR40.151.ARM1N							

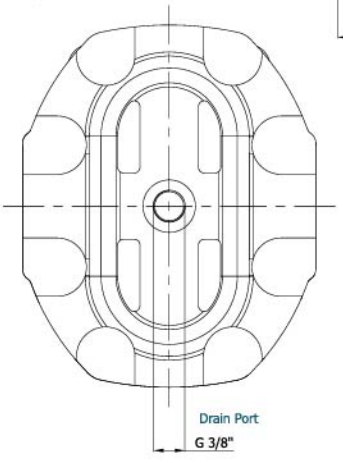
ISO TYPE









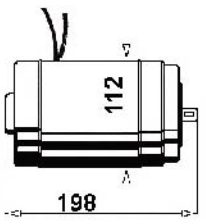


Motor Type	Displacement (cm^3/rev)	Max. Pressure (bar)	Max. Speed (rpm)	A	B	Inlet	Outlet
						C	c
GPM40.063.RRM1N	63,8	280	1750	136,3	203,0	G 1"	G 1"
GPM40.073.RRM1N	72,2			137,3	204,6		
GPM40.087.RRM1N	86,1	260		141,0	209,6	G 1-1/4"	G 1-1/4"
GPM40.109.RRM1N	107,3	240		145,0	217,3		
GPM40.133.RRM1N	131,6	220	1500	148,0	225,9		
GPM40.151.RRM1N	148,3	180		153,3	232,3		

直流电机及直流电机泵组

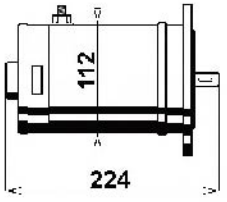
DC MOTOR

D.C. TRACTION MOTORS

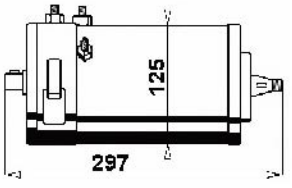


- MO TO R 200 W 12 - 24 VO LT 2000 RP M
- MO TO R 350 W 12 - 24 VO LT 2800 RP M
- MO TO R 350 W 36 - 48 VO LT 2800 RP M

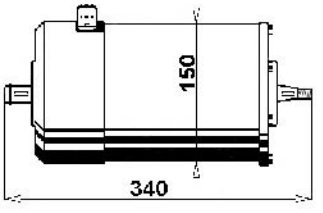
PERM AN ENT MA GN ET MOTORS



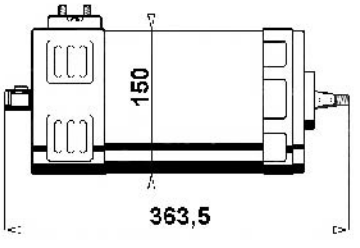
- MOTOR 35 0 W 12 - 24 VOLT 1300 RP M
- MOTOR 70 0 W 12 - 24 VOLT 2800 RP M
- MOTOR 70 0 W 24 VO LT 1700 RP M
- MOTOR 1000 W 12 - 24 VOLT 2900 RP M



- MOTOR 500 W 24 VO LT 1000 RP M
- MOTOR 500 W 24 VO LT 1670 RP M
- MOTOR 700 W 24 VO LT 1800 RP M
- MOTOR 700 W 24 VO LT 2300 RP M



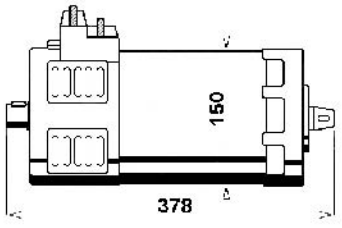
- MOTOR 1 000 W 24 - 48 VOLT 1500 RPM
- MOTOR 1 500 W 24 - 48 VOLT 1850 RPM
- MOTOR 2 000 W 24 - 48 VOLT 1800 RPM
- MOTOR 2 000 W 36 - 40 VOLT 1800 RPM



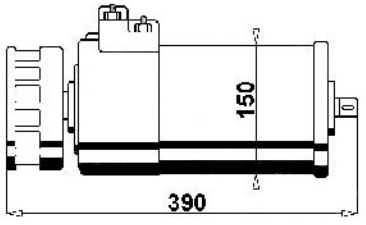
- MOTOR 1000 W 24 - 48 VOLT 1500 RPM
- MOTOR 1500 W 24 - 48 VOLT 2250 RPM
- MOTOR 2000 W 24 - 48 VOLT 2250 RPM
- MOTOR 2600 W 24 - 48 VOLT 2250 RP M

DC MOTOR

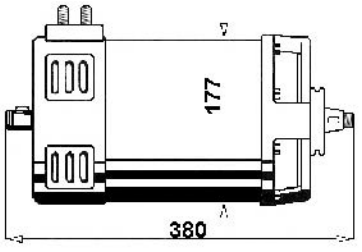
D.C. TRACTION MOTORS



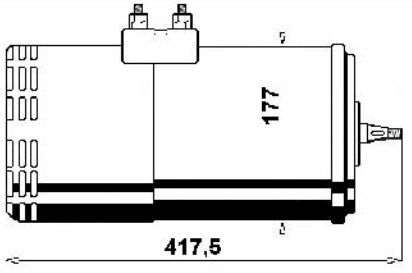
- MOTOR 3000 W 24 VO LT 1800 RP M
- MOTOR 3000 W 24 VO LT 2800 RP M
- MOTOR 3500 W 24 VO LT 2380 RP M
- MOTOR 3500 W 40 - 48 VO LT 2630 RP M



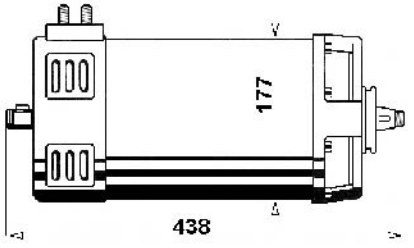
- MOTOR 3000 W 24 VOLT 2800 RPM
- MOTOR 3500 W 24 VOLT 2380 RPM
- MOTOR 3500 W 48 VOLT 2630 RPM



- MOTOR 3200 W 24 VOLT 2100 RPM
- MOTOR 3800 W 48 VOLT 2050 RPM
- MOTOR 4000 W 40 - 48 VO LT 2230 RP M
- MOTOR 4400 W 48 VOLT 2100 RPM



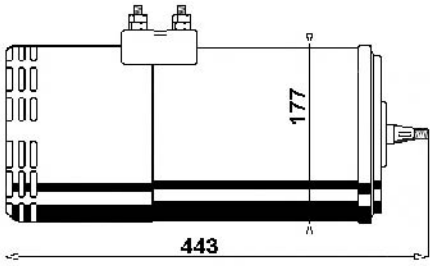
- MOTOR 2500 W 48 VOLT 1420 - 2000 RP M
- MOTOR 5000 W 36 - 40 VO LT 2500 - 3100 RP M
- MOTOR 5000 W 72 - 80 VO LT 2160 - 3100 RP M



- MOTOR 3000 W 24 VOLT 1600 RPM
- MOTOR 5000 W 36 - 40 VO LT 1600 RP M
- MOTOR 5000 W 48 VOLT 2500 RPM
- MOTOR 5000 W 80 VOLT 2000 RPM

DC MOTOR

D.C. TRACTION MOTORS

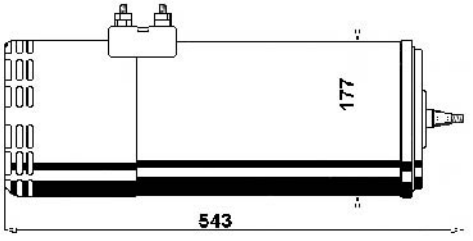


-M OTOR 3000 W 24 VOLT 1020 – 1600 RP M

-M OTOR 3500 W 48 VOLT 1200 – 1600 RP M

-M OTOR 5000 W 36 - 48 VO LT 2500 – 3100 RPM

-M OTOR 5000 W 72 - 80 VO LT 2100 – 3100 RPM



-M OTOR 5000 W 48 VOLT 1350 – 1850 RP M

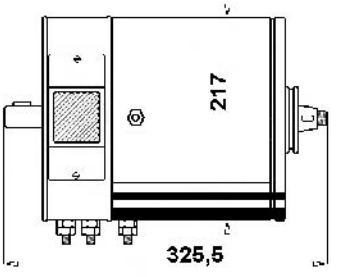
-M OTOR 6000 W 40 VOLT 2000 RP M

-M OTOR 8000 W 48 VOLT 2500 – 3300 RP M

-M OTOR 8000 W 72 - 80 VO LT 25 00 – 3100 RP M

-M OTOR 10000 W 80 VOLT 2000 RP M

FORCED VENTILATION

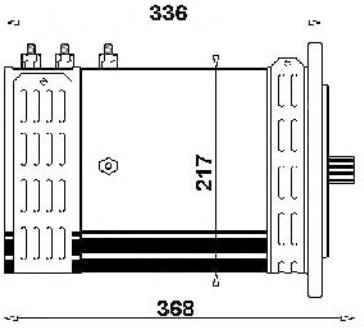


-MOTOR 3000 W 24 VOLT 2000 RP M

-M OTOR 4300 W 48 VOLT 2300 RP M

-M OTOR 6000 W 80 VOLT 2800 RP M

FO R HU RT GE AR BO X HF S 50 – 500



-MOTOR 4 000 W 24 VO LT 1400 RP M

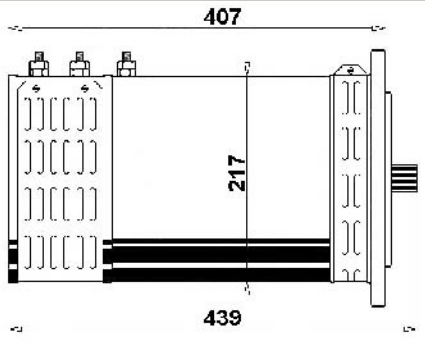
-MOTOR 5 000 W 36 VO LT 1700 RP M

-MOTOR 6 000 W 48 VO LT 1950 RP M

-MOTOR 6 000 W 80 VO LT 2000 RP M

DC MOTOR

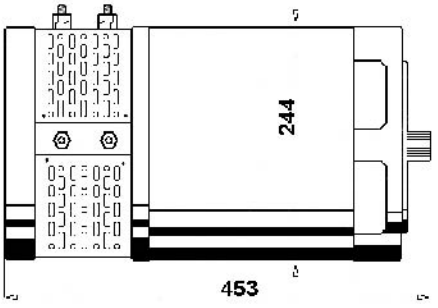
D.C. TRACTION MOTORS



-MOTOR 6 000 W 36 - 40 VO LT 1650 RP M

-MOTOR 6 800 W 48 VO LT 1650 RP M

-MOTOR 8 500 W 80 VO LT 2800 RP M

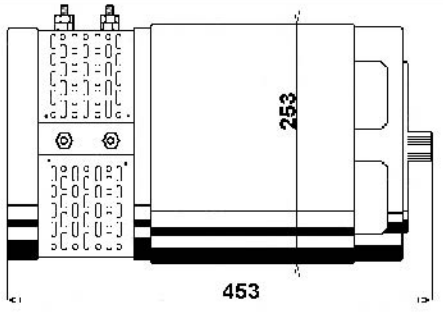


-MOTOR 5 000 W 48 VO LT 1100 RP M

-MOTOR 8 000 W 48 VO LT 1080 – 1400 RP M

-MOTOR 8 000 W 72 - 80 VO LT 2000 RP M

-MOTOR 10 000 W 80 VO LT 1950 RP M

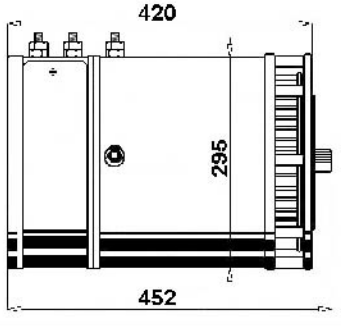


-MOTOR 8 000 W 48 VO LT 940 - 1170 RPM

-MOTOR 8 000 W 48 VO LT 1300 RP M

-MOTOR 9 000 W 72 VO LT 1620 RP M

-MOTOR 10 000 W 80 VO LT 1860 – 2500 RP M



-MOTOR 8 000 W 48 VO LT 1230 RP M

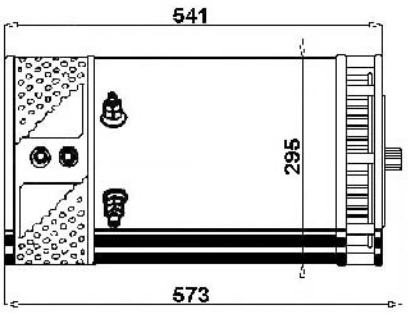
-MOTOR 10 000 W 72 - 80 VO LT 1650 RPM

-MOTOR 13 000 W 72 - 80 VOLT 2250 RP M

-MOTOR 15 000 W 80 VO LT 1700 RP M

DC MOTOR

D.C. TRACTION MOTORS

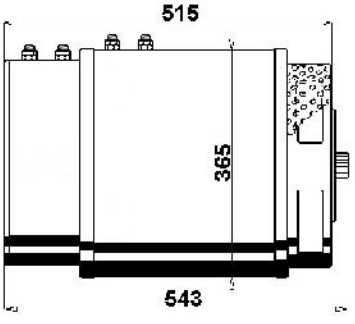


-MOTOR 15 000 W 72 VOLT 2000 RPM

-MOTOR 15 000 W 80 VOLT 1300 RPM

-MOTOR 15 000 W 80 VOLT 1800 RPM

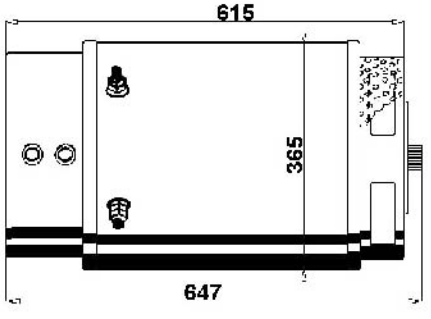
-MOTOR 17 000 W 80 VOLT 2100 RPM



-MOTOR 18 000 W 80 VOLT 1500 RPM

-MOTOR 20 000 W 72 - 80 VO LT 1150 RP M

-MOTOR 21 000 W 80 - 96 VO LT 1150 RP M



-MOT OR 2 0000 W 80 VO LT 1250 RPM

-MOT OR 2 4000 W 80 VO LT 1200 RPM

-MOT OR 2 5000 W 72 VO LT 1150 RPM

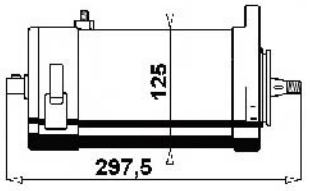
-MOT OR 2 7000 W 80 VO LT 1150 RPM

-MOT OR 3 0000 W 80 VO LT 1380 RPM

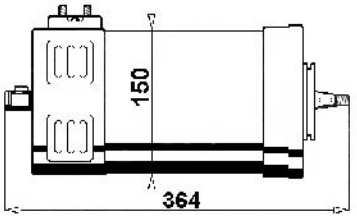
-MOT OR 3 6000 W 96 VO LT 1650 RPM

DC MOTOR

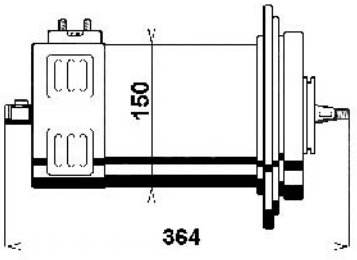
MOTORS FOR HURTH-KORDEL
TECNOSTILE-PROMEC GEARBOXES



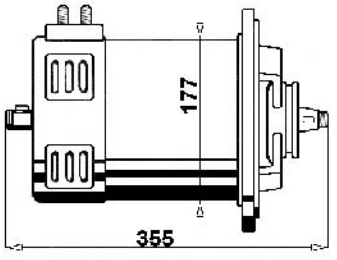
-MOTOR 500 W 24 VOLT 1000 RP M 4 TE RM
-MOTOR 500 W 24 VOLT 1670 RP M 3 TE RM
-MOTOR 700 W 24 VOLT 1800 RP M 3 TE RM
-MOTOR 700 W 24 VOLT 2300 RP M 3 TE RM



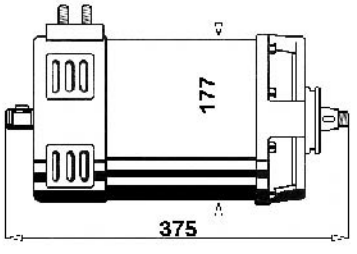
-MOTOR 1000 W 24 VO LT 1500 RPM 3 TERM
-MOTOR 1500 W 24 VO LT 1850 RPM 3 TERM
-MOTOR 2000 W 24 - 48 VOLT 2250 RP M 3 TERM
-MOTOR 2600 W 24 - 48 VOLT 2250 RP M 4 TERM



-MOTOR 1000 W 24 VO LT 1500 RPM 3 TERM
-MOTOR 1500 W 24 VO LT 1850 RPM 3 TERM
-MOTOR 2000 W 24 - 48 VOLT 2250 RP M 3 TERM
-MOTOR 2600 W 24 - 48 VOLT 2250 RP M 4 TERM



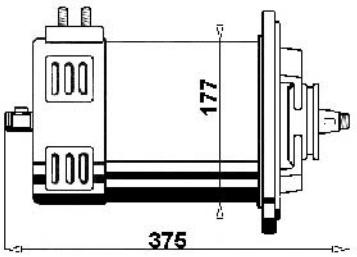
-MOTOR 3200 W 24 VO LT 2100 RPM 4 TERM
-MOTOR 3200 W 40 - 48 VOLT 2100 RP M 4 TERM



-MOTOR 3800 W 40 - 48 VOLT 2050 RP M 4 TERM
-MOTOR 4000 W 40 - 48 VOLT 2230 RP M 4 TERM
-MOTOR 4400 W 40 - 48 VOLT 2100 RP M 4 TERM

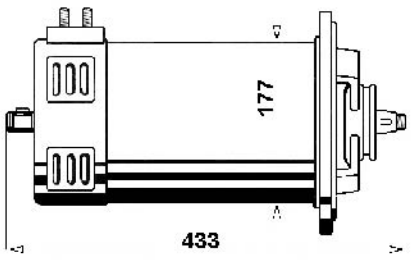
DC MOTOR

MOTORS FOR HURTH-KORDEL
TECNOSTILE-PROMEC GEARBOXES



-MOTOR 4000 W 40 - 48 VO LT 2230 RP M 4 TE RM

-MOTOR 5000 W 48 VOLT 2350 RP M 4 TE RM

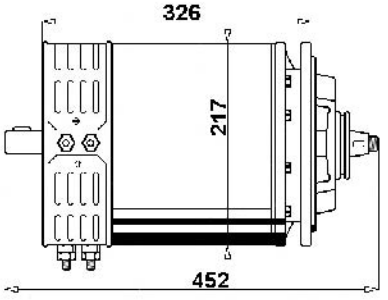


-MOTOR 3000 W 24 VOLT 2100 RP M 6 TE RM

-MOTOR 5000 W 40 - 48 VO LT 2500 RP M 4 TE RM

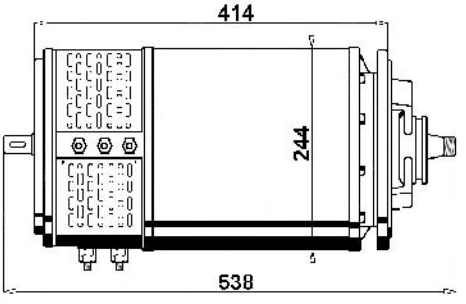
-MOTOR 5000 W 48 VOLT 3500 RP M 4 TE RM

-MOTOR 5000 W 72 - 80 VO LT 2000 RP M 4 TE RM



-MOTOR 6000 W 40 - 48 VO LT 1950 RP M 4 TE RM

-MOTOR 6000 W 72 - 80 VO LT 2000 RP M 4 TE RM

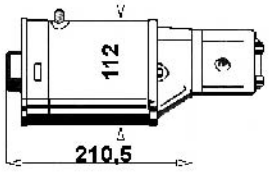


-MOTOR 8000 W 48 VOLT 1280 RP M 5 TE RM

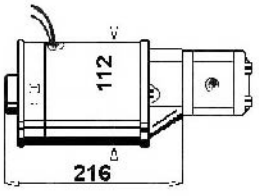
-MOTOR 8000 W 72 - 80 VO LT 2000 RP M 4 TE RM

DC MOTOR

D.C. OIL HIDRAULIC ELECTROPUMPS 电机泵组

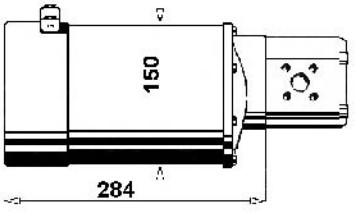


-ELP. 1500 W 12 VOLT 1800 RPM
-ELP. 2000 W 24 VOLT 2000 RPM
-ELP. 2000 W 40 VOLT 2000 RPM
-ELP. 2000 W 48 VOLT 2200 RPM

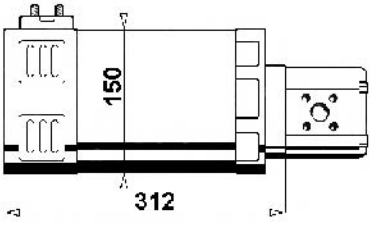


-ELP. 500 W 12 VOLT 2000 RPM
-ELP. 500 W 24 VOLT 2000 RPM
-ELP. 500 W 40 - 48 VOLT 2000 RPM

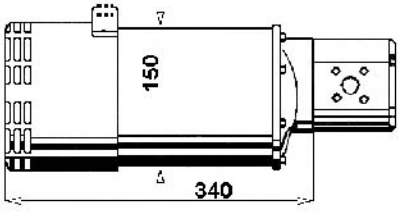
PERMANENT MAGNETS



-ELP. 2500 W 24 VOLT 1620 RPM
-ELP. 2500 W 36 VOLT 1450 RPM
-ELP. 2500 W 40 VOLT 1620 RPM
-ELP. 2500 W 48 VOLT 2000 RPM
-ELP. 2500 W 72 VOLT 1800 RPM
-ELP. 2500 W 80 VOLT 2000 RPM



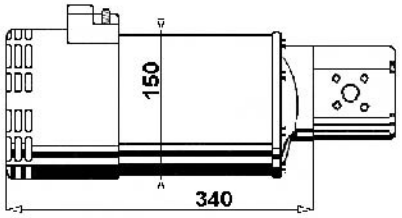
-ELP. 3000 W 24 VOLT 1500 RPM
-ELP. 3000 W 48 VOLT 1800 RPM
-ELP. 3000 W 80 VOLT 1750 RPM



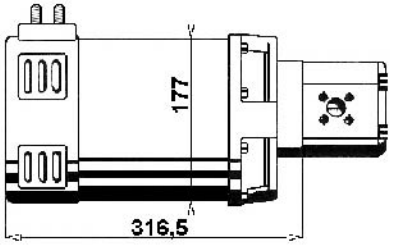
-ELP. 3000 W 24 VOLT 1500 RPM
-ELP. 3000 W 48 VOLT 1800 RPM
-ELP. 3000 W 80 VOLT 1750 RPM

DC MOTOR

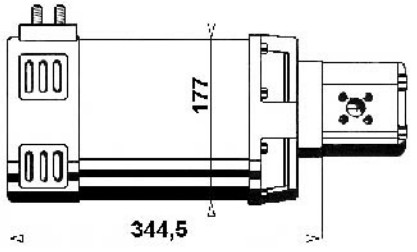
D.C. OIL HIDRAULIC ELECTROPUMPS 电机泵组



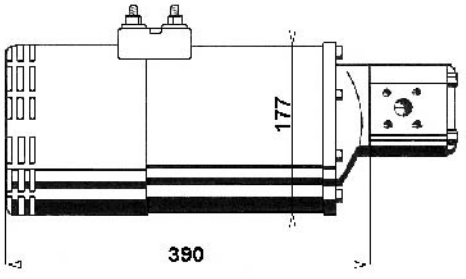
-ELP. 25 00 W 12 VOLT 1100 RPM
-ELP. 40 00 W 24 VOLT 1800 – 2450 RPM
-ELP. 40 00 W 48 VOLT 1400 RPM
-ELP. 45 00 W 36 VOLT 2040 - 2500 RPM
-ELP. 45 00 W 40 – 48 VOLT 2750 – 3300 RPM
-ELP. 50 00 W 24 VOLT 2150 RPM
-ELP. 55 00 W 48 VOLT 3050 RPM



-ELP. 55 00 W 48 VOLT 2130 RPM
-ELP. 60 00 W 40 VOLT 1900 RPM
-ELP. 60 00 W 48 VOLT 2300 RPM
-ELP. 60 00 W 72 VOLT 1700 RPM
-ELP. 60 00 W 80 VOLT 1900 RPM



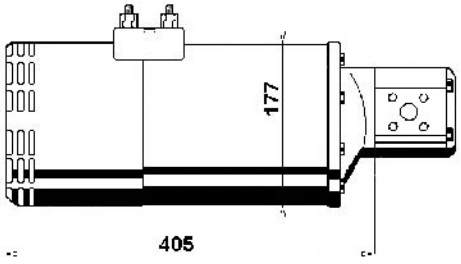
-ELP. 60 00 W 40 VOLT 1900 RPM
-ELP. 65 00 W 48 VOLT 2200 RPM
-ELP. 65 00 W 80 VOLT 1750 RPM



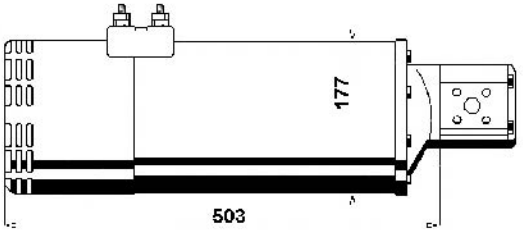
-ELP. 50 00 W 48 VOLT 2270 – 3200 RPM
-ELP. 50 00 W 40 VOLT 2100 RPM
-ELP. 50 00 W 80 VOLT 2000 – 3100 RPM
-ELP. 50 00 W 80 VOLT 2160 RPM

DC MOTOR

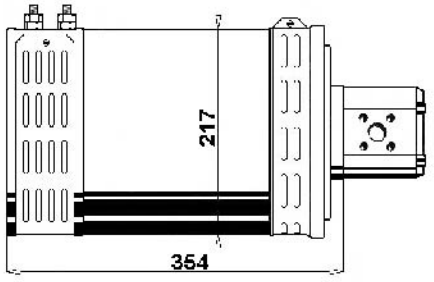
D.C. OIL HIDRAULIC ELECTROPUMPS 电机泵组



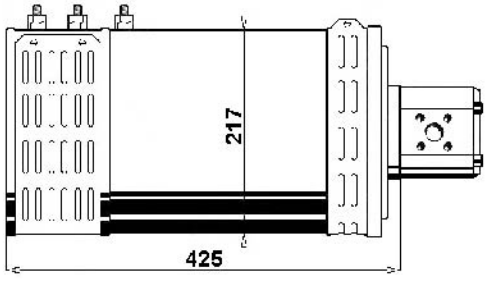
-E LP. 8000 W 48 VO LT 20 00 – 2500 RP M
-E LP. 8000 W 40 VO LT 20 00 RP M
-E LP. 8000 W 72 VO LT 15 00 RP M
-E LP. 8000 W 80 VO LT 17 00 – 2380 RP M



-E LP. 8000 W 48 VO LT 11 50 – 1750 RP M
-E LP. 8000 W 48 VO LT 20 00 RP M
-E LP. 1 0000 W 48 VO LT 20 00 RP M
-E LP. 1 0000 W 80 VO LT 20 00 RP M



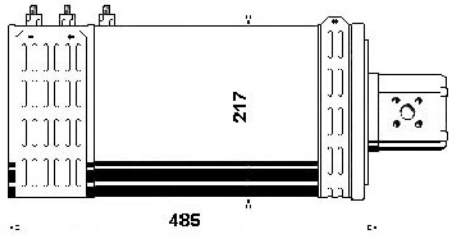
-E LP. 5 KW 24 VO LT 1200 RP M
-E LP. 7 KW 36 VO LT 2000 RP M
-E LP. 8 KW 40 VO LT 1700 RP M
-E LP. 8 KW 48 VO LT 2260 RP M
-E LP. 8 KW 48 VO LT 1700 – 2460 RP M
-E LP. 9 KW 48 VO LT 2300 RP M
-E LP. 10 KW 80 VO LT 2400 RP M



-E LP. 8 KW 40 VO LT 1500 RP M
-E LP. 8 KW 48 VO LT 1800 RP M
-E LP. 10 KW 48 VO LT 1600 RP M
-E LP. 10 KW 72 VO LT 1800 RP M
-E LP. 10 KW 80 VO LT 2000 RP M
-E LP. 12 KW 72 VO LT 1800 RP M
-E LP. 16 KW 80 VO LT 2300 RP M

