OPERATING LIMITS

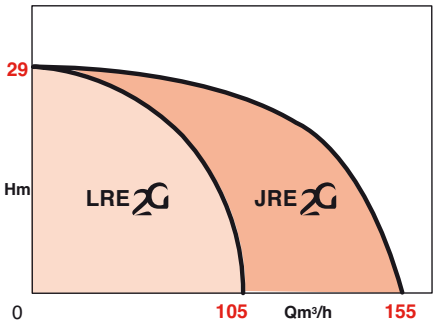
Capacities up to:	**105 m³/h**
Head up to:	**29 m**
Max discharge pressure:	**10 bar**
Temperature range:	**– 10° to + 110°C**
Orifice DN :	**32 to 80**

LRE - JRE 2G

IN-LINE SINGLE AND TWIN-HEAD PUMPS

Electronic control Heating - Air conditioning - SHW

50 Hz



APPLICATIONS

Accelerated circulation of hot or chilled water, non-corrosive without abrasive residue, with optimized operating point.

- Small-scale and collective housing central heating
- Air conditioning
- Domestic hot water loop

Many industrial or agricultural applications

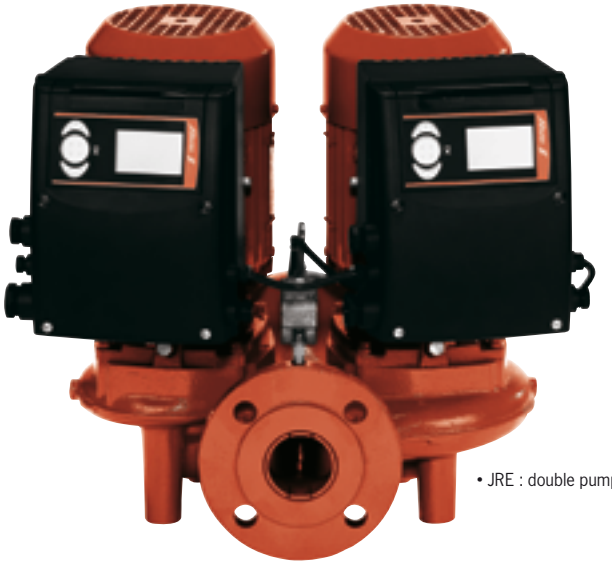
- Heating of greenhouses, etc.

ADVANTAGES

• ENERGY SAVINGS
- Optimized pump operating point.
- Energy savings up to 50% compared to traditional pumps.
- Adapt their speed automatically to requirements in terms of comfort.

• RELIABILITY
- All-automatic operation totally maintenance-free without sensor purge
- Electronic module equipped with non-volatile memory for data storage
- protection of setpoints in event of power cut
- JRE (double pump): in the event of either pump failing, the other operates in conformity with «master» pump commands.

• SIMPLICITY
- One simple touch-pad for function choice and settings adjustment.
- Adjustments always viewable on LCD screen.



VEV

2G

• JRE : double pump with electronic control

• LRE : single pump with electronic control

N.T. No 124-5/ENG. - Ed. 5/01-07

Salmson

LRE - JRE 2G

DESIGN

• Hydraulic part

- Single or double flanged pumps (NP10/16), monoblock, centrifugal, monocellular with integrated speed regulating system.

LRE: single head model ; **JRE**: twin head model
In-line suction/discharge orifices.

• Motor

- Three-phase 400 V dry rotor
- Tightness at shaft passage point by self-lubricated mechanical seal
- Motor protection integrated into terminal box

Speed :	1100 to 2900 rpm
Winding, three-phase :	400 V ± 10%
Frequency :	50 Hz
Insulation class :	155 (F)
Protection index :	IP55
EMC conformity :	EN 61800-3

STANDARD CONSTRUCTION

Main parts	Material
Pump housing	Ft 25
Bearing lantern	Ft 25
Shaft	Steel-stainless X20-Cr 13
Mechanical packing	Carbide Si/Carbon/EP
Impeller	Polypropylene

IDENTIFICATION

LRE or JRE 2 03-16/1.1 2G

- Electronic single/ double pump code
- 2-pole motor
- Nominal Ø of ports in cm
- Nominal Ø of impeller in cm
- Motor power in kW
- 2nd generation

OPERATING PRINCIPLE

NOISE OPTIMIZATION AND CONTROL

Heating (or air conditioning) requirements of buildings vary from day to night. They also change during the day depending on changes of outside temperature, etc. and even from one place of the building to another depending on whether thermostatic valves are opened or closed.
The consequences of differential pressure variations in the installation are noise and a waste of energy due to the incorrect control of the installation.
Electrically self-regulated pumps, depending on the network head loss, adapt the running speed to preserve optimum efficiency and maintain the lowest possible operating sound level.
The adjustment of pump characteristics is automatic depending on the opening and closing of thermostatic valves.

ADJUSTMENT TYPES

The differential pressure of the pump can be adjusted to two curves with different characteristics (see opposite) depending on which the regulator can be adjusted.

- Constant pressure (ΔP-c). With this regulation mode, the electronics maintain the differential pressure of the pump constant whatever the flow-rate as a function of the predefined differential pressure setpoint.
- Variable pressure (ΔP-v). With this regulating mode, the electronics reduces the differential pressure (pressure head) in the event of a flow reduction, as a function of the predefined differential pressure setpoint.

The LRE / JRE series can be operated in the 'Heating' and 'Air-Conditioning' modes. The difference between both operating systems resides in the fault tolerance for the handling of error messages.

- 'Heating' mode : Errors are handled with tolerance, e.g. depending on the error type involved, the pump will only signal a fault when the same error occurs several times within a specified time.
- 'Air-Conditioning' mode : For all applications where each error needs to be detected rapi-dly. Each error is signalled immediately (< 2 sec). In double pump mode, the reserve pump reaches the old operating point within 3 seconds after occurrence of the error.

DOUBLE PUMP OPERATING MODE

The two pumps are controlled by the «master» pump.

NORMAL/BACKUP

The flow requested is provided by a single pump, the other pump starting up in case of fault on first pump or after 24 hours of actual operation of the latter.

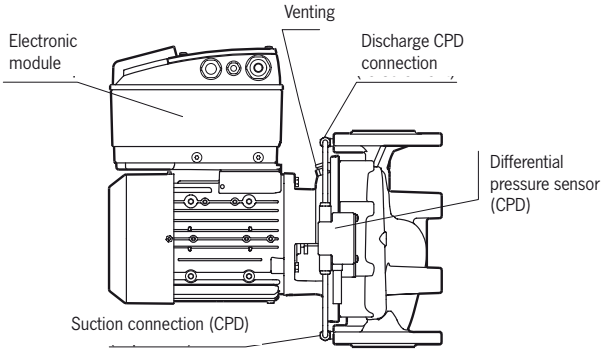
CASCADE OPERATION

At minimum load, only the pump in service operates. The backup pump triggers when radiators request a higher flow rate. From this point (switchover point), the nominal speed of the two pumps increases synchronously in case of need. After 24 hours of actual operation, there is built-in (automatic) changeover of the master pump which becomes slave. This function increases ener-gy saving as compared to usual operation in parallel by avoiding numerous locking/ triggering.

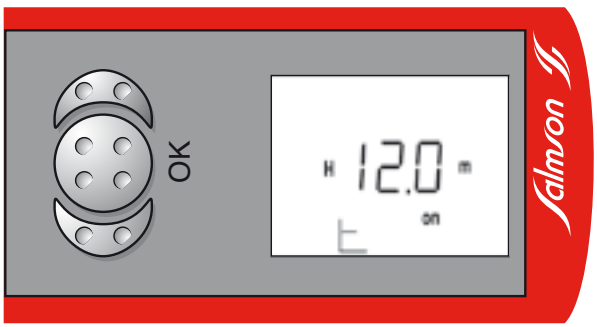
EXTERNAL CONTROL

- Speed or Duty Point external adjustment by signal : 0-10V or 2-10V or 0-20mA or 4-20mA
- External on/off control;
- Fault and operating state reports.

DESCRIPTION

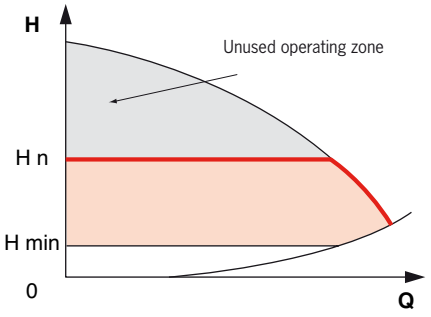


Control panel



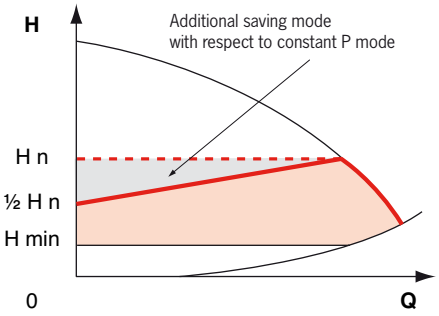
OPERATING THEORY GRAPHS

• Operation with constant ΔP



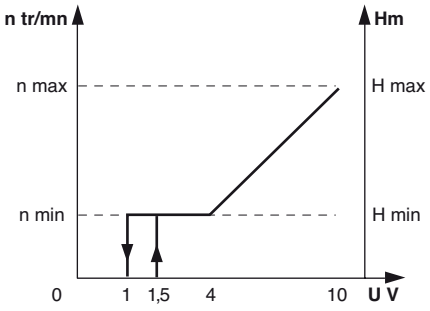
The electronics, according to the requested flow, maintains the differential pressure value of setpoint Hn, up to the maximum characteristic operating curve.

• Operation for variable ΔP



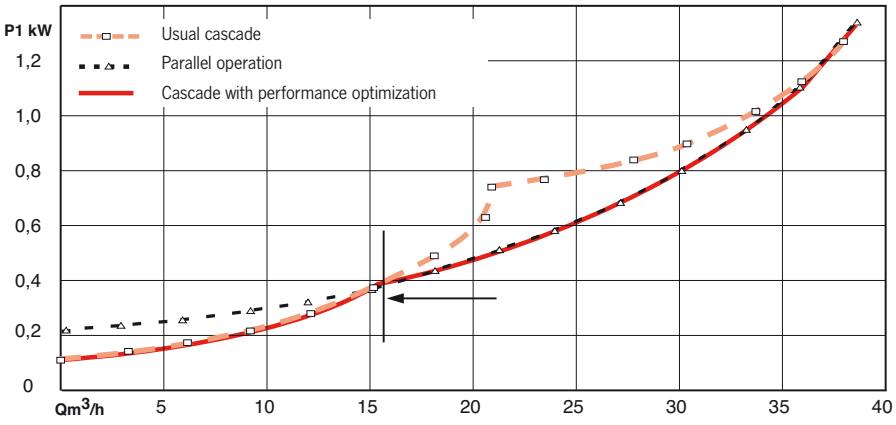
The electronics linearly modifies between Hn and 1/2 Hn the differential setpoint pressure value. The differential pressure value of setpoint H increases or decreases with the required flow-rate.

• External control (e.g. 0-10V)



Speed or Duty Point external adjustment by signal : 0-10V or 2-10V or
0-20mA or 4-20mA

• Operation in synchronized cascade

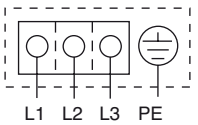


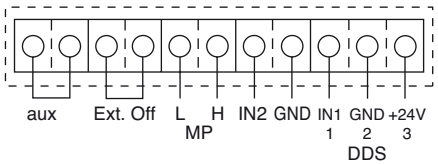
Operation in cascade of a JRE pump.
At equivalent flow rate, the pump automatically uses the curve of least power.

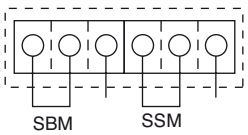
CONNECTIONS

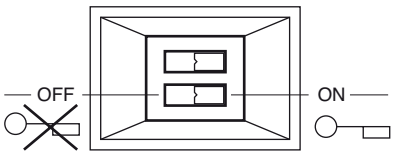
Switch rating of voltfree contacts for collective run and fault signals :
min. 12 V DC/10 mA, max. 250 V AC/1 A.

- **L1, L2, L3, PE :** Mains connection 3~400 V/50 Hz
- **SSM :** Potential-free collective fault signal
- **SBM :** Potential-free collective run signal
  - **off :** Remote “on/off” control (voltage free)
  - **MP :** Interface for the connection of a slave pump for fully-integrated twin-head pump management
    - **3 :** +24 V (Output)
    - **2 :** GND Earth
    - **1 :** IN1 connection differential pressure sensor 0-10 V / 2-10V / 0-20mA / 4-20mA (Input) corresponds to 40 % – 100 % fo the nominal speed



