



HYDRAULIC - ELECTRIC
COMPONENTS & INTEGRATED SYSTEMS
FOR MOBILE APPLICATIONS



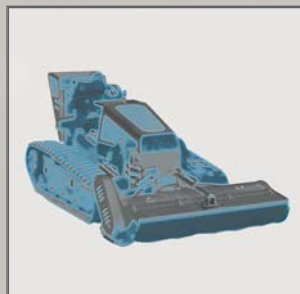
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MOBILE VEHICLES



THE COMPANY



HANSA-TMP Group, is an international Group established in Modena, Italy in 1984. The company is the perfect partner for all projects requiring fluid technology in connection with hydraulics, electronics and engineering.

The group has three divisions:



HANSA-TMP Manufacturing - design and manufacture of innovative hydraulic components: hydrostatic transmissions, pumps and motors, controls, wheel drive units and generators. Through HANSA-TMP Mechatronic Research Center this division is continuously innovating the product line meeting the highest quality and sustainability standards of the OEMs.



HANSA-TMP Engineering - complex and customized mechatronic systems integration for the mobile and industrial applications. This division is specialized in integrating hydraulics, power transmission, electric drives, control electronics and software.



HANSA-TMP Official Distributor - The company is the exclusive distributor on the Italian market for international high quality brands in the hydraulic field : Kawasaki Precision Machinery, Wandfluh, Yeoshe, Dynex, Rickmeier. The company is also an authorized repair and warranty provider for the distributed brands.

The HANSA-TMP brand has been recognised worldwide for more than 30 years for the high quality of its products and services as well as for the superb and dedicated customer care. The company is certified for the quality of the products and processes as well as for the operations' sustainability by the ISO 9001:2015 and ISO 14001:2015.



INTEGRATED SYSTEMS



MOBILE VEHICLES



INDUSTRIAL MACHINERY



MARINE



ENERGY

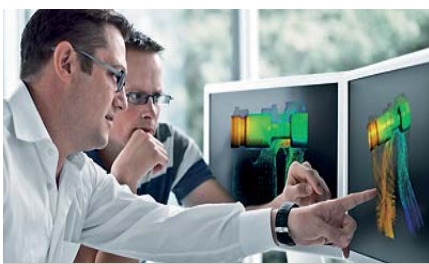


SERVICE

WORLDWIDE PRESENCE



HANSA-TMP EXPERTISE



Research & Development



Operations Management



100% Production Tested



Total Quality Management



Smart Supply Chain



Customer Field Support

TPV 1000

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- High rotation speed
- Compact design
- Suitable for multiple pump assembly

Accessories:

- By-pass valve
- Control lever with or without return spring
- Hydraulic servo-control
- Electro-proportional servo-control
- Purge valve
- SAE-A or SAE-B (only servo) mounting
- Screw by-pass

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
6, 8, 9, 11, 12, 13	21	30	3.600	8,8
15, 17		28		
18		27		
19, 21	20	25	3.200	

TPV 1200 BTB

Variable Displacement Closed Loop System Axial Piston Compact Tandem Pumps



Features:

- Low noise level
- High rotation speed
- Compact design and reduced length
- Suitable for multiple pump assembly

Accessories:

- Auxiliary gear pumps group 1-2
- Control lever with or without return spring
- Hydraulic servo-control
- Electro-proportional servo-control
- Man on board
- Purge valve
- SAE-A or SAE-B (only servo) mounting
- Screw by-pass

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (tandem pump)
6, 8, 9, 11, 12, 13	21	30	3.600	19
15, 17		28		
18		27		
19, 21	20	25	3.200	

TPV - TPVTC 1500

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- Low noise level
- High rotation speed
- High power density
- Compact design
- Suitable for multiple pump assembly
- Built-in pressure relief valves

Accessories:

- Auxiliary gear pumps group 2 SAE-A
- Hydraulic servo-control
- Hydraulic servo-control with feed back
- Electro-proportional servo-control
- Electro-proportional servo-control with feed back
- Manual lever servo-control with feed back
- Man on board
- Purge valve
- SAE-B mounting
- Screw by-pass
- Sensors and transducers available on request

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
17, 18, 19, 21	35	40	3.600	14

TPV 3200

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- High rotation speed
- Compact design
- Suitable for multiple pump assembly

Accessories:

- Manual displacement servo-control
- Hydraulic proportional servo-control
- Electro-proportional servo-control
- Automotive
- Special versions
- SAE-B mounting

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
21, 28	25	35	3.600	22

TPV - TPVT 3600

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- Low noise level
- High rotation speed
- High power density
- Compact design
- Suitable for multiple pump assembly
- Built-in pressure relief valves

Accessories:

- Auxiliary gear pumps group 2 SAE-A and group 3 SAE-B
- Hydraulic servo-control
- Hydraulic servo-control with feed back
- Electro-proportional servo-control
- Electro-proportional servo-control with feed back
- Manual lever servo-control with feed back
- Man on board
- Purge valve
- SAE-B mounting
- Screw by-pass
- Pressure cut-off
- Sensors and transducers available on request

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
26, 28, 30, 31, 32, 34, 36, 38	35	45	3.600	28

TPV 4300

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- High rotation speed
- Compact design
- Suitable for multiple pump assembly
- Built-in pressure relief valves

Accessories:

- Hydraulic servo-control
- Electro-proportional servo-control
- SAE-B mounting
- Man on board
- Screw by-pass
- Special versions

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
32, 38, 45, 50	25	35	3.900	23

TPV 5000

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- High rotation speed
- Compact design
- Suitable for multiple pump assembly

Accessories:

- Manual displacement servo-control
- Hydraulic proportional servo-control
- Electro-proportional servo-control
- Automotive
- Special versions
- SAE-B mounting

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
46, 50, 64	30	40	3.600	29

TPV 9000

Variable Displacement Closed Loop System Axial Piston Pumps



Features:

- High rotation speed
- High pressure
- High performances
- Compact design

Accessories:

- Manual displacement servo-control
- Hydraulic proportional servo-control
- Electro-proportional servo-control
- SAE-C mounting

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
55	40	45	4.000	55
72			4.100	68
90			4.000	
110			3.800	

TPF 60

Fixed Displacement Open Loop System Axial Piston Pumps



Features:

- Low noise
- Low pulsation
- Long service life
- High power density

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg (single pump)
35, 40, 46	35	42	2.800	20,5
50		41	2.500	

TPB - TAP 70

Fixed Displacement Bent Axis Axial Piston Pumps



Features:

- Available with ISO, SAE and DIN standard mounting
- High efficiency over the entire speed range
- Long life with high performances
- Dual displacement pump available for parallel working operation

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg
12,6	35	40	3.300	7,5
17,0			3.200	
25,4			2.550	8,5
34,2			2.250	
41,2, 47,1			2.200	15,5
56,0			2.100	
63,6			2.050	
83,6, 90,7, 108,0			1.700	27,0
130,0			1.600	29,5

The table values can change in function of the configuration.

