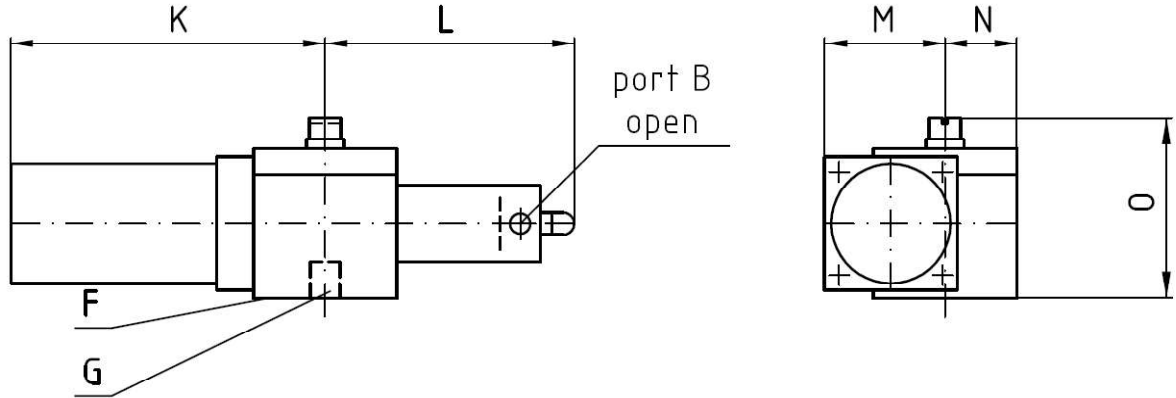




- | | |
|-----------------------|---|
| - actuator function | double acting, spring closing or spring opening |
| - design principle | rack / pinion |
| - hydr. pressure | standard 100 bar, higher pressures on request |
| - pivoting angle | 90°, closed position adjustable $\pm 2^\circ$, open position not adjustable as standard, range $\pm 2^\circ$ as an option |
| - installation | for dry environment as standard, for submerged or open deck use caps to protect the pinion and end position adjustment may be retrofitted at any time |
| - position indication | each actuator is equipped with a mechanical interface acc. to VDI/Namur, which is also used as local position indication, to ensure easy adaption of standardised limit and proximity switches or potentiometer units |
| - mounting position | either parallel or cross to pipeline possible at any time, for valves with flat head shafts or change of position on site the pinion is turnable by 90° |
| - emergency operation | prepared for portable hand pump, smaller double acting actuators of standard type may be operated additionally manual by wrench |
| - accessories | a hydro-lock or manifold Cetop3/NG6 may be retrofitted at any time. Hydro-locks are used to ensure that the valve remains in last position in case of power failure also when external forces (f.e. stream forces) are existing |
| | limit switches or proximity switches for open/closed position indication |
| | potentiometer units for continuous position indication |
| | couplings for emergency operation by hand pump |

actuator function
installation
hydr. pressure

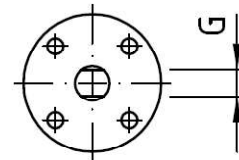
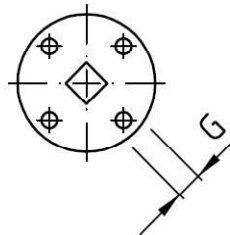
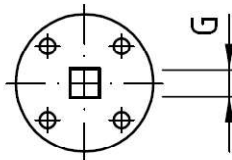
hydraulic opening, spring closing
dry
100 bar