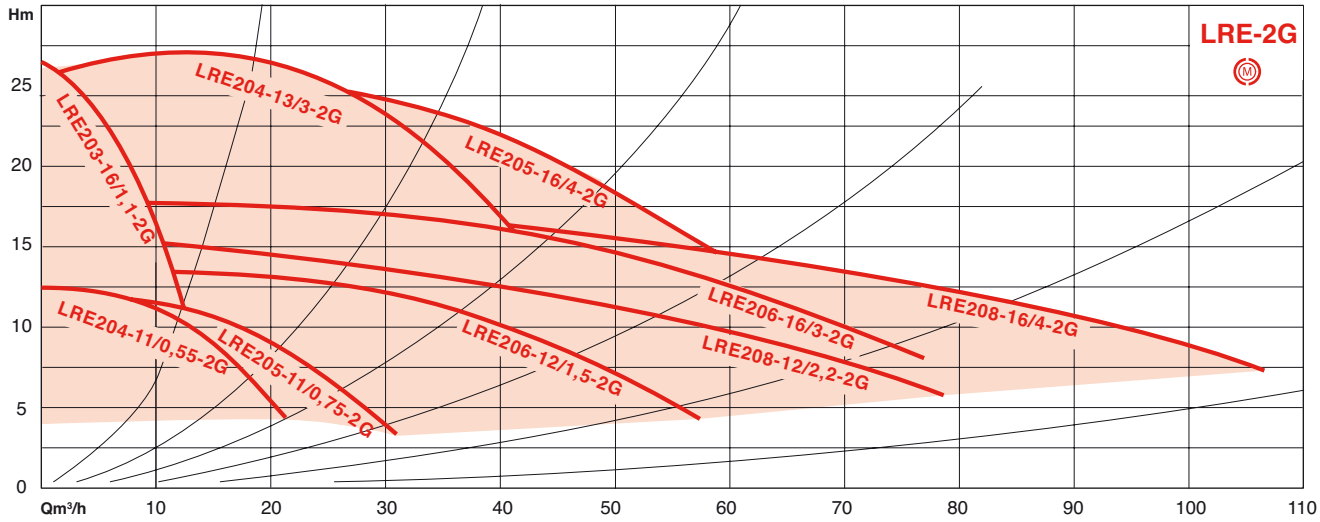


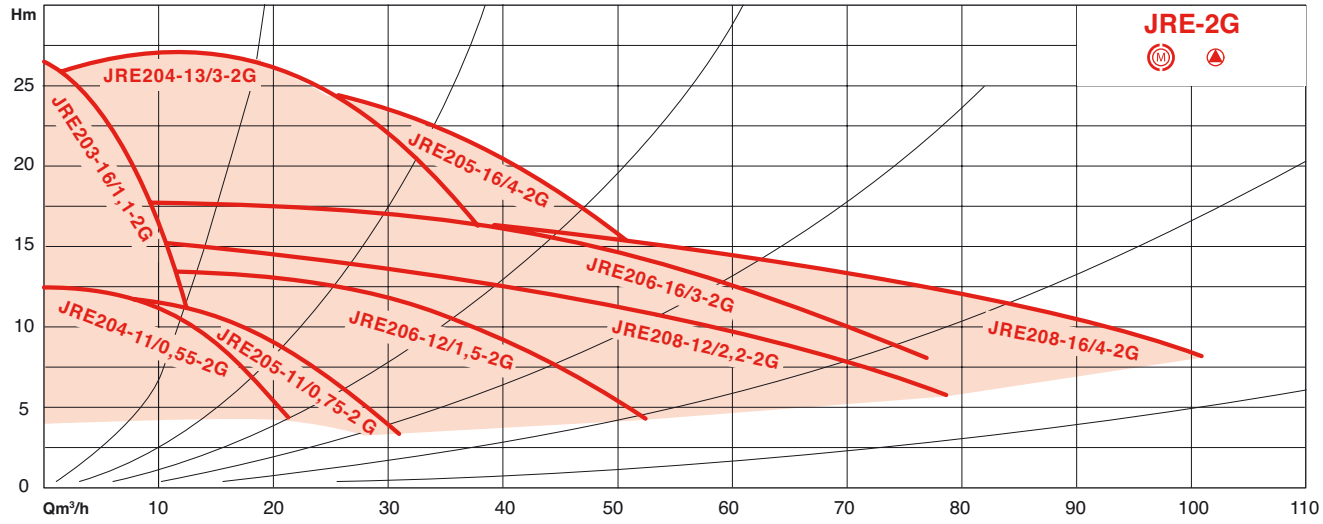


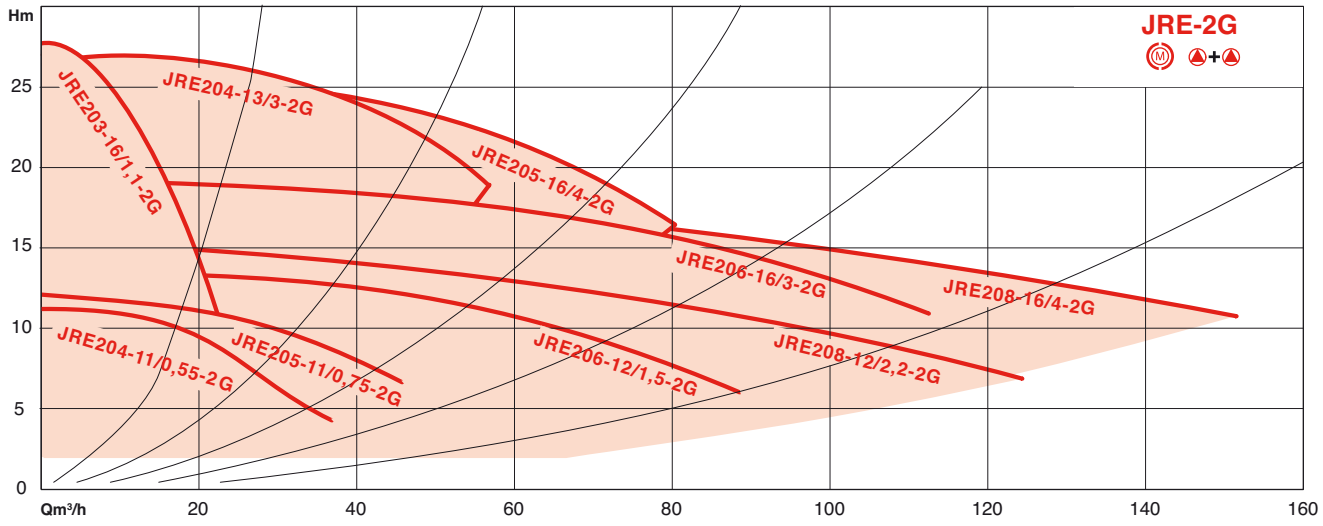


LRE - JRE 2G

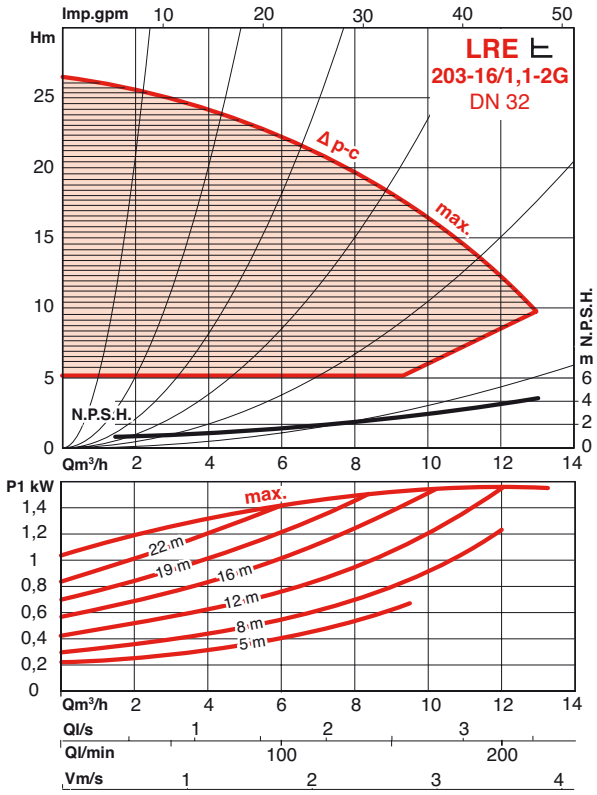
LRE-JRE - GENERAL PRESELECTION GRAPHS

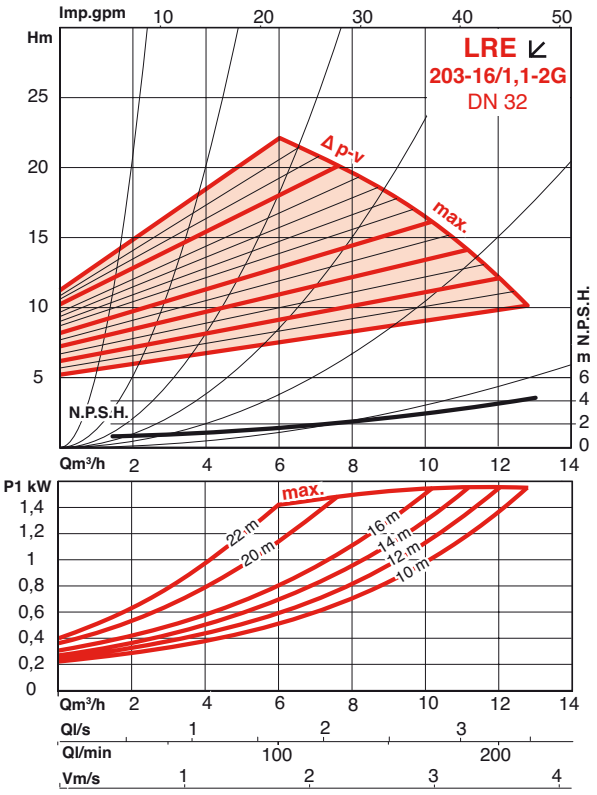


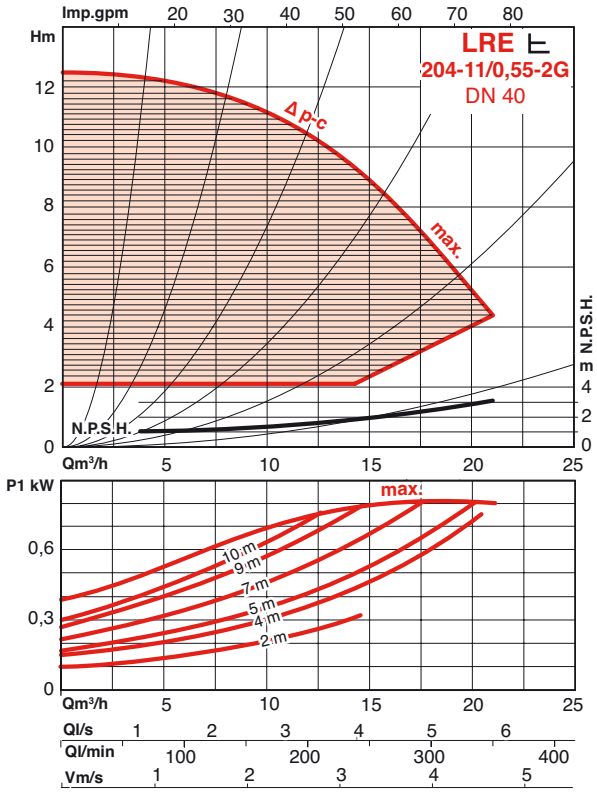


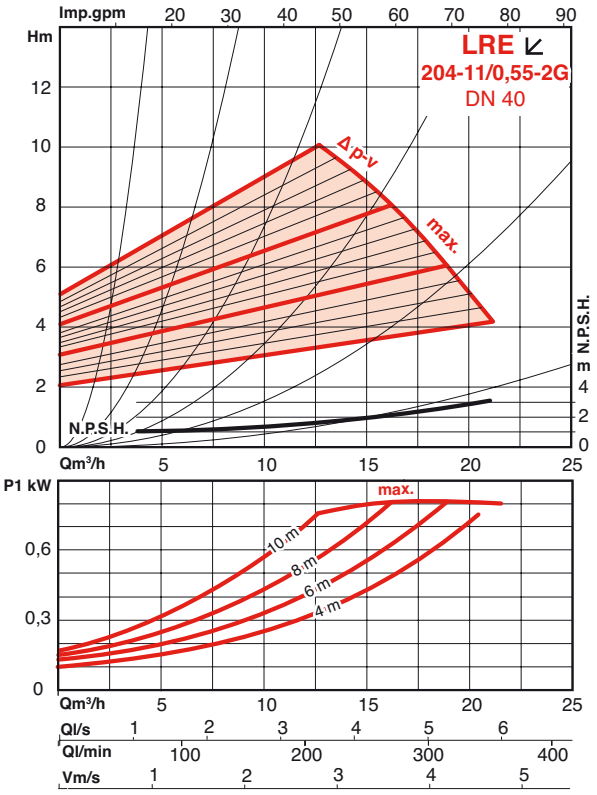


HYDRAULIC PERFORMANCE - LRE

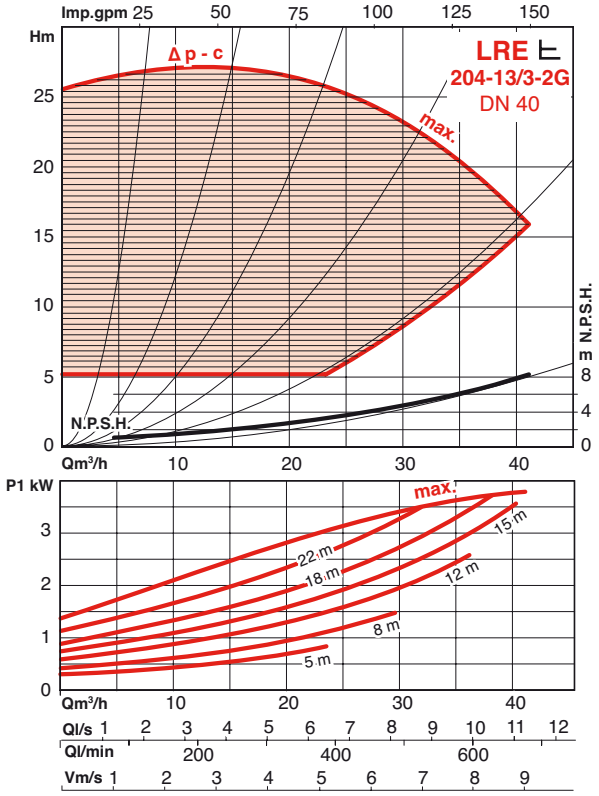


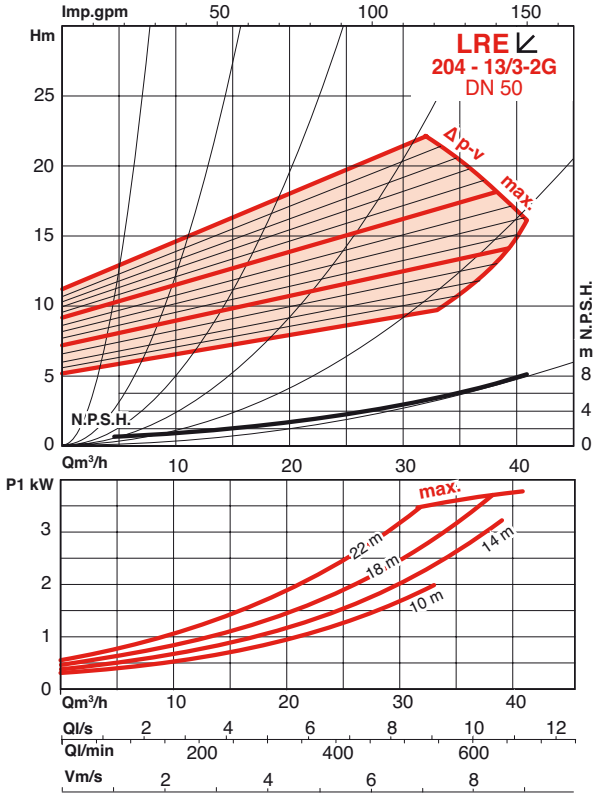


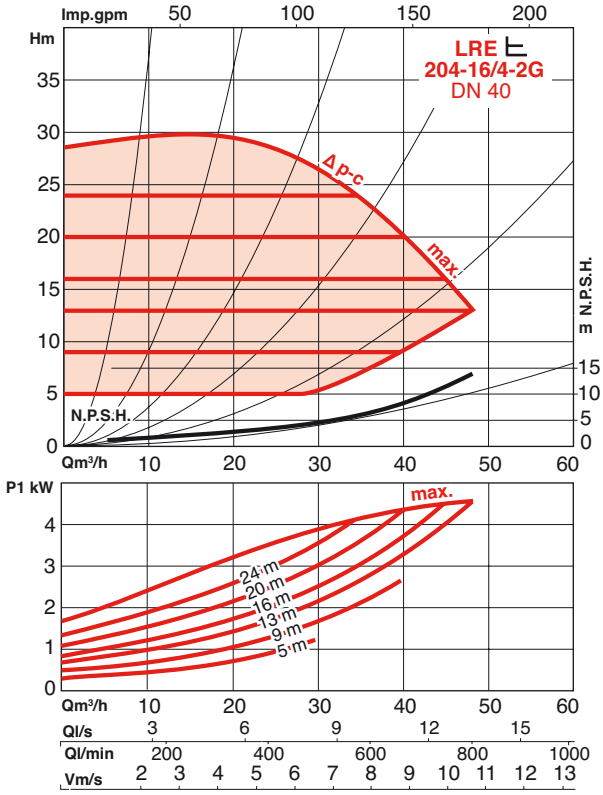


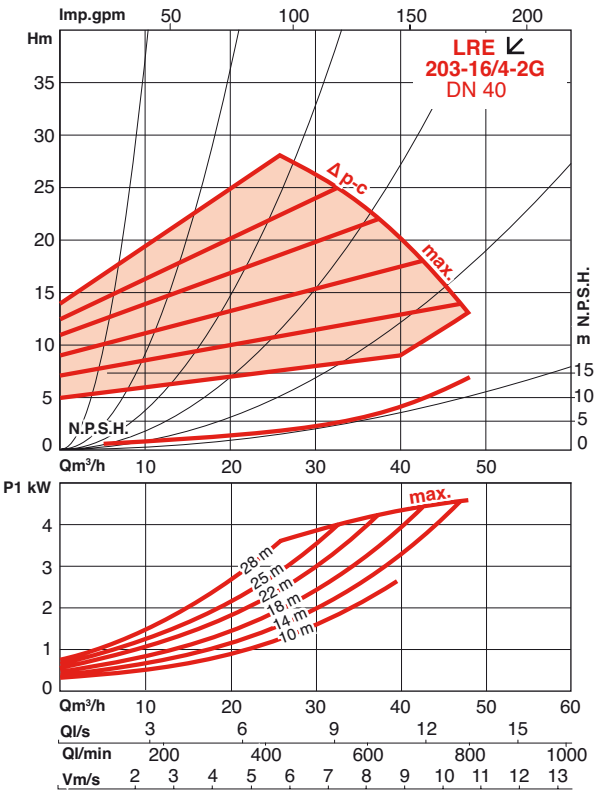


HYDRAULIC PERFORMANCE - LRE

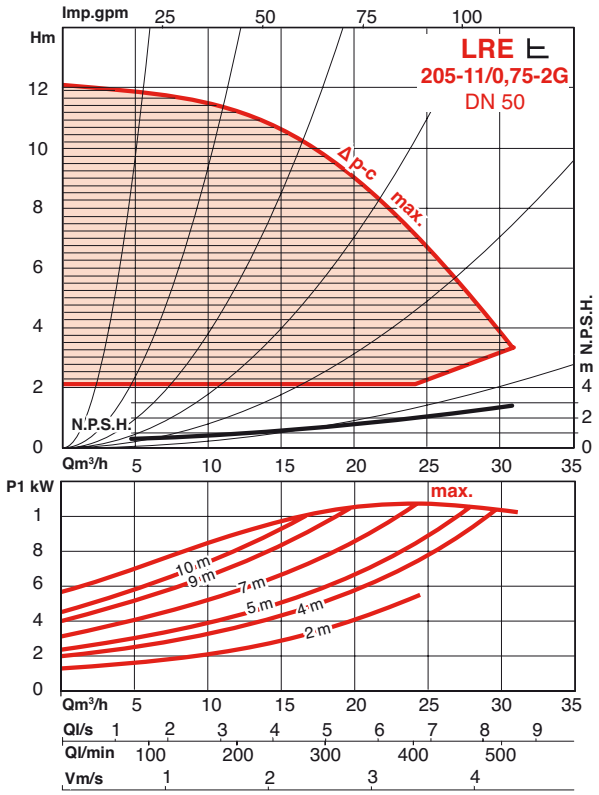


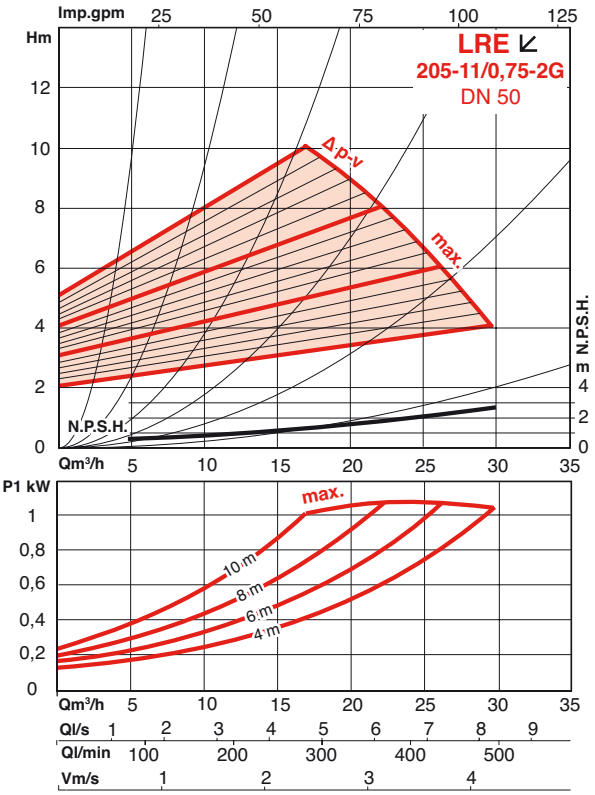


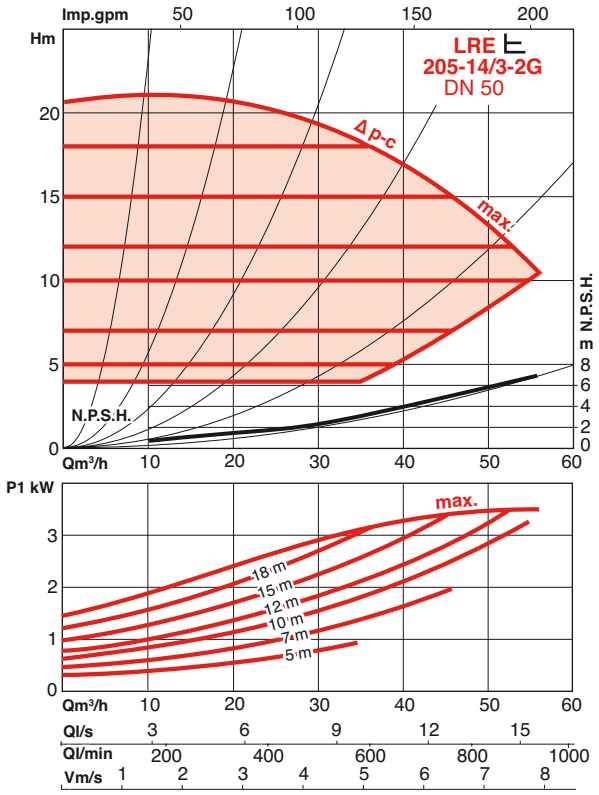


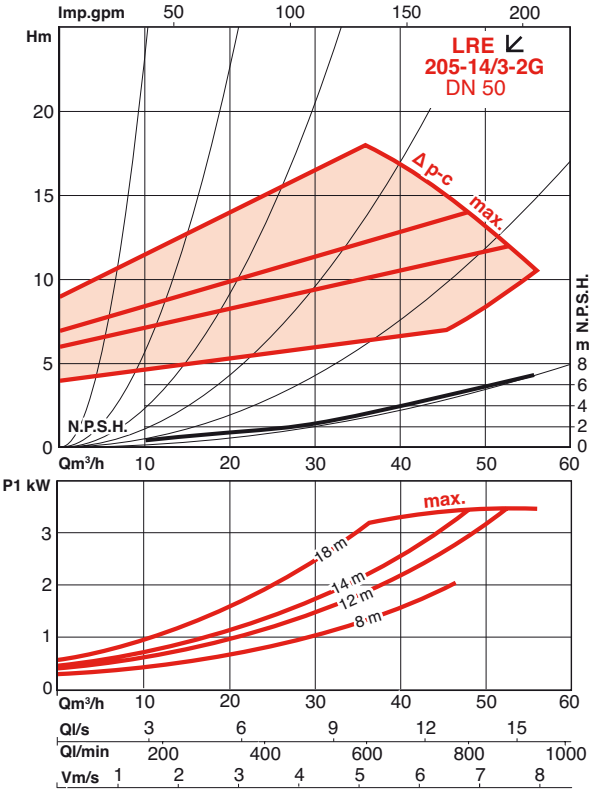


HYDRAULIC PERFORMANCE - LRE



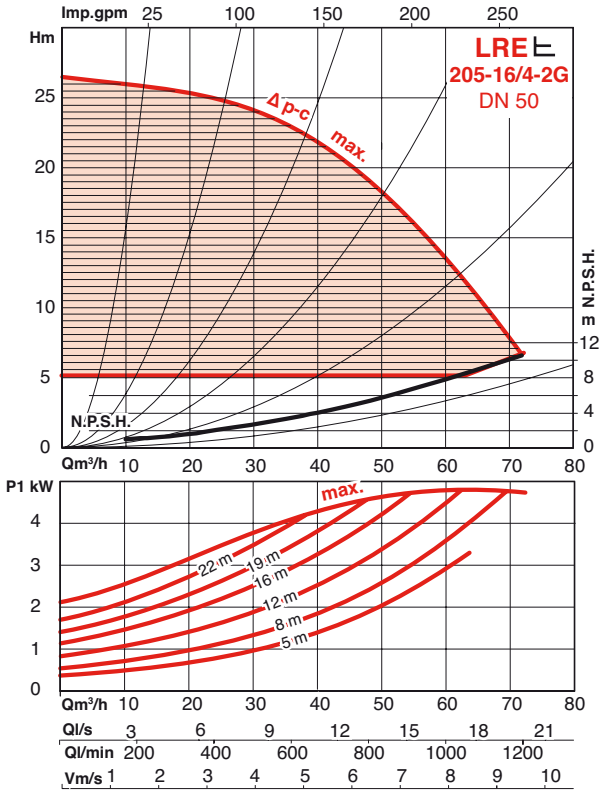


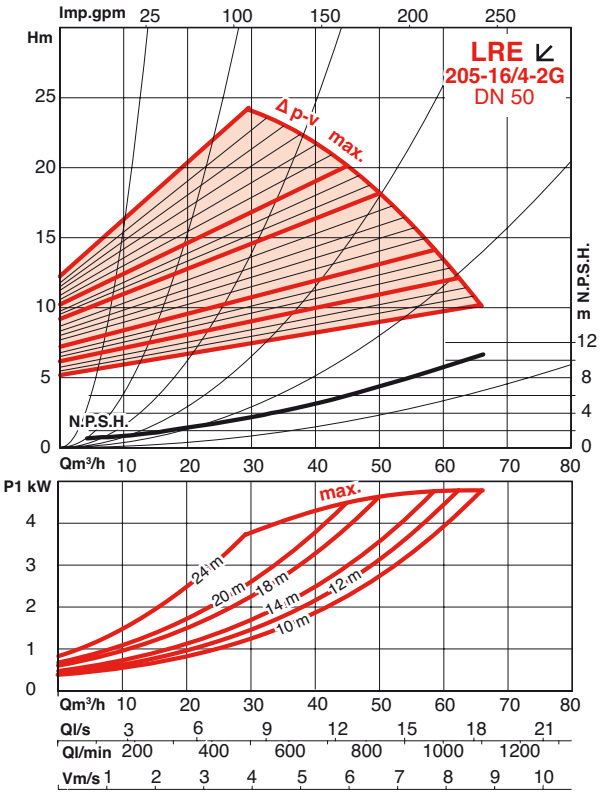


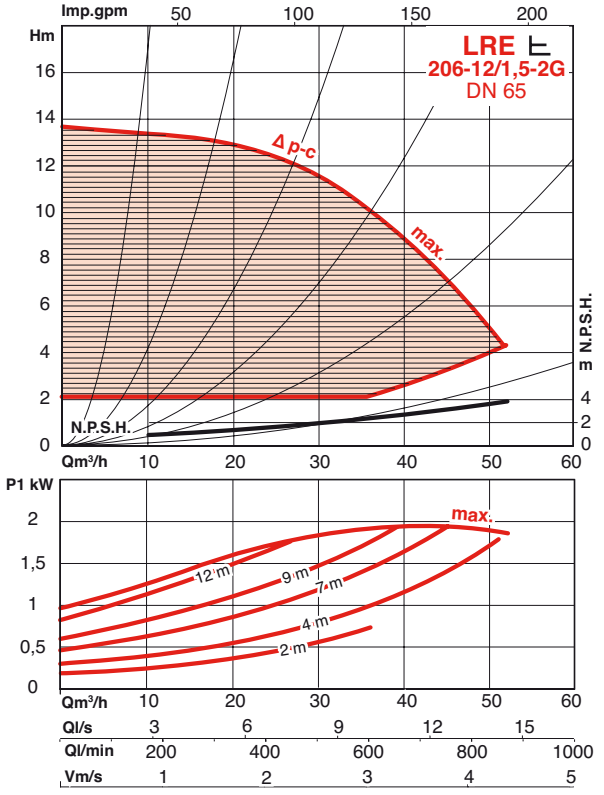


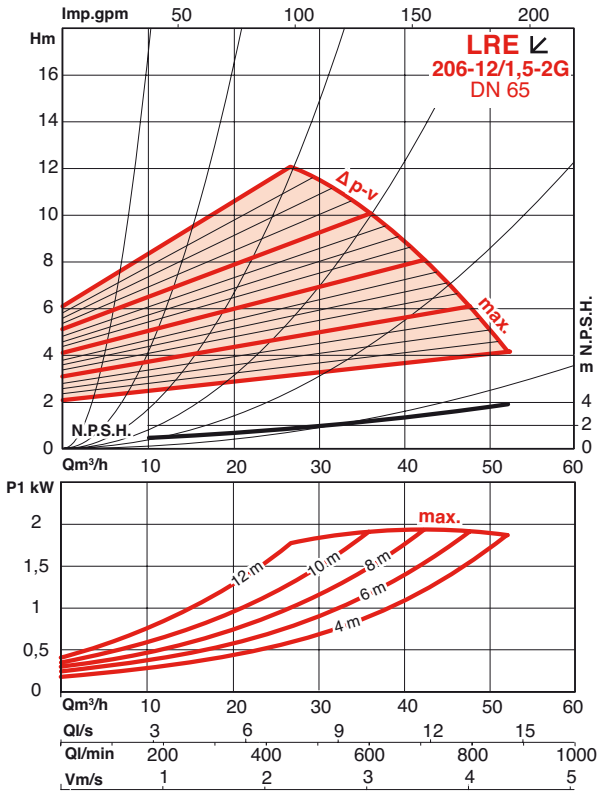
LRE - JRE 2G

HYDRAULIC PERFORMANCE - LRE

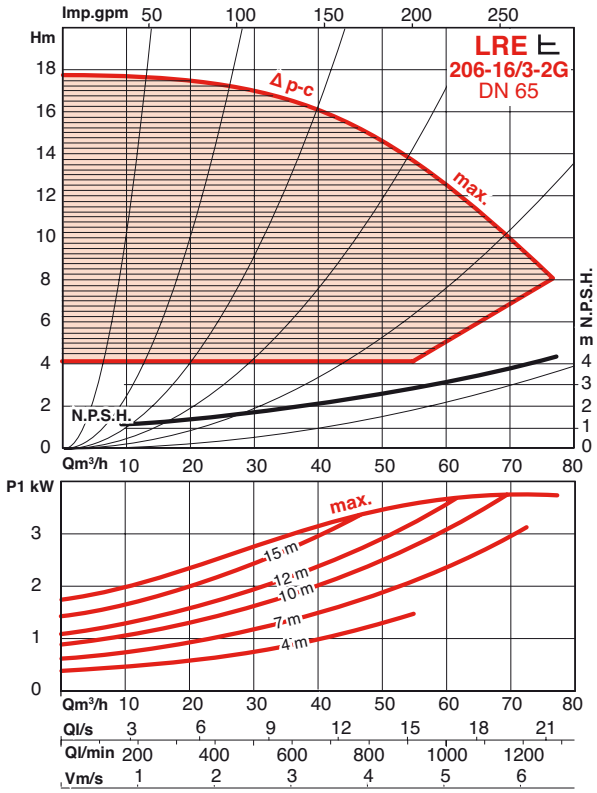


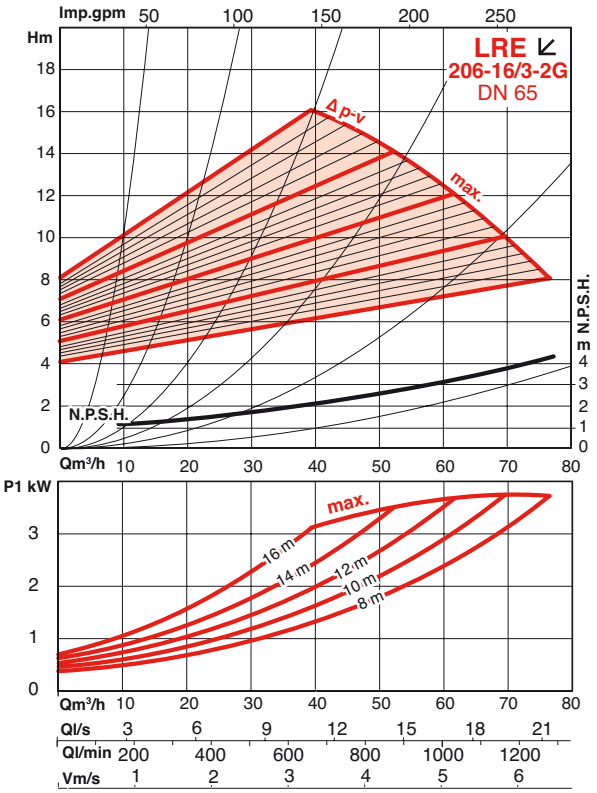


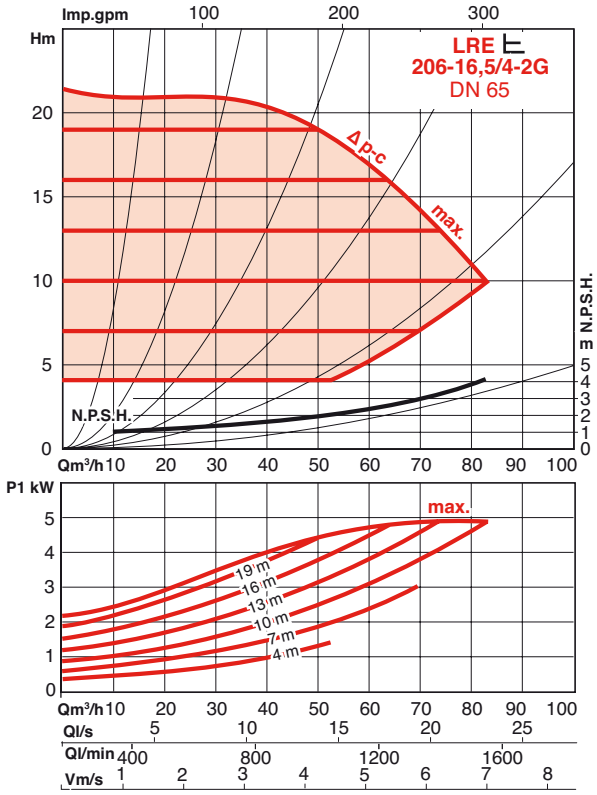


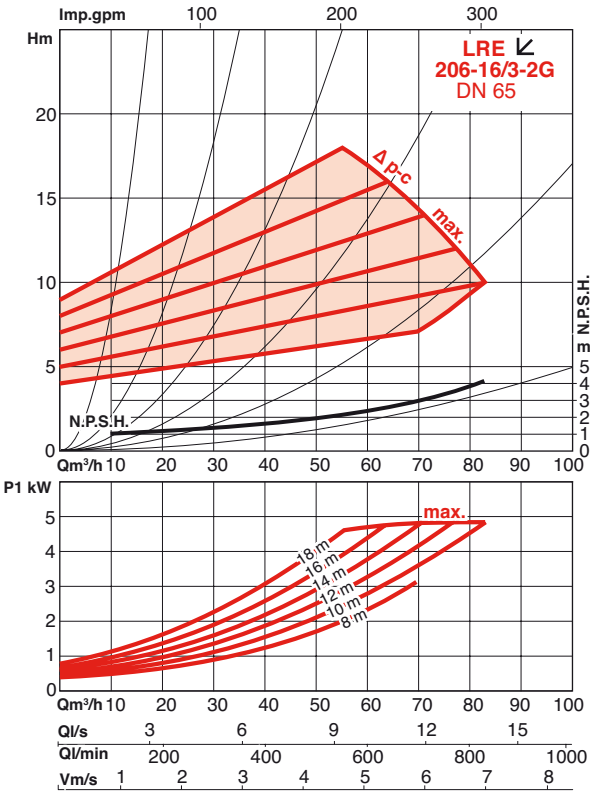


HYDRAULIC PERFORMANCE - LRE

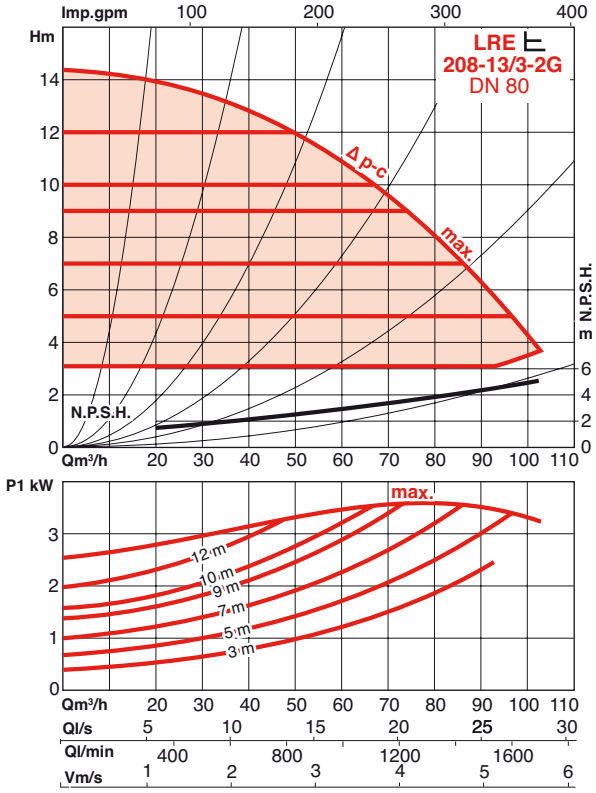


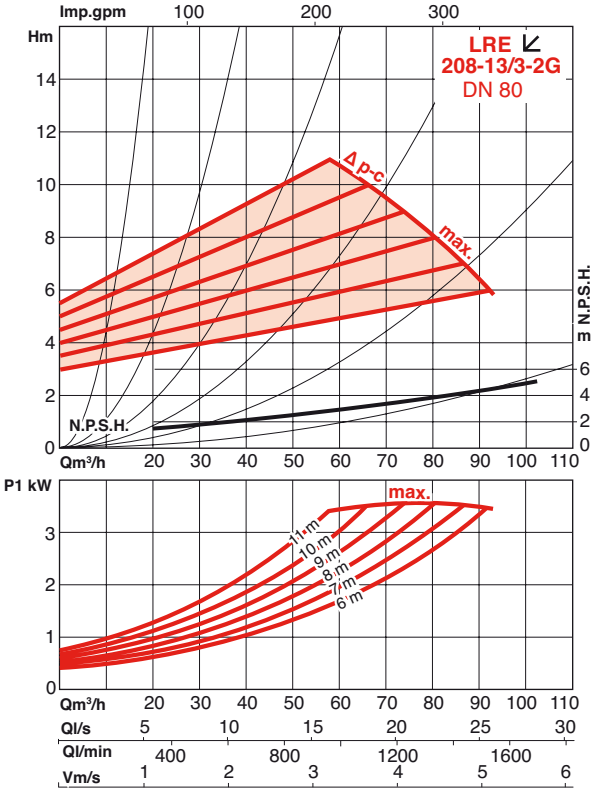