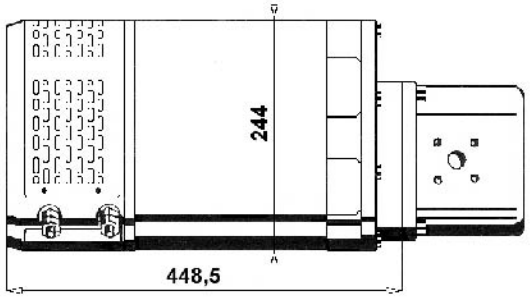
DC MOTOR

D.C. OIL HIDRAULIC ELECTROPUMPS 电机泵组



-E LP . 16,8 KW 80 VO LT 1800 RP M

-E LP . 17 KW 80 VO LT 1800 RP M

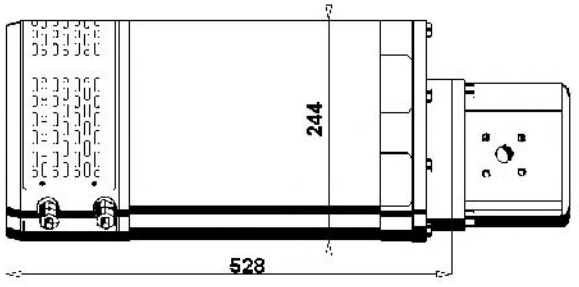


-E LP . 10 KW 48 VO LT 1000 RP M

-E LP . 10 KW 48 VO LT 1030 – 1300 RP M

-E LP . 10 KW 72 VO LT 1470 RP M

-E LP . 10 KW 80 VO LT 1700 RP M

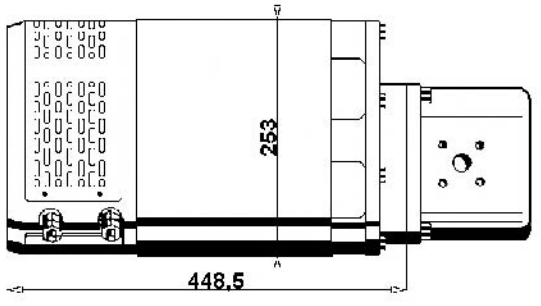


-E LP . 14 KW 80 VO LT 1300 RP M

-E LP . 14 KW 72 VO LT 1170 RP M

-E LP . 14 KW 80 VO LT 1080 – 1290 RP M

-E LP . 14 KW 72 VO LT 970 – 1160 RPM



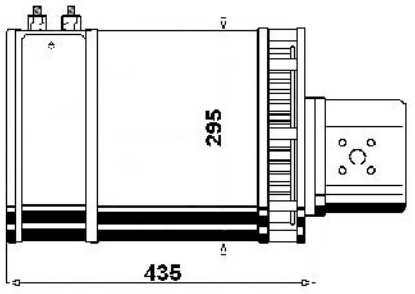
-E LP . 16,8 KW 80 VOLT 1450 RP M

-E LP . 15,5 KW 72 VOLT 1350 RP M

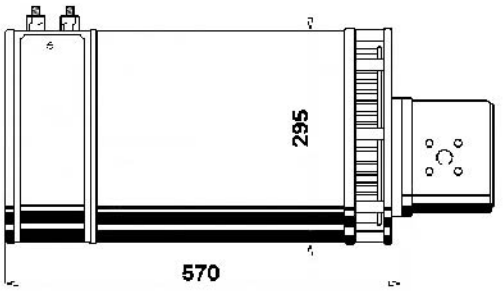
-E LP . 10 KW 48 VOLT 1200 RP M

DC MOTOR

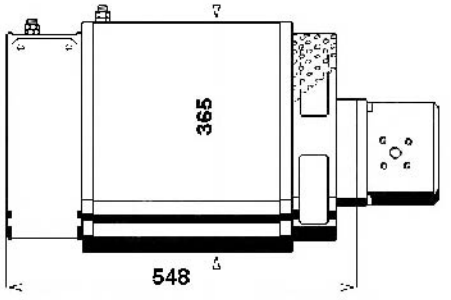
D.C. OIL HIDRAULIC ELECTROPUMPS 电机泵组



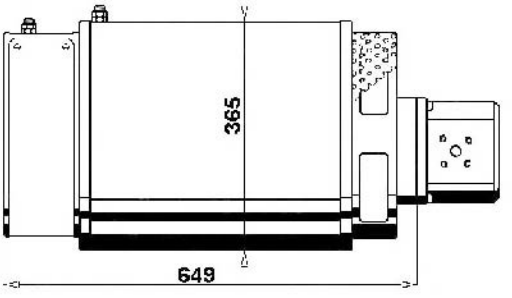
-E LP . 20 KW 80 VO LT 1400 RP M
-E LP . 18 KW 80 VO LT 1500 RP M
-E LP . 18 KW 72 VO LT 1400 RP M
-E LP . 15 KW 80 VO LT 1400 RP M



-E LP . 20 KW 72 VO LT 1000 RP M
-E LP . 22 KW 80 VO LT 1850 RP M
-E LP . 25 KW 80 VO LT 1700 RP M



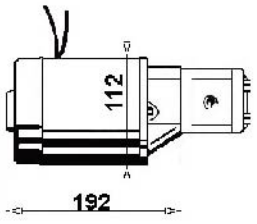
-E LP . 20 KW 72 VO LT 1150 RP M
-E LP . 20 KW 80 VO LT 1250 RP M
-E LP . 22 KW 72 VO LT 1000 RP M
-E LP . 22 KW 80 VO LT 1100 RP M



-E LP . 27 KW 72 VO LT 1200 RP M
-E LP . 30 KW 80 VO LT 1150 RP M
-E LP . 35 KW 80 VO LT 1100 RP M

DC MOTOR

ELECTROPUMPS FOR STEERING 转向用电机泵组

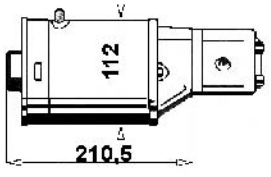


-ELP. ST EERING 5 00 W 12 VOLT 2000 RPM

-ELP . ST EERING 5 00 W 24 VOLT 2000 RPM

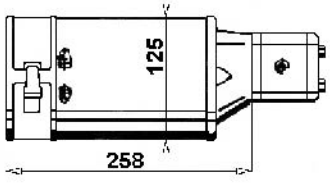
-ELP . ST EERING 5 00 W 40 – 48 VO LT 2000 RP M

PERM AN ENT MA GNETS



-ELP . ST EERING 5 00 W 24 VOLT 2250 RPM

-ELP . ST EERING 5 00 W 36 VOLT 2580 RPM

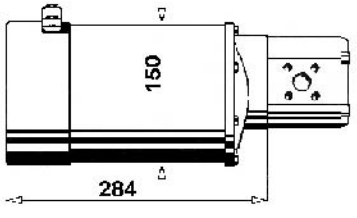


-ELP . ST EERING 5 00 W 24 VOLT 1670 RPM

-ELP . ST EERING 7 00 W 36 VOLT 2250 RPM

-ELP . ST EERING 1000 W 48 VOLT 2800 RPM

-ELP . ST EERING 1000 W 80 VOLT 2250 RPM



-ELP . ST EERING 1000 W 24 VOLT 1500 RPM

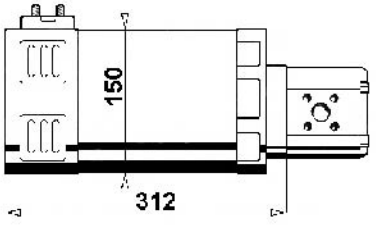
-ELP . ST EERING 1000 W 36 VOLT 1400 RPM

-ELP . ST EERING 1000 W 48 VOLT 1180 RPM

-ELP . ST EERING 1000 W 80 VOLT 1500 RPM

DC MOTOR

ELECTROPUMPS FOR STEERING 转向用电机泵组

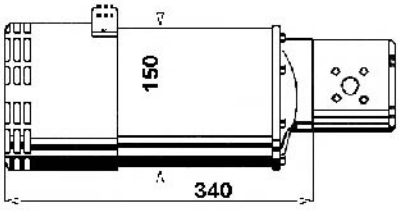


-ELP. S TEE RI NG 1 200 W 24 VO LT 1500 RPM

-ELP. S TEE RI NG 1 200 W 36 VO LT 1400 RPM

-ELP. S TEE RI NG 1 200 W 48 VO LT 1180 RPM

-ELP. S TEE RI NG 1 200 W 48 VO LT 1900 RPM

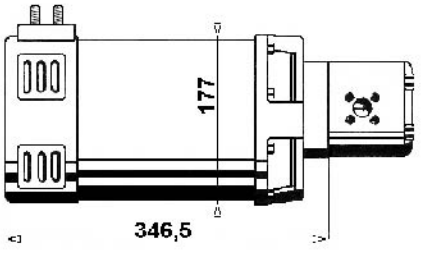


-ELP. S TEE RI NG 1 200 W 24 VO LT 1500 RPM

-ELP. S TEE RI NG 1 200 W 36 VO LT 1400 RPM

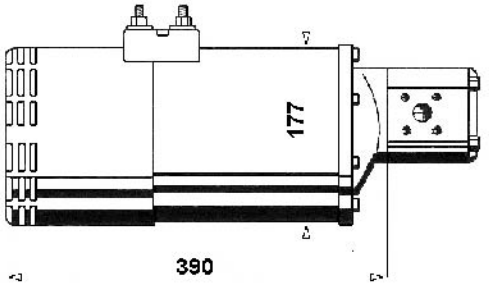
-ELP. S TEE RI NG 1 200 W 48 VO LT 1180 RPM

-ELP. S TEE RI NG 1 200 W 80 VO LT 1900 RPM



-ELP. S TEE RI NG 2 000 W 48 VO LT 1200 RPM

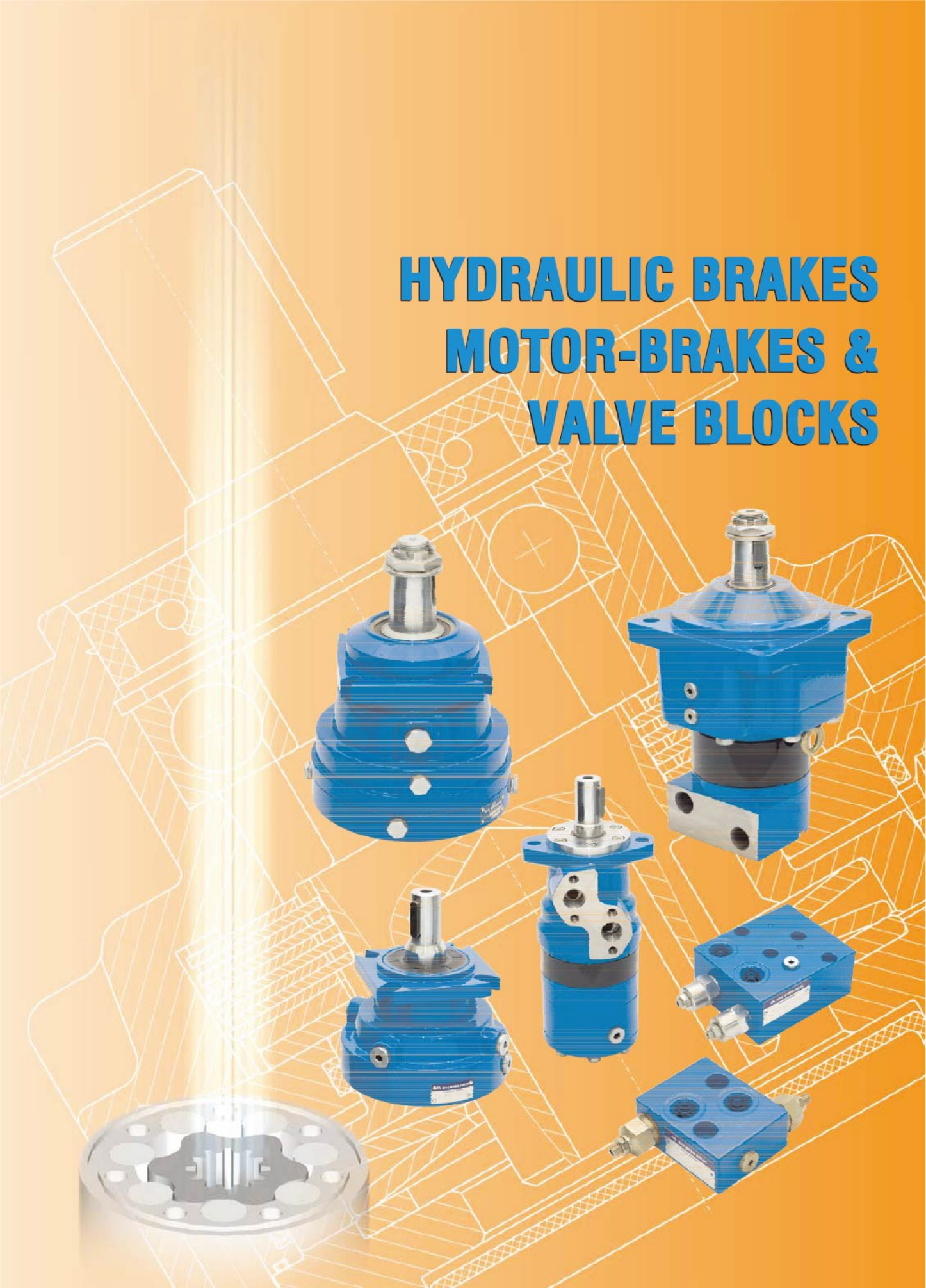
-ELP. S TEE RI NG 2 000 W 80 VO LT 1600 RPM



-ELP. S TEE RI NG 2 000 W 48 VO LT 1200 RPM

-ELP. S TEE RI NG 2 000 W 80 VO LT 1600 RPM

HYDRAULIC BRAKES
MOTOR-BRAKES &
VALVE BLOCKS

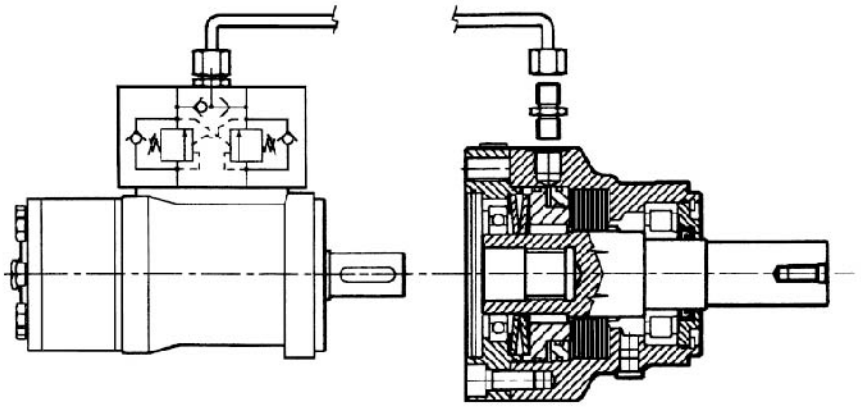


HYDRAULIC DISC BRAKES AND BRAKE-MOTOR UNITS

INDEX

HYDRAULIC DISC BRAKE MTF Series

MTF brakes are multiple disc negative brakes (normaly closed), to be coupled with SAE A 2 holes orbit motors.
Normaly used for static braking as parking brakes or as emergency brakes in low power application such as aerial platforms, cranes, mini escavators, whiches, ...
Applying the correct pressure al disc are realeased and motors can freely be driven.
The brake can be used dinamicaly only under careful control of the temperature and only for short time.

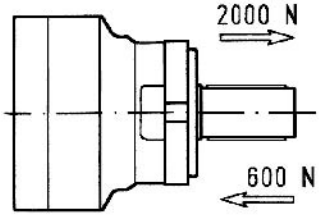


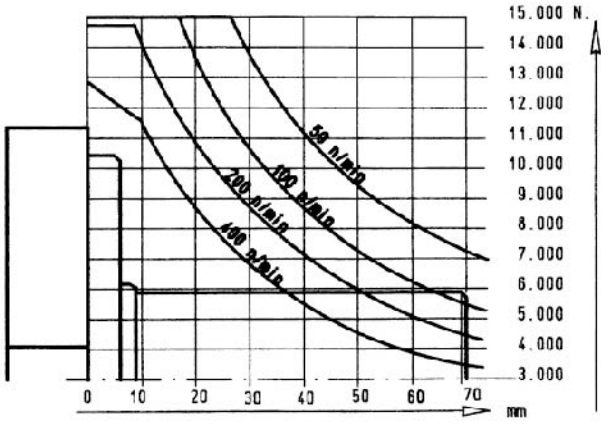
TECHNICAL DATA

Type		MTF/20	MTF/30	MTF/40	MTF/50	MTF/60
Static Torque	Nm	200	300	400	500	600
Dynamic Torque	Nm	140	210	280	350	420
Max N° dynamic braking per hour		50	40	30	20	15
Releasing Pressure	bar	18	18	25	25	30
Max inlet pressure	bar	250	250	250	250	250

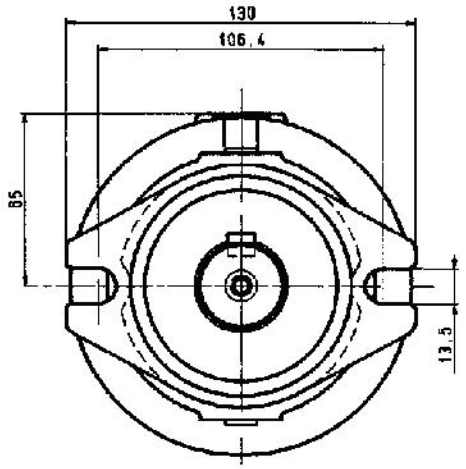
Static torque with 0 bar pressure.
Use oil with viscosity grade within 30-60 Cst range.
Oil quantity 3cc.

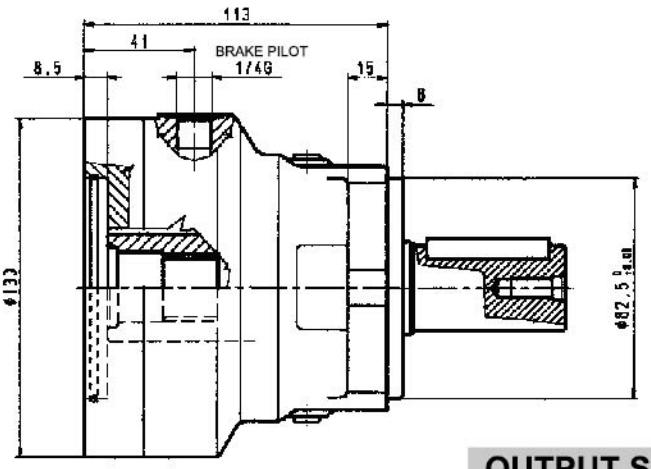
Shaft loads for 2000 working hour



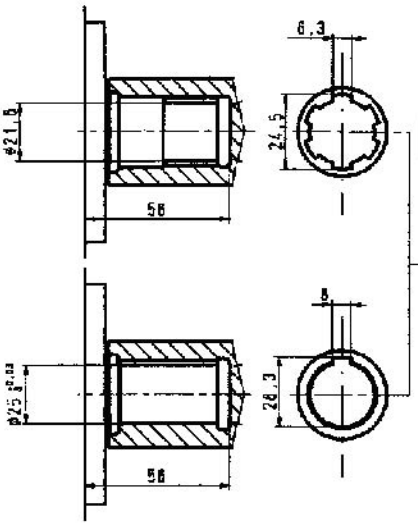


DIMENSIONS

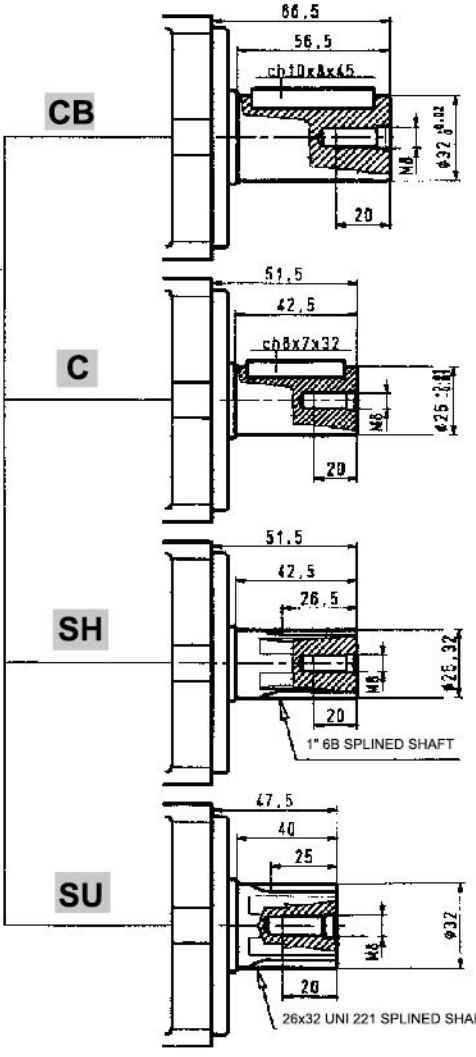


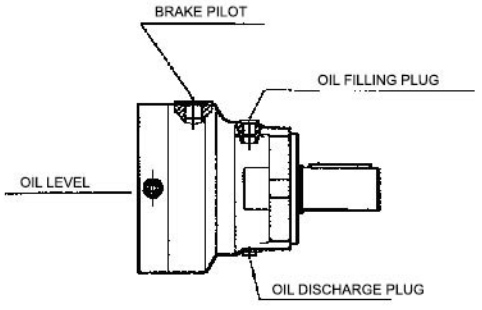


INPUT SHAFTS



OUTPUT SHAFTS





ORDER CODE

	1	2	3	4
MTF	400			

Pos.1 - Brake Type

Pos.2 - Static Torque [Nm]

20	- 200 Nm
30	- 300 Nm
40	- 400 Nm
50	- 500 Nm
60	- 600 Nm

Pos.3 - Inlet Shaft Type

SH	- 1" 6B SAE Splined
C	- 25mm cilindrical Shaft

Pos.4 - Output Shaft Type

CB	- 32 mm cilindrical Shaft
C	- 25 mm cilindrical Shaft
SH	- 1"6B SAE Splined Shaft
SU	- 26x32 UNI221 Splined Shaft

HYDRAULIC DISC BRAKES ELB, LBV

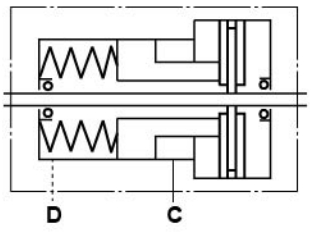
APPLICATION

» Heavy Duty machinery;
» Wheel drives;
» Material handling;
» Mining;
» Agriculture;
» Conveyors;
» Door openers and swing drives etc.

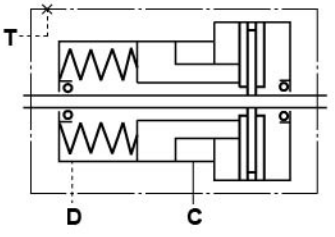
GENERAL

Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, °C	-30÷90
Viscosity range, mm²/s	20÷75
Filtration	ISO code 20/16 (nominal filtration of 25 micron)
Maintenance	Changed after the first 50-100 h, then after every 500-1500 h.

ELB

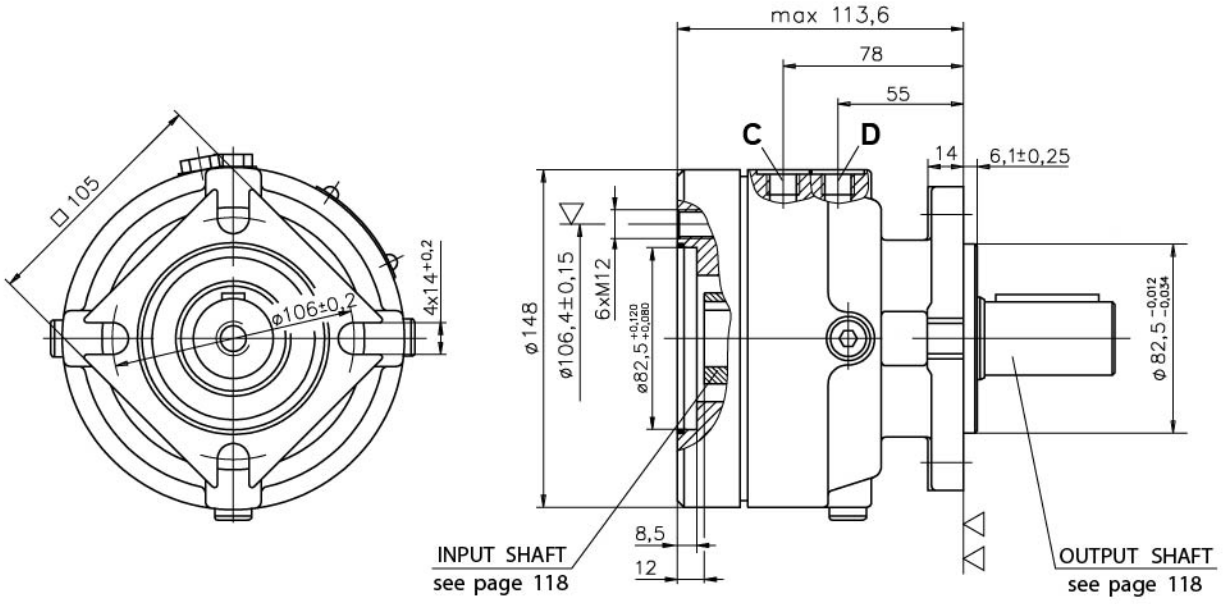


LBV



HYDRAULIC DISC BRAKE FOR FLANGE ATTACHMENT TO OP, OR AND OS HYDRAULIC MOTORS

TYPE ELB/288



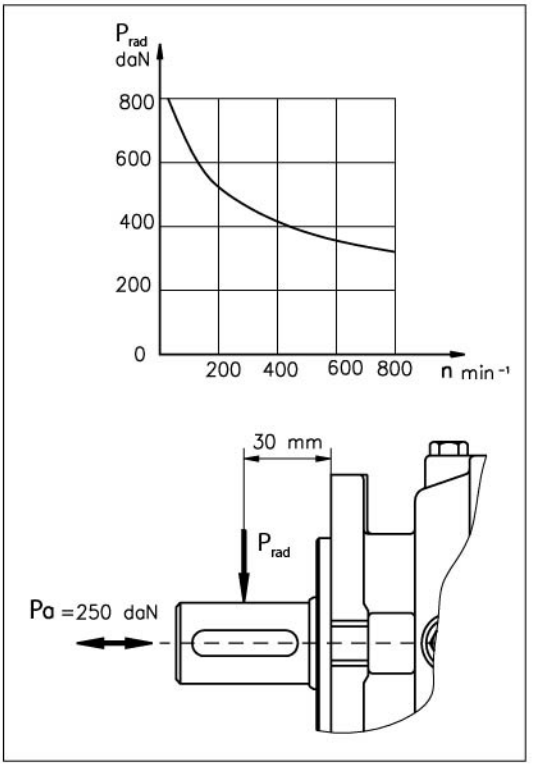
C : Brake release Port - G¼, 9 mm depth

D : Drainage tap - G¼, 9 mm depth

▽- Place for attachment
(tightening torque for bolts M12x30 - 8.8 DIN 931 - 7 daNm)

▽▽- Place for attachment

LOAD CURVE



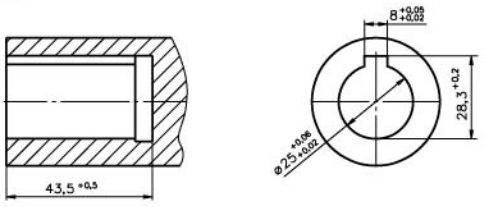
SPECIFICATION DATA

Description **ELB/288**...		7	14	21	32	43
*Static Torque	[daNm]	6-8	13-15	20-22	31-34	41-45
Opening Pressure [bar]	min	4-5	8-9	12-13	18-20	24-26
	max	300				
Min. oil quantity for brake releasing	[cm³]	7- 8				
Oil quantity	[cm³]	50 - 120				
Max. Pressure in drain space	[bar]	0,5				
Weight	[kg]	9				

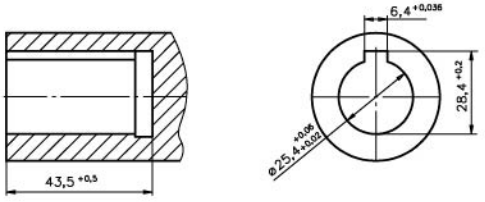
*Static torque is obtained at working pressure - 0 bar.

