Your hydraulic system partner

RADE

Together, we are more powerful.

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- Hidroser's corporate structuring and references, engineering, consultancy, sales, technical service and training service,
- Hydraulic power units, hydraulic blocks, hydraulic cylinders, pneumatic control panels and custom hydraulic machinery production,
- Parker Hannifin, the leading manufacturer of hydraulic systems, pneumatic systems, fittings, filtration systems, instrumentation and industrial controllers,
- Technical specifications of all products and catalogue pages,
- Parker Store Retail Sales Concept.







Training

Our company, which constantly follows the sector developments on a regular basis, prepares the staff to the modern needs and requirements with seminars given in meeting rooms of 40 persons. Hidroser organizes General Hydraulic Seminar trainings in an attempt to extend support for the development of our customers on the subject of hydraulics. The current systems of the company are analyzed to specify their requirements and special educational programs are implemented for that company. Furthermore, the facility to examine the subjects in more detail is provided by means of the Advanced Hydraulic Training.

Training Subjects

- Basic Principles of Hydraulics
- Symbols of Hydraulic Components
- Hydraulic Fluids
- Hydraulic Tanks and Accessories
- Hydraulic Pumps and Control Systems
- Hydraulic Valves
- Hydraulic Motors
- Hydraulic Cylinders
- Hydraulic Filtration Technologies
- Hydraulic Accumulator and Applications
- Hydraulic Pipes, Hoses and Fittings
- Hydraulic Circuits and Project Application Examples



Intra-company mobile hydraulic training



Coca-Cola İçecek A.Ş general hydraulic training

Your Solution Partner for Automation













PV PLUS

- Nominal operating pressure 350 bar
- Maximum operating pressure 420 bar

Variable displacement piston pump

Today, the importance and benefits of variable displacement pumps have been better understood, thus their usage rate has considerably increased. The variable displacement pumps are used in many sectors and various types of machines, widely ranging from the simplest to the most complex hydraulics systems.

The variable displacement pumps can be of tracked or piston type. The piston pumps step forward with the benefit of the ability to operate at higher pressure levels.

The Variable displacement piston pumps can be divided into four basic classes as follows;

- Pressure compensated,
- Load-sensing,
- Horse power control
- Proportional control

Most of the variable displacement pumps used are pressure-compensadet pumps.

In hydraulic systems the flow amount determines the operating rates of the hydraulic work components (hydraulic cylinder, motors or rotating actuators). In consequence, the flow control is extremely important in terms of controlling the operating speed. For flow control, the amount of flow that reaches the work element might be changed by using flow control valves together with fixed displacement pumps. However, flow control obtained by the use of these valves have significant drawbacks as listed below:

- High amount of energy consumption
- Heating of the hydraulic system and in connection, emergence of cooling cost
- Increase in corrosion speed of hydraulic equipment.
- Maintenance and repair cost
- Work force loss
- Time loss
- Money loss





The basic operating principle of variable displacement pumps is not producing any flow more than the requirement of the hydraulic work element. Thus, only the flow required by the work element shall pass through the flow control valve, the pump will produce only the flow required and no flow that is required to pass through the pressure safety valve will be generated.

It has a wide range of usage area. The most basic purpose of the use of the variable displacement pumps is to provide energy savings and to prevent the formation of heat.

PV Plus, the latest pump developed in the class of variable displacement axial piston hydraulic pumps is widely used in the hydraulic systems. As a result of the long term works performed, this pump that meets the requirements of many pump users has been developed.

The PARKER team which has set out to develop PV Plus has primarily asked for the opinions of our customers regarding their dream pump. Naturally, many people have specified that they would find a powerful, silent pump with various control options quiet attractive. Thereupon, the PARKER team has decided to develop Variable **Displacement Axial Pump PV Plus Series** which have a maximum operating pressure of 350 bar, the noise level of which has been minimized and which encompasses all regulation options. PV Plus is the most silent pump in amongst the pumps with 350 bar operating pressure; as is known, the source of noise in pumps is the change in flow and pressure at high frequency.

The pistons of the pump which revolves at 1500 rev/min causes load changes while passing through every suction and pressure area. In PV Plus, in order to damp these load changes, pre-pressure chambers have been considered. Thus, the noise level has been reduced in



comparison with its precedents.

In terms of pump control mechanisms, every option used in industrial systems is available at PV Plus. Pressure compensated, load sensing, horse power control or proportional controlled pumps that may be controlled via electrical signals are included in the product range. Other than these, in order to perform power control electronically, a new control element has been included within the pump control options. In all horse power controlled pumps, if it is wished to change the motor power that drives the pump, some parts on the pump must be definitely changed also. However, for electronic power control pumps, it is possible to rotate the pump with the desired amount of power without the requirement to perform such part changes.

With these innovations and its competitive prices, PV Plus has become a highly demanded product. Displacement options ranging from 16 cm3/d. to 270 cm3/d. are available.

Selection table and technical data

model	max.displacement in cm³/rev	output flow in I/min at 1500 min ^{.1}	input horse power at 1500 min ^{.1} and 350 bar	max speed ¹⁾ in min ^{.1}	mass in kg
PV016	16	24	15.5		
PV020	20	30	19.5	3000	19
PV023	23	34.5	22.5		
PV032	32	48	31		
PV040	40	60	39	2800	30
PV046	46	69	45		
PV063	63	94.5	61.5	2800	
PV080	80	120	78	2500	60
PV092	92	138	89.5	2300	
PV140	140	210	136	2400	90
PV180	180	270	175	2200	90
PV270	270	405	263	1800	172





Gear Pumps Vane Pumps Piston Pumps Hydraulic Motors Radial Piston Motors





Hydraulic Pumps and Motors







Parker DF Plus Series

Proportional Valves with Servo Characteristics

The Hydraulic and Pneumatic equipments are used heavily at everywhere in need for power and motion and perform critical and significant tasks at all factories and enterprises in sectors such as Energy, Automotive, Iron-Steel, Whiteware, Plastics, Packaging. Thus, they are required to have strong characteristics in terms of both power and sensitivity.



The recent developments in the electromechanical field has begun to decrease the use of hydraulic and pneumatic type of equipment. Provision of more

sensitive control by electromechanical systems is one of the main and most important reasons of this decrease. It was inevitable for the hydraulic equipments which will support the developments encountered in the electromechanical servomotor technology to improve their specifications to have more powerful and sensitive static and dynamic characteristics. In this case, the R&D departments of the leading companies in the Hydraulics and Pneumatics sector have improved their technologies to produce hydraulic equipment with extremely sensitive control facilities, high static and dynamic characteristics, prolonged life cycles (100 million operations) and low filteration costs.

Proportional Valves with Servo Characteristics (DF Plus)

Parker Hannifin has accomplished to produce a new, durable, powerful

valve with high static and dynamic characteristics with DF Plus valve series with VCD (Voice Coil Drive) technology.