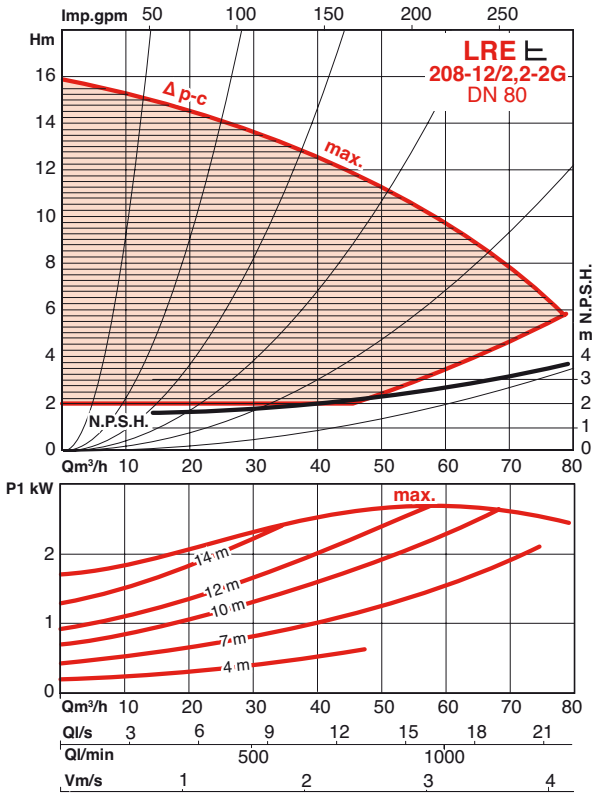


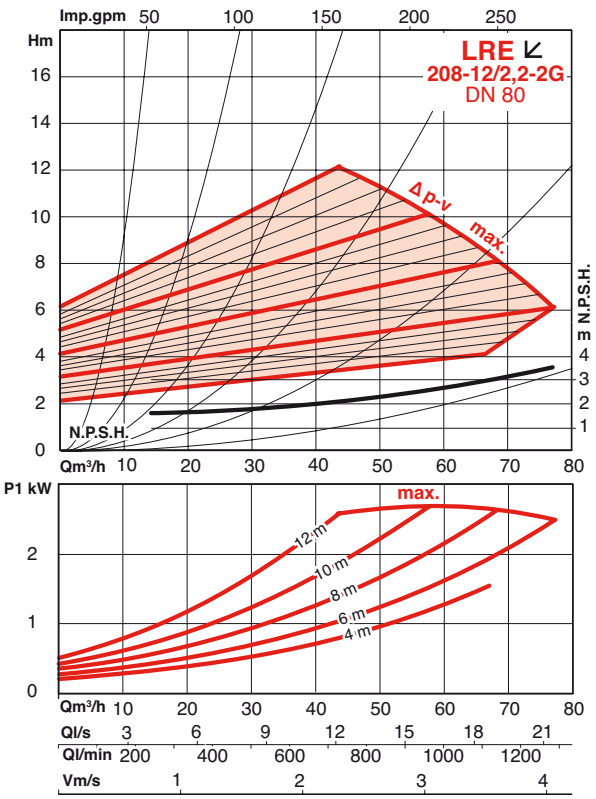


HYDRAULIC PERFORMANCE - LRE

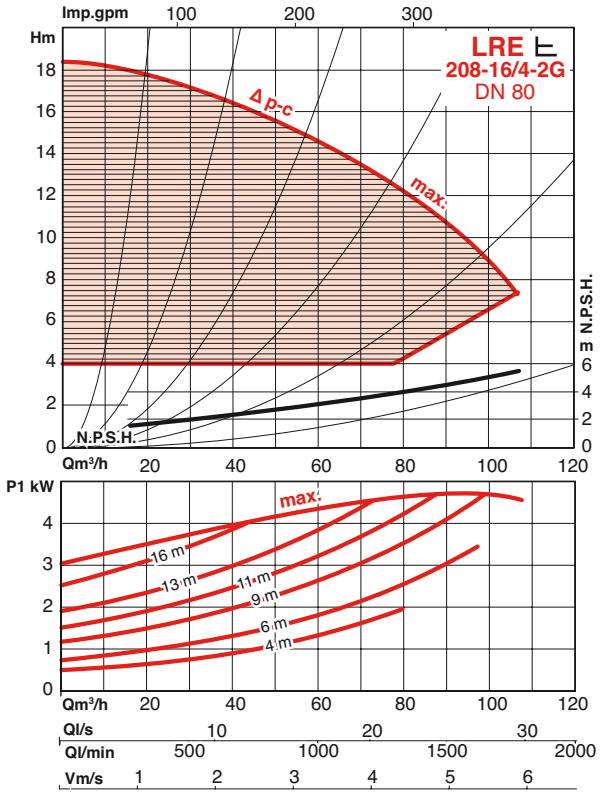


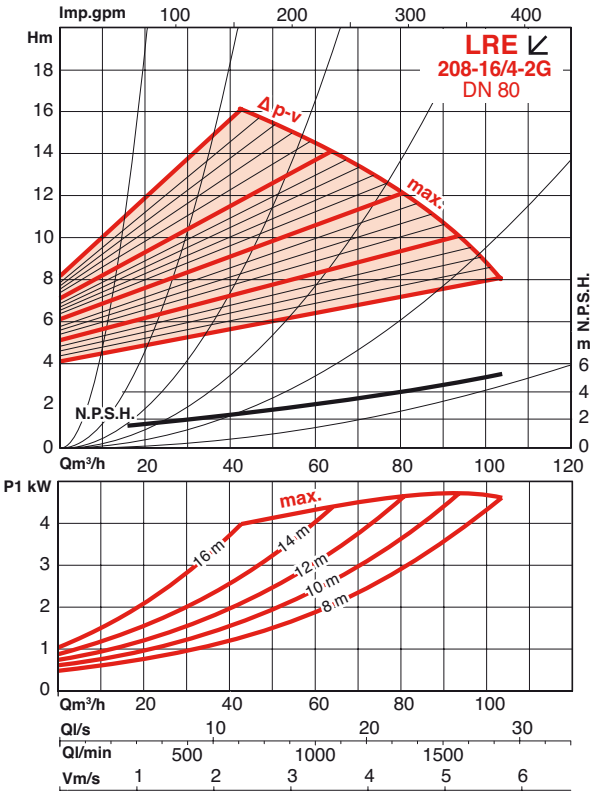




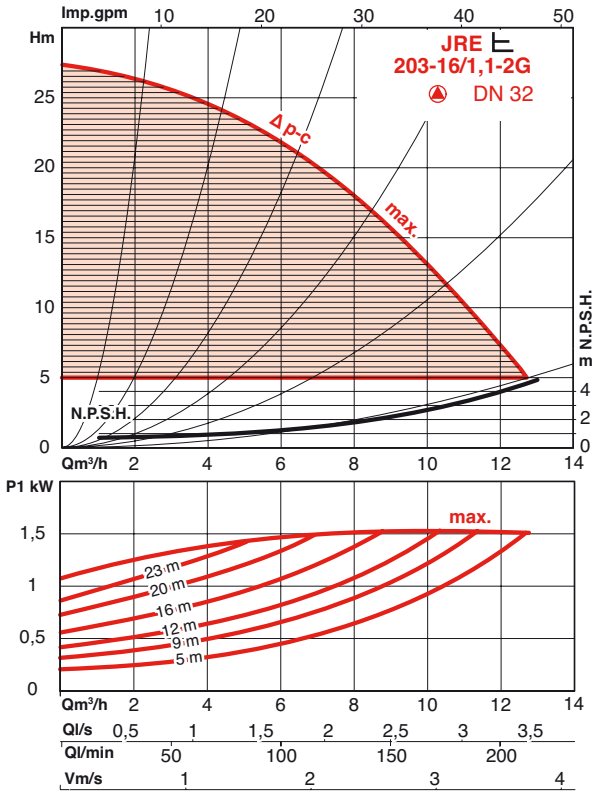


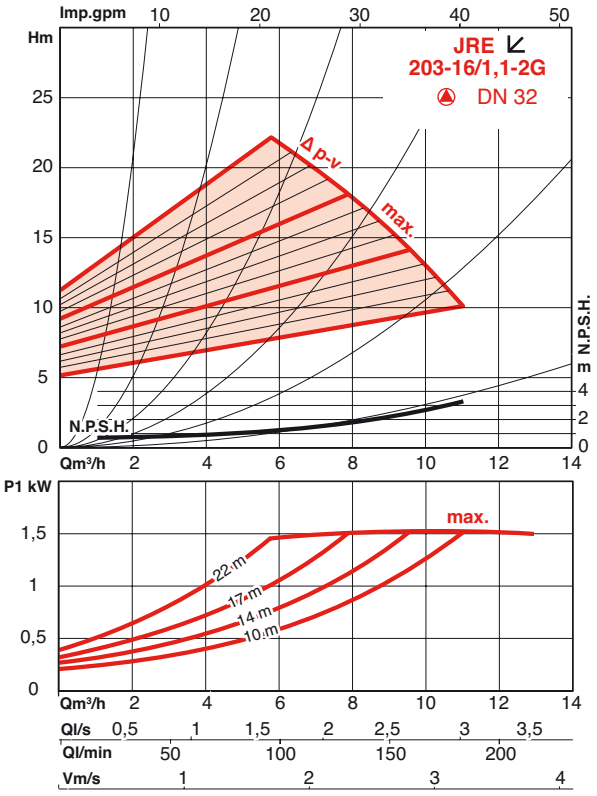
HYDRAULIC PERFORMANCE - LRE

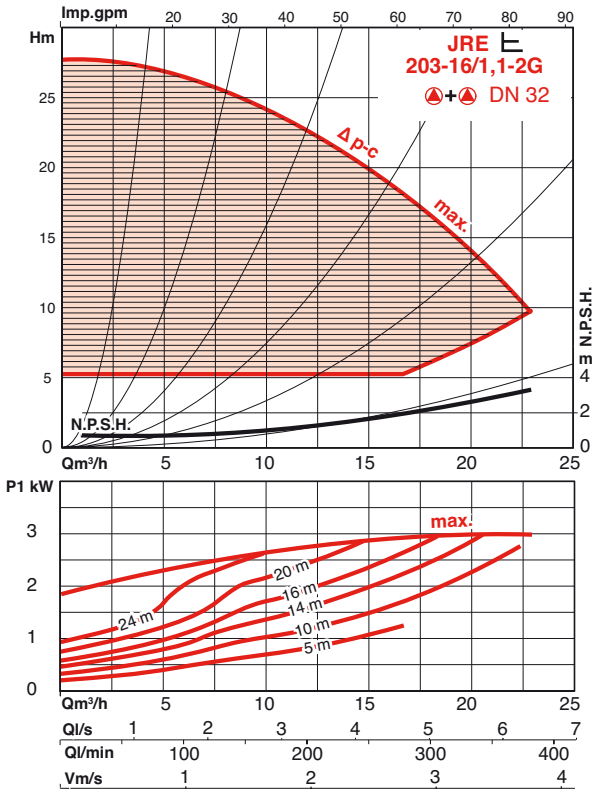


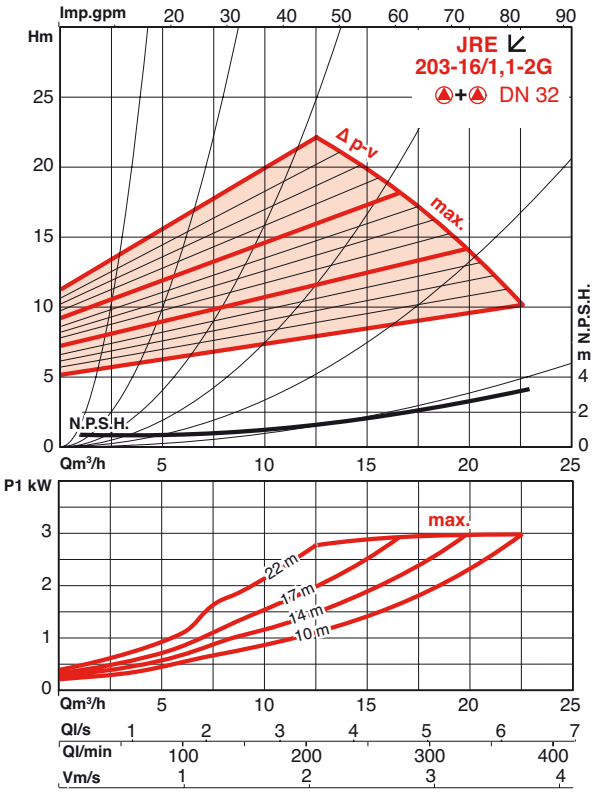


HYDRAULIC PERFORMANCE - JRE

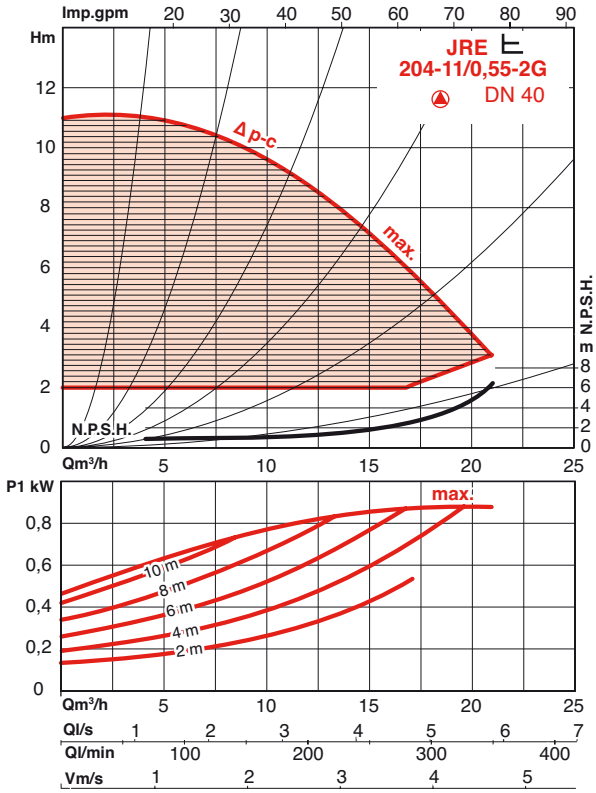


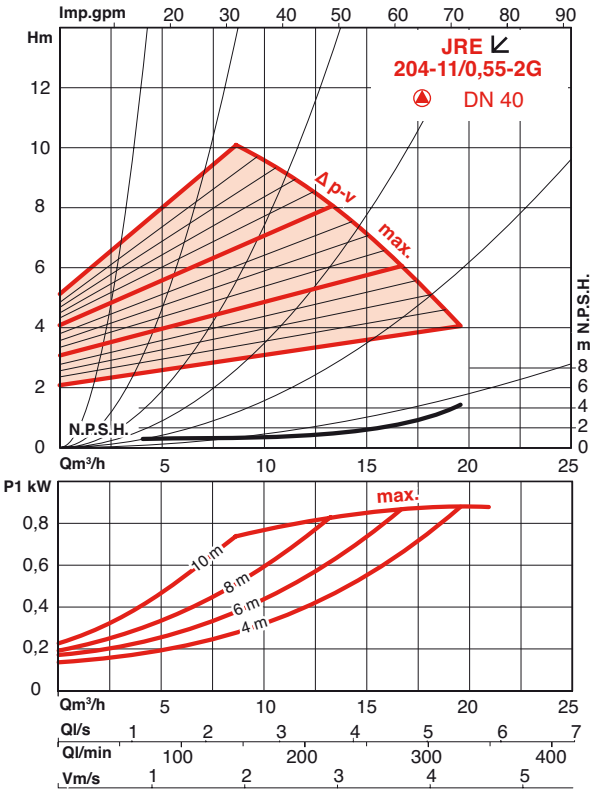


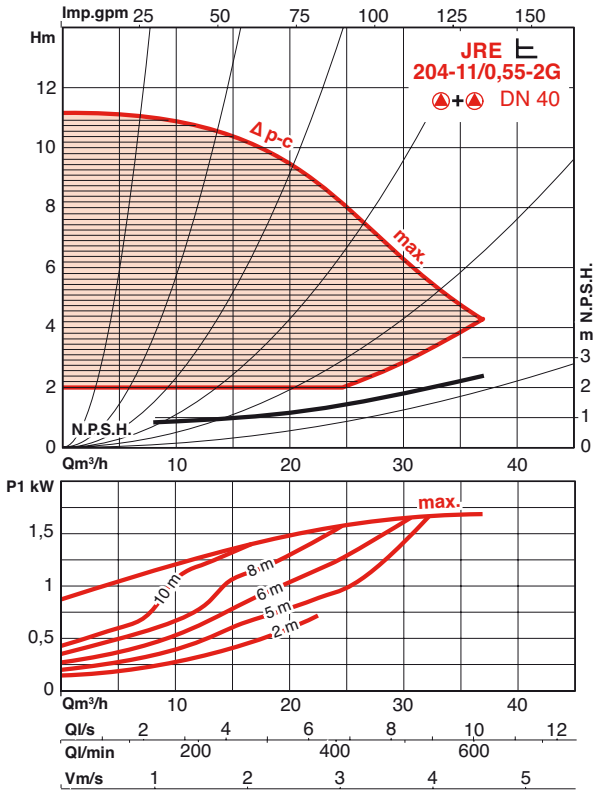


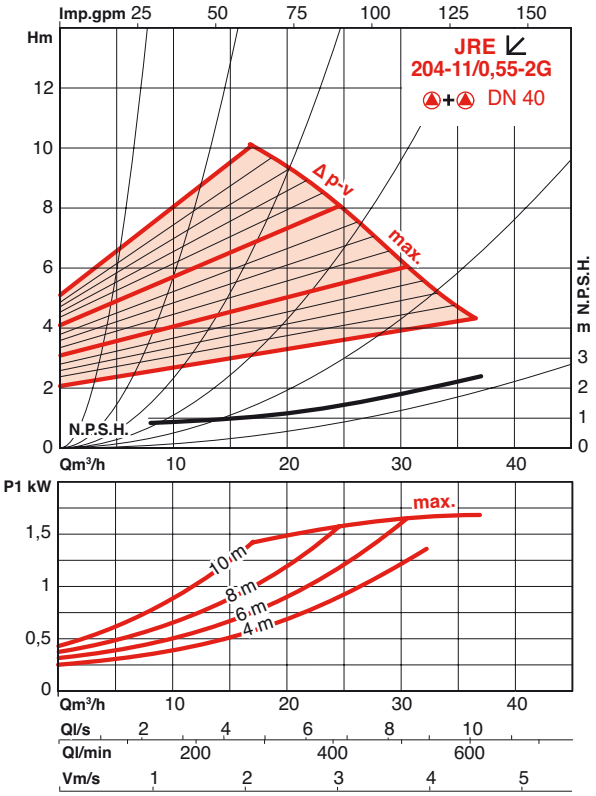


HYDRAULIC PERFORMANCE - JRE

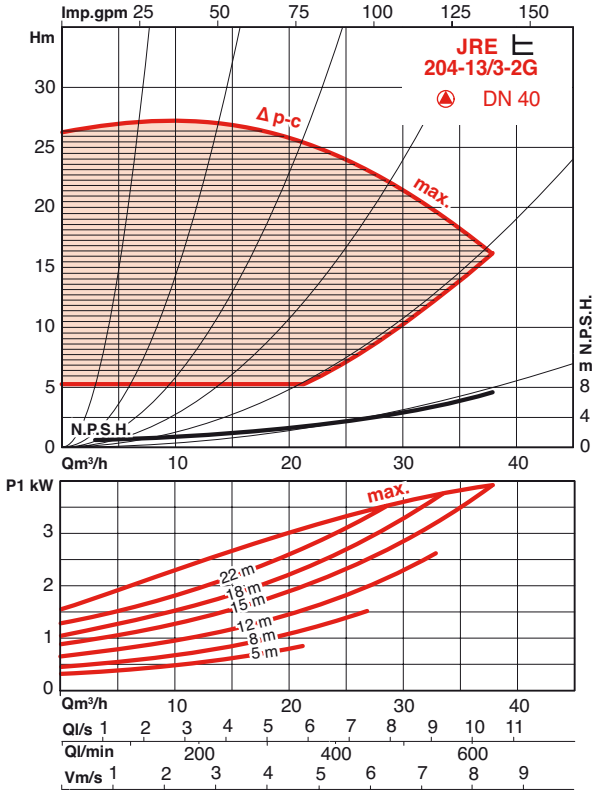


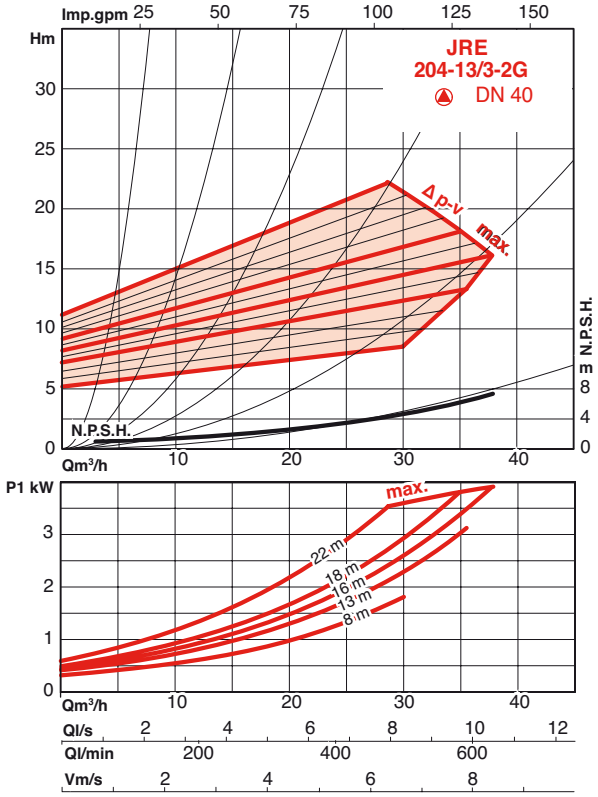


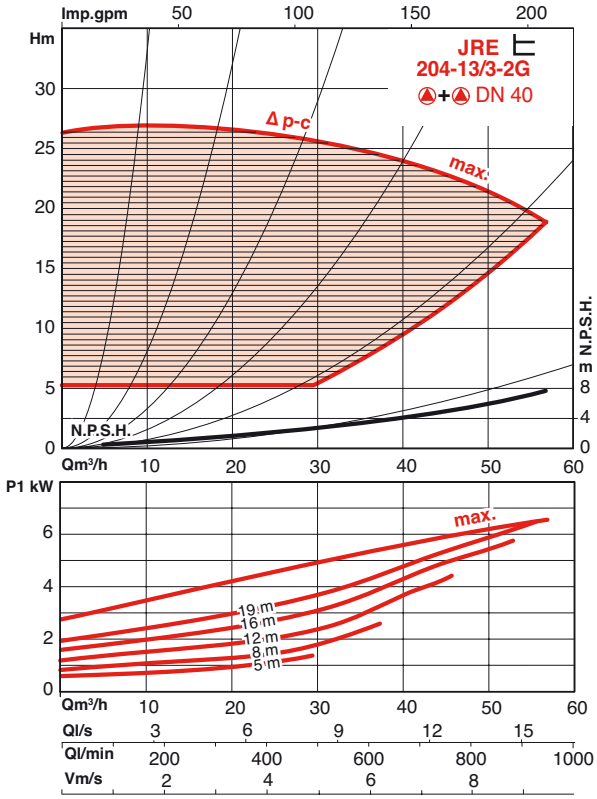


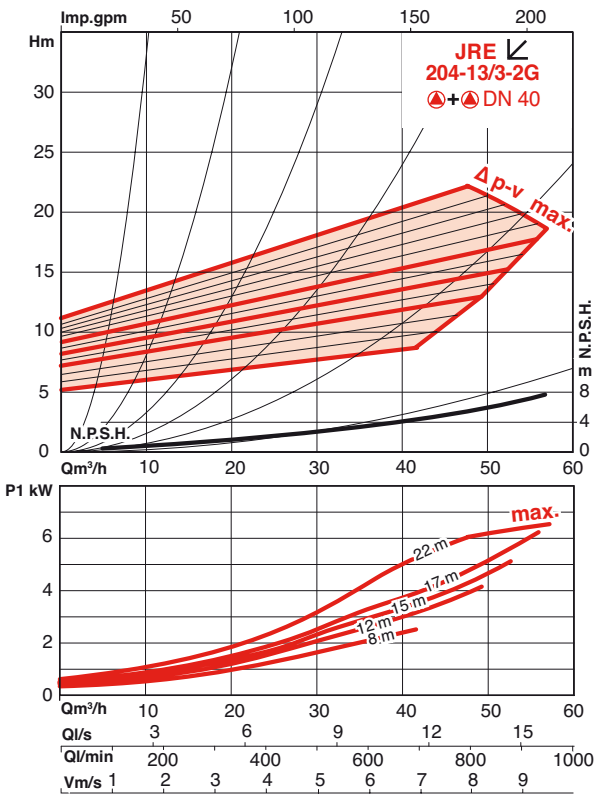


HYDRAULIC PERFORMANCE - JRE

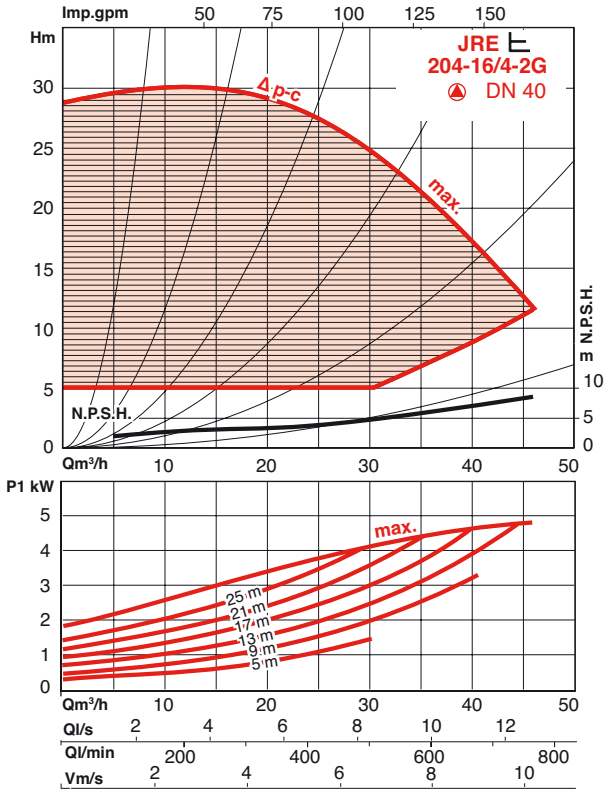


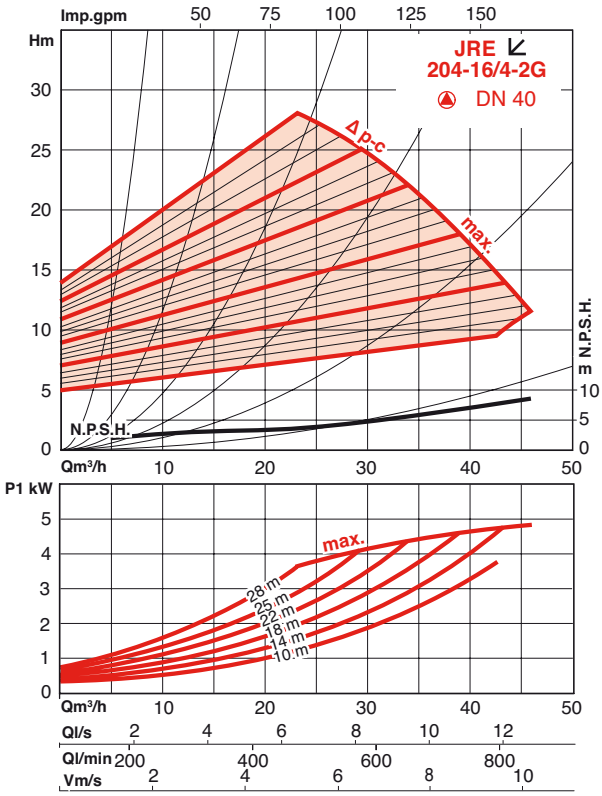


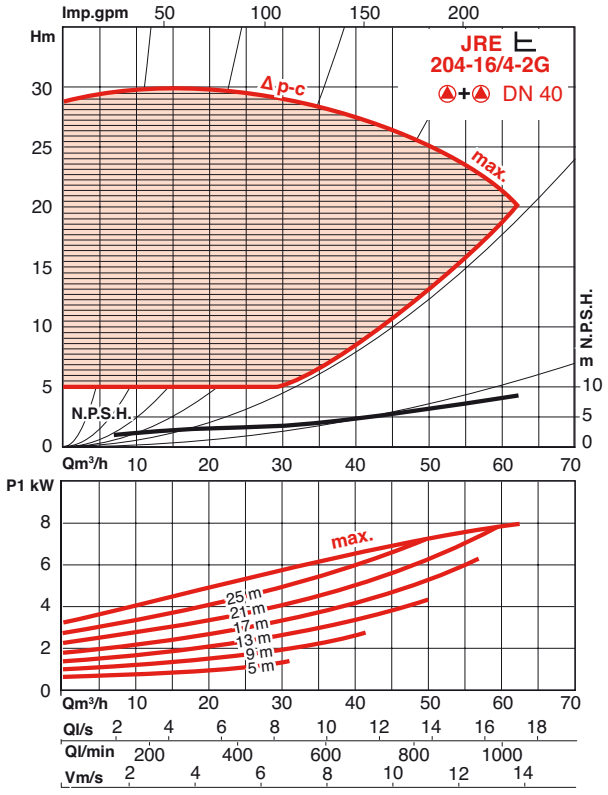


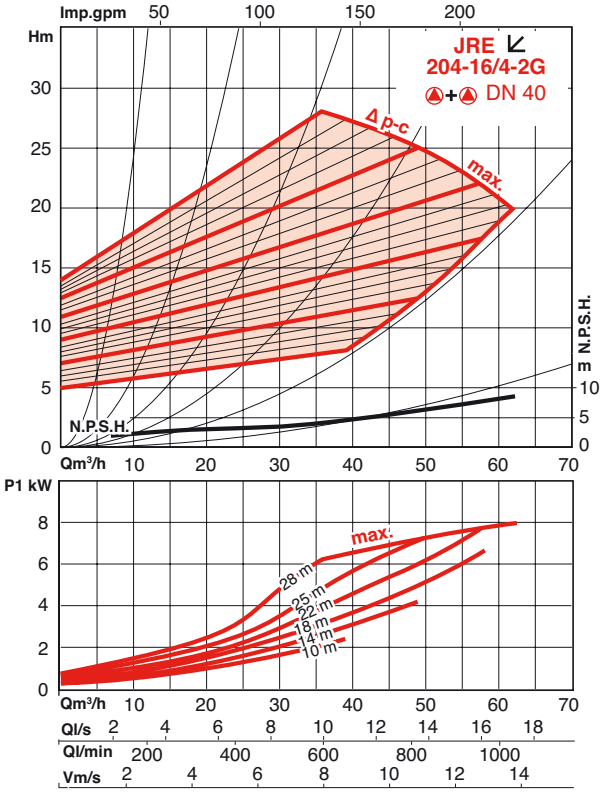


HYDRAULIC PERFORMANCE - JRE

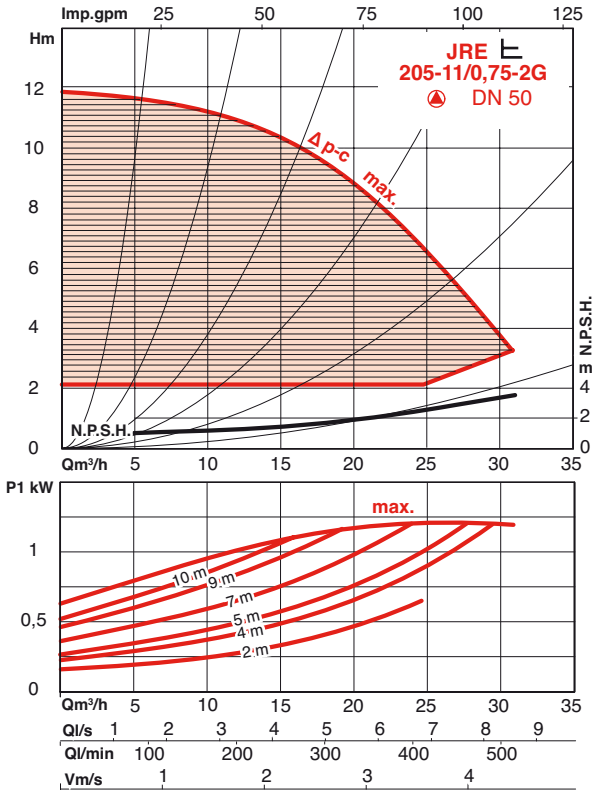


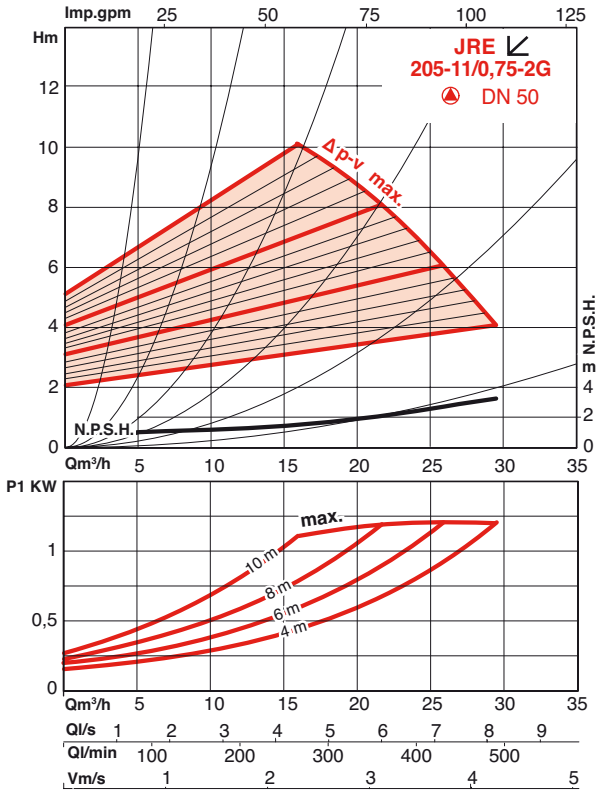


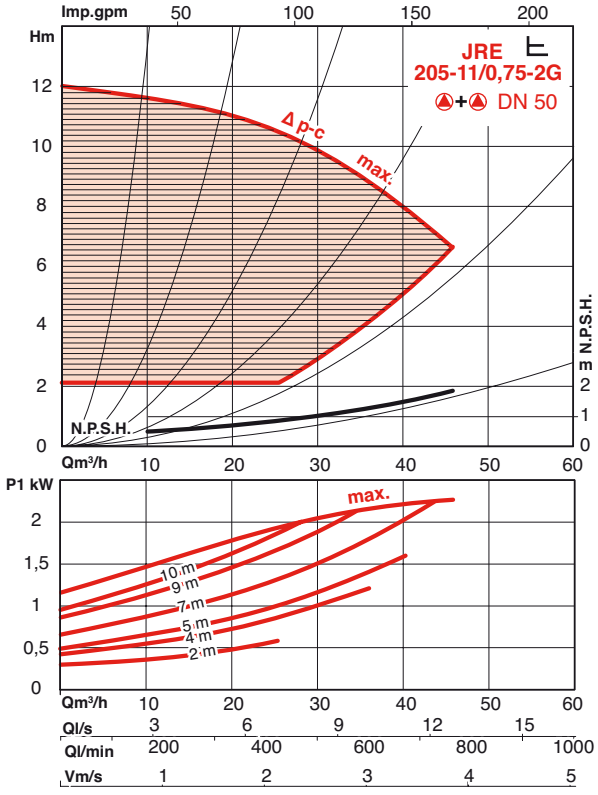


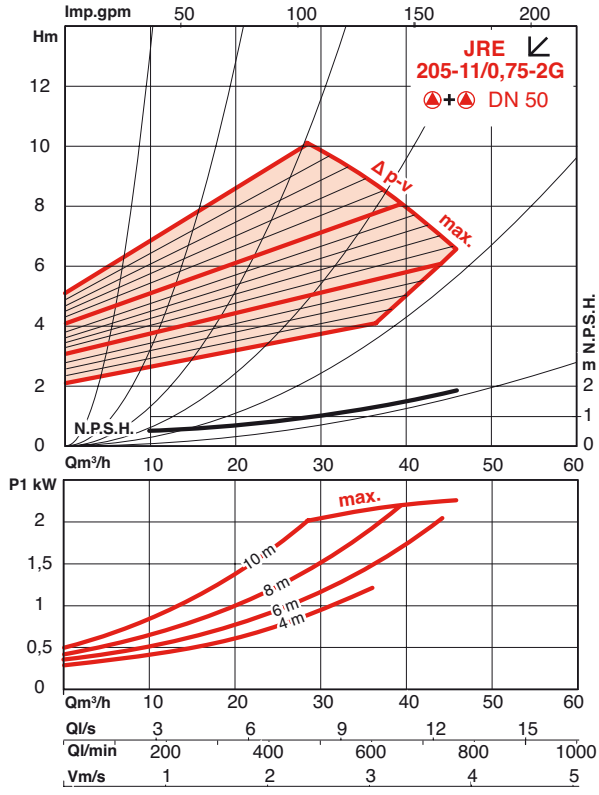


HYDRAULIC PERFORMANCE - JRE

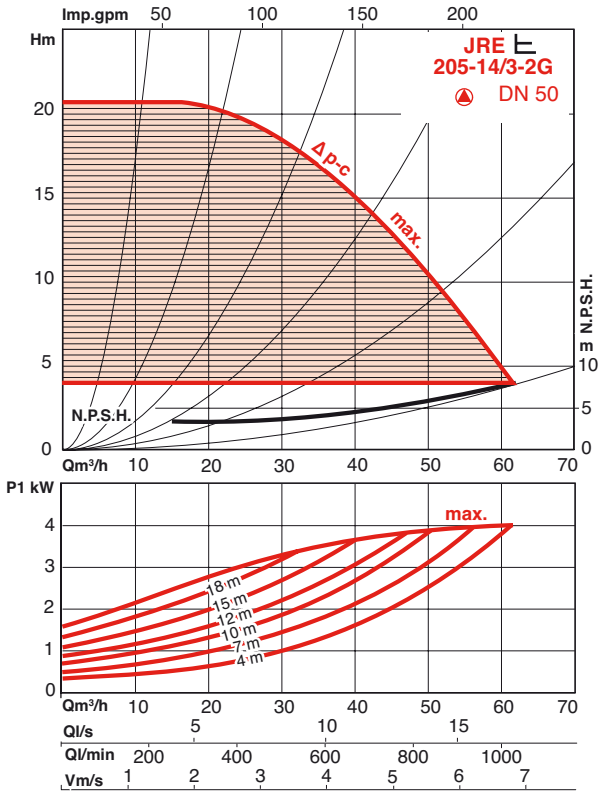


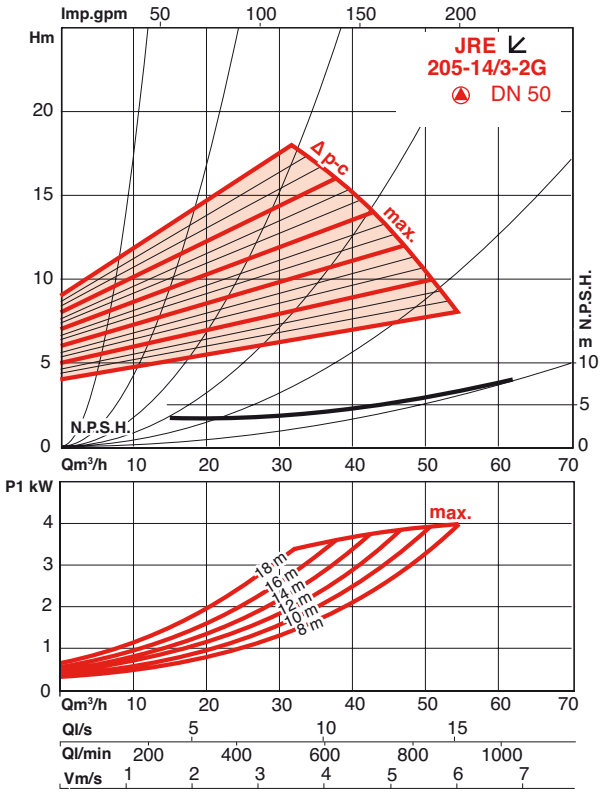