TMF 600

Fixed Displacement Axial Piston Motors



Features:

- High starting torque
- Smooth operation
- Long service life
- High power density
- Built-in valves available

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg
22, 28	35	42	4.200	11,3
35, 40, 46			4.000	17,8
50		41	3.600	32,5
63, 71, 75, 92		42	3.500	
100		41	3.240	

TMF 900

Fixed Displacement Axial Piston Motors



Features:

- High pressure
- High rotation speed
- Excellent volumetric and mechanical efficiency
- Compact design

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg
72	40	45	4.100	28
90			4.000	34
110			3.800	34

TMV 550

Two Speed Axial Piston Motors



Features:

- Excellent weight/power ratio
- High rotation speed
- Excellent volumetric and mechanical efficiency
- Compact design

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg
46, 50, 64	30	40	4.000	20

TMV 650

Two Speed Axial Piston Plug-in Motors



Features:

- Swashplate design for hydrostatic transmissions
- Plug-in mounting
- Heavy duty bearings for long service life
- High permissible output speed

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg
25, 30, 35, 38, 45	30	35	3.500	15,6

TMB 700

Fixed Displacement Bent Axis Axial Piston Motors



Features:

- Available with ISO, SAE and DIN standard mounting
- High speed and high efficiency motors
- Smooth operation over the entire speed range
- Long life with high performances

Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Maximum speed n/min.	Weight kg
9,6, 12,6, 17,0	35	40	8.000	9
25,4, 34,2			6.300	
41,2, 47,1, 56,7, 63,5			5.700	15
83,6, 90,7			4.700	18
108,0, 130,0				35

The table values can change in function of the configuration.

S ... - SM ...

Wheel Drive Gearboxes



Features:

- Available with or without static brake
- Available with or without hydraulic or electric motors
- Compact design

Wheel drive unit model	Gear ratio	Output torque Nm	Maximum static load N	Maximum input speed n/min.	Weight kg (without motor)
S 050 - S 050 M	3,75 : 1	2.500	50.000	500	35
S 050 / 2	25 : 1	2.500	50.000	2.000	37
S 070 - S 070 M	4,75 : 1	3.500	50.000	1.000	43
S 070 / 2	34 : 1	3.500	50.000	2.000	46
S 242	12,3 : 46,5	2.800	80.000	3.000	42
S 243	109	3.000	80.000	3.500	49

BTM

Spring Loaded Disc Brakes



Features:

- Braking torque up to 520 Nm
- Suitable for different input / output shafts and flanges

Brake model	Static torque Nm	Maximum pilot pressure MPa	Minimum complete opening pressure MPa	Weight kg
BTM 03	30 - 40	35	0,3 - 0,5	9,5
BTM 07	60 - 80		0,4 - 0,6	
BTM 11	100 - 120		0,7 - 0,9	
BTM 18	170 - 190		1,1 - 1,3	
BTM 24	230 - 250		1,1 - 1,3	
BTM 32	320 - 330		1,5 - 1,7	
BTM 42	400 - 440		1,5 - 1,7	
BTM 50	480 - 520		1,7 - 1,9	

BTM + MSU

Wheel Drive Motors with Spring Loaded Disc Brakes



Features:

- Braking torque up to 520 Nm
- Maximum radial load 7.000 N
- Wheel rim dimension from 8"

Wheel drive motor model	Static torque daNm	Traction torque daNm	Minimum complete opening pressure MPa	Max. brake pressure MPa
BTM 24 / MSU 80	23 - 25	24	1,1 - 1,3	30
BTM 32 / MSU 100	32 - 33	30,5	1,5 - 1,7	
BTM 42 / MSU 125	40 - 44	37,5	1,5 - 1,7	
BTM 50 / MSU 160	48 - 52	49	1,7 - 1,9	

Wheel drive motor model	Motor pressure MPa	Minimum speed n/min.	Maximum speed n/min.	Maximum load daN	Weight kg
BTM 24 / MSU 80	23	10	800	700	23
BTM 32 / MSU 100		10			23,3
BTM 42 / MSU 125		8			23,6
BTM 50 / MSU 160		8			24

Hydraulic / Electric Pedals and Joysticks

Multi-functional Digital Controls



Features:

- Single or dual axis heavy duty lever
- Contactless hall sensor technology
- Strong and reliable mechanics
- Digital programmable microprocessor
- Protection up to IP68
- Supply range 11-32 VDC
- EMC/Automotive compliant
- Parameter setup with PC software and serial cable
- Available with a wide range of handles or knobs

MAV 4211 SH

Electronic Control Cards



Features:

- Controller for hydrostatic transmissions
- Suitable for hydraulic system up to 2 closed loop pumps and 2 variable displacement motors
- Up to 3 digital inputs and 2 analog inputs
- Up to 2 x 2 x 2A PWM outputs

MAV 8 SH

Automotive Control Cards



Features:

- Advanced controller for hydrostatic transmissions
- Automotive control
- Tracked vehicle control
- Speed and torque control
- Up to 12 digital inputs and 8 analog inputs
- Up to 8 x 2 x 2A PWM outputs

Accessories for Complete Integrated Systems

Customized Design by HANSA-TMP



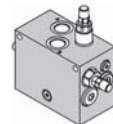
Gear Pumps



Pump Drives



Special Manifolds and Valves (integrated control circuits, self levelling bucket valves, etc..)



Front-Bearings for Belt Drive



Customized Bell Housings



Spin-on Filters



Measure and Conversion Fittings

GL ... Hand Pump and Air-Hydraulic Pumps


GL

- Double-acting hand pumps with and without tank
- Delivery up to 111 cm³ / cycle
- Pressure up to 65 MPa


GL290

- Double-acting hand pumps with valves
- Delivery up to 40 cm³ / cycle
- Pressure up to 38 MPa


GL 111 M

- Single-acting hand pumps
- Delivery up to 2.5 cm³ / cycle
- Pressure up to 40 MPa


GL2P / Q

- Two-speed single-acting hand pumps
- Low pressure delivery up to 133 cm³ / cycle
- High pressure delivery up to 4 cm³ / cycle
- High pressure up to 150 MPa


GLAPN

- Single acting foot pedal pumps with or without tank
- Delivery up to 7,5 cm³ / cycle
- Pressure up to 25 MPa


GTE

- Single-acting cylinder with hand pump
- Lifting force up to 4000 Kg
- Cylinder stroke up to 200 mm


GLOP

- Single speed and two-speed air-hydraulic pump
- Delivery up to 19 cm³ / cycle
- Pressure up to 70 MPa

Diverter valves
Relief valves
Accessories

We can provide different types of hand pumps according to customer requirements.