Parker VCD (Voice Coil Drive) Technology

With Parker's new VCD (Voice Coil Drive) Technology, very sensitive control characteristics have been achieved in the drive technology of equipment such as proportional control valves, servo valves. The basis of motion is the activation of the current carrying coil area by the continuous magnet. The same system is used to produce high frequencies in the speaker systems.

Instead of the fixed solenoid drive in the Standard Proportional valves, motion is provided for the valve slide by means of a moving coil in the VCD technology. The valve coil is directly connected to the slide via its body and the coil is sent to the slide side over the fixed magnetic cylinder. With the energizing of the coil, the slide is brought to the desired position with extremely high precision in accordance with the flow direction.

The real position is sent back to the closed circuit electronical control system



			RESPOND	COMMAND SIGNAL OP-		
			TIME	TIONS		
NG-6	;	D1FP	3.5 ms	+/-10V	+/-20mA	4-20mA
NG-1	0	D3FP	6 ms	+/-10V	+/-20mA	4-20mA
NG-1	6	D41FP	13 ms	+/-10V	+/-20mA	4-20mA
NG-2	5	D91FP	19 ms	+/-10V	+/-20mA	4-20mA
NG-3	2	D111FP	45 ms	+/-10V	+/-20mA	4-20mA

by means of the transducer (LVDT) and if there is an error, it is corrected by the system and the slide is brought to the desired position. In case of the failure of the sent signal to arrive and a power interruption, the valve is brought to the specified position by means of spring force.

The most important factor is that DF Plus can achieve effective forces even at the highest dynamics. As can be seen from the diagram, the valve can reach a frequency of 400 Hz approximately at -3Db amplitude ore – n c90 phase.



Histeresis: 0.030.05 H% Cevap süresi: 3, 5 ms Frekans: 3Db @ 400 Hz (%5)

In addition to these high static and dynamic characteristics, DF Plus also bears the feature of high permeability. Furthermore, DF Plus operates at predetermined safety positions against power and signal outages during operation.

DF Plus can be controlled via common control signals thus can be easily adapted in the existing systems and used in the place of current components. DF Plus is at the same cost level proportional directional control valves with high dynamics. As a result, it is a more economical alternative of the same characteristics with expensive servo valves.





Directional Control Valves Pressure Valves Flow Control Valves Check valves Logic Valves Proportional Valves Servo Valves





Hydraulic Valves







Industrial Control Solenoid Valve





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Hidroser Hidrolik-Pnömatik Ekipmanları San. ve Tic. A.Ş. Hadımköy Yolu No:44 34900 Büyükçekmece / İstanbul Tel: (+90 212) 886 72 70 (8 Hat) Fax: (+90 212) 886 69 35 (2 Hat) e-mail: info@hidroser.com.tr

Hidroser Adana Hidroser Ankara Hidroser Bursa Hidroser İzmir Hidroser Konya Hidroser İmes Resatbey Mah. Fuzuli Cad. No: 71 Dotas Apt. Adana İvedik Org. San. Bölg. 22.Cad. 668.Sk. No: 88-90 Ostim/Ankara Beşevler San. Sit. 18.Blok, No: 1-2-3 Nilüfer/Bursa Ankara Cad. Rod-Kar İş Merkezi No: 13/A 35110 Bornova/İzmir Esenler Mah. Beyzadeler Sk. No: 11/1 Selçuklu/Konya İmes San.Sit. C Blok 305.Sk No:1/A Y.Dudullu Ümraniye/İstanbul

el: +90 322 459 80 85 Fax: +90 322 459 83 5	0 e-mail : adana@hidroser.com.tr
el: +90 312 395 08 52 Fax: +90 312 395 08 5	5 e-mail : ankara@hidroser.com.tr
el: +90 224 441 23 23 Fax: +90 224 441 34 9	1 e-mail : bursa@hidroser.com.tr
el: +90 232 462 80 06 Fax: +90 232 462 80 0	8 e-mail : izmir@hidroser.com.tr
el: +90 332 247 97 62 Fax: +90 322 247 97 6	2 e-mail : konya@hidroser.com.tr
el: +90 216 466 51 41 Fax: +90 216 466 51 4	3 e-mail : imes@hidroser.com.tr

DF Plus Proportional Directional Control Valve with Servo Characteristics





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Hidroser Hidrolik-Pnömatik Ekipmanları San. ve Tic. A.Ş. Hadımköy Yolu No:44 34900 Büyükçekmece / İstanbul Tel: (+90 212) 886 72 70 (8 Hat) Fax: (+90 212) 886 69 35 (2 Hat) e-mail: info@hidroser.com.tr http://www.hidroser.com.tr

Hidroser Adana Hidroser Ankara Hidroser Bursa Hidroser İzmir Hidroser Konya Hidroser İmes Resatbey Mah. Fuzuli Cad. No: 71 Dotas Apt. Adana İvedik Org. San. Bölg. 22.Cad. 668.Sk. No: 88-90 Ostim/Ankara Beşevler San. Sit. 18 Blok, No: 1-2-3 Nilüfer/Bursa Ankara Cad. Rod-Kar İş Merkezi No: 13/A 35110 Bornova/İzmir Esenler Mah. Beyzadeler Sk. No: 11/1 Selçuklu/Konya İmes San.Sit. C Blok 305.Sk No:1/A Y.Dudullu Ümraniye/İstanbul

Tel: +90 322 459 80 85 Fax: +90 322 459 83 50 e-mail : adana@hidroser.com.tr Tel: +90 312 395 08 52 Fax: +90 312 395 08 55 e-mail : ankara@hidroser.com.tr Tel: +90 224 441 23 23 Fax: +90 224 441 34 91 e-mail : bursa@hidroser.com.tr Tel: +90 232 462 80 06 Fax: +90 232 462 80 08 e-mail : izmir@hidroser.com.tr Tel: +90 332 247 97 62 Fax: +90 322 247 97 62 e-mail : konya@hidroser.com.tr Tel: +90 216 466 51 41 Fax: +90 216 466 51 43 e-mail : ims@hidroser.com.tr



Darker

- Stock offering more than 6000 types of products
- Fittings at all thread standards
- Hydraulic, pneumatic fittings and hoses
- Quick couplings
- Hydraulic and pneumatic system components
- Hydraulic filtration products
- All special and standard hose types

While you are enjoying your coffee...





Parker Store











Ermeto (EO) Fittings

These type of fittings with "high pressure safety" are used in every field of hydraulics. Various designs in a wide product range can be used for special applications.

Ermeto (EO-2) Fittings

E0-2 Fittings which are a version of E0 connection standard include soft sealing components at all joints. The most important feature of E0-2 series is the development of an easy-to-use nut system in place of the sealing ring.

Ermeto (EO-2) Stainless Steel Fittings

These fittings which are a type of EO-2 Series are used in branches of industry where corrosion resistance and ease of assembly are prioritized requirements.