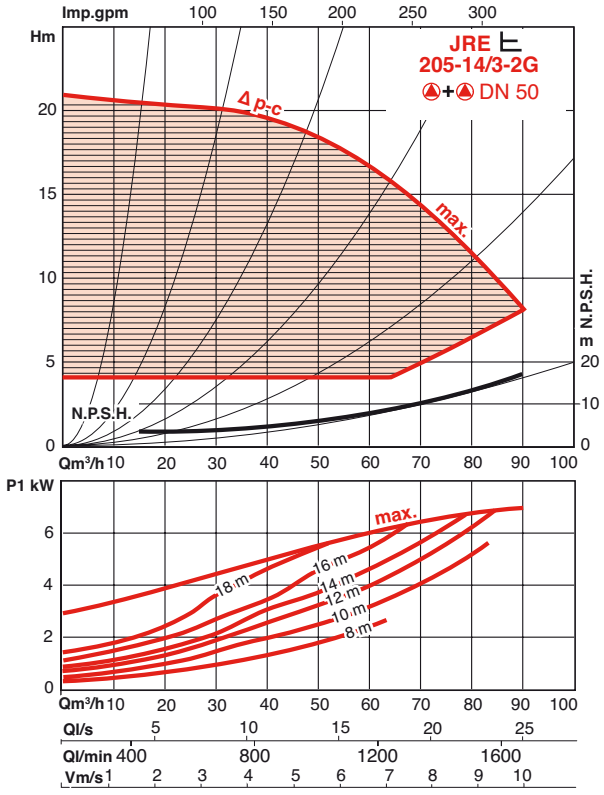


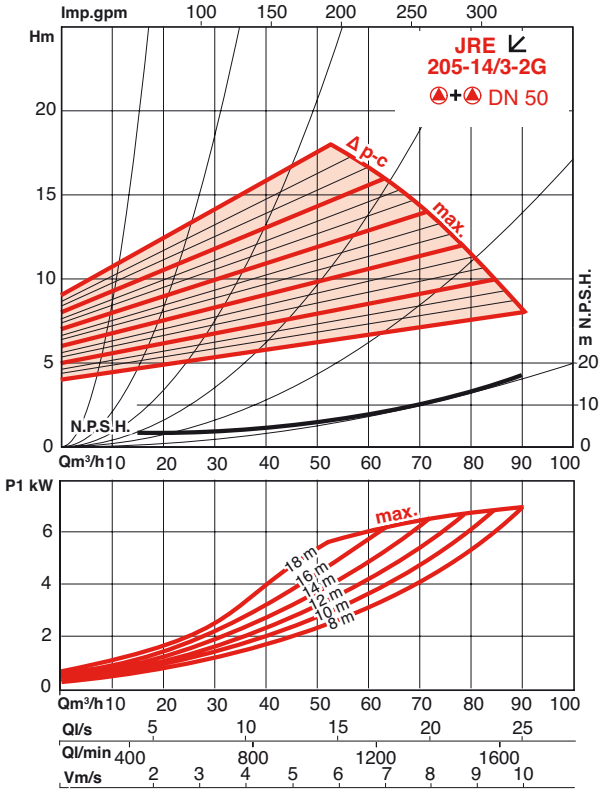


HYDRAULIC PERFORMANCE - JRE

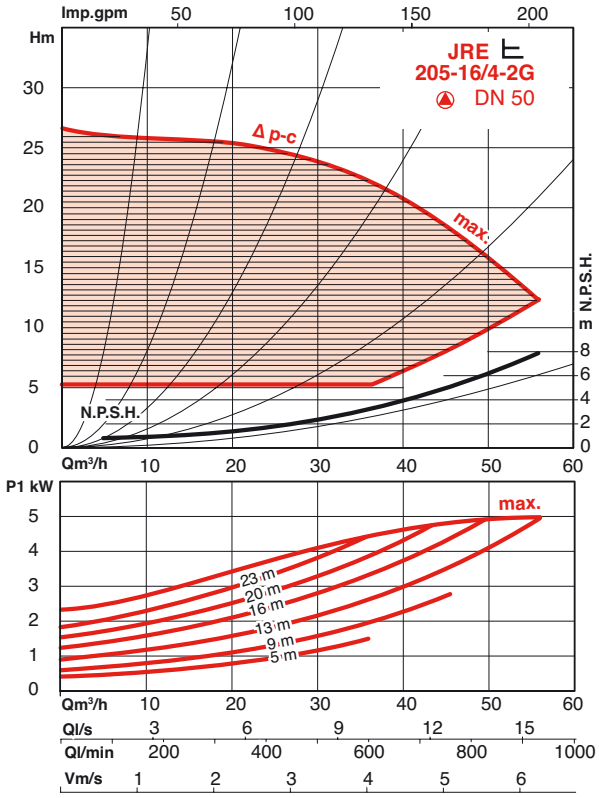


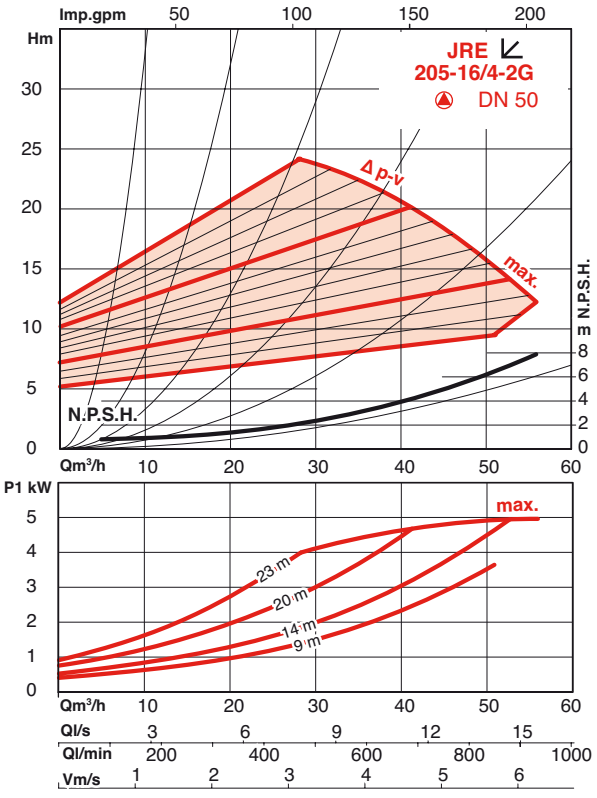


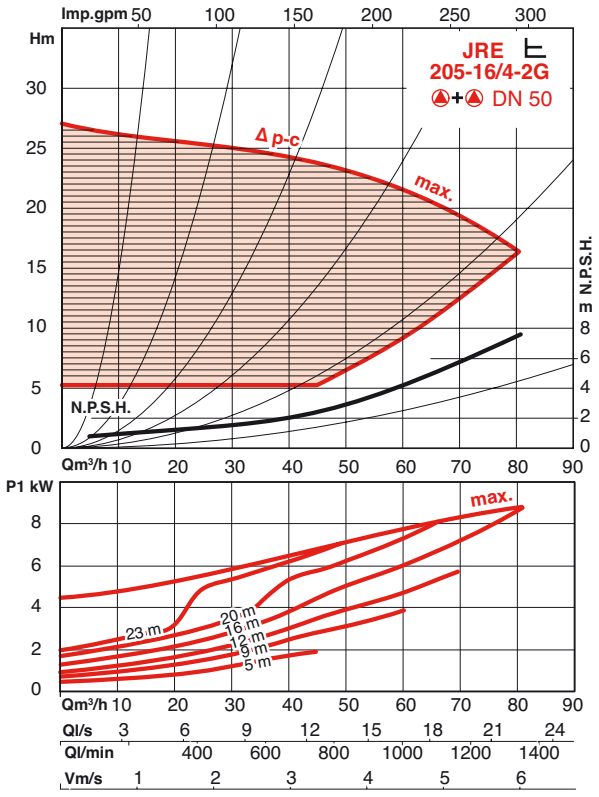


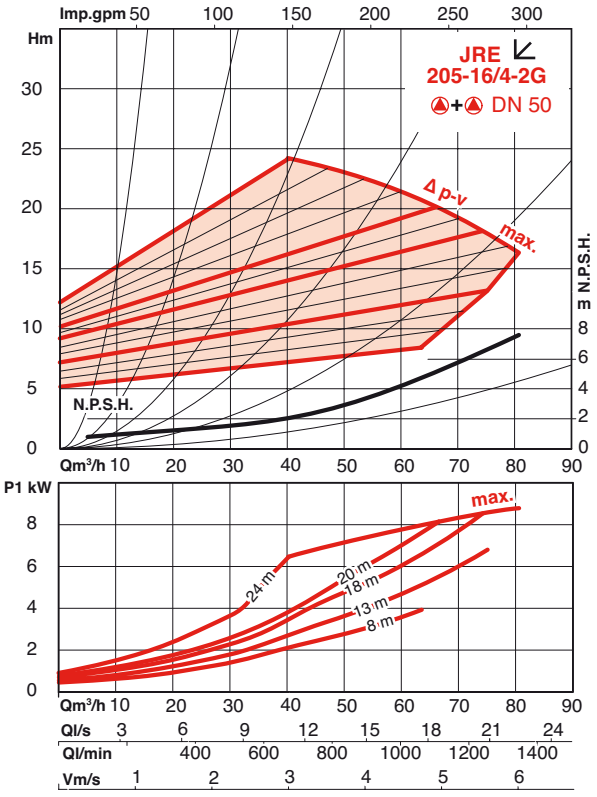


HYDRAULIC PERFORMANCE - JRE

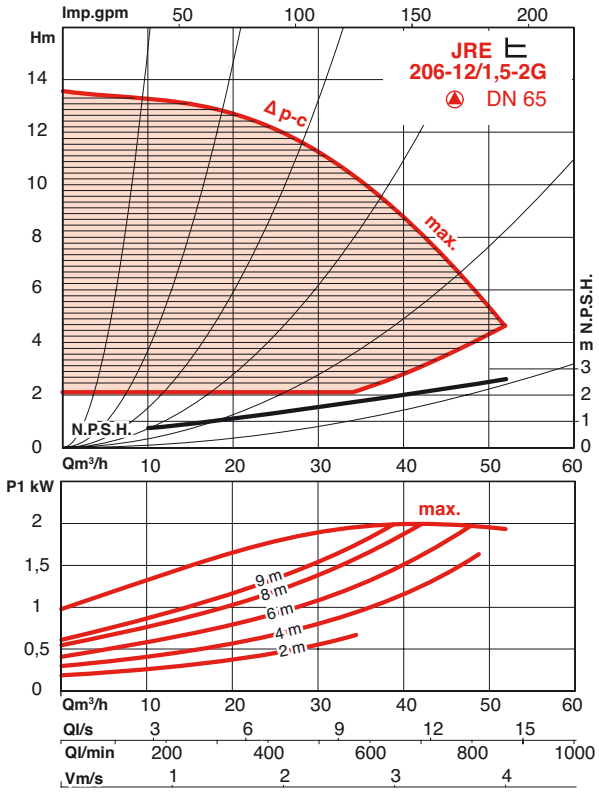


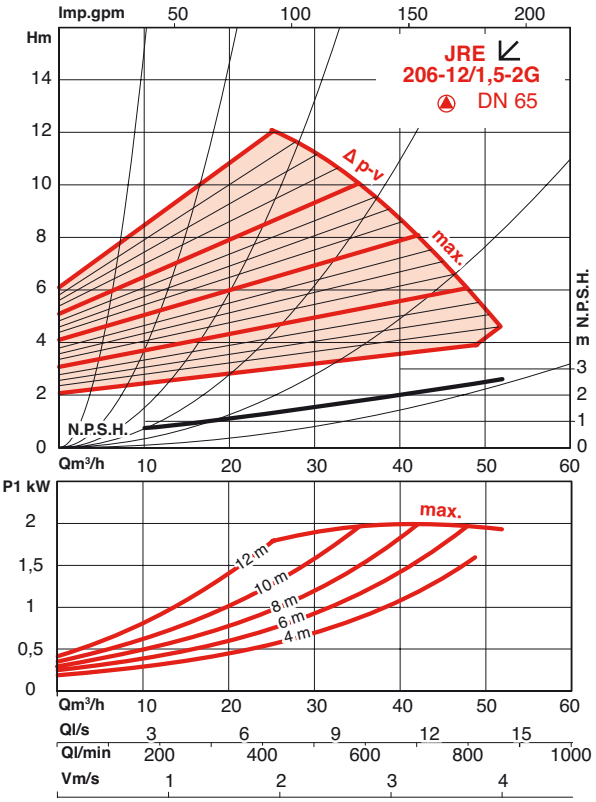


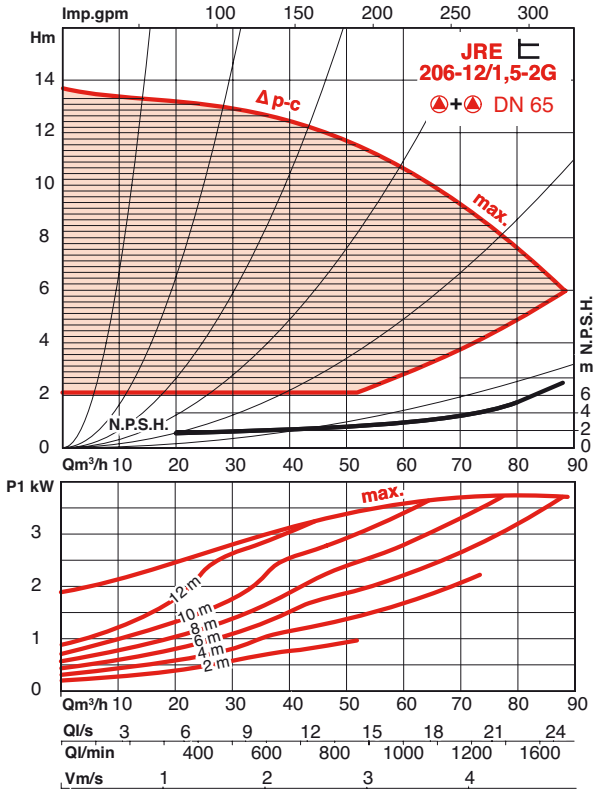


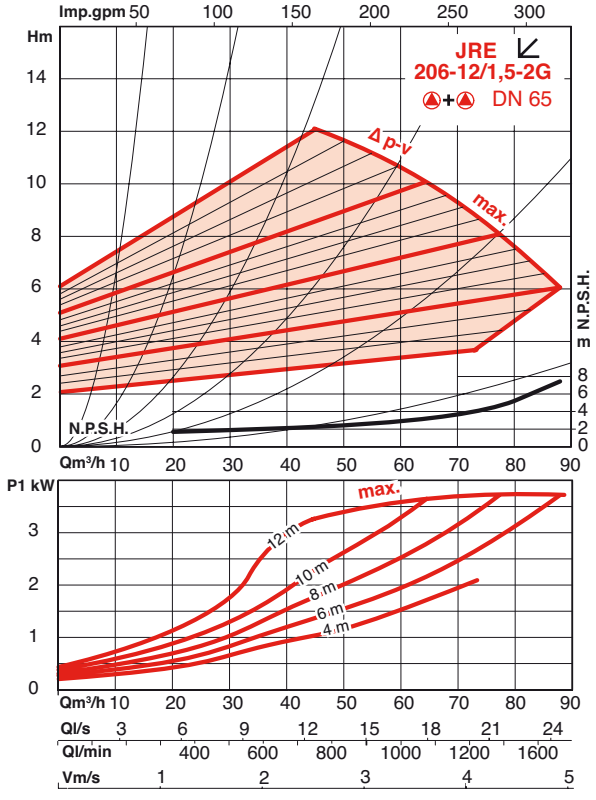


HYDRAULIC PERFORMANCE - JRE

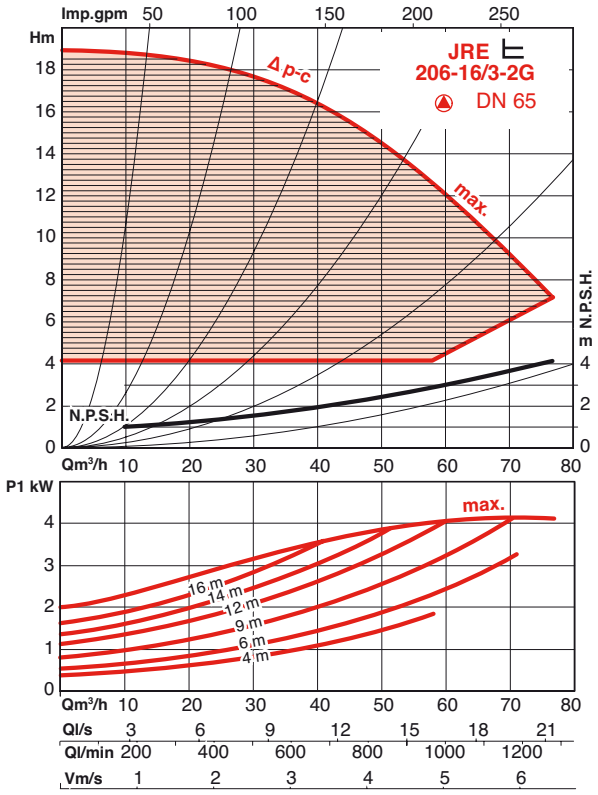


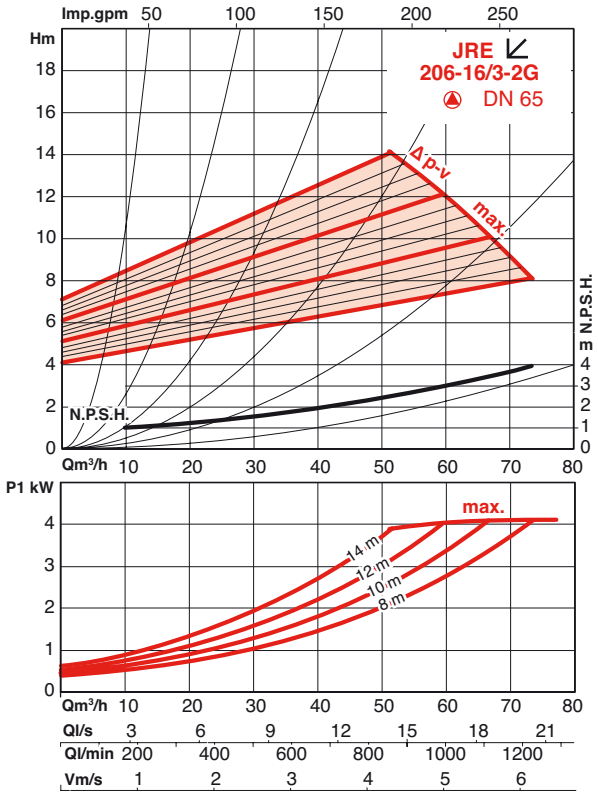


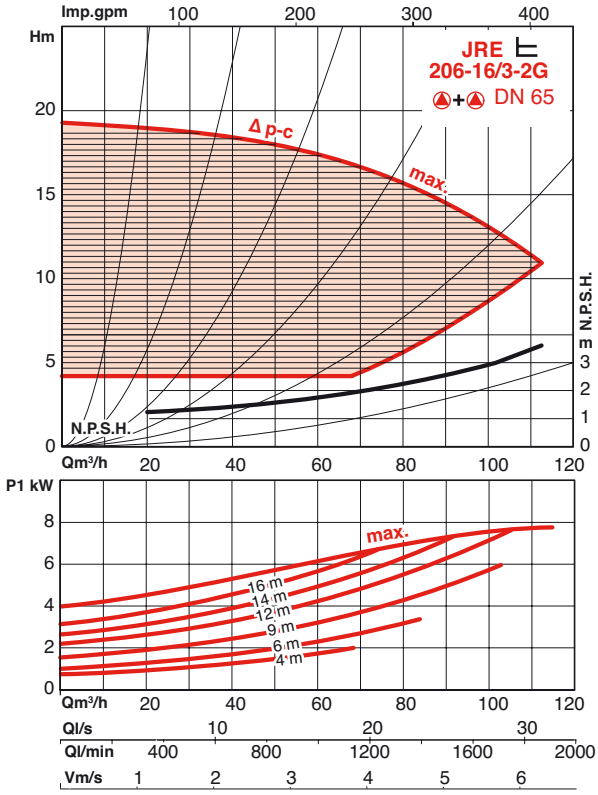


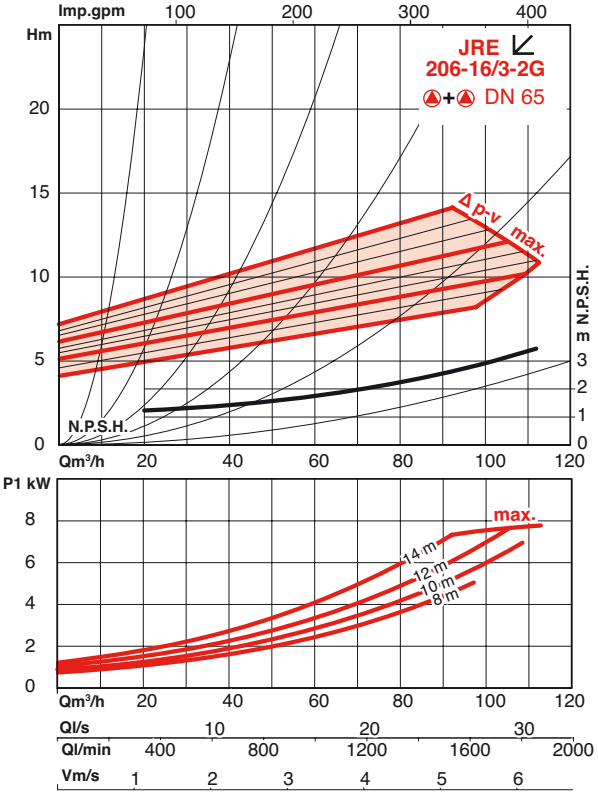


HYDRAULIC PERFORMANCE - JRE

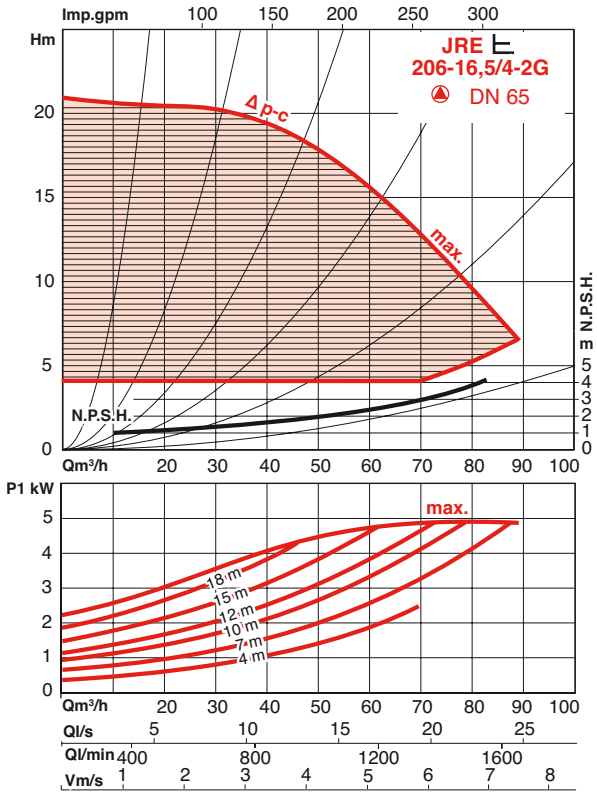


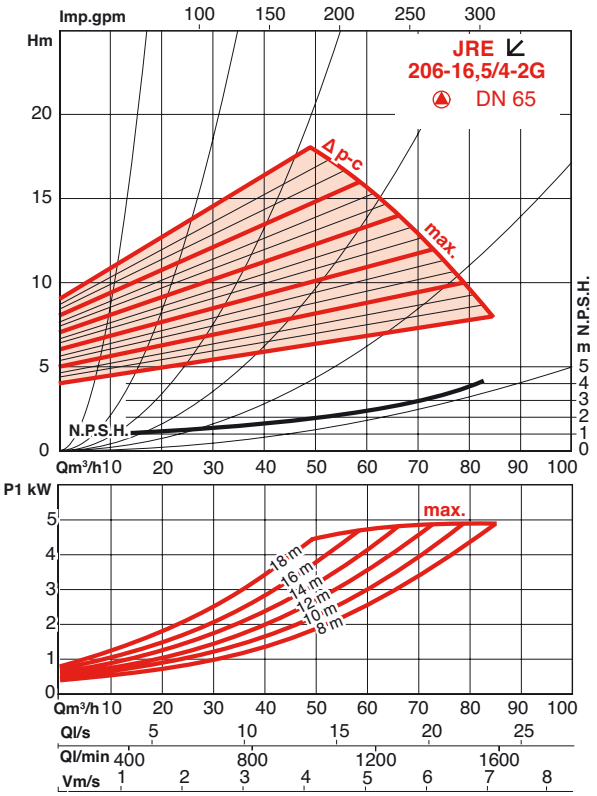


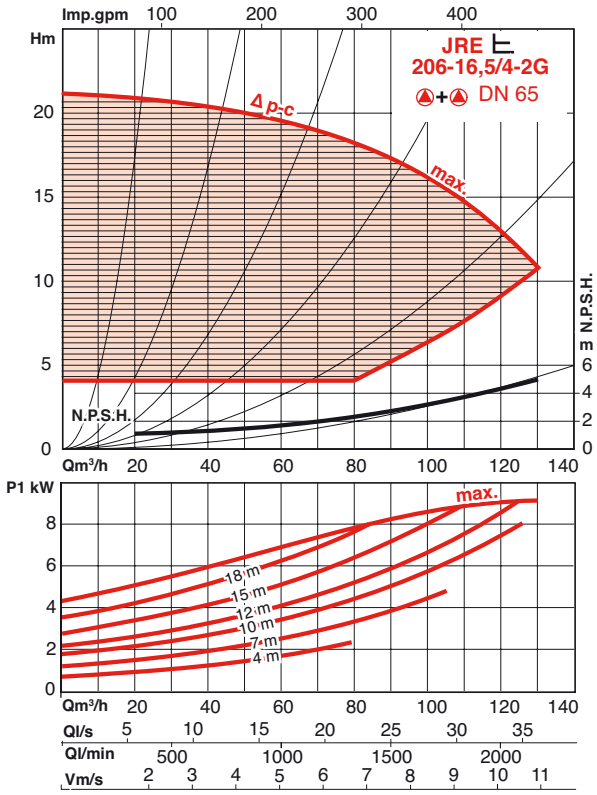


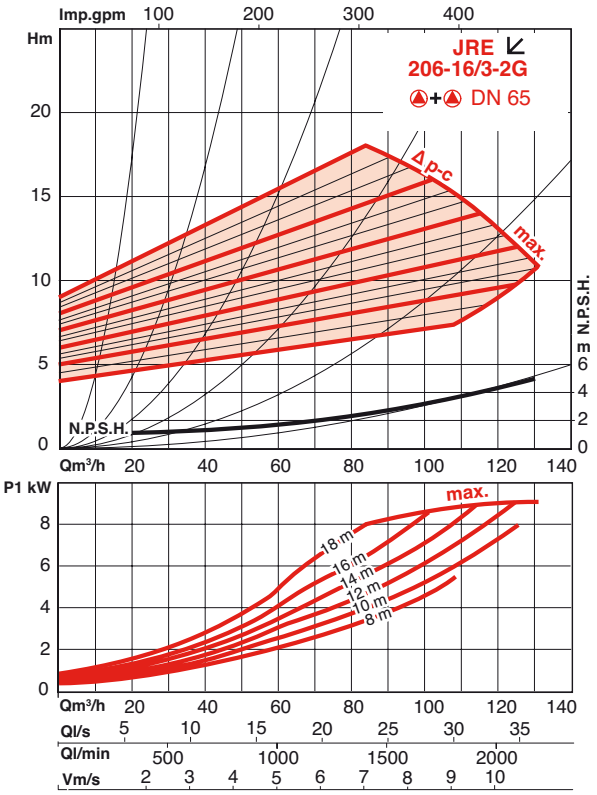


HYDRAULIC PERFORMANCE - JRE

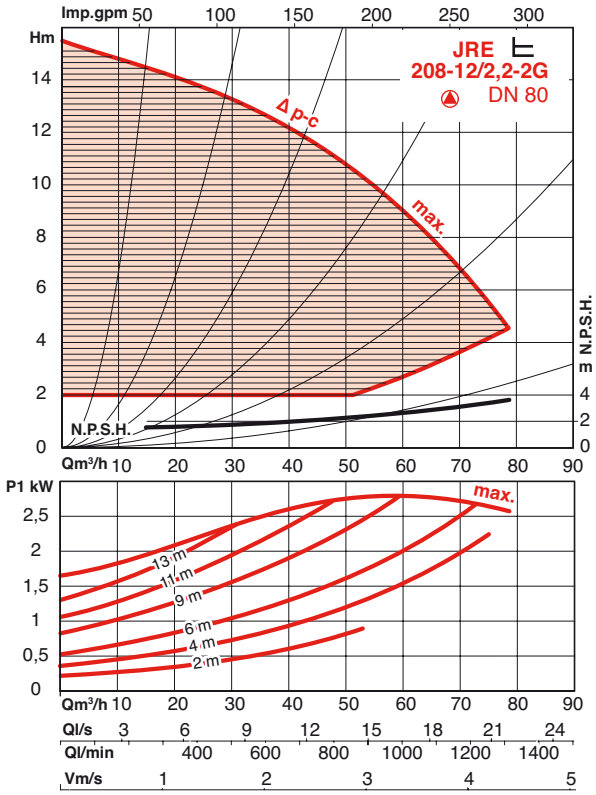


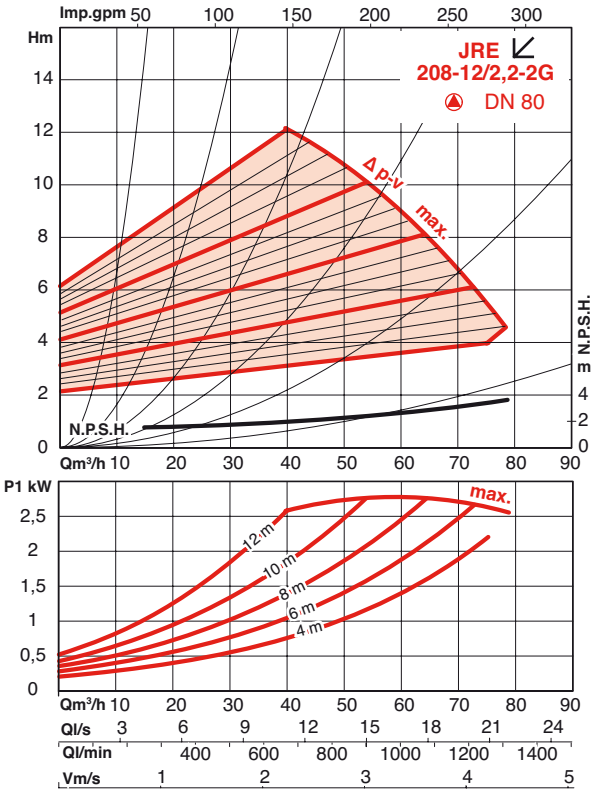


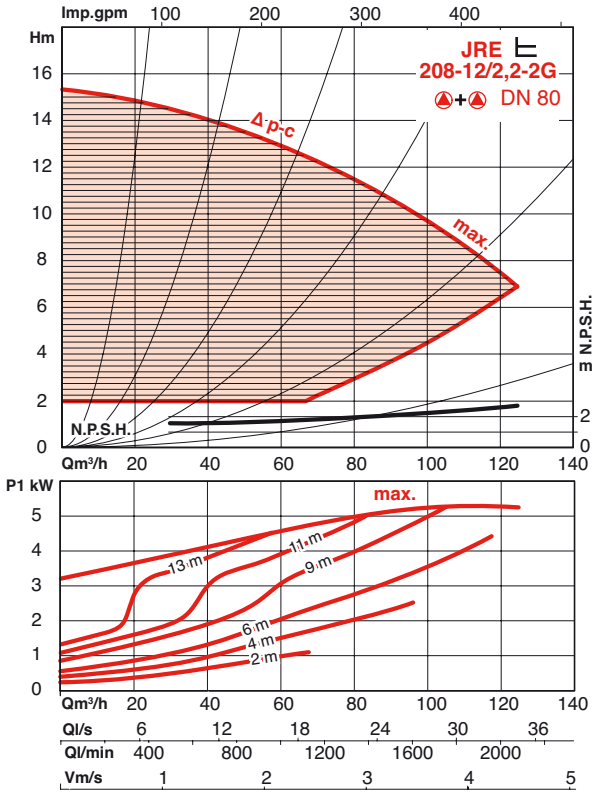


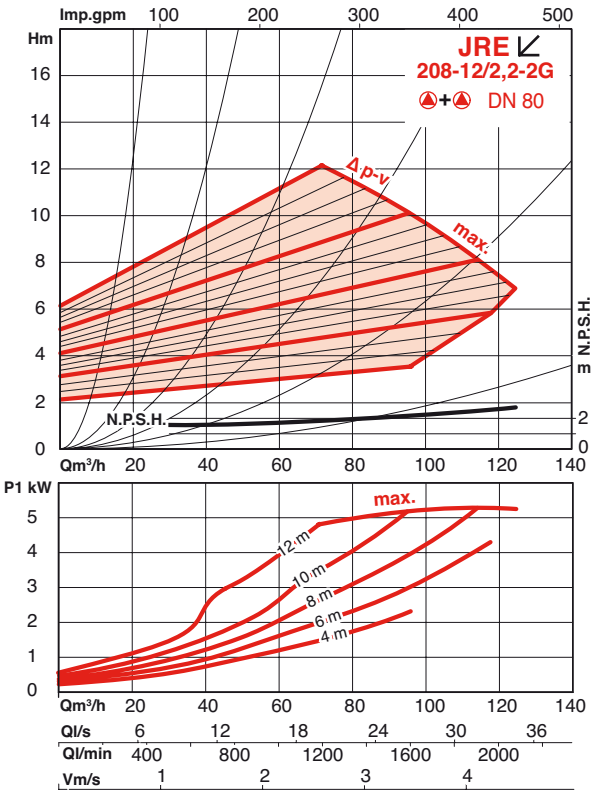


HYDRAULIC PERFORMANCE - JRE

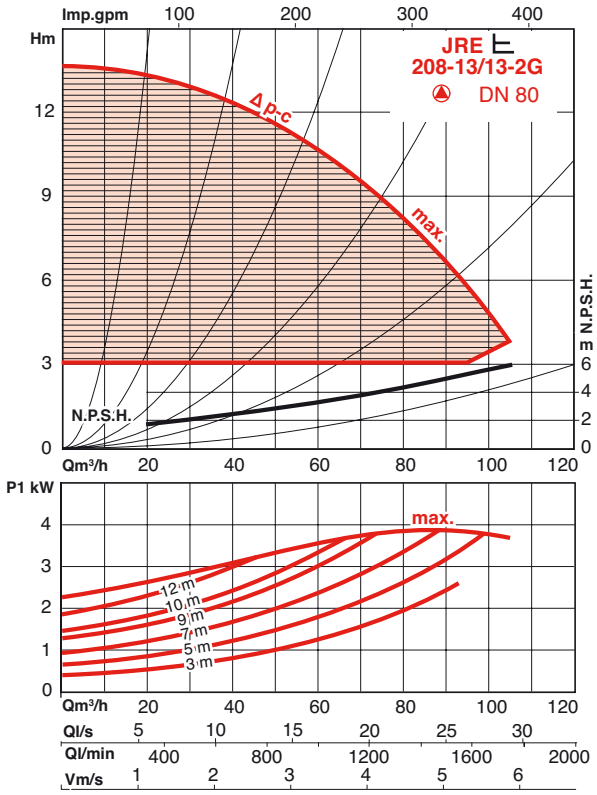


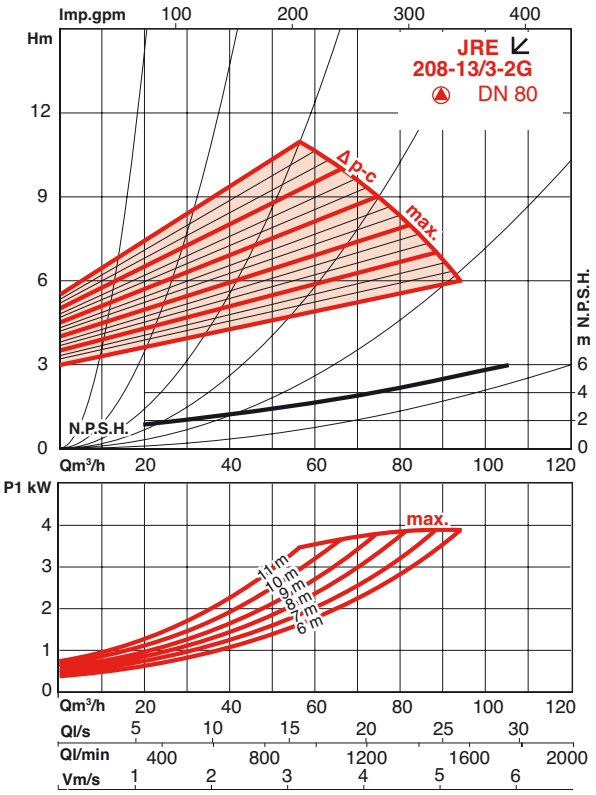


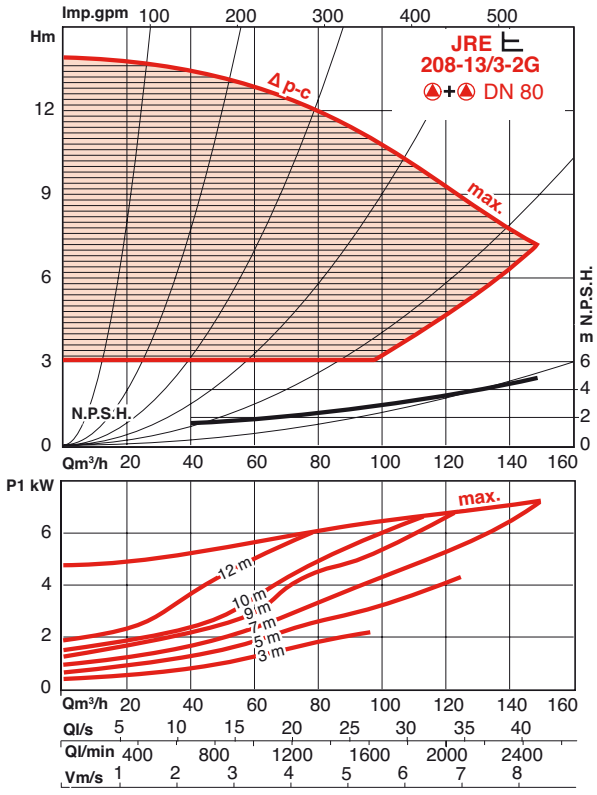


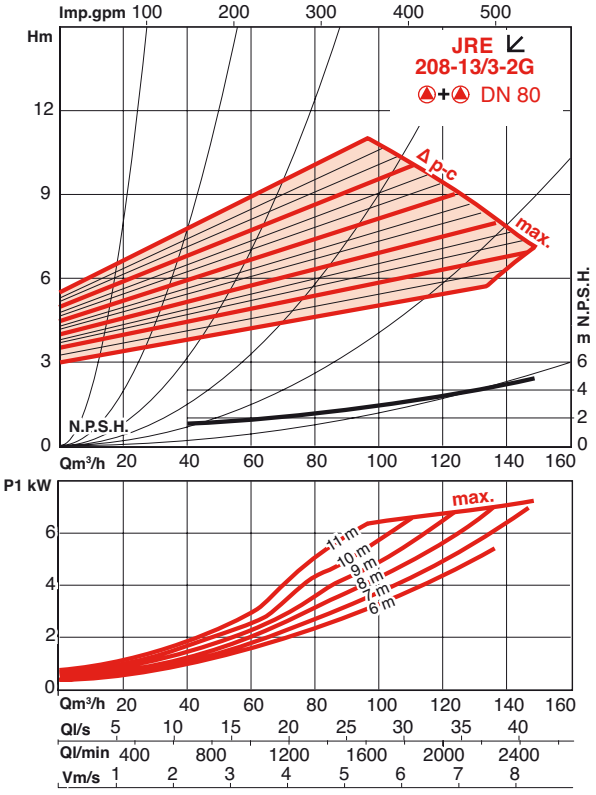


HYDRAULIC PERFORMANCE - JRE