PS
parallel square

DS
diagonal square

FH
flathead

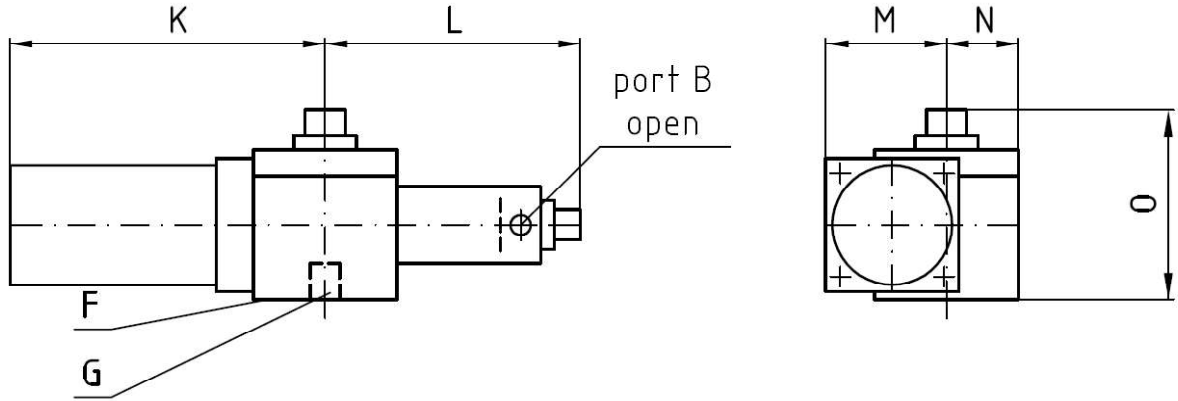


actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-C35	166	110	60	46	96	F05-F07	14	14	14	35 Nm
HAR-C90	230	148	80	47	115	F05-F07	17	17	17	90 Nm
HAR-C165	320	210	100	60	155	F07-F10	24	24	22	165 Nm
HAR-C280	425	205	105	60	155	F10-F12	24	24	22	280 Nm
HAR-C370	425	215	110	60	155	F12-F14	30	30	27	370 Nm
HAR-C870	640	265	135	90	180	F14-F16	40	40	40	870 Nm

MD-HAR-C-DI-GB-B

actuator function
installation
hydr. pressure

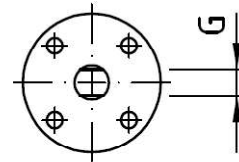
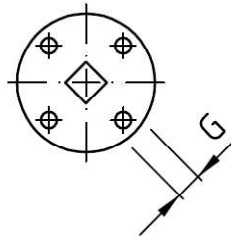
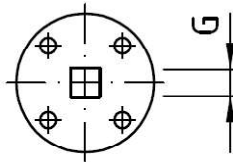
hydraulic opening, spring closing
submerged
100 bar



PS
parallel square

DS
diagonal square

FH
flathead

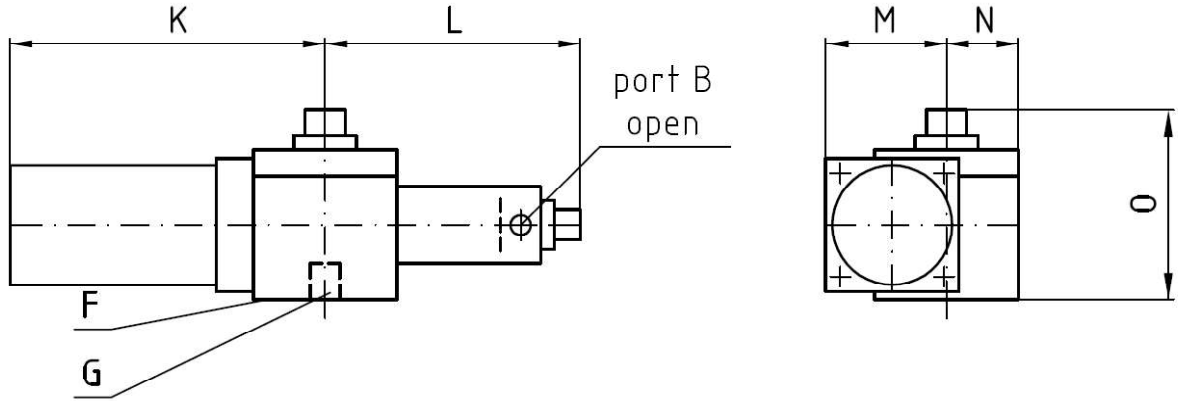


actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-C35	166	115	60	46	110	F05-F07	14	14	14	35 Nm
HAR-C90	230	158	80	47	130	F05-F07	17	17	17	90 Nm
HAR-C165	310	220	100	60	170	F07-F10	24	24	22	165 Nm
HAR-C280	425	215	105	60	170	F10-F12	24	24	22	280 Nm
HAR-C370	425	225	110	60	170	F12-F14	30	30	27	370 Nm
HAR-C870	640	275	135	90	195	F14-F16	40	40	40	870 Nm