Product range: L series: Pipe outer dia. 6-42mm S series: Pipe outer dia. 6-38mm Material: 1.4571 Stainless Steel

Ermeto (EO-2) Functional Steel Nut for Stainless Steel Tubes

This pipe fitting with high pressure resistance and ease of assembly is designed to be used with stainless steel pipes in environments where the corrosion resistance of zinc coated stainless steel pipes fail to satisfy. L series: Pipe outer dia. 6-42mm S series: Pipe outer dia. 6-38mm

Ermeto (EO) Welded Fittings

These type of fittings are designed to suit many assembly ways such as straight nipple connection, elbow joint or directional connections and manufactured to include metallic O-ring sealing component.

Triple-Lok is a universal 37° flare nut connection used under medium pressure levels which can be used with pipes measured in Metric or Inches.

Material: Steel and Stainless Dimensions: Pipe outer dia. between 6-42mm (1/4-1½) Pipe Threads: UNF, NPTF, BSPP, BSPT, metric ISO 6149 and DIN 3852

Operating Pressure: Up to 350 bar Standards: SAE J514, ISO













Parker O-Ring O-Lok Fittings with Sealing Surface (ORFS)

These are fittings used in high pressure hydraulic systems which provide the connection between components with full sealing. They are used in serial pipe and hose applications.

Applications. Material: Steel and stainless steel and brass on request.

Dimensions: Pipe outer dia. between 6-38mm. Pipe Threads: BSPP, metric ISO 6149 and DIN 3852, UNF, NPTF,

Operating Pressure: Up to 630 bar

Metro-Lok Brass Pipe Connectors for Medium Pressure Levels

Metro-Lok is a type of ready-to-use compression type fitting used with brass or plastic pipes. Material: Brass.

Dimensions: Pipe outer dia. between 4-22mm, thread sizes ranging from 1/16 to ¼ inches. Pipe Threads: NFT, BSPT, BSPP, metric. Operating Pressure: 190 bar with brass pipe Operating Temperature: between -40°C and +200°C

PrestoLok Automatic Fittings – Nickel Coated Brass Body.

Prestolok is an automatic fitting used for the quick connection of copper and plastic pipes. Material: Nickel Coated Brass. Dimensions: Pipe outer dia. between 4-14mm, thread sizes ranging from M3 to ½ inches. Pipe Threads:BSPT, BSPP, metric. Operating Pressure: From vacuum up to 25 bar Operating Temperature: between -25°C and +100°C (depending on pipe quality)

Steel and Stainless Steel Adaptors

Adaptors designed to be used with all kinds of connectors, reducers and fittings. Material: Steel and stainless steel. Dimensions: 1/8 and 2 inches. Pipe Threads: BSPP, BSPT, metric, UNF, NPT, NPTF, JIS.

Ermeto (EO) Shut-Off / High Pressure and 2-Way Ball Valves

Shut-off and High Pressure Valves Product Range: L series: Pipe outer dia. 6-42mm S series: Pipe outer dia. 6-38mm Material: Brass, red brass, acid-fast steel and forged steel. Connections: DIN 23531, L Series, S Series, BSPP, DIN ISO 228 or NFT. Operating Pressure: Up to 500 bar.

EO Check Valves

Single-way valves the sealing of which is provided by the synthetic material coated on a 90° cone. Product Range: L series: Pipe outer dia. 6-42mm S series: Pipe outer dia. 6-38mm Thread connection: Between $1/8 - 1\frac{1}{2}$ inches. Material: Zinc coated steel, brass and stainless steel. Opening pressure: 1 bar, 0.5/2 and 3 bar on request. Fluid rate: 8 m/s

hidroser YDRAULIC SYSTEMS













Ermeto (EO) Tubing

Ermeto Pipes and Bent Pipes complying with DIN 2391 norm Material: ST 17.4 Steel and 1.4571 / 1.4541

Stainless Steel Dimensions: Pipe outer dia. between 4-80mm. Wall thickness: For pipes 0.5-100 max., for bent pipes between 1.5-10mm

Operating Pressure: Up to 700 bar (According to pipe outer diameter and wall thickness)

Ermeto (EO) Tube Clamps Dimensions.

A series: Pipe outer dia. between 6-35mm. B series: (Twin bracket) Pipe outer dia. between 6-42mm. C series: Pine outer dia between 8-219 1mm Material: Polypropylene, polyamide 6 or aluminium on request. Accessories: Steel, screws for A and B series and zinc coated exterior (can be stainless steel on request)

Parkrimp-Self Assembly System

In systems where Parkrimp hoses, fittings and tools are used, it is no longer necessary to strip the outer surface of the hose for the assembly of the fittings on the hose. Structure: Outer surface and pipe synthetic rubber, high tension steel between 1-6. Dimensions: between 4-32. Assemblies: SAE J3D3/DIN 20021/20026 Operating Pressure: 34.5 Mpa for size 32 Temperature: between -50°C and +149°C. Specifications: DIN 20022 ISN 2SN

High Pressure Hoses

Removing the protective layer of the pipe before the assembly of the reusable pipe is not required

Structure: Outer surface and pipe synthetic rubber, 1 or 2 steel wire fence, reinforced layers.

Dimensions: between 3-32 (DN 05 DN 30) Operating Pressure: 400 bar Temperature: between -40°C and +100°C Specifications: DIN 20022 ISN 2SN SAE 100 R12 AT/R2 AT/R5

Parker Push

Parker Push can be used in every field where low pressure applications are used (Such as robots in automative industry, packaging machines, devices that operate with compressed air, etc.). They can be specially manufactured as "Not to include any solvents" for automative industry. Structure: Outer surface and pipe synthetic rubber, 1 layer of fabric and outer surface in choice of different colors. Measurements: between 4-12. Operating Pressure: up to 2.5 Mpa. Temperature: between - 49°C / +149°CBu

Parflex – Polyflex Thermoplastic applications for High Pressure

Flexibilty resistant to a pressure of 70 Mpa, low volume expansion, low bending measurement and low weight. Structure: Thermoplatic reinforced with fiber or steel spirals. Measuremetn: between 2-20. Operating Pressure: up to 70 Mpa for size 4,

up to 27.5 Mpa for size 20. Pipe assemblies: DIN 20066 / DIN 20024 / SAF 1343

Temperature: between -57°C / +120°C.













Quick Couplings

Fittings combining the advantages of a good design with high pressure (Puppet type, threaded or ball locking) Material: Steel or Stainless Steel. Dimensions: between 1/8 - 11/2 inches. Thread Size: BSPP, NFT, NPSF, UNF. Operating Pressure: up to 1000 bar.

Pneumatics

Quick fittings complying with ISO 6150 B or European Standards. By means of their enhanced flow characteristics, can be used in the field of pneumatics with perfect compatibility. Material: Brass or Steel Dimensions: Between 1/4 - 1/2 inches and 7.2mm and 10mm. Connections: BSPP, hose input and Parket Push Lock Flow: 3500 liter/min

SensoControl Measurement Systems

A complete measurement system for pressure, temperature, flow and revolution. Practical use and portability for outdoor measurements. Delivered with many accessories as a package and the system can be expanded on request. Various sensors that may e used with this device are also included in the Parket product range.

