



Pompy zębate
o zazębieniu zewnętrznym
w wersji cichej

Contents

General data, technical features, working conditions	Page 2
Filtration, formulae, flow measurement & noise	Page 3
Model coding	Page 4
Installation data, flange port types	Page 5
Threaded port types, drive shafts	Page 6
Mounting flanges	Page 7
Rear covers	Page 8
Rear cover valves	Page 9/10
Multiple pumps	Page 11

GENERAL

HY20L gear pumps are low noise units with phased gears.

Available as Group 2 giving displacements from 5cm³/rev to 22.5cm³/rev (from 0.30 cu.in/rev to 1.37 cu.in/rev).

All pumps are available also as multiple units.

With all sizes of pumps there are options of shafts, flanges and ports as per European, German and SAE standards.

TECHNICAL FEATURES

- High volumetric efficiency by innovative design and accurate control of machining tolerances
- Axial compensation is achieved by the use floating bushes that allow high volumetric efficiency throughout the pressure range
- Plain bearings ensure high pressure capability
- 12 teeth integral gear and shaft
- Extruded aluminium body
- High strength end cover and flange
- Double shaft seals
- Nitrile seals as standard and viton seals in high temperature applications

All pumps are tested after assembly and run in to ensure the high standard.

WORKING CONDITIONS

- Inlet pressure pump.....0.7 to 2.5 bar (abs)
10 to 35 psi (abs)
- Minimum viscosity12mm³/sec
- Max starting viscosity800mm²/sec
- Viscosity from.....17 - 65mm²/sec
- Oil temperature.....-15 to +85 °C
- Hydraulic fluidmineral oil

For any other information not listed please contact your Hydreco representative.

HY20L Series

FILTRATION RECOMMENDATION

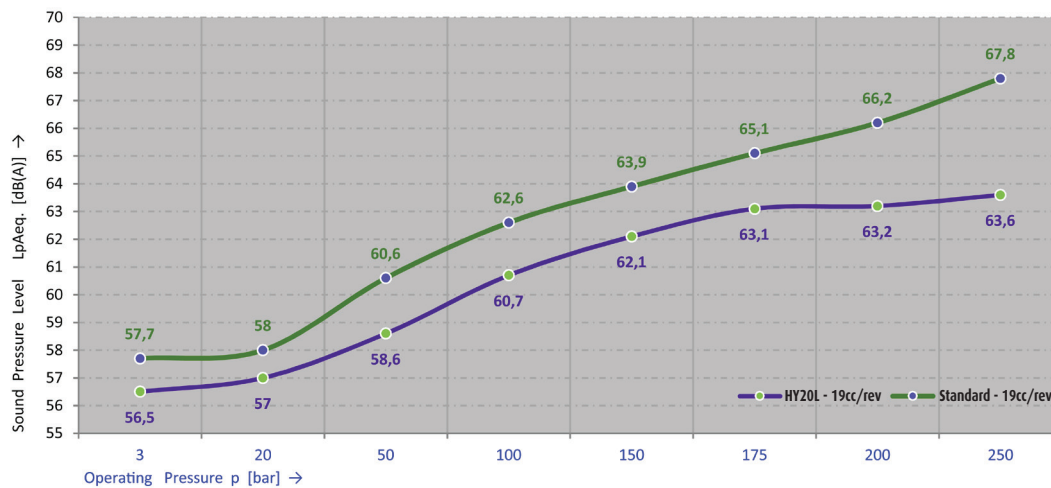
Working Pressure	> 200 bar/2900 psi	< 200 bar/2900 psi
Contamination class NAS 1638	9	10
Contamination class ISO 4406	18/15	19/16
Achieved with filter $\beta_x = 75$	15 μ m	25 μ m

