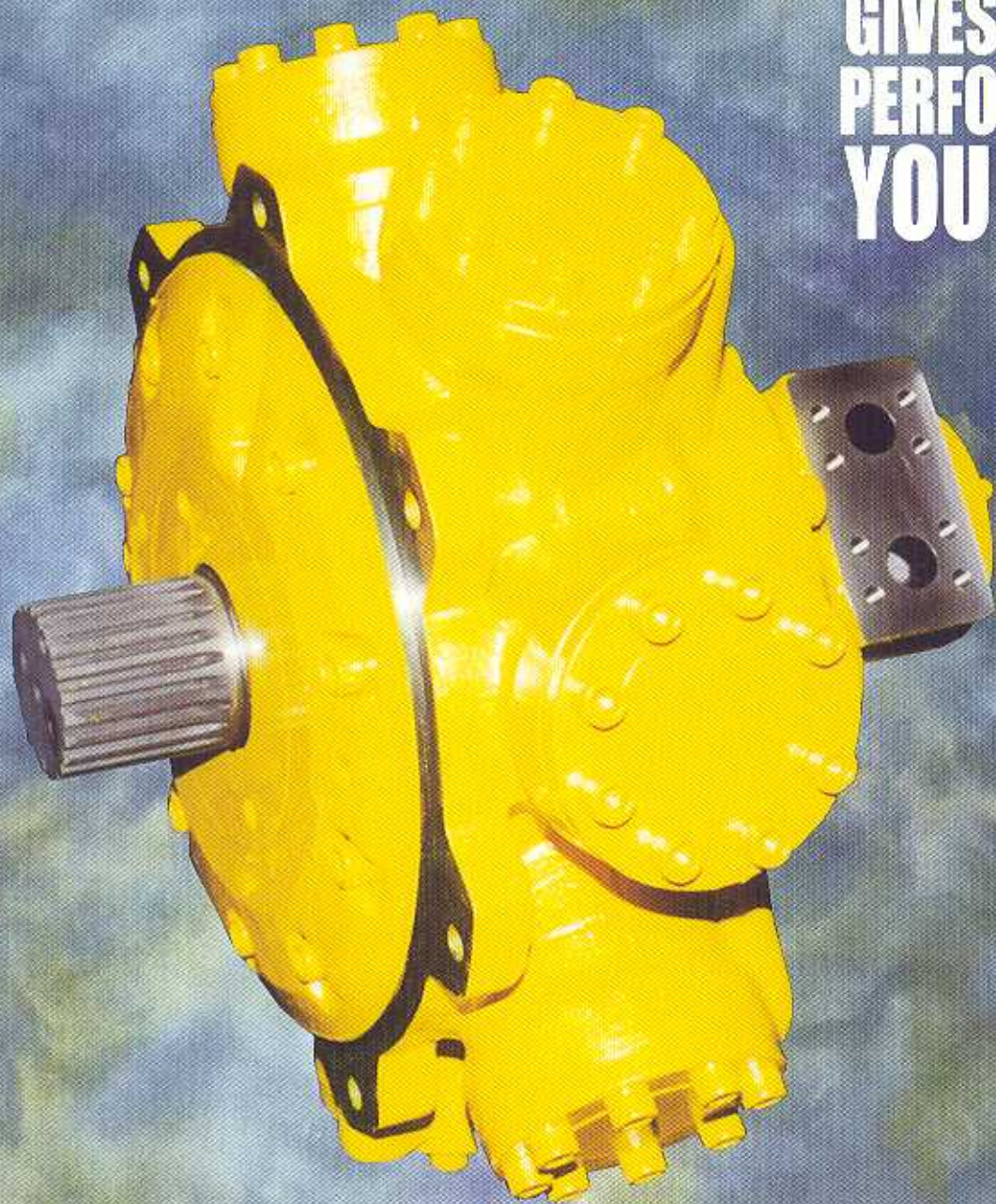




**PRECISE  
LOW SPEED,  
HIGH TORQUE  
OUTPUT  
GIVES YOU THE  
PERFORMANCE  
YOU NEED!**

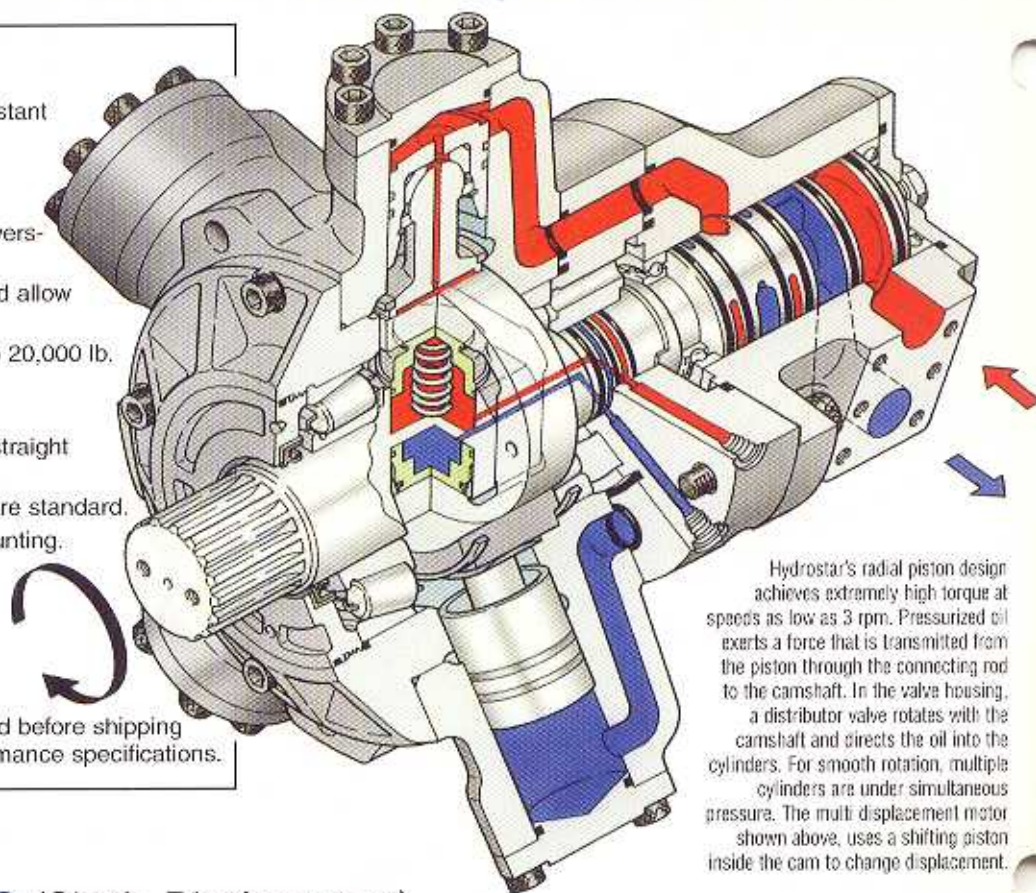


**KYB**<sup>®</sup>  
America LLC

# HYDROSTAR low speed high torque Motors

## FEATURES

- Speed infinitely variable and torque constant over the entire speed range.
- Excellent efficiency allows precise positioning of driven equipment.
- Rapid acceleration, deceleration and reversing.
- Large main bearings assure long life and allow heavy side load capacity.
- Eighteen standard models offering up to 20,000 lb. torque.
- Many multiple displacement models.
- SAE ports including 4-bolt flanges and straight threads.
- SAE splines and tapered keyed shafts are standard.
- Several drain port locations to ease mounting.
- Seals made of Viton<sup>®</sup> available from stock.
- Available from several regional stocking warehouses throughout North America.
- Distribution throughout the world.
- All LSHT motors are 100% factory tested before shipping to insure they meet or exceed all performance specifications.