SensoControl Test Points and Adaptors

Galvanized test points and adaptors that provide the adaptation of sensors to the hydraulic system

Socket or threaded type of connection for many sealing component types and thread sizes

Possibility to connect FMA measurement points under pressureBu

Assembly Tools Ermeto (EO) Pipe Bending and **Cutting Apparatus**

AV 6 / 42 pipe cutting apparatus BAV 6 / 12 Combined pipe cutting and bending tool.

BV 6 / 18 pipe bending apparatus for pipes with outer diameters between 6-18mm. BV 20 / 25 pipe bending apparatus for pipes with outer diameters between 20-25mm. BV 6 / 18 programmable pipe bending apparatus for pipes with outer diameters between 6-18mm. Repeatability at excellent level.

Karrykrimp and Parkrimp1

Portable hose assembly machines. No adjustments or indicators are required. No specially trained personnel is required. Karrykrimp (82CE) A portable device used for rubber and thermoplastic hoses at the sizes between 2-20 reinforced with maximum 2 layers of wire. Parkrimp1 (80CE) is a fixed press.





ortance of CAD/CAN

hidroser

Importance of CAD/CAM in Hydraulics Sector

Computer aided design (CAD) and computer aided manufacturing are the two main elements required to improve the product quality and production speed in the developing production sector.

Hidroser is aware of the affirmative impact of CAD / CAM on production and fully uses all facilities of this technology during the pre-production design process and production in this direction.

Thanks to the parametric design program Solidworks used in the designs performed, all details of the hydraulic cylinders, hydraulic blocks and hydraulic units produced can be examined as 3D in computer environment. In consequence, all kinds of errors that may occur during production can be determined in advance and the errorfree performance of production is provided. The assembly of the hydraulic blocks the designs of which have been completed with other hydraulic components that will be used in the system is performed in the computer environment and possible problems that might be encountered during the use of the hydraulic system are set forth in advance and eliminated.

Similarly, all details of complex hydraulic units are modelled according to their real measurements and after the layout of the units is performed in the computer environment, the production files which are required in order to perform the assembly processes during production stage in a fast and error-free manner are issued and submitted to production. With Cosmosworks, the mechanical analysis program which is used conjunction with Solidworks, it is possible to conduct the mechanical stress analysis required during design.In particular, the resistance of the joints of the hydraulic cylinders that will be used for special purposes can be provided in a fast and accurate manner by means of this program.

In order for the processing of the hydraulic blocks the CAD models of which have been provided by using the Solidworks program in a CNC machining center on the production line,the CAM programming required for the machine can be performed by using the Solidcam program. The use of CAD / CAM applications is an indismissable element for the period ranging from the pre-production design phase to the manufacturing of the product in order for the fast and error-free performance of production in the hydraulics sector.











Parker PS1E Series Valves

PS1E series valves included in the Parker Pneumatic Group are modular valves. The most important feature of this series of valves which are available as 3/2 and 4/2 is that they are of poppet style and they do not include a displacing shaft like the other classical valves. Thus, they provide excellent operating facilities even in environments of most polluted air. Moreover, they do not require lubrication. PS1E series valves can be used in groups of maximum 20. It is possible configure the groups as 3/2-3/2, 4/2-4/2, 3/2-4/2. It is also possible to connect the series of valves which can operate between the pressure range of 1 to 8 bars included in the PS1E series valve group which can operate between 3 to 8 bars on the same group.

Direct inputs from the terminal blocks at the back of the block can be



PS1E Series Valve can be used in groups

performed without the requirement to use any sockets to supply electrical energy for the coils.

Earthing of every coil is interconnected and terminated as a single line at the end of the block and in this way, the grounding of all coils is performed via single point. The flow rate of PS1E series of valves which provide operation between the temperature range of $15 \circ C$ to $+60 \circ C$ at 6 bars is 200 NL/min. Meanwhile, the signal time of their coils 10 ms.

It is possible to remove any valve on the block that fails to operate without having to demount other. The space occupied on the DIN rail by the 3/2valves included in this series of valves is 17,5mm while the 4/2 valves fit to 35mm.The in-built pipe connectors facilitates the assembly of these valves. This series of valves which are extremely useful particularly for the driving of butterfly valves and valves with actuators used in the washing and dyeing machines in the textile sector with their design and ways of assembly which make the use of pneumatic valves considerably easy provide advantages for many manufacturers in terms of time saving.





Pneumatic Valves Pneumatic Logic Valves Pneumatic Cylinders Pneumatic Actuators Pneumatic Filters Pneumatic Regulators Pneumatic Lubricators Pneumatic Fittings













hidroser Hydraulic systems

Hidroser Standard and Special Hydraulic Cylinders

Hydraulic cylinders are hydraulic equipments which convert the hydraulic energy of fluids into mechanical energy. The hydraulic systems deliver the hydraulic fluid to the cylinder which is the end user by means of pumps. The delivered fluid enables the cylinders to perform the required motion.

Hydraulic cylinders can be generally divided into three groups:

 Single Impact Hydraulic Cylinders
 Submersion Type Hydraulic Cylinders
 Return with Weight Type Hydraulic Cylinders.

1.3 Return with Spring Type Hydraulic Cylinders .

2. Double Impact Hydraulic Cylinders
 2.1. Single Rod Hydraulic Cylinders.
 2.2. Double Rod Hydraulic Cylinders

3. Telescobic Cylinders

3.1. Single Impact Telescobic Cylinders 3.2. Double Impact Telescobic Cylinders

Features of hydraulic cylinders with hydraulic cylinder components at Hidroser standards:

• HS Series Hydraulic Cylinders are designed and manufactured by Hidroser in compliance with Par¬ker Hannifin standards.

• As rod material, Ck45 coated with hard chrome with a thickness of 50 is used on the rod.



- 1- Front Gland
- 2- Shaft
- 3- Lock Nut
- 4- Pipe
- 5- Piston 6- Back Head
- 7- Nutring
- 8- Dust Seal
- 9- Gland O-Ring
- 10- Piston O-Ring
- 11- Compact Piston Seal

hidroser Hydraulic systems



- The material used for the cylinder pipes is St 52 BK+S and the inner surface of the pipe is honed at H8 tolerance.
- The front gland section of the cylinder is threaded and the back head section is welded.
- Easy dismounting of the front gland of the cylinder facilitates maintenance.
- With the custom sealing design of the front gland of the cylinder, an exact protection against lubricant leakages at the shaft side is provided.
- Piston diameters are Ø40, Ø50, Ø63, Ø80 and Ø100 mm.
- Shaft diameters are Ø28, Ø36, Ø45 and Ø56 mm.
- There are four different connection types;
- Front Flanged Connection (MF3),
- Base Flanged Connection (MF4),
- Fixed Bush Joint Connection on Base (MP3),
- Ball Joint Connection on Base (MP5).