INPUT SHAFT HOLES

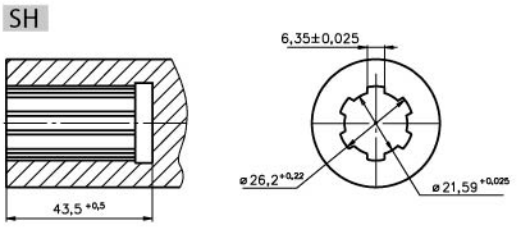
C



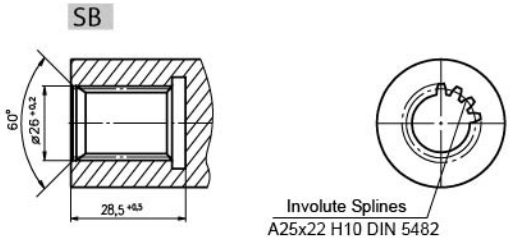
CO



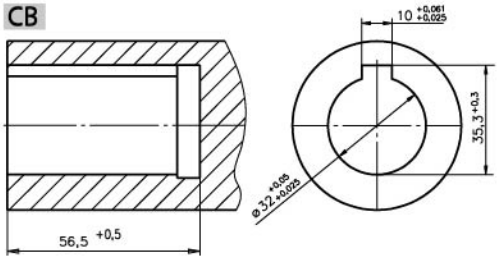
SH



SB



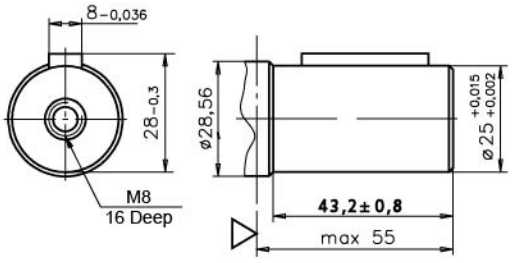
CB



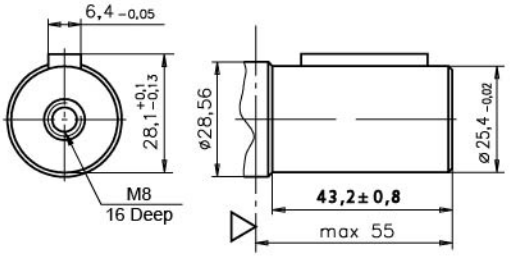
▽ - Disc Brake Mounting Surface

OUTPUT SHAFT EXTENSIONS

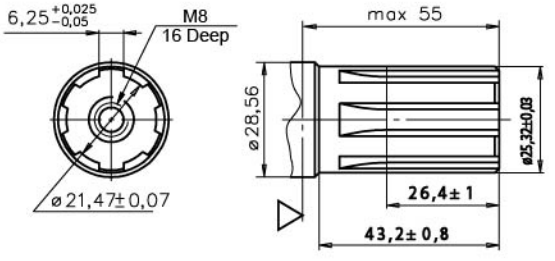
C - ø25 straight, Parallel key A8x7x32 DIN 6885
Max. Torque 34 daNm



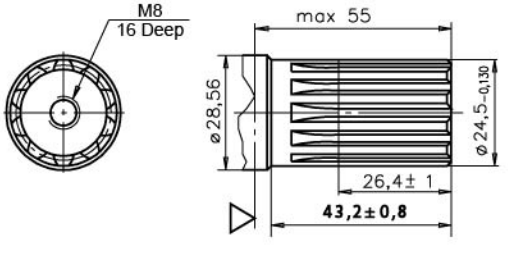
CO - ø1" straight Parallel key ¼"x¼"x1¼" BS46
Max. Torque 34 daNm



SH - splined BS 2059 (SAE 6B)
Max. Torque 34 daNm

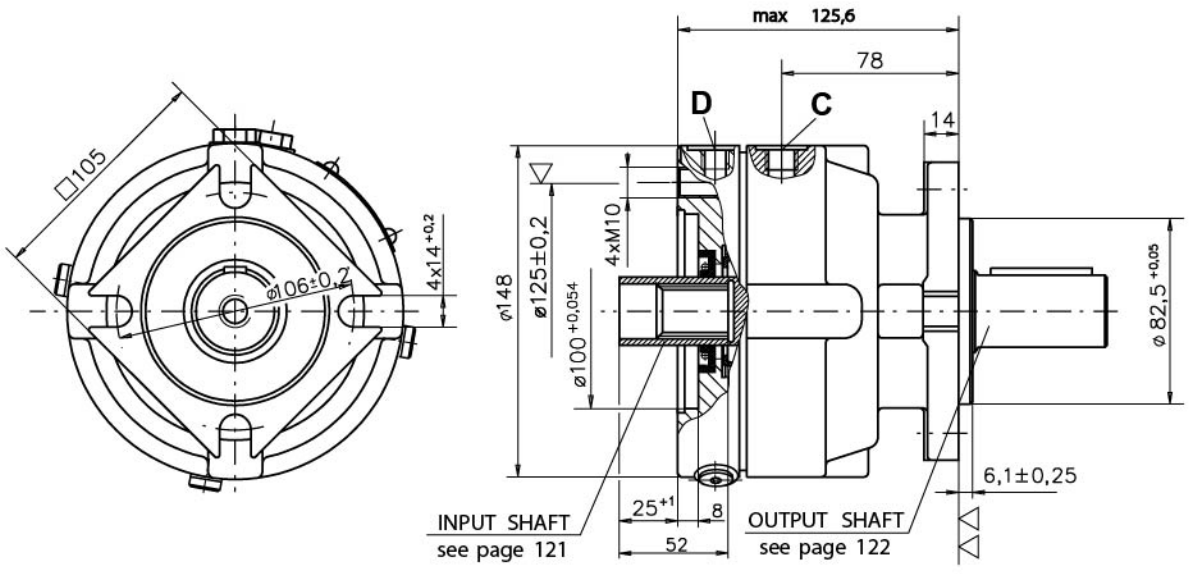


SA - splined B25x22 h9 DIN 5482
Max. Torque 40 daNm

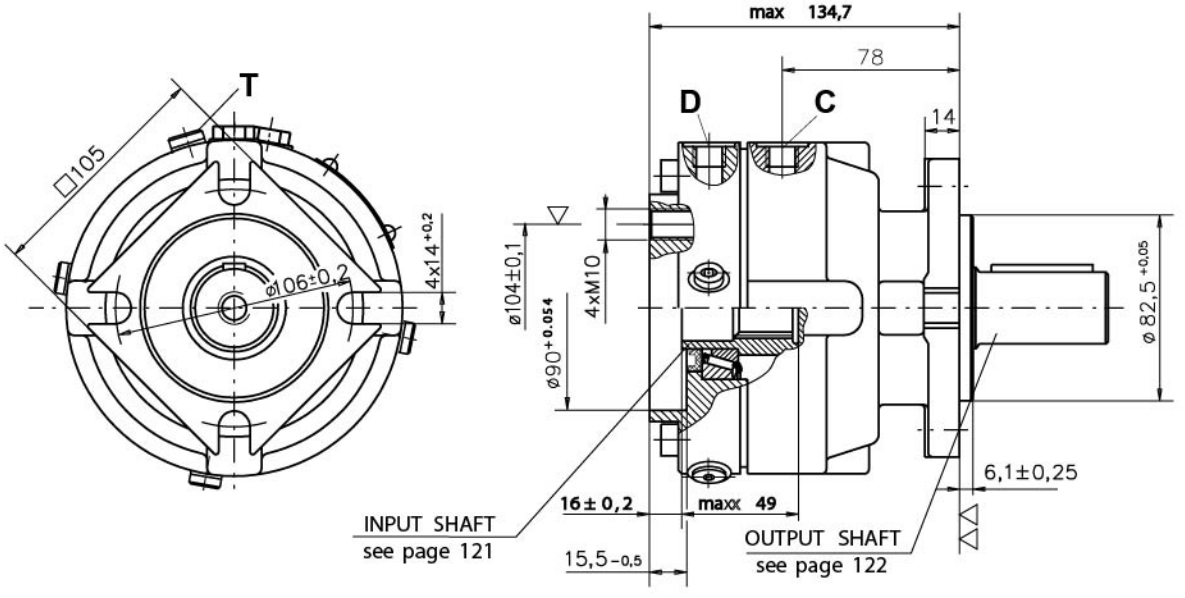


HYDRAULIC DISC BRAKE FOR FLANGE ATTACHMENT TO OSS AND OSV HYDRAULIC MOTORS

TYPE ELB/289



TYPE LBV/289



▽ - Place for attachment
(tightening torque for bolts M10x35 - 8.8 DIN 912 - 5 daNm)

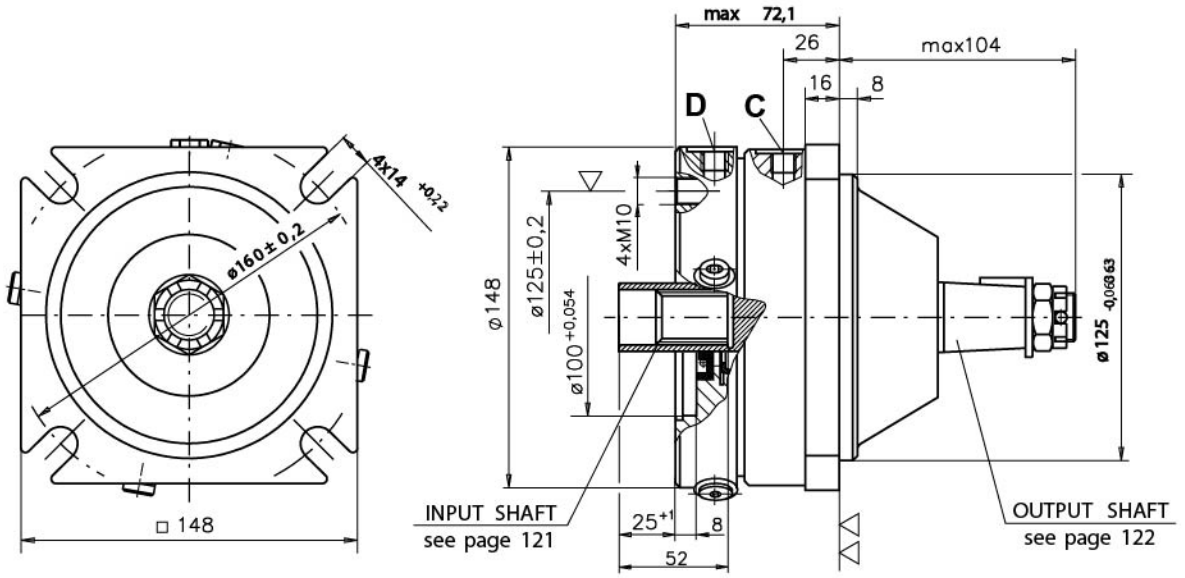
▽▽ - Place for attachment

C : Brake release Port - G¼, 9 mm depth

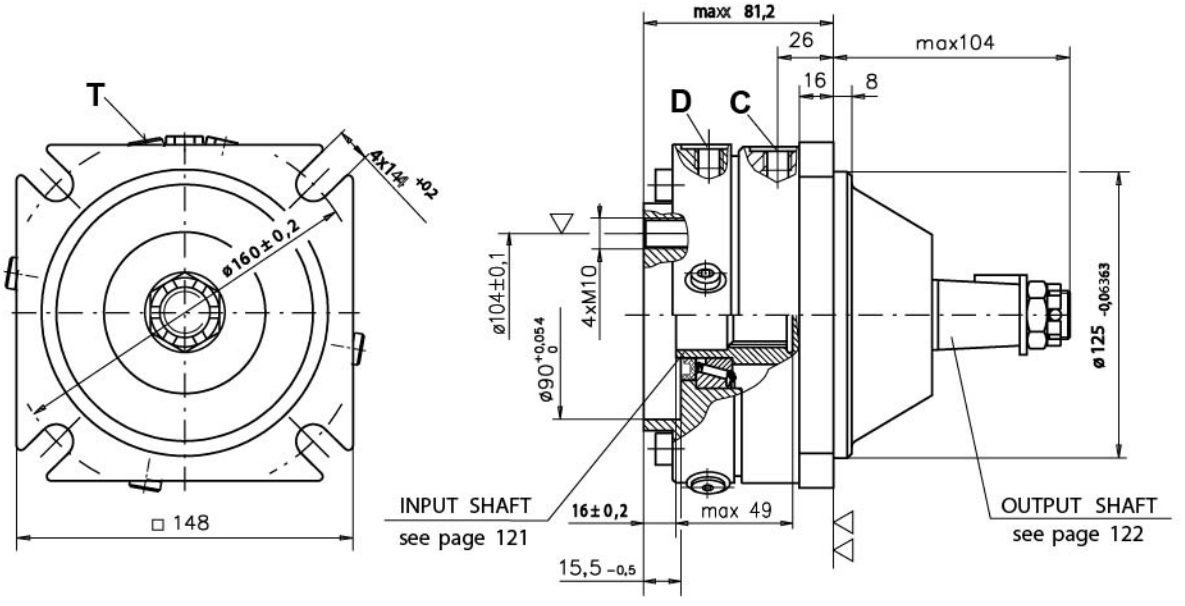
D, T : Drainage tap - G¼, 9 mm depth

HYDRAULIC DISC BRAKE FOR FLANGE ATTACHMENT TO OSS AND OSV HYDRAULIC MOTORS

TYPE ELB/290



TYPE LBV/290



▽ - Place for attachment
(tightening torque for bolts M10x35 - 8.8 DIN 912 - 5 daNm)

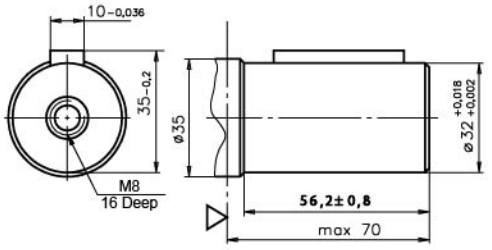
▽▽ - Place for attachment

C : Brake release Port - G¼, 9 mm depth

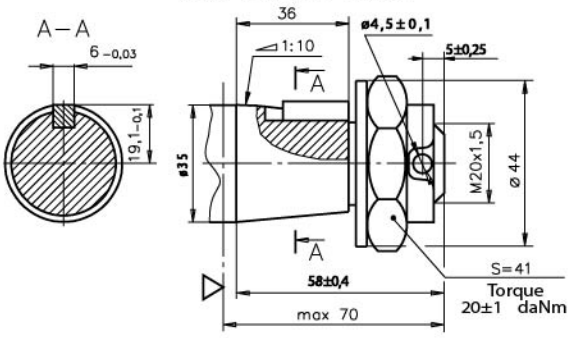
D, T : Drainage tap - G¼, 9 mm depth

OUTPUT SHAFT EXTENSIONS

CB - ø32 straight, Parallel key A10x8x45 DIN6885
Max. Torque 77 daNm



KB - tapered 1:10, Parallel key B6x6x20 DIN6885
Max. Torque 77 daNm



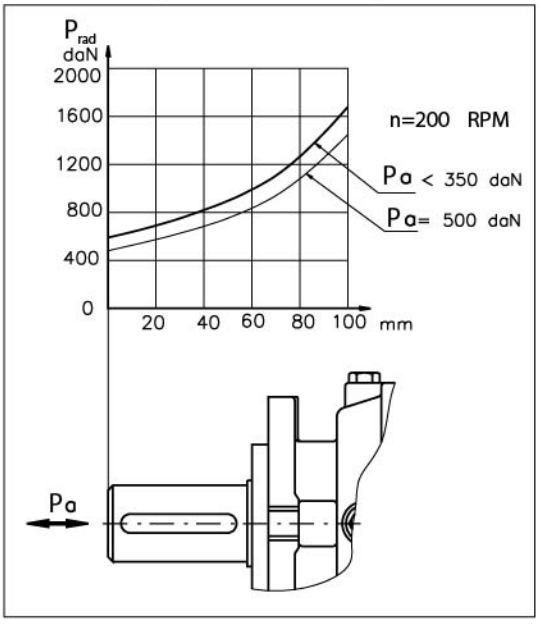
SPECIFICATION DATA

Description ELB/289(290) LBV/289(290)		21	32	43	63
*Static Torque	[daNm]	20-22	31-34	41-45	61-64
Opening Pressure [bar]	min	12-13	18-20	24-26	38-39
	max	300			
Min. oil quantity for brake releasing	[cm³]	7- 8			
Oil quantity	[cm³]	50 - 120			
Max. Pressure in drain space	[bar]	5			
Weight .../289(290)	[kg]	10(11)			

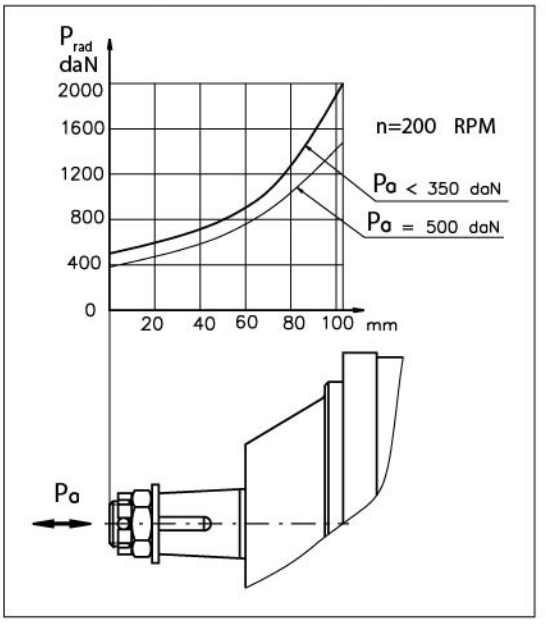
*Static torque is obtained at working pressure - 0 bar.

LOAD CURVE

ELB(LBV) .../289



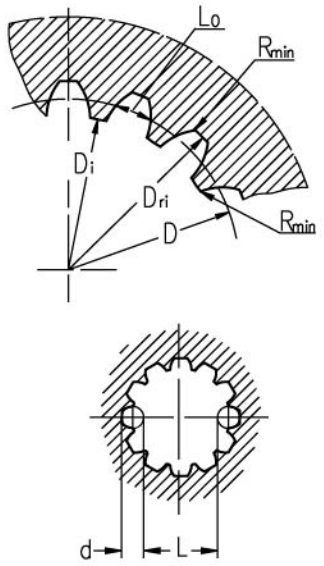
ELB(LBV) .../290



INTERNAL SPLINE DATA FOR THE ATTACHED COMPONENT

Standard ANSI B92.1-1976, class 5
[m=2,1166]

Fillet Root Side Fit			ELB(LBV)/289 ELB(LBV)/290	ELB(LBV)/314 ELB(LBV)/315
Number of Teeth	z		12	16
Diametral Pitch	DP		12/24	12/24
Pressure Angle			30°	30°
Pitch Dia.	D	[mm]	25, 4	33, 8656
Major Dia.	Dri	[mm]	$28, 0_{-0,1}$	$38, 4^{+0,4}$
Minor Dia.	Di	[mm]	$23, 0^{+0,033}$	$32, 15^{+0,06}$
Space Width [Circular]	Lo	[mm]	4, 308± 0, 020	4, 516± 0, 037
Fillet Radius	Rmin	[mm]	0, 2	0, 5
Max. Measurement between Pin	L	[mm]	$17, 62^{+0,15}$	$26, 9^{+0,10}$
Pin Dia.	d	[mm]	4, 835± 0, 001	4, 835± 0, 001
Corrected	x.m	[mm]	+0 ,8	+1 ,0



ORDER CODE

1		2	3		4	5	6	7
	/			-				

Pos.1 - Type

ELB	- Euro Disc Brake
LBV	- Disc Brake for very short motor V - OSV

Pos.2 - Design code

288	- for OP, OR and OS Motors
289	- for OSS and OSV Motors
290	- for OSS and OSV Motors (Wheel Mount)

Pos.3 - Input Shaft Hole*

C, CO, SH, CB, SB

Pos.4 - Static Torque code (See Specification data)

7, 14, 21, 32 ,43 ,63

Pos. 5 - Output Shaft Extensions**

C*	- ø25 straight, Parallel key A8x7x32 DIN 6885
CO*	- ø 1" straight, Parallel key 1/4"x 1/4"x1 1/4" BS46
SH*	- ø25,32 splined BS 2059 (SAE 6B)
SA*	- ø24,5 splined B25x22 DIN 5482
CB	- ø32 straight, Parallel key A10x8x45 DIN 6885
KB	- ø35 tapered 1:10, Parallel key B6x6x20 DIN6885

Pos. 6 - Option (Paint)***

omit - no Paint

P	- Painted
PC	- Corrosion Protected Paint

Pos. 7 - Design Series

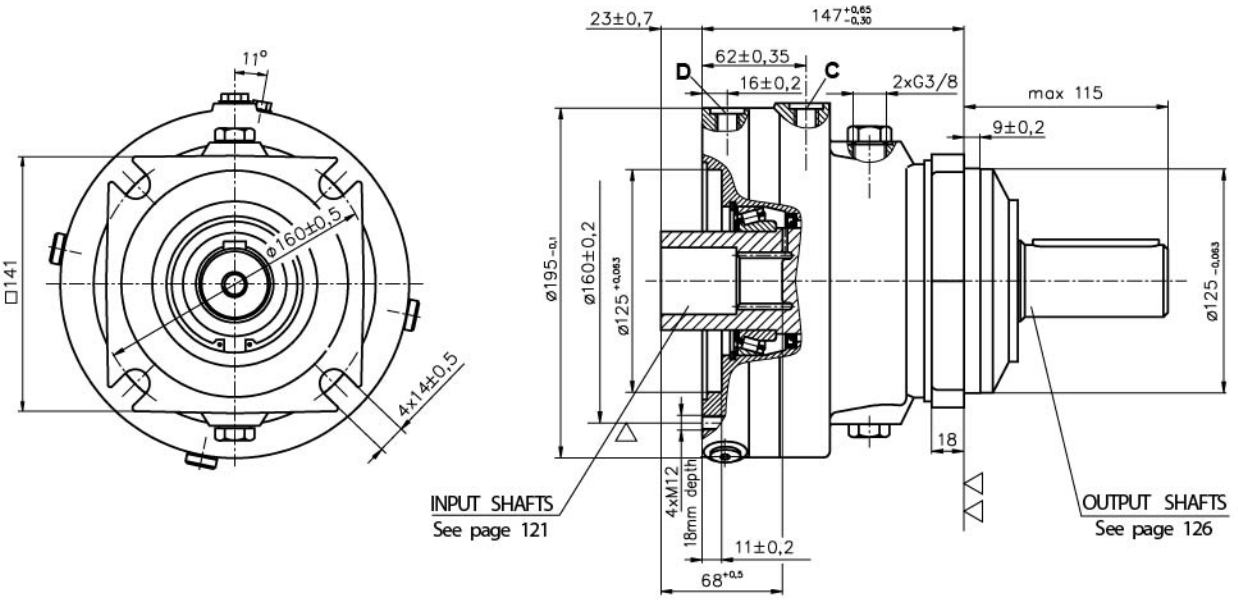
omit - Factory specified

NOTES:

* Used for ELB/288 only (see page ELB LBV-03).
** The permissible output torque for shafts must be not exceeded!
For Max. Torque values see data on page ELB LBV-03 and ELB LBV-06.
*** The color is by customer's request.
The Disc Brakes are mangano-phosphatized as standard.

HYDRAULIC DISC BRAKES
FOR FLANGE ATTACHMENT TO OTS AND OTV HYDRAULIC MOTORS

TYPE ELB/314



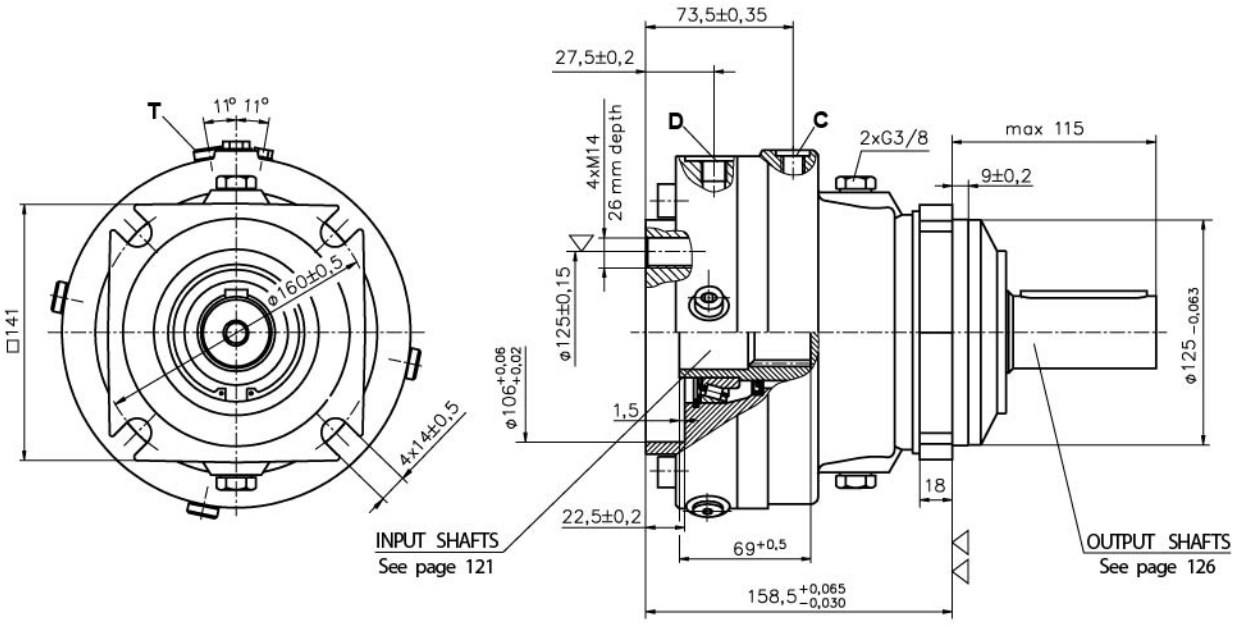
▽- Place for attachment
(tightening torque for bolt M12 - 8.8 - 8,5 da Nm)

▽▽- Place for attachment

C : Brake release Port - G¼, 9 mm depth

D : Drainage tap - G¼, 9 mm depth

TYPE LBV/314



▽- Place for attachment
(tightening torque for bolt M14 - 8.8 - 14 da Nm)

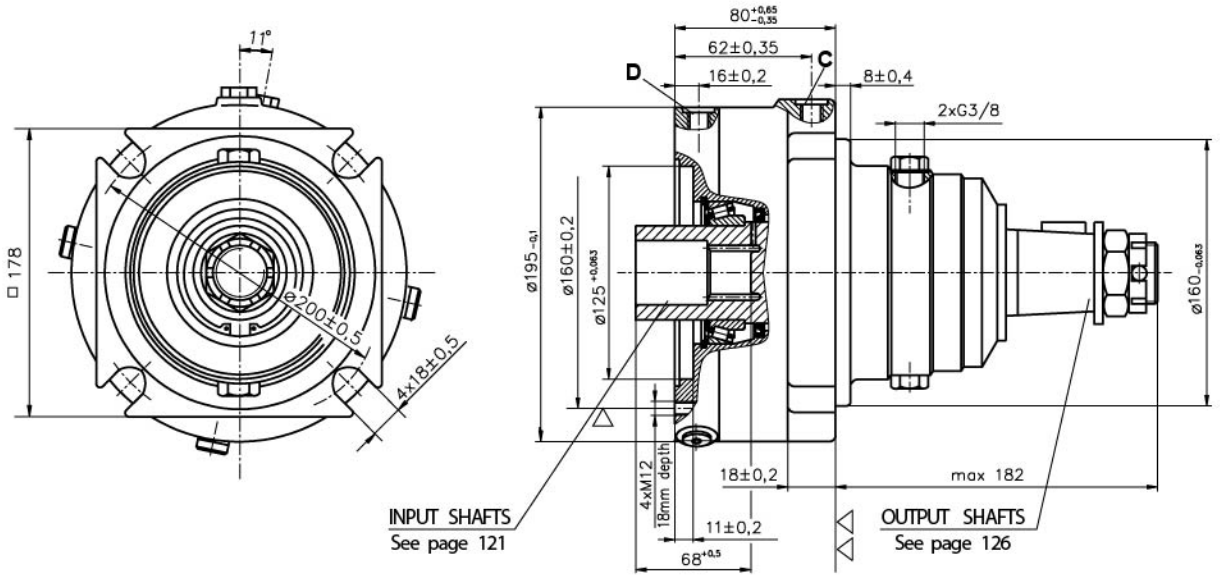
▽▽- Place for attachment

C : Brake release Port - G¼, 9 mm depth

D, T : Drainage tap - G¼, 9 mm depth

HYDRAULIC DISC BRAKES
FOR FLANGE ATTACHMENT TO OTS AND OTV HYDRAULIC MOTORS

TYPE ELB/315



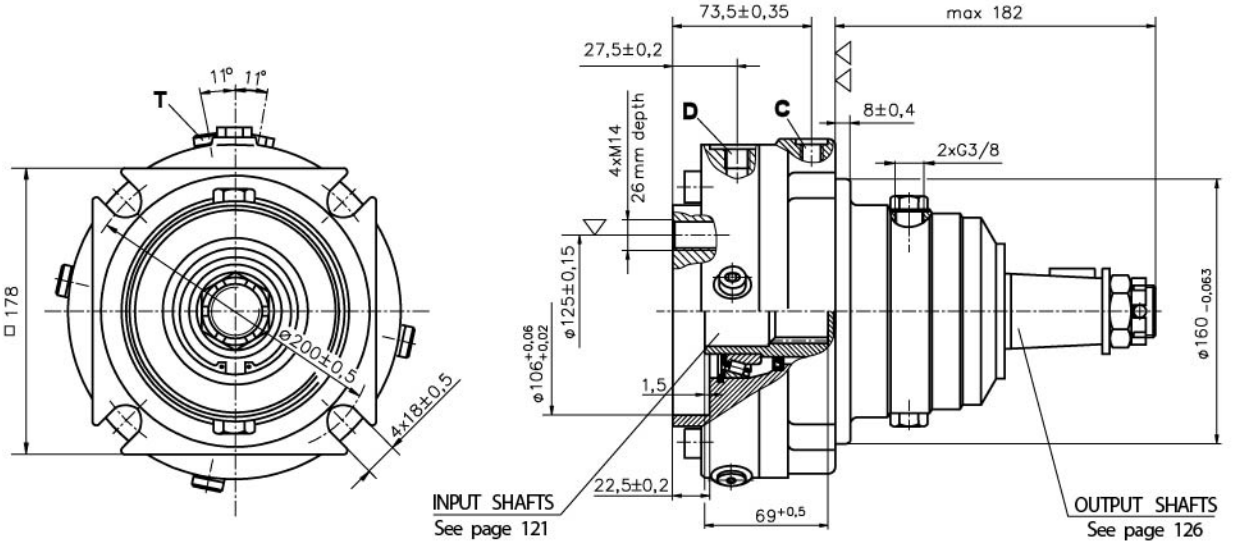
▽- Place for attachment
(tightening torque for bolt M12 - 8.8 - 8,5 da Nm)