COMMON FORMULAS

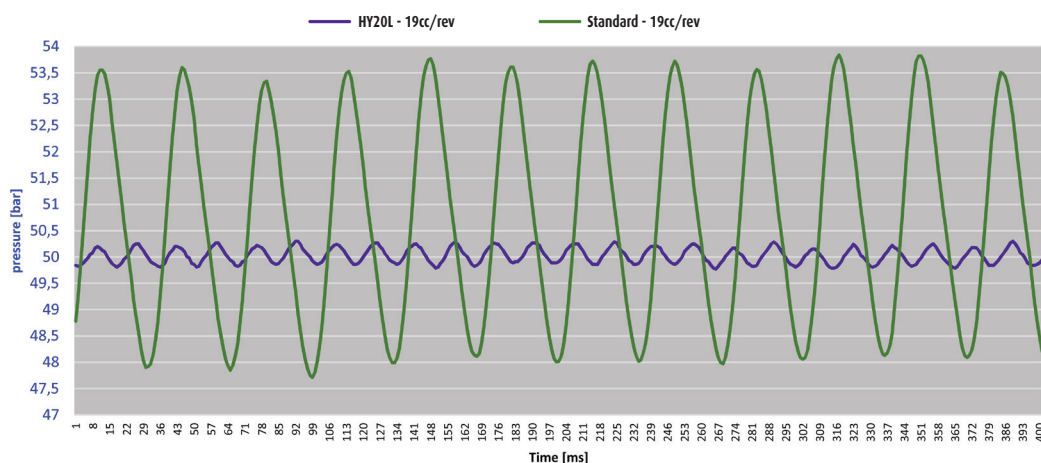
$$C = \text{Input torque} = \frac{q \cdot \Delta p}{62.8 \cdot \eta_m} \text{ (Nm)} \quad P = \text{Input Power} = \frac{q \cdot n \cdot \Delta p \cdot 10^{-3}}{600 \eta_m} \text{ (kW)} \quad O = \text{Outlet flow} = \frac{q \cdot n \cdot \eta_v}{1000} \text{ (l/min)}$$

Δp = Working pressure (bar) q = Displacement (cm³/rev) n = Speed (min⁻¹) η_m = Mechanical eff. (0.92) η_v = Volumetric eff. (0.95)

NOISE MEASUREMENT



PRESSURE RIPPLE



Test Conditions:
 Hydraulic Mineral Oil: ISO VG 32
 Test Temperature: 40 °C
 Viscosity: 30 cSt
 Speed: 1500 rpm
 Operating Pressure: 3 to 250 bar
 Background Noise: 32 dB (A)

MODEL CODING

Model	Displacement	Ports	Shaft	Flange	Seals	Valves	Flow	RV Setting	Rotation
HY20L							For rear cover valves only		

Type	Displacement	
5	5 cm ³ /rev.	0.30 cu.in/rev
8	8 cm ³ /rev.	0.49 cu.in/rev
11	10.9 cm ³ /rev.	0.66 cu.in/rev
14	13.9 cm ³ /rev.	0.85 cu.in/rev
16	16 cm ³ /rev.	0.98 cu.in/rev
19	19 cm ³ /rev.	1.16 cu.in/rev
22.5	22.5 cm ³ /rev.	1.37 cu.in/rev

Include both displacements for double pumps e.g. 11/8

Rotation	Code
Clockwise	C
Anti-Clockwise	A

Ports	Code
Flanged ports European standard	P
Flanged ports German standard	B
SAE Threaded ports (ODT)	R
BSP Threaded ports	G

Drive Shaft	Code	Volume Quantities Only
Tang drive for electric motors	03	
Tapered 1:5	25	
Tapered shaft 1:8	28	
SAE A splined 9 T	52	
SAE A splined 11 T	54	
SAE A Parallel shaft Ø15,87	82	
SAE A Parallel shaft Ø19,05	85	

Valve in the Cover	Code
Adjustable main relief valve	VS
Fixed setting main relief	VSF
As VS with external discharge	VSE
As VSF with external discharge	VSEF
Flow regulator with excess flow to tank	VR
Priority flow divider with excess flow to 2nd actuator	VP
As VR with main relief valve	VRS
As VP with main relief valve	VPS
Priority flow divider with Load-sensing	VPL
Like VPL with dynamic signal	VPD