- Ball or bush joint can be fitted at the shaft end.
- Lubricant inputs: BSPP, ISO 228/1 compliant.
- Stroke ends unpadded.

Besides the HS Series Hydraulic Cylinders, design and manufacturing of custom-made hydraulic cylinders of all connection types can be performed, for your custom-made hydraulic cylinder requests please contact our company.

Hidroser A.S. manufactures both standard type and custom-made cylinders with the 3D design programs and modern CNC machines used and its experienced and dynamic staff.

Hidroser A.S. which uses its high quality service approach and experience of 20 years for the design and manufacturing of cylinders acts with the awareness that cylinders are one of the main requirements of hydraulic systems and prefers to use the sub-products of best quality for all cylinder productions. The design and production are performed within the frame of ISO9001-2008 quality standards and detailed function, pressure and sealing tests are performed for all cylinders manufactured.

Hidroser Cylinder Features

Rod material : Ck45 50 micron The back cover is welded. Cylinder pipes : St52 BKS Operating pressure : 250 bar Test pressure : 350 bar Operating temperature : -20 °C, +80 °C Maximum piston speed : 0,5 m/sn.







Environment Friendly Parker

Cr6 Free Fittings

For many years, coatings which include chrome has been used for galvanized steel components to provide resistance against corrorson. Since the layers which include Chrome-VI on galvanized layers have a self-healing effect, they were preferred for all processes. The Chrome-VI component poses the risk of causing some health problems in liver and kidneys due to its high content of toxic materials.

The Chrome-free (CF) fittings used in Parker-Ermeto product program which do not include the Chrome-VI (Cr6) component provide many benefits when compared to cadmium coated (A3C) fittings frequently used in the market:

- 1) They are 4 tlmes more resistant to corrosion.
- 2) Can be used at higher nominal pressure values.
- 3) Compatible with DIN and ISO standards.
- 4) Have a stylish look such as stainless 316L.
- 5) Is lighter and 2% cheaper.

The manufacturers have prohibited the use of products which include Chrome-VI by force of responsibilities against people and environmental awareness. Ford has been using Chrome-VI-free fittings since February 2004. Volvo is changing its surface standards and prohibits the use of fittings that include Chrome-VI. In L series, it is possible to go up to pressure levels of 500 bar instead of the 315 bar required. The requirement to use the heavy-duty series is not witnessed most of the times. It provides weight and fuel savings for mobile users and space saving for manufacturers and users of machinery. The assembly equipment used for A3C can also be used for. For Ermeto codes, replacing A3C with CF is sufficient. Chrome-Free (CF) versions for Hose fittings, Triple-Lok and O-Lok fittings are also available.

In the forthcoming years, the use of environment-friendly CF type fittings will increase due to its low price and superior features and A3C fittings will be completely taken off the market. The automative sector is the first sector to have met with the benefits provided by CF.



Parkrimp®



No-Skive

Hydraulic Hoses and Fittings

With Parker's No-Skive technology, hose fittings are pressed without skiving the hoses and thanks to the rubber surface that remains in between, the wire fence in the inner part of the hose is nor damaged.



Hoses and hose fittings which constitute the flexible fittings group used in hydraulic systems enable the delivery of fluid to the main motion mechanisms of the system.

Unfortunately, it is considered that the fittings form a very small part of the investment cost for the complete hydraulic system and the required importance regarding the selection and quality of these fittings is not placed, particularly in Turkey. This is a very wrong way of thinking as the statistical studies performed have shown that most of the lubricant leakages, thus the losses in the hydraulic systems is due to the use of incaompatible fittings which leads to loss of time and money. There is a possibility that the sum of these losses approach and even exceed the investment cost for the complete hydraulic system in time.

In order to prevent the lubricant leakages in hydraulic systems, it must be noted

that hose and pipe fittings are at least as important as the main components and thus require the corresponding attention.

In the recent years, especially in Europe and America, the types of hydraulic hoses which are pressed without being skived are widely preferred as they have a higher reliability.

Raw materials used in the production of hydraulic hoses

The oil resistance of the innermost layer is high and the main raw material used is NBR (Nitrile Butadien Rubber, Material hardness Shore A 90). Its hot oil resistance is also high and phosphate esters and a little amount of EPDM for dry air resistance have also been added. The wire fence that surrounds the inner layer is made of brass coated hardened steel to provide its adhesion to rubber.

The friction resistance of the outermost

layer is high and is made up of PVC added NBR. It is also resistant to atmospherical conditions..

Hydraulic hose fittings (DIN Hose Fittings)

This type of hydraulic hose fittings are the most widely used hose fittings in Europe and Turkey.

For this type of swivel nut (inside metric threaded) hose fittings which are fitted by removing the nut and the thimble on the body of the Bite Type Pipe Fittings with Thimble with an opening conicity of 24° in accordance with DIN standards are tightened to the end until metal-to-metal connection is ensured.

For the same type of hose fitting complying with SOFT SEAL principle, owing to the O-ring located on the channel on the surface with an opening conicity of 24^o, an extremely reliable, full and precise sealing is ensured. For this type of hose fittings, the swivel nut is not tightened to the end, on the contrary, after tightened by hand, it is turned a maximum of 1/4 turns to provide an extremely reliable, excellent sealing without damaging the O-ring.

Especially in Europe, in order to minimize or even completely eliminate the lubricant leakages and thus losses in hydraulic systems designed in the recent years, the use of this type of hydraulic hose and pipe fittings complying with SOFT SEAL principle has become considerably widespread.

Parker Hannifin Group uses No-Skive technology for the pipes it manufactures. By means of this technology, the hose fitting is pressed without stripping the hose. For hydraulic hoses pressed without being stripped, the shall section of the hose fitting does not damage the wire fence in the inner side of the hose.

Meanwhile, since these wires are not exposed by the skiving of the hose,



they are not adversely affected by the atmospherical conditions in time. The bursting or leakage problems which occur at the bottom of the fitting in most of the hydraulic hoses have been eliminated in this type of hoses which are pressed as unstripped.

Frequently used hose types, standards and measurement characteristics

Hydraulic Hoses for Low and Medium Pressures



SAE100 R1AT hydraulic hose cross-section (421SN)

This type of hoses complying with SAE100 R1AT standard are suitable for use at the pressure range of 88 bar – 225 bar and there is a single row of steel wire fence in between the inside and outside rubber layers. Parker has manufactured 421SN series as R1AT series.

Hydraulic Hoses for Medium and High Pressures



SAE100 R2AT hydraulic hose cross-section (301SN)

This type of hoses complying with SAE100 R2AT standard are suitable for use at the pressure range of 165 bar – 400 bar and there are two row of steel wire fence in between the insidse and outside rubber layers. Parker has manufactured 301SN series as R2AT series.

