## Atlantic Flvid Tech



## GENERAL CATALOGUE

2011

IDM

## Det Norske Veritas

## Quality Management System Certificate

## Certificato No. / Certificate No. 32329-2008-AQ-ITA-SINCERT

Si attesta che / This certifies that
Il sistema di gestione per la qualità di / the quality management system of
ATLANTIC FLUID TECH S.r.l.
Via della Meccanica, 50-41018 San Cesario sul Panaro (MO) - Italy
È conforme ai requisiti della norma per i sistemi di gestione per la qualità Conforms to the quality management systems standard

UNI EN ISO 9001:2008 (ISO 9001:2008)
Questa certificazione è valida per il seguente campo applicativo: This certificate is valid for the following products or services:
(Ulteriori chiarimenti riguardanti lo scopo e l'applicabilità dei requisiti della normativa si possono ottenere consultando l'organizzazione certificata) (Further clarifications regarding the scope and the applicability of the requirements of the standard(s) may be obtained by consulting the certified organization)

Progettazione, produzione ed assistenza di valvole e gruppi integrati per I'oleodinamica Design, manufacturing and after-sales services of oleodynamic valves and integrated groups

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[^0]- SECTION 1 - Relief valves
Atlantic Flinid Tech
- SECTION 2 - Pressure reducing valves
- SECTION 3 - Sequence valves

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- SECTION 6 - Overcentre valves
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## SECTION 1

## RELIEF VALVES

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) | Max. pressure (bar) | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (1) | CPLN-005-DPNA CPLN-OIO-DHNA KPLN-010-DHNA CPLN-020-DPNA KPLN-020-DPNA CPLN-030-DPNA CPLN-030-DHNA KPLN-030-DPNA CPLN-080-DPNA KPLN-080-DPNA | Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type <br> Direct acting, poppet type |  |  | Cartridge <br> Cartridge <br> In line <br> Cartridge <br> In line <br> Cartridge <br> Cartridge <br> In line <br> Cartridge <br> In line | VP000005 <br> SAE-08-2N <br> G1/4" G3/8" <br> SAE-08-2N <br> G1/4" G3/8" <br> VP000008 <br> VP000008 <br> G3/8" G1/2" <br> VP000086 <br> G1/2" G3/4" | 6 <br> 7 <br> 8 <br> 9 <br> 10 <br> 11 <br> 12 <br> 13 <br> 14 <br> 15 |
|  | CPLN-030-DPNA <br> CPLN-030-DHNA <br> CPLN-080-DPNA | Direct acting, poppet type, compensated Direct acting, poppet type, compensated Direct acting, poppet type, compensated | $\begin{aligned} & 30 \\ & 30 \\ & 80 \end{aligned}$ | $\begin{aligned} & 420 \\ & 420 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge | VP000008 <br> VP000008 <br> VP000086 | $\begin{aligned} & 16 \\ & 17 \\ & 18 \end{aligned}$ |
|  | KPLN-030-DPNA-N06 <br> KPLN-080-DPNA-N10 | Direct acting, poppet type, cetop subplate <br> Direct acting, poppet type, cetop subplate | $\begin{aligned} & 30 \\ & 80 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \end{aligned}$ | Cetop 3 <br> Cetop 5 | $\begin{aligned} & \mathrm{G} 1 / 2^{\prime \prime} \\ & \mathrm{G} 1 / 2^{\prime \prime} \end{aligned}$ | $\begin{aligned} & 19 \\ & 20 \end{aligned}$ |
| (2) | CPLN-040-DHGD <br> CPLN-090-DHGA <br> CPAN-090-DHGA <br> CPLN-150-DHGD <br> KPLN-150-DHGD <br> CPLN-160-DHGA <br> CPAN-160-DHGA <br> CPLN-250-DHGD <br> KPLN-250-DHGD | Differential, poppet type <br> Differential, poppet type <br> Differential, poppet type, anticavitation <br> Differential, poppet type <br> Differential, poppet type <br> Differential, poppet type <br> Differential, poppet type, anticavitation <br> Differential, poppet type <br> Differential, poppet type | 40 <br> 90 <br> 90 <br> 150 <br> 150 <br> 160 <br> 160 <br> 250 <br> 250 | 350 <br> 380 <br> 380 <br> 350 <br> 350 <br> 400 <br> 400 <br> 350 <br> 350 | Cartridge <br> Cartridge <br> Cartridge <br> Cartridge <br> In line <br> Cartridge <br> Cartridge <br> Cartridge <br> In line | VP000080 <br> VP000249 <br> VP000249 <br> VP000070 <br> G1/2" G3/4" <br> VP000250 <br> VP000250 <br> VP000154 <br> G1" | 21 <br> 22 <br> 23 <br> 24 <br> 25 <br> 26 <br> 27 <br> 28 <br> 29 |
| (1) | CPLN-120-PSNA <br> KPLN-120-PSNA <br> CPLN-120-PHNA | Pilot operated, spool type <br> Pilot operated, spool type <br> Pilot operated, poppet type | $\begin{align*} & 120 \\ & 120  \tag{2}\\ & 120 \end{align*}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> In line <br> Cartridge | $\begin{aligned} & \text { SAE-10-2N } \\ & \text { G3/8" G1/2" } \\ & \text { SAE-10-2N } \end{aligned}$ | $\begin{aligned} & 30 \\ & 31 \\ & 32 \end{aligned}$ |
| (1) | CPLT-120-PSNA | Pilot operated, spool type, compensated | 120 | 350 | Cartridge | SAE-10-2N | 33 |



















DIFFERENTIAL AREA STABILIZED PISTON

Atlantic
fluid Tech




## RELIEF VALVE IN BODY

KPLN-150-DHGD
DIFFERENTIAL AREA
POPPET TYPE


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## SECTION 2

## PRESSURE REDUCING VALVES

Atlantic Fluid Tech

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) | $\begin{gathered} \text { Max. } \\ \text { pressure } \\ \text { (bar) } \end{gathered}$ | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (1) (2) | CPRL-007-DNNR CPRL-030-DNNR | Direct acting, reducing and relieving Direct acting, reducing and relieving | $\begin{gathered} 5 \\ 30 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge | VP000016 <br> SAE-10-3N | $\begin{aligned} & 36 \\ & 37 \end{aligned}$ |
| $\rightarrow \text { (2) }$ | CPRL-060-PNNR CPRL-140-PNNR | Pilot operated, reducing and relieving <br> Pilot operated, reducing and relieving | $\begin{gathered} 60 \\ 140 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge | SAE-10-3N SAE-12-3N | $\begin{aligned} & 38 \\ & 40 \end{aligned}$ |
| (3) | CPRR-140-PNNR | Pilot operated, reducing | 140 | 350 | Cartridge | SAE-12-3N | 39 |
















CHECK VALVE









## CHECK VALVE

## CDVN-XXX-PSNP <br> POPPET TYPE





## ORDERING CODES

| Quick <br> code | Description | Rated <br> flow <br> (I/min) | Cracking <br> pressure <br> (bar) | A |  |  |  | L |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CDVN-090-PSNP-MF-G12-N008 |  |  | G 1/2" | 57 | 14 | 30 |  |
| CD000139 | CDVN-150-PSNP-MF-G34-N008 | 150 | 8 | G 3/4" | 69 | 16 | 36 |  |
| CD000140 | CDVN-250-PSNP-MF-G10-N008 | 250 | 8 | G 1" | 82 | 18 | 45 |  |
| CD000141 | CDVN-350-PSNP-MF-G11-N008 | 350 | 8 | G 1" 1/4 | 102 | 20 | 55 |  |
| CD000142 | CDVN-090-PSNP-MF-G12-N001 | 90 | 0,3 | G 1/2" | 57 | 14 | 30 |  |
| CD000143 | CDVN-150-PSNP-MF-G34-N001 | 150 | 0,3 | G 3/4" | 69 | 16 | 36 |  |
| CD000144 | CDVN-250-PSNP-MF-G10-N001 | 250 | 0,3 | G 1" | 82 | 18 | 45 |  |
| CD000145 | CDVN-350-PSNP-MF-G11-N001 | 350 | 0,3 | G 1" 1/4 | 102 | 20 | 55 |  |



## SECTION 5

## PILOT OPERATED CHECK VALVES






















## SECTION 6

## OVERCENTRE VALVES

Atlantic fluid Tech













## CBSN-040-DCNH

Atlantic fluid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $\mathbf{4 0 1 / m i n}$ |
| Cavity: | VP000174 |
| Weight: | $0,26 \mathrm{~kg}$ |

## SEALING CAP

Ordering code:
ST000015

## NOTES

Setting: at least 1.3 times the load induced pressure
Installation torque: $\quad 80-85 \mathrm{Nm}$

80-85 Nm



## ORDERING CODES

| Quick <br> code | Description | Pilot <br> ratio | Standard <br> setting <br> (bar, Q=5 $/$ /min) | Adjust. <br> rangee <br> (bar) | Pressure <br> increase <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CB000016 | CBSN-040-DCNH-04-174-N350 | $4,1: 1$ | 350 | $100-350$ | 140 |
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## OVERCENTRE VALVE

MBSN-060-AANR
SINGLE ACTING ONE FLANGED PORT



Atlantic fluid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $60 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Steel |
| Weight: | $1,09 \mathrm{~kg}$ |
| SEALING CAP |  |
| Ordering code:  <br> ATOOOO20  |  |

## NOTES

Setting: at least 1.3 times the load induced pressure

## ORDERING CODES

| Quick <br> code | Description | Pilot <br> ratio | Main ports size | Standard <br> setting <br> (bar, Q=51/min) | Adjust. <br> range. <br> (bar) | Pressure <br> increase <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000017 | MBSN-060-AANR-04-G38-N350 | $4,2: 1$ | V1, V2, Pil: G3/8" <br> C2: <br> (b9 | 350 | $100-350$ | 138 |
| MB000199 | MBSN-060-AANR-04-G38-N200 | $4,2: 1$ | V1, V2, , Pil: G3/8" <br> C2: | 200 | $60-210$ | 62 |
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## OVERCENTRE VALVE

## MBSN-060-AATV

SINGLE ACTING ONE FLANGED PORT


Atlantic
Flinid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $\mathbf{6 0 ~ I} / \mathrm{min}$ |
| Manifold: | Steel |
| Weight: | $\mathbf{1 , 1 4} \mathrm{kg}$ |
| SEALING CAP |  |
| Ordering code: |  |
| ATO00020 |  |

## NOTES

Setting: at least 1.3 times the load induced pressure

## ORDERING CODES

| Quick <br> code | Description | Pilot <br> ratio | Main ports size | Standard <br> setting <br> (bar, Q=5 1/min) | Adjust. <br> range <br> (bar) | Pressure <br> increase <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000236 | MBSN-060-AATV-04-G38-N350 | 4,2:1 | V1,V2: G 3/8" <br> C2: $\varnothing 9$ | 350 | $100-350$ | 138 |
| MB000234 | MBSN-060-AATV-04-G38-N200 | 4,2:1 | V1,V2: G 3/8" <br> C2: $\varnothing 9$ | 200 | $60-210$ | 62 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## OVERCENTRE VALVE

MBSN-060-ABNP
SINGLE ACTING TWO FLANGED PORTS


SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $60 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Steel |
| Weight: | $\mathbf{1 , 2 7} \mathrm{kg}$ |
| SEALING CAP |  |
| Ordering code: <br> ATOOOO20 |  |






## OVERCENTRE VALVE

## MBSN－150－AANV SINGLE ACTING ONE FLANGED PORT




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## OVERCENTRE VALVE

## MBDN-060-ALNR double acting

$N^{\circ} 2$ Holes $\phi 8,5$


## ORDERING CODES

| Quick code | Description | Pilot ratio | Main ports size | $\begin{gathered} \text { Standard } \\ \text { setting } \\ \text { (bar, } Q=5 \mathrm{I} / \mathrm{min}) \end{gathered}$ | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000006 | MBDN-060-ALNR-04-G38-N350 | 4,2:1 | $\begin{aligned} & \text { V1, V2: G3/8" } \\ & \text { C1, C2: } \mathbf{G} 3 / 8^{\prime \prime} \end{aligned}$ | 350 | 100-350 | 138 |
| MB000084 | MBDN-060-ALNR-04-G38-N200 | 4,2:1 | $\begin{aligned} & \text { V1, V2: } \mathbf{G} 3 / 8^{\prime \prime} \\ & \text { C1, C2: } \mathbf{G} 3 / \mathbf{8}^{\prime \prime} \end{aligned}$ | 200 | 60-210 | 62 |
|  |  |  |  |  |  |  |
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## OVERCENTRE VALVE

Atlantic
fluid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $60 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Steel |
| Weight: | $1,88 \mathrm{~kg}$ |
| SEALING CAP |  |
| Ordering code: |  |
| ATOOOO20 |  |



## ORDERING CODES

| Quick <br> code | Description | Pilot <br> ratio | Main ports size | Standard <br> setting <br> (bar, Q=5 $/$ /min) | Adjust. <br> range <br> (bar) | Pressure <br> increase <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000008 | MBDN-060-AANR-04-G38-N350 | $4,2: 1$ | $\mathrm{V1,V2,C1:G3/8"}$ <br> C2: Ø9 M:G1/4" | 350 | $100-350$ | 138 |
|  |  |  |  |  |  |  |
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## OVERCENTRE VALVE

MBDN-060-LDNA
DOUBLE ACTING ALL FLANGED PORTS


Atlantic
Fluid Tech


## ORDERING CODES

$\left.$| Quick <br> code | Description | Pilot <br> ratio | Manifold <br> material | Main ports <br> size | Standard <br> setting (bar, <br> Q=5 l/min) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | | Adjust. |
| :---: |
| range |
| (bar) | | Pressure |
| :---: |
| increase |
| (bar/turn) | \right\rvert\,








## SECTION 7

## REGENERATIVE VALVES

| Hydraulic scheme | Valve description | Valve type | $\begin{aligned} & \text { Rated } \\ & \text { flow } \\ & (1 / \mathrm{min}) \end{aligned}$ | $\begin{array}{c\|} \hline \text { Max. } \\ \text { pressure } \\ \text { (bar) } \end{array}$ | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MRSN-060-LBNP | Single overcentre with regen | 60 | 350 | Flanged | G 3/8' | 146 |
|  | MRLN-060-LLNP | Single overcentre with regen | 60 | 350 | In line | G 1/2' | 147 |
|  | MRSN-150-LLNV | Single overcentre with regen | 100 | 350 | In line | G 1/2" | 148 |
|  | MRDN-150-LLNV | Double overcentre with regen | 150 | 350 | In line | G 3/4" | 149 |
|  | MRSN-300-LLNV | Single overcentre with double regen | 500 | 420 | Flanged | 1"-1/4 SAE 6000 | 150 |