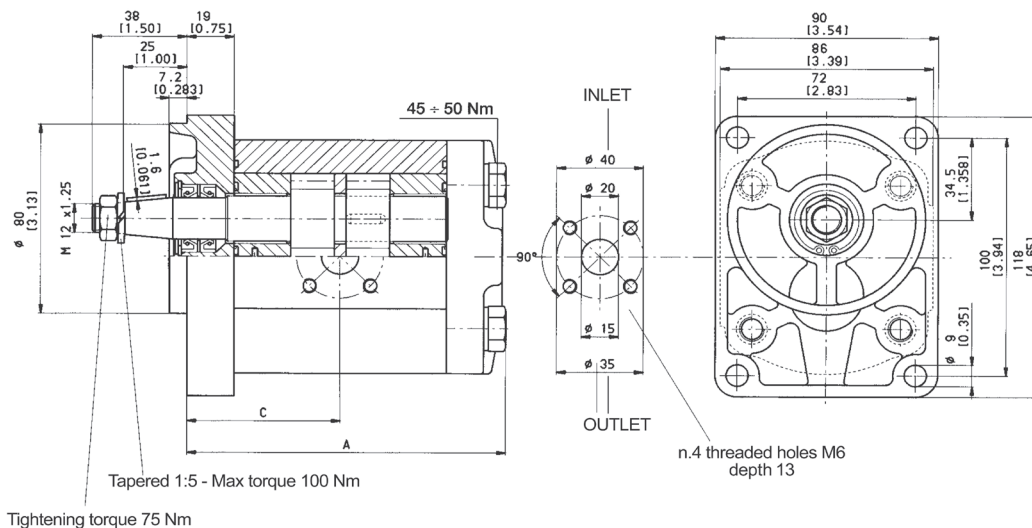
Mounting Flange	Code
European standard	P1
German standard Ø80	B1
German standard Ø52	B2 - B3
SAE A 2 bolts	S2

Seal	Code
Buna standard	N
Viton	V

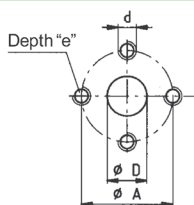
HY20L Series

INSTALLATION DATA

Type		5	8	11	14	16	19	22,5*
Displacement	cm ³ /rev	5	8	10.9	13.9	16	19	22.5
	cu.in./rev	0.30	0.49	0.66	0.85	0.98	1.16	1.37
Dimension A	mm	90.1	95.8	106.5	110	117	123.4	128.8
	in	3.51	3.73	4.15	4.29	4.56	4.81	5.02
Dimension C	mm	42.5		50.7	52.5	56	59.2	61.9
	in	1.65		1.97	2.04	2.18	2.30	2.41
Working pressure	p1	220				210	190	180
	psi	3140				3000	2715	2600
Intermittent pressure	p2	250				230	210	200
	psi	3600				3300	3000	2900
Peak pressure	p3	275				250	230	220
	psi	3950				3600	3300	3140
Max speed at	p2	4000		3500		3000		2750
Min speed at	p1	600		500		400		
Weight	rpm	2.1	2.25	2.5	2.65	2.8	2.95	3.1
	lbs	4.6	4.9	5.5	5.8	6.1	6.4	6.8

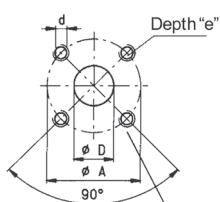


PORT TYPES



Code P

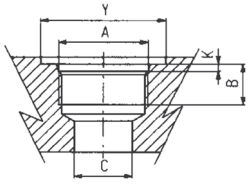
Type	Inlet				Outlet			
	ØD	ØA	d	e	ØD	ØA	d	e
5 and 8	13 (0.51")	30 (1.19")	M6	13 (0.51")	13 (0.51")	30 (1.19")	M6	13 (0.51")
From 11 to 22,5	20 (0.78")	40 (1.56")	M8					



Code B

Type	Inlet				Outlet			
	ØD	ØA	d	e	ØD	ØA	d	e
From 5 to 22,5	20 (0.78")	40 (1.56")	M6	13 (0.51")	15 (0.59")	35 (1.38")	M6	13 (0.51")

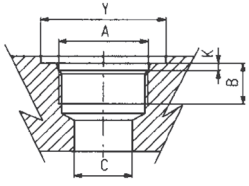
M6 tightening torque 10 Nm - M8 tightening torque 22 Nm



Code R

SAE Threaded (ODT)

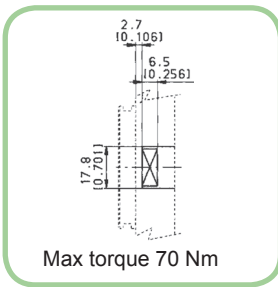
Type	Inlet					Outlet				
	A	B	C	Y	K	A	B	C	Y	K
From 4,5 to 26	1-1/16 UNF (SAE 12)	16 (0.62")	20 (0.78")	41 (1.59")	3,3 (0.12")	7-8/14 UNF (SAE 10)	14 (0.54")	13 (0.50")	34 (1.32")	2,5 (0.09")