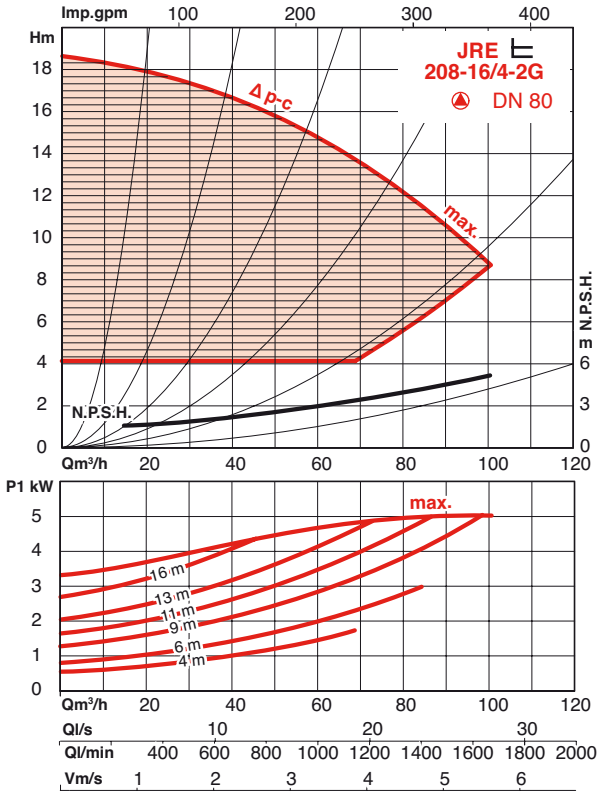


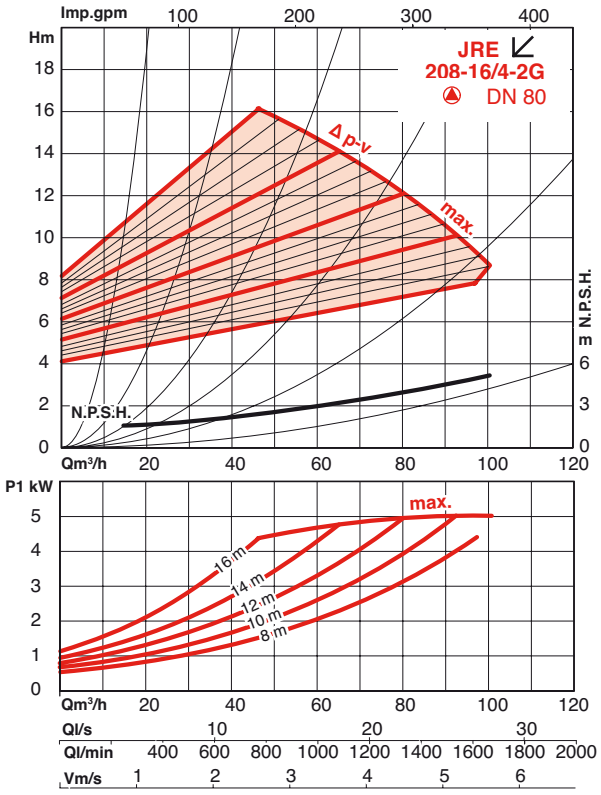


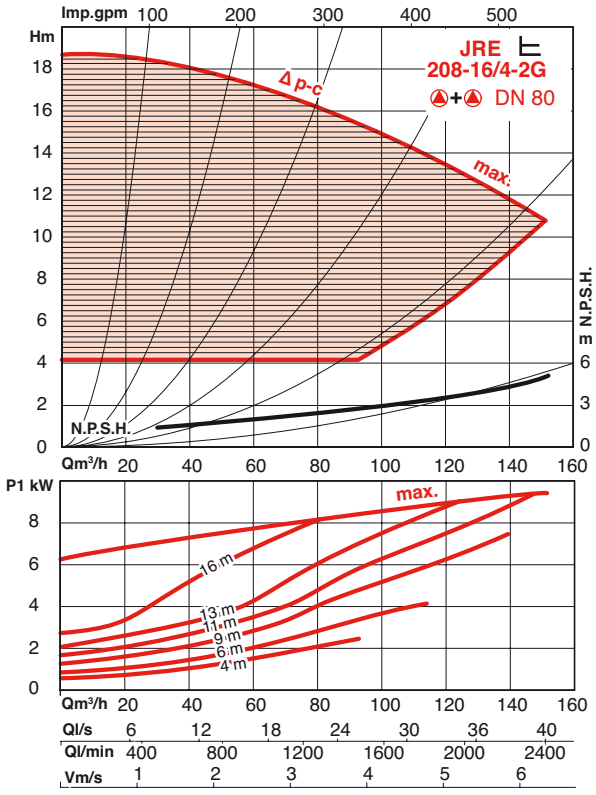


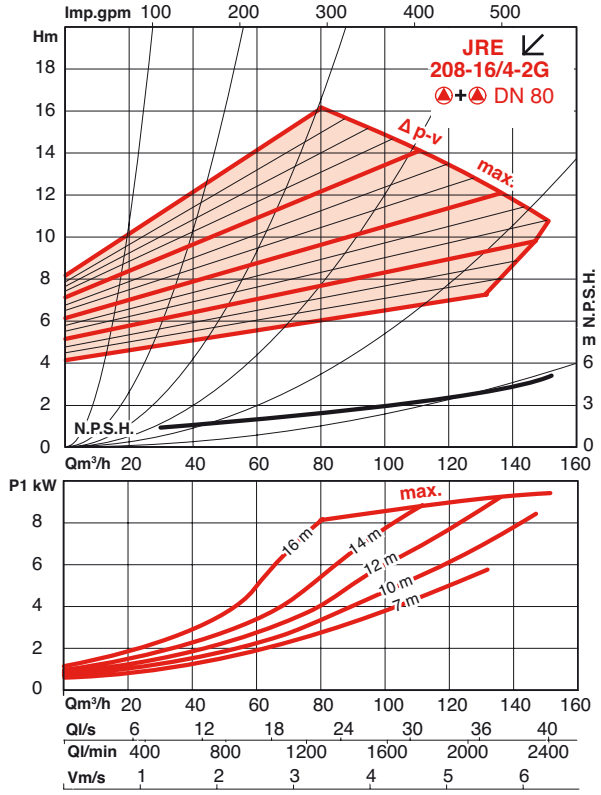


HYDRAULIC PERFORMANCE - JRE

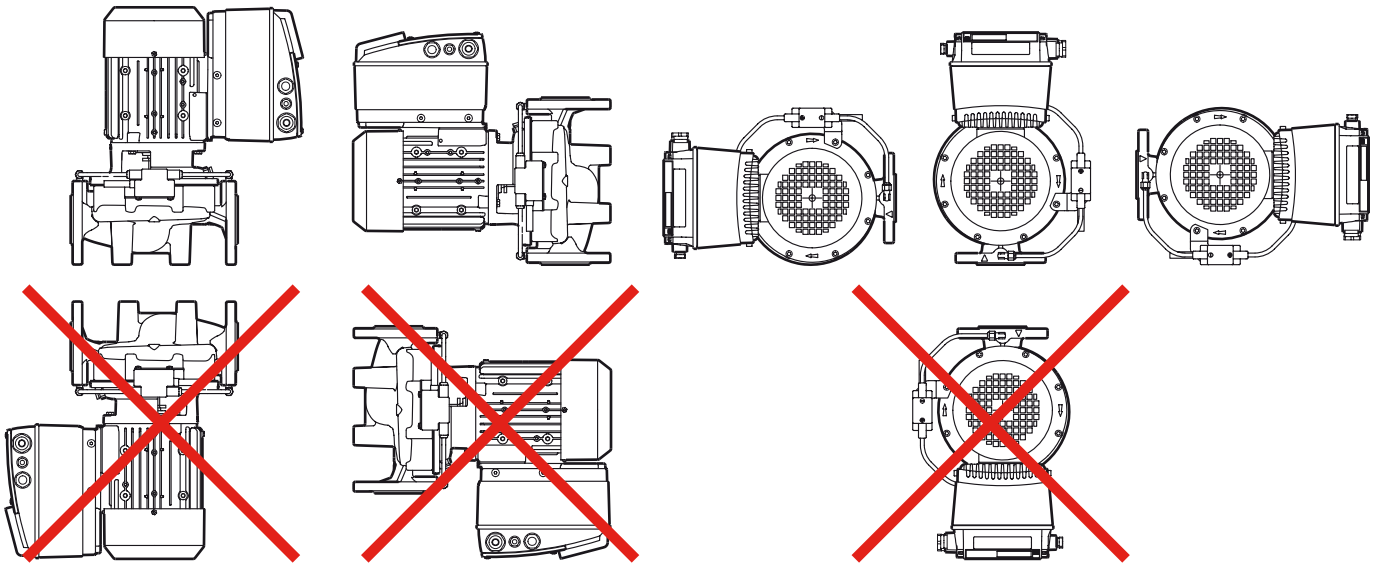






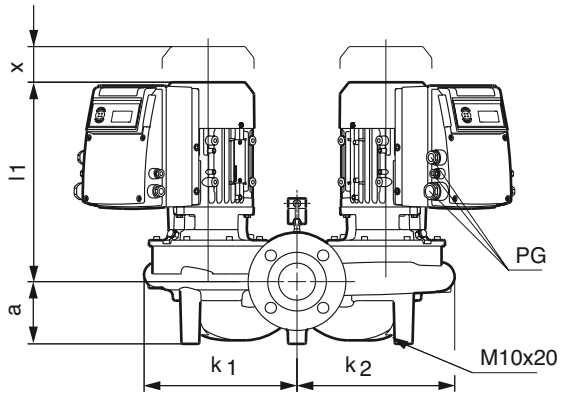


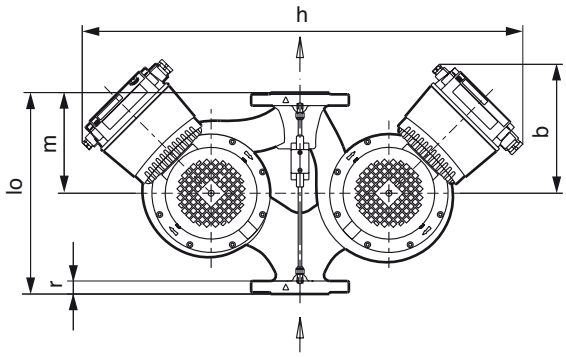
MOUNTING POSITIONS

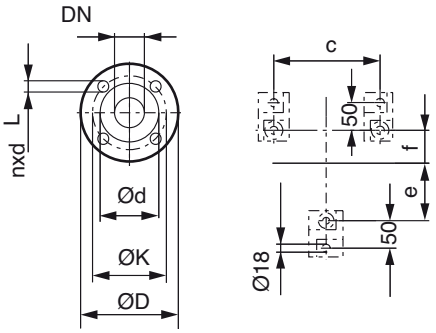


JRE : ELECTRICAL DATA AND DIMENSIONS

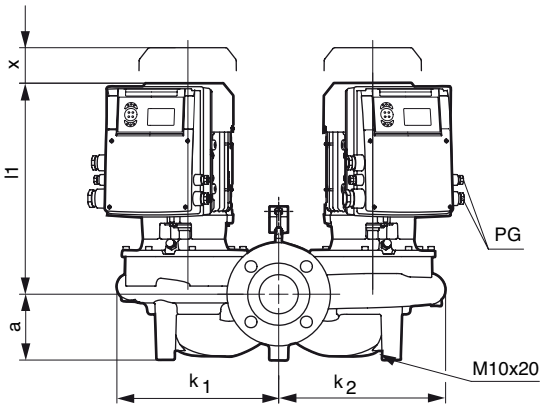
• Dimension drawing A

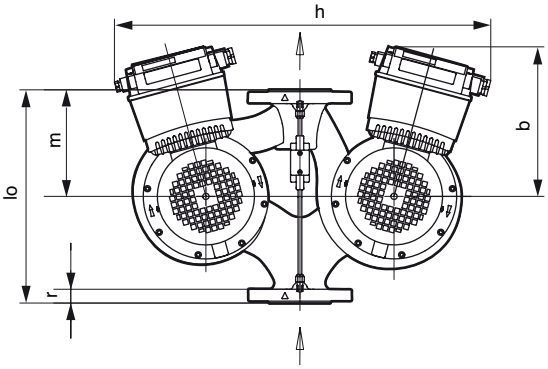


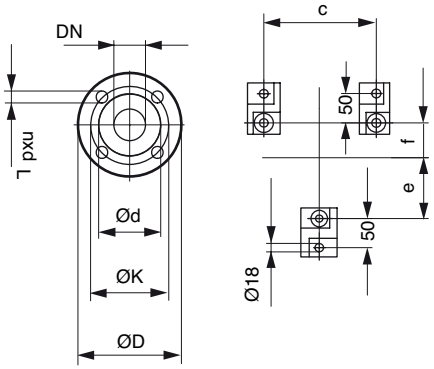




• Dimension drawing B

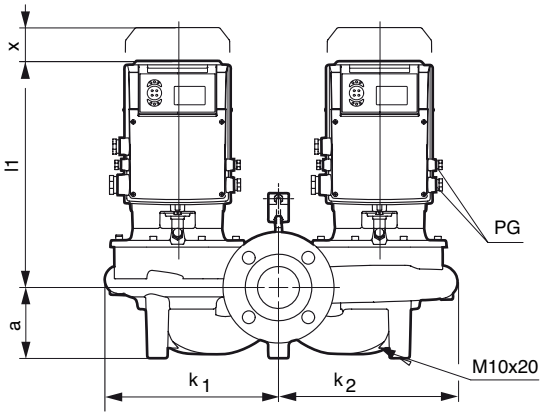


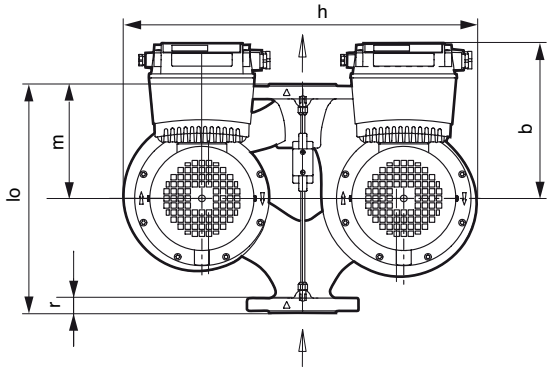


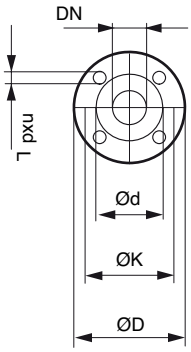


JRE : ELECTRICAL DATA AND DIMENSIONS

• Dimension drawing C



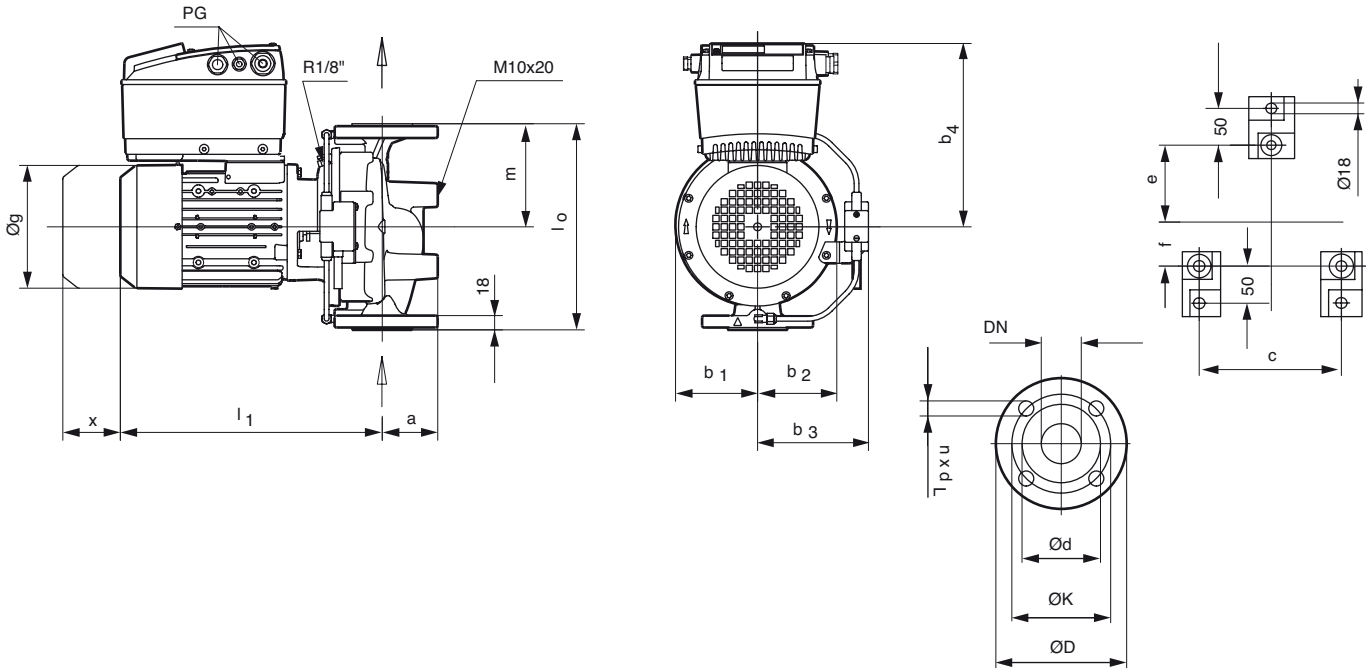




ORDER REFERENCE	Pump dimensions DN	l0	a	b	c	e	f	h	k1	k2	l1	m	r	x	ØD	Ød	Øk	nxdL	PG	Weight	P2 max	Speed n	P1 max	I max	Dimension drawings
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	St x mm	–	kg	kW	tr/min	W	A	
JRE 203-16/1,1-2G	32	260	70	232	225	56	106	624	207	203	348	136	18	150	140	78	100	4x19		55	1,1	1200–2840	1350	3,7	A
JRE 204-11/0,55-2G	40	250	75	242	225	35	97	474	178	172	390	135	18	150	150	88	110	4x19		48	0,55	1150–2800	860	1,9	B