0 - 1 - 2 - 3 Group

Hydraulic Gear Pumps and Motors



Features:

- High efficiency
- European standard, German standard, SAE flange, etc.
- Aluminium and cast iron flanges
- Multi-pump
- Long life

Group	Pump Model	Displacement cm ³ /n	Max. Continuous Pressure MPa	Max. Speed n/min.	Min. Speed n/min.	
0	XV-0P 017	0,16	22	9.000	700	
	XV-0P 025	0,24				
	XV-0P 045	0,45				
	XV-0P 057	0,56				
	XV-0P 076	0,75				
	XV-0P 098	0,92				
	XV-0P 127	1,26				
	XV-0P 152	1,48				
	XV-0P 230	2,28	19	5000		
1	1SP 009	0,89	24	6.000	600	
	1SP 012	1,18				
	1SP 016	1,60				
	1SP 020	2,00	22	5.500	400	
	1SP 025	2,50		5.000		
	1SP 032	3,20	21	4.500		
	1SP 037	3,70		4.000		
	1SP 042	4,20	19	3.500		
	1SP 050	5,00	18	3.000		
	1SP 063	6,30	17	2.700		
	1SP 078	7,76		2.500		
	1SP 098	9,78	15	2.000		
2	2SP 040	4,00	25	4.000		500
	2SP 060	6,00				
	2SP 080	8,50				
	2SP 110	11,00				
	2SP 140	14,00		23	3.500	
	2SP 160	16,50				
	2SP 190	19,50	21	3.300		
	2SP 220	22,50	19	2.800		
	2SP 260	26,00	17	2.500		
	2SP 310	31,50	15	2.200		
	3	3GP 190	19,30	25	3.500	
3GP 230		23,00	24			
3GP 300		30,20	22	3.300		
3GP 340		33,80				
3GP 370		37,50				
3GP 440		44,60	20	3.000		
3GP 530		53,00				
3GP 620		62,70				
3GP 700		70,50	18	2.500		
3GP 770		77,20			2.200	

TMR 100

Dual Displacement High Speed Radial Pistons Hydraulic Motors



Features:

- Number of pistons 9
- Max. case pressure 6 bar
- Max. back pressure 70 bar
- Temperature range from -30 to +70°C
- Two pilot ports (X and Y)
- Displacement range from 20 to 100 cc
- Speed up to 2400 n/min.
- Compact design
- High cavitation resistance
- Freewheeling operation

Maximum displacement [cm ³ /n]	100	89	76,3	63,6	50,3
Specific theoretical torque [Nm/bar]	1,61	1,41	1,21	1,01	0,81
Maximum speed [n/min.]	1850	1900	2000	2100	2300
Minimum speed [n/min.]	10	15	20	25	25
Mechanical efficiency [%]	89.5	89.2	89	88.5	88
Starting mechanical efficiency [%]	87	86	85	82	80
Continuous maximum power [kW]	48	42	35	31	25
Maximum power [kW]	60	52	44	39	31
Continuous maximum pressure [bar]	250	250	250	250	250
Intermittent maximum pressure [bar]	280	280	280	280	280
Peak pressure [bar]	350	350	350	350	350
Dry weight	25	25	25	25	25
Recommended flushing flow [l/min.]	5	5	5	5	3

Minimum displacement [cm ³ /n]	50,3	38	31
Specific theoretical torque [Nm/bar]	0,81	0,6	0,49
Maximum speed [n/min.]	2300	2350	2400
Minimum speed [n/min.]	25	30	30
Mechanical efficiency [%]	88	85	83
Starting mechanical efficiency [%]	80	75	45
Continuous maximum power [kW]	25	18	15
Maximum power [kW]	31	23	19
Continuous maximum pressure [bar]	250	250	250
Intermittent maximum pressure [bar]	280	280	280
Peak pressure [bar]	350	350	350
Dry weight	25	25	25
Recommended flushing flow [l/min.]	3	3	3

GM Series

Fixed Displacement High Torque Radial Piston Hydraulic Motors



Features:

- High pressure
- High power ratings
- High starting torque
- High speed free-wheeling
- Compact design
- Easy servicing

Model	Displacement cm ³ /n.	Torque Nm/MPa	Rated pressure MPa	Peak pressure MPa	Cont. speed n/min.	Max. speed n/min.	Max. power kW	Weight kg
GM 03	25	0,04	20	45	910	1300	12	15
	30	0,05		43	875	1250		
	39	0,06		41	840	1200		
	49	0,08		39	805	1150		
	64	0,10		37	770	1100		
	77	0,12		35	735	1050		
	86	0,14		33	700	1000		
	101	0,16		31	665	950		
127	0,22	27	650	900				
GM 05	39	0,062	25	45	700	1000	20	22
	59	0,094		45	700	1000		
	74	0,118		42,5	700	1000		
	86	0,137		37,5	700	1000		
	115	0,183		40	650	900	33	
	129	0,205		37,5	650	900		
	151	0,24		32,5	650	900		
	161	0,264		32,5	600	800		
191	0,304	28	600	800				
GM 1	99	0,154	25	42,5	550	1000	48	27
	129	0,17		40	550	1000		
	154	0,201		40	550	1000		
	172	0,268		37,5	550	900		
	201	0,314		35	550	800		
	221	0,35		35	550	700		
	243	0,38		35	450	700		
	290	0,452		30	350	650		
	314	0,49		28	350	600		
GM 2	192	0,3	25	42,5	550	800	90	47
	251	0,392		42,5	550	800		
	304	0,475		40	500	750		
	347	0,542		37,5	500	750		
	425	0,663		35	450	750		
	493	0,769		35	450	700		
	565	0,883		30	450	700		
	623	0,973		28	400	650		
GM 3	352	0,549	25	45	525	700	80	86
	426	0,664		42,5	500	650		
	486	0,758		42,5	450	600		
	595	0,928		40	450	575		
	690	1,08		35	400	500		
	792	1,24		35	400	500		
	873	1,36		35	350	400		
987	1,54	28	300	350				
GM 4	402	0,627	25	45	450	600	100	110
	503	0,785		45	425	600		
	616	0,961		40	400	550		
	793	1,24		40	350	550		
	904	1,41		37,5	325	450		
	1022	1,6		35	300	400		
	1116	1,74		35	275	400		
	1247	1,95		30	250	400		
1316	2,05	28	225	350				
GM 5 A	807	1,26	25	42,5	325	450	120	170
	1039	1,62		42,5	300	450		
	1185	1,85		40	300	400		
	1340	2,09		40	300	400		
	1462	2,28		37,5	275	350		
	1634	2,535		37,5	250	300		
	1816	2,83		35	250	300		
	2007	3,13		35	200	250		
GM 6	1690	2,64	25	45	250	400	170	240
	2127	3,32		40	225	350		
	2513	3,92		35	200	300		
	3041	4,75		30	175	250		
GM 7	1373	2,19	25	42	300	450	250	300
	2007	3,19			280	400		
	2471	3,93			250	350		
	2985	4,75			200	300		
	3611	5,75			175	250		
	4298	6,84			125	200		
	4663	7,42			100	150		