Hydraulic Hoses for High and Ultra High Pressures



SAE100 R9AT hydraulic hose cross-section (701-731)

This type of hoses complying with SAE100 R9 / 4SP standard are suitable for use at the pressure range of 280 bar – 600 bar and there are four rows of steel wire spiral fence in between the inside and outside rubber layers. Parker has manufactured 701 series in R9/4SH norm and 731 series in R9/4SH norm.



Hydraulic Hoses and Fittings Hydraulic Hose Crimping Machines









Parker Polyflex Sever Cleaning Hoses



- Thermoplastic (polyurethane) hose
- Lighter than its competitors (23, 1 kg / 100 mt.)
- Floats on the water surface during operation and protects itself against frictions. (ability to swim)
- Can operate between -10 c + 50 c.
- Long-life. 500 times more resistant to corrosion when compared to rubber hose.
- Compatible for channel conditions in Turkey
- Available at sizes ¹/₂", ³/₄", 1", 1 1/4".
- Hose fittings pressing facility on site.
- Portable hose press (23 kg)
- Pressing can be formed at these sizes: 1/2", 3/4", 1", 1 1/4".







Laser Condition Monitoring







- Fast results at laboratory precision
- Fully guaranteed new hardware



1808



Hidroser Hidrolik-Pnömatik Ekipmanları San. ve Tic. A.Ş. Hadımköy Yolu No:44 34900 Büyükçekmece / İstanbul Tel: (+90 212) 886 72 70 (8 Hat) Fax: (+90 212) 886 69 35 (2 Hat) e-mail: info@hidroser.com.tr http://www.hidroser.com.tr

Hidroser Adana Hidroser Ankara Hidroser Bursa Hidroser İzmir Hidroser Konya Hidroser İmes

Resatbey Mah. Fuzuli Cad. No: 71 Dotas Apt. Adana Ivedik Org. San. Bölg. 22.Cad. 668 Sk. No: 88-90 Ostim/Ankara Beşevler San. Sit. 18.Blok, No: 1-2-3 Nilüfer/Bursa Ankara Cad. Rod-Kar İş Merkezi No: 13/A 35110 Bornova/İzmir Esenler Mah. Beyzadeler Sk. No: 11/1 Selçuklu/Konya İmes San.Sit. C Blok 305.Sk No:1/A Y.Dudullu Ümraniye/İstanbul

Tel: +90 322 459 80 85 Fax: +90 322 459 83 50 e-mail Tel: +90 312 395 08 52 Fax: +90 312 395 08 55 e-mail Tel: +90 224 441 23 23 Fax: +90 224 441 34 91 e-mail Tel: +90 232 462 80 06 Fax: +90 232 462 80 08 e-mail Tel: +90 332 247 97 62 Fax: +90 322 247 97 62 e-mail Tel: +90 216 466 51 41 Fax: +90 216 466 51 43 e-mail

: adana@hidroser.com.tr ankara@hidroser.com.tr bursa@hidroser.com.tr izmir@hidroser.com.tr konya@hidroser.com.tr : imes@hidroser.com.tr



PV Plus Variable Displacement Piston Pump

PV Plus (Powerful)

- Nominal operating pressure 350 bar;
- Maximum operating pressure 420 bar;
- Displacement selection range 16-270 cm3/rpm
- Wide area of use and compensator options

PV Plus (Silent)

- Owing to the optimization of the pump body, more silent than other pumps; 3 dba
- Maximum decrease in system sound level; 8-10 dba

PV Plus (Practical)

- Ease of repair and maintenance
- Compact design

PV PLus (Advantageous)

• Price advantage









Check Valves Pressure Relief Valves Flow Control Valves Directional Control Valves Poppet Valves Logic Valves





Cartridge Valves











Parker Ermeto2 (EO2)

Soft Seal Hydraulic Connection Technique

In hydraulic systems, the sealing of fittings is the most important quality criterion of the user. The connection system of EO2 which has proved itself million times in all high pressure connections and become a connection classic with its soft sealing component is the world leader beyond dispute. Its sealing and reliability has been certified by many important accreditation companies such as Lloyd Register, DNV. With EO2 fittings, it's possible to perform precisely sealed connections which are resistant to the heaviest conditions.



EO2 is a connection system with soft sealing component which conforms to ISO 84341 which is the most widely used standard in Europe and which has been selected as the world standard and DIN 2353. Its ability to be directly tightened without the need to perform any special processes on the pipe makes it the most widely preferred connection standard.

The variety included in this standard which is also referred to as 24° sloped fittings due to the angle between the nut and the thimble can be divided into two main groups in terms of sealing method. These are; the sealing with thimble and metal-to metal contact shown in Figure 2 and EO2 connections with soft sealing components shown in Figure 3.

3. Advantages of EO2 Connection System

The items predicated on regarding the design of EO2 connection type is as follows:

- 24° sloped, complying with ISO 84341 and DIN 2353 standards.
- Provision of precise sealing even under heaviest operating conditions
- No procedures such as welding, flaring, soldering, etc.
- Not permitting any assembly errors
- Simple design, does not include a
- large number of components
- Reduction of assembly costs

As a result of the principles set forth, EO2 connections are:

Reliable





The nut is tightened until it stops. In this way:

- A completely reliable and sealed assembly is obtained.
- Equal thimble bite depth is provided for all connections.
- Since there is no loosening or leakage,

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Metal Yüksük Bon Şekil 2: Tek Yüksük

it does not require to be re-tightened in time.

• Requires up to 50% less tightening force than its entire competitives

 Can be de-assembled and reassembled indefinitely while maintaining its sealing.

Enables Dry Assembly

Does not require the pre-assembly of the thimble:

• The sealing ring acts as the natural assembly adapter

• The special sutface coating which reduces friction enables assembly without the need for lubrication

• Can be tightened directly on the sleeve casing without the requirement for the pre-assembly of the thimbe

• It is possible to perform the thimble assembly automatically with a machine custom-designed for this purpose.

• The accuracy check of the thimble assembly can be visually performed.

Provides precise sealing



By means of the soft sealing component:

- The sealing component is airtight.
- Guaranties no leakage in the long run • The sealing component is surrounded completely and fized to the second

thimble. • The large sealing latch provides

insulation supported by pressure effect.



Sizdirmazlik Meta Elemani Yüksük Şekil 3: Yumuşak Sızdırmazlık Elemanı

The sealing component completely block the single point the oil can escape from

Has a simple design



The heart of the EO2 system is the functional nut:

• Since the sealing ring and the bite ring have been integrated in the functional nut as a single piece, there is no risk of fall or loss.

• Has a simple design with its structure with its limited number of components.

• Can be replace with 100% compatibility with the most frequently

found nut-thimble connections that comply with ISO 84341 and DIN 2353.

• The sealing component is a single piece where the nut is molded on conical steel thimble.