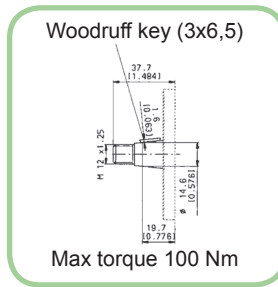
Code G

Type	Inlet					Outlet				
	A	B	C	Y	K	A	B	C	Y	K
From 4,5 to 26	3/4" BSP	16 (0.62")	20 (0.78")	41 (1.59")	3,3 (0.12")	1/2" BSP	14 (0.54")	13 (0.50")	34 (1.32")	2,5 (0.09")

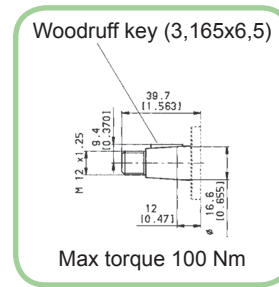
DRIVE SHAFTS



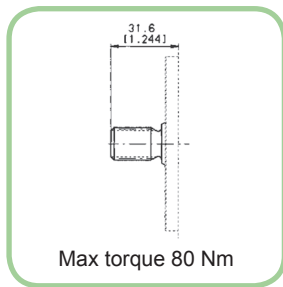
Code 03 Tang drive for electric motors



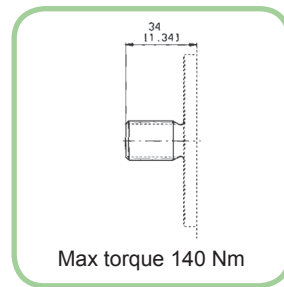
Code 25 Tapered 1:5



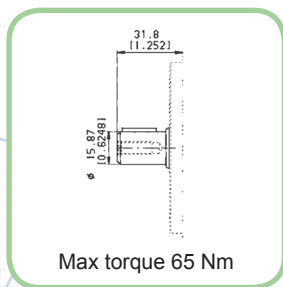
Code 28 Tapered 1:8



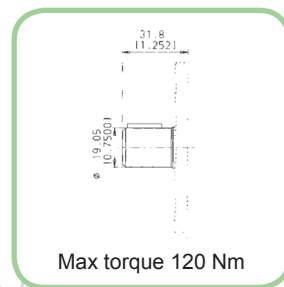
Code 52 Available for volume quantities



Code 54 Available for volume quantities



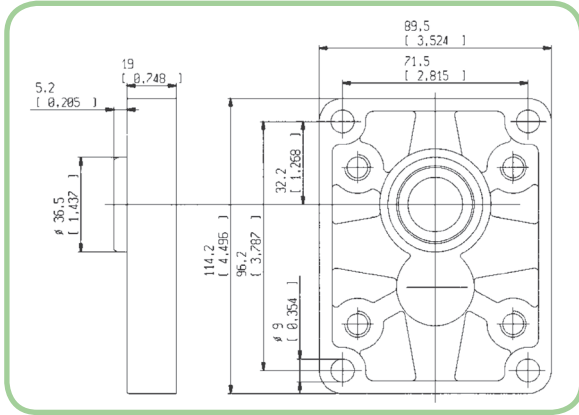