Hydrostar's radial piston design achieves extremely high torque at speeds as low as 3 rpm. Pressurized oil exerts a force that is transmitted from the piston through the connecting rod to the camshaft. In the valve housing, a distributor valve rotates with the camshaft and directs the oil into the cylinders. For smooth rotation, multiple cylinders are under simultaneous pressure. The multi displacement motor shown above, uses a shifting piston inside the cam to change displacement.

## SPECIFICATIONS (Single Displacement)

Model	Displacement (in <sup>3</sup> /rev)	Output Torque at 1000 psi (ft. lbs.)	Max. Cont. Output Torque (ft. lbs.)	Max. Cont. Pressure (psi)	Inter. Peak Pressure (psi)	Speed Range (rpm)	Max. Cont. Power (hp)	Weight (lbs.)
MRH-12	12.7	140	535	3570	4000	3-600	42	81
MRH-30	30.4	350	1300	3570	4000	3-500	85	169
MRH-45	45.5	550	2040	3570	4000	3-400	120	275
MRH-60	61.3	700	2560	3570	4000	3-380	155	363
MRH-80	82.8	950	3560	3570	4000	3-300	175	363
MRH-95	93.4	1100	4130	3570	4000	3-300	190	363
MRH-135	133.9	1600	5940	3570	4000	3-220	200	496
MRH-190	191.6	2300	8675	3570	4000	3-175	230	617
MRH-270	268.4	3150	11648	3570	4000	3-125	225	820
MRH-375	377.5	4290	16300	3570	4000	3-120	300	1150
MR-525	523.9	6250	19520	3000	3300	3-80	220	1698
MRHD-540	536.7	6400	19800	3000	4000	3-100	280	1480

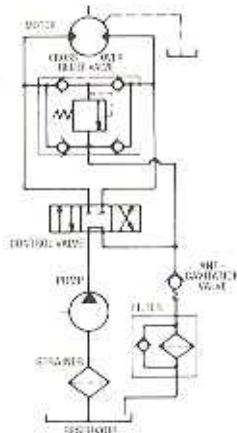
## SPECIFICATIONS (Multiple Displacement) Consult factory for other displacement combinations.

Model	Displacement (in <sup>3</sup> /rev)	Max. Set Press (psi)	Inter. Peak Press (psi)	Output Torque (ft. lbs.)		Max. Speed (rpm)		Max. Free Wheeling Speed (rpm)	Max. Horse Power (hp)	Weight (lbs.)
				@ 3000 psi	@ 3570 psi	@ 3000 psi	@ 3570 psi			
MRH2-45-1	44.5/22.8	3570	4000	1630/745	1930/880	400/600	200/300	-	120	291
MRH2-45-2	44.5/0	3570	4000	1630/0	1930/0	400/-	200/-	2000	120	291
MRH2-95-1	93.4/46.7	3570	4000	3400/1590	4050/1850	300/450	150/225	-	190	418
MRH2-95-2	93.4/0	3570	4000	3400/0	4050/0	300/-	150/-	2000	190	418
MRH2-135-1	133.9/66.9	3570	4000	4880/2275	5820/2710	220/330	110/165	-	200	551
MRH2-135-2	133.9/0	3570	4000	4880/0	5820/0	220/-	110/-	2000	200	551
MRH2-190-1	191.6/95.8	3570	4000	7050/3360	8460/4050	175/260	100/130	-	230	695
MRH2-190-2	191.6/0	3570	4000	7050/0	8460/0	175/-	100/-	2000	230	695
MRH2-270-1	268.4/134.2	3570	4000	9775/4570	11,640/5440	125/240	75/120	-	225	899
MRH2-270-2	268.4/0	3570	4000	9775/0	11,640/0	125/-	75/-	2000	225	899
MRH2-375-1	377.5/188.7	3570	4000	13680/6310	16300/7450	120/180	60/90	-	300	1200
MRH2-375-2	377.5/0	3570	4000	13680/0	16300/0	120/-	60/-	1000	300	1200