▽▽- Place for attachment

C : Brake release Port - G¼, 9 mm depth

D : Drainage tap - G¼, 9 mm depth

TYPE LBV/315



▽- Place for attachment
(tightening torque for bolt M14 - 8.8 - 14 da Nm)

▽▽- Place for attachment

C : Brake release Port - G¼, 9 mm depth

D,T : Drainage tap - G¼, 9 mm depth

HYDRAULIC DISC BRAKES
FOR FLANGE ATTACHMENT TO OTS AND OTV HYDRAULIC MOTORS

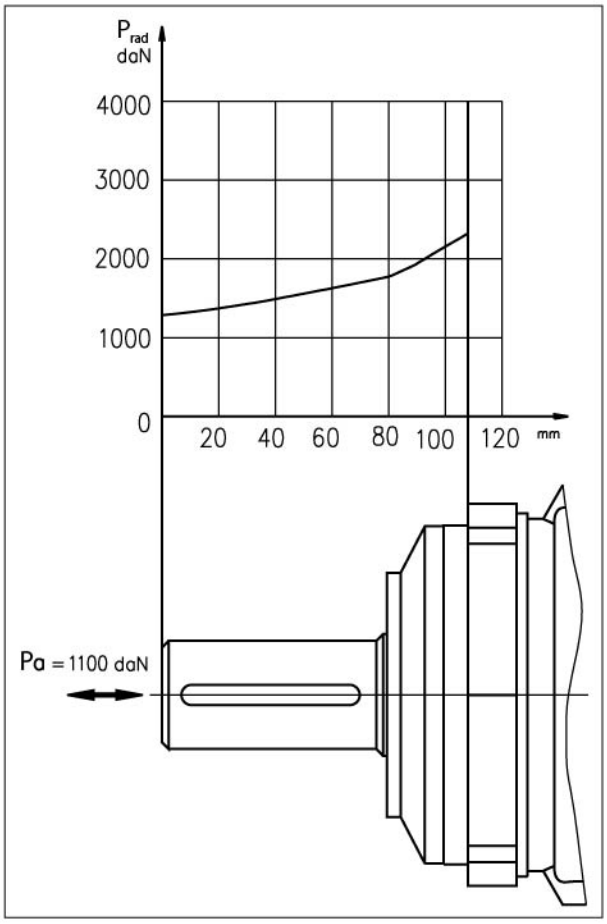
SPECIFICATION DATA

Description ELB/314(315) LBV/314(315)		21	29	43	65	85	110	130
*Static Torque	[daNm]	18-23	28-33	42-46	61-70	83-92	108-118	126-136
Opening Pressure [bar]	min	4-5	6-7	9-10	13-15	18-20	23-25	27-29
	max	300						
Min. oil quantity for brake releasing	[cm^3]	8-9						
Oil quantity	[cm^3]	150-300						
Max. Pressure in drain space	[bar]	5						
Weight for .../314(315)	[kg]	24(25)						

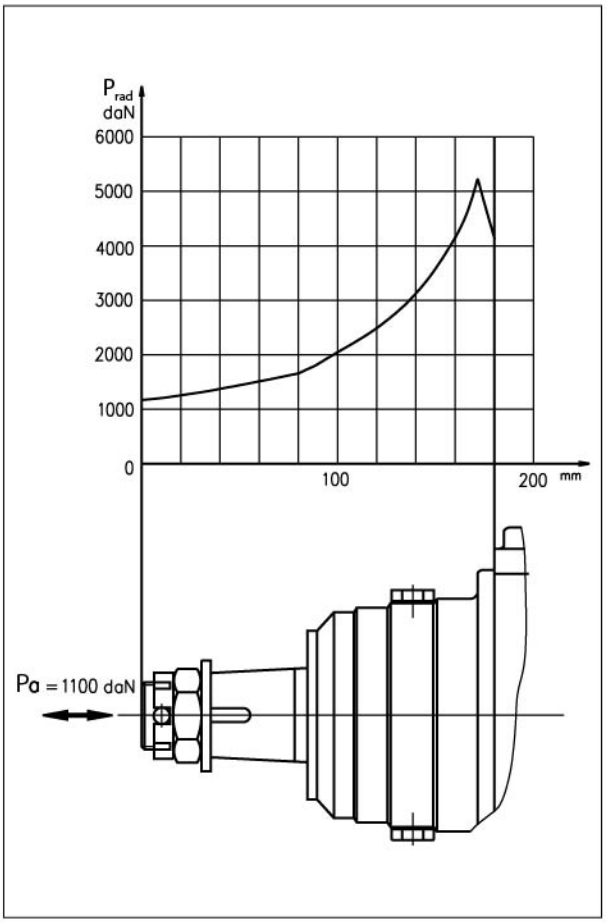
*Static torque is obtained at working pressure - 0 bar.

LOAD CURVE

ELB(LBV) ... /314

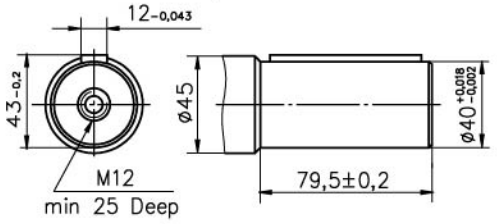


ELB(LBV) ... /315

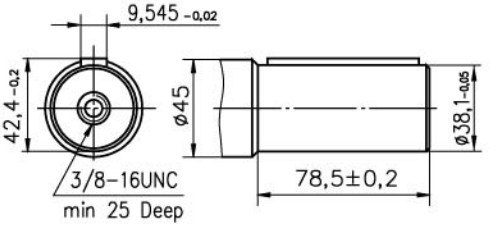


OUTPUT SHAFT EXTENSIONS

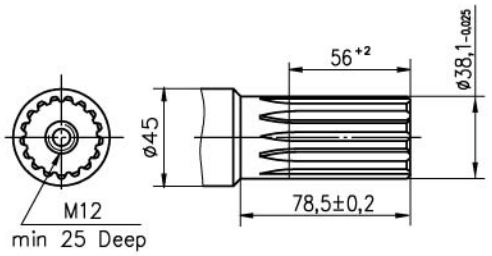
C - ø40 straight, Parallel key A12x8x70 DIN 6885
Max. Torque 132,8 daNm



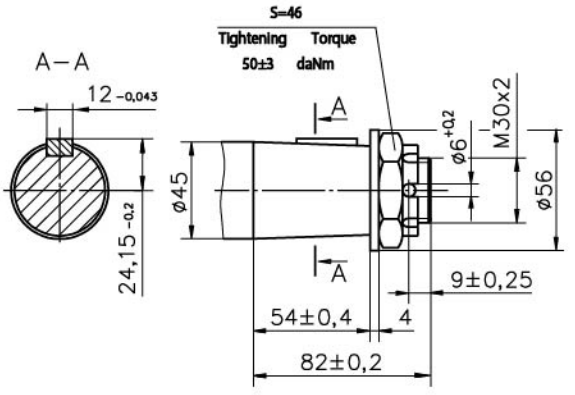
CO - ø1½" straight,Parallel key⅜"x⅜"x2¼" BS46
Max. Torque 132,8 daNm



SH - ø1½" splined 17T, DP12/24 ANSI B92.1-1976
Max. Torque 132,8 daNm



K - tapered 1:10, Parallel key B12x8x28 DIN 6885
Max. Torque 210,7 daNm



ORDER CODE

1		2		3	4	5	6
	/		-				

Pos.1 - Type

ELB	- Euro Disc Brake
LBV	- Disc Brake for very short motor V- OTV

Pos.2 - Design code

314	- for OTS and OTV Motors
315	- for OTS and OTV Motors (Wheel Mount)

Pos.3 - Static Torque code (See Specification data)

21, 29, 43, 63, 65, 85, 110, 130

Pos. 4 - Output Shaft Extensions*

C	- ø40 straight, Parallel key A12x8x70 DIN 6885
CO	- ø1½" straight, Parallel key ⅜"x⅜"x2¼" BS46
SH	- ø1½" splined 17T, ANSI B92.1-1976
K	- ø45 tapered 1:10, Parallel key B12x8x28 DIN6885

Pos. 5 - Option (Paint)**

omit	- no Paint
P	- Painted
PC	- Corrosion Protected Paint

Pos. 6 - Design Series

omit - Factory specified

NOTES:

* The permissible output toruqe for shafts must be not exceeded!

** The color is by customer's request.

The Disc Brakes are mangano-phosphatized as standard.

INTEGRATED BRAKE-MOTOR UNIT SV, TV SERIES

INTRODUCTION

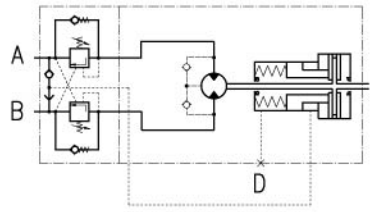
The brakes are intended for hydraulic drive of operating systems, where the block and the release of the drive must be by means of hydraulic energy. The system has small overall dimensions and minimum weight. In the package are combined efficient hydraulic power of hydromotors type OS or OT with a reliable integral hydraulic disc brake type ELB and a valve block type KPBR.

The brake torque at the spring applied , hydraulically released brake reaches 14500 in-lb [160daNm].

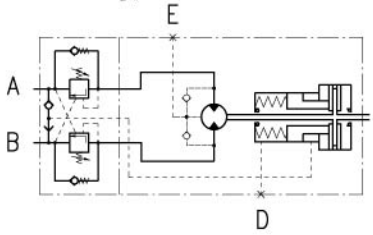
Typical applications include wheel drives, conveyors , rotators, positioners, winches, swing drives and dooropeners.

The brakes are intended to operate as static or parking brakes. System circuitry must be designet to bring the load to a stop before applying the brake.

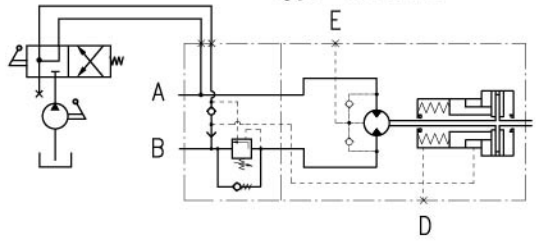
Motor/Brake Type SV500B



Motor/Brake Type TV500B



Motor/Brake Type TV500BC



SPECIFICATION DATA

Type		SV500B	TV500B
Displacement, in.^{3}/rev. [cm.^{3}/rev.]		29 [475,3]	29 [475]
Max. Speed,	Cont.	16	84
RPM	Int.*	25	115
Max. Torque,	Cont.	7260 [82]	10 000 [114]
in-lb [daNm]	Int.*	8420 [95]	12 000 [135]
Max. Output,	Cont.	1.3 [0,9]	11 [8,2]
HP [kW]	Int.*	3.3 [2,4]	17 [12,5]
Max. Pressure Drop,	Cont.	1800 [125]	2500 [170]
PSI [bar]	Int.*	2100 [145]	2900 [200]
Max. Oil Flow,	Cont.	2 [8]	10,5 [40]
GPM [lpm]	Int.*	3 [12]	14,5 [55]
Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, PSI [bar]		1450 [100]	1088 [75]
Min. Starting Torque,	At max. press. drop Cont.	6400 [72]	8400 [95]
in-lb [daNm]	At max. press. drop Int.*	6650 [75]	9940 [112]
Min. Speed, RPM**		5	5
Static Torque for the Brake*, in-lb [daNm]**		14 515 [164]	14 515 [164]
Release Pressure ±10%,	initial	363...406 [25...28]	363...406 [25...28]
PSI [bar]	full	449.6 [31]	449.6 [31]
Max. Steering Pressure, PSI [bar]		3553 [245]	3553 [245]
Max. Pressure in Drain Space for the Brake, PSI [bar]		7 [0,5]	7 [0,5]
Pilot Ratio for the Valve		4,25:1	4,25:1

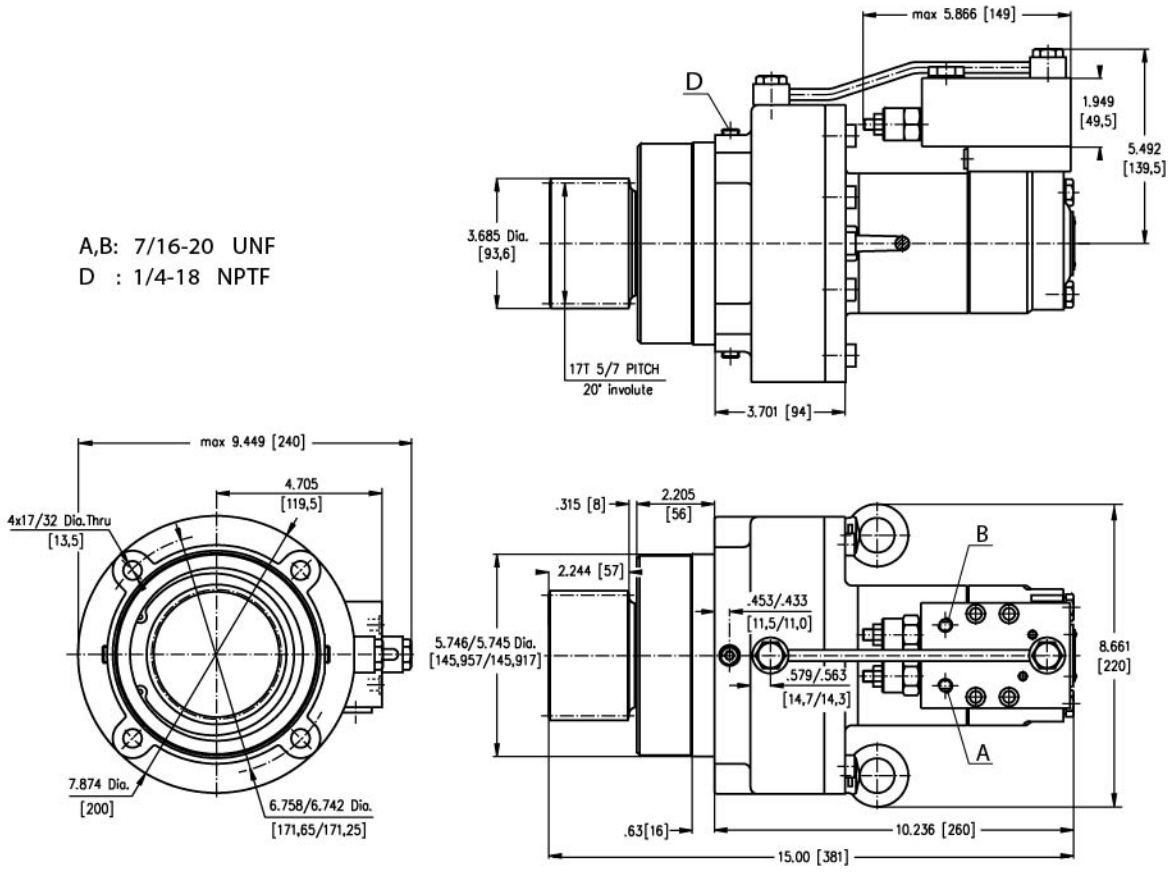
* Intermittent operation: the permissible values may occur for max. 10% of every minute.

** For speeds of 5 RPM lower than given, consult factory or your regional manager.

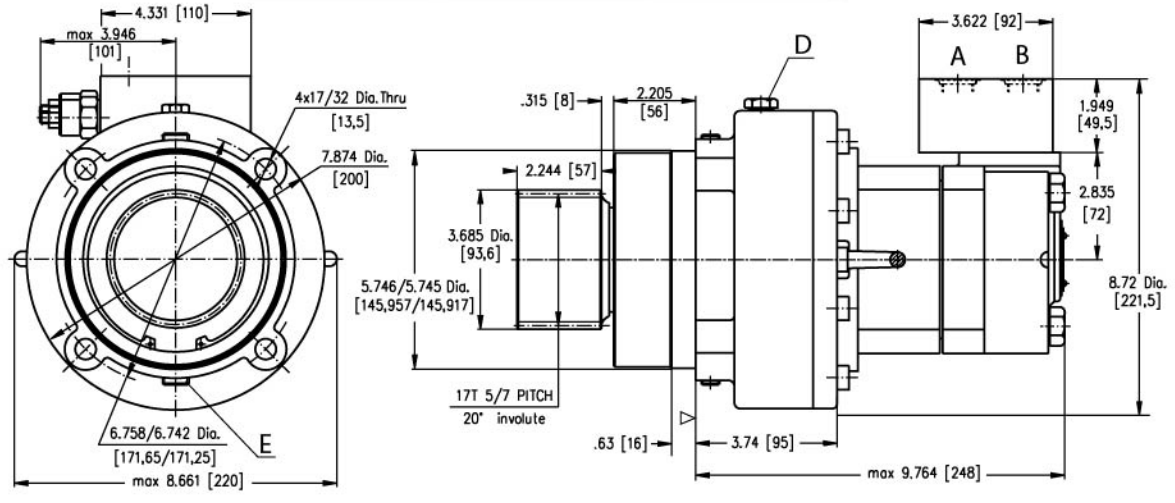
*** Static torque is obtained at working pressure - 0 PSI [0 bar].

OUTLINE DIMENSIONS REFERENCE OF SV500B

A,B: 7/16-20 UNF
D : 1/4-18 NPTF



OUTLINE DIMENSIONS REFERENCE OF TV500B

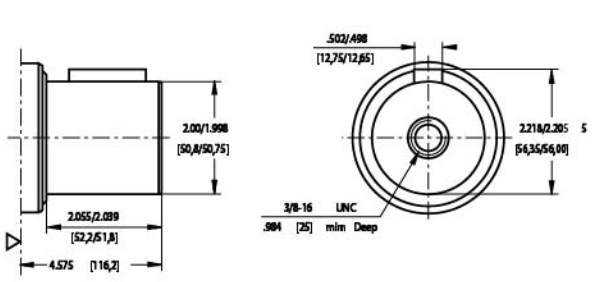


A,B : 7/8-14 UNF
D : 1/4-18 NPTF
E : G1/4

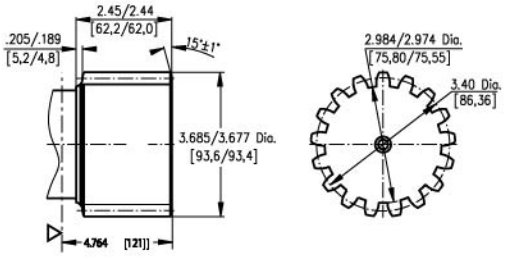
in.
[mm]

SHAFT EXTENSIONS

C - 2" [50,8] Straight key 1/2"x1/2"x1 1/2"



17T 5/7 PITCH Splined



in. / [mm]

∇- Motor Mounting Surface

ORDER CODE

1		2	3	4	5	6	7	8
	V	500	B					

Pos.1 - Type

S - motor OS
T - motor OT

Pos.2 - Displacement code

Pos.3 - Brake

Pos.4 - Type of a Brake

Pos.5 - Shaft Extensions

omit - 17T 5/7 PITCHSplined
C* - 2" [50,8] Straight key 1/2"x1/2"x1 1/2"

Pos.6 - Valve

Pos. 7 - Option (Paint)**

omit - no Paint
P - Painted
PC - Corrosion Protected Paint

Pos. 8 - Design Series

omit - Factory specified

NOTES:

* For code name see scheme on page 129 .
**Color at customer's request.
The motor/brakes are mangano-phosphatized as standard.

INTEGRATED BRAKE-MOTOR UNIT PW SERIES

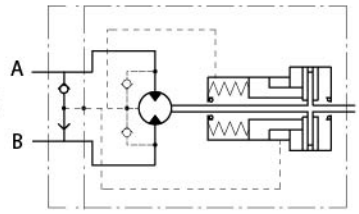
INTRODUCTION

This Brake-Motor Unit is intended for hydraulic drive of operating systems, where the block and the release of the drive must be by means of hydraulic energy. The system has small overall dimensions and minimum weight.

Typical applications include wheel drives, conveyors , rotators, positioners, winches, swing drives and door openers.

The Brake Motor are intended to operate as static or parking brakes. System circuitry must be designetto bring the load to a stop before applying the brake.

Brake-Motor Unit
Type PW



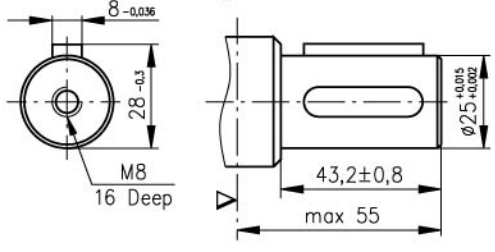
SPECIFICA TION DATA

Type		PW 160	PW 400
Displacement, [cm.^{3}/rev.]		158,4	396
Max. Speed,	Cont.	300	150
RPM	Int.*	370	190
Max. Torque,	Cont.	26,4	28,5
[daNm]	Int.*	37,8	36,0
Max. Pressure Drop,	Cont.	120	55
[bar]	Int.*	175	70
Max. Oil Flow,	Cont.	60	60
[lpm]	Int.*	75	75
Static Torque, [daNm]		41...45	41...45
Release Pressure, [bar]		24...26	24...26
Max. Inlet pressure,	Cont.	140	140
[bar]	Int.*	175	175
Drain line,	0 - 100 RPM	75	75
[bar]	100 - 300 RPM	30	30
L, mm		236	268
L$_1$, mm		21,33	53,33

* Intermittent operation: the permissible values may occur for max. 10% of every minute.

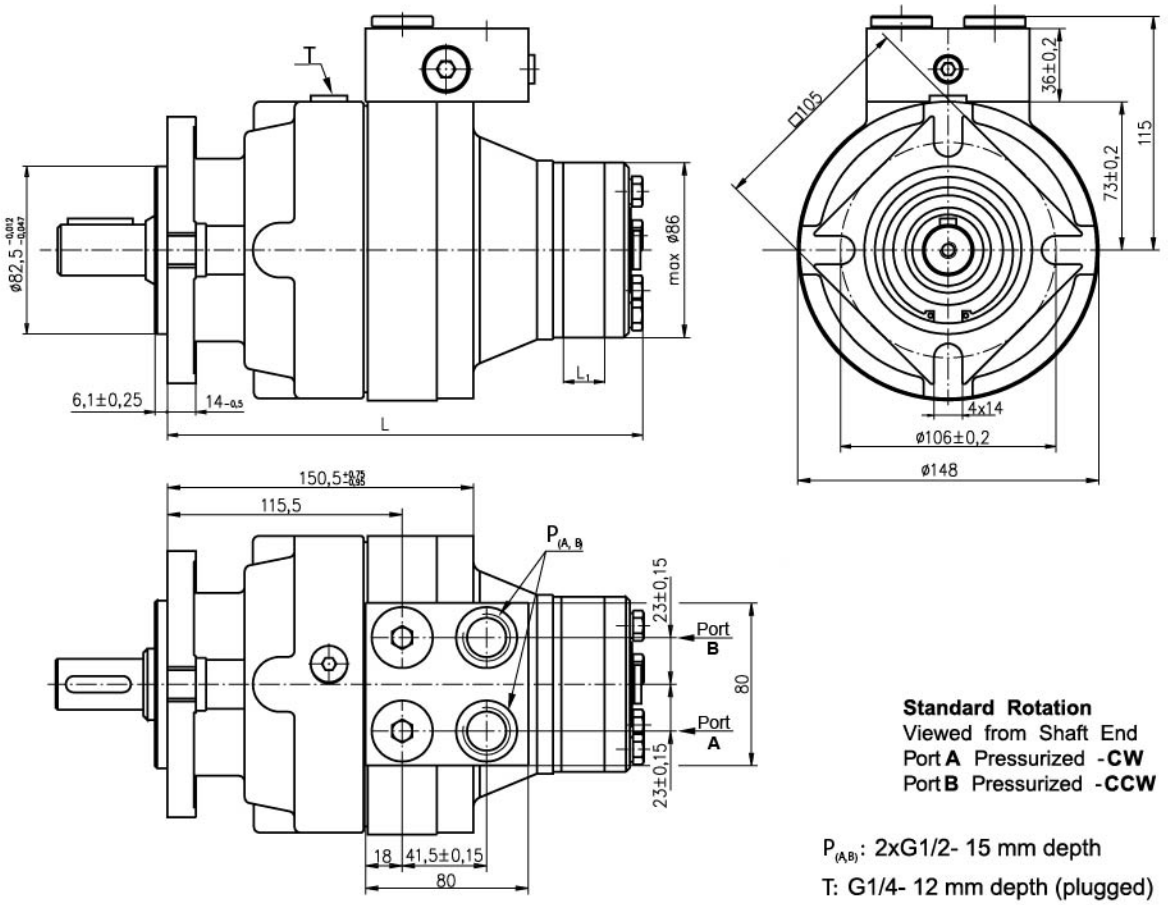
SHAFT EXTENSIONS

C -ø25 straight, Parallel key A8x7x32 DIN 6885
Max. Torque 34 daNm



∇- Motor Mounting Surface

OUTLINE DIMENSIONS REFERENCE OF PW



Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

$P_{(A,B)}$: 2xG1/2- 15 mm depth

T: G1/4- 12 mm depth (plugged)

ORDER CODE

1	2	3	4
P	**W**			

Pos.1 - Type

P - motor OP

Pos.2 - Displacement code

160 - 158,4[cm³/rev]

400 - 396,0[cm³/rev]

Pos.3 - Option (Paint)*

omit - no Paint

P - Painted

PC - Corrosion Protected Paint

Pos.4 - Design Series

omit - Factory specified

NOTES:

* Color at customer's request.

The brake motor is mangano-phosphatized as standard.

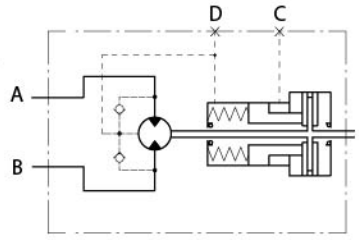
INTEGRATED BRAKE-MOTOR UNIT TW SERIES

INTRODUCTION

The Brake-Motor Units are intended for hydraulic drive of operating systems, where the block and the release of the drive must be by means of hydraulic energy. The system has small overall dimensions and minimum weight. In the package are combined efficient hydraulic power of hydromotors type OT 500 with a reliable integral hydraulic disc brake type ELB.

Typical applications include wheel drives, conveyors , rotators, positioners, winches, swing drives and door openers.

The Brake-Motor Units are intended to operate as static or parking brakes. System circuitry must be designed to bring the load to a stop before applying the brake.

