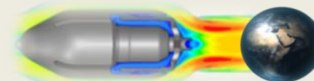


PNEUMO-HYDRAULIC DRIVE

**PNEUMATIC IS THE MAIN DRIVE AND
HYDRAULIC EMERGENCY DRIVE**

PHD

TYPE



HYDROMAT® Flow Control

HYDROMAT® WORLD PATENTED
MULTI-FUNCTIONAL VALVE SYSTEM

DRIVE DIRECTLY WITH COMPRESSED AIR UP TO 10 BAR AND EMERGENCY OPERATION WITH HYDRAULIC PRESSURE OIL UP TO 250 BAR.

ON REQUEST POSSIBLE EXECUTION FOR DIRECTLY DRIVE WITH NATURAL GAS, CARBON DIOXIDE, NITROGEN OR NOBLE GASES.

DIRECTLY DRIVE WITH FLOW MEDIUM.

EXCELLENT DRIVE AND CONCEPT FOR REALIZATION:

- FLOW CONTROL AND ON/OFF OPERATIONS
- DIFFERENT SAFETY FUNCTIONS BY FAST CLOSING OR FAST OPENING
- AUTOMATIC VALVE FUNCTIONS BASED ON DIRECT DRIVE WITH FLOW MEDIA
- HIGH INTEGRITY PRESSURE PROTECTION SYSTEMS – HIPPS

PNEUMATIC DESIGN, OPTIONS:

- SOLID PISTON
- ELASTIC DIAPHRAGM



PHD TYPE – PNEUMO-HYDRAULIC DRIVE
THE DRIVE CONCEPT:

- DIRECTLY WITH COMPRESSED AIR UP TO 10 BAR AND
- EMERGENCY OPERATING WITH HYDRAULIC HAND PUMP OR ACCUMULATOR UP TO 250 BAR.

DRIVE MODE AND DESIGN PROVIDES A VERY WIDE AREA OF APPLICATION IN WATER, GAS AND OIL FROM CRYOGENIC AREAS TO HOT STEAM.



ELECTRO-PNEUMATIC POSITIONERS TO VALVE OPERATING

- THE POSITIONER ENSURES A PREDETERMINED ASSIGNMENT OF THE VALVE POSITION (CONTROLLED VARIABLE X) TO THE INPUT SIGNAL (SET POINT W). IT COMPARES THE INPUT SIGNAL RECEIVED FROM A POSITION CONTROL SYSTEM (FEEDBACK) TO THE TRAVEL OR ROTATIONAL ANGLE OF THE CONTROL VALVE AND ISSUES A CORRESPONDING OUTPUT SIGNAL PRESSURE (OUTPUT VARIABLE Y).

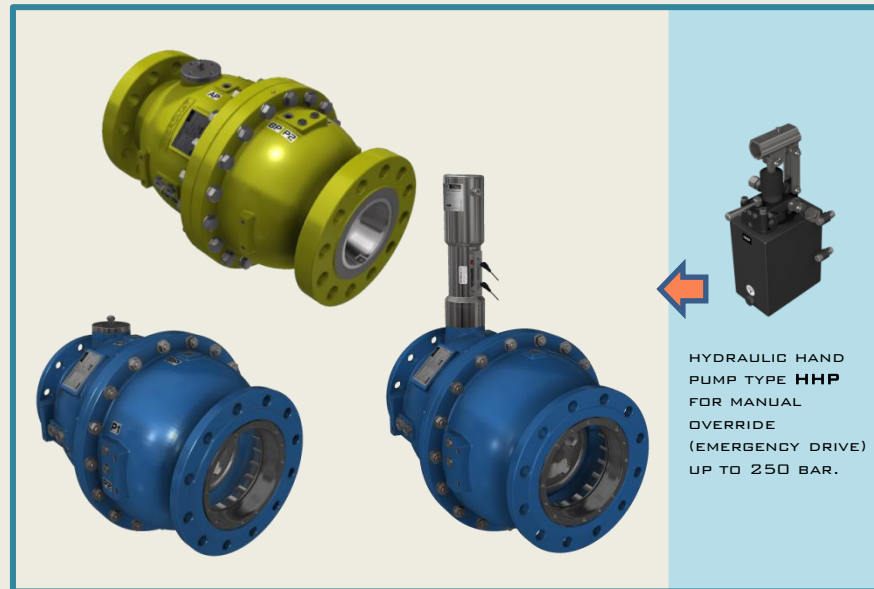
- UNIVERSAL OR INTELLIGENT VALVE POSITIONER (SUPPLY AIR PRESSURE UP TO 10 BAR), LIKE AS SIEMENS OR THE OTHERS MANUFACTURERS AND BRANDS LIKE AS FLOWSERVE, EMERSON, SAMSON, MOKVELD...

OPERATING WITH COMPRESSED AIR, PURIFIED NATURAL GAS, CARBON DIOXIDE, NITROGEN OR NOBLE GASES.

- COMMUNICATION: SET POINT 4-20 MA, HART (SET POINT 4-20 MA), PROFIBUS, FOXCOM DIGITAL...

- AMBIENT TEMPERATURE -40 TO +80 °C.

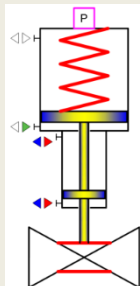
- ELECTRIC CLASSIFICATION: ATEX (II 2 G EEX IA IIC T4/T6), FM/CSA CLASS I. DIV. I, GROUP A, B, C, D



HYDRAULIC HAND PUMP TYPE **HHP** FOR MANUAL OVERRIDE (EMERGENCY DRIVE) UP TO 250 BAR.

TYPE **PHD.SA.FTC** - SINGLE ACTING FAIL TO CLOSE

- OPENING DIRECTION BY COMPRESSED AIR
- CLOSING DIRECTION WITH SPRING OR ACCUMULATOR OR AUXILIARY AIR TANK → FAIL TO CLOSE
- EMERGENCY DRIVE TO OPEN POSITION PERFORMED BY HYDRAULIC HAND PUMP OR ACCUMULATOR

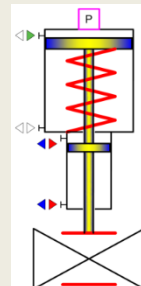


SIMPLIFIED SYMBOL

PHD.SA.FTC - FAIL TO CLOSE

TYPE **PHD.SA.FTO** - SINGLE ACTING FAIL TO OPEN

- CLOSING DIRECTION BY COMPRESSED AIR
- OPENING DIRECTION WITH SPRING OR ACCUMULATOR OR AUXILIARY AIR TANK → FAIL TO OPEN
- EMERGENCY DRIVE TO CLOSE POSITION PERFORMED BY HYDRAULIC HAND PUMP OR ACCUMULATOR

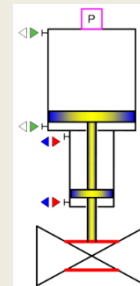


SIMPLIFIED SYMBOL

PHD.SA.FTO - FAIL TO OPEN

TYPE **PHD.DA** - DOUBLE ACTING PNEUMATIC

- CLOSING AND OPENING DIRECTIONS BY COMPRESSED AIR
- EMERGENCY DRIVE TO OPEN AND CLOSE POSITION PERFORMED BY HYDRAULIC HAND PUMP OR ACCUMULATOR



SIMPLIFIED SYMBOL

PHD.DA - DOUBLE ACTING

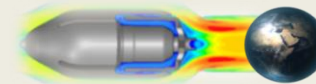
PNEUMO-HYDRAULIC DRIVE

PNEUMATIC IS THE MAIN DRIVE AND

HYDRAULIC EMERGENCY DRIVE

PHD

TYPE

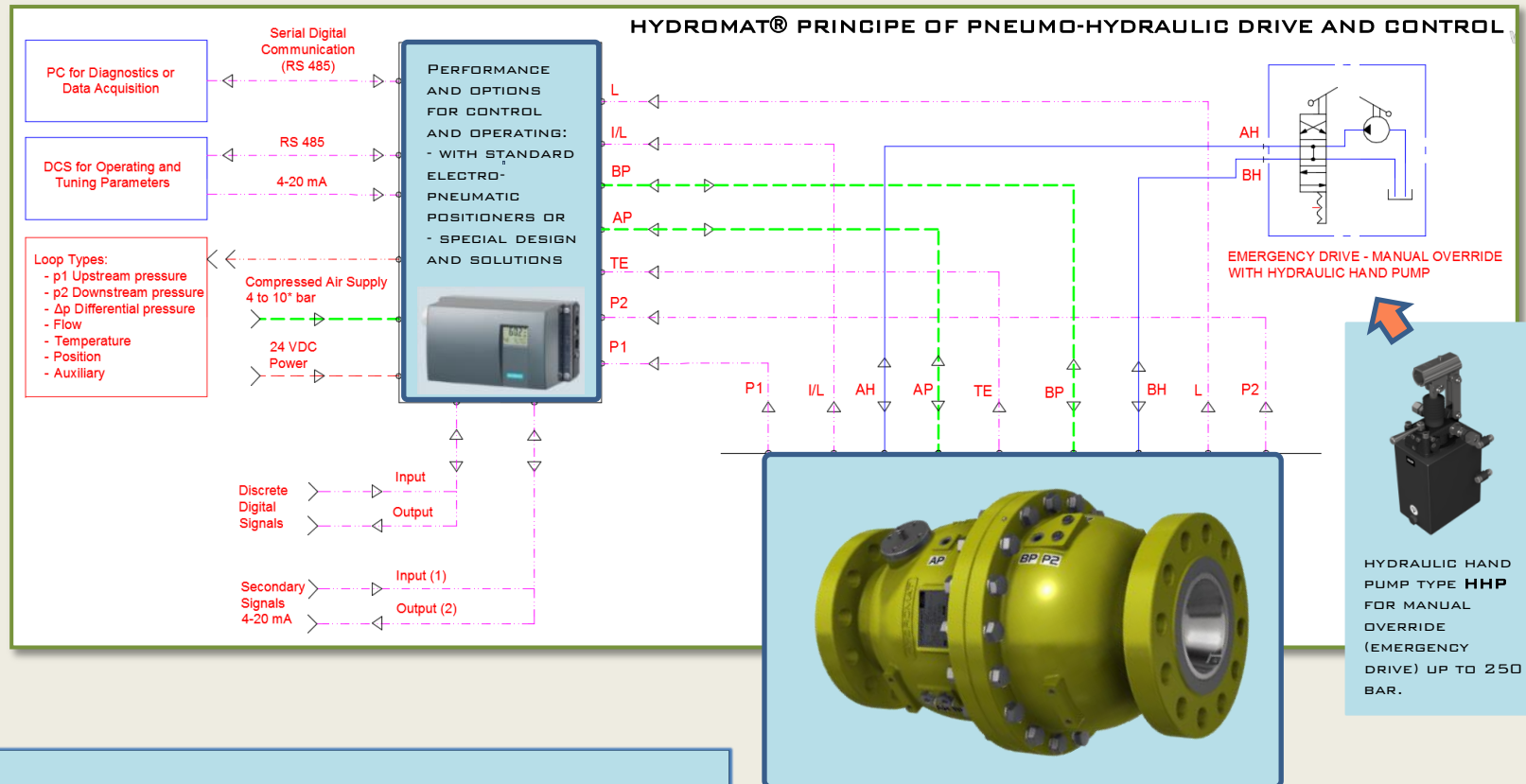
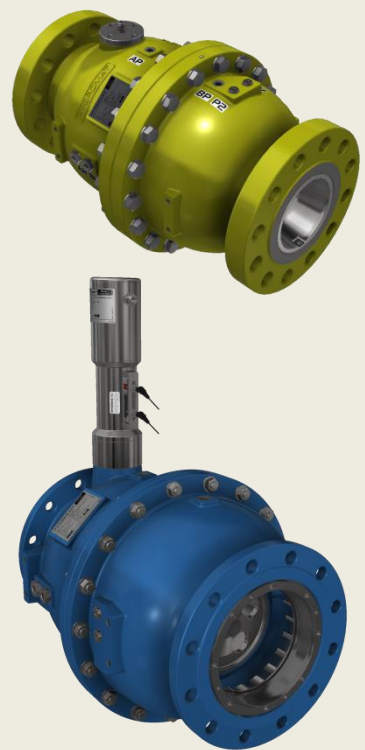


HYDROMAT® Flow Control

HYDROMAT® WORLD PATENTED MULTI-FUNCTIONAL VALVE SYSTEM

DRIVE DIRECTLY WITH COMPRESSED AIR UP TO 10 BAR AND EMERGENCY OPERATION WITH HYDRAULIC PRESSURE OIL UP TO 350 BAR.

ON REQUEST POSSIBLE EXECUTION FOR DIRECTLY DRIVE WITH NATURAL GAS, CARBON DIOXIDE, NITROGEN OR NOBLE GASES. OTHER OPERATING PRESSURE ON REQUEST.



ELECTRO-PNEUMATIC POSITIONERS TO VALVE OPERATING

- THE POSITIONER ENSURES A PREDETERMINED ASSIGNMENT OF THE VALVE POSITION (CONTROLLED VARIABLE X) TO THE INPUT SIGNAL (SET POINT W). IT COMPARES THE INPUT SIGNAL RECEIVED FROM A POSITION CONTROL SYSTEM (FEEDBACK) TO THE TRAVEL OR ROTATIONAL ANGLE OF THE CONTROL VALVE AND ISSUES A CORRESPONDING OUTPUT SIGNAL PRESSURE (OUTPUT VARIABLE Y).
- UNIVERSAL OR INTELLIGENT VALVE POSITIONER (SUPPLY AIR PRESSURE UP TO 10 BAR), LIKE AS SIEMENS OR THE OTHERS MANUFACTURERS AND BRANDS LIKE AS FLOWSERVE, EMERSON, SAMSON, MOKVELD... OPERATING WITH COMPRESSED AIR, PURIFIED NATURAL GAS, CARBON DIOXIDE, NITROGEN OR NOBLE GASES.
- COMMUNICATION: SET POINT 4-20 MA, HART (SET POINT 4-20 MA), PROFIBUS, FOXCOM DIGITAL...
- AMBIENT TEMPERATURE -40 TO +80 °C.
- ELECTRIC CLASSIFICATION: ATEX (II 2 G EEX IA IIC T4/T6), FM/CSA CLASS I. DIV. I, GROUP A, B, C, D

PNEUMATIC MAIN DRIVE WITH HYDRAULIC EMERGENCY DRIVE SIMPLIFIED SYMBOL