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Flinid Tech







## SECTION 8

## HYDRAULIC MOTOR, ACTUATOR, AND WINCH VALVES

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) |  | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MADN-030-TLNR MADN-030-TLNR MADN-030-TBNR MADN-080-TLNR | Double antishock <br> Double antishock <br> Double antishock, for SD OMP-OMR <br> Double antishock | $\begin{aligned} & 30 \\ & 30 \\ & 30 \\ & 80 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 210 \\ & 350 \end{aligned}$ | In line <br> In line Flanged In line | $\begin{aligned} & \text { G 3/8" } \\ & \text { G 1/2" } \\ & \text { G 1/2" } \\ & \text { G } 1 / 2^{\prime \prime} \end{aligned}$ | $\begin{aligned} & 152 \\ & 153 \\ & 154 \\ & 155 \end{aligned}$ |
|  | MADN-080-LLNR | Dual cross over and anticavitation relief | 80 | 250 | In line | G 3/4" | 156 |
|  | MBDN-055-GLNR | Counterbalance, dual acting | 55 | 350 | Flanged | G 3/8" | 157 |
|  | MBDN-055-GLSF | Counterbalance, dual acting, with brake relaese | 55 | 350 | Flanged | G 3/8' | 158 |
|  | MBDN-060-ALSF MBDN-060-LMSF MBDN-060-LMSF MBDN-060-LMSF MBDN-060-LMSF | Dual acting, brake release <br> Dual acting, brake release, for SD OMS motor Dual acting, brake release, for SD OMP motor Dual acting, brake release, for SAM BR motor Dual acting, brake release, for SAM HR motor | $\begin{aligned} & 60 \\ & 60 \\ & 60 \\ & 60 \\ & 60 \end{aligned}$ | $\begin{aligned} & 250 \\ & 250 \\ & 250 \\ & 250 \\ & 250 \end{aligned}$ | In line <br> Flanged <br> Flanged <br> Flanged <br> Flanged | $\begin{aligned} & \text { G } 1 / 2^{\prime \prime} \\ & \text { G } 1 / 2^{\prime \prime} \\ & \text { G } 1 / 2^{\prime \prime} \\ & \text { G } 1 / 2^{\prime \prime} \\ & \text { G } 1 / 2^{\prime \prime} \end{aligned}$ | $\begin{aligned} & 159 \\ & 160 \\ & 161 \\ & 162 \\ & 163 \end{aligned}$ |
|  | MBDN-060-LMSR MBDN-100-LMSR MBDN-150-LMSR MBDN-150-AMSR MBDN-300-AMSR | Dual acting, brake release, for BR A2FE 28-32 Dual acting, brake release, for BR A2FE 28-32 Dual acting, brake release, for BR A2FE 45-56-63 Dual acting, brake release, for BR A2FE 45-56-63 Dual acting, brake release, for BR A2FE 80-90 | $\begin{gathered} 60 \\ 100 \\ 170 \\ 150 \\ 300 \end{gathered}$ | $\begin{aligned} & 210 \\ & 350 \\ & 410 \\ & 420 \\ & 420 \end{aligned}$ | Flanged <br> Flanged <br> Flanged <br> Flanged <br> Flanged | 1/2" SAE 6000 <br> 1/2" SAE 6000 <br> 3/4" SAE 6000 <br> 3/4" SAE 6000 <br> 3/4" SAE 6000 | $\begin{aligned} & 164 \\ & 165 \\ & 166 \\ & 167 \\ & 168 \end{aligned}$ |
|  | MBSN-150-AMSF <br> MBSN-300-AMSF | Single acting for winches, brake release <br> Single acting for winches, brake release | $\begin{aligned} & 150 \\ & 300 \end{aligned}$ | $\begin{aligned} & 350 \\ & 500 \end{aligned}$ | Flanged <br> Flanged | 3/4" SAE 6000 <br> 1"SAE 6000 | $\begin{aligned} & 169 \\ & 170 \end{aligned}$ |








[^1]








[^2]

## VALVES FOR MOTORS

## 




## NOTES

Setting: at least 1.3 times the load induced pressure
Designed for REXROTH A2FE 45-56-63 MOTOR

## ORDERING CODES

| Quick code | Description | Pilot ratio | Main ports size | $\begin{gathered} \text { Standard } \\ \text { setting } \\ \text { (bar, } Q=5 \mathrm{I} / \mathrm{min}) \end{gathered}$ | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000347 | MBDN-150-AMSR-04-S34-N420 | 4:1 | V1,V2:G3/4" CI, C2:3/4 SAE 6000 | $\begin{aligned} & \text { (1) (2) }: 350 \\ & \text { (3) }: 30 \end{aligned}$ | $\begin{gathered} \text { (1) (2): } 100-350 \\ \text { (3): } 10-60 \end{gathered}$ | $\begin{gathered} \text { (1) (2): } 106 \\ \text { (3):7 } \end{gathered}$ |
| MB000350 | MBDN-150-AMSR-08-S34-N420 | 8:1 | V1,V2:G3/4" BR,DR,M1,M2:G1/4 | $\begin{gathered} \text { (1) (2) }: 380 \\ \text { (3) }: 30 \\ \hline \end{gathered}$ | $\begin{array}{c\|} \text { (1) 2): } 100-420 \\ \text { (3): } 10-60 \end{array}$ | $\begin{gathered} \text { (1)(2) }: 192 \\ \text { (3) }: 7 \end{gathered}$ |
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## MBDN-300-AMSR overcentre WITH BRAKE RELEASE




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| SPECIFICATIONS |  |
| :--- | :--- |
| Max. operating pressure: | $\mathbf{4 2 0}$ bar |
| Rated flow: | $300 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Steel |
| Weight: | $20,44 \mathrm{~kg}$ |

## NOTES

Setting: at least 1.3 times the load induced pressure
Designed for REXROTH A2FE 80-90 MOTOR

## ORDERING CODES

| Quick code | Description | Pilot ratio | Main ports size | Standard setting (bar, $\mathrm{Q}=5 \mathrm{I} / \mathrm{min}$ ) | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000402 | MBDN-300-AMSR-04-S10-N420 | 4:1 | $\begin{aligned} & \text { V1,V2:G3/4" } \\ & \text { C1,C2:3/4SAE } 6000 \\ & \text { BR,DR,M1,M2:G1/4" } \end{aligned}$ | $\begin{array}{r} \hline \text { (1) (2) }: 350 \\ \text { (3) }: 30 \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \text { (1) (2): } 100-350 \\ \text { (3): } 10-60 \\ \hline \end{array}$ | $\begin{gathered} \text { (1)(2) }: 71 \\ \text { (3) }: 7 \end{gathered}$ |
| MB000349 | MBDN-300-AMSR-06-S10-N420 | 6:1 | $\begin{aligned} & \text { V1,V2:G3/4" } \\ & \text { C1,C2:3/4 SAE } 6000 \\ & \text { BR,DR,M1,M2:G1/4" } \end{aligned}$ | $\begin{array}{r} \text { (1) } \mathbf{( 2 )}: 380 \\ \text { (3) }: 30 \\ \hline \end{array}$ | $\begin{aligned} & \text { (1) 2): } 100-420 \\ & \text { (3): } 10-60 \\ & \hline \end{aligned}$ | $\begin{aligned} (1) & \text { (2) }: 60 \\ (3) & : 7 \end{aligned}$ |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |

## COUNTERBALANCE VALVE

MBSN-150-AMSF SINGLE ACTING
VALVES FOR WINCHES
WITH BRAKE RELEASE

$\stackrel{23,8}{=}$
M10 No8 HOLES

O.R. $23,39 \times 3,53$


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $\mathbf{1 5 0 ~ I / m i n}$ |
| Manifold: | Steel |
| Weight: | $7,58 \mathrm{~kg}$ |
| SEALING CAP |  |
| Ordering code: <br> STO00012 |  |



## NOTES

Setting: at least 1.3 times the load induced pressure

## ORDERING CODES

| Quick <br> code | Description | Pilot <br> ratio | Main ports size | Standard <br> setting <br> (bar, Q=51/min) | Adjust. <br> range. <br> (bar) | Pressure <br> increase <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MB000052 | MBSN-150-AMSF-13-S34-N350 | $13: 1$ | V2,C2:3/4 SAE 6000 <br> C3,P $:$ G/1/4" | 350 | $100-350$ | 106 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |
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SECTION 9

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) | $\begin{gathered} \text { Max. } \\ \text { pressure } \\ \text { (bar) } \end{gathered}$ | Installation | Main port size | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MNDN-040-LLST <br> MNDN-120-LLST <br> MNDN-200-LLST | Stabilized <br> Stabilized <br> Stabilized | $\begin{aligned} & 40 \\ & 120 \\ & 200 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line <br> In line <br> In line | $\begin{gathered} \text { G 3/8" } \\ \text { G 3/4" } \\ \text { G 1" } \end{gathered}$ | $\begin{aligned} & 172 \\ & 176 \\ & 180 \end{aligned}$ |
|  | MNDN-040-LLSV <br> MNDN-120-LLSV <br> MNDN-200-LLSV | Stabilized, with brake release Stabilized, with brake release Stabilized, with brake release | $\begin{aligned} & 40 \\ & 120 \\ & 200 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line In line In line | $\begin{gathered} \text { G 3/8" } \\ \text { G 3/4" } \\ \text { G 1" } \end{gathered}$ | $\begin{aligned} & 173 \\ & 177 \\ & 181 \end{aligned}$ |
|  | MNDN-040-LLPT <br> MNDN-120-LLPT <br> MNDN-200-LLPT | Stabilized and brake, dual setting Stabilized and brake, dual setting Stabilized and brake, dual setting | $\begin{aligned} & 40 \\ & 120 \\ & 200 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line In line In line | $\begin{gathered} \text { G 3/8" } \\ \text { G 3/4" } \\ \text { G1" } \end{gathered}$ | $\begin{aligned} & 174 \\ & 178 \\ & 182 \end{aligned}$ |
|  | MNDN-040-LLPV <br> MNDN-120-LLPV <br> MNDN-200-LLPV | Stabilized and brake, dual setting, with brake release <br> Stabilized and brake, dual setting, with brake release <br> Stabilized and brake, dual setting, with brake release | $\begin{aligned} & 40 \\ & 120 \\ & 200 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line <br> In line <br> In line | $\begin{gathered} \text { G 3/8" } \\ \text { G 3/4" } \\ \text { G 1" } \end{gathered}$ | 175 179 183 |


|  |
| :--- |
|  |





## MOTION CONTROL

## MNDN-040-LLPT

SOFT STOP DUAL SETTING


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :---: |
| Rated flow: | $40 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Aluminium |
| Weight: | $2,82 \mathrm{~kg}$ |

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## NOTES

Setting: at least 1.3 times the load induced pressure

## ORDERING CODES

| Quick <br> code | Description | Pilot <br> ratio | Main ports size | Standard <br> setting <br> (bar, Q=5 I/min) | Adjust. <br> range <br> (bar) | Pressure <br> increase <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MN000024 | MNDN-040-LLPT-09-G38-N350 | $9: 1$ | V1,V2,C1,C2: G3/8" <br> T: G3/8" | Start: <br> Brake: |  |  |
|  |  |  |  | 120 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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## MOTION CONTROL

## MNDN-120-LLST

STABILIZED

## Atlantic

fluid Tech


## ORDERING CODES

| Quick code | Description | Pilot ratio | Main ports size | $\begin{gathered} \text { Standard } \\ \text { setting } \\ \text { (bar, } Q=51 / \mathrm{min}) \end{gathered}$ | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MN000013 | MNDN-120-LLST-08-G34-N350 | 8:1 | $\begin{aligned} & \text { V1,V2,C1,C2: G3/4" } \\ & \text { C3:G1/4" T:G } \mathbf{1 / 2} \end{aligned}$ | 150 | 100-300 | 100 |
| MN000012 | MNDN-120-LLST-03-G34-N350 | 3:1 | $\begin{aligned} & \text { V1,V2,C1,C2: G3/4" } \\ & \text { C3:G1/4" T:G 1/2" } \end{aligned}$ | 150 | 100-300 | 100 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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## MOTION CONTROL

## MNDN-120-LLPT <br> SOFT STOP DUAL SETTING



## SPECIFICATIONS



Ordering code:


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## ORDERING CODES

| Quick code | Description | Pilot ratio | Main ports size | Standard setting (bar, Q=5 $1 / \mathrm{min}$ ) | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MN000017 | MNDN-120-LLPT-08-G34-N350 | 8:1 | $\begin{aligned} & \mathrm{V} 1, \mathrm{~V} 2, \mathrm{C} 1, \mathrm{C} 2: \mathbf{G 3} / \mathbf{4}^{\prime \prime} \\ & \mathrm{T}: \mathbf{G} \mathbf{1 / 2 \mathbf { 2 }} \end{aligned}$ | Start: 300 <br> Brake: 120 | 100-300 | 100 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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| SECTION 10 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Hydraulic scheme | Valve description | Valve type |  | Max. pressure (bar) | Installation | Main port size or cavity type | Page |
|  | MLST-040-ALGR <br> MLST-040-ALGL <br> MLST-100-ALGR <br> MLST-100-ALGL <br> MLST-150-ALGR <br> MLST-150-ALGL | Right version <br> Left version <br> Right version <br> Left version <br> Right version <br> Left version | $\begin{aligned} & 40 \\ & 40 \\ & 100 \\ & 100 \\ & 150 \\ & 150 \end{aligned}$ | $\begin{aligned} & 420 \\ & 420 \\ & 420 \\ & 420 \\ & 420 \\ & 420 \end{aligned}$ | In line <br> In line <br> In line <br> In line <br> In line <br> In line | G 3/8" <br> G 3/8" <br> G 1/2" <br> G 1/2" <br> G 3/4" <br> G 3/4" | $\begin{aligned} & 186 \\ & 187 \\ & 188 \\ & 189 \\ & 190 \\ & 191 \end{aligned}$ |
|  | MLST-150-AAGN <br> MLST-200-AAGN <br> MLLT-300-AAGR <br> MLST-300-AAGN <br> MLST-300-AAGN | Right and left version <br> Right and left version <br> Right and left version <br> Right and left version <br> Right and left version | 150 <br> 250 <br> 350 <br> 400 <br> 500 | 420 <br> 420 <br> 420 <br> 420 <br> 420 | Flanged <br> Flanged <br> Flanged <br> Flanged <br> Flanged | 1/2" SAE 6000 <br> 3/4" SAE 6000 <br> 3/4" SAE 6000 <br> 1"SAE 6000 <br> 1"1/4 SAE 6000 | $\begin{aligned} & 192 \\ & 193 \\ & 194 \\ & 195 \\ & 196 \end{aligned}$ |