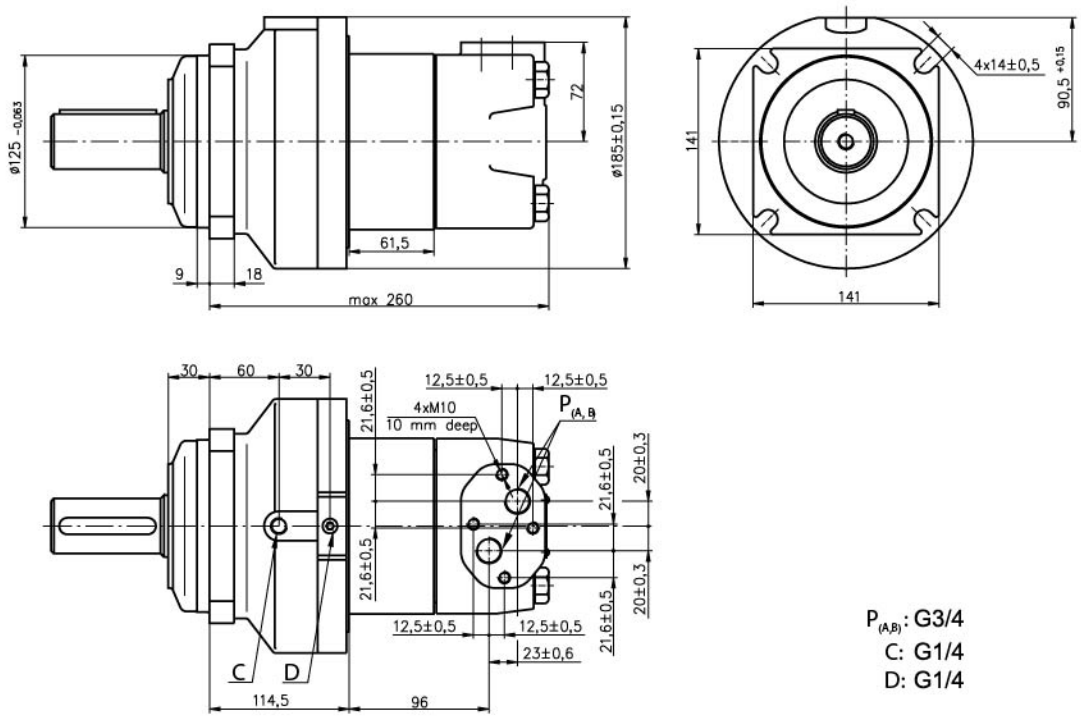


SPECIFICATION DATA

Type		TW500B314
Displacement, [cm.^{3}/rev.]		524
Max. Speed, RPM		200
Max. Torque,	Cont.	122
[daNm]	Int.*	137
Max. Output, [kW]		28
Max. Pressure Drop,	Cont.	160
[bar]	Int.*	180
Max. Oil Flow, [lpm]		125
Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, [bar]		5
Min. Speed, RPM**		5
Static Torque for the Brake, [daNm]**		142
Release Pressure ±10%, [bar]		24...29
Max. Steering Pressure, [bar]		300

* Intermittent operation: the permissible values may occur for max. 10% of every minute.
** Static torque is obtained at working pressure - 0 PSI [0 bar].

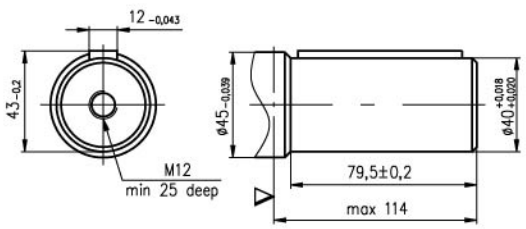
OUTLINE DIMENSIONS REFERENCE OF TW 500-314 ...



$P_{(A,B)}$: G3/4
C: G1/4
D: G1/4

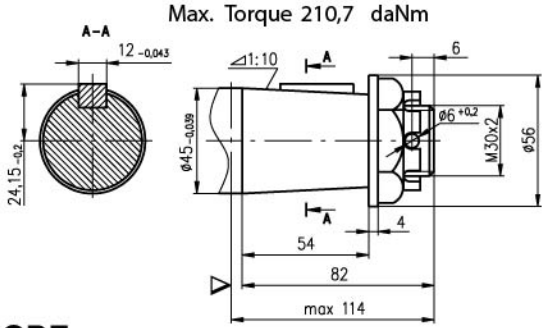
SHAFT EXTENSIONS

C -ø40 straight, Parallel key A12x8x70 DIN 6885
Max. Torque 132,8 daNm



∇- Motor Mounting Surface

K -tapered 1:10, Parallel key B12x8x28 DIN 6885
Max. Torque 210,7 daNm



ORDER CODE

1		2	3	4	5
TW	500	-	314		

Pos.1 - **Displacement code**

Pos.2 - **Type of a Brake (ELB 314)**

Pos.3 - **Shaft Extensions**

C	- ø40 straight, Parallel key A12x8x70 DIN 6885
K	- tapered 1:10, Parallel key B12x8x28 DIN 6885

Pos. 4 - Option (Paint)*

omit - no Paint

P	- Painted
PC	- Corrosion Protected Paint

Pos. 5 - **Design Series**

omit - Factory specified

NOTES:

* Color at customer's request.

The brake-motor unit is mangano-phosphatized as standard.

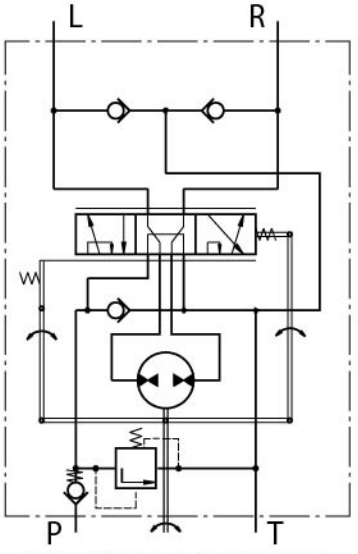
HYDROSTATIC STEERING UNITS & ACCESSORIES

HYDROSTATIC STEERING UNITS AND ACCESSORIES

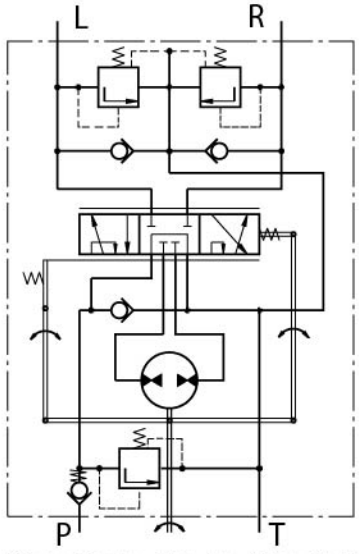
INDEX

HYDROSTATIC STEERING UNITS TYPE OH/1...OR - OH/1 - OH/8

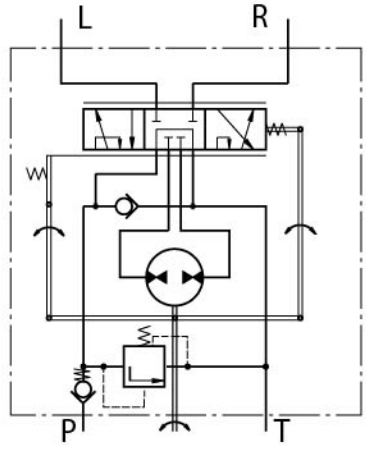
The OH/1 - OH/8 Hydrostatic Steering unit is based on the OH unit but has built-in relief and check valves. Thus Hydraulic achieves one very compact steering unit which reduces the need for additional hydraulic components in the system.



"Open Center - Load Reaction"
With Built-inValves
Version OH/1...OR



"Open Center - Non Load Reaction"
With Built-in Valves
Version OH/1



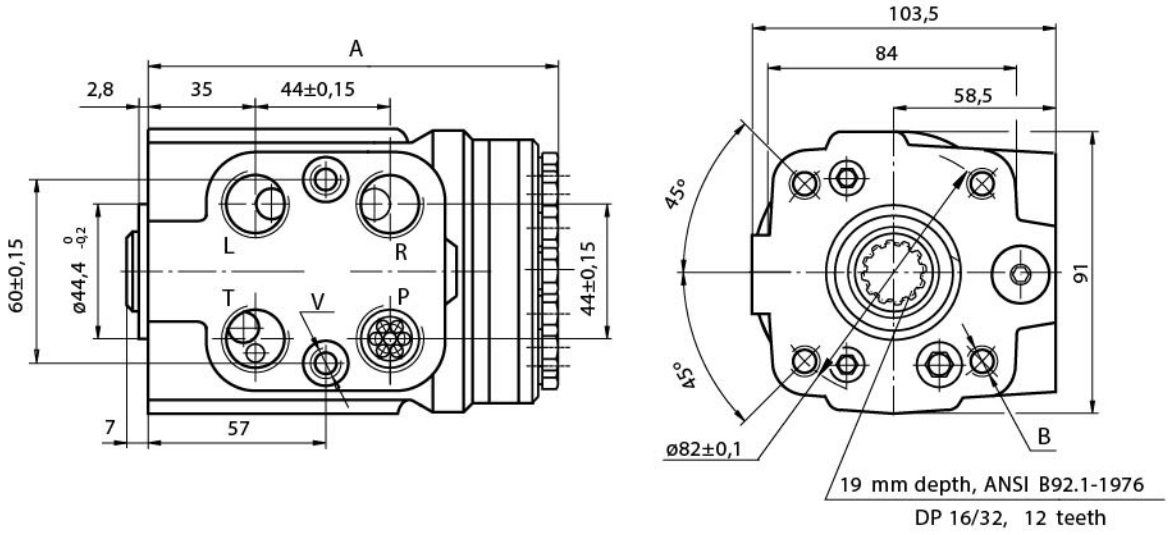
"Open Center - Non Load Reaction"
With Built-in Valve
Version OH/8

SPECIFICATION DATA

Parameters		Type										
		OH/1,8 40	OH/1,8 50	OH/1,8 63	OH/1,8 80	OH/1,8 100	OH/1,8 125	OH/1,8 160	OH/1,8 200	OH/1,8 250	OH/1,8 320	OH/1,8 400
Displacement	[cm³/rev]	39,6	49,5	65,6	79,2	99,0	123,8	158,4	198	247,5	316,8	396
Rated Flow	[l/min]	4	5	6	9		12		17	24	30	40
Rated Pressure	[bar]	160										
Relief Valve Pressure Settings*	[bar]	80 100 125 150										
Shock Valves Pressure Settings**	[bar]	140 160 180 200										
Max.Cont. Pressure in Line T - P_T	[bar]	25 (50 - *for OH.../8)*										
Max.Torque at Servoamplifing	[Nm]	6 *(by P_T max)*										
Max.Torque w/o Servoamplifing	[Nm]	120										
Weight, avg.	[kg]	5,3	5,5	5,6	5,7	5,8	5,9	6,2	6,5	6,6	7,2	7,8
Dimension A	[mm]	130,8	132,2	133,9	136,2	138,8	142,2	146,8	152,2	158,8	168,2	178,8

* Pressure Settings are at Rated Flow (as in the table) and viscosity 21 mm²/s (50° C).
** Pressure Settings are at flow rate of 2 l/min and viscosity 21 mm²/s (50° C).

DIMENSIONS AND MOUNTING DATA



THREADED PORTS

code	Ports-P,T,R,L Thread	Column Mounting Thread - B	Valve Mounting Thread - V
-	G1/2 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth
A	3/4 - 16 UNF O-ring 17 mm depth	4x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth
M	M22x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth

*Threaded Port P min 16 mm depth.

ORDER CODE for OH1 - OH8

	1	2	3	4	5	6
O H		/	-	-			

Pos.1 - Versions

1	- Version OR *"Open Center - Load Reaction"*
1	- Version 1 *"Open Center - Non Load Reaction"*
8	- Version 8 *"Open Center - Non Load Reaction"*

Pos.2 - Displacement code (see Specification Data)

40	- 39,6 [cm³/rev]
50	- 49,5 [cm³/rev]
63	- 65,6 [cm³/rev]
80	- 79,2 [cm³/rev]
100	- 99,0 [cm³/rev]
125	- 123,8 [cm³/rev]
160	- 158,4 [cm³/rev]
200	- 198,0 [cm³/rev]
250	- 247,5 [cm³/rev]
320	- 316,8 [cm³/rev]
400	- 396,0 [cm³/rev]

Pos.3 - Relief Valve Pressure Settings, bar

80
100
125
150
175

Pos.4 - Ports

omit	- BSPP (ISO 228)
A	- SAE (ANSI B 1.1 - 1982)
M	- Metric (ISO 262)

Pos.5 - Option (Paint)*

omit	- No Paint
P	- Painted
PC	- Corrosion Protected Paint

Pos.6 - Version

OR	- Version OR *"Open Center - Laod Reaction"*

Version	Manual Steering Check Valve	Relief Valve	Inlet Check Valve	Cylinder Relief Valve	Anti-Cavitation Valve
1-.-..OR	•	•	•		•
1	•	•	•	•	•
8	•	•	•		

NOTES:

* Colour at customer's request.

The steering units are mangano-phosphatized as standard.

HYDROSTATIC STEERING UNITS TYPE OH/4 - OH/3 - OH/4E - OH/3E

The OH/4-OH/3-OH/4E-OH/3E range expands the steering units family of Hydraulic with the *"Closed Center - Non Reaction and Load Sensing Outlet"* version (static hydraulic connection to the priority valve)

This range is manufactured in two versions; for modularly and pipe mounting and therefore were developed the two versions of priority (tracing) valves: LSA... and LS...

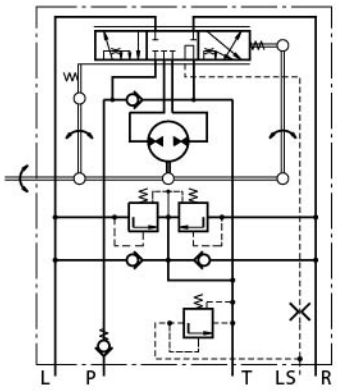
OH/4 is designed to be connected with priority valves with built-in relief valves for rated flow up to 160 l/min.

The control hydraulic circuits of the OH/4-OH/3-OH/4E-OH/3E steering units were designed to ensures minimal energy consumption (energy losses) in various hydraulic systems such as those of: fork-lift trucks, agricultural and construction machines and others.

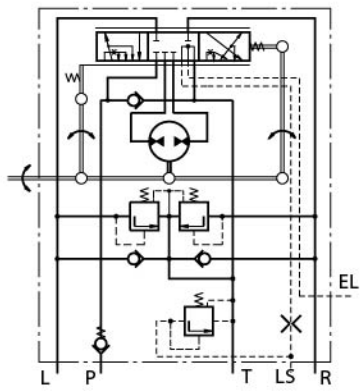
The OH/4E and OH/3E are equipped with an electrohydraulic relay, mounted in the EL port, which supplies signal to the electric - control system. The relay can be pre-set to normally - open (N.O) or normally - closed (N.C) contacts, with control range from 0,1 to 50 bars. Upon customer's request the relay could be supplied with another type of fixing thread.

*For operation in condition of Thermal Shock see the notes on page OH - 02.

Modulary Mounting

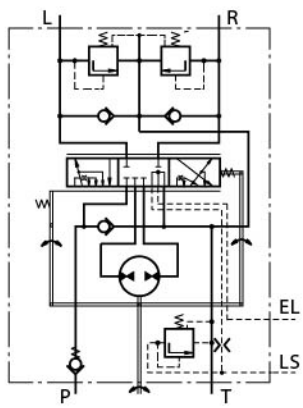


OH/4

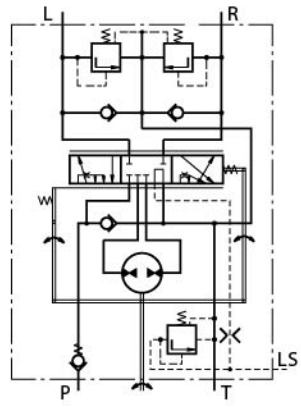


OH/4E

Pipe Mounting



OH/3E



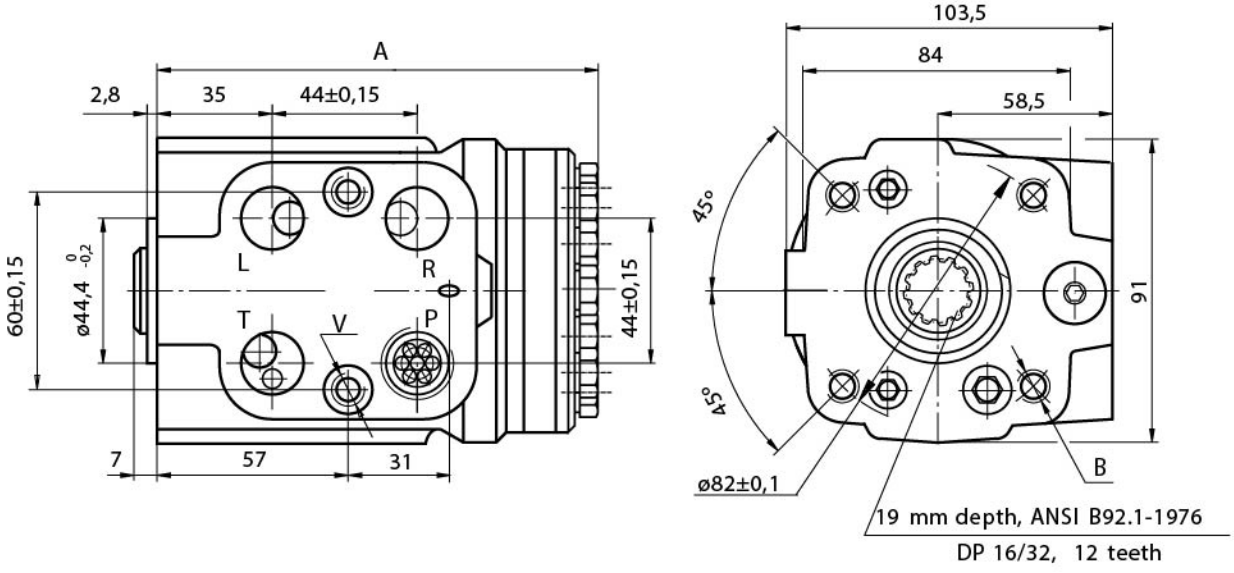
OH/3

SPECIFICATION DATA

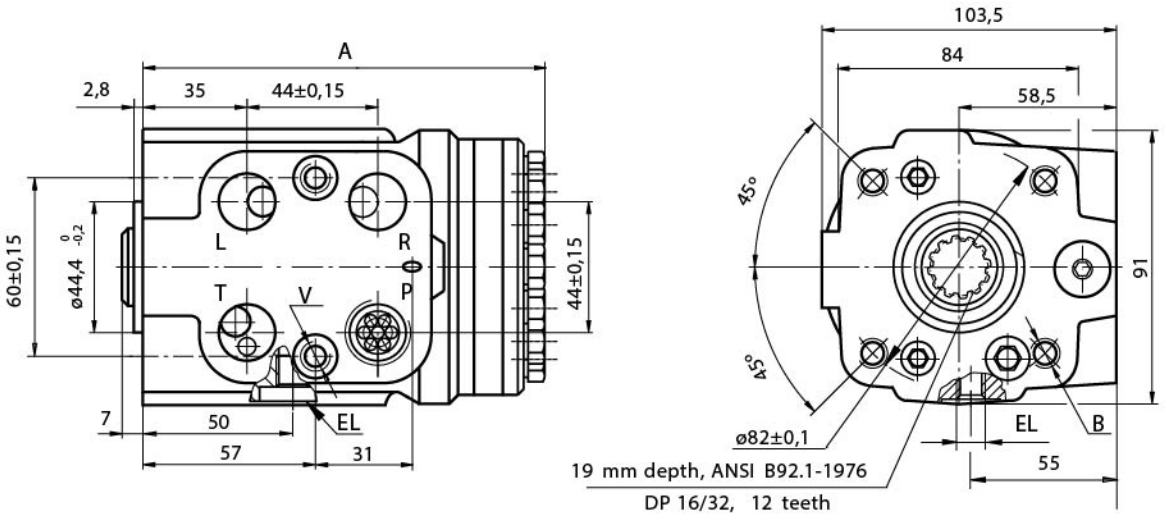
Parameters		Type											
		OH 40	OH 50	OH 63	OH 80	OH 100	OH 125	OH 160	OH 200	OH 250	OH 320	OH 400	
Displacement	[cm^3/rev]	39,6	49,5	65,6	79,2	99,0	123,8	158,4	198	247,5	316,8	396	495	618,7
Rated Flow	[l/min]	4	5	6	9		12		17	24	30	40	50	63
Rated Pressure	[bar]	125	150	175										
LS - Valve Pressure Settings*	[bar]	80	100	125	150	175								
Shock Valves Pressure Settings**	[bar]	140	160	180	200	240								
Max.Cont. Pressure in LineT-P_T	[bar]	20												
Max.Torque at Servoamplifing	[Nm]	6 (by P_T max)												
Max.Torque w/o Servoamplifing	[Nm]	120												
Weight, avg.	[kg]	5,4	5,5	5,6	5,7	5,8	5,9	6,2	6,5	6,6	7,2	7,8	8	8,7
Dimension A	[mm]	130,8	132,2	133,9	136,2	138,8	142,2	146,8	152,2	158,8	168,2	178,8	192	209,3

* Pressure Settings are at flow rate of 6 l/min and viscosity 21 mm^2/s (50°C).
**Pressure Settings are at flow rate of 2 l/min and viscosity 21 mm^2/s (50°C).

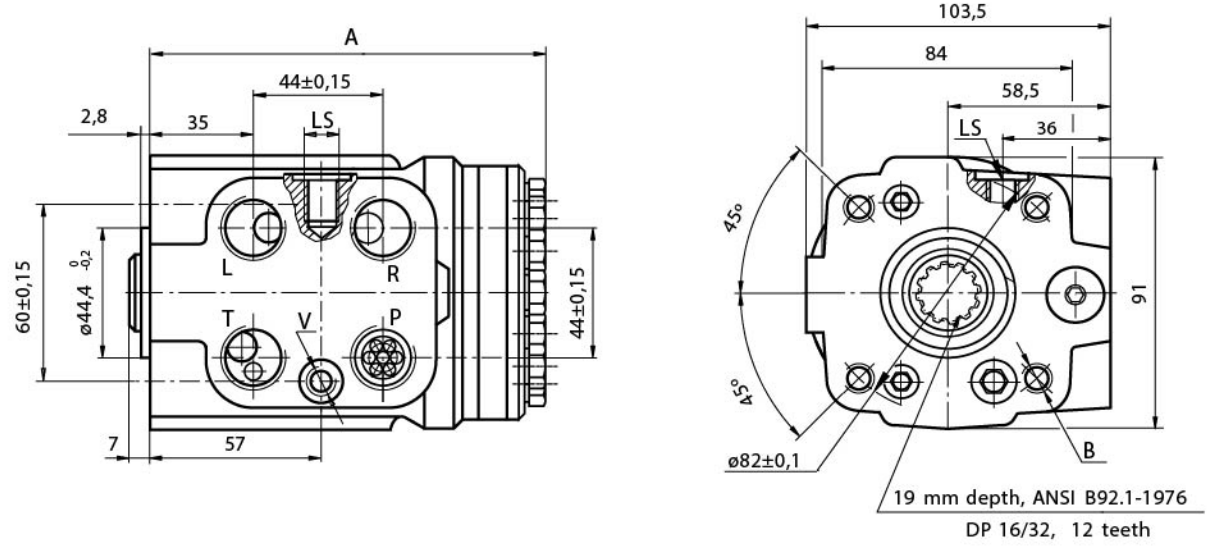
DIMENSIONS AND MOUNTING DATA - OH/4



DIMENSIONS AND MOUNTING DATA - OH/4E

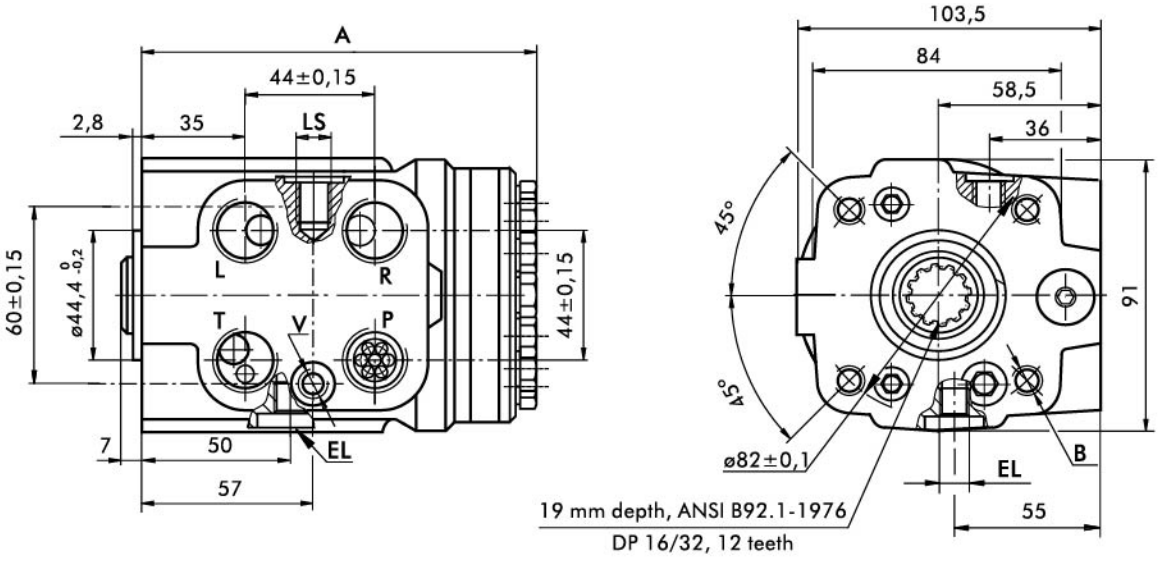


DIMENSIONS AND MOUNTING DATA - OH/3



* The ports are shown in the Table of the following page.

DIMENSIONS AND MOUNTING DATA - OH/3E



THREADED PORTS

code	Ports - *P, T, R, L Thread	Column Mounting Thread - B	Valve Mounting Thread- V	LS - Port	EL - Port
-	G1/2 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth	G1/4 14 mm depth	M10x1 10 mm depth
A	3/4 - 16 UNF O-ring 17 mm depth	4 x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth	7/16 - 20 UNF O-ring 12,7 mm depth	7/16 - 20 UNF O-ring 12,7 mm depth
M	M22x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth	G1/4 14 mm depth	M10x1 10 mm depth

*Threaded Port **P** min 16 mm.

ORDER CODE for OH/3 - OH/4

	1		2	3		4		5	6	7
OH		/			-		-			

Pos.1 - Versions and Priority Valve Connection

3 - Version 3 *"Closed Center - Non Reaction and Load Sensing Outlet"* - Pipe Mounting

4 - Version 4 *"Closed Center - Non Reaction and Load Sensing Outlet"* - Modulary Mounting

Pos.2 - Displacement code (see Specification Data)

40	-	39,6 [cm³/rev]
50	-	49,5 [cm³/rev]
63	-	65,6 [cm³/rev]
80	-	79,2 [cm³/rev]
100	-	99,0 [cm³/rev]
125	-	123,8 [cm³/rev]
160	-	158,4 [cm³/rev]
200	-	198,0 [cm³/rev]
250	-	247,5 [cm³/rev]
320	-	316,8 [cm³/rev]
400	-	396,0 [cm³/rev]

Pos.3 - Electric Signal Connection

omit - without electric signal connection

E - with electric signal connection

Pos.4 - Relief Valve Pressure Settings, bar

80	100	125	150	175

Pos.5 - Ports

omit - BSPP (ISO 228)

A - SAE (ANSI B 1.1 - 1982)

M - Metric (ISO 262)

Pos.6 - Option (Paint)*

omit - No Paint

P - Painted

PC - Corrosion Protected Paint

Pos.7 - Design Series

omit - Factory specified

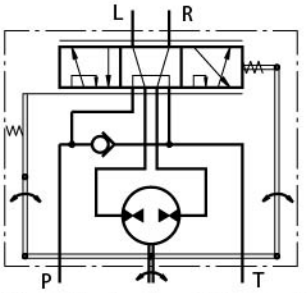
NOTES:

* Colour at customer's request.

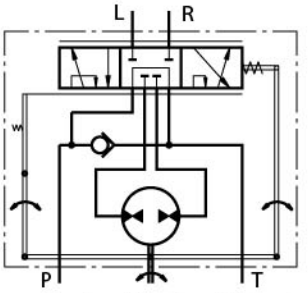
The steering units are mangano-phosphatized as standard.

HYDROSTATIC STEERING UNITS TYPE OH.../OR - OH...

The newly designed OH steering units, with radial distribution, incorporate two rotary tracing valves in the housing, which turn on the metering pump.