# TYPICAL BASIC CIRCUITS

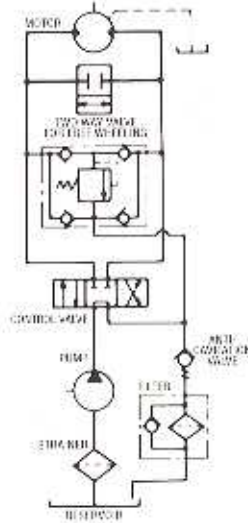
## Open Circuit

Fixed displacement pump with control valve, anti-cavitation check valve and relief valve. Direction is controlled with 3 position 4-way valve giving forward, reverse, and stop.



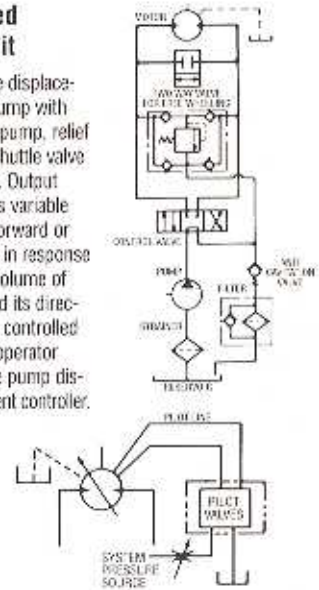
## Open Circuit (with Free Wheeling Valve)

Fixed displacement pump with control valve, anti-cavitation check valve and free wheeling valve. Direction is controlled with 3 position 4-way valve giving forward, reverse, and stop.



## Closed Circuit

Variable displacement pump with charge pump, relief valve, shuttle valve system. Output speed is variable either forward or reverse in response to the volume of flow and its direction, as controlled by the operator with the pump displacement controller.



Pilot Arrangement For Multiple Displacement Motor

# SPLINE BILLETS

MODEL	PART NO.	WGT. (lbs.)
MRH-30 SW	03020	6
MRH-45 EW		
MRH-45 SW	04520	7
MRH2-45 SW		
MRH-60 EW	08020	7
MRH-80 EW		
MRH-95 EW		
MRH2-95 EW		
MRH-95 SW		
MRH-135 SW	13520	14
MRH2-135 SW		
MRH-190 SW	19020	16
MRH-270 SW		
MRH-190 EW	19021	16
MRH2-190 EW		
MRH-270 EW		
MRH-2-270 EW		
MRH-375		
MRH2-375	37520	29
MR-525 SS		
MRHD-540 SW		