Code 82 Available for volume quantities



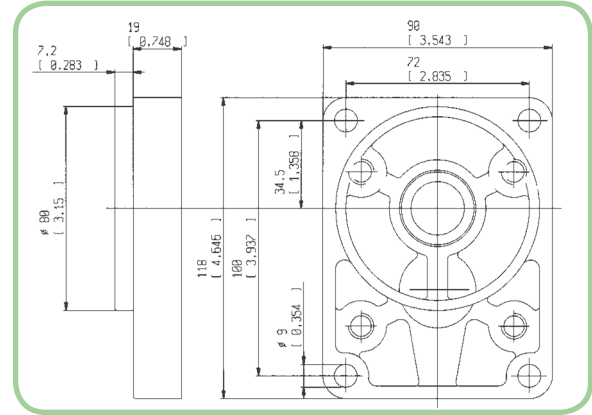
Code 85 Available for volume quantities

HY20L Series

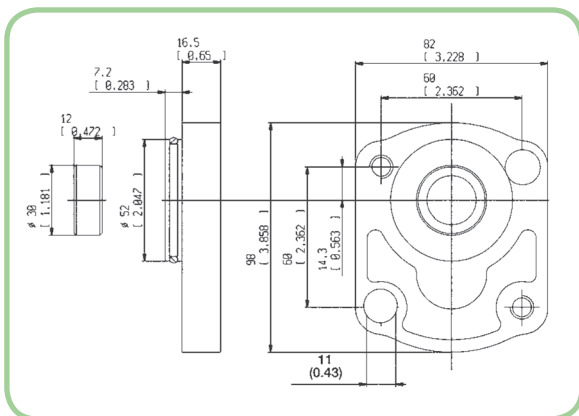
MOUNTING FLANGES



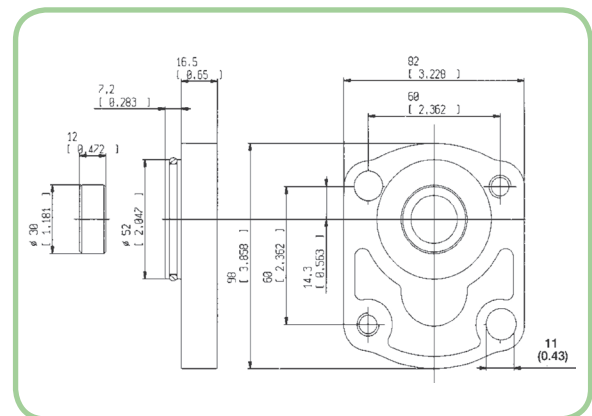
Code P1 With Shaft Code 28



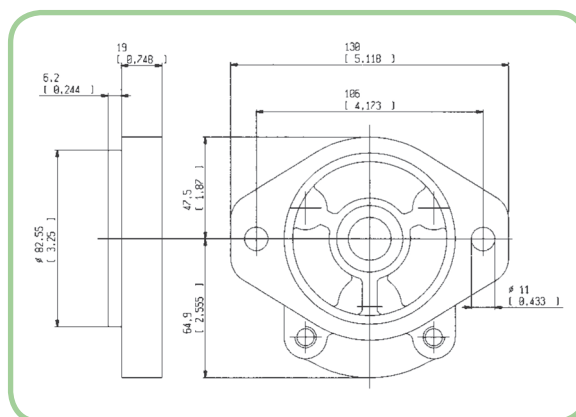
Code B1 With Shaft Code 25



Code B2 With Shaft Code 03

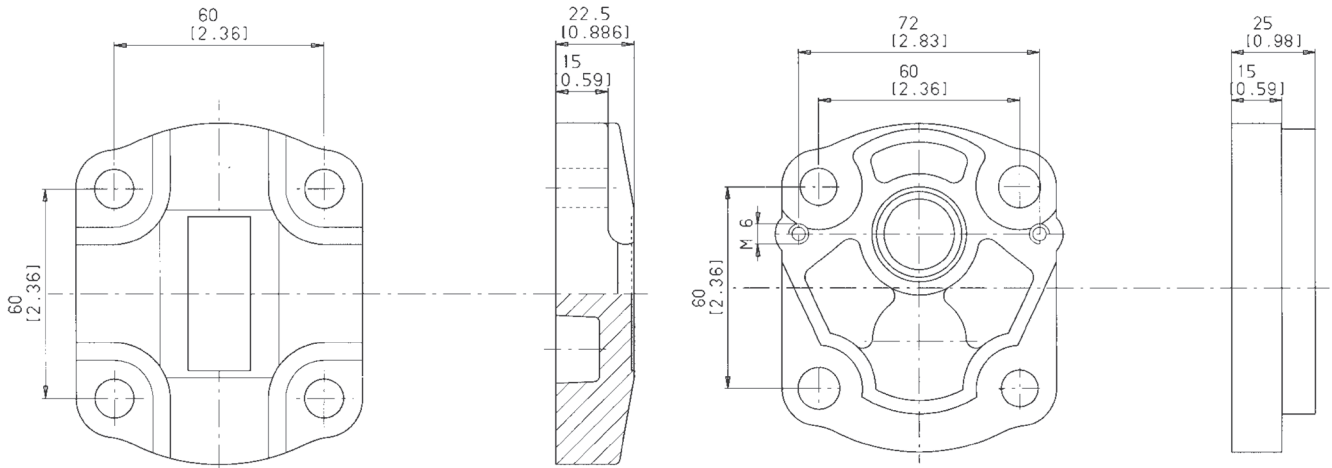


Code B3 With Shaft Code 03



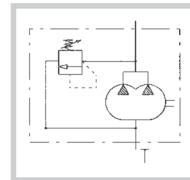
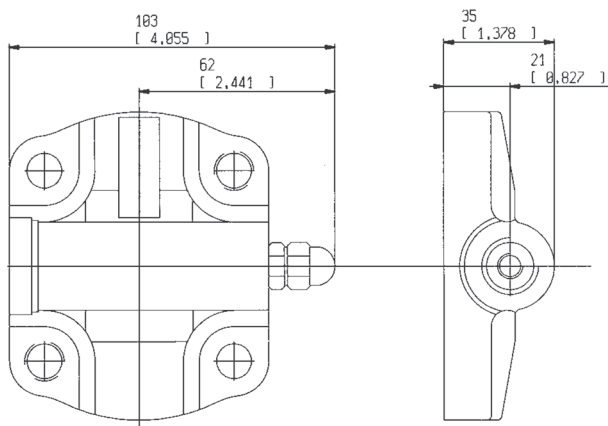
Code S2 With Shaft Code 52, 54, 82, 85

REAR COVERS



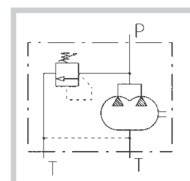
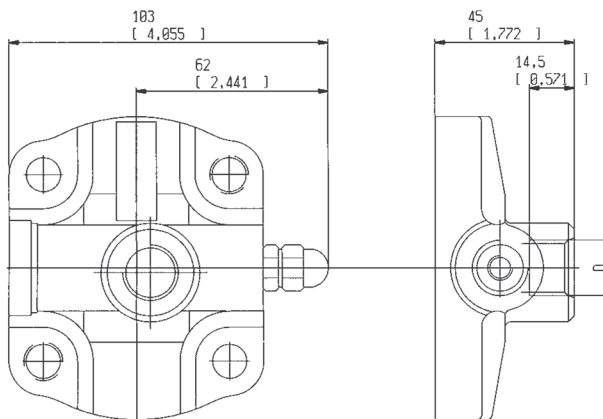
Code PD1