"Open Center - Load Reaction"
Version OR - OH .../OR

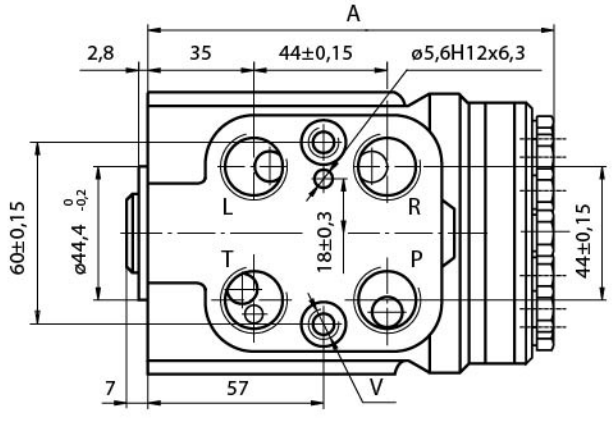


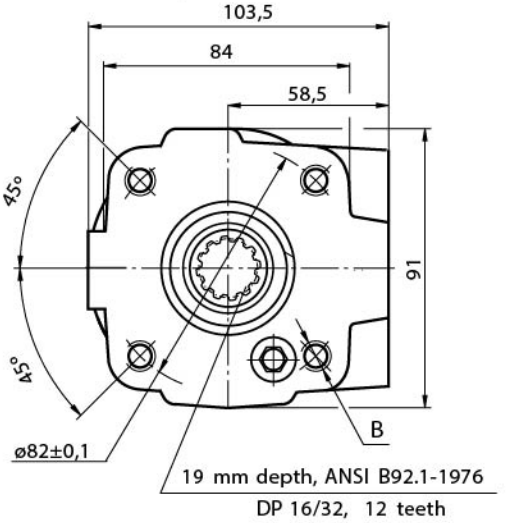
"Open Center - Non Load Reaction"
Version OH ...

SPECIFICATION DATA

Parameters	Type														
	OH 40/OR OH 40	OH 50/OR OH 50	OH 63/OR OH 63	OH 80/OR OH 80	OH 100/OR OH 100	OH 125/OR OH 125	OH 160/OR OH 160	OH 200/OR OH 200	OH 250/OR OH 250	OH 320/OR OH 320	OH 400/OR OH 400	OH 500	OH 630	OH 800	OH 1000
Displacement [cm^3/rev]	39,6	49,5	65,6	79,2	99,0	123,8	158,4	198	247,5	316,8	396	495	618,7	793	990
Rated Flow [l/min]		6		9		12		17	24	30	40	50	63	80	
Rated Pressure [bar]	160												140		100
Max. Cont. Pressure in Line T_T - P_T [bar]	25														
Max. Torque at Servoamplifing [Nm]	6 (by P_T max)														
Max. Torque w/o Servoamplifing [Nm]	120														
Weight, avg. [kg]	5,3	5,4	5,5	5,6	5,7	5,8	6,0	6,3	6,5	7,0	7,4	8,0	8,7	9,6	10,6
Dimension A [mm]	130,8	132,2	133,9	136,2	138,8	142,2	146,8	152,2	158,8	168,2	178,8	192	209,3	232,2	258,6

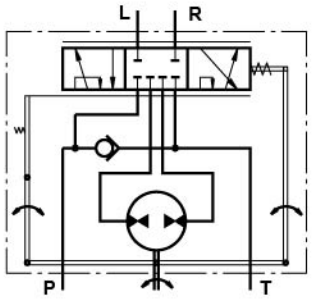
DIMENSIONS AND MOUNTING DATA





* The ports are shown in the Table of page Steering Units OH - 03.

HYDROSTATIC STEERING UNIT TYPE OH.../NC



"Closed Center - Non Load Reaction"
Version NC - OH.../NC

The OH.../NC is a *"Closed Center - Non Load Reaction".*

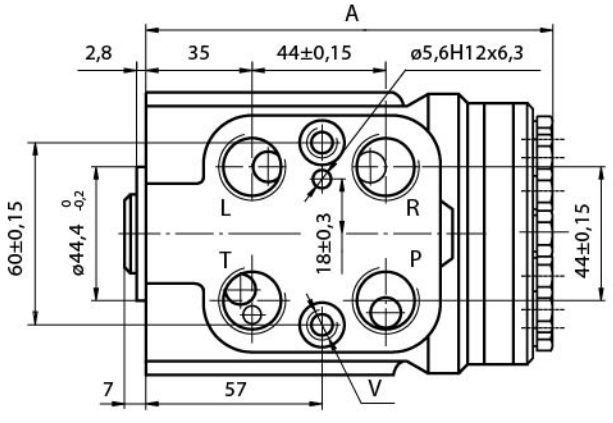
When connecting to a differential cylinder the L and R ports of the steering unit must be connected as follows: L to the greater piston area, and R - to the smaller one.

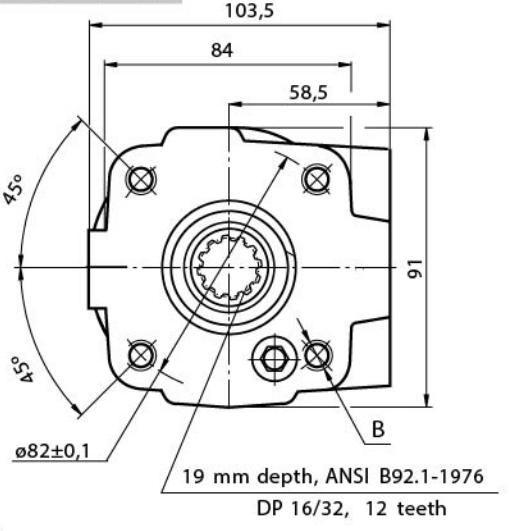
For the *"Closed Center - Non Load Reaction"* and *"Closed Center - Non Reaction and Load Sensing"* steering units is possible to observe Thermal Shock - condition caused when the hydraulic system has operated for some time without turning the steering wheel, causing the fluid in the reservoir and the system to heet up while the steering unit is relatively cool (i.e. there is more than 50°F [10°C] difference in the temperature). If, under the condition of Thermal Shock, the steering wheel is turned very quickly, it is possible to experience temporary seizure and have the internal parts of the steering unit damaged. The temporary seizure may be followed by a total free wheeling.

SPECIFICATION DATA

Parameters	Type													
	OH 40/NC	OH 50/NC	OH 63/NC	OH 80/NC	OH 100/NC	OH 125/NC	OH 160/NC	OH 200/NC	OH 250/NC	OH 320/NC	OH 400/NC	OH 500/NC	OH 630/NC	OH 800/NC
Displacement, [cm^3/U]	39,6	49,5	65,6	79,2	99,0	123,8	158,4	198	247,5	316,8	396	495	618,7	793
Rated Flow, [l/min]	4	5	6	9		12		17	24	30	40	50	63	80
Rated Pressure, [bar]	175													
Max. Cont. Pressure in Line T , [bar]	20													
Max. Torque at Servoamplifing, [Nm]	6 (by P_T max)													
Max. Torque w/o Servoamplifing, [Nm]	120													
Weight , [kg]	5,3	5,4	5,5	5,6	5,7	5,8	6,0	6,3	6,5	7,0	7,4	8,0	8,7	9,6
Dimension A, [mm]	130,8	132,2	133,9	136,2	138,8	142,2	146,8	152,2	158,8	168,2	178,8	192	209,3	232,2

DIMENSIONS AND MOUNTING DATA





* The ports are shown in the Table of page Steering Units OH - 03.

HYDROSTATIC STEERING UNITS TYPE OH.../NC...-LS

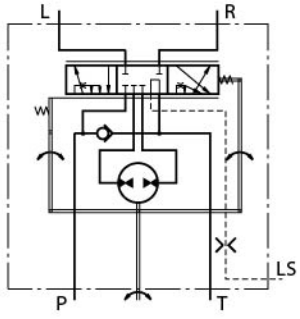
The OH/NC-LS range expands the steering units family of Hydraulic with the *"Closed Center - Non Reaction and Load Sensing Outlet"* version (static hydraulic connection to the priority valve)

This range is manufactured in pipe mounting version only.

SPECIFICATION DATA

Parameters		Type												
		OH 40 LS	OH 50 LS	OH 63 LS	OH 80 LS	OH 100 LS	OH 125 LS	OH 160 LS	OH 200 LS	OH 250 LS	OH 320 LS	OH 400 LS	OH 500 LS	OH 630 LS
Displacement	[cm³/rev]	39,6	49,5	65,6	79,2	99,0	123,8	158,4	198	247,5	316,8	396	495	618,7
Rated Flow	[l/min]	4	5	6	9		12		17	24	30	40	50	63
Rated Pressure	[bar]	125	150	175										
LS - Valve Pressure Settings*	[bar]	80	100	125	150	175								
Shock Valves Pressure Settings**	[bar]	140	160	180	200	240								
Max.Cont. Pressure in LineT-P_T	[bar]	20												
Max.Torque at Servoamplifing	[Nm]	6 (by P_T max)												
Max.Torque w/o Servoamplifing	[Nm]	120												
Weight, avg.	[kg]	5,4	5,5	5,6	5,7	5,8	5,9	6,2	6,5	6,6	7,2	7,8	8	8,7
Dimension A	[mm]	130,8	132,2	133,9	136,2	138,8	142,2	146,8	152,2	158,8	168,2	178,8	192	209,3

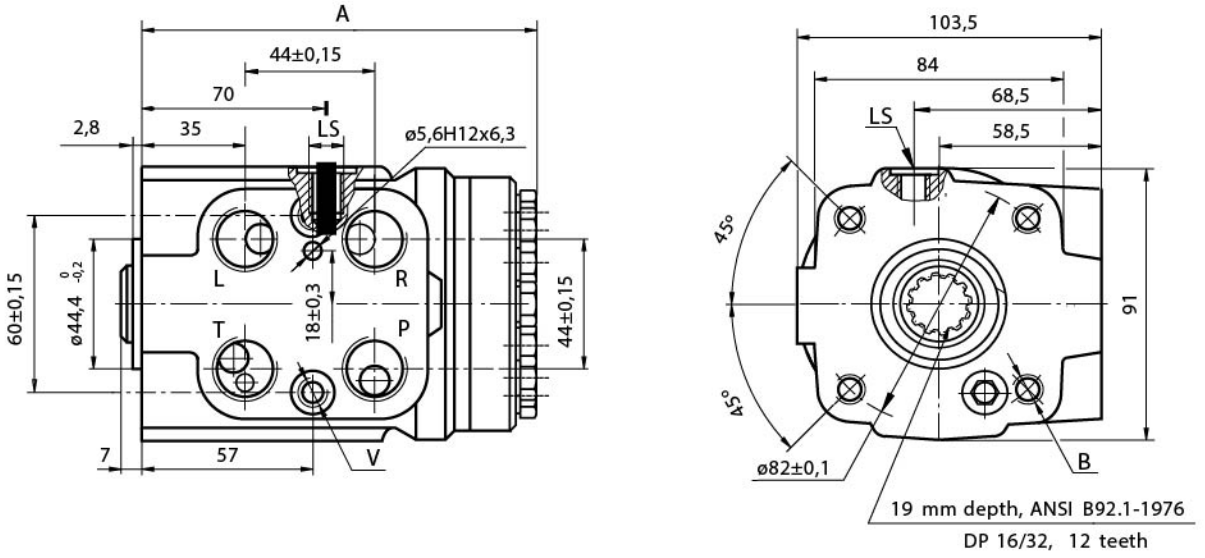
* Pressure Settings are at flow rate of 6 l/min and viscosity 21 mm²/s (50°C).
**Pressure Settings are at flow rate of 2 l/min and viscosity 21 mm²/s (50°C).



"Closed Center - Non Load Reaction"
Version LS - OH.../NC-...-LS

Pipe Mounting

DIMENSIONS AND MOUNTING DATA - OH.../NC-LS



THREADED PORTS

code	Ports - *P, T, R, L Thread	Column Mounting Thread - B	Valve Mounting Thread- V	LS - Port	EL - Port
-	G1/2 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth	G1/4 14 mm depth	M10x1 10 mm depth
A	3/4 - 16 UNF O-ring 17 mm depth	4 x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth	7/16 - 20 UNF O-ring 12,7 mm depth	7/16 - 20 UNF O-ring 12,7 mm depth
M	M22x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth	G1/4 14 mm depth	M10x1 10 mm depth

*Threaded Port **P** min 16 mm.

THREADED PORTS FOR OH.../NC

code	Ports-P,T,R,L Thread	Column Mounting Thread - B	Valve Mounting Thread - V
-	G1/2 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth
A	3/4 - 16 UNF O-ring 17 mm depth	4x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth
M	M22x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth

ORDER CODE

	1		2		3	4	5
OH		/		-			

Pos.1 - Displacement code (see Specification Data)

40	-	39,6 [cm³/rev]
50	-	49,5 [cm³/rev]
63	-	65,6 [cm³/rev]
80	-	79,2 [cm³/rev]
100	-	99,0 [cm³/rev]
125	-	123,8 [cm³/rev]
160	-	158,4 [cm³/rev]
200	-	198,0 [cm³/rev]
250	-	247,5 [cm³/rev]
320	-	316,8 [cm³/rev]
400	-	396,0 [cm³/rev]
500	-	495,0 [cm³/rev]
630	-	618,7 [cm³/rev]
800	-	792,0 [cm³/rev]
1000	-	990,0 [cm³/rev]

Pos.2 - Versions

OR - Version OR *"Open Center - Load Reaction"*
omit - Version *"Open Center - Non Load Reaction"*
NC - Version NC *"Closed Center - Non Load Reaction"* Up to 800 cc only

Pos.3 - Ports

omit - BSPP (ISO 228)
A - SAE (ANSI B 1.1 - 1982)
M - Metric (ISO 262)

Pos.4 - Option (Paint)*

omit - No Paint
P - Painted
PC - Corrosion Protected Paint

Pos.5 - Load Sensing Option (for NC Version only)

LS - *"Closed Center - Non Load Reaction Load Sensing Outlet"* Up to 630 cc only

NOTES:

* Colour at customer's request.

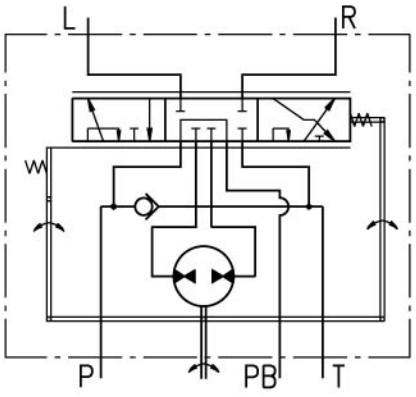
The steering units are mangano-phosphatized as standard.

HYDROSTATIC STEERING UNIT TYPE OH.../PB

The hydrostatic steering unit is available for steering medium and large sized transport vehicles as building and agricultural machines.

OH…/PB works as standard steering unit with auxiliary port destined for flow providing additional vehicles functions. When the steering wheel is not turned, the flow will be delivered to port PB. After steering wheel has been turned a part of flow will be deviated to the steering unit and the flow trough port PB will be inconstant.

It is not recommended to use this unit in systems with auxiliary functions during the vehicle steering.

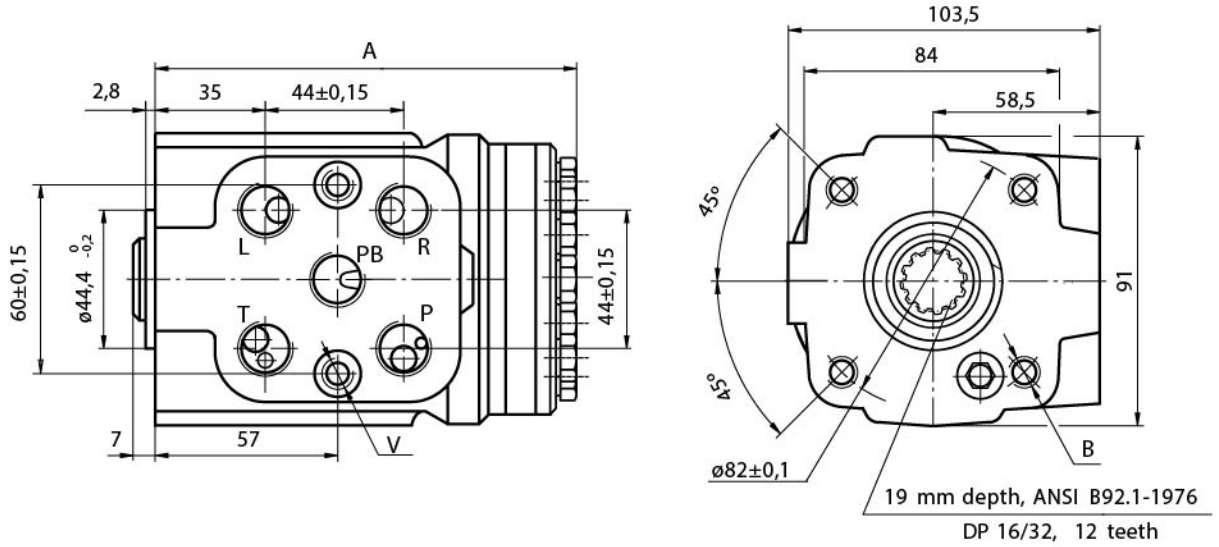


"Open Center - Non Load Reaction"
OH.../PB - Power Beyond

SPECIFICATION DATA

Parameters	Type					
	OH 40/PB	**OH 50/PB**	**OH 63/PB**	**OH 80/PB**	**OH 100/PB**	**OH 125/PB**
Displacement, [cm^3/rev]	39,6	49,5	65,6	79,2	99,0	123,8
Rated Flow - PB Port (Power Beyond) [l/min]	15					
Rated Pressure, [bar]	125					
Max. Pressure in Line PB , [bar]	125					
Max. Cont. Pressure in Line T - P_T , [bar]	10					
Max. Torque at Servoamplifing, [Nm]	2,8 *(by P_T max)*					
Max. Torque w/o Servoamplifing, [Nm]	135					
Weight , [kg]	5,3	5,4	5,5	5,6	5,7	5,8
Dimension A, [mm]	130,8	132,2	133,9	136,2	138,8	142,2

DIMENSIONS AND MOUNTING DATA



THREADED PORTS for OH.../PB

code	Ports-P,T,R,L,PB Thread	Column Mounting Thread - B	Valve Mounting Thread - V
-	G3/8 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth
A	9/16 - 18 UNF O-ring 17 mm depth	4x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth

ORDER CODE for OH.../PB

	1		2		3	4	5
OH		/	PB	-			

Pos.1 - Displacement code (see Specification Data)

- 40 - 39,6 [cm³/rev]
- 50 - 49,5 [cm³/rev]
- 63 - 65,6 [cm³/rev]
- 80 - 79,2 [cm³/rev]
- 100 - 99,0 [cm³/rev]
- 125 - 123,8 [cm³/rev]

Pos.2 - Versions

- **PB** - Version PB *"Open Center - Non Load Reaction" with 5 ports (Power Beyond)*

Pos.3 - Ports

- omit - BSPP (ISO 228)
- A - SAE (ANSI B 1.1 - 1982)

Pos.4 - Option (Paint)*

- omit - No Paint
- P - Painted
- PC - Corrosion Protected Paint

Pos.5 - Design Series

- omit - Factory specified

NOTES:

* Colour at customer's request.

The steering units are mangano-phosphatized as standard.

HYDROSTATIC STEERING UNIT TYPE OHK

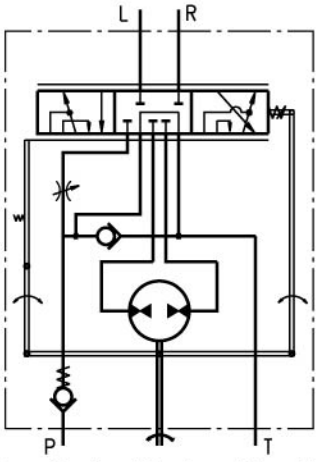
OHK is a new series of hydrostatic steering units with an additionally increased flow. The hydrostatic steering unit type OHK is available for steering medium and large sized vehicles, allowing easy control either in servo-amplified mode or in emergency operation.

OHK is an "Open Center - Non Load Reaction" hydrostatic steering in which restrictor for amplifying factor from 1,3 to 2,5 is built-in.

In accordance with the size of the gear wheel set and amplifying factor, OHK has the following working volume:

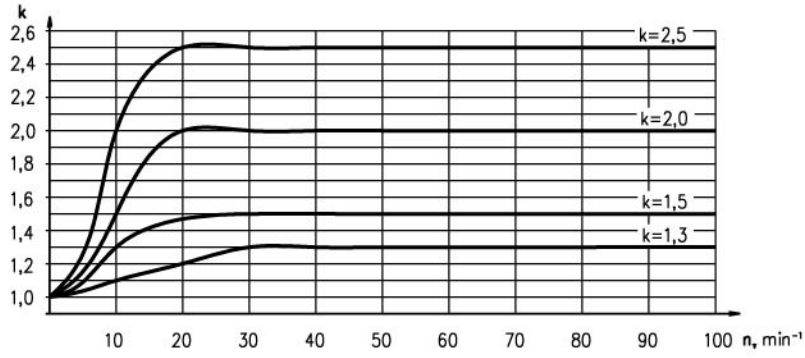
- from 80 cm^3 to 200 cm^3 for emergency operation mode (manual steering without servo-amplifying;
- from 100 cm^3 to 500 cm^3 for normal operation mode (with total flow amplifying).

There is no servo-amplifying of flow if low steering speed till 10 min^{-1} is applied. In steering speed increase over 20 min^{-1} there is total servo-amplifying of flow. In this mode gear wheel set flow and restrictor flow are added.



"Open Center - Non Load Reaction"
OHK

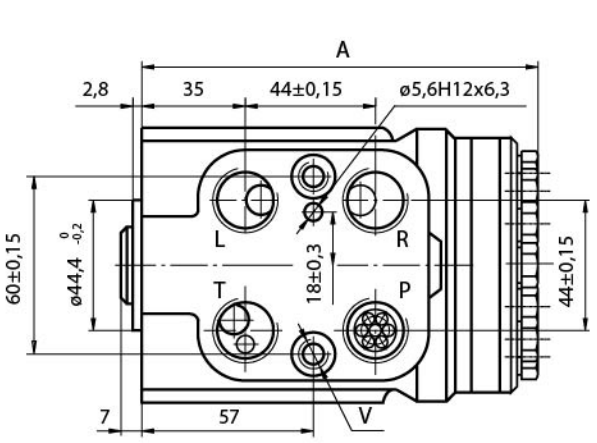
VARIABLE AMPLIFYING FACTOR

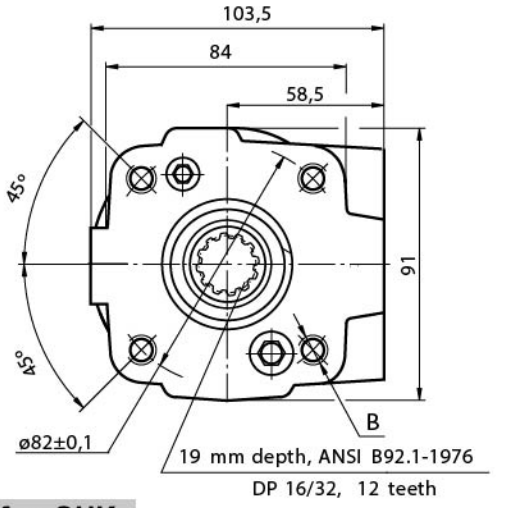


SPECIFICA TION DATA

Parameters	Type																			
	OHK 80				**OHK 100**				**OHK 125**				**OHK 160**				**OHK 200**			
Displacement - without servo-amplifying (in emergency mode)	79,2				99,0				123,8				158,4				198			
- with servo-amplifing [cm^3/rev]	100	125	160	200	125	160	200	250	160	200	250	320	200	250	320	400	250	320	400	500
Rated Flow* [l/min]	10	12,5	16	20	12,5	16	20	25	16	20	25	32	20	25	32	40	25	32	40	50
Amplifying Factor (at shaft revolution over 20 min^{-1})	1,3	1,5	2,0	2,5	1,3	1,5	2,0	2,5	1,3	1,5	2,0	2,5	1,3	1,5	2,0	2,5	1,3	1,5	2,0	2,5
Rated Pressure [bar]	160																			
Max. Cont. Pressure in Line T-P_T [bar]	25																			
Max. Torque at Servoamplifing [Nm]	6 (by P_T max)																			
Max. Torque w/o Servoamplifing [Nm]	120																			
Weight, avg. [kg]	5,6				5,7				5,8				6,0				6,3			
Dimension A [mm]	136,2				138,8				142,2				146,8				152,2			

DIMENSIONS AND MOUNTING DATA





THREADED PORTS for OHK

code	Ports - P*, T, R, L Thread	Column Mounting Thread - B	Valve Mounting Thread - V
-	G1/2 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth
A	3/4 - 16 UNF O-ring 17 mm depth	4x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth
M	M22x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth
MX	M20x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth

*Threaded Port **P** min 16 mm depth.

ORDER CODE for OHK

	1		2		3		4	5	6
OHK		/		/		-			

Pos.1 - Displacement code (see Specification Data)

80	- 79,2 [cm³/rev]
100	- 99,0 [cm³/rev]
125	- 123,8 [cm³/rev]
160	- 158,4 [cm³/rev]
200	- 198,0 [cm³/rev]

Pos.2 - Displacement with amplifying factor 1,3; 1,5; 2,0 or 2,5

	80	100	125	160	200
100					
125					
160					
200					
250					
320					
400					
500					

k=1,3
k=1,5
k=2,0
k=2,5

Pos.3 - Versions

omit - Version *"Open Center - Non Load Reaction"*

Pos.4 - Ports

omit - BSPP (ISO 228)

A	- SAE (ANSI B 1.1 - 1982)
M	- Metric (ISO 262)
MX	- Metric (ISO 262)

Pos.5 - Option (Paint)**

omit - No Paint

P	- Painted
PC	- Corrosion Protected Paint

Pos.6 - Design Series

omit - Factory specified

NOTES:

* Exemplary designation of steering unit with displacement 200 cm³ and amplifying factor 2,5 OHK 200/500

** Colour at customer's request.

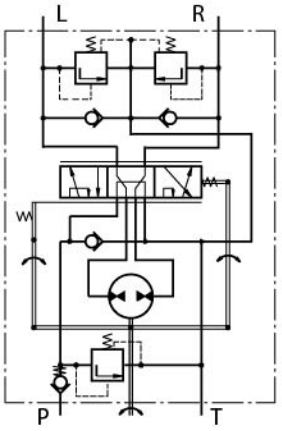
The steering units are mangano-phosphatized as standard.

HYDROSTATIC STEERING UNITS TYPE OX.../1 - OX.../2

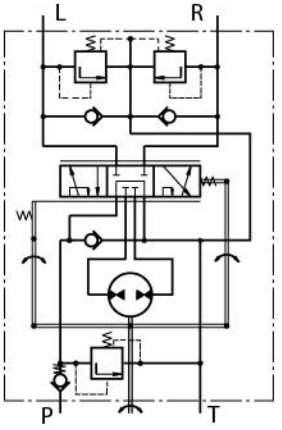
The Hydraulic Hydrostatic Steering units are used in low-speed vehicles which driving speed does not exceed 60 km/h - such as: building machines, fork-lift trucks, harvesting machines, off-highway equipment and others. These hydraulic units amplify the torque to the steering wheels, with no need of hard mechanical connection.

The OX hydrostatic steering unit incorporates an axially displaced tracing valve and a metering pump in one housing. The working liquid is supplied by a separate pump and then is directed by the metering pump to the steering cylinders.

The OX steering unit is manufactured with a built-in check valve, and there is an option for a built-in relief valve in the inlet.