BD Series

Dual Displacement High Torque Radial Piston Hydraulic Motors



Features:

- Dual displacement
- High rotation speed
- Shaft and bearing options
- Innovative design central sliding bearing
- Easy servicing

Motor Model		Displacement max. / min. cm ³ /n.	Rated Pressure MPa	Peak Pressure MPa	Continuous Speed n/min.	Peak Power kW
BD 1	100 - 25	99 - 25	26,5	30	500 / 1500	55 / 42
	100 - 54	102 - 54				
	175 - 45	172 - 43				
	250 - 60	243 - 61				
BD 2	350 - 175	347 - 173	25	37,5	700 / 1500	75 / 65
	350 - 125	347 - 121				
	350 - 90	347 - 87				
	500 - 250	493 - 246				
	500 - 175	493 - 172				
	500 - 125	493 - 123				
BD 3	550 - 130	552 - 127	25	40	360 / 1600	95 / 85
	750 - 170	735 - 170		35	270 / 1200	
	900 - 220	917 - 212		28	220 / 1000	
BD 5	1000 - 250	957 - 246	25	42,5	700 / 1400	170 / 150
	1500 - 400	1.505 - 387		37,5	600 / 1200	
	1900 - 500	1.848 - 475		35	500 / 1000	
BD 6	1700 - 420	1.690 - 422	25	45	300 / 625	240 / 200
	2100 - 530	2.127 - 532		40	275 / 425	
	2100 - 700	2.127 - 698			275 / 425	
	2100 - 1100	2.127 - 1.064			275 / 425	
	2500 - 630	2.513 - 628		35	250 / 435	
	3000 - 760	3.041 - 760		30	200 / 435	

Orbit Hydraulic Motors

Spool Valve Distributor



Features:

- High starting torque
- High efficiency
- Spool valve distributor
- Low noise level
- Long life
- Easy servicing
- Optional speed sensor

Motor Type	Displacement cm ³ /n	Cont. Speed n/min. *	Inlet Pressure Cont. / Int. / Peak MPa	Max. Flow lt/min.	Cont. Torque daNm	Cont. Power kW
MM	8,2 - 50	1950 - 400	14 / 17,5 / 22,5	16 - 20	1,2 - 4,5	1,7 - 2,4
MP	25 - 630	1600 - 95	17,5 / 20 / 22,5	40 - 60	3,3 - 44	3,3 - 10,1
MR	50 - 400	775 - 150	17,5 / 20 / 22,5	40 - 60	10 - 38	4,8 - 13
MR...T	50 - 400	775 - 150	17,5 / 20 / 22,5	40 - 60	10 - 38	4,8 - 13
MRNA	50 - 400	200 - 150	14 / 17,5	10 - 60	10 - 38	2 - 9
MRFL	50 - 400	775 - 150	17,5 / 20 / 22,5	40 - 60	10 - 38	4,8 - 13
MRB	50 - 400	775 - 150	17,5 / 20 / 22,5	40 - 60	10 - 30	4 - 13
PL	50 - 400	1210 - 150	17,5 / 20 / 22,5	60	9,4 - 50	6,6 - 11,7
RL	50 - 400	775 - 150	17,5 / 20 / 22,5	40 - 60	10 - 61	7 - 13
PK	50 - 400	808 - 100	14 / 17,5 / 22,5	40	7 - 40,8	3,4 - 5,2
RK	50 - 400	775 - 150	17,5 / 20 / 22,5	40 - 60	10 - 40	6,2 - 10,8
RW	50 - 400	775 - 190	17,5 / 20 / 22,5	40 - 75	10 - 61	7 - 13
MH	200 - 500	370 - 150	20 / 22,5 / 25	75	51 - 82	11 - 16
HW	125 - 315	357 - 238	21 / 25	45 - 75	35 - 85	16,2 - 18,6

* From min. to max. displacement

Orbit Hydraulic Motors

Disc Valve Distributor



Features:

- High starting torque
- High efficiency
- Disc valve distributor
- Low noise level
- Long life
- Suitable for a wide variety of hydraulic fluid
- Optional speed sensor

Motor Type	Displacement cm ³ /n	Cont. Speed n/min. *	Inlet Pressure Cont. / Int. / Peak MPa	Max. Flow lt/min.	Cont. Torque daNm	Cont. Power kW
MS	80 - 565	810 - 130	23 / 29,5 / 30	65 - 75	24 - 85	6,9 - 18
MT	160 - 725	622 - 172	21 / 25 / 30	100 - 125	47 - 127	20,2 - 33,5
MV	315 - 800	510 - 250	21 / 25 / 30	160 - 200	92 - 188	42,5 - 53,5

* From min. to max. displacement

Heavy Duty Orbit Hydraulic Motors

Disc Valve Distributor



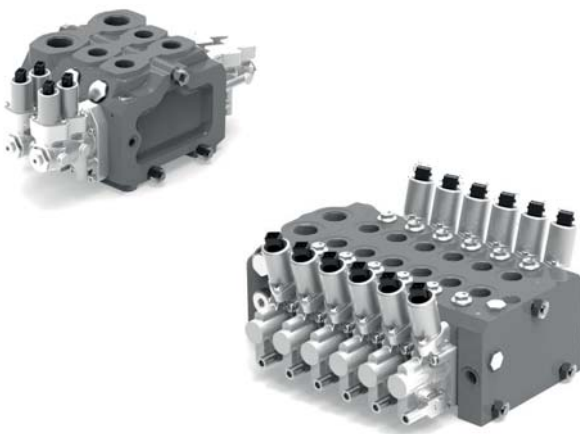
Features:

- High starting torque
- High pressure
- High efficiency
- Disc valve distributor
- Low noise level
- Long life
- Suitable for a wide variety of hydraulic fluid
- Easy servicing
- Optional speed sensor

Motor Type	Displacement cm ³ /n	Cont. Speed n/min. *	Inlet Pressure Cont. / Int. / Peak MPa	Max. Flow lt/min.	Cont. Torque daNm	Cont. Power kW
MSWM	160 - 400	470 - 185	21 / 25 / 30	75	46 - 90	11 - 18,6
MTM	200 - 725	625 - 170	27 / 37 / 42	125	72 - 160	26 - 41
TMF	200 - 725	625 - 170	27 / 37 / 42	125	72 - 160	26 - 41
MVM	315 - 800	636 - 250	27 / 37 / 42	200	115 - 259	67
VMF	315 - 800	636 - 250	27 / 37 / 42	200	115 - 259	67