REAR COVERS WITH RELIEF VALVES



Code VS

With main relief valve
with internal discharge



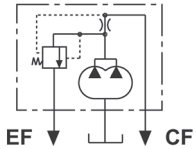
Code VSE

With main relief valve
with external discharge

D
M 18 x 1,5
3/4-16 UNF-2B(SAE 8)

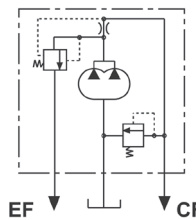
HY20L Series

REAR COVER WITH PRIORITY FLOW PORT



Code VP

REAR COVER WITH PRIORITY FLOW PORT AND RELIEF VALVE



Code VPS

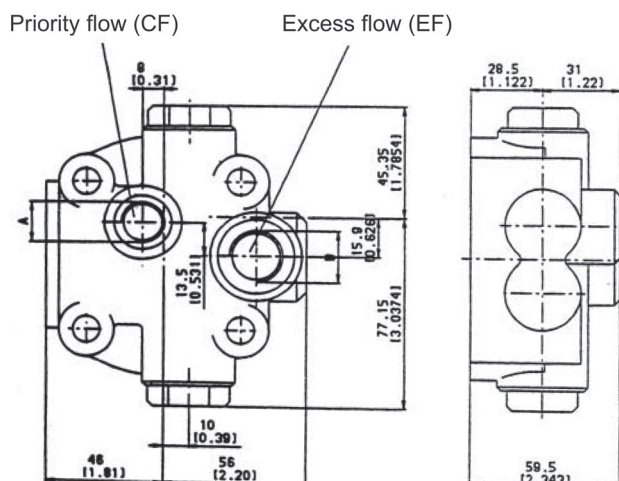
Both Priority and Bypass ports can be loaded at the same time

Priority flow is constant regardless of pump speed, bypass flow varies depending on pump speed

Priority flow is controlled by an orifice (not adjustable) as per the table below