JRE 204-13/3-2G	40	320	75	263	240	45	135	704	231	225	327	167	18	150	150	88	110	4x19		77	3,0	1200–2890	3960	8,0	A
JRE 204-16/4-2G	40	320	75	272	240	45	135	570	231	225	327	180	18	150	150	88	110	4x19		89	4,0	1200–2900	4540	9,5	A
JRE 205-11/0,75-2G	50	280	83	251	228	50	107	493	198	192	353	155	18	150	165	102	125	4x19		44	0,75	1150–2850	1200	3,0	B
JRE 205-14/3-2G	50	340	86	267	240	48	132	582	255	245	413	180	18	150	165	102	125	4x19	1xM25	79	3,0	1200–2890	4030	8,5	C
JRE 205-16/4-2G	50	340	86	279	240	48	132	500	255	245	425	190	18	150	165	102	125	4x19	1xM20	91	4,0	1200–2900	4930	10,1	C
JRE 206-12/1,5-2G	65	340	93	272	225	25	137	531	223	209	389	185	18	150	185	122	145	4x19	1xM16	67	1,5	1080–2860	1840	4,6	B
JRE 206-16/3-2G	65	340	93	267	240	43	137	550	280	270	409	185	18	150	185	122	145	4x19	2xM12	86	3,0	1200–2890	4050	8,3	C
JRE 206-16,5/4-2G	65	340	93	272	240	43	137	550	280	270	409	180	18	150	185	122	145	4x19		98	4,0	1200–2900	4950	10,2	C
JRE 208-12/2,2-2G	80	360	100	272	240	43	137	561	249	231	391	205	18	150	200	138	160	8x19		84	2,2	1030–2880	2800	7,2	B
JRE 208-13/3-2G	80	360	103	267	240	30	150	480	249	231	413	192	18	150	200	138	160	8x19		89	3,0	1200–2890	3880	8,4	C
JRE 208-16/4-2G	80	360	103	279	240	30	150	601	307	294	425	192	18	150	200	138	160	8x19		101	4,0	1200–2900	4950	10,1	C

LRE - JRE 2G