MD-HAR-C-SI-GB-B

actuator function
installation
hydr. pressure

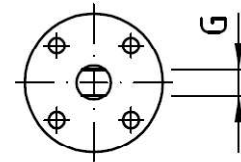
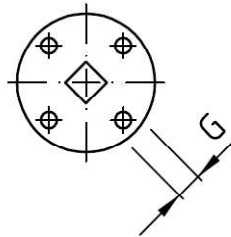
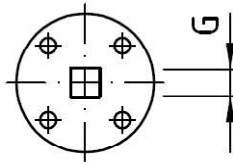
hydraulic opening, spring closing
at open deck
100 bar



PS
parallel square

DS
diagonal square

FH
flathead

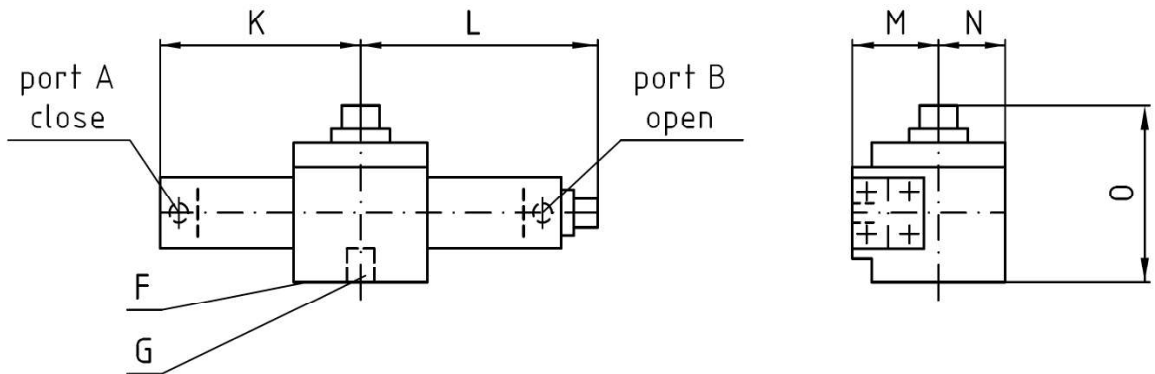


actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-C35	166	115	60	46	110	F05-F07	14	14	14	35 Nm
HAR-C90	230	158	80	47	130	F05-F07	17	17	17	90 Nm
HAR-C165	310	220	100	60	170	F07-F10	24	24	22	165 Nm
HAR-C280	425	215	105	60	170	F10-F12	24	24	22	280 Nm
HAR-C370	425	225	110	60	170	F12-F14	30	30	27	370 Nm
HAR-C870	640	275	135	90	195	F14-F16	40	40	40	870 Nm

MD-HAR-C-OI-GB-B

actuator function
 installation
 hydr. pressure

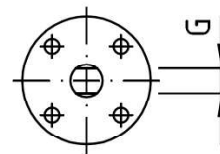
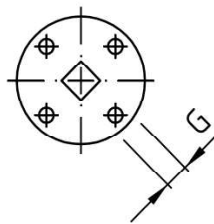
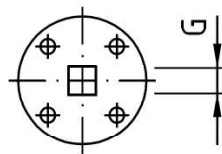
hydraulic opening and closing
 submerged
 100 bar