Provides fast and guaranteed assembly



The simple and single piece nut design provides the fastest and guaranteed manual assembly:

 Since the nut and thimbles are incorporated as a single piece component, it is easy to fit, provides fast

operation and does not get lost • The threads of the nut are coated in lubricant to reduce friction

• It is simply tightened until the gap between the thimble with the sealing component and the bite thimble is closed (until the wrench stops) • No special measurement devices or tools are required for assembly and

thimble bite compatibility

• Even for the least experienced assembly personnel, it is a very easy, comprehensible and guaranteed process

 Since it requires a lower tightening torque in proportion to its competitives. the tools do not wear off.

Compatible for serial production.



It is possible to perform serial production with the automated thimble assembly machine:

• With the easily adjusted automated machine, it is possible to perform serial pre-assemblies (thimble-pipe assembly) • An average assembly period of 1, 4sn

is sufficient

 The machine moulds do not ware off thanks to the special thimble system

Durable



UDesigned for long-life:

• Provides sealing even in worst cases, in case of vibration and under adverse outdoor conditions

Does not require re-tightening

 The soft sealing component can be easily replaced

• Can be de-assembled and reassembled indefinitely without having to re-assemble the thimble.





Unique

Product variety and options for many applications are available:

• For stainless steel nuts over Ø12mm, requires 10% less torque for assembly by means of the standard silver coating on the thread.

• Can be used in any custom application with standardized, wide ranging material and coating options.

• Wit nitrile (NBR) and viton (FKM) types of sealing componens, can be used at different temperature levels with many fluids.

Proved quality.



Does not leak until the pipe bursts: • Dynamic operation up to 800 bar (varies according to the connection type and size)

- Has also been tested in vacuum applications.
- Minimum explosion pressure is at least four times of the recommended maximum operating pressure.
- Is the connection system which has proved its quality a million times under the most aggravated circumstances and become the world standard.

In summary, as EO2, the connection system with Soft Seal components provides many significany advantages, it has been used by prestigious brands and leading companies in their related sectors throughout the world for many years. These advantages are briefly as follows:complete sealing and reliability, extreme resistance against vibration, heavy operating conditions and outdoor effects, maintaining perfect sealing even after many de-assemblies and re-assemblies. Additionally, the most important advantage it provides is not requiring any experienced personnel for its assembly and not enabling any assembly mistakes.

When these reasons are considered in full, it can be said that EO2 is the high pressure connection system which is highly preferred by its name by the customers and even laid down as a condition in today's world markets where quality has top significance.





DIN Fittings O-Lok Fittings Triple-Lok Fittings Hydraulic Flanges Hydraulic Ball Valves Hydraulic Quick Coupling Hydraulic Tubing Hydraulic Tube Clamps Assembly Machines Sensocontrol Measurement Systems





Hydraulic Tube Fittings







hidroser Hydraulic systems

Hydraulic Filtration

75% of the failures that occur in hydraulic systems is due to particule contamination. With the right filtration technique, system's life cycle is extended and operational expenses are minimized.



In order for hydraulic system to reach the performance values introduced by the technological superiorities and production quality accomplished today, many criteria are required to be considered. The performance and operating conditions of the hydraulic fluid which assumes an important and active role in the system must be taken into consideration as well as the quality, reliability and design of the hydraulic equipment.

The mutual opinion of the hydraulic system designers and users is that 75% of the failures that occur in hydraulic systems is due to particule contamination.

The main reason for failures in all hydraulic systems is the contamination and deterioration of the fluid. The contaminated fluid in the system leads to:

- Production losses,
- Equipment replacement cost,
- Frequent fluid change,
- Expensive use and disposal,
- Increase in general maintenance costs,
- Increase in waste amounts.

The contamination of the fluid prevents the hydraulic fluid from performing the four tasks expected of it: 1.Provision of energy transmission 2.Lubrication between the moving inner parts 3. Provision of heat transfer

4. Provision of the sealing tolerance between the moving parts. A decrease in any of these features will prevent the hydraulic system from functioning as it is intended for. As a natural result, the time losses generated will cause a large amount of work force loss.



By means of the hydraulic filters used, the removal of the particules which form due to the corrosion of the equipments in the system manufactured with minimum tolerances is provided. With hydraulic filters used on pressure, return and circulation lines, it is possible to enable the trouble-free operation of the system and the components within the system for many years. In summary; filter use is a must in order for the designed hydraulic system to operate continuously and at maximum efficiency. Line type high pressure and medium pressure filters and tank-top return filters included within Parker hydraulic filtration product groups are used in the hydraulic power units manufactured by our company.

Parker ParFit Filter Component

The web site where you can find the Parker equivalents of filter components released to market by many different filter manufacturers is:

www.parker.com/parfit

You can access various types of filter components in our wide-ranging stocks.







Pressure Line Filters Return Line Filters Hydraulic Tank Accessories Flow meters Oil Contamination Measurement Devices





Hydraulic Filtration and Contamination Control







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Control of particle contamination in hydraulic systems, flushing and Parker LCM20 oil contamination measurement device (particle counter)

Hidroser provides the on-site assembly, flushing, pickling and commissioning procedures of hydraulic systems throughout Turkey with its specially trained staff by developing fast and economical solutions. Particle contamination is the most encountered and damaging type of contamination in hydraulic systems. The damages caused by the particle contamination can be listed as follows:

- Blocking of orifices
- Corrosion of components
- Formation of chemical compunds
 Deterioration of solid substances in the fluid
- Biological deterioration

The particles damage the system due to the wearing (sanding) effect which is caused by mechanically rubbing of the surfaces against each other causing particles to break off and the breaking off of new particles by the hard particles, breaking down of these particles into smaller particles and thus causing the wearing effect.

If flushing and cleaning haven't been performed in hydraulic systems in the beginning, the impurities brought from production and assembly stages will be directly introduced to the system. These impurities include dust, welding particles, rubber particles from cushing and hoses and metal particles from machine components or casting components. Furthermore, addition of new hydraulic oil to the system also introduces the system with contamination as the new oil is not at the cleanness standards compatible with the hydraulic system. During the operation of the system, the impurities enter the system through the ventilation cover, sealing components and other open parts of the system.

The particle sizes are usually measured on micrometer scale. One micron (or micro¬meter) is one millionth of a meter. The visibility limit of human eye is around 40 microns. The particles that give rise to failures in hydraulic systems and lubrication systems are those smaller than 40 microns. Therefore, these particles are microscobic and cannot be seen by naked eye.

Gap Tolerances of Some Hydraulic Components				
Component	Micron			
Friction-free bearings	0, 5			
Tracked pump (Between the pallet tip and ring surface)	0, 5-1			
Threaded pump (Between the thread and thread side surface)	0, 5-5			
Servo valve (Between the slide and the slide housing)	1-4			
Hydrostatic bearings	1-25			
Piston pump (between the piston and its housing)	5-40			
Flap wall of servo valve	18-63			
Actuators	50-250			
Servo valve orifice	130-450			

hiclroser Hydraulic systems



Flushing in Hydraulic Systems

It is the cleaning of deposits, burrs and micronized particles remaining on the pipe inner surfaces by the friction obtained by enabling the fluid used in the process reach the speed that will provide the turbulent flow. By means of the performance of this procedure which is implemented after the assembly of the hydraulic pipe in the correct form and the use of hydraulic filters which are required to be included within the hydraulic system, healthy operation of the system for long years with minimum operational costs is provided.