LRE : ELECTRICAL DATA AND DIMENSIONS



ORDER REFERENCE	DN	Pump dimensions																			weight	P2	Speed	P1	I
		l0	a	b1	b2	b3	b4	c	e	f	g	l1	m	x	ØD	Ød	Øk	n x dL	PG		max	n	max	max
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	St x mm	–	kg	kW	tr/min	W	A
LRE 203-16/1,1-2G	32	260	70	106	101	142	237	90	40	50	163	348	130	150	140	78	100	4x19		36	1,10	1200–2840	1340	3,6
LRE 204-11/0,55-2G	40	250	75	90	80	114	228	90	40	50	145	310	125	150	150	88	110	4x19		21	0,55	1150–2800	810	1,8
LRE 204-13/3-2G	40	320	75	121	113	142	267	90	40	50	203	390	160	150	150	88	110	4x19		39	3,00	1200–2890	3570	7,5
LRE 204-16/4-2G	40	320	75	121	113	142	279	90	40	50	203	413	160	150	150	88	110	4x19		45	4,00	1200–2900	4710	9,6
LRE 205-11/0,75-2G	50	280	83	101	91	126	237	90	40	50	163	353	140	150	165	102	125	4x19		26	0,75	1150–2850	1120	2,9
LRE 205-14/3-2G	50	340	86	131	116	143	267	104	40	50	227	409	170	150	165	102	125	4x19	1xM25	42	3,00	1200–2890	3530	7,8
LRE 205-16/4-2G	50	340	86	131	116	143	279	104	40	50	227	425	170	150	165	102	125	4x19	1xM20	42	4,00	1200–2900	4880	10,1
LRE 206-12/1,5-2G	65	340	93	118	100	137	255	104	40	50	180	389	170	150	185	122	145	4x19	1xM16	35	1,50	1080–2860	1910	4,8
LRE 206-16/3-2G	65	340	93	138	119	163	267	135	40	55	203	409	170	150	185	122	145	4x19	2xM12	44	3,00	1200–2890	3670	7,9