* From min. to max. displacement

Directional Load Sensing Valves

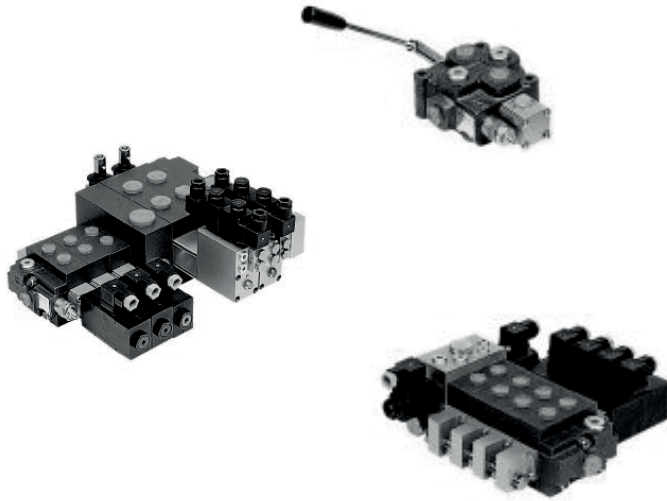


Features:

- Flow sharing load sense valves
- High stability and precision
- High flexibility with pre/post compensation combination
- Large applications range

Valve model	Working section number	Spool stroke mm	Spool pitch mm	Pump flow rate l/min	A/B port flow rate l/min	Working pressure inlet port P MPa	Max. pressure outlet port T MPa
EX38	1 - 10	7	38	150	100	35	1
EX46	1 - 10	7	46	220	180		
EX54	1 - 8	9	54	300	250		
EX72	1 - 8	11	72	450	350		

Directional Control Valves



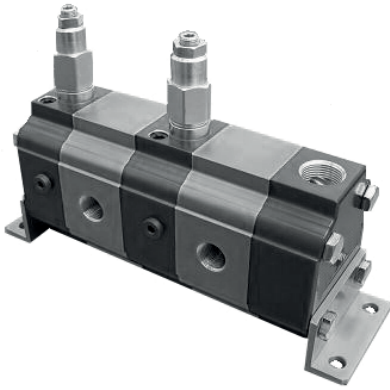
Features:

- High technical performances
- Large applications range
- Very small leakages
- Different types of circuit

Valve Model	Max. Number of Working Section	Max. Flow lt/min.	Max. Pressure MPa
MONOBLOCK DIRECTIONAL CONTROL VALVES			
Q 35	1	50	30
Q 15	1	20	25
GMV15	4	25	28
Q 25	6	40	35
Q 45	6	60	35
Q 65	1	70	35
Q 75	5	80	35
Q 95	3	120	35
SECTIONAL DIRECTIONAL CONTROL VALVES			
Q 30	10	50	32,5
GVS 50 (Q 50)	10	60	32,5
Q 80	10	80	30
Q 130	10	150	32,5
ON-OFF DIRECTIONAL CONTROL VALVES with ELECTRICAL CONTROL and PROPORTIONAL SECTION			
Q 30	10	50	27,5
GVS 50 (Q 50)	10	60	27,5
PROPORTIONAL DIRECTIONAL CONTROL VALVES SECTION			
Q 30		15 - 30 - 40	25
GVS 50 (Q 50)		15 - 30 - 50	25
Current supply 12 V DC 0 - 1 Ampere		Current supply 24 V DC 0 - 1,4 Ampere	

Group 0 - 1 - 2 - 3

Gear Flow Dividers



Features:

- Multi-section gear flow divider
- Precision $\pm 1,5\%$ up to $2,5\%$
- Peak pressure 20% higher than maximum continuous operating pressure

Optional:

- Max pressure valve
- External drain
- Pressure gauge mounting
- Anti-cavitation valve block
- Solenoid valve

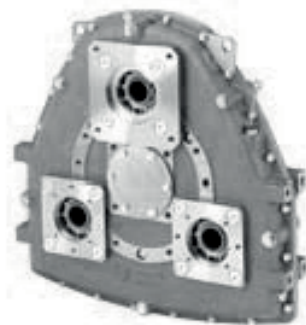
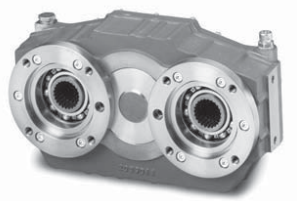
Flow Dividers - Group 0					
Displacement cm ³ /n	CC Code	Max. Pressure MPa	One Element Flow Rate lt/min.		
			Min.	Recommended	Max.
0,17	01	21	0,2	0,4	1,2
0,25	02		0,3	0,7	1,8
0,45	04		0,6	1,2	3
0,57	05		0,8	1,5	3,8
0,76	06		1	2	4,8
0,98	07		1,2	2,3	5,6
1,27	09		1,5	3	7,2
1,52	11		1,9	3,5	8
2,3	13		2,6	5	10,3

Flow Dividers - Group 2					
Displacement cm ³ /n	CC Code	Max. Pressure MPa	One Element Flow Rate lt/min.		
			Min.	Recommended	Max.
4	41	21	4,8	7,6	10
6	43		7,2	10,8	15
9	45		10,8	15,1	22,5
11	47	20	13,2	19,4	27,5
14	49		16,8	25,9	35
17	51	19	20,4	30,2	42,5
19	53		22,8	34,6	47,5
22	55	18	26,4	41	55
26	57		31,2	45,4	65
30	59	16	36	54	75
34	61		40,8	61,6	85
40	63	14	48	71,3	100

Flow Dividers - Group 1					
Displacement cm ³ /n	CC Code	Max. Pressure MPa	One Element Flow Rate lt/min.		
			Min.	Recommended	Max.
0,9	16	22	1	2	6
1,2	17		1,5	3	7
1,7	18		2	4	9
2,2	20		2,5	5	13
2,6	21		3	6	15,5
3,2	23		3,5	7,5	18
3,8	25		4	8,5	21
4,3	27		4,5	9,5	23
4,9	29		5,5	11	27
5,9	31		6,5	13	30
6,5	32	7,5	14	32	
7,8	34	21	8,5	16	35,5
9,8	36	20	11	20	41

Flow Dividers - Group 3					
Displacement cm ³ /n	CC Code	Max. Pressure MPa	One Element Flow Rate lt/min.		
			Min.	Recommended	Max.
15	66	30	18	27	37,5
18	68		21,5	32,5	45
21	70	28	25	38	52,5
27	72		32,5	48	67,5
32	74	25	38	57	80
38	78		41	60	91
43	79	23	43	64,5	99
47	80		47	70,5	108
51	81	21	51	76,5	117
54	82		54	81	124
61	83	20	56	82	126
64	85		57	83	128
70	86	18	63	91	140
74	87		66,5	96	148
90	89	15	81	117	180