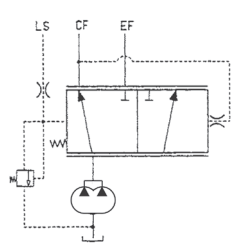
Calibrated Orifice Ød(mm)	Flow Rate l/min ±10%
1,5	2,5
2	4
2,4	6
2,8	8
3,1	10
3,5	12,5
4	16
4,4	20
4,9	25

INSTALLATION DATA



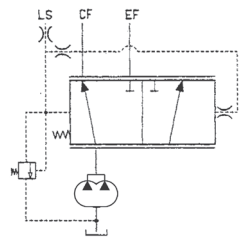
A	B
G 3/8	G 1/2
9/16-18 UNF-2B (SAE 6)	3/4-16 UNF-2B (SAE 8)

REAR COVER WITH LOAD SENSING PRIORITY VALVE WITH MAIN RELIEF VALVE



Code VPL

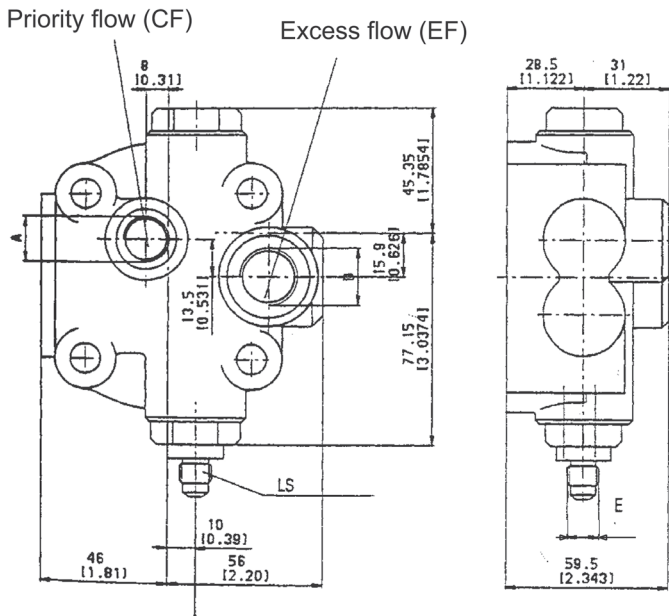
REAR COVER WITH LOAD SENSING PRIORITY VALVE WITH DYNAMIC SIGNAL AND MAIN RELIEF VALVE



Code VPD

LS = Signal load sensing
CF = Priority flow
EF = Excess flow

INSTALLATION DATA

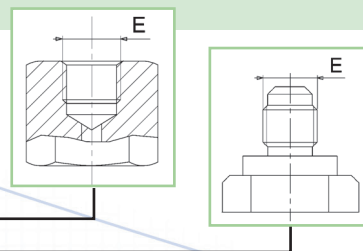


Priority Flow Rate	
1/min $\pm 10\%$	gpm $\pm 10\%$
8	2.10
10.5	2.61
12.5	3.78
16	4.17
20	5.22

Minimum load sensing signal (LS) = 4 bar (28 psi)