Special versions available up to $1500 \mathrm{I} / \mathrm{min}$ and up 2" SAE 6000 or 3" SAE 3000 flange, please contact our sales office


## CHECK AND METERING VALVE

## MLST-040-ALGR

IN LINE VERSION RIGHT VERSION


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## ORDERING CODES

| Quick code | Description | Main ports size | Standard setting (bar) | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ML000096 | MLST-040-ALGR-00-G38-N420 | $\begin{aligned} & \text { V2,C2: G 3/8" } \\ & \text { Pil,T: G 1/4" } \end{aligned}$ | (1) 350 Q $=5 \mathrm{I} / \mathrm{min}$ <br> (2) 7.5 Crack. pr. | (1) 150-460 <br> (2) $5-15$ | $\begin{array}{rr} 1 & 236 \\ (2) & 6.7 \\ \hline \end{array}$ |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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## CHECK AND METERING VALVE <br> MLST-100-ALGR

IN LINE VERSION RIGHT VERSION

$\phi 8,5 \mathrm{~N}^{\circ} 1$ MOUNTING HOLE


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## CHECK AND METERING VALVE

## MLST-150-AAGN

FLANGED TYPE
1/2" SAE 6000
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## ORDERING CODES

| Quick code | Description | Main ports size | Standard setting (bar) | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ML000082 | MLST-150-AAGN-00-S12-N420 | $\text { V2,C2: 1/2" SAE } 6000$ <br> E,Pil,T: G 1/4" | (1) $350 \mathrm{Q}=5 \mathrm{I} / \mathrm{min}$ <br> (2) 7.5 Crack. pr. | (1) 150-460 $\text { (2) } 3-15$ | $\begin{array}{ll} 11 & \mathbf{2 3 6} \\ \text { (2) } & 3.4 \\ \hline \end{array}$ |
| ML000083 | MLST-150-ASGN-00-S12-N420 |  | (1) $350 \mathrm{Q}=5 \mathrm{I} / \mathrm{min}$ <br> (2) 7.5 Crack. pr. | $\begin{array}{ll} \text { (1) } 150-460 \\ \text { (2) } 3-15 \end{array}$ | $\begin{array}{ll} 1(1) & 236 \\ \text { (2) } & 3.4 \\ \hline \end{array}$ |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

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fluid Tech

## SPECIFICATIONS

| Max. operating pressure: | 420 bar |
| :--- | :--- |
| Rated flow: | 250 I/min |


| Manifold: | Steel |
| :--- | :--- |
| Weight: | $8,13 \mathrm{~kg}$ |
| NOTES |  |

When correctly adjusted for the specific excavator installation, these valves meet the requirement of

## MLST-200-AAGN

FLANGED TYPE 3/4" SAE 6000


C2: 3/4" SAE 6000 ISO 8643





CHECK AND METERING VALVE
MLST-300-AAGN

## FLANGED TYPE 1" SAE 6000



C2: 1" SAE 6000





## SPECIFICATIONS

| Max. operating pressure: | 420 bar |
| :--- | :--- |
| Rated flow: | 400 I/min |
| Manifold: | Steel |
| Weight: | $12,15 \mathrm{~kg}$ |
| NOTES |  |

When correctly adjusted for the specific excavator installation, these valves meet the requirement of ISO 8643

## ORDERING CODES

| Quick code | Description | Main ports size | Standard setting (bar) | Adjust. range (bar) | Pressure increase (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ML000079 | MLST-300-AAGN-00-S10-N420 | $\begin{aligned} & \text { V2,C2: } \mathbf{1} \text { " SAE } 6000 \\ & \text { E,Pil,T: G 1/4" } \end{aligned}$ | (1) $350 \mathrm{Q}=5 \mathrm{I} / \mathrm{min}$ <br> (2) 7.5 Crack. pr. | (1) 150-460 <br> (2) $3-15$ | $\begin{array}{ll} 1 & 236 \\ (2) & 3.2 \\ \hline \end{array}$ |
| ML000080 | MLST-300-AAUN-00-S10-N420 | V2,C2: 1 " SAE 6000 <br> E,Pil,T: 9/16-18 UNF-2B | (1) $350 \mathrm{Q}=5 \mathrm{I} / \mathrm{min}$ <br> (2) 7.5 Crack. pr. | (1) 150-460 <br> (2) 3-15 | $\begin{array}{ll} (1) & 236 \\ (2) & 3.2 \end{array}$ |
| ML000081 | MLST-300-ASGN-00-S10-N420 | V2: 1" SAE 6000 C2: 1" SAE 6000/3000 E, Pil, T: G 1/4" | (1) $350 \mathrm{Q}=5 \mathrm{I} / \mathrm{min}$ <br> (2) 7.5 Crack. pr. | (1) 150-460 <br> (2) 3-15 | $\begin{array}{ll} (1) & 236 \\ (2) & 3.2 \end{array}$ |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## CHECK AND METERING VALVE

## MLST-300-AAGN

FLANGED TYPE
1 1/4" SAE 6000
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fluid Tech





## SPECIFICATIONS

| Max. operating pressure: | $\mathbf{4 2 0}$ bar |
| :--- | :--- |
| Rated flow: | 500 I/min |
| Manifold: | Steel |
| Weight: | $15,09 \mathrm{~kg}$ |
| NOTES |  |

When correctly adjusted for the specific excavator installation, these valves meet the requirement of ISO 8643


## SECTION 11 <br> SHUTTLE AND LOGIC ELEMENTS

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| Hydraulic scheme | Valve description | Valve type | $\begin{aligned} & \text { Rated } \\ & \text { flow } \\ & \text { (1/min) } \end{aligned}$ | $\begin{gathered} \text { Max. } \\ \text { pressure } \\ \text { (bar) } \end{gathered}$ | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CDSN-005-SSNS <br> CDSN-03O-SSNS <br> MDSN-05O-SSNR | Shuttle <br> Shuttle <br> Shuttle | 5 <br> 40 <br> 50 | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | Insert <br> Insert <br> In line | VP000018 <br> VP000079 <br> G 1/4" | $\begin{aligned} & 198 \\ & 199 \\ & 200 \end{aligned}$ |
| (2) <br> (1) <br> (3) | CDLN-040-CCTC | Direct acting, spool type | 40 | 350 | Cartridge | SAE-10-3N | 201 |
| (2) <br> (1) | CDLN-040-CCTE | Direct acting, spool type | 40 | 350 | Cartridge | SAE-10-3N | 202 |
| (2) <br> (1) | CDLN-040-CCVC | Direct acting, spool type | 40 | 350 | Cartridge | SAE-10-3N | 203 |
| (2) <br> (1) | CDLN-040-CCVE | Direct acting, spool type | 40 | 350 | Carrridge | SAE-10-3N | 204 |









## SECTION 12

FLOW DIVIDERS AND COMBINERS

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) | $\underset{\substack{\text { Max. } \\ \text { pressure } \\ \text { (bar) }}}{ }$ | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CFDT-055-BFAR <br> CFDT-160-BFAR | Spool type, divider and combiner <br> Spool type, divider and combiner | $\begin{aligned} & 55 \\ & 160 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge | SAE-10-4N <br> SAE-16-4N | $\begin{aligned} & 206 \\ & 207 \end{aligned}$ |
|  | MFDT-040-BFSR MFDT-040-BFSR KFDT-055-BFAR KFDT-055-BFAR KFDT-055-BFAR | Spool type, divider and combiner Spool type, divider and combiner Spool type, divider and combiner Spool type, divider and combiner Spool type, divider and combiner | 40 <br> 40 <br> 15 <br> 40 <br> 55 | 210 <br> 210 <br> 210 <br> 210 <br> 210 | In line In line In line In line In line | $\begin{gathered} G 3 / 8^{\prime \prime} \\ G 3 / 8^{\prime \prime} \& G 1 / 2^{\prime \prime} \\ G 1 / 4^{\prime \prime} \\ G 3 / 8^{\prime \prime} \\ G 1 / 2^{\prime \prime} \end{gathered}$ | $\begin{aligned} & 208 \\ & 208 \\ & 209 \\ & 209 \\ & 210 \end{aligned}$ |

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## SECTION 13

## FLOW CONTROL VALVES

| Hydraulic scheme | Valve description | Valve type |  | Max. pressure (bar) | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CFFN-015-MFSR CFFN-030-MFSR CFFN-070-MFSR CDFN-010-PSNC | Disk type, double mounting Disk type, double mounting Disk type, double mounting Poppet type | 15 <br> 30 <br> 70 <br> 10 | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Insert <br> Insert <br> Insert <br> Sleeve | G 1/4" <br> G 3/8" <br> G 1/2" <br> G 1/4" | 212 <br> 213 <br> 214 <br> 215 |
| (1) | CFSN-040-BHRR CFSN-070-BHRR | Not compensated <br> Not compensated | $\begin{aligned} & 40 \\ & 70 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge | SAE-08-2N <br> SAE-10-2N | $\begin{aligned} & 216 \\ & 217 \end{aligned}$ |
|  | CFHN-030-MHST <br> CFHN-050-MHST <br> CFHN-070-MHST <br> CFHN-170-MHST <br> CFHN-230-MHST | Hose burst valve <br> Hose burst valve <br> Hose burst valve <br> Hose burst valve <br> Hose burst valve | $\begin{gathered} 29 \\ 45 \\ 65 \\ 170 \\ 220 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Insert <br> Insert <br> Insert <br> Insert <br> Insert | G 1/4" <br> G 3/8" <br> G 1/2" <br> G 3/4" <br> G 1" | 218 <br> 218 <br> 218 <br> 218 <br> 218 |
|  | CFST-010-MDST CFST-025-MDST CFST-070-MDST CFST-150-MDST | Two ways compensated Two ways compensated Two ways compensated Two ways compensated | $\begin{gathered} 10 \\ 25 \\ 67 \\ 150 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Insert <br> Insert <br> Insert <br> Insert | G 1/4" <br> G 3/8" <br> G 1/2" <br> G 3/4" | 219 <br> 219 <br> 219 <br> 219 |
| (1) <br> (2) | CFCT-060-MHRR | Three ways combination | 60 | 350 | Cartridge | SAE-10-3N | 220 |
| (E) <br> (T) | MFCT-055-RVTR-19 <br> MFCT-055-RVTR-30 <br> MFCT-090-RVTR-19 <br> MFCT-090-RVTR-30 <br> MFCT-090-RVTR-55 <br> MFCT-150-RVTR-90 <br> MFCT-280-RVTR-19 | Three ways compensated <br> Three ways compensated <br> Three ways compensated <br> Three ways compensated <br> Three ways compensated <br> Three ways compensated <br> Three ways compensated | $\begin{gather*} 55 \\ 55 \\ 90 \\ 90 \\ 90 \\ 150 \\ 280 \end{gather*}$ | $\begin{aligned} & 210-350 \\ & 210-350 \\ & 210-350 \\ & 210-350 \\ & 210-350 \\ & 210-350 \\ & 210-350 \end{aligned}$ | In line In line In line In line In line In line In line | G 3/8" <br> G 3/8" <br> G 1/2" <br> G 1/2" <br> G 1/2" <br> G 3/4" <br> G1" | $\begin{aligned} & 221 \\ & 222 \\ & 223 \\ & 224 \\ & 225 \\ & 226 \\ & 227 \end{aligned}$ |
|  | MFPT-100-RVAR | Pressure compensated, priority flow regulator | 100 | 350 | In line | G 1/2" | 228 |
|  | MFPT-100-MHAR <br> MFPT-200-MHAR <br> MFPT-300-MHAR <br> MFPT-400-MHAR | Pressure compensated, priority flow regulator Pressure compensated, priority flow regulator Pressure compensated, priority flow regulator Pressure compensated, priority flow regulator | $\begin{aligned} & 100 \\ & 200 \\ & 300 \\ & 400 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line <br> In line <br> In line <br> In line | $\begin{gathered} \text { G 1/2" } \\ \text { G 3/4" } \\ \text { G 1" } \\ \text { G 1" } 1 / 4 \end{gathered}$ | $\begin{aligned} & 229 \\ & 230 \\ & 231 \\ & 232 \end{aligned}$ |
|  | MFTT-100-MHAR MFTT-200-MHAR | Pressure compensated, priority flow regulator Pressure compensated, priority flow regulator | $\begin{aligned} & 2 \times 100 \\ & 2 \times 200 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \end{aligned}$ | In line In line | $\begin{aligned} & \text { G } 1 / 2^{\prime \prime} \\ & \text { G } 3 / 4^{\prime \prime} \end{aligned}$ | $\begin{aligned} & 233 \\ & 234 \end{aligned}$ |

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| FLOW CONTROL VALVES |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CFFN-015-MFSR |  | INSERT TYPE DOUBLE MOUNTING |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  | SPECIFICATIONS |  |
|  |  |  |  |  | Max. operating pressure: | 350 bar |
|  |  |  |  |  | Rated flow: | $151 / \mathrm{min}$ |
|  |  |  |  |  | Cavity: | G 1/4 |
|  |  |  |  |  | Weight: | $0,1 \mathrm{~kg}$ |
|  | * |  |  |  | Installation torque: | 5 Nm |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| ORDERING CODES |  |  |  |  |  |  |
| Quick code | Description | $\phi$ Orifice | Quick code |  | Description | $\phi$ Orifice |
| CFOOO118 | CFFN-015-MFSR-05-G14-N350 | 0,5 | CF000123 | CFFN-0 | 15-MFSR-15-G14-N350 | 1,5 |
| CFO00119 | CFFN-015-MFSR-06-G14-N350 | 0,6 | CF000124 | CFFN- | 15-MFSR-20-G14-N350 | 2 |
| CF000120 | CFFN-015-MFSR-07-G14-N350 | 0,7 |  |  |  |  |
| CF000121 | CFFN-015-MFSR-08-G14-N350 | 0,8 |  |  |  |  |
| CF000088 | CFFN-015-MFSR-10-G14-N350 | 1 |  |  |  |  |
| CF000122 | CFFN-015-MFSR-12-G14-N350 | 1,2 |  |  |  |  |





















## FLOW REGULATOR <br> MFPT-400-MHAR

PRESSURE COMPENSATED PRIORITY FLOW REGULATOR FOR AUXILIARY CIRCUITS

Atlantic
fluid Tech




(bar)
 flexing or stressing the valve body. It is recommended to fit spacers on the mounting bolts between the valve and the mounting surface.
-See pag. 61 for suitable check valves.