The flushing process which is the first step required to be taken regarding the prevention of particle contamination in systems to be newly put into service must be applied by professional companies and it must be provided that the system is improved to NAS or ISO cleanliness standards it is required to comply with.

The lubricant contamination measurement device (LCM) included in Parker filtration products program, it is possible to find out the number of particles in the lubricant and see the cleanliness level the current lubricant is at after a measurement period of 1, 5 minutes.

Hidroser provides the on-site assembly, flushing, pickling and commissioning procedures of hydraulic systems throughout Turkey with its specially trained staff by developing fast and economical solutions.

Parker LCM20 Lubricant Contamination Measurement Device

LCM20, which is the world's most selling portable particle counter is a device which can perform measurements with a single point source continuous wave laser developed in line with customer requests.

The reasons for preferring LCM20 portable particle counter can be listed as follows:

- Test measurement values complying with standards.
- Fast results at laboratory precision.

• Full compliance with the standards and features required.

LCM 20 portable particle counter provides different features when compared to the other devices in the industry thanks to its superior features. LCM20 which has the ISO certificate which is fully compatible with the international safety standards for laser products provides a state-of-theart laser technology for users which is faster and more dynamic and can perform online tests in two minutes. Obtaining the graphical printouts of the desired test data and archiving is extremely easy thanks to the printer. It can be connected to any computer via RS232 serial port. Meanwhile, thanks to datgm software, it facilitates the transfer of the results of 300 tests to the computer. It is possible to barcode the results of the tests performed.









P1D- Pneumatic Cylinders Meet Future Requirements As of Today







A-Lok Double Ferrule Fittings Ball Valves Needle Valves Manifolds SS316 Tubing Tube Assembly Tools





Instrumentation









Parker Racor Marine Filtration





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 Resatbey Mah. Fuzuli Cad. No: 71 Dotas Apt. Adana İvedik Org. San. Bölg. 22.Cad. 668.Sk. No: 88-90 Ostim/Ankara Beşevler San. Sit. 18.Biok, No: 1-2-3 Nilüfer/Bursa Ankara Cad. Rod-Kar İş Merkezi No: 13/A 35110 Bornova/İzmir Esenler Mah. Beyzadeler Sk. No: 11/1 Selçuklu/Konya İmes San.Sit. C Blok 305.Sk No: 11/A Y.Dudullu Ümraniye/İstanbul
 Tel: +90 322 459 80 85 Fax: +90 322 459 83 50 rel: +90 312 395 08 52 Fax: +90 312 395 08 55 rel: +90 224 441 23 23 Fax: +90 224 441 34 91 rel: +90 232 462 80 06 Fax: +90 224 442 80 08 remail
 e-mail e-mail

 Tel: +90 216 466 51 41
 Fax: +90 216 466 51 41
 Fax: +90 216 466 51 41
 e-mail
 : adana@hidroser.com.tr : ankara@hidroser.com.tr : bursa@hidroser.com.tr : izmir@hidroser.com.tr : konya@hidroser.com.tr : imes@hidroser.com.tr



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HYDRAULIC SYSTEMS





HYDRAULIC SYSTEM ENGINEERING DESIGN MANUFACTURING

Hidroser, as a certified Parker distributor supplies fluid power solutions for diverse markets and applications since 1991.

Hidroser specializes in turnkey design and manufacturing of hydraulic power units, manifolds, lubrication units, standard and special cylinders, filtering units, custom made machines and production lines that consists of hydraulics.

Hidroser providing technical consultancy, training and precisionengineered solutions for a wide variety of mobile and industrial markets to local and international customers. With our well synchronized and ISO 9001 certified sales organization and engineering group, we are proud to be very well known company in Europe with our sound references. Hidroser head office and manufacturing plant is located in Istanbul. Moreover, there are sales, service and engineering branches located in Adana, Ankara, Bursa, İmes and Izmir. With our 120 employees and spreaded locations all over the country we serve our customers almost instant. Our project group which constitutes the main bearing columns of our Corporate, with the efficient dialogs established with customers thanks to its customer oriented approach, and with the proper solution advises for them, continues to studies to provide you the best service and technical support.

Hidroser is meeting customers expactations for the highest technical standards, reliable supply and responsive service. The circuit logic and functionality is engineered to meet your exact performance, safety and mounting requirements.

Applications

- Continuous Casting Lines
- Hot and Cold Rolling Mills
- Walking Beam Furnaces
- Galvanizing and Pickling Lines
- Cut to Lenght Lines
- Aluminum Extrusion Presses
- Scrap Presses
- Die Casting Machines
- Dam Gates
- Deep Drawing Presses
- Tube Bending Machines



hidroser Hydraulic systems

Products

HYDRAULIC POWER UNIT

• For custom-engineered systems, you can rely on our extensive experience to meet your specific process applications.

Application: Tension Leveler

- Operating pressure: 160 bar
- Volume of reservoir: 3.000 liter, stainless steel AISI 304
- Variable displacement piston pumps with pressure compensator
- Offline circulating system
- On board wiring and cabling

CENTRAL LUBRICATION UNIT

Application: Hot Rolling Mill

- Operating pressure: 10 bar
- Volume of reservoir: 10.000 liter, carbon steel, epoxy painted
- Screw pumps with internal pressure relief valve
- Duplex inline filter
- Plate type heat excharger
- On board wiring and cabling













HYDRAULIC VALVE STAND

Application: Continuous casting Line

- Operating pressure: 160 bar
- Block material: Steel C45 with phosphating treatment
- Feeding voltage: 24 VDC
- On board wiring and cabling









HYDRAULIC CONTROL BLOCK

Application : Hot Rolling Mill Pendulum Shear

- Operating pressure: 305 bar
- Block material: Steel C45 with phosphating treatment
- Dimensions: 800x500x500 mm Feeding voltage: 24 VDC
- Proportional directional control valves with servovalve dynamics



Design

Designs of hydraulic power unit, hydraulic block, and standard and special type hydraulic cylinders are being accomplished by our competent team utilizing SolidWorks, 3-D solid modelling software. The modern devices used facilitate the designs and, ensure the output of excellent products.



Being such strengthful in infrastructure of the manufacturing department qualifies the proof of our current position and quality service understanding.

CAD/CAM engineering and CNC integrated equipments are integral parts of manifold design.

Manufacturing

The manufacturing group which comprises of machining, welding, paint-shop, material warehouse, and installation and test units carries out its works with experience, dynamism and power stems from a healthy infrastructure.

Hidroser supports the customers in every phase from the installation to commissioning of all kinds of systems

manufactured. Furthermore, service activities after the system and components commisioning completed are being done by service group at site.

Our company which serves to its customers at all phases from the manufacturing to commisioning and putting into service, with the same quality is a clear proof that success is not by chance.