LRE 206-16,5/4-2G	65	340	93	138	119	163	279	135	40	55	203	413	170	150	185	122	145	4x19		50	4,00	1200–2900	4950	10,1
LRE 208-12/2,2-2G	80	360	100	135	110	137	255	135	40	55	180	391	180	150	200	138	160	8x19		43	2,20	1030–2880	2620	6,8
LRE 208-13/3-2G	80	360	105	153	125	143	267	135	40	55	227	409	180	150	200	138	160	8x19		54	3,00	1200–2890	3510	7,7
LRE 208-16/4-2G	80	360	105	153	125	143	279	135	40	55	227	425	180	150	200	138	160	8x19		54	4,00	1200–2900	4930	10,2

FEATURES (LRE-JRE)

a) Electrical
- All types THREE-PHASE, 400 V - 50 Hz
- Full motor protection by probe across each winding.
- Shutdown by integrated fault in case of over-voltage or overheating.

b) Assembly
- Direct on horizontal or vertical piping
- Connection to installation by round welded back-flanges NP 10/16 (not supplied).

c) Conditioning
Pumps supplied with frequency variator and differential pressure sensor without back-flanges (on option).

d) Maintenance
Complete standard replacement of pump or repair.

ACCESSORIES

- Round back-flanges for welding NP10/16.
- Isolating valves.
- IF module LON - Serial digital interface LON for connection to a LONWORKS network

53, bd de la République - Espace Lumière - Bât. 6 - 78403 Chatou Cedex - FRANCE
(nº Indigo) SALMSON Contact : +33 (0)820 0000 44
Fax. : +33 (0)1 30 09 82 82 | www.salmson.com