ORDERING CODES

| Quick <br> code | Description | Main ports size | Setting <br> range <br> (bar) | Standard <br> setting <br> (bar) | Adjustment <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| MF000071 | MFPT-400-MHAR-30-G11-N210 | P-IN, A,B: G 1"-1/4 <br> DR,LS: G 1/4 | $100-200$ | 200 | 73 |
| MF000073 | MFPT-400-MHAR-30-G11-N350 | P-IN, A,B: G 1"-1/4 <br> DR,LS: G 1/4 | $150-350$ | 350 | 165 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |



## MFTT-200-MHAR

PRESSURE COMPENSATED PRIORITY
TWO PUMPS SYSTEM
FLOW REGULATOR FOR
AUXILIARY CIRCUITS

## Atlantic <br> Flinid Tech



## SPECIFICATIONS

Max. operating pressure: 350 bar

| Rated flow: | $2 \times 200 \mathrm{I} / \mathrm{min}$ |
| :--- | ---: |
| Regulated Flow: | $3-250 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Zinc plated steel |
| Weight: | $10,9 \mathrm{~kg}$ |
| Coil: | M7 |

## NOTES

- Turn screw "R" anti-clockwise to increase regulated flow.



## ORDERING CODES

| Quick <br> code | Description | Main ports size | Setting <br> range <br> (bar) | Standard <br> setting <br> (bar) | Adjustment <br> (bar/turn) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| MF000064 | MFTT-200-MHAR-14-G34-N210 | P1-P2-B1-B2: G3/4" <br> A:G1"; T: G1/4" | $100-200$ | 200 | 73 |
| MF000065 | MFTT-200-MHAR-14-G34-N350 | P1-P2-B1-B2: G3/4" <br> A:G1"; $:$ G1/4" | $150-350$ | 350 | 165 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## SECTION 14

## SPECIAL VALVES

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) |  | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MDAP-040-NNNR <br> MDAP-090-NNNR | Spool type, pressure switching <br> Spool type, pressure switching | $\begin{aligned} & 40 \\ & 90 \end{aligned}$ | $\begin{aligned} & 350 \\ & 300 \end{aligned}$ | Flanged <br> Flanged | Cetop 3 <br> Cetop 5 | $\begin{aligned} & 236 \\ & 237 \end{aligned}$ |
|  | MDAF-080-ANNR <br> MDAF-080-BNNR <br> MDAF-080-BNNT | Spool type, flow switching, P in A start Spool type, flow switching, P in B start Spool type, flow switching, P in B start, separate T | 80 <br> 80 <br> 80 | $\begin{aligned} & 350 \\ & 300 \\ & 300 \end{aligned}$ | Flanged <br> Flanged <br> Flanged | Cetop 5 <br> Cetop 5 <br> Cetop 5 | $\begin{aligned} & 238 \\ & 239 \\ & 240 \end{aligned}$ |
|  | MTLN-250-TLSA | Spool type, pump unloading, piloted | 250 | 210 | In line | G 1" | 241 |
|  | MFTS-200-DHAN | Solenoid operated unloading valve, with relief | 200 | 350 | In line | G 1" | 242 |
|  | MDTA-060-ABNR | End of stroke, normally open, compensated | 60 | 350 | In line | G 3/8" | 243 |
|  | MDTC-080-ABNR | End of stroke, normally closed | 80 | 350 | In line | G 3/8" | 244 |

## AUTOMATIC DIRECTIONAL VALVE

MDAP-040-NNNR pressure switching

## Atlantic

fluid Tech








## SPECIAL VALVE

MDTA-060-ABNR | END OF STROKE |
| :--- |
| NORMALLY OPEN |
| COMPENSATED |







| ORDERING CODES |  |  |  |
| :---: | :---: | :---: | :---: |
| Quick <br> code | Description | Main ports size |  |
| MD000043 | MDTA-060-ABNR-NP-G38-N350 | G 3/8" |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Atlantic fluid Tech



## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $60 \mathrm{I} / \mathrm{min}$ |
| Manifold: | Steel |
| Weight: | $0,82 \mathrm{~kg}$ |
| Maximum stroke: | 5 mm |

Max. leakage at 150 bar
when fully closed:
200 cc/min

## SPECIAL VALVE

## MDTC-080-ABNR

END OF STROKE
NORMALLY CLOSED






## Atlantic Flinid Tech

## ORDERING CODES

| Quick <br> code | Description | Main ports size |  |
| :---: | :---: | :---: | :---: |
| MD000044 | MDTC-080-ABNR-NP-G38-N350 | P: G 3/8" <br> T: G 1/2" |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## SECTION 15

## SOLENOID CARTRIDGES

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) |  | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CEBS-010-NCFN-22 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-2N | 247 |
|  | CEBS-010-NAFN-23 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-2N | 248 |
|  | CEBD-015-NCFN-21 | Direct acting, poppet type | 15 | 210 | Cartridge | SAE-08-2N | 249 |
|  | CEBP-020-NCFN-01 <br> CEBP-030-NCFN-01 <br> CEBP-040-NCFN-01 <br> CEBP-070-NCFN-01 <br> CEBP-150-NCFN-01 | Pilot operated, poppet type, cable operated Pilot operated, poppet type <br> Pilot operated, poppet type <br> Pilot operated, poppet type <br> Pilot operated, poppet type | $\begin{aligned} & 20 \\ & 30 \\ & 40 \\ & 70 \\ & 150 \end{aligned}$ | $\begin{aligned} & 250 \\ & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge Cartridge Cartridge Cartridge Cartridge | SAE-08-2N <br> SAE-08-2N <br> SAE-08-2N <br> VP000057 <br> VP000013 | $\begin{aligned} & 250 \\ & 251 \\ & 255 \\ & 263 \\ & 269 \end{aligned}$ |
|  | CEBP-030-NCFN-05 <br> CEBP-040-NCFN-05 <br> CEBP-070-NCFN-05 <br> CEBP-150-NCFN-05 | Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type | $\begin{aligned} & 30 \\ & 40 \\ & 70 \\ & 150 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge <br> Cartridge | SAE-08-2N <br> SAE-08-2N <br> VP000057 <br> VP000013 | $\begin{aligned} & 253 \\ & 257 \\ & 265 \\ & 271 \end{aligned}$ |
|  | CEBP-040-NCFN-03 | Pilot operated, poppet type | 40 | 350 | Cartridge | SAE-08-2N | 259 |
|  | CEBP-030-NAFN-02 <br> CEBP-040-NAFN-02 <br> CEBP-070-NAFN-02 <br> CEBP-150-NAFN-02 | Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type | $\begin{gathered} 30 \\ 40 \\ 70 \\ 150 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge <br> Cartridge | SAE-08-2N <br> SAE-08-2N <br> VP000057 <br> VP000013 | $\begin{aligned} & 252 \\ & 256 \\ & 264 \\ & 270 \end{aligned}$ |
|  | CEBP-030-NAFN-06 <br> CEBP-040-NAFN-06 <br> CEBP-070-NAFN-06 <br> CEBP-150-NAFN-06 | Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type | $\begin{aligned} & 30 \\ & 40 \\ & 70 \\ & 150 \end{aligned}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge <br> Cartridge | SAE-08-2N <br> SAE-08-2N <br> VP000057 <br> VP000013 | $\begin{aligned} & 254 \\ & 258 \\ & 266 \\ & 272 \end{aligned}$ |
|  | CEBP-040-NAFN-04 | Pilot operated, poppet type | 40 | 350 | Cartridge | SAE-08-2N | 260 |
|  | CEBP-040-NCFN-31 <br> CEBP-070-NCFN-31 <br> CEBP-150-NCFN-31 | Pilot operated, poppet type <br> Pilot operated, poppet type <br> Pilot operated, poppet type | $\begin{gathered} 40 \\ 70 \\ 150 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge | SAE-08-2N <br> VP000057 <br> VP000013 | $\begin{aligned} & 261 \\ & 267 \\ & 273 \end{aligned}$ |
|  | CEBP-040-NAFN-32 <br> CEBP-070-NAFN-32 <br> CEBP-150-NAFN-32 | Pilot operated, poppet type Pilot operated, poppet type Pilot operated, poppet type | $\begin{gathered} 40 \\ 70 \\ 150 \end{gathered}$ | $\begin{aligned} & 350 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge | SAE-08-2N <br> VP000057 <br> VP000013 | $\begin{aligned} & 262 \\ & 268 \\ & 274 \end{aligned}$ |
|  | CECS-010-SEFN-61 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-3N | 275 |
|  | CECS-010-SEFN-62 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-3N | 276 |
|  | CECS-010-SEFN-63 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-3N | 277 |
|  | CECS-010-SEFN-64 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-3N | 278 |
|  | CEDS-010-SEFN-40 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 279 |
|  | CEDS-010-SEFN-41 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 280 |

## SECTION 15

## SOLENOID CARTRIDGES

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) | $\begin{gathered} \text { Max. } \\ \text { pressure } \\ \text { (bar) } \end{gathered}$ | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CEDS-010-SEFN-43 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 281 |
|  | CEES-010-SEFN-51 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 282 |
| $\square 1 W^{4} \\|\left._{(3)}^{(4)}\right\|_{\top} ^{\mid(2)} \cdot \mid \mathbb{N}$ | CEES-010-SEFN-52 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 283 |
| $\left.\square M A A_{(3)}^{(2)}\right\|_{\mathbb{1}} ^{(4)}=1 \mathrm{~N}$ | CEES-010-SEFN-53 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 284 |
|  | CEES-010-SEFN-54 | Direct acting, spool type | 10 | 210 | Cartridge | SAE-08-4N | 285 |









SOLENOID OPERATED CARTRIDGE


SOLENOID OPERATED CARTRIDGE

CEBP-040-NAFN
PILOT OPERATED POPPET TYPE

Atlantic
Flinid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :---: |
| Rated flow: | $40 \mathrm{I} / \mathrm{min}$ |
| Cavity: | SAE-08-2N |
| Weight: | $0,1 \mathrm{~kg}$ |

Min. voltage required: $90 \%$ of nominal
Coil type: M7 type

NOTES
Installation torque: $\quad 45-50 \mathrm{Nm}$


OPTIONS


Standard


Push type override

## ORDERING CODES

| Quick <br> code | Description | Options |  |
| :---: | :---: | :---: | :---: |
| CE000003 | CEBP-040-NAFN-02-S08-N350 | Standard |  |
| CE000043 | CEBP-040-NAFE-02-S08-N350 | Push style override |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |



SOLENOID OPERATED CARTRIDGE
CEBP-040-NAFN
PILOT OPERATED POPPET TYPE

Atlantic
fluid Tech

(1)

## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $40 \mathrm{I} / \mathrm{min}$ |
| Cavity: | SAE-08-2N |
| Weight: | $0,13 \mathrm{~kg}$ |

Min. voltage required: $90 \%$ of nominal
Coil type:
NOTES
Installation torque:
45-50 Nm
OPTIONS


Standard


Push style override

| ORDERING CODES |  |  |  |
| :---: | :---: | :---: | :---: |
| Quick <br> code | Description | Options |  |
| CE000002 | CEBP-040-NAFN-06-S08-N350 | Standard |  |
| CE000004 | CEBP-040-NAFE-06-S08-N350 | Push style override |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

SOLENOID OPERATED CARTRIDGE

CEBP-040-NCFN
PILOT OPERATED
POPPET TYPE

Atlantic
Fluid Tech




CEBP-040-NAFN
PILOT OPERATED POPPET TYPE

Atlantic
Fluid Tech

(1)

## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $40 \mathrm{I} / \mathrm{min}$ |
| Cavity: | SAE-08-2N |
| Weight: | $0,11 \mathrm{~kg}$ |

Min. voltage required: $90 \%$ of nominal
Coil type:
M7
NOTES
Installation torque:
45-50 Nm
OPTIONS


Standard


Push style override

| ORDERING CODES |  |  |  |
| :---: | :---: | :---: | :---: |
| Quick <br> code | Description | Options |  |
| CE000045 | CEBP-040-NAFN-04-S08-N350 | Standard |  |
| CE000046 | CEBP-040-NAFE-04-S08-N350 | Push style override |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |



CEBP-040-NAFN


PILOT OPERATED POPPET TYPE

Atlontic
Flinid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $40 \mathrm{I} / \mathrm{min}$ |
| Cavity: | SAE-08-2N |
| Weight: | $0,1 \mathrm{~kg}$ |

Min. voltage required: $90 \%$ of nominal
Coil type:
NOTES
Installation torque: $\quad 45-50 \mathrm{Nm}$


## OPTIONS



## ORDERING CODES

| Quick <br> code | Description | Options |  |
| :---: | :---: | :---: | :---: |
| CEOOO026 | CEBP-040-NAFN-32-SO8-N350 | Normal |  |
| CE000038 | CEBP-040-NAFE-32-S08-N350 | Push style override |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |


SOLENOID OPERATED CARTRIDGE

SOLENOID OPERATED CARTRIDGE

SOLENOID OPERATED CARTRIDGE

SOLENOID OPERATED CARTRIDGE

SOLENOID OPERATED CARTRIDGE
















## SECTION 16

## PROPORTIONAL CARTRIDGES

| Hydraulic scheme | Valve description | Valve type | Rated flow (1/min) | Max. pressure (bar) | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CECS-005-PRPB | Proportional, direct acting, reducing and relieving | 5 | 350 | Cartridge | SAE-08-3N | 288 |
| $\text { (3) } \sim$ | CECT-080-PRPS | Proportional, pilot operated, reducing and relieving | 80 | 250 | Cartridge | SAE-10-3N | 289 |
|  | CEBT-120-PLPS | Proportional, pilot operated, relieving | 120 | 350 | Cartridge | SAE-10-2N | 290 |
|  | $\begin{aligned} & \text { CECS-020-FSPS } \\ & \text { CECS-030-FSPS } \\ & \text { CECS-040-FSPS } \end{aligned}$ | Proportional, non compensated, flow regulator <br> Proportional, non compensated, flow regulator <br> Proportional, non compensated, flow regulator | $\begin{aligned} & 20 \\ & 30 \\ & 40 \end{aligned}$ | $\begin{aligned} & 210 \\ & 350 \\ & 350 \end{aligned}$ | Cartridge <br> Cartridge <br> Cartridge | SAE-10-3N <br> SAE-10-3N <br> SAE-10-3N | $\begin{aligned} & 291 \\ & 291 \\ & 291 \end{aligned}$ |
| PROPORTIONAL CONTROLLER | ELPC-030-SCCB | Proportional electronic controller | - | - | DIN 43650 | - | 292 |

CECS-005-PRPB

PROPORTIONAL VALVES DIRECT OPERATED PRESSURE REDUCING

Hex. 2 Bleeding screw




Atlantic
Flinid Tech


## SPECIFICATIONS

| Max. operating pressure: | 350 bar |
| :--- | :--- |
| Rated flow: | $5 \mathrm{I} / \mathrm{min}$ |
| Cavity: | SAE-08-3N |
| Weight: | $0,12 \mathrm{~kg}$ |
| Coil type: | M7 |

Max. int. leakage: $100 \mathrm{~cm}^{3} / \mathrm{min}$ (@46 cSt)
Installation torque:
45-50 Nm
PWM range recommended: $120-150 \mathrm{~Hz}$
NOTES

Bleed air before use

## ORDERING CODES

| Quick <br> code | Description | Regulated pressure <br> range <br> (bar) | Threshold <br> current <br> (with12VDC coil) | Max control <br> current 12V DC coil) |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CE000123 | CECS-005-PRPB-95-S08-N025 | $4-25$ | $400 \mathrm{~mA} \mathrm{(+/-7} \mathrm{\%)}$ | $1100 \mathrm{~mA} \mathrm{(+/-7} \mathrm{\%)}$ |  |
| CE000124 | CECS-005-PRPB-95-S08-N035 | $4-35$ | $400 \mathrm{~mA} \mathrm{(+/-7} \mathrm{\%)}$ | $1100 \mathrm{~mA} \mathrm{(+/-7} \mathrm{\%)}$ |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |





## PROPORTIONAL VALVE CONTROLLER

## ELPC-030-SCCB

Atlantic fluid Tech

FREQ.ADJ.


Max torque $0,5 \mathrm{Nm}$

CONNECTION EXAMPLE WITH
JOYSTICK OR POTENTIOMETER
CONNECTION EXAMPLE WITH ANALOGIC SIGNAL

IMPORTANT
DO NOT REMOVE controller from solenoid when energized to avoid the risk of damaging it

## SETTING INSTRUCTIONS

SUPPLY: led is on when current is supplied
OFFSET: to be used to set minimum current value ( 1 min ), turn clockwise to increase setting
RAMP UP: to be used to set the ramp time from minimum (I min) to maximum current value (I max)
RAMP DOWN: to be used to set the ramp time from maximum (I max) to minimum current value (I min)
FULL LOAD CURRENT:to be used to set maximum current value (I max), turn clockwise to increase setting FREQ. ADJ.: this trimmer is inside the controller and is preset by factory, to be used to modify the PWM frequency

## ORDERING CODES

| Quick <br> code | Description |  |
| :---: | :---: | :---: |
| ELO00001 | Proportional controller ELOOOOO1 |  |



|  |
| :---: |
|  |
| O <br> 0 <br> 0 <br> O <br> O <br> 0 <br> 0 |
| $\begin{aligned} & \text { U } \\ & \text { U } \end{aligned}$ |
|  |
| $\begin{array}{\|ll\|} \hline 0 & 6 \\ \text { 능 } & \\ \text { O} & \\ 0 & \\ \hline 0 & \\ \hline \end{array}$ |
|  |
|  |
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|  |
|  |
|  |
|  |
|  |
| $$ |
|  |
|  |
|  |
|  |

## FLOW DIVERTERS

ESCB-050-ESCN

| ** | Circuit | Transit position |
| :---: | :---: | :---: |
| 40 |  | - |
| 41 |  | - |
| 42 |  | $-\therefore 1$ |
| 43 |  | $\therefore \pm 1$ |


| Technical data |  |  |  |
| :--- | :--- | :---: | :---: |
| Rated flow |  | I/min | 50 |
| Operating <br> pressure | with internal drain "N" | bar | 250 |
|  | with external drain "E" | bar | 310 |
| Valve weight | Kg | 2,6 |  |



Mounting example
for circuit 41 or 43

## OVERALL DIMENSIONS

External Drain port Hex. 24 torque 22-24 Nm

(1) Solenoid tube hex. 17 - Torque $22-24 \mathrm{Nm}$
(2) Ring nut for coil locking - Torque 5-6 Nm




Internal leakage on C ports : MAX $25 \mathrm{~cm} 3 / \mathrm{min}$ - Mineral oil with 32 cStviscosity, at $40^{\circ} \mathrm{C}$ and 100 bar pressure


| $\boldsymbol{*}$ | COIL | Type | Protection <br> class |
| :---: | :---: | :---: | :---: |
| $\mathbf{-}$ | Without Coil |  |  |
| HR | $\square$ | DIN 43650 - ISO 4400 <br> Class H | M9 |
| AJ | $\square$ | AMP JUNIOR <br> Class H | M9 |
| DT | $\square$ | DEUTSCH DTO4-2P-L <br> Class H | M9 |
| IP65 |  |  |  |

## FLOW DIVERTERS

## ESCB-090-ESFN <br> 3 WAYS FLOW DIVERTERS

| ** | Circuit | Transit position |
| :---: | :---: | :---: |
| 40 |  | $1 \pm 1$ |
| 41 |  | $1 \pm$ |
| 42 |  | $A \perp-1$ |
| 43 |  | $8 \pm 1$ |


| Technical data |  |  |  |
| :--- | :--- | :---: | :---: |
| Rated flow |  | I/min | 90 |
| Operating <br> pressure | with internal drain "N" | bar | 250 |
|  | with external drain "E" | bar | 310 |
| Valve weight |  | Kg | 3,5 |



## OVERALL DIMENSIONS


(1) Solenoid tube hex. 17 - Torque 25-27 Nm
(2) Ring nut for coil locking - Torque 7-8 Nm

Coil position with 42-43 circuit


Coil position with 40-41 circuit

## Characteristic curves

Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \mathrm{C}$


| * * * | Main (C) | Drain (D) |
| :---: | :---: | :---: |
| G12 | $1 / 2^{\prime \prime}$ Gas | $1 / 4$ " Gas |
|  |  |  |
|  |  |  |
| Other port sizes available |  |  |

6

7 10

| 11 |
| :--- |
| 12 |


| * | Voltage <br> (V) | Resistance <br> $(\boldsymbol{\Omega}) \pm 7 \%$ | Power <br> (W) | Current <br> (A) |
| :---: | :---: | :---: | :---: | :---: |
| - | Without coil |  |  |  |
| A | 12 DC | 3,99 | 36 | 3 |
| B | 24 DC | 14,5 | 36 | 1,53 |
| Other voltages available on request |  |  |  |  |


| * |  | COIL | Type | Protection class |
| :---: | :---: | :---: | :---: | :---: |
| - |  | Without coil |  |  |
| HR | $\square$ | DIN 43650 - ISO 4400 Class H | M1 | IP65 |
| AJ | $\square$ | AMP JUNIOR Class H | M1 | IP65 |
| DT | $\xrightarrow{\square}$ | DEUTSCH DTO4-2P-L Class H | M1 | IP69 |

## FLOW DIVERTERS

ESFB-050-ESCN
6 WAYS SINGLE \& BANKABLE FLOW DIVERTERS

| Technical data |  |  |  |
| :--- | :--- | :---: | :---: |
| Rated flow |  | I/min | 50 |
| Operating <br> pressure | with internal drain "N" | bar | 250 |
|  | with external drain " $\mathrm{E} "$ | bar | 310 |
| Valve weight |  |  | Kg |
| 3,2 |  |  |  |





## FLOW DIVERTERS

ESFB-090-ESFN

6 WAYS SINGLE \& BANKABLE FLOW DIVERTERS

Atlantic
Flinid Tech

| ** | Circuit | Transit position |
| :---: | :---: | :---: |
| 01 |  |  |
| 02 |  |  |
| 03 |  | \%\% |


| Technical data |  |  |  |
| :--- | :--- | :---: | :---: |
| Rated flow | I/min | $\mathbf{9 0}$ |  |
| Operating <br> pressure | with internal drain "N" | bar | $\mathbf{2 5 0}$ |
|  | with external drain "E" | bar | $\mathbf{3 1 0}$ |
| Valve weight |  |  |  |



$$
\begin{aligned}
& \text { Mounting } \\
& \text { example }
\end{aligned}
$$


Characteristic curves
Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \mathrm{C}$




## 

| $*$ | Voltage <br> (V) | Resistance <br> $(\Omega) \pm 7 \%$ | Power <br> $(\mathbf{W})$ | Current <br> $(\mathbf{A})$ |
| :---: | :---: | :---: | :---: | :---: |
| - | Without coil |  |  |  |
| A | 12 DC | 3,2 | 45 | 3,75 |
| B | 24 DC | 12,8 | 45 | 1,87 |
| Other voltages available on request |  |  |  |  |


| * | COIL | Type | Protection class |
| :---: | :---: | :---: | :---: |
| - | Without coil |  |  |
| HR | DIN 43650 - ISO 4400 Class H | M1 | IP65 |
| AJ | $\square$ AMP JUNIOR | M1 | IP65 |
| DT | DEUTSCH DTO4-2P-L Class H | M1 | IP69 |

tYPE OF MOUNTING

| $\boldsymbol{*}$ | Port <br> number | Screw <br> Tie rods | Installation <br> torque |
| :---: | :---: | :---: | :---: |
| $\mathbf{-}$ | 6 | - | - |
| $\mathbf{0 8}$ | 8 | $M 8 \times 130$ | $15-17 \mathrm{Nm}$ |
| $\mathbf{1 0}$ | 10 | $M 8 \times 196$ | $15-17 \mathrm{Nm}$ |
| $\mathbf{1 2}$ | 12 | $M 8 \times 262$ | $15-17 \mathrm{Nm}$ |
| $\mathbf{1 4}$ | 14 | $M 8 \times 328$ | $15-17 \mathrm{Nm}$ |



| SECTION 18 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
| Description | Type | Heat insulation class | Connector | Page |
| Coil M7 HS | M7 - For solenoid operated cartridge valve | $\mathrm{H}-180^{\circ} \mathrm{C}$ | EN 175301-803-DIN 43650 - ISO 4400 | 304 |
| Coil M7 HS | M7-For solenoid operated cartridge valve - RAC | $\mathrm{H}-180^{\circ} \mathrm{C}$ | EN 175301-803-DIN 43650 - ISO 4400 | 305 |
| Coil M7 AJ | M7-For solenoid operated cartridge valve | $\mathrm{H}-180^{\circ} \mathrm{C}$ | Amp Junior | 306 |
| Coil M7 DT | M7-For solenoid operated cartridge valve | $\mathrm{H}-180^{\circ} \mathrm{C}$ | Deutsch - DT04-2P-L | 307 |
| Coil M5 HS | M5 - For proportional solenoid operated cartridge valve | $\mathrm{H}-180^{\circ} \mathrm{C}$ | EN 175301-803-DIN 43650 - ISO 4400 | 308 |
| Coil M9 HS | M9 - For $\varnothing 19$ tube diverter valve | $\mathrm{H}-180^{\circ} \mathrm{C}$ | EN 175301-803-DIN 43650 - ISO 4400 | 309 |
| Coil M1 HS | M1-For $\varnothing 22$ tube diverter valve | $\mathrm{H}-180^{\circ} \mathrm{C}$ | EN 175301-803-DIN 43650 - ISO 4400 | 310 |
| DIN Connector | IP67 - Standard / with VDR / with rectifier | - | EN 175301-803-DIN 43650 - ISO 4400 | 311 |


|  |
| :--- |
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SECTION 19
ACCESSORIES

| Hydraulic scheme | Valve description | Valve type | Rated flow ( $1 / \mathrm{min}$ ) |  | Installation | Main port size or cavity type | Page |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Filter G 1/4" <br> Filter G 3/8" | 300 micron filtration 300 micron filtration | $\begin{aligned} & 25 \\ & 50 \end{aligned}$ | $\Delta \mathrm{p} 35$ $\Delta \mathrm{p} 35$ | Insert <br> Insert | $\begin{aligned} & \mathrm{G} 1 / 4^{\prime \prime} \\ & \mathrm{G} 3 / 8^{\prime \prime} \end{aligned}$ | $\begin{aligned} & 314 \\ & 314 \end{aligned}$ |
|  | Manual override | Detent type | - | - | Screw | - | 315 |
|  | Sleeve body G 1/4" <br> Sleeve body G 3/8" <br> Sleeve body G 1/2" <br> Sleeve body G 3/4" | For hose burst and check valve For hose burst and check valve For hose burst and check valve For hose burst and check valve |  | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line <br> In line <br> In line <br> In line | $\begin{aligned} & \text { G1/4" } \\ & \text { G3/8" } \\ & \text { G1/2" } \\ & \text { G3/4" } \end{aligned}$ | $\begin{aligned} & 316 \\ & 316 \\ & 316 \\ & 316 \end{aligned}$ |
|  | Sleeve body G 1/4" <br> Sleeve body G 3/8" <br> Sleeve body G 1/2" <br> Sleeve body G 3/4" | For flow control valve For flow control valve For flow control valve For flow control valve |  | $\begin{aligned} & 350 \\ & 350 \\ & 350 \\ & 350 \end{aligned}$ | In line In line In line In line | $\begin{aligned} & \text { G1/4" } \\ & \text { G3/8" } \\ & \text { G1/2" } \\ & \text { G3/4" } \end{aligned}$ | $\begin{aligned} & 317 \\ & 317 \\ & 317 \\ & 317 \end{aligned}$ |
|  | VP000057 G 3/4" VP000013 G 1" | Cavity plug Cavity plug |  |  | In line In line | VP000057 <br> VP000013 | $\begin{aligned} & 318 \\ & 318 \end{aligned}$ |
|  | SAE-08-2N <br> SAE-10-2N <br> SAE-08-3N <br> SAE-10-3N <br> SAE-08-4N <br> SAE-10-4N | Cavity plug Cavity plug Cavity plug Cavity plug Cavity plug Cavity plug |  |  | In line <br> In line <br> In line <br> In line <br> In line <br> In line | 3/4-16 UNF-2B <br> 7/8-14 UNF-2B <br> 3/4-16 UNF-2B <br> 7/8-14 UNF-2B <br> 3/4-16 UNF-2B <br> 7/8-14 UNF-2B | $\begin{aligned} & 319 \\ & 319 \\ & 320 \\ & 320 \\ & 321 \\ & 321 \end{aligned}$ |