"Open Center - Load Reaction"
With Built-in Valves
Version 1 - OX.../1



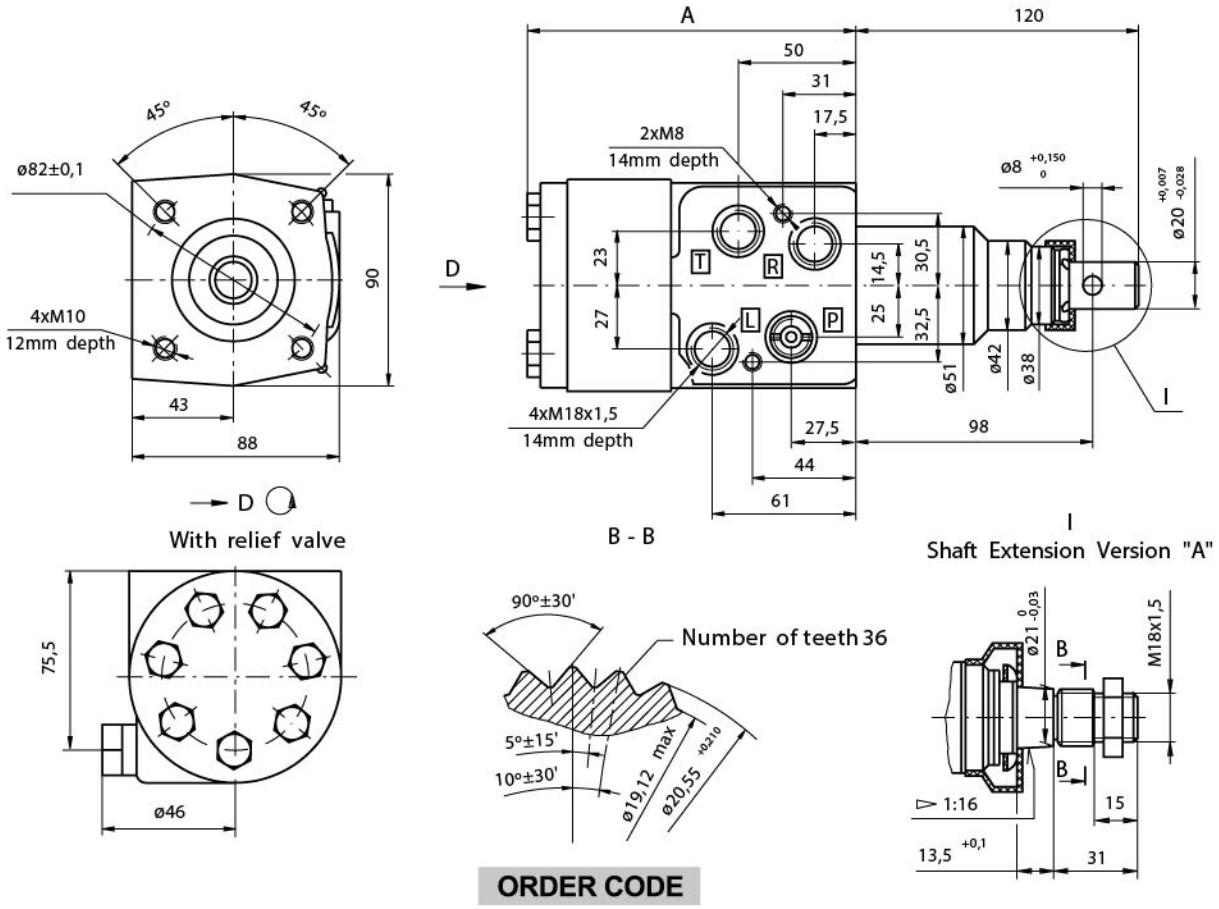
"Open Center - Non Load Reaction"
With Built-in Valves
Version 2 - OX.../2

SPECIFICATION DATA

Parameters	Type											
	OX 65/1,2	OX 75/1,2	OX 85/1,2	OX 100/1,2	OX 120/1,2	OX 145/1,2	OX 170/1,2	OX 195/1,2	OX 245/1,2	OX 295/1,2	OX 340/1,2	OX 390/1,2
Displacement [cm^3/rev]	64	72	84	96	120	144	167	191	240	287	334	382
Rated Flow [l/min]	6		9		12		17		24		30	40
Rated Pressure [bar]	150											
Relief Valve Pressure Settings* [bar]	80		100		125		150					
Shock Valves Pressure Setting** [bar]	200											
Max.Cont.Pressure in Line T_T - P_T [bar]	20											
Max.Torque at Servoamplifing [Nm]	7,5 (by P_T max)											
Max.Torque w/o Servoamplifing [Nm]	125											
Weight, avg. [kg]	6,0	6,2	6,4	6,5	6,6	6,8	7,0	7,1	7,3	7,5	8,0	8,4
Dimension A [mm]	134	135	136,3	138,5	141,5	144,5	148	151	157,5	163,5	170	176,5

* Pressure Settings are at Rated Flow (as in the table) and viscosity 21 mm^2/s (50° C).
** Pressure Settings are at flow rate of 4 l/min and viscosity 21 mm^2/s (50° C).

DIMENSIONS AND MOUNTING DATA



ORDER CODE

1	2	3	4	5	6
O X		/		-		-			

Pos.1 - Displacement code

65	- 64 [cm³/rev]
75	- 72 [cm³/rev]
85	- 84 [cm³/rev]
100	- 96 [cm³/rev]
120	- 120 [cm³/rev]
145	- 144 [cm³/rev]
170	- 167 [cm³/rev]
195	- 191 [cm³/rev]
245	- 240 [cm³/rev]
295	- 287 [cm³/rev]
340	- 344 [cm³/rev]
390	- 382 [cm³/rev]

Pos.2 - Versions

1	- Version 1 *"Open Center - Load Reaction"*
2	- Version 2 *"Open Center - Non Load Reaction"*

Pos.3 - Relief Valve Pressure Settings, bar

80	
100	
125	
150	
0	- without Relief Valve

Pos.4 - Shaft Extension

omit - Standard driving shaft for connection to the steering column

A - Driving shaft for direct connection to the steering wheel

Pos.5 - Option (Paint)*

omit - No Paint

P	- Painted
PC	- Corrosion Protected Paint

Pos.6 - Design Series

omit - Factory specified

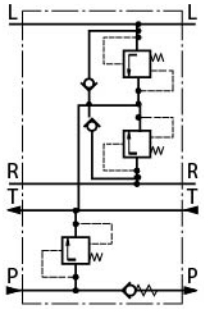
NOTES:

* Colour at customer's request.

The steering units are mangano-phosphatized as standard.

VALVE BLOCKS FOR OH TYPE BH...

The Hydraulic BH valves are developed to protect the components of the hydraulic circuit: pumps, steering units and cylinders - from overloads, impacts and cavitation. Some of their advantages are: easy integration into any hydraulic circuit, easy mounting to the steering unit, and quick and easy hose connections. Depending on the design and the built in valves the BH valves can be divided into 2 types: BH1 and BHR. The maximum flow rate is in in compliance with the whole range of OH and OX steering units but no more than 80l/min. The pressure settings for the entry relief valves and the shock valves are given in the table.



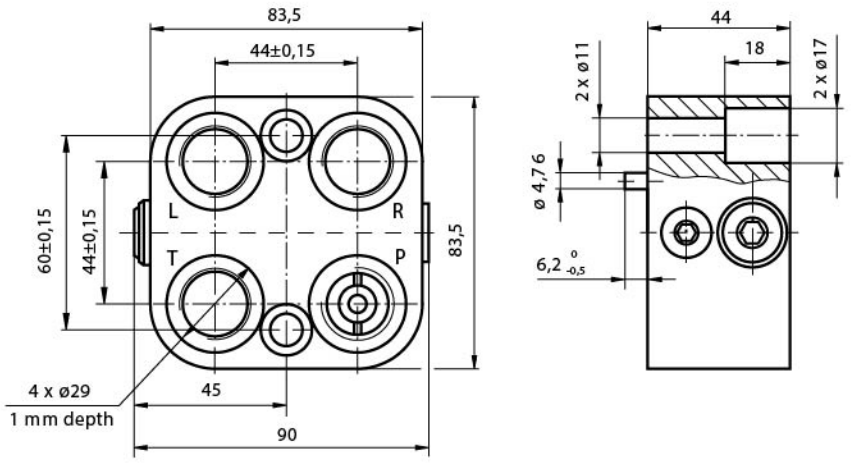
BH1, BHR

SPECIFICATION DATA

Parameters		Type			
		BH1, BHR			
Rated Flow	[l/min]	80			
Rated Pressure	[bar]	160			
Relief Valve Pressure Settings*	[bar]	80	100	125	150
Shock Valves Pressure Settings**	[bar]	140	160	180	200
Weight, avg.	[kg]	1,8 ; 2,3			

* Pressure Settings are at flow rate of 30 l/min and viscosity 21 mm^2 /s (50° C).
**Pressure Settings are at flow rate of 2 l/min and viscosity 21 mm^2 /s (50°C).

DIMENSIONS AND MOUNTING DATA - BH1



Code	Ports-P,T,R,L Thread
-	G1/2 20 mm depth
A	3/4 - 16 UNF O-ring 20 mm depth
M	M22x1,5 20 mm depth

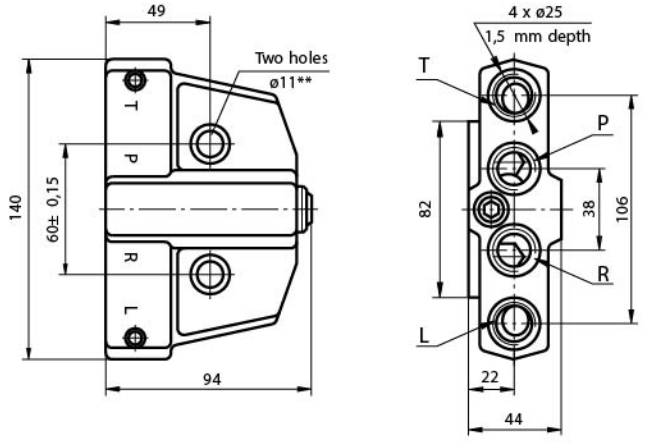
Connection to the OH is done with 2 screws M10x1x40-8.8 DIN 912
or with 2 screws 3/8-24 ANSI B18.3-76; UNF 37,5 mm long.
Tightening torque: 2,5±0,5 daNm

DIMENSIONS AND MOUNTING DATA - BHR

** Connection to the OH is done with 2 screws M10x1x40-8.8 DIN 912 or with 2 screws 3/8-24 UNF ANSI B18.3-76; 37,5 mm long.

Tightening torque: 2,5±0,5 daNm

code	Ports-P,T,R,L Thread
A	3/4 - 16 UNF O-ring 22 mm depth
M	M18x1,5 22 mm depth



ORDER CODE

	1		2		3	4	5
B H		-		-			

Pos.1 - Versions*

R
1

with built-in valves:

-Input relief valve on line "**P**".

-Input check (non-return) valve on line "P".

-Shock valves on lines "R" and "L".

-Anti-cavitation valves on lines "R" and "L".

Pos.2 - Relief Valve Pressure Settings, bar**

80	100	125	150

Pos.3 - Ports

omit - BSPP (ISO 228)

A - SAE (ANSI B 1.1 - 1982)

M - Metric (ISO 262)

Pos.4 - Option (Paint)**

omit - No Paint

P - Painted

PC - Corrosion Protected Paint

Pos.5 - Design Series

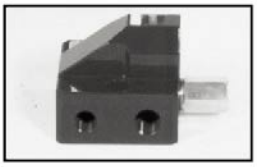
omit - Factory specified

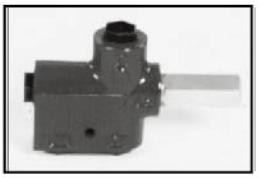
NOTES: * Versions **R,1**- for OH.

** The colour is by customer's request.

The valve blocks are mangano-phosphatized as standard.

PRIORITY VALVES FOR OH/4 AND OH/3 TYPE LS...



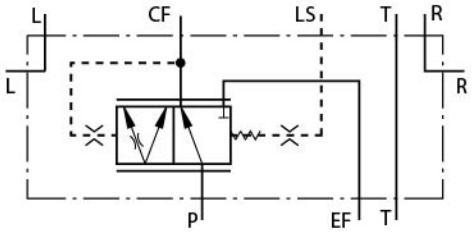


The Priority Valves distribute and trace the hydraulic flow from the supply pump of the hydraulic system to the hydraulic components which control and run the vehicle.

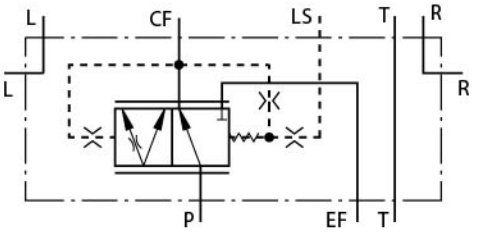
The Priority Valves are used only with the OH/4-OH/4E-OH/3-OH/3E hydrostatic steering units. When connected, the steering unit and the priority valve represent sophisticated hydraulic tracing system that controls the flow in both main pipelines of the hydraulic system (the working and control one) at any time of its operation.

As a static signal, the "LS" signal must be used in systems with circuit stability. The connection between the LS priority valves and the OH/3-OH/3E steering units has to be as short as possible, but should not exceed 1,5m (for iron pipe with ø4 internal diameter). When a rubber hose is used this length have to be even shorter.

Modulary Mounting

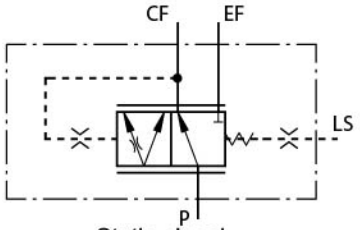


Static signal
LSSA.../40,80...

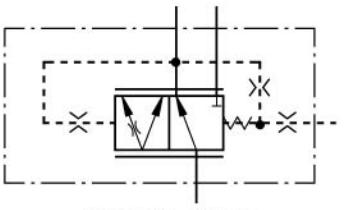


Dinamic signal
LSA.../40,80...

Pipe Mounting

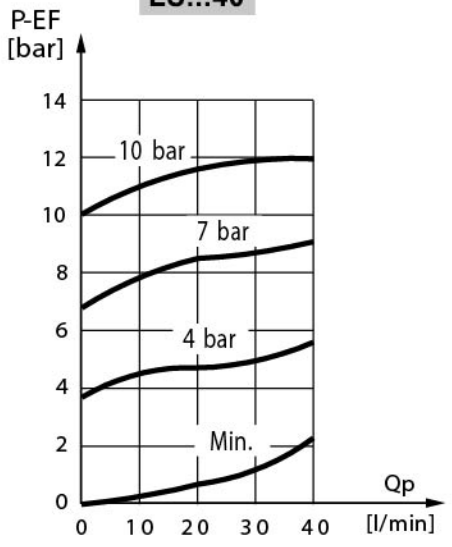


Static signal
LSS.../40,80...

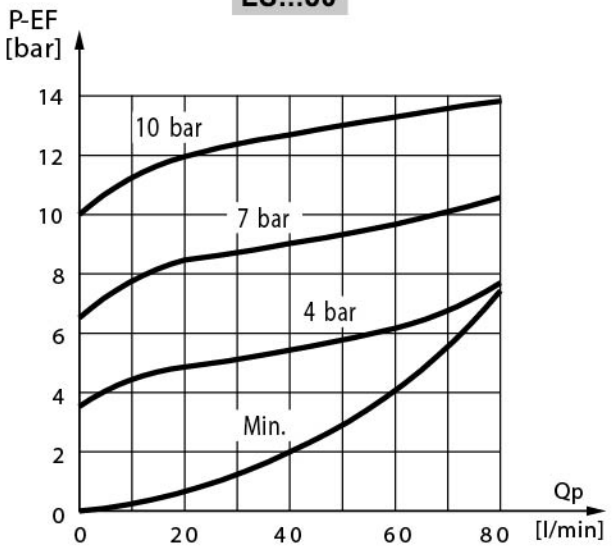


Dinamic signal
LS.../40,80...

LS...40



LS...80

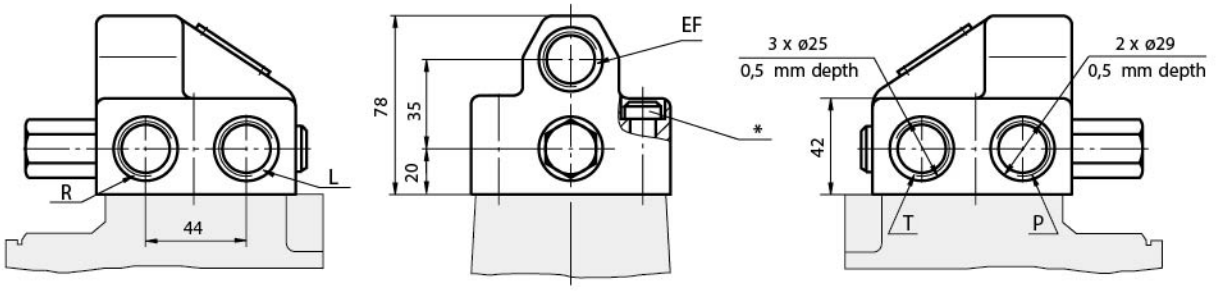


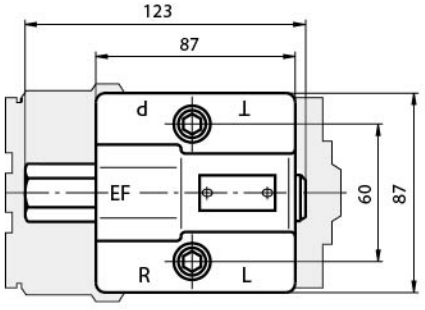
SPECIFICATION DATA

Parameters		Type					
		LS(S)A			LS(S)		
Rated Flow	[l/min]	40; 80					
Control Spring Pressure	[bar]	4	7	10	4	7	10
Max. Pressures in Oil Ports: P,EF,R,L		250					
[bar]	CF	175					
	T	15					
Weight, avg.	[kg]	2,7			1,2		

P - pump, EF - excess flow, CF - control flow (first priority oil flow),
L - left, R - right, LS - load sensing, T - tank

DIMENSIONS AND MOUNTING DATA - LS(S)A/40,80

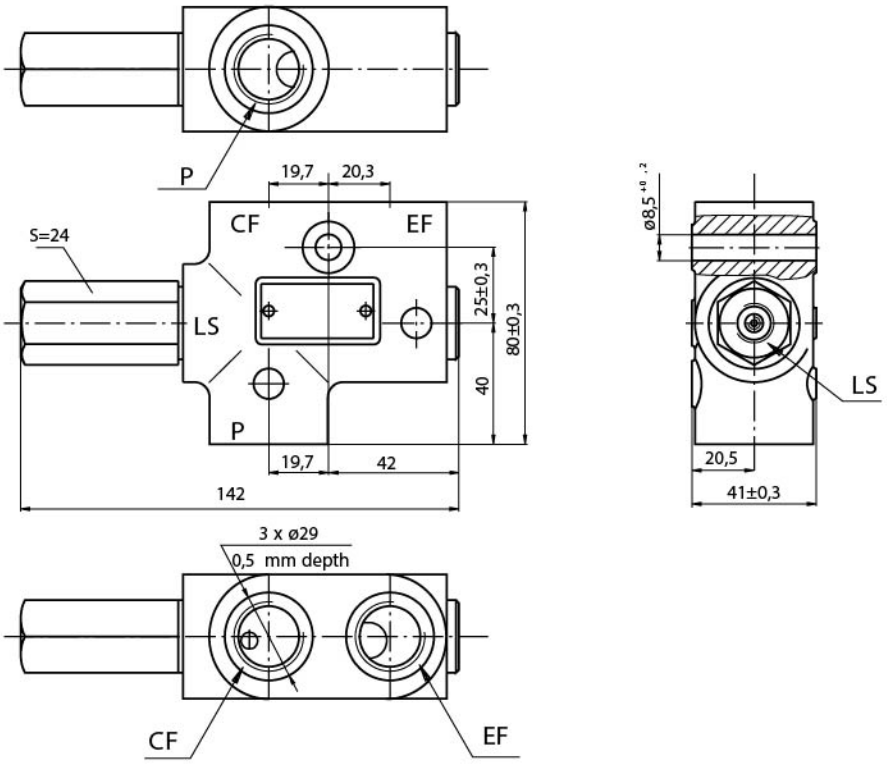




code	Ports-P,EF Thread	Ports-T,R,L Thread
A	7/8 - 14 UNF O-ring 18 mm depth	3/4 - 16 UNF O-ring 18 mm depth
-	G1/2 18 mm depth	G3/8 18 mm depth
M	M22x1,5 18 mm depth	M18x1,5 18 mm depth

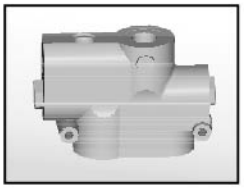
* Connection to the OH/4... is done with 2 screws M10x1x45-10.9 DIN 912 or with 2 screws 3/8-24 UNF ANSI B18.3-76; 44,5 mm long.
Tightening torque: 4,5±0,5 daNm.

DIMENSIONS AND MOUNTING DATA - LS(S)/40,80

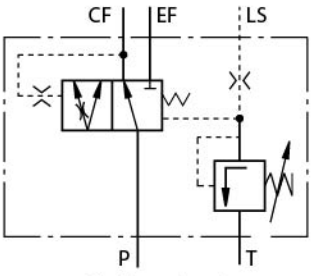


code	Ports-P,EF Thread	Port-CF Thread	LS-Port
-	G1/2 18 mm depth	G1/2 18 mm depth	G1/4 14 mm depth
A	7/8 - 14 UNF O-ring 18 mm depth	3/4 - 16 UNF O-ring 18 mm depth	7/16 - 20 UNF O-ring 12,7 mm depth
M	M22x1,5 18 mm depth	M22x1,5 18 mm depth	G1/4 14 mm depth

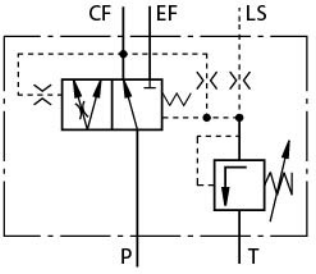
PRIORITY VALVES FOR OH/3... TYPE LS.../160



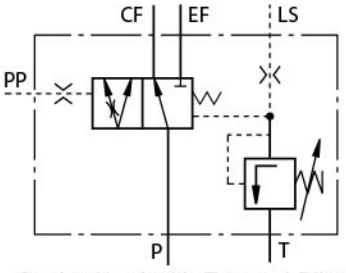
The Priority Valves LS.../160 have a built-in pilot pressure relief valve, who protects the steering unit against excess pressure. The pilot pressure relief valve operates with the Shuttle of the Priority valve to limit the maximum steering pressure P-T measured across the steering units ports.



Static signal
LSS.../160...



Dinamic signal
LS.../160...



Static signal with External Pilot
LSSE.../160...

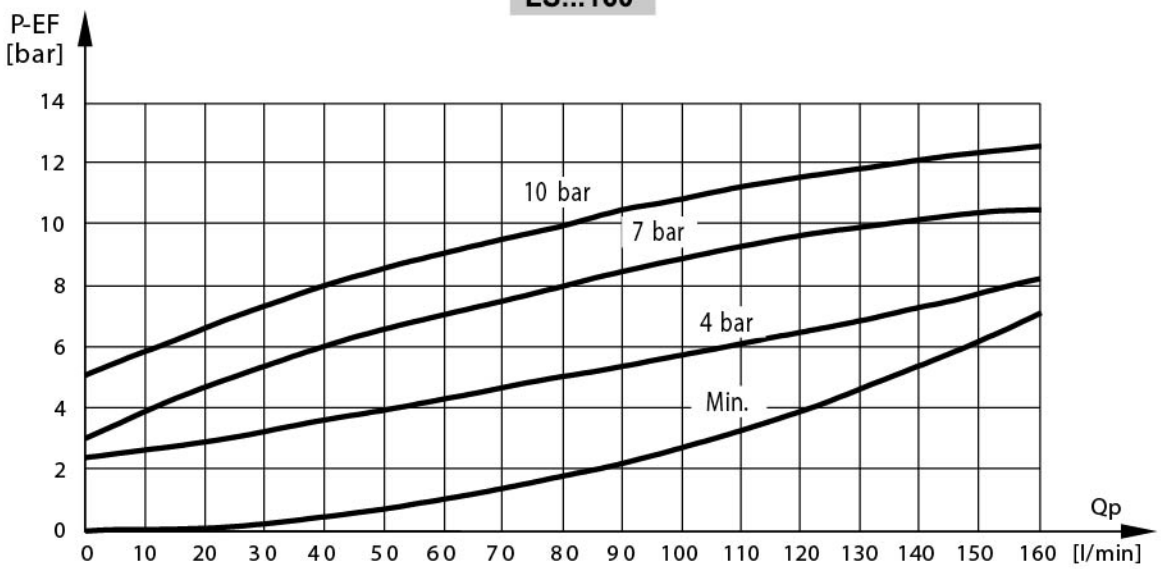
SPECIFICATION DATA

Parameters		Type LS(S),(E)		
Rated Flow [l/min]		160		
Control Spring Pressure [bar]		4	7	10
Max. Pressures in Oil Ports: [bar]	P, EF, R, L	250		
	CF	210		
	T	15		
	PP	210		
Standart Relief Valve Pressure Settings [bar]		175*		
Weight, avg. [kg]		4,4		

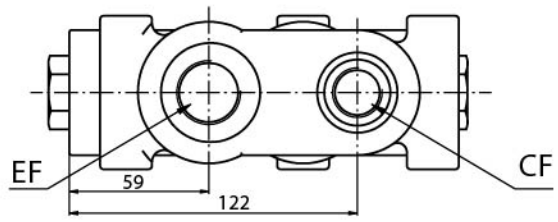
* - Adjusted valve pressure from 80 till 210 bar upon customer request.

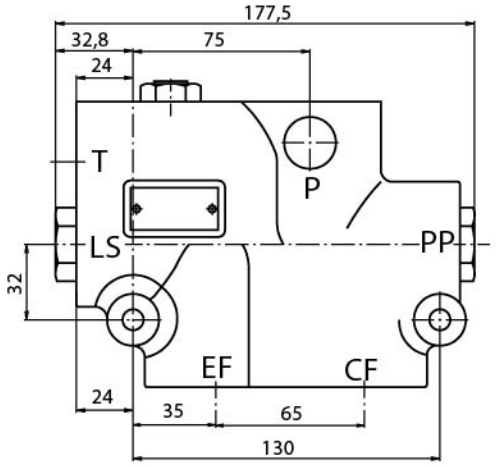
P - pump, **EF** - excess flow, **CF** - control flow (first priority oil flow),
L - left, **R** - right, **LS** - load sensing, **T** - tank, **PP** - pilot pressure

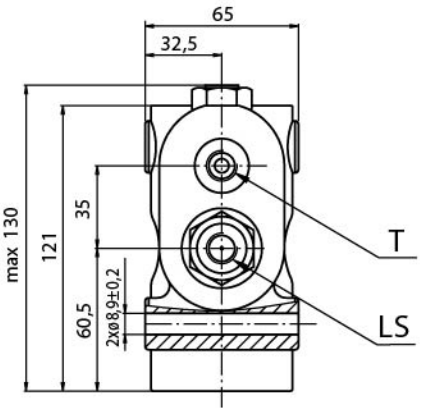
LS...160

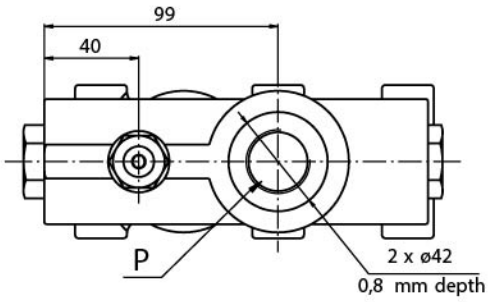


DIMENSIONS AND MOUNTING DATA - LS(S)(E)/160









code	Ports-P,EF Thread	Port-CF Thread	LS, PP, T - Ports
-	G3/4 20,5 mm depth	G1/2 18,5 mm depth	G1/4 12,5 mm depth
A	1 1/16 - 12 UN O-ring 20,5 mm depth	3/4 - 16 UNF O-ring 18,5 mm depth	7/16 - 20 UNF O-ring 12,5 mm depth
M	M27x2 20,5 mm depth	M18x1,5 18,5 mm depth	M12x1,5 12,5 mm depth

ORDER CODE

	1	2	3		4		5	6	7
L S				/		-			

Pos.1 - Signal Type

S - with Static signal

omit - with Dinamic signal

Pos.2 - Mounting

omit - Pipe Mounting for OH/3

A - Modularly Mounting for OH/4

Pos.3 - Rated Flow, l/min

40 | 80

Pos.4 - Control Spring Pressure , bar

4 | 7 | 10

Pos.5 - Ports

omit - BSPP (ISO 228)

A - SAE (ANSI B 1.1 - 1982)

M - Metric (ISO 262)

Pos.6 - Option (Paint)*

omit - No Paint

P - Painted

PC - Corrosion Protected Paint

Pos.7 - Design Series

omit - Factory specified

NOTES: * Colour at customer's request.

The priority valves are mangano-phosphatized as standard.

ORDER CODE

	1		2	3		4	5	6
L S		/			-			

Pos.1 - Signal Type

omit - with Dinamic signal

S - with Static signal

E - with Static signal with External Pilot

Pos.2 - Rated Flow, l/min

160

Pos.3 - Control Spring Pressure , bar

4 | 7 | 10

Pos.4 - Ports

omit - BSPP (ISO 228)

A - SAE (ANSI B 1.1 - 1982)

M - Metric (ISO 262)

Pos.5 - Option (Paint)*

omit - No Paint

P - Painted

PC - Corrosion Protected Paint

Pos.6 - Design Series

omit - Factory specified

NOTES: * Colour at customer's request.

The priority valves are mangano-phosphatized as standard.

TORQUE AMPLIFIERS TYPE UVM... - Series 2

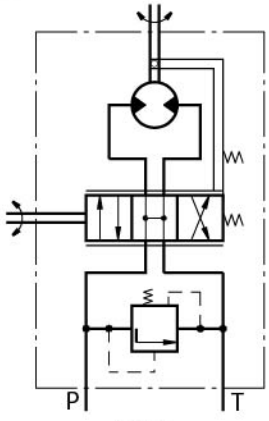
The Hydraulic UVM Torque Amplifiers amplify the applied torque to the control shaft and thus ease the running of various transport vehicles such as:

- agricultural and wood working machines;
- road rollers and road cleaning machines;
- fork-lift trucks and construction machinery;

The totally transferred power in terms of output torque is up to 1,1 kW.