PS
 parallel square

DS
 diagonal square

FH
 flathead

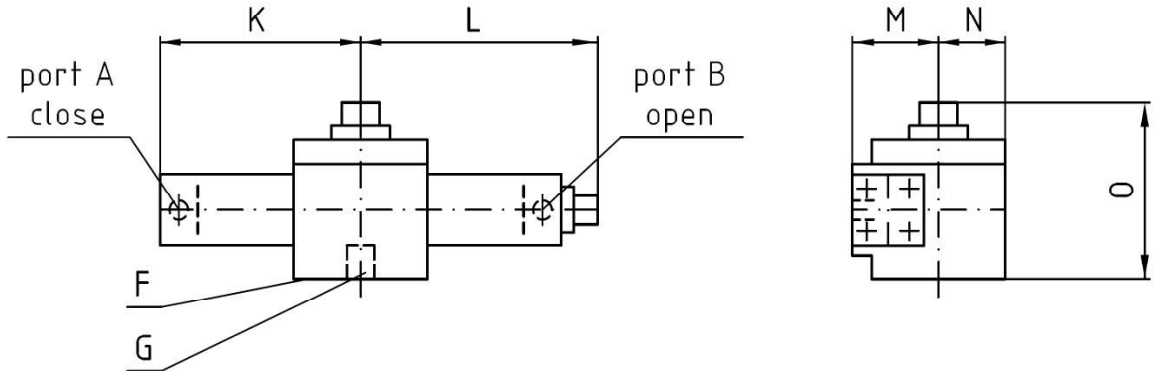


actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-D90-WB	92	115	60	46	110	F05-F07	14	14	14	90 Nm
HAR-D225-WB	121	158	71	47	130	F05-F07	17	17	17	225 Nm
HAR-D410-WB	182	220	90	60	170	F07-F10	24	24	22	410 Nm
HAR-D640-WB	182	220	90	60	170	F07-F10	24	24	22	640 Nm
HAR-D920-WB	182	225	100	60	170	F12-F14	30	30	27	920 Nm
HAR-D2170-WB	220	275	115	90	195	F14-F16	40	40	40	2170 Nm
HAR-D4950-WB	290	350	150	115	250	F16-F25	55	55	50	4950 Nm

MD-HAR-D-WB-SI-B-GB

actuator function
installation
hydr. pressure

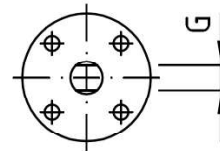
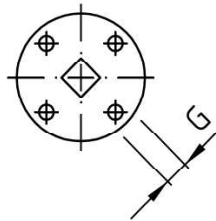
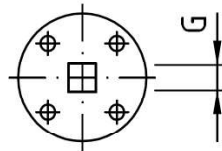
hydraulic opening and closing
at open deck
100 bar