Atlantic flivid Tech



## ACCESSORIES

## FILTER

SCREW IN FILTER
Atlantic
fluid Tech


| Code | A | B | C | D | E |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CT000002 | G 3/8" | 2.5 | 3.5 | 6 | 8 |
| CT000003 | G 1/4" | 2 | 3 | 5 | 6 |


| SPECIFICATIONS |  |
| :--- | :--- |
| Max. operating $\Delta \mathrm{p}:$ | $\mathbf{3 5}$ bar |
| Rated flow: | See table |
| Cavity: | See table |
| Weight: | $\mathbf{8} \mathbf{g}$ |

## APPLICATION LIMITATIONS

Not suitable for use with
-fast acting valve
-cold oil
-high viscosity oil
-other conditions creating pressure drop greater than 35 bar

## ORDERING CODES

| Quick <br> code | Description | Max. $\Delta$ P admitted <br> (bar) | Max. flow <br> $(\mathbf{I} / \mathrm{min})$ | Filtration <br> (micron) | Installation <br> torque <br> (Nm) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CT000002 | Filter G 3/8" | 35 | 50 | 300 | 10 |
| CT000003 | Filter G 1/4" | 35 | 25 | 300 | 5 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |






TYPE "B"




## STANDARD PLUG

## SAE-XXX-3N



TYPE "B"


| CAVITY | DIMENSION (mm) |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B (UNF-2B) | C | D | E | F | G | Hex | I | L | M | Type " ${ }^{\text {" }}$ | Type " B " |
| SAE-08-3N | 3/4-16 | 45 | 39,7 | 14,27 | 24 | 15,87 | 8 | 4 |  |  | ST000292 | ST000331 |
| SAE-10-3N | 7/8-14 | 54,5 | 46,5 | 15,87 | 28 | 17,47 | 14 | 4 |  |  | ST000334 | ST000333 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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## SAE－XX－2N



| CAVITY |  |  |  |  | IMENS | SION | （m |  |  |  |  |  | QUIC | DE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  | G 1／4＂ | 50 | 50 | 30 | 21 | 12 | 35 | 9 | 15 |  |  | 7 | LK000018 | LK000017 |
| $\underset{\sim}{2}$ | G 3／8＇ | 50 | 50 | 30 | 21 | 12 | 35 | 9 | 15 |  |  | 7 | LK000020 | LK000019 |
| \％ | 7／16－20 | 50 | 50 | 30 | 21 | 12 | 35 | 9 | 15 |  |  | 7 |  |  |
| 岂 | 9／16－18 | 50 | 50 | 30 | 21 | 12 | 35 | 9 | 15 |  |  | 7 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | G 3／8＂ | 60 | 60 | 35 | 25 | 15 | 45 | 7 | 19 |  |  | 7 | LK000022 | LK000021 |
| $\underset{N}{ }$ | G 1／2＂ | 60 | 60 | 35 | 25 | 15 | 45 | 7 | 19 |  |  | 7 | LK000024 | LK000023 |
| 잉 | G 3／4＂ | 60 | 60 | 40 | 27，5 | 15 | 45 | 9 | 20 |  |  | 7 | LK000047 | LK000046 |
| 它 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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SAE－XX－2N


| CAVITY | DIMENSIONS（mm） |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  | G 1／4＂ | 50 | 50 | 30 | 16 | 6 | 16 | 13 | 13 |  |  | 6，5 | LK000086 | LK000005 |
| Z | G 3／8＂ | 50 | 50 | 30 | 16 | 6 | 16 | 13 | 13 |  |  | 6，5 | LK000085 | LK000077 |
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## SAE－XX－3C

## Atlantic Flinid Tech



| CAVITY | DIMENSIONS（mm） |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | B1 | C | D | E | F | G | H | 1 | L | M | P | Steel | Aluminium |
|  | G 3／8＂ | G 1／4＂ | 60 | 60 | 30 | 30 | 15 | 45 | 7，5 | 13 | 27 | 7 |  | LK000033 |
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|  | G 3／8＂ | G 1／4＂ | 70 | 60 | 35 | 30 | 15 | 45 | 7，5 | 15 | 32 | 7 |  | LK000034 |
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SAE－XX－3N
Atlantic Fluid Tech


| CAVITY | DIMENSIONS（mm） |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  | G 1／4＂ | 65 | 60 | 30 | 30 | 10 | 40 | 10 | 15 | 28，5 |  | 6，5 |  | LK000008 |
| m | G 3／8＂ | 65 | 60 | 30 | 30 | 10 | 40 | 10 | 15 | 28，5 |  | 6，5 |  | LK000009 |
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|  | G 1／4＂ | 65 | 65 | 35 | 32，5 | 10 | 50 | 7，5 | 18 | 35 |  | 6，5 | LK000035 | LK000012 |
| Z | G 3／8＂ | 65 | 65 | 35 | 32，5 | 10 | 50 | 7，5 | 18 | 35 |  | 6，5 | LK000027 | LK000013 |
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| CAVITY | DIMENSIONS（mm） |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\underset{7}{ }$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | G 1／4＂ | 75 | 60 | 35 | 30 | 10 | 50 | 15 | 19 | 35 | 51 | 7 | LK000040 | LK000038 |
| Z | G 3／8＂ | 75 | 60 | 35 | 30 | 10 | 50 | 15 | 19 | 35 | 51 | 7 | LK000016 | LK000037 |
| 앙 | G 1／2＂ | 85 | 65 | 35 | 32，5 | 10 | 50 | 15 | 19 | 35 | 51 | 7 | LK000041 | LK000039 |
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| CAVITY | DIMENSIONS（mm） |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  | G 1／4＂ | 76 | 60 | 30 | 30 | 10 | 40 | 10 | 15 | 28，5 | 42，5 | 6，5 |  | LK000015 |
| \％ | G 3／8＂ | 76 | 60 | 30 | 30 | 10 | 40 | 10 | 15 | 28，5 | 42，5 | 6，5 |  | LK000014 |
| 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | G 1／4＂ | 80 | 65 | 35 | 32，5 | 10 | 50 | 7，5 | 18 | 35 | 50 | 6，5 |  | LK000010 |
| $z$ | G 3／8＂ | 85 | 60 | 35 | 30 | 15 | 45 | 7，5 | 19 | 35 | 51 | 7 | LK000043 | LK000011 |
| O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $\begin{array}{\|c\|} \hline \text { CAVITY } \\ \text { A } \end{array}$ | DIMENSIONS (mm) |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | B | C | D | E | F | G | H | , | L | M | N | P | Steel | Aluminium |
| $\begin{aligned} & \text { N } \\ & \text { OO } \\ & \text { O} \\ & \gg \end{aligned}$ | G 1/2" | 65 | 60 | 40 | 20 | 6 | 53 | 6 | 25 |  |  | 6,5 | LK000071 | LK000055 |
|  | G 3/4" | 65 | 60 | 40 | 20 | 6 | 53 | 6 | 25 |  |  | 6,5 | LK000075 | LK000065 |
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| $\begin{aligned} & m \\ & \hline \mathbf{O} \\ & \hline \mathbf{0} \\ & \hline \end{aligned}$ | G 3/4" | 80 | 80 | 50 | 26 | 7,5 | 65 | 7,5 | 31 |  |  | 8,5 | LK000078 | LK000066 |
|  | G 1" | 80 | 80 | 50 | 26 | 7,5 | 65 | 7,5 | 31 |  |  | 8,5 | LK000061 | LK000042 |
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| $\begin{aligned} & \text { o } \\ & \frac{0}{\circ} \\ & \hline \frac{1}{5} \end{aligned}$ | G 1-1/4' | 100 | 90 | 70 | 35 | 17 | 75 | 15 | 39 |  |  | 8,5 | LK000087 | LK000094 |
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| CAVITY | DIMENSIONS (mm) |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  | G 1/4" | 50 | 68 | 30 | 34 | 6 | 16 | 6 | 13 | 9 | 13 | 6,5 | KS000009 | KS000003 |
| N | G 3/8" | 50 | 68 | 30 | 34 | 6 | 16 | 6 | 13 | 9 | 13 | 6,5 | KS000008 | KS000002 |
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|  |  |  |  | D <br> A <br> $1-$ <br> $+$ $\qquad$ <br> (1) |  |  | Hex. 17 |  |  |  |  |  |  |  |
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| CAVITY | DIMENSIONS (mm) |  |  |  |  |  |  |  |  |  |  |  | QUICK CODE |  |
| A | B | C | D | E | F | G | H | 1 | L | M | N | P | Steel | Aluminium |
|  | G 1/2" | 65 | 80 | 40 | 40 | 6 | 53 | 6 | 25 | 9 |  | 6,5 | KS000007 | KS000001 |
|  | G 3/4" | 65 | 80 | 40 | 40 | 6 | 53 | 6 | 25 | 9 |  | 6,5 | KS000010 | KS000004 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| $m$ <br> 8 <br> 8 <br> 8 | G 3/4" | 80 | 90 | 50 | 47 | 7,5 | 65 | 7,5 | 31 | 9 |  | 8,5 | KS000012 | KS0000005 |
|  | G 1" | 80 | 90 | 50 | 47 | 7,5 | 65 | 7,5 | 31 | 9 |  | 8,5 | KS000011 | KS000006 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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## CAVITIES AND TECHNICAL DRAWINGS

## SAE-XX-2N

## Atlantic

Flinid Tech


|  | SAE-08-2N | SAE-10-2N | SAE-12-2N | SAE-16-2N | SAE-20-2N |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A | 3/4-16 UNF | 7/8-14 UNF | 1-1/16 12 UNF | 1-5-16 12 UNF | 1-5/8 12 UNF |
| B | 26 | 30 | 35 | 42 | 48 |
| C | $20.6{ }^{+0,1} 0$ | $23.9{ }^{+0.1}{ }_{0}$ | $29.2{ }^{+0,1} 0$ | $35.5{ }^{+0.1}{ }_{0}$ | $43.5{ }^{+0.1}{ }_{0}$ |
| D1 | $12.7{ }^{+0.05}$ | $15.87{ }_{0}^{+0.05}$ | $22.22{ }^{+0.05}$ | $28.60{ }^{+0.05}$ | $36.52{ }^{+0.05}$ |
| E | $2.6{ }_{0}^{+0,3}$ | $2.6{ }^{+0.3}$ | $3.3{ }^{+0.3}$ | $3.3{ }^{+0.3}$ | $3.4{ }_{0}^{+0.3}$ |
| F | 13 | 15 | 20 | 20 | 22 |
| G | 9 | 12 | 18 | 19 | 25 |
| G 1 | 12 | 15 | 19 | 24 | 30 |
| H1 | 14 | 18 | 26 | 25 | 32 |
| L1 | 20.5 | 25.5 | 36.5 | 36 | 44.5 |
| L2 | 29 | 34.5 | 48 | 49 | 59 |
| M | 1.5 | 1.5 | - | - | - |

## SAE-XX-3C



|  | SAE-08-3C | SAE-10-3C | SAE-12-3C | SAE-16-3C | SAE-20-3C |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A | 3/4-16 UNF | 7/8-14 UNF | 1-1/16 12 UNF | 1-5/16 12 UNF | 1-5/8 12 UNF |
| B | 26 | 30 | 35 | 42 | 48 |
| C | $20.6{ }^{+0.1}$ | $23.9{ }^{+0.1}$ | $29.2{ }^{+0.1}$ | $35.5{ }^{+0.1}$ | $43.5{ }^{+0.1}$ |
| D1 | $15.87{ }^{+0.05}$ | $19.05^{+0.05}$ | $23.80{ }^{+0.05}$ | $28.6{ }^{+0.05}$ | $36.52{ }^{+0.05}$ |
| D2 | $14.27^{+0.05}$ | $17.47^{+0.05}$ | $22.22{ }^{+0.05}$ | $25.42{ }^{+0.05}$ | $33.35{ }^{+0.05}$ |
| E | $2.6{ }^{+0.3}$ | $2.6{ }^{+0.3}{ }_{0}$ | $3.3{ }^{+0.3}$ | $3.3{ }^{+0.3}$ | $3.4{ }^{+0.3}$ |
| F | 12 | 13 | 21 | 16.5 | 20 |
| G | 8 | 14 | 14 | 15 | 28 |
| G1 | 3 | 4 | 5 | 5 | 7 |
| G2 | 12 | 15 | 19 | 24 | 30 |
| H1 | 12.5 | 14 | 22.5 | 17.5 | 20 |
| H2 | 26.5 | 31.5 | 40.5 | 38 | 50 |
| L1 | 16 | 18 | 26.5 | 22 | 25.5 |
| L2 | 32 | 40 | 49.5 | 47.5 | 65.5 |
| L3 | 40 | 49 | 60 | 58 | 78 |
| M | - | - | - | 2 | - |
| M1 | - | - | - | 2 | - |