Multiple Pump Drives



Features:

- Cast-Iron casing
- With housing and coupling connection for diesel engines
- Adaptors for different pumps
- Viton seals on input shaft

Type	Max. Input Power kW	Max. Input Torque Nm	Max. Input Speed n/min.	Gear Ratio 1 : ...
TWO PUMPS DRIVE				
AM 110	180	735 - 450	2.400 - 3.950	0,49 - 1,50
AM 216	205	800 - 500	2.400 - 3.950	0,50 - 1,47
AM 220	355	1.470 - 900	2.400 - 3.950	0,49 - 1,50
AM 230	430	2.080 - 1.270	1.950 - 3.200	0,51 - 1,48
AM 232	565	3.250 - 2.300	1.750 - 2.400	0,49 - 1,00
AM 270	700	4.400 - 2.570	1.800 - 2.600	0,70 - 1,43
THREE PUMPS DRIVE				
AM 320	205	735 - 500	2.650 - 3.950	0,68 - 1,47
AM 330	355	1.470 - 900	2.400 - 3.950	0,49 - 1,50
AM 345	430	2.080 - 1.270	1.950 - 3.200	0,51 - 1,48
AM 365	670	3.480 - 2.350	1.800 - 2.500	0,69 - 1,45
AM 370	700	4.400 - 2.570	1.800 - 2.600	0,70 - 1,43
FOUR PUMPS DRIVE				
AM 450	640	4.200 - 2.600	1.800 - 2.400	0,50 - 1,00
AM 480	700	4.400 - 3.490	1.700 - 2.000	0,72 - 1,15
AM 481	850	5.500	1.700 - 2.000	0,72 - 1,15

Hydraulic, Electric, Electro-Hydraulic Rotary Couplings



Features:

- For use with standard mineral oil
- On request in stainless steel for off-shore applications
- Special versions for concrete pumps
- Combined Electro-hydraulic versions

HYDRAULIC ROTARY COUPLINGS	
Pressure	Up to 42 MPa
Nominal Size (mm)	85 - 92 - 100 - 125 - 145 - 150 - 170 - 180
Number of Way	2 - 24
Inlet-Outlet Port	1/4" - 3/8" - 1/2" - 3/4" - 1" - 1-1/4" - 1-1/2"
ELECTRIC ROTARY COUPLINGS	
Rated Voltage	1.000 V
Rated Current	1.200 A
Calbe cross section	Single-core cables from 0.75 mm ² - 4 mm ² depending on the current
Protection	IP 55

FR Series Hydraulic Rotators



Features:

- Long life
- Easy maintenance

HYDRAULIC ROTATORS - SHAFT VERSION							
Rotor model	Max. Axial Load kg		Rotation Angle	Torque Nm (at 25 MPa)	Rated Pressure MPa	Flow l/min.	Weight Kg
	Static	Dynamic					
FR 15	1.200	600	360° cont.	500	25	10	10
FR 35	3.500	1.750		900		20	17
FR 50	5.000	2.500		1.100		20	25
FR 55	5.500	2.700		1.300		20	28
FR 75 DBX *	7.000	3.500		1.900		25	36
FR 75 DBX / 2 *	7.000	3.500		1.900		25	38
FR 125 DBX *	12.000	6.000		2.700		30	48
FR 125 DBX / 2 *	12.000	6.000		2.700		30	51
HYDRAULIC ROTATORS - FLANGED VERSION							
Rotor model	Max. Axial Load kg		Rotation Angle	Torque Nm (at 25 MPa)	Rated Pressure MPa	Flow l/min.	Weight Kg
	Static	Dynamic					
FR 35 F	3.500	1.750	360° cont.	900	25	20	22
FR 50 F	5.000	2.500		1.100		20	28
FR 55 F	5.500	2.700		1.300		20	33
FR 75 DBX - F *	7.000	3.500		1.900		25	41
FR 75 DBX - F / 2 *	7.000	3.500		1.900		25	44
FR 125 DBX - F *	12.000	6.000		2.700		30	56
FR 125 DBX - F / 2 *	12.000	6.000		2.700		30	59
FR 125 F S6 DBX*	12.000	6.000		2.900		35	77
FR 175 DBX - F *	17.000	8.500		3.400		40	70
FR 175 F S6 DBX *	16.000	8.000		3.400		40	79

* Double bearing

Hose and Cable Reels



Features:

- High technical performances
- Large applications range
- Pressure up to 30 MPa
- Double sealing system

HOSE REELS					
Model	Number of hose port	Hose type	Nominal diameter mm.	Port dimensions BSP	Max. pressure MPa
S1	1	1 x single hose	295 - 720	5/16" - 1/2" - 5/8" - 3/4" - 1"	35
A1 25....800 - 1600			810 - 1600	1/2" - 5/8" - 3/4" - 1"	35
AG....200 - 340 Compact	2	1 x twin hose	200 - 340	3/16" - 1/4" - 5/16" - 3/8"	30
AG....296 - 520			296 - 520	1/4" - 5/16" - 3/8" - 1/2"	30
AG....570 - 1000			570 - 1000	1/4" - 5/16" - 3/8" - 1/2"	30
AG 19			420 - 920	1/2" - 5/8" - 3/4"	35
AG 25			810 - 1400	3/8"-1/2" - 5/8" - 3/4"	35
AG LS			400 - 820	1/4" - 5/16" - 3/8"	30
RT 1 - RT 2			Rescue Tools Hose Reel	420 - 520	1/4"
A2.19	2	2 x single hose	420 - 820	1/2" - 5/8" - 3/4"	35
A2.25			620 - 1400	1/2" - 5/8" - 3/4" - 1"	35
A3	3	1 x 3 port hose	295 - 920	1/4" - 5/16" - 3/8" - 1/2"	30
A3.19		3 x single hose	420 - 820	1/2" - 5/8" - 3/4"	30
A4	4	2 x twin hose	230 - 820	1/4" - 5/16" - 3/8"	30
A4.12			295 - 820	1/2"	30
M4		4 x single hose	370 - 720	1/4" - 5/16" - 3/8" - 1/2"	30
A4.19			420 - 820	1/2" - 5/8" - 3/4"	35
A 5	5	Multi hose	295 - 720	1/4" - 5/16" - 3/8"	30
A 6	6		295 - 720	1/4" - 5/16" - 3/8"	30
AG/E	2	2 hoses + cable	275 - 700	3/8" - 1/2"	30
A3/E	3	3 hoses + cable	295 - 470	3/8"	30
A4/E	4	4 hoses + cable	295 - 478	3/8"	30
A5/E	5	5 hoses + cable	295 - 478	3/8"	30
9000	1	Air, Oil, Diesel, Water	440	1/4" - 5/16" - 3/8" - 1/2"	40
9100	1	Air, Oil, Diesel, Water	450	1/4" - 5/16" - 3/8" - 1/2"	40 / 25 / 8
800	1	Compressed Air	-	-	1,0 - 1,5
9200	1	Welding Gas	-	-	2
CABLE REELS					
Model	Nominal diameter mm.	Conductor section	Number of contacts	Current	
CR 025	120	0,25 mm ²	2 - 3	75 V - 4 A	
CR 10	235 - 650	1 mm ²	2 - 36	75 V - 4 A	
CR 15	235 - 570	1,5 mm ²	2 - 36	75 V - 6 A	
CR 25	295 - 820	2,5 mm ²	3 - 12	75 V - 15 A	
6000	370 - 720	Up to 2,5 mm ²	3 - 24	400 V - 150 A	
700	-	Manual operation	5	12 - 24 230 - 380	