PS
parallel square

DS
diagonal square

FH
flathead

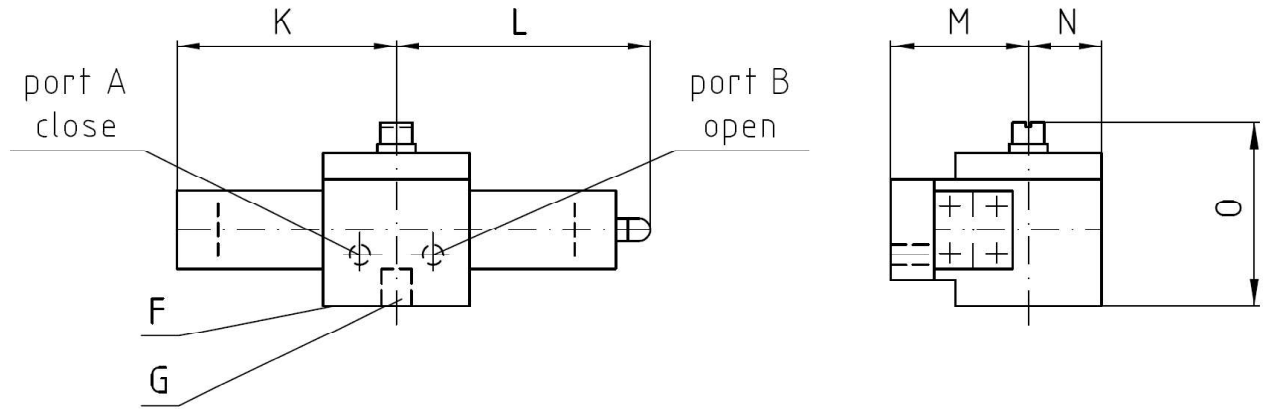


actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-D90-WB	92	115	60	46	110	F05-F07	14	14	14	90 Nm
HAR-D225-WB	121	158	71	47	130	F05-F07	17	17	17	225 Nm
HAR-D410-WB	182	220	90	60	170	F07-F10	24	24	22	410 Nm
HAR-D640-WB	182	220	90	60	170	F07-F10	24	24	22	640 Nm
HAR-D920-WB	182	225	100	60	170	F12-F14	30	30	27	920 Nm
HAR-D2170-WB	220	275	115	90	195	F14-F16	40	40	40	2170 Nm
HAR-D4950-WB	290	350	150	115	250	F16-F25	55	55	50	4950 Nm

MD-HAR-D-WB-OI-B-GB

actuator function
 accessories
 installation
 hydr. pressure

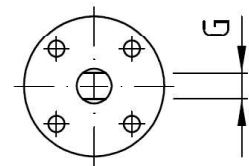
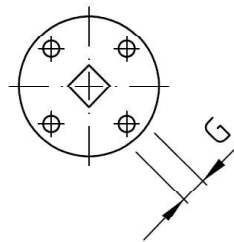
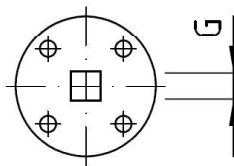
hydraulic opening and closing
 hydro-lock
 dry
 100 bar