## SAE-XX-3N



|  | SAE-08-3N | SAE-10-3N | SAE-12-3N | SAE-16-3N | SAE-20-3N |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A | 3/4-16 UNF | 7/8-14 UNF | 1-1/16 12 UNF | 1-5/16 12 UNF | 1-5/8 12 UNF |
| B | 26 | 30 | 35 | 42 | 54 |
| C | $20.60{ }^{+0.1}$ | $23.90{ }^{+0.1}$ | $29.20{ }^{+0.1}$ | $35.50{ }^{+0.1} 0$ | $43.5{ }^{+0.1}$ |
| D1 | $15.87{ }^{+0.05}$ | $17.47{ }^{+0.05}$ | $23.80{ }^{+0.05}$ | $28.60{ }^{+0.05}$ | $36.52{ }^{+0.05}$ |
| D2 | $14.27^{+0.05}$ | $15.87{ }^{+0.05}$ | $22.22{ }^{+0.05}$ | $27.00{ }^{+0.05}$ | $33.35{ }^{+0.05}$ |
| E | $2.6{ }^{+0,3}$ | $2.6{ }^{+0.3}$ | $3.3{ }^{+0.3}$ | $3.3{ }^{+0.3}$ | $3.4{ }^{+0,3}$ |
| F | 13 | 14 | 20 | 20 | 22 |
| G | 6 | 8 | 14 | 17 | 25 |
| G1 | 12 | 15 | 19 | 24 | 30 |
| - | - | - | - | - | - |
| H1 | 15 | 18 | 28 | 25.5 | 32 |
| H2 | 29 | 34 | 53 | 54 | 72 |
| L1 | 19.50 | 23.5 | 36.5 | 35.5 | 46 |
| L2 | 33.50 | 39.50 | 61.50 | 64 | 86 |
| L3 | 43 | 48.50 | 73 | 75 | 100 |
| M | - | 1.5 | - | - | - |
| M1 | - | - | - | - | - |



## SPECIAL CAVITIES

## Atlantic <br> Flinid Tech


CAVITIES AND TECHNICAL DRAWINGS


## SPECIAL CAVITIES

Atlantic
Flinid Tech


## CAVITIES AND TECHNICAL DRAWINGS

## SPECIAL CAVITIES

## MAtlantic <br> Flinid Tech




## SPECIAL CAVITIES



VP000174


VP000193


## CAVITIES AND TECHNICAL DRAWINGS <br> SPECIAL CAVITIES

$-\perp 0.02 \mathrm{~A}$

VP000250



VP000249

$\perp 0.05$ A
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${ }^{\text {Pressure }}$ reducing

TECHNICAL DATA
SAB FLANGE


FLANGE SAE 3000 PSI ( MEDIUM PRESSURE)

|  |  | $1 / 2$ | $3 / 4$ | $1 "$ | $1 " 1 / 4$ | $1 " 1 / 2$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | $\varnothing$ max. | 13 | 19 | 25,5 | 32 | 38 |
| B | - | 38,1 | 47,6 | 52,4 | 58,7 | 69,9 |
| C | - | 17,5 | 22,2 | 26,2 | 30,2 | 35,7 |
| $\mathbf{D}$ | unc-2B | $5 / 16-18$ | $3 / 8-16$ | $3 / 8-16$ | $7 / 16-14$ | $1 / 2-13$ |
|  | metric | $M 8$ | $M 10$ | $M 10$ | $M 10$ | M12 |
| E | - | 54 | 65 | 70 | 79 | 94 |
| F | - | 46 | 52 | 59 | 73 | 83 |
| G | min. | 33 | 41 | 48 | 54 | 64 |
| H | radius | 8 | 9 | 9 | 10 | 12 |
| L | min. | 56 | 68 | 72 | 82 | 96 |
| M | min. | 52 | 61 | 67 | 78 | 90 |
| N | min. | 49 | 55 | 61 | 75 | 85 |
| P | min. mm | 24 | 22 | 22 | 28 | 27 |
|  |  |  |  |  |  |  |

FLANGE SAE 6000 PSI ( HIGH PRESSURE)

|  |  | $1 / 2$ | $3 / 4$ | $1 "$ | $1 " 1 / 4$ | $1 " 1 / 2$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{A}$ | $\varnothing$ max. | 13 | 19 | 25,5 | 32 | 38 |
| B | - | 40,50 | 50,80 | 57,2 | 66,7 | 79,4 |
| C | - | 18,2 | 23,80 | 27,8 | 31,80 | 36,50 |
| $\mathbf{D}$ | unc-2B | $5 / 16-18$ | $3 / 8-16$ | $7 / 16-14$ | $1 / 2-13$ | $5 / 8-11$ |
|  | metric | $M 8$ | $M 10$ | $M 12$ | $M 14$ | $M 16$ |
| E | - | 56 | 71 | 81 | 95 | 113 |
| F | - | 48 | 60 | 70 | 78 | 95 |
| G | min. | 38 | 48 | 54 | 60 | 70 |
| H | radius | 8 | 10 | 12 | 14 | 17 |
| L | min. | 59 | 75 | 84 | 99 | 116 |
| M | min. | 56 | 70 | 80 | 90 | 108 |
| N | min. | 53 | 66 | 75 | 83 | 101 |
| $\mathbf{P}$ | min. mm | 21 | 24 | 27 | 25 | 35 |

## TECHNICAL SPECIFICATIONS

Modena, 28/02/2011

## MATERIALS

CARTRIDGES AND INTERNAL COMPONENTS: Cartridge bodies are manufactured from high grade cold drawn steel bar and all the external parts are zinc plated for a long durability also in difficult environments. Valve's internal working parts are hardened and ground or lapped for maximum performance and durability.

MANIFOLDS: Cartridge and parts in body valve manifolds and integrated circuit blocks are manufactured from high strength aluminum bar and high quality steel. As a standard, steel manifolds are always zinc plated (Crome 3 treatment) while aluminum bodies can be anodized on request. For complete specifications and compatibilities, please consult our Engineering department.

For pressures above 210 bar we recommend to use steel bodies. In most cases the aluminum bodies are strong enough, but if transient peak pressures are frequently encountered, there is a possibility of fatigue cracks.

COILS: external encapsulating material of our coils is made of class H thermoplastic compound as well as internal copper wire.

## PORTS

Standard port dimension on our valves, when not flanged, is BSPP size, ranging normally between G1/4" and G1-14". SAE 'O' Ring and NPT ports are available on request, as well as special flange dimensions.

## SEALS, BACK-UP RINGS AND SLIDE RINGS

We use Acryl-Nitrile Butadiene NBR (BUNA-N) seals as standard for temperatures between $-30^{\circ} \mathrm{C}$ and $+100^{\circ}$ C. Viton seals or other compounds are available on request.

Back-up rings and slide rings are made of reinforced poly-tetrafluoroethylene (PTFE).

## STORAGE OF NEW VALVES

The valves must be stored in their original plastic envelope or cartoon box in a dry, dust-free atmosphere, free of corrosive agents, with a low moisture content and no large variations in temperature and not exposed to direct sun light or sources of heat or ozone (this could cause fast wearing of valve seals). Storage temperature must be between $-20^{\circ} \mathrm{C}$ and $+50^{\circ} \mathrm{C}$.

## FLUIDS AND WORKING TEMPERATURE RANGE

Recommended fluid is mineral oil based fluid, such as HL type (DIN 51524 part 1) or HLP type (DIN 51524 part 2) with operating viscosity comprehended between 10 and 380 cSt . High viscosity and low temperatures may lead to a slower valves response than in warm oil conditions.

For water based fluids, such as 95/5 and 60/40 emulsions, please consult Factory.
Fluid working temperature should be comprehended between $-30^{\circ} \mathrm{C}$ and $+100^{\circ} \mathrm{C}$. For other working conditions, please consult our Engineering dept.

## FUNCTIONAL TEST

All the valves we sell are subjected to functional test. The tests are carried out using ISO VG 46 hydraulic oil (viscosity of 46 cSt at $40^{\circ} \mathrm{C}$ ) and with oil temperatu re comprehended between 30 and $40^{\circ} \mathrm{C}$.

## FILTRATION

Our valves are made of precision machined mechanical components: hydraulic circuits contamination is the main cause of the majority of failures which occurs during normal working conditions. We recommend the following filtration levels:

| SYSTEM WORKING PRESSURE: | NOM. FILTRATION | CONTAMINATION CLASS: |
| :--- | :--- | :--- |


| > 250 BAR: | $10 \mu \mathrm{~m}$ | ISO 4406: $17 / 14$ | NAS 1638: 8 |
| :--- | :--- | :--- | :--- |
| BETWEEN 100-250 BAR: | $15 \mu \mathrm{~m}$ | ISO 4406: $18 / 14$ | NAS 1638: 9 |
| < 100 BAR: | $25 \mu \mathrm{~m}$ | ISO 4406: $19 / 15$ | NAS 1638: 10-11 |

## INTERNAL LEAKAGE

Many of our valves have a leak proof seat design: this means that the maximum allowed oil leakage value is $1 \mathrm{cc} / \mathrm{min}$ (about $15-20$ drops $/ \mathrm{min}$ ) measured with 46 cSt oil at $40^{\circ} \mathrm{C}$ and at the maximum allowed pressure. Anyway, normally leakage is found to be less than 10 drops/min and tends to decrease or disappear after few seconds of rest of the valve. These are the maximum acceptable limits, but anyway each type of valve has different performances according to its design: please refer to our Engineering dept. for information about each valve type.

## VALVE SETTING AND TAMPERPROOF DEVICES

SETTING: Our valves are supplied Factory set as stated on the corresponding catalogue page. The adjustment range and maximum setting figures shown on the catalogue are the safe limits according to each valve specific design: in the majority of the cases higher or lower values could be attainable, but they should be used only with written approval of our Engineering dept. In any case, setting must always be carried out using an appropriate gauge or pressure/flow measuring equipment.

TAMPERPROOF: The majority of our cartridges and parts in body valves have the possibility to be equipped with a plastic tamperproof cap to prevent any undesired modification of valve setting: please refer to each catalogue page for the choice of the correct cap. On request, valve can be supplied already Factory set and sealed.

## CARTRIDGE VALVE INSTALLATION

The correct machining of the cavities is critical to ensure best performance of our cartridges. Cavity tools are available for sale and cavity drawings can be found in the specific section of our catalogue or requested to our Engineering dept.

To correctly install cartridges into their cavity, please follow this procedure:

- Check that external seals and back-up ring are correctly fitted and without any damage;
- Ensure that cavity and cartridge body are clean and without any visible contamination;
- If necessary, immerge cartridge body into clean oil to take away any impurity and to lubricate the seals;
- Screw the cartridge into its cavity by hand, until mechanical contact is reached, being sure that during screwing there is no abnormal friction between cartridge and cavity;
- Tighten the cartridge with a calibrated torque wrench applying the correct torque as specified on the corresponding catalogue page.


## TORQUE FIGURES

For correct cartridge behavior and to prevent any failure due to cartridge internal parts sticking together, the correct torque must always be applied when fitting cartridges into their cavities: the correct torque value can be found on each cartridge catalogue page.

## COILS

ED RATE: All our coils are rated ED 100\%, so they can stay energized during $100 \%$ period of the working cycle, provided that nominal voltage and maximum ambient temperature are not exceeded.

TEMPERATURE CLASS: As standard, encapsulating material and copper wire are rated CLASS H: this means that ambient temperature + temperature rise due to coil operation cannot exceed $180{ }^{\circ} \mathrm{C}$. Class F coils are available on request (maximum $155{ }^{\circ} \mathrm{C}$ ). External surface of the coil can easily reach very high temperature after long energizing period $\left(80-100^{\circ} \mathrm{C}\right)$ : particular care must be taken to avoid accidental injuries to workers and operators. To prevent premature burning of the coils, it is also requested that coils are installed in such a way to grant air circulation around them and to prevent excessive heating of the surrounding ambient.

IP PROTECTION CLASS: Standard insulation class of our coils is IP65, provided that all the seals between coil and solenoid cartridge tube/nut and between coil and connector are all properly fitted. Coil with Deutsch connector are rated for IP69K insulation class.

INLET VOLTAGE: Normally, our coils can accept fluctuations of inlet voltage comprehended between $\pm 10 \%$ without compromising normal functionality, unless specified on each coil catalogue page. In case of different requirements, please refer to our Engineering dept.

POWER SUPPLY: Our solenoid operated cartridges are designed to operate only with DC (direct current) power supply: in case of AC (alternate current) applications, please apply between power supply and coil a current rectifier and use the proper RAC (rectified alternate current) coil.

Engineering Department


## GENERAL TERMS OF SUPPLY - OUTLINE AGREEMENT

## 1 SUBJECT

The present general terms of supply (or outline agreement) have been drafted to regulate all the supply relations existing between Vendor and Customer, which will be conducted at the conditions hereinafter described and/or on the basis of any additional agreements specifically entered into between the parties.

If these general terms of supply should contain any clauses or prescriptions that conflict with specific conditions of supply agreed between the parts, these latter shall prevail.

## 2 CUSTOMER ORDERS

The Customer's orders must be transmitted to the Vendor in written form (also via fax, or using telecommunications and electronic means) and must contain the following information:
a) date and place of issue of the order;
b) exact denomination of the Customer company and its complete shipping and billing addresses;
c) a reference to the relative offer made by the Vendor company (if such an offer exists);
d) complete Vendor's identification code, with a description of the product ordered if necessary and the relative technical specifications of all the products to which the order refers;
e) the required quantities;
f) the agreed prices (if available);
g) the quality requirements with which the Vendor must comply in execution of the order;
h) the signature of an authorised representative;
i) the required term of delivery;
I) terms of payment;
$\mathrm{m})$ shipping agent.
Orders are intended as accepted when the relative order confirmation duly signed by the Vendor arrives at the registered address of the Customer, or if such a document is not forthcoming, orders will be considered to be confirmed by the Vendor at the terms of supply specified herein if they are not explicitly refused in writing within the term of 10 working days from the date of the order in question.

### 2.1 PRICES

The prices established by the Vendor and/or agreed upon with the Customer shall remain fixed for the entire period of the order or for the agreed period; said period shall not be subject to modification except in the presence of exceptional events and/or causes of force majeur (e.g. uncontrolled price increases of raw materials or energy, etc.); in such cases new agreements will be entered into with customers.

## 3 EXECUTION OF THE CONTRACT OF SUPPLY - AMENDMENTS

The terms of the contract of Supply are intended as final and executive when:

- the Customer transmits to the Vendor the purchase order in written form relative to the ordered product, specifying the requirements set down in heading 2 above;
- the Vendor has issued its Order confirmation and transmitted it to the Customer, or has failed to refuse the order in writing within 10 working days from the date of the order in question (See heading 2).