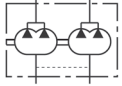
LOAD SENSE PORTING

A	B	C
G 3/8	G 1/2	G 1/4
9/16-18 UNF-2B (SAE 6)	3/4-16 UNF-2B (SAE 8)	7/16 UNF



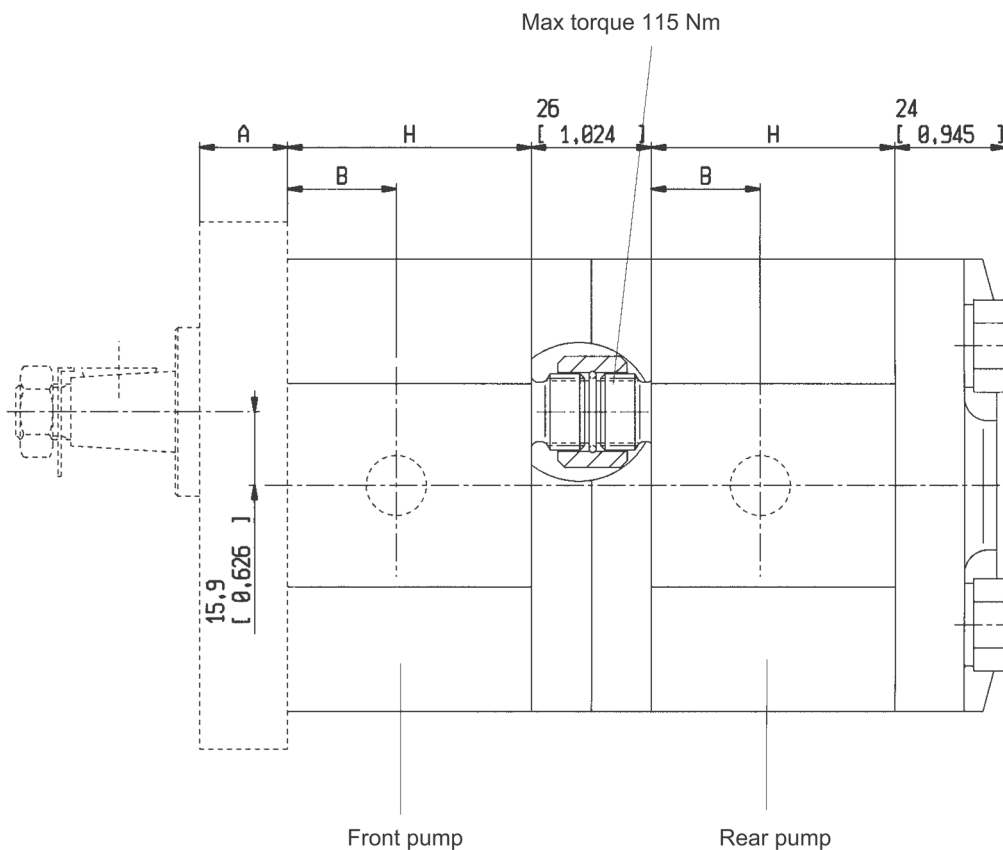
HY20L Series

MULTIPLE GEAR PUMPS



Multiple gear pumps

Type		5	8	11	14	16	19	22,5*
Dimension A (flanges B2 - B3)	mm in	16,5 0,65						
Dimension A (flanges P1 - B1)	mm in	19 0,75						
Dimension B	mm in	23,5 0,92		31,7 1,25	33,5 1,32	37 1,46	40,2 1,58	42,9 1,69
Dimension B	mm in	47,1 1,65	52,8 2,10	63,5 2,50	67 2,64	74 2,91	80,4 3,16	85,8 3,38



The HY20L pumps can be easily transformed into multiple units. All drive shafts are pre-arranged and have a splined end DIN 5482. The first unit must always be the same size or bigger than following units. The features and performances are the same of the corresponding single units: only in the case of simultaneous operating you have to verify that the inlet torque is lower than the max. transmissible by the drive shaft.

CENTRALA ELBLĄG

ul. Rawska 19B
82-300 Elbląg

tel. /+48/ 55 625 51 00

fax /+48/ 55 625 51 01

Dział Handlowy

tel. /+48/ 55 625 51 51

elblag@hydropress.pl



www.hydropress.pl

ODDZIAŁ GDAŃSK

tel. /+48/ 55 625 51 21

fax /+48/ 55 625 51 22

ODDZIAŁ RUMIA

tel. /+48/ 58 679 34 15

fax /+48/ 55 625 51 25

ODDZIAŁ TYCHY

tel. /+48/ 32 787 52 88

fax /+48/ 55 625 51 38

ODDZIAŁ OLSZTYN

tel. /+48/ 89 532 01 05

fax /+48/ 89 715 21 42

ODDZIAŁ WARSZAWA

tel. /+48/ 22 468 86 97

fax /+48/ 55 625 51 32

BIURO WE WROCŁAWIU

tel. /+48/ 782 838 000

fax /+48/ 55 625 51 35

BIURO W KIELCACH

tel. /+48/ 885 995 501

fax /+48/ 55 625 51 01

BIURO W KRAKOWIE

tel. /+48/ 885 995 019

fax /+48/ 55 625 51 01

BIURO W OPOLU

tel. /+48/ 885 995 011

fax /+48/ 55 625 51 01

BIURO W BYDGOSZCZY

tel. /+48/ 790 222 771

fax /+48/ 55 625 51 01

BIURO W BIAŁYMSTOKU

tel. /+48/ 89 532 01 05

fax /+48/ 89 715 21 42

BIURO W ŁODZI

tel. /+48/ 609 221 421

fax /+48/ 89 715 21 42