PS
 parallel square

DS
 diagonal square

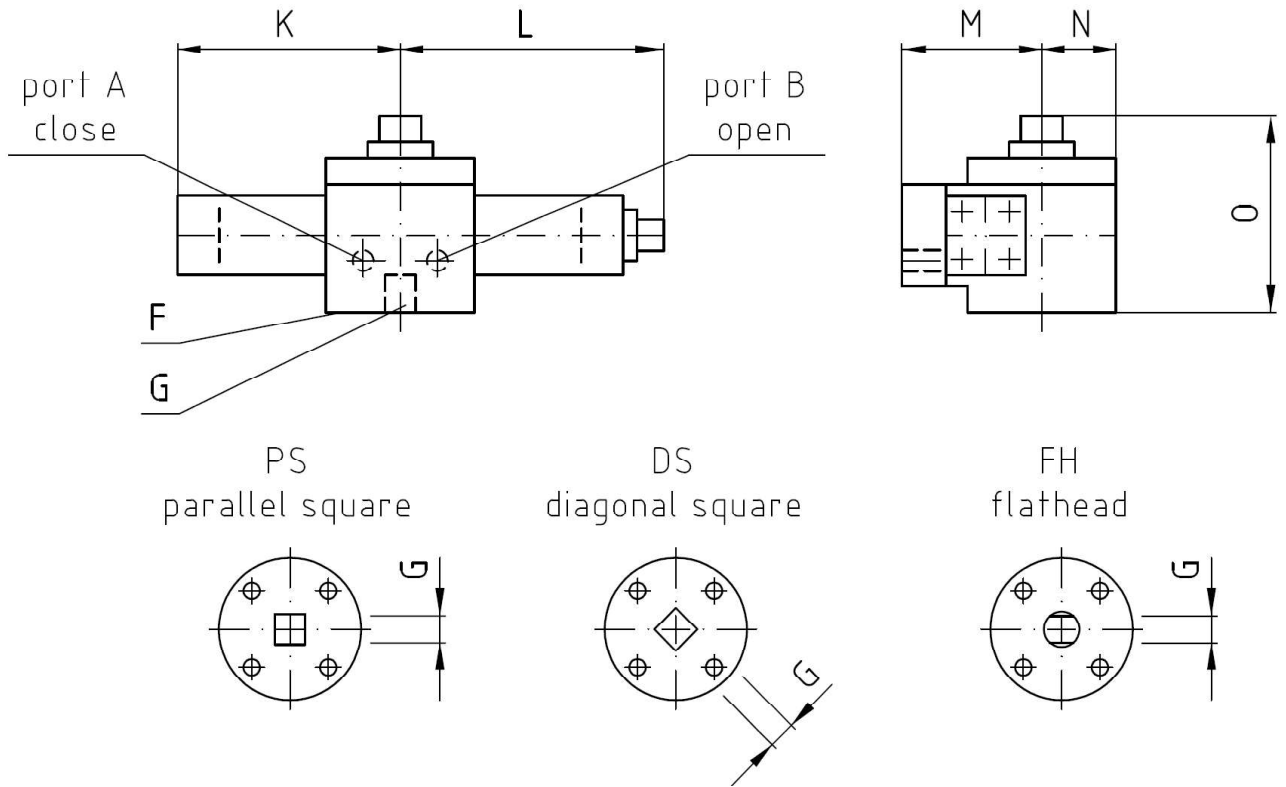
FH
 flathead



actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-D90-HL	92	110	95	46	96	F05-F07	14	14	14	90 Nm
HAR-D225-HL	121	148	106	47	115	F05-F07	17	17	17	225 Nm
HAR-D410-HL	180	205	125	60	155	F07-F10	24	24	22	410 Nm
HAR-D640-HL	182	215	135	60	155	F10-F12	30	30	27	640 Nm
HAR-D920-HL	182	215	135	60	155	F12-F14	30	30	27	920 Nm
HAR-D2170-HL	220	265	150	90	180	F14-F16	40	40	40	2170 Nm
HAR-D4950-HL	290	340	185	115	230	F16-F25	55	55	50	4950 Nm

actuator function
 accessories
 installation
 hydr. pressure

hydraulic opening and closing
 hydro-lock
 submerged
 100 bar



PS
parallel square

DS
diagonal square

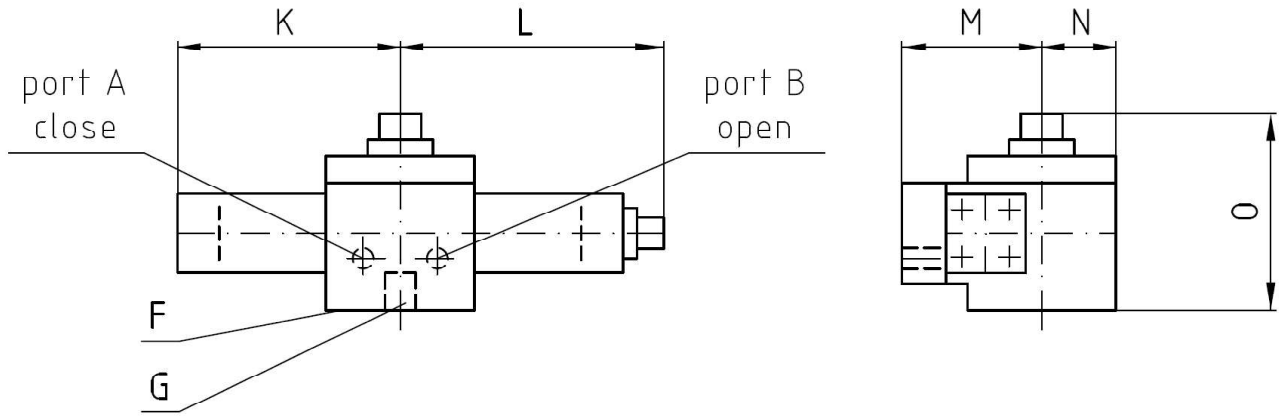
FH
flathead

actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-D90-HL	92	115	95	46	110	F05-F07	14	14	14	90 Nm
HAR-D225-HL	121	158	106	47	130	F05-F07	17	17	17	225 Nm
HAR-D410-HL	180	215	125	60	170	F07-F10	24	24	22	410 Nm
HAR-D640-HL	182	225	135	60	170	F10-F12	30	30	27	640 Nm
HAR-D920-HL	182	225	135	60	170	F12-F14	30	30	27	920 Nm
HAR-D2170-HL	220	275	150	90	195	F14-F16	40	40	40	2170 Nm
HAR-D4950-HL	290	350	185	115	250	F16-F25	55	55	50	4950 Nm