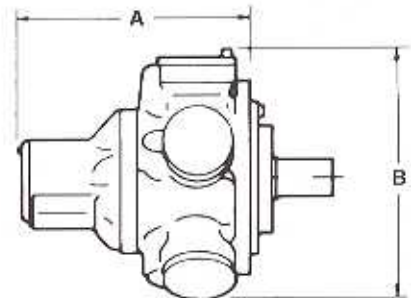
# DIMENSIONS

MODEL	A(in.)	B(in.)	SHAFT	PORT	
MRH-12	9 $\frac{1}{16}$	2 $\frac{1}{4}$	Straight w/Key	SAE J518c 3/4"	
MRH-30*	13 $\frac{1}{4}$	14 $\frac{1}{8}$		SAE J518c 1"	
MRH-45	13 $\frac{1}{4}$	17 $\frac{1}{4}$		SAE J518c 1 $\frac{1}{2}$ "	
MRH-60	15 $\frac{1}{2}$	21 $\frac{1}{2}$		Splined Shaft SAE J498b Tapered Shaft with Key	SAE J518c 1 $\frac{1}{2}$ "
MRH-80	15 $\frac{1}{2}$	21 $\frac{1}{2}$			SAE J518c 2"
MRH-95	15 $\frac{1}{2}$	21 $\frac{1}{2}$			SAE J518c 1"
MRH-135	16 $\frac{1}{8}$	24 $\frac{1}{8}$			SAE J518c 1 $\frac{1}{4}$ "
MRH-190	18 $\frac{1}{8}$	20 $\frac{3}{8}$			SAE J518c 1 $\frac{1}{2}$ "
MRH-270	17 $\frac{3}{4}$	27 $\frac{1}{4}$			6 Bolt 2" (Note)
MRH-375	19 $\frac{1}{8}$	32			SAE J518c 2"
MR-525	22 $\frac{1}{8}$	35 $\frac{1}{4}$	SAE J518c 1"		
MRHD-540	26 $\frac{1}{8}$	28 $\frac{1}{4}$	SAE J518c 1 $\frac{1}{4}$ "		
MRH2-45	15 $\frac{1}{4}$	17 $\frac{1}{4}$	SAE J518c 1 $\frac{1}{2}$ "		
MRH2-95	18 $\frac{1}{8}$	21 $\frac{1}{4}$	SAE J518c 1 $\frac{1}{4}$ "		
MRH2-135	19 $\frac{1}{8}$	24 $\frac{1}{8}$	SAE J518c 1 $\frac{1}{2}$ "		
MRH2-190	20 $\frac{1}{4}$	26 $\frac{3}{8}$	SAE J518c 1 $\frac{1}{2}$ "		
MRH2-270	20 $\frac{1}{4}$	27 $\frac{1}{4}$			
MRH2-375	22 $\frac{3}{8}$	32			

Note: Flange Adapters to SAE J518c PORT are available. \*Straight w/key shaft also available.

# FLANGE ADAPTER

MODEL	PART NO.	WGT. (lbs.)
MR-525	37530	20



Note: Dimensions for reference only. Please refer to individual Bulletins for detailed dimensions.

# HOW TO ORDER

Example: MRH2-190-1-EW-R

## DESIGN

Heavy Duty  MRH  
Standard  MR  
Double Row  MRHD

## TYPE

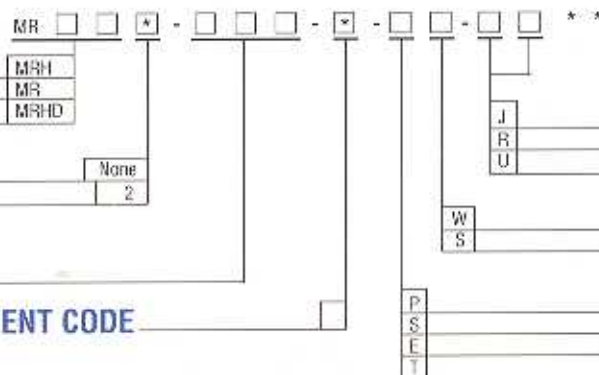
Single speed  None  
Multiple Speed (2 Speed)  2

## SIZE

(Nominal displacement in cu. in./rev.)  
12 - 540

## MULTIPLE DISPLACEMENT CODE

\* Omit for single displacement motor  
\*\* Design number



## OPTIONAL SPECIFICATIONS

Extended Speed Indicator Shaft  
Seals made of Viton®  
Air Bleed in Front Cover

## TYPE OF OIL PORT

4 Bolt Flange (SAE-J518c)  
6 Bolt Special Flange

## TYPE OF SHAFT

Straight with Key  
Involute Spline (SAE-J498b)  
Interchangeable Spline (SAE-J498b)  
Tapered with Key



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## Customer Applications

- Fishing Boat Equipment
- Drilling Machines
- Plastic Injection Machinery
- Forest Equipment
- Mining Equipment
- Shredding Equipment
- Railway Equipment
- Sawmill Plants
- Amusement Rides and Simulators
- Conveyor Industry
- Industrial Equipment