The UVM torque amplifiers with their simple design, consisted of a pump and an amplifier, ensure 40 times higher output torque than the applied one. The amplifying is achieved as follows; by rotating the input shaft to the left or right the spool and the bushing are displaced, and the hydraulic flow enters the system turning the gerotor set, which transfers the already amplified torque to the output shaft.

One advantage of the UVM torque amplifier is that it allows manual steering in cases of engine (pump) failure.



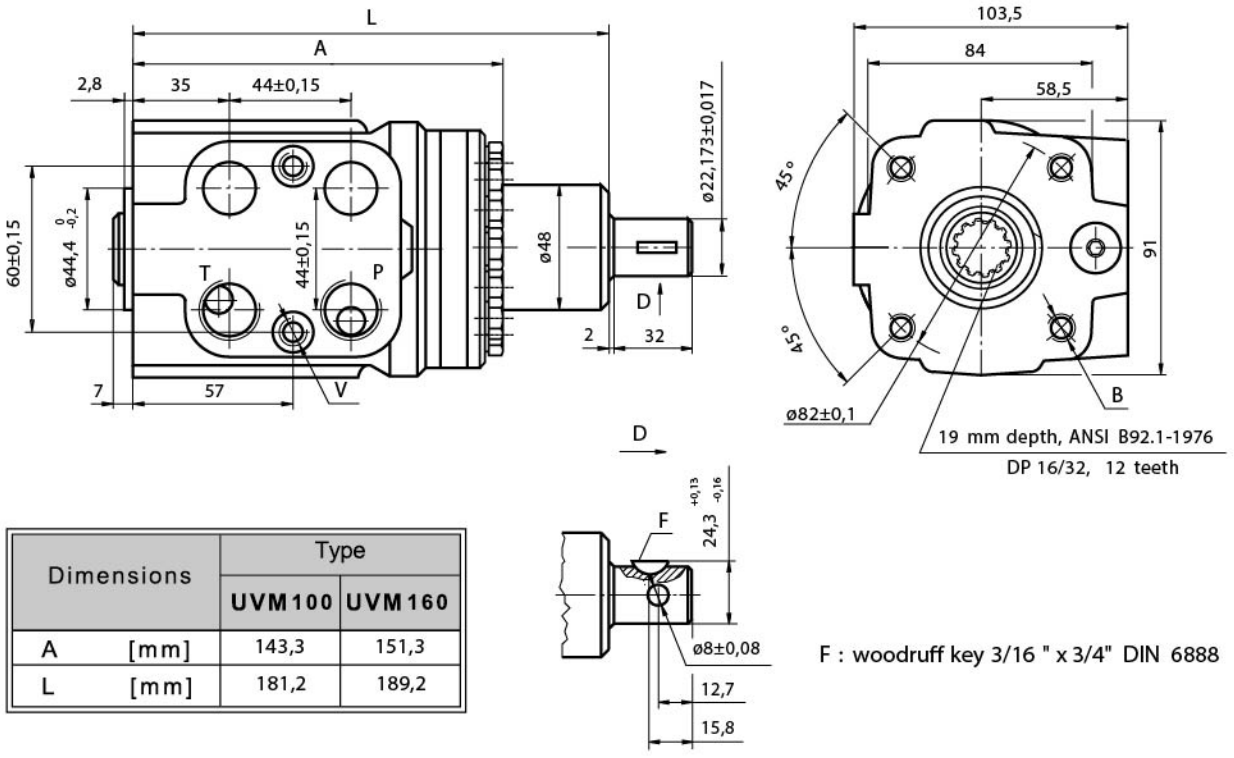
UVM...

SPECIFICATION DATA

Parameters		Type	
		UVM 100	**UVM** 160
Displacement	[cm^3/rev]	99,0	158,4
Rated Flow	[l/min]	10	16
Rated Pressure*	[bar]	70	70
Input Torque	[Nm]	3,5...5	3,5...5
Max. Input Torque	[Nm]	20	20
Torque Output at 70 bar.	[Nm]	80	120
Pressure Drop between P and T at Rated Flow,	[bar]	1 ... 2	1,6...2,5
Max. Speed of Rotation at Rated Flow and Pressure	[r/min]	100	100
Max. Continuous Pressure in Line T	[bar]	20	20
Weight, avg.	[kg]	5,8	6,2

* Pressure Settings are at Rated Flow (as in the table) and viscosity 21 mm^2/s (50°C).

DIMENSIONS AND MOUNTING DATA



Dimensions		Type	
		UVM100	UVM160
A	[mm]	143,3	151,3
L	[mm]	181,2	189,2

F : woodruff key 3/16 " x 3/4" DIN 6888

code	Ports-P,T Thread	Column Mounting Thread - B	Port Mounting Thread - V
-	G1/2 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth
A	3/4 - 16 UNF O-ring 17 mm depth	4 x 3/8 - 16 UNC 15,7 mm depth	2 x 3/8 - 24 UNF 14,2 mm depth
M	M22x1,5 17 mm depth	4 x M10 18 mm depth	2 x M10x1 16 mm depth

ORDER CODE

	1	2	3	4
U V M				

Pos.1 - Displacement code

100	- 99,0 [cm³/rev]
160	- 158,4 [cm³/rev]

Pos.2 - Ports

omit - BSPP (ISO 228)

A	- SAE (ANSI B 1.1 - 1982)
M	- Metric (ISO 262)

Pos.3 - Option (Paint)*

omit - No Paint

P	- Painted
PC	- Corrosion Protected Paint

Pos.4 - Design Series

omit - Factory specified

NOTES:

* Colour at customer's request.

The steering units are mangano-phosphatized as standard.

STEERING COLUMNS TYPE CSF... - CSC...

The Hydraulic CSF-CSC Steering Columns transfer the torque from the steering wheel of the vehicle to the OH,OH/1 or other of the same class steering units. The CSF-CSC steering columns are consisted of a pipe in which is centred the control shaft.

MOUNTING

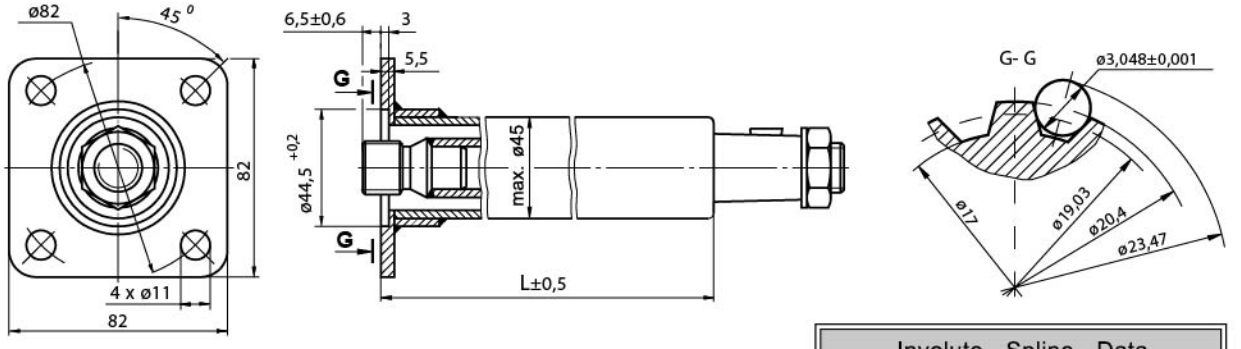
The CSF-CSC steering column is hard-mounted to the steering unit by its welded flange using four screws M10 at minimal depth 10 mm fitted in the steering unit with tightening torque of 2 daNm.

Permissible loads on the steering column are as follows:

Max. torque applied to the steering wheel	24 daNm
Max. bending moment	20 daNm
Max. axial load	100 daN

The steering column must be additionally supported when the length L exceeds 150 mm.

DIMENSIONS AND MOUNTING DATA TYPE CSF



Involute Spline Data		
Modul	m	1,5875
Number of Teeth	z	12
Pressure Angle	α	30°
Pitch	p_t	4,986

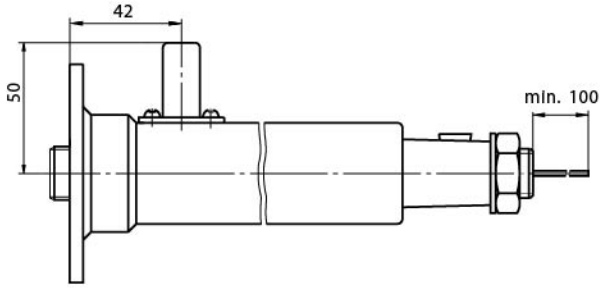
SPECIFICATION DATA

Parameters	Type				
	CSF 75	CSF 150	CSF 400	CSF 715	CSF 775
L [mm]	75	150	400	715	775
Weight, avd [kg]	0,7	1,0	1,5	2,3	2,5

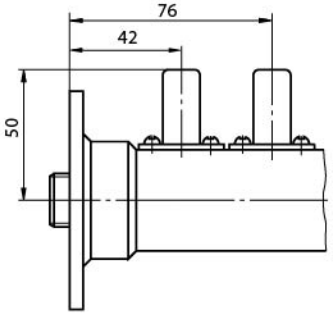
Please, contact factory or your regional manager regarding other lenghts

SOUND SIGNAL CONNECTION - TYPE CSC

1 Option

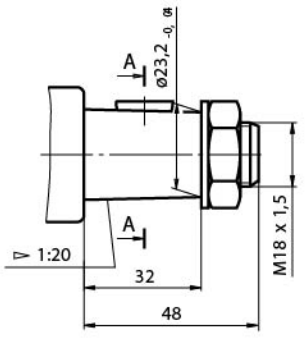


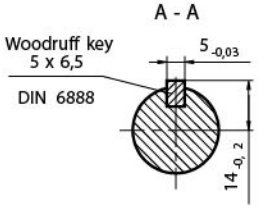
2 Option



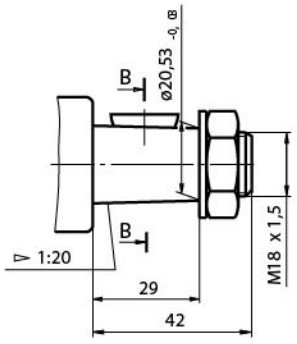
SHAFT EXTENSIONS

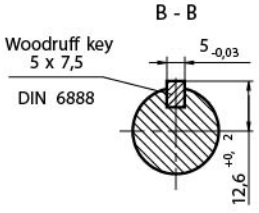
TYPE 1



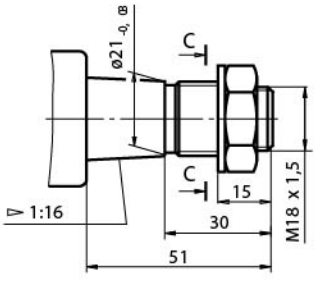


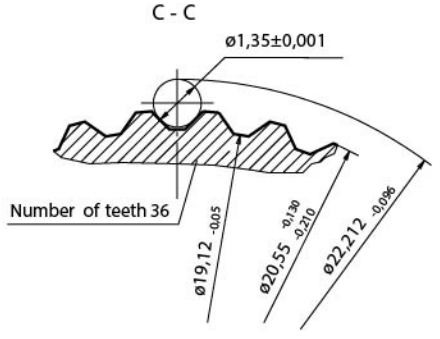
TYPE 2



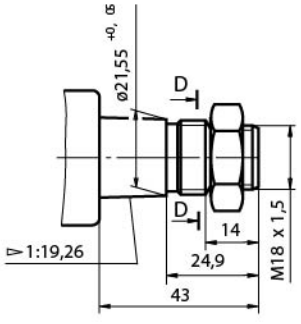


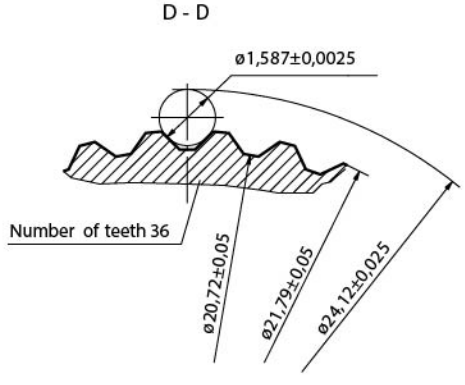
TYPE 3



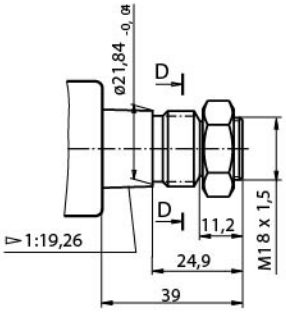


TYPE 4



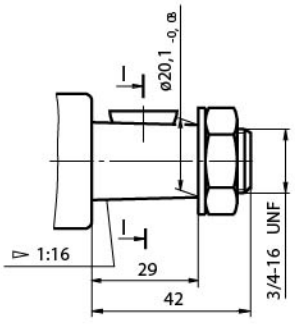


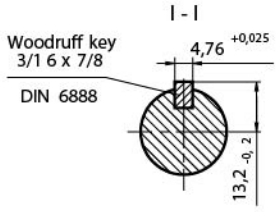
TYPE 5



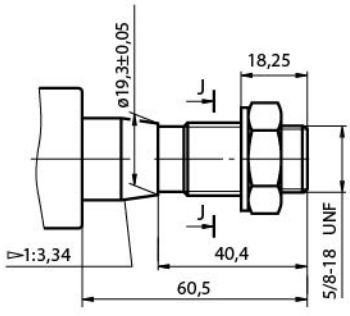
SHAFT EXTENSIONS

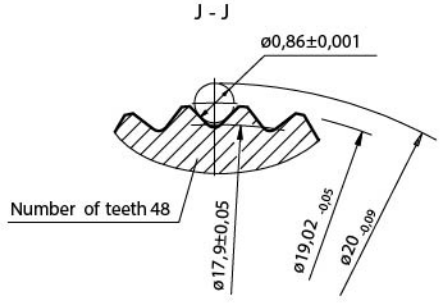
TYPE 6





TYPE 7





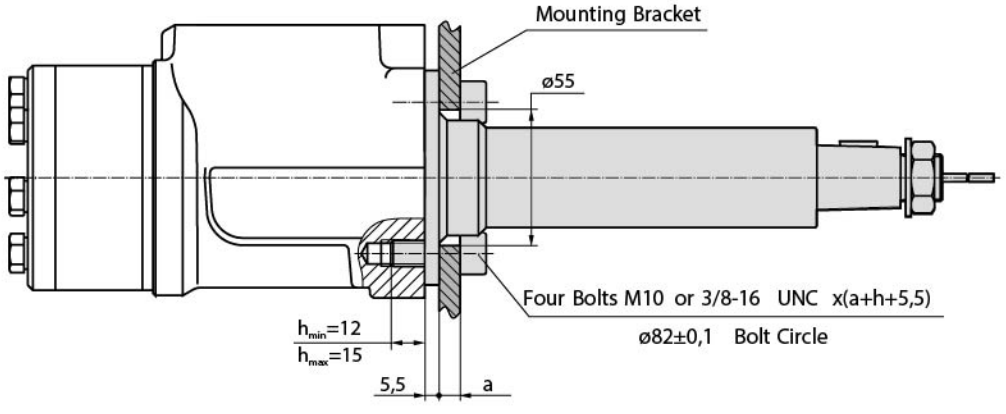
INSTALLING

For assembling the Steering column to the Steerin units must use:

For OH.../... and OH.../...M - four bolts M10

For OH.../...A - four bolts 3/8-16 UNC

Tightening torque for bolts 3±0,5 daNm



ORDER CODE

	1	2	3	4
C S F			1	

Pos.1 - External shaft dimension

Pos.2 - **Shaft Extensions**

1, 2, 3, 4, 5, 6 and 7

Pos.3 - **Design Series**

1 - Factory specified

Pos.4 - **Lenght, mm (according to table)**

NOTES:

* Colour at customer's request.

The steering columns are yelow galvanized as standard.

ORDER CODE

	1	2	3	4	5
C S C			1		

Pos.1 - External shaft dimension

Pos.2 - **Shaft Extensions**

1, 2, 3, 4, 5, 6 and 7

Pos.3 - **Design Series**

1 - Factory specified

Pos.4 - **Signal Connection** (Option)

1 - with one electric signal connection

2 - with two electric signal connection

Pos.5 - **Lenght, mm** (according to table)

NOTES:

* Colour at customer's request.

The steering columns are yelow galvanized as standard.

APPLICATION

(SIZING AND STEERING SYSTEM DESIGN PROCESS)

STEP ONE:

Calculate approximate kingpin torque (M_L).

$$M_L = G \cdot \mu \sqrt{\frac{B^2}{8} + l^2}$$

Note: Double M_L if steered wheels are powered.

M_L = Kingpintorque in [daNm].

G = Vehicle weight on steered axle in [daN] (use maximum estimated overload weight).

μ = Coefficient of friction (use Chart No 1, dimensionless) determined by l /B (see Diagram No 1).

B=Nominal width of tyre print [m] (seeDiagram No 1).

l = Kingpin offset. The distance between tyre centerline intersection at ground and kingpins centerline intersection at ground in [m] (see Diagram No 1).

Chart No 1

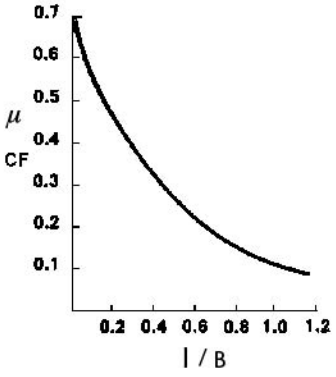


Diagram No **1**

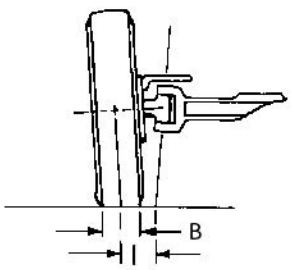
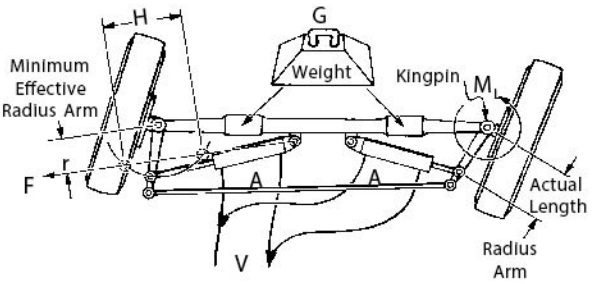


Diagram No **2**



STEP TWO:

Calculate approximate cylinder; force-area-stroke-volume.

FORCE $F = \frac{M_L}{r}$

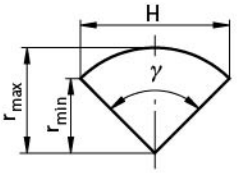
F = Force required [daN] to steer axle.

M_L= Kingpin torque in [daNm] from step one. Double M_L if steered wheels are powered.

r = Effective radius Arm [mm] is the minimum distance from the centerline of the cylinders minimum and maximum stroke points parallel to the kingpin center pivot. This is not the physical length of the radius Arm (see Diagram No 2 and Chart No 2).

Chart No 2

$$r_{min} = r_{max} \cdot \cos \frac{\gamma}{2}$$



STROKE

H = Stroke [cm].

Calculate stroke of cylinder using Diagram No 2 and Chart No 2 as shavt.

$$H = 2\, r_{max} \cdot \sin \frac{\gamma}{2}$$

AREA $A = \frac{F}{\Delta P}$

A = Cylinder area for axle cylinder set [cm^2].

F = Force required from step twoforce formula [daN].

ΔP = Hydraulic pressure [bar] use following percentage of relief valve setting by amount of load on steered axle. Severe load 25% - medium load 55% - no load 75% .

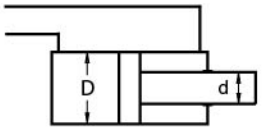
DIAMETER

After the cylinder set area is determined, the cylinder diameter can be calculated.

D = Inside diameter of cylinder [cm].
d = Road diameter of cylinder [cm].

Choose type of cylinder arrangement and formula shown for that type.

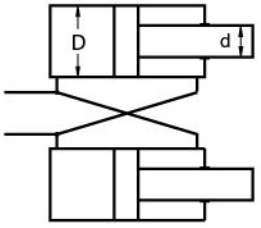
Differential Cylinder



$$D = \sqrt{\frac{4A}{\pi} + d^2}$$

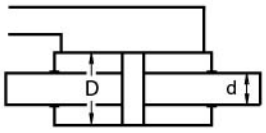
Note: $\left(\frac{d}{D}\right)^2 \leq 0{,}15$

Cross Connected Cylinders



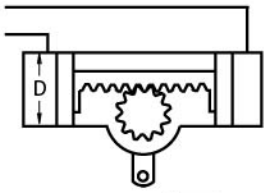
$$D = \sqrt{\frac{2A}{\pi} + \frac{d^2}{2}}$$

Balanced Cylinder



$$D = \sqrt{\frac{4A}{\pi} + d^2}$$

Opposed Cylinder



$$D = \sqrt{\frac{4A}{\pi}}$$

VOLUME $V = H \cdot A$

V = Volume. The total amount of oil required to move the cylinder rod(s) through the entire stroke [cm^3].
H = Stroke [cm].
A = Area [cm^2].
Note: For differential cylinders it is important to calculate average cylinder volume for step three using below formula.

$$V_{avg} = H \cdot \frac{\pi}{4}\left(D^2 - \frac{d^2}{2}\right)$$

STEP THREE:

Selecting displacement of hydrostatic steering unit.

At this point determine number of steering wheel revolutions desired for your application to steer the wheels from one side to the other (lock to lock). Depending on the type of vehicle and its use, this will vary from 3 to 5 turns.

DISPLACEMENT $V_D = \frac{V}{n}$

V_D= Displacement [cm^3] per rev.
V = Volume of oil [cm^3].
n = Steering wheel turns lock to lock.

After completing the above displacement calculation, choose the closest standard hydrostatic steering unit in displacement size that incorporates circuitry you require.
Recalculate the number of steering wheel turns using the displacement of selected standard hydrostatic steering unit outlined above. Use the formula shown below.

$$n = \frac{V}{V_D}$$

V = Volume of oil [cm^3].
n = Steering wheel turns lock to lock.
Note: For differential cylinders applications the cylinder volume will be different for left and right turns - this means the value n (steering wheel turns lock to lock) will vary when turning to the left or right.

STEP FOUR:

Calculate approximate minimum and maximum steering circuit flow requirements.

$$Q = \frac{V_D \cdot N}{\text{Unit Conversion for Imperial or [1000] Metric}}$$

Q = Steering circuit flow [l/min].
V_D= Unit displacement [cm^2] per rev.
N = Steering wheel input speed [rpm] (min^{-1}).
Recommended steering speed is 50 to 100 rpm.

Many variables are involved in sizing the pump. We suggest that the manufacturer test and evaluate for desired performance.

GENERAL INFORMATION

FLUID DATA:

To insure maximum performance and life of the Hydrostatic steering units, use premium quality hydraulic oils. Fluids with effective quantities of anti-wear agents or additives are highly recommended. If using synthetic fluids consult the factory for alternative seal materials.

- **Viscosity**

Viscosity at normal operating temperature should be approx. 20 mm²/s. Viscosity range 10 - 300 mm²/s.

- **Temperature**

Normal operating temperature range from +30 °C to+60 °C.
Minimum operating temperature -40°C.
Maximum operating temperature +80°C.
Note: Extended periods of operation at temperature of 60°C and above will greatly reduce life of oil due to oxidation and shorten life of product.

- **Filtration**

The maximum degree of contamination per ISO 4406 or CETOP RP is:
-20/17 open center units
-19/16 closed center and load sensing
-16/12 priority valves
Return line filtration of 25 μm nominal (40 - 50 μm absolute) or finer is recommended.
In extremely dusty conditions filtration of 10 μm absolute should be used.

START UP

All air must be purged from system before operating unit. It is extremely important that any external lines or units with load sensing or priority feature be completely bled. Lines going to and from cylinders as well as lines to and from pump be purged of all air. It is recommended that a 10 - 15 mm filter be used between pump and steering unit before start up.

MOUNTING UNITS

All hydrostatic steering units should be installed for ease of access. It is recommended that the steering unit be located outside the vehicle cabin.
It is important that no radial axial load be applied to the hydrostatic steering unit input shaft. Any or all radial and axial loads must be absorbed by the steering column or other operating device supplied by the vehicle manufacture.
Ports on the steering cylinder(s) should face upward to prevent damage.
During installation of the hydrostatic steering unit, cleanliness is of the utmost importance. Pipe plugs should be left in place during mounting and only removed when hydraulic lines are to be connected.

TORQUE TIGHTENING VALUES

Fluid connections

Fluid connection	Max. tightening torque daNm			
	metal edge	copper washer	aluminum washer	O - ring
7/16 - 20 UNF				2
9/16 - 18 UNF				5
3/4 - 16 UNF				6
7/8 - 14 UNF				7
G 1/4	4	2	3	
G 3/8	6	2	5	
G 1/2	10	3	8	
G 3/4	16	5	13	
M 10 x 1	4	2	3	
M 18 x 1,5	7	2	5	
M 22 x 1,5	10	3	8	

Mounting bolts

Mounting bolts	Tightening torque daNm
3/8 - 16 UNC	3,0 ± 0,5
M 10 x 1	6,5 ± 0,5
M 10	3,0 ± 0,5

HYDRAULIC ROTATORS

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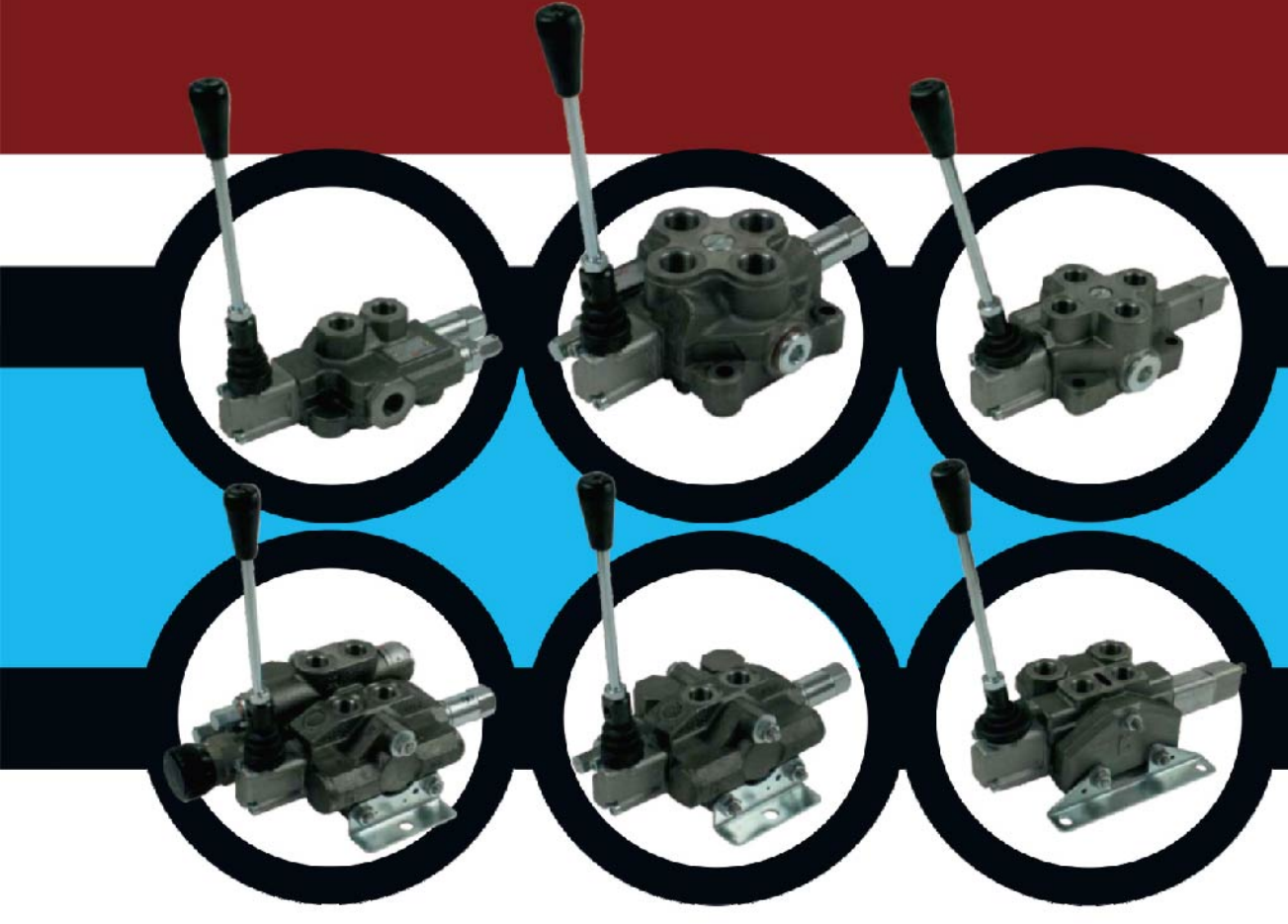
COUPLINGS

HOSE-REEL VALVE

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