MD-HAR-D-HL-SI-C-GB

actuator function
 accessories
 installation
 hydr. pressure

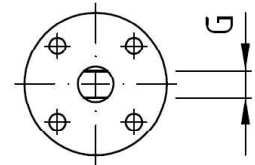
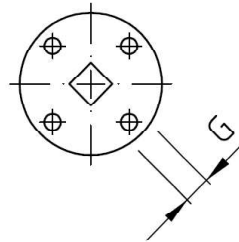
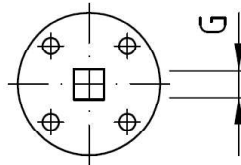
hydraulic opening and closing
 hydro-lock
 at open deck
 100 bar



PS
 parallel square

DS
 diagonal square

FH
 flathead



actuator	K	L	M	N	O	F	max. G			torque
							PS	DS	FH	
HAR-D90-HL	92	115	95	46	110	F05-F07	14	14	14	90 Nm
HAR-D225-HL	121	158	106	47	130	F05-F07	17	17	17	225 Nm
HAR-D410-HL	180	215	125	60	170	F07-F10	24	24	22	410 Nm
HAR-D640-HL	182	225	135	60	170	F10-F12	30	30	27	640 Nm
HAR-D920-HL	182	225	135	60	170	F12-F14	30	30	27	920 Nm
HAR-D2170-HL	220	275	150	90	195	F14-F16	40	40	40	2170 Nm
HAR-D4950-HL	290	350	185	115	250	F16-F25	55	55	50	4950 Nm

MD-HAR-D-HL-OI-C-GB

type	HAR
function	hydraulic opening, spring closing
design	rack and pinion
designed for :	
- angle range	90° ± 2°
- hydr. pressure	100 bar
installation	submerged
coating	epoxy final coating
position indication	remote
emerg. operation	prepared for hand pump
accessories	couplings for emerg. operation by hand pump, material stainless steel
direct mounting at	butterfly valve, double flanged type



example : type HAR-C280-SI

type	HAR
function	hydraulic opening and closing
design	rack and pinion
designed for :	
- angle range	$90^{\circ} \pm 2^{\circ}$
- hydr. pressure	100 bar
installation	at open deck
coating	epoxy final coating
emerg. operation	by portable hand pump



example : type HAR-D225-HL-OI

DF-HAR-D225-HL-OI-01A-GB

type	HAR
function	hydraulic opening and closing
design	rack and pinion
designed for :	
- angle range	$90^{\circ} \pm 2^{\circ}$
- hydr. pressure	100 bar
installation	at open deck
coating	epoxy final coating
emerg. operation	by portable hand pump
accessories	hydro-lock



example : type HAR-D920-HL-OI

DF-HAR-D920-HL-OI-01A-GB

type	HAR
function	hydraulic opening and closing
design	rack and pinion
designed for :	
- angle range	$90^{\circ} \pm 2^{\circ}$
- hydr. pressure	100 bar
installation	dry
coating	epoxy final coating
position indication	visual position indicator
emerg. operation	by hand pump
accessories	couplings and ball valves for emerg. operation by hand pump, material steel



example : type HAR-D-WB-DI

DF-HAR-D-WB-DI-01A-GB

type	HAR
function	hydraulic opening and closing
design	rack and pinion
designed for :	
- angle range	90° ± 2°
- hydr. pressure	100 bar
installation	dry
coating	epoxy final coating
position indication	limit switches
emerg. operation	prepared for hand pump



example : type HAR-D2170-WB-DI-LS

DF-HAR-D2170-WB-DI-LS-01A-GB