K3VL

Medium pressure, swash plate, open loop axial piston pumps



Features:

- High power density
- High performances
- High reliability
- High self-priming capability
- Wide range of controls
- Spherical valve plate
- Standard ISO / SAE mounting and porting
- Through drive options
- Torque control available

Pump model	Displacement cm ³ /n	Rated pressure MPa	Peak pressure MPa	Rotation speed n/min.	
				Max. for self-priming	Max.
K3VL 28	28	32	35	3.000	3.600
K3VL 45	45	32	35	2.700	3.250
K3VL 60	60	25	28	2.400	3.000
K3VL 80	80	32	35	2.400	3.000
K3VL 112	112	32	35	2.200	2.700
K3VL 140	140	32	35	2.200	2.500
K3VL 200	200	32	35	1.900	2.200
K3VL 200H	200	32	35	2.200	2.200

K3VL28 (Fan Drive)

Medium pressure, swash plate, open loop axial piston pumps

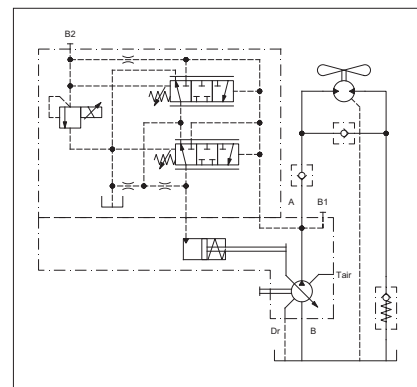


Features:

- Low noise level
- High rotation speed
- Compact design and reduced length
- Suitable for multiple pump assembly

The K3VL pump 28 Fan Drive is variable displacement axial piston pump with a proportional electric controller which can be operated either by the Diesel engine control unit or by the machine control unit.

In this way the cooling air flow is optimized with the temperature of the combustion engine reducing the noise and increasing the efficiency of the system.



K3VLS

Medium pressure, swash plate, open loop axial piston pumps



Features:

- High overall efficiency
- Compact size
- Light weight
- Excellent reliability
- Wide range of controls
- High stability
- High responsive controls

Pump model	Displacement cm ³ /n	Rated pressure MPa	Peak pressure MPa	Rotation speed n/min.
				Max.
K3VLS 50 *	50	28	35	2.600
K3VLS 65	65			2.600
K3VLS 85	85			2.500
K3VLS 105	105			2.300
K3VLS 125 *	125			2.200
K3VLS 150 *	150			2.200

* Under development

K7SP36

Medium pressure, swash plate, open loop axial piston double pumps



Features:

- Compact design one suction double pump
- High reliability
- Low noise
- Optional third pump
- Constant power control

Pump model	Displacement cm ³ /n	Rated pressure MPa	Peak pressure MPa	Max. rotation speed for self-priming n/min.
K7SP36	36 + 36	30	32	2.300

K3V

High pressure, swash plate, open loop axial piston pumps



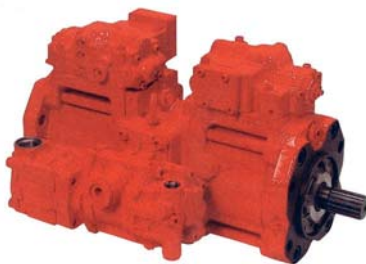
Features:

- High pressure
- High performances
- High reliability
- Long life
- Low noise
- Wide range of control options

Pump model	Displacement cm ³ /n	Rated pressure MPa	Peak pressure MPa	Rotation speed n/min.	
				Max. for self-priming	Max.
K3V 63	63	34	39	2.650	3.250
K3V 112	112			2.360	2.700
K3V 140	140			2.150	2.500
K3V 280	280			1.600	2.000
K3V 63 DT	63+63			2.650	3.250
K3V 112 DT	112+112			2.360	2.700
K3V 140 DT	140+140			2.150	2.500
K3V 280 DT	280+280			1.600	2.000

K5V

High pressure, swash plate, open loop axial piston pumps



Features:

- Standard SAE flange and shaft
- High efficiency and high self-priming capability
- Low noise
- Wide range of hydraulic and electric controls

Pump model	Displacement cm ³ /n	Rated pressure MPa	Peak pressure MPa	Rotation speed n/min.	
				Max. for self-priming	Max.
K5V 80	80	34	39	2.460	3.000
K5V 140	140			2.160	2.500
K5V 160	160			2.000 / (2.350) *	2.350
K5V 200	200			1.900 / (2.200) *	2.200
K5V 80 DT	80+80			2.460	3.000
K5V 140 DT	140+140			2.160	2.500
K5V 160 DT	160+160			2.000 / (2.350) *	2.350
K5V 200 DT	200+200			1.900 / (2.200) *	2.200

(*) With centrifugal pump

K8V

High pressure, variable displacement closed loop circuit axial piston pumps



Features:

- Wide range of controls
- Global standard shaft and mount
- Optimised rotating group
- Additional valves
- Additional sensor options
- Variety of through drive options

Pump model	Displacement cm ³ /n.	Rated pressure MPa	Peak pressure MPa	Max. speed n/min.
K8V 71	71	40	45	3.300
K8V 90	90			3.050
K8V 125	130			2.850

M7V

High pressure, variable displacement axial piston motors for open and closed loop circuit



Features:

- Swash plate
- High speed operation
- Smooth starting characteristics
- Low speed operation
- Compact size
- Long bearing life

Motor model	Max. displacement cm ³ /n	Rated pressure MPa	Max. pressure MPa	Max. speed N _{nom} / N _{max} n/min.
M7V 85	85	40	45	3.900 / 6.150
M7V 112	112			3.550 / 5.600
M7V 160	160			3.100 / 4.900

HKS

Hydraulic rotary actuators



DA-H Series

Rotating shaft

Working pressure up to 25 MPa
 Torque up to 250.000 Nm (15 sizes)
 Standard angle 90°, 180°, 270°, 360°
 Special angle up to 1500°
 Preferred applications:
 Industry (construction machinery, machine tools etc.)



DA-H-AL Series

Rotating shaft

Working pressure up to 21 MPa
 Torque up to 16.000 Nm
 Standard angle 90°, 180°, 270°, 360°
 Special angle up to 1500°
 Reduced weight (aluminium)
 Preferred applications: Aerial platforms



M-DA-H Series

Rotating flange

Working pressure up to 25 MPa
 Torque up to 4.800 Nm (11 sizes)
 Standard angle 180°, 360°
 Preferred applications:
 Working platform, construction machinery, automotive technology



M-DA-H-F Series

Rotating flange or shaft, with foot

Working pressure up to 21 MPa
 Torque up to 50.000 Nm
 Standard angle 180°, 360°
 Preferred applications:
 Working platform, Garbage trucks
 Automotive technology, etc.



M-DA-H-F3 Series

Rotating flange, special mounting

Working pressure up to 21 MPa
 Torque up to 5.000 Nm
 Standard angle 180°, 360°
 Preferred applications:
 Working platform



BV Series

Rotating flange, with foot

Working pressure up to 10 MPa
 Torque up to 100.000 Nm (9 sizes)
 Standard angle 100°, 140°
 Preferred applications:
 Bucket and ancillary equipment for construction machinery

WANDFLUH

Hydraulic valves, proportional valves and electronics

Spool Valves

- Spool valves according to the 5-chamber principle
- Electrically, mechanically, pneumatically and hydraulically actuated
- Precise spool fit
- Low leakage rate
- Flange design
- Large standard programme
- Many additional functions
- For the directional controlling of cylinders and hydraulic motors



Cartridges

- Functional part for compact designs
- ISO screw-in cartridges
- Poppet, pressure and flow valves
- Mechanical actuation by means of key or turning knob
- Electrical actuation by means of switching or proportional solenoid
- Simple and precise adjustment
- For installation in control blocks and line mount bodies



Proportional Hydraulics

- Directional, pressure and control valves
- Actuation any means of proportional solenoid
- Also available with integrated electronics «DSV»
- High resolution
- Good reproducibility
- Low hysteresis
- Cartridge, flange and sandwich style construction
- For the control and closed-circuit control of automated processes



Electronics

- Digital and analogue electronics
- From the amplifier right to the axis controller
- Plugs, Eurocards and snap-on modules
- Also integrated in proportional valve «DSV»
- Parametrisation any means of convenient software
- High operational convenience
- Easy handling
- Implementation of complex control and closed-circuit control tasks



HYDROPA

Pressure switches for hydraulics



DS-117 / 112

Small size piston pressure switches

- Oil connection 1/4"G female or flangeable
- Max. adjusting pressure 35 MPa
- Protection class IP 65
- Maximum current 5A



DS-307 / 302

High performances piston pressure switches

- Oil connection 1/4"G female or flangeable
- Max. adjusting pressure 60 MPa
- Protection class IP 65 or IP 68 on request
- Maximum current 5A



DS-507 / 502

Standard piston pressure switches

- Oil connection 3/8"G female or flangeable
- Max. adjusting pressure 35 MPa
- Protection class IP 65
- Maximum current 5A



DS-4*7 / 4*2

Fail safe piston pressure switches with two switches

- Flangeable
- Max. adjusting pressure 35 MPa
- Protection class IP 65
- Maximum current 5A



DS-802/M/B

Diaphragm pressure switches for low pressure

- Oil connection 1/4"G female
- Adjusting pressure from 0,05 to 1,5 MPa
- Protection class IP 65
- Maximum current 5A

Agriculture & Forestry

Examples of Applications

FRUIT HARVESTERS



Components:



Tandem closed loop axial piston pump



Electric joystick



Electronic control unit

MULTIPURPOSE TRACTORS



Components:



Tandem closed loop axial piston pump



Electric joystick



Hydraulic joystick and pedal



FORESTRY FORWARDERS



Components:



Tandem closed loop axial piston pump



Load sensing pump



Radial piston motor



Pump drive

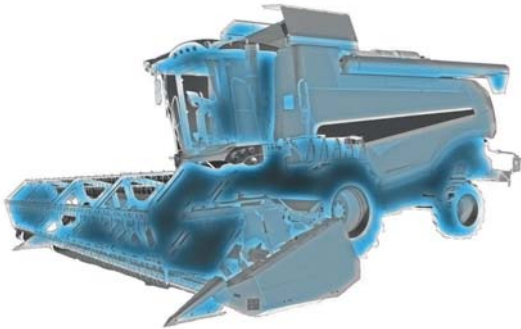


Electronic control unit



Electric pedal

HARVESTING MACHINES



Components:



Closed loop axial piston pump



Axial piston motor

Environment

Examples of Applications

MOWERS (SELF PROPELLED)



Components:



Closed loop axial piston pump



Axial piston motor



Customized bell housing

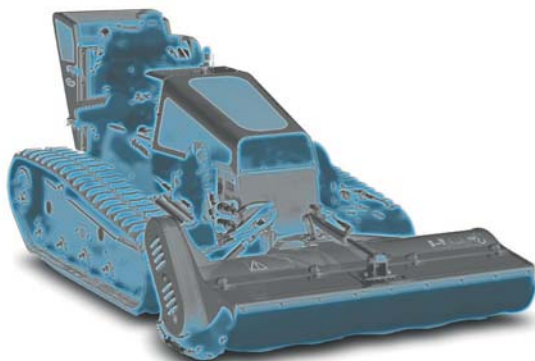


Gear pump



Electronic control unit

MOWERS (REMOTE CONTROLLED)



Components:



Triple closed loop axial piston pump



Axial piston motor



Customized bell housing



Gear pump



Electronic control unit

SWEEPERS



Components:



Closed loop axial piston pump



Wheel drive unit

AMPHIBIOUS VEHICLES



Components:



Tandem closed loop axial piston pump



Electronic control unit

Construction & Handling
Examples of Applications

MINI LOADERS



Components:



Close loop axial piston pump



Hydraulic pedal

ROAD & SOIL COMPACTORS



Components:



Closed loop axial piston pump



Axial piston motor

MINI DUMPERS



Components:



Tandem closed loop axial piston pump



Wheel drive unit

SKID STEER LOADERS



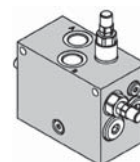
Components:



Tandem closed loop axial piston pump



Hydraulic joystick



Self levelling bucket valve



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