Once the contract has been signed, it must be fully and duly executed by the parties. Any amendments or cancellations of the contract can only take place further to the stipulation of agreements between the parties (Vendor and Customer) that take into account, on a reciprocal basis, any possible compensation for reimbursement of expenses sustained (materials, labour, etc.) to be paid to the more diligent party that receives such a request for amendment or cancellation.

In any event, the Customer is entitled to request modifications relative to orders it has already issued in relation to the quantity and/or characteristics of the ordered products, by means of the issue and transmission to the Vendor of a specific order variant, which shall be construed as implicitly accepted by the Vendor if this latter fails to raise any objections within the term of 10 working days from the receipt of such an order variant.

The execution of the contract of supply can be suspended and/or cancelled, also without notice to the customer, due to causes of force majeur (e.g. grave natural disasters, social unrest, epidemics, etc.) that are outside the Vendor's control.

## 4 TECHNICAL MODIFICATIONS

Except in the presence of contrary agreements with Customers, the Vendor can make technical modifications to the product specifications without notice; in any event, the Vendor undertakes to execute customer orders/contracts that are already confirmed without applying any modifications and/or anyway guaranteeing interchangeability of the relative products.

## 5 PRODUCT QUALITY AND VERIFICATION OF CONFORMITY

All the products are subject to the necessary checks/tests in the various production phases in order to guarantee conformity with the specifications and calibrations indicated in the catalogues, drawings, and/or technical datasheets; moreover, the Vendor's production process complies with the Quality System requirements defined by UNI EN ISO 9001, certified by an accredited Institute. The Customer is entitled make visits to and to carry out quality audits at the Vendor's plant after arranging an appointment for such occasions.

Because of the large range of technical features and operating conditions of the equipment manufactured by the Customer, the Vendor shall not assume any liability for the results of tests performed by third parties. The Customer is therefore responsible for the final choice of the valve and for the adoption of all the measures required to achieve the required functional and safety specifications on the system in which the valve is to be installed, in addition to the compliance with any specific standards applicable to the system in question.

In the event of nonconforming products the responsibility for which can be attributed to the Vendor, in addition to the warranty actions provided for in the following article 6 , the Customer can demand that the Vendor perform the necessary corrective actions in order to improve its level of quality rapidly.

## 5.1 "FIRST SPECIMENS" CHECK

For new special products made to Customer's specifications or customised to a significant extent with respect to the equivalent standard products, when so requested by the Customer the Vendor can, further to prior agreement with the Customer, carry out checks on "First Specimens"; this procedure entails the supply of "Prototypes or Specimens" of Products
accompanied by Test Certificates detailing dimensional checks and functional tests evaluating diverse technical aspects.

In this case the Customer's validation of subsequent supplies must be performed on the basis of the "First Specimens".

## 6 WARRANTY

The Vendor provides a warranty to the first Customer covering its valves against defects in material or workmanship for a period of 24 months from the time of first assembly, provided said first assembly takes place within 6 months from the date of manufacture as marked on the valve, and provided the valve is installed and utilised in accordance with the conditions of use prescribed by the Vendor and/or in compliance with the standards adopted in accordance with industrial best practices. Seals and O-rings are expressly excluded from the warranty.

This warranty is applicable exclusively to the first Customer/Purchaser of the Vendor's products and is not transferable.

In the event that the Customer considers that the goods or a part of the goods are defective for causes attributable to the Vendor, the Customer shall signal/protest the presence of the alleged defects by sending a detailed written report, thereby allowing the Vendor to verify the effective existence of the claimed defects/flaws by means of inspections performed by its technical personnel.

Having ascertained that the claimed defects are effectively present and having accepted that they are attributable to the fault of the Vendor, this latter undertakes to repair or replace the goods in question in a reasonable time interval and/or inform the Customer of the cause of such defects.

This warranty is not applicable to products that have been subject to conditions of contamination in the customer's hydraulic circuit, or to products that are incorrectly utilised or subject to tampering performed without the Vendor's supervision or authorisation.

The Vendor's warranty does not envisage pecuniary compensation or credit notes in respect of defective material; specifically, the Vendor shall not be held responsible under any circumstances for loss of earnings, costs of disassembly and reassembly of the product, for any damages connected with such an operation, and for any whatsoever cost relative to the installation of the repaired or replaced valves, including the costs arising in relation to system outages.

If the product supplied is to be assembled in plants potentially capable of causing third party damages of a magnitude that is significantly greater than the price of the product, it is the Customer's responsibility to adopt all the possible safety measures to avoid any such damage, since it is aware that series production of valves at market prices leads to the risk, albeit negligible, of the possible presence of defective parts.

If the Customer embarks on a recall or remediation campaign of its own machines, on any whatsoever market, in order to replace or repair parts that have been ascertained to be defective, this action will be undertaken on the basis of bilateral agreements to be defined.

If the Customer is subjected to legal proceedings for "civil product liability" or if it is accused of violation of legal prescriptions connected to the Vendor's products, the Customer must inform the Vendor immediately of such a situation, and the Vendor shall participate in the analysis of the problem in collaboration with the Customer.

Wherever considered necessary, specific agreements can be stipulated between Customer and Vendor as an alternative to the foregoing warranty procedures.

### 6.1 SUPPLY QUALITY OBJECTIVES

Specific supply quality objectives may be established in certain cases, to be agreed with Customers; in such cases the Vendor undertakes to cooperate with the Customer in order to define all the aspects necessary to fulfil the objectives in question, and the necessary actions that must be undertaken when such objectives are not achieved.

The possibility of economic recourse or penalties applied by the Customer in relation to the value of the supplies is not contemplated under any circumstances.

## 7 TECHNICAL ASSISTANCE

The Vendor guarantees to the Customer its availability to perform joint analyses of any defects reported by end users, also when such analyses are to be carried out on the Customer's site; in this case, if the defectiveness is attributable to the responsibility of the Customer, the Vendor will issue a debit note relative to its services rendered. When the Customer requires the assistance of the Vendor's technical personnel on its sites it must make a written request to this effect (which can be transmitted also by e-mail or fax).

## 8 PRESCRIPTIONS OF INTENDED USE.

The Customer is expressly prohibited from using the products sold by the Vendor for purposes other than those set down in the offer or in the catalogues.
Specifically, the Vendor's Dealers or Agents are not authorised to approve the use of the products supplied for the following applications:

- systems for road vehicles for the transport of passengers or goods and subject to safety Standards and Directives, such as (without limitation) steering systems and brake systems
- aircraft or spacecraft;
- military equipment;
- rescue or emergency equipment or vehicles;
- systems to be used in conjunction with atomic installations;
- systems for use in explosive or otherwise hazardous environments.

If the Customer intends to use the goods supplied for any applications falling into one or more of the above categories or other similar categories, or for any applications other than those expressly described in the documentation, or in the presence of doubts concerning the intended application, it must seek prior specific approval directly from the Manufacturer and await the receipt of written authorisation for the intended application before proceeding.

Any damage suffered by the Customer or third parties arising from failure to comply with the terms of the prescriptions as at the foregoing subsections, or due to the failed observance of the specifications/directions for use supplied by the Vendor in the pages of its catalogue or in the assembly drawings, will be borne entirely by the Customer.

## 9 ObLIGATION OF DILIGENCE OF THE CUSTOMER IN THE PREVENTION OF DAMAGE IN THE CONTEXT OF ITS OWN PRODUCTION PROCESS.

If the product is utilised in a production process in such a way that any defects in the supplied product could give rise to substantial damages to the Customer or third parties
deriving from production plant downtimes, the Customer undertakes to acquire a sufficient number of the parts in question to replace any faulty parts, and further undertakes to engineer the production process in such a way that such replacements can be carried out quickly and easily. In any event, the Vendor undertakes to repair or replace any parts that are found to be defective due to causes for which it is ascertained to be responsible.

## 10 DISCREPANCIES BETWEEN THE CONTENTS OF THE CUSTOMER OFFER AND THE PRESCRIPTIONS OF THE PRESENT TERMS OF SUPPLY.

Any aspects or conditions specified in the Customer Order that depart from contents of the present of terms of supply will be disregarded and construed as automatically replaced by the terms and conditions stated herein.

## 11 EXECUTION OF SUPPLIES ARRANGED PRIOR TO THE ACCEPTANCE OF THESE GENERAL TERMS.

If the supply is executed before the present general terms have been accepted by the Customer, the contract of supply shall be construed as having been entered into at the general terms and conditions specified on the back of the invoice and the delivery note, unless the Customer returns the goods to the Vendor, carriage forward, in exactly the same condition in which they were shipped within the term of 5 working days from the date of their receipt.

## 12 DELIVERY - DOCUMENTATION

Except in the presence of contrary agreements entered into between the parties, reference must be made in respect of the terms of delivery, to the terms specified by the Vendor in its Order Confirmation. At the order confirmation stage the Vendor can propose changes to the requested delivery date on the basis of its internal production requirements. The Customer reserves the right to accept or refuse the proposed modifications on the basis of its own requirements.

Any delivery terms specified in the Customer's orders or in other written documents exchanged between the parties shall not be considered to be binding except in the presence of a specific written agreement to such effect.

If the Customer intends to rescind from the contract and/or advance claims for compensation for damages further to failed observance of the terms of delivery, it must notify the Vendor expressly of such intentions at the time it transmits the order, and it must request an explicit confirmation from the Vendor specifying that it accepts such conditions.

All shipments will be sent with an attached delivery note bearing the following information: the order number, vendor's product code and Customer code (when required and present), description, quantity, identity of the shipping agent, and details concerning the transport means, number of items of packing, gross weight, etc.; the availability of this information serves to allow rapid correlation of the incoming goods with the shipping documents.

The Customer undertakes to inspect the goods delivered within and no later than 10 (ten) days from the time of receipt and it will automatically waive its rights to claim for missing items or manifest defects of the goods if it fails to declare such circumstances within the same 10 (ten) days from the time of receipt.

## 13 TRANSPORT

Except in the presence of contrary written agreements between the parties, the means of transport and the carrier will be chosen by the Customer.

Transport costs are charged to the Customer, which is required to refund them to the Vendor in the event that this latter party is obliged to pay them in advance on the Customer's account.

If the Customer fails to specify the required carrier and means of transport, these aspects can be chosen freely at the discretion of the Vendor, which will stipulate the transport contract in the name of the Customer and on the account of this latter.

Whether the carrier is chosen by the Customer or whether it is chosen by the Vendor in the name of and on the account of the Customer, the goods will be transported entirely at the risk and responsibility of the Customer, which can recourse directly to the carrier in the event of damage sustained during transport. The Customer is not entitled to make any claims against Vendor in such respects

## 14 PAYMENT

The terms and methods of payment for the supplies are specified in the Vendor's Offers and in the Customer's orders; when such orders are accepted by means of an order confirmation they become an integral and essential part of the supply contract.

Unless otherwise agreed, payment of the price of the supply must be made using the domicile and methods indicated by the Vendor. In the case of a delayed payment arrears interest will be applied in the measure of the Euribor 365 days rate increased by $6 \%$ per annum.

The Customer is not entitled to withhold sums from payments due to the Vendor for any whatsoever reason unless such action has been previously agreed upon and approved in writing by the Vendor.

## 15 EXTENDED PAYMENT - OWNERSHIP RESERVATION

If the payment is extended, the sale shall be understood to have taken place with reserved ownership pursuant to the terms of articles 1523 et seq. of the Italian civil code without any further provisions having to be taken successively. The costs involved in establishing proof of reserved ownership as specified in art. 1524 of the Italian civil code shall be borne entirely by the Customer.

## 16 FORM OF THE PROPOSAL, THE ACCEPTANCE AND ANY WHATSOEVER OTHER LEGALLY SUBSTANTIAL COMMUNICATION

The proposal, acceptance, any possible claims, and any other legally substantial communications must be written and signed in a legible manner. Such communications can be transmitted by any means, including fax and e-mail. In this latter eventuality the e-mail message must bear the author's name at the foot of the page.

## 17 CIVIL LIABILITY INSURANCE

The Vendor undertakes to take out and maintain a "Civil Product Liability Insurance" policy. On the request of the Customer, the Vendor will produce the documents relative to such an insurance policy.

Any accidents resulting in damage to third parties in which the Vendor's products are involved and which could give rise to product civil liability claims for compensation, must be communicated with the maximum promptness to the Vendor so that this latter can participate in the relative inquiry, also through its appointed technical expert, starting from the stage of the initial investigations.

## 18 CONFIDENTIALITY

The Vendor and the Customer reciprocally guarantee the confidentiality of all the information, data, and all documents that they exchange during the course of their business relations.

## 19 ACCEPTANCE OF THE GENERAL TERMS OF SUPPLY - AMENDMENTS OR CANCELLATIONS

These General Terms of Supply can be transmitted to the Customer in the following ways:

- DIRECTLY, during the stipulation of a bilateral agreement or contract;
- INDIRECTLY, attached to the Vendor's Order confirmations.

In both cases they are considered to have been TACITLY ACCEPTED by Customers when no contrary communication is received within the term of 15 days from the date of receipt of the terms.

If the Customer intends to amend or rescind from these terms of supply it must provide the Vendor with written notice to this effect at least 3 months before the relative amendments or withdrawal are to take effect.

## 20 APPLICABLE LAW.

For all matters that are omitted from the present agreement the terms of supply shall be understood as being regulated by the relevant provisions of Italian Law.

If the Customer's domicile is in a foreign country, or in any cases in which the contract includes aspects of an "international nature", the present agreement and any disputes that should arise in relation to the same shall be subject to the provisions of Italian Law, with sole jurisdiction held by the Italian ordinary courts in the competent law court of Modena.

## General Management

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[^0]:    La validità del presente certificato è subordinata a sorveglianza periodica (ogni 6,9 o 12 mesi) e al riesame completo del sistema con periodicità triennale The validity of this certificate is subject to periodical audits (every 6,9 or 12 months) and the complete re-assessment of the system every three years

[^1]:    1
    Relief
    $\left\lvert\, \begin{aligned} & \text { Pressure } \\ & \text { reducing }\end{aligned}\right.$

[^2]